

AVX High Reliability Tantalum Capacitors



Version 16.7

AVX
A KYOCERA GROUP COMPANY

| | |
|--|----------------|
| Introduction..... | 2 |
| High Reliability Tantalum Applications..... | 3 |
| High Reliability Tantalum Chip Specifications..... | 4-5 |
| Group A Test Options..... | 6 |
| High Reliability Specification Requirements Comparison Chart..... | 6 |
| High Reliability Tantalum Chip Product Family - Design Guide..... | 7 |
| Part Numbering, Test & Packaging Options..... | 8 |
| TAZ Series..... | 9-30 |
| CWR09 – MIL-PRF-55365/4 Established Reliability, COTS-Plus & Space Level..... | 9-12 |
| CWR19 – MIL-PRF-55365/11 Established Reliability, COTS-Plus & Space Level..... | 13-16 |
| CWR29 – MIL-PRF-55365/11 Established Reliability, COTS-Plus & Space Level..... | 17-22 |
| TAZ HRC5000 Medical Implantable Grade | 23-27 |
| TAZ HRC6000 Medical Implantable Grade | 28-30 |
| TCP SERIES - DSCC 09009..... | 31-33 |
| TBJ Series..... | 34-61 |
| CWR11 – MIL-PRF-55365/8 Established Reliability, COTS-Plus & Space Level..... | 34-37 |
| COTS-PLUS | 38-48 |
| COTS-PLUS – SRC9000 Space Level..... | 49-55 |
| DSCC Dwgs 07016 & 95158 | 56-61 |
| T4J HRC4000 Implantable Non Life Support and Non Implantable Life Support..... | 62-66 |
| TBM Multianode..... | 67-72 |
| Tantalum Ultra Low ESR & Space Level | 68-69 |
| Tantalum Ultra Low ESR COTS-Plus | 70-72 |
| TBC Series..... | 73-84 |
| CWR15 – MIL-PRF-55365/12 Established Reliability, COTS-Plus & Space Level..... | 73-75 |
| COTS-PLUS | 76-78 |
| TBC HRC5000 Medical Implantable Grade | 79-81 |
| TBC HRC6000 Next Generation Medical Implantable Grade | 82-84 |
| T4C Series Implantable Non-Life Support and Non Implantable Life Support..... | 85-87 |
| TCB Series - Polymer COTS-Plus..... | 88-91 |
| DSCC 93026..... | 92-94 |
| TWA Series – COTS-Plus Wet Electrolytic Tantalum Capacitor..... | 95-99 |
| TWA-Y 200° Series – Wet Electrolytic Tantalum Capacitor..... | 100-103 |
| TWS Wet Electrolytic Tantalum Capacitor – DSCC 13017..... | 104-106 |
| TWC Series..... | 107-123 |
| MIL-PRF-39006 Series – Military Conventional Wet Tantalum..... | 107-114 |
| COTS-PLUS – Conventional Wet Tantalum..... | 115-121 |
| High Temperature – COTS-Plus 200°C Wet Tantalum..... | 122-123 |
| TWD High Temp Max Cap (HTMC) Series – Wet Tantalum Super Capacitor..... | 124-125 |
| TWM Module..... | 126-128 |
| TAJ ESCC Tantalum Capacitor..... | 129-130 |
| TES Low ESR – QPL ESCC Tantalum Chip Capacitor..... | 131-133 |
| TAJ CECC Tantalum Capacitor..... | 134-135 |
| TCH Low ESR Hermetic Series..... | 136-139 |
| THH 230°C Hermetic Series..... | 140-143 |
| High Reliability Tantalum MSL – Storage, Bake out, and Handling Recommendations..... | 144 |
| TAZ Series - Tape & Reel Packaging..... | 145 |
| TAJ, TBJ, T4J, TBM, TES, TBC, T4C and TCB Series – Tape & Reel Packaging..... | 146 |
| TCH and THH – Packaging..... | 147 |
| Tantalum Wet Electrolytic Capacitor – Technical Summary and Application Guidelines..... | 148-153 |

Introduction

INTRODUCTION

AVX's **Biddeford, Maine** facility is the leading supplier of high reliability tantalum chips to the medical, military and aerospace industry.

As tantalum technology continues to develop, we are able to offer extended ratings in our products by providing more downsizing opportunities, higher capacitance ratings, new case sizes and low ESR options for critical output filtering applications. Combining this with in-line reliability grading capability for all chip capacitor series, we are able to supply these products to the most demanding applications.

| | | | |
|--|---|---|---|
| <p>AS9100 standardized Quality Management System for the aerospace industry</p> | <p>ISO 9001 fundamental Quality Management System designed to meet regulations & customer needs</p> | <p>ISO 14001 Environmental Management System designed to help improve resource efficiency and reduce waste</p> | <p>ISO 13485 Quality Management System for the design & manufacture of medical devices</p> |
| <p>MIL-PRF-39006 military performance specification for established & high reliability electrolytic (wet) tantalum capacitors</p> | <p>MIL-PRF-55365 military performance specification for established & high reliability solid tantalum capacitors</p> | <p>MIL-STD-790 established & high reliability QPL standards</p> | |

Our facility in **Lanskroun, Czech Republic** is AVX's manufacturing location for production of high end SMD & wet tantalum capacitors including automotive, medical, industrial, and specialty applications. Lanskroun is a European Space Agency (ESA) approved facility for manufacturing of ESCC 3012 SMD tantalum capacitors including detail specification ESCC 3012/001 TAJ-ESA series and ESCC 3012/004 TES low ESR and high CV SMD tantalum capacitors. Specialty applications include industry unique hermetically sealed SMD tantalum capacitors THH with continuous operation temperature up to 230°C and TCH series of low ESR hermetically sealed SMD polymer capacitors for mission critical applications.

| | | | |
|--|--|---|---|
| <p>TS 16949 Quality Management System for automotive manufacturers & their supply chain</p> | <p>ISO 9001 fundamental Quality Management System designed to meet regulations & customer needs</p> | <p>ISO 14001 Environmental Management System designed to help improve resource efficiency and reduce waste</p> | <p>ESCC 3012 ESA specification for electrical components in space applications</p> |
| <p>ESCC 3012/001 ESA specification for electrical components in space applications for TAJ style caps</p> | <p>ESCC 3012/004 ESA specification for electrical components in space applications for TES style caps</p> | <p>CECC 3081 European military standard for electrical component production</p> | |

HIGH RELIABILITY TANTALUM

COTS-Plus

| Surface Mount MnO ₂ Tantalum | Tantalum Microchip | Wet Tantalum | Solid Electrolytic Polymer |
|---|--------------------|-------------------------------|----------------------------|
| TCP Module Series | TBC Microchip | TWA Series | TCB Series |
| TAZ Series | | TWC Conventional Wet Tantalum | |
| TBJ Series | | TWS Series | |
| TBM Multianode | | TWM Module | |
| TAJ CECC Series | | TWD Max Cap | |
| | | TAJ CECC Series | |

Military

| MIL-PRF-55365 | MIL-PRF-39006 | DSCC |
|--------------------------|-----------------|-------|
| 55365/4 CWR09 | CLR79 M39006/22 | 09009 |
| 55365/8 CWR11 | CLR81 M39006/25 | 07016 |
| 55365/11 CWR19, 29 | CLR90 M39006/30 | 95158 |
| 55365/12 CWR15 Microchip | CLR91 M39006/31 | 93026 |
| | | 13017 |

Aerospace

| MIL-PRF-55365 "T" Space Level | SRC9000 Space Level | Hermetically Sealed | European Space Components Coordination (ESCC) |
|-------------------------------|-----------------------|-----------------------------|---|
| 55365/4 CWR09 | TAZ SRC9000 | THH 230°C Hermetic Series | TAJ Series |
| 55365/8 CWR11 | TBC Microchip SRC9000 | TCH Low ESR Hermetic Series | TES Low ESR |
| 55365/11 CWR19, 29 | TBJ SRC9000 | TWC SRW9000 | |
| 55365/12 CWR15 Microchip | TBM SRC9000 | TWS SRW9000 | |
| | TCP SRC9000 Module | | |

Medical

Implantable & Life Sustaining

| |
|------------------------------|
| TBC Microchip HRC6000 Series |
| TAZ HRC6000 Series |
| TBC Microchip HRC5000 Series |
| TAZ HRC5000 Series |

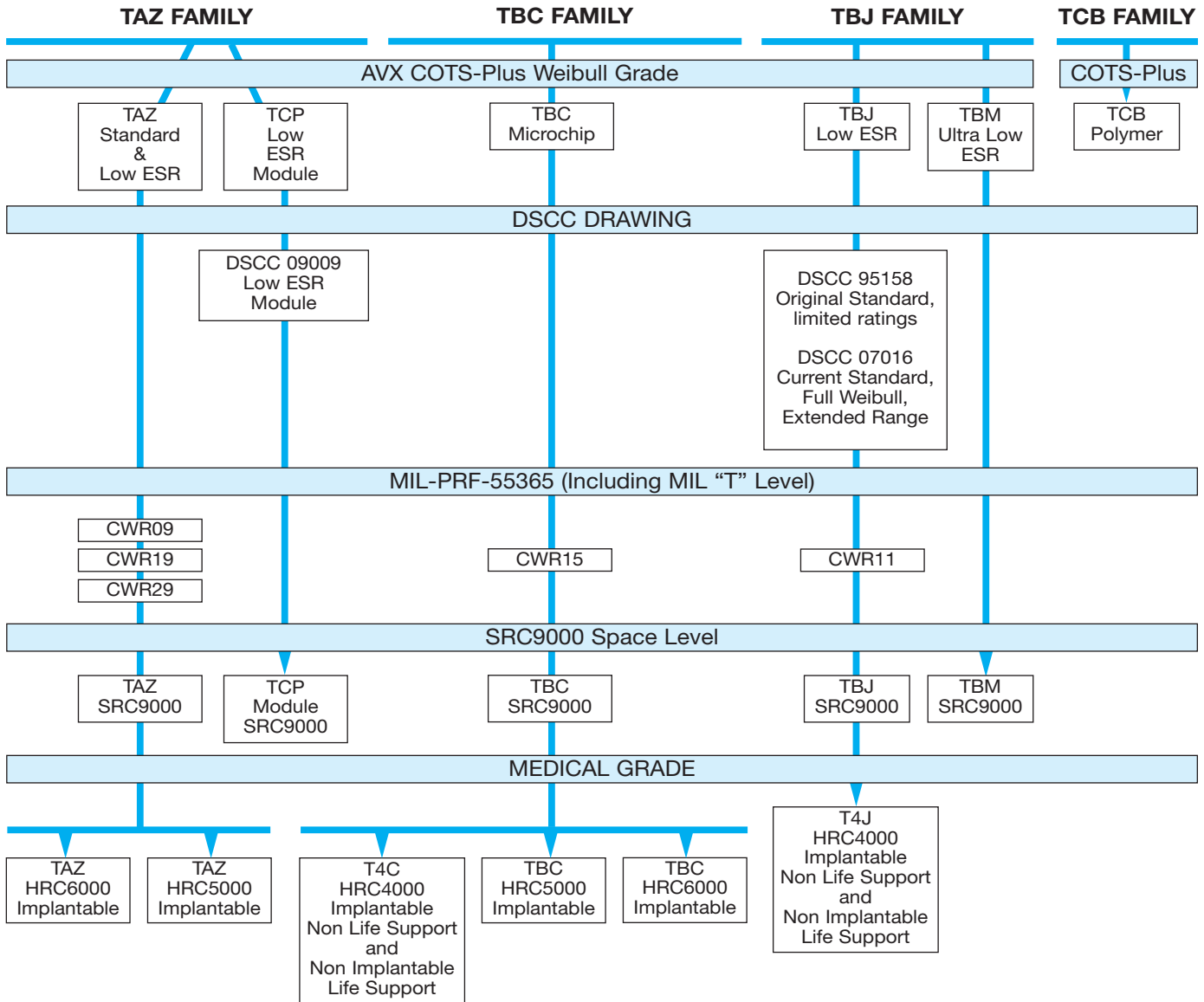
Other Medical Applications

| |
|------------------------------|
| T4J HRC4000 Series |
| T4C Microchip HRC4000 Series |

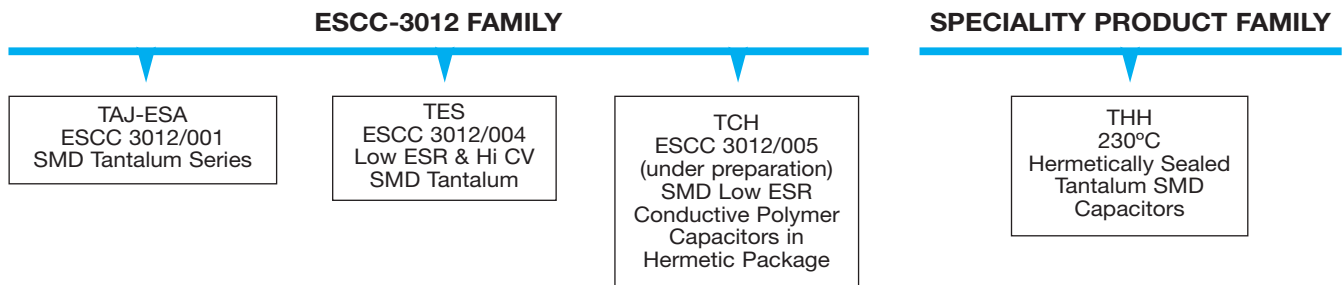
High Temperature Applications

| Wet Tantalum | Surface Mount MnO ₂ Tantalum |
|-------------------------------|---|
| TWA 200°C Series | THH 230°C Hermetic Series |
| TWC 200°C Conventional Wet Ta | |

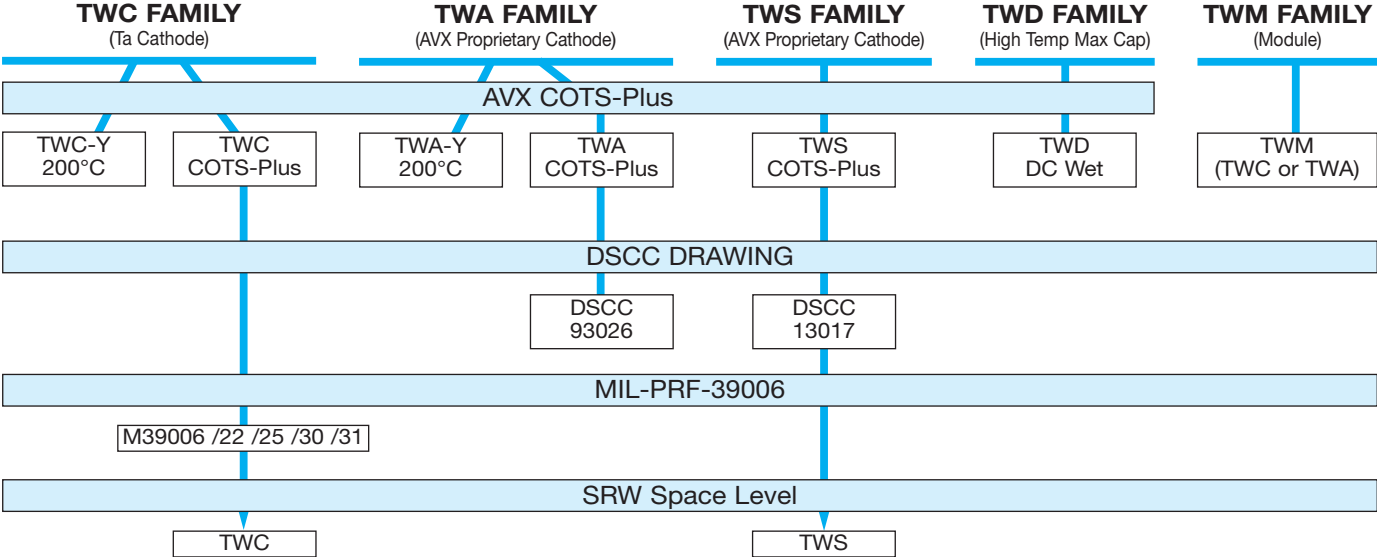
HIGH RELIABILITY TANTALUM CHIP SPECIFICATIONS



CZECH REPUBLIC HIGH RELIABILITY TANTALUM CHIP SPECIFICATIONS



HIGH RELIABILITY WET TANTALUM SPECIFICATIONS



GROUP A TEST OPTIONS

| TEST | Group A Testing comparison | | | |
|---|------------------------------|------------------------------|---------------------------|---------------------------|
| | AVX COTS-Plus | MIL-PRF-55365 QPL | | AVX SRC9000 Space Level |
| | | MIL Weibull B, C, D | MIL T Level | |
| 100% Reflow | ✓ | ✓ | ✓ | ✓ |
| 100% Thermal Shock | ✓ | ✓ | ✓ | ✓ |
| 100% Weibull | Optional | Mandatory | Mandatory-Grade C min | Mandatory-Grade C min |
| 100% Surge Current | Optional | Optional | Mandatory - C Level | Mandatory - C Level |
| 100% Electrical Testing | Custom Test Limits Available | To Specification Limits Only | +3 Sigma Limits | +3 Sigma Limits or Custom |
| Visual & Mechanical | Sample | Sample | 100% - 20X | 100% - 20X |
| Simulated Mounting, Rework and Lot Conformance (Sample) | Optional | | | ✓ |
| Solderability Test* (Sample) | Optional 75% Coverage | Mandatory 95% Coverage | Mandatory 95% Coverage | Mandatory 95% Coverage |
| 100% X-Ray | Optional | | ✓ | ✓ |
| DPA - 1580 Destructive Physical Analysis | Optional | | ✓ | ✓ |
| Surge Voltage (Sample) | Optional | | | ✓ |
| Hot DC Leakage (Sample) | Optional | | | ✓ |
| Temperature Stability (Sample) | Optional | Mandatory | Mandatory | Mandatory |

*Only Mil QPL ratings receive the steam age portion of solderability testing unless otherwise specified by the customer

*Medical Grade Group A test procedures, contact AVX

HIGH RELIABILITY SPECIFICATION REQUIREMENTS COMPARISON CHART

| TEST | | AVX Series | 100% Reflow | Vibration | Shock or Bump | 100% Thermal Shock | Resistance to Soldering Heat | Moisture Resistance | Operating Life | 100% Weibull | 100% Surge Current | 100% Electrical Testing | Visual & Mechanical | Simulated Mounting, Rework and Accelerated Life | Solderability Test* | 100% X-Ray | DPA - 1580 Destructive Physical Analysis | Surge Voltage | Hot DC Leakage | Temperature Stability | Burn-in 168hrs | Adhesion (shear) | Climatque Sequence *** |
|-------------------|---------------|-----------------------|-------------|-----------|---------------|--------------------|------------------------------|---------------------|----------------|--------------|--------------------|-------------------------|---------------------|---|---------------------|------------|--|---------------|----------------|-----------------------|----------------|------------------|------------------------|
| MIL PRF 55365 QPL | Standard MIL | CWR09, 11, 15, 19, 29 | 0 ■ | ■ X | | 0 ■ | ■ X | ■ X | ■ X | 0 ■ | ▲ | 0 ■ | 0 ■ X | | ■ X ▲ | | | ■ X | | 0 ■ X | | | |
| | New *T* level | CWR09, 11, 15, 19, 29 | 0 ■ | ■ X | | 0 ■ | ■ X | ■ X | 0 ■ X | 0 ■ | 0 ■ | 0 ■ ▲ | 0 ■ | | ■ X ▲ | 0 ■ | 0 X | ■ X | | 0 ■ X | | | |
| Space Level | AVX SRC9000** | TBJ/TBM (COTS) | 0 | ▲ X | ▲ X | 0 | ▲ X | ▲ X | (+0)▲ X | 0 | 0 | 0 ▶ | 0 | 0 X | 0 X | 0 | 0 X | 0 X | 0 X | 0 X | | ▲ X | |
| | AVX SRC9000** | TAZ/TBC/TBJ (MIL) | 0 ■ | ▲ X | ▲ X | 0 ■ | ▲ X | ▲ X | ▲ X | 0 ■ | 0 ■ | 0 ■ ▶ | 0 ■ | 0 X | 0 ■ X | 0 ■ | 0 X | 0 ■ X | 0 ■ X | 0 ■ X | | ▲ X | |
| AVX COTS-Plus | COTS-Plus** | TBJ/TBM/TAZ | 0 | | | 0 | | | | 0 | ▲ | 0 | 0 X | | ▲ X | | | | | ▲ X | | | |
| | DSCC 07016 | TBJ | 0 | ▲ X | | 0 | ▲ X | ▲ X | ▲ X | ▲ | ▲ | 0 | 0 X | | ▲ X | | | ▲ X | | ▲ X | | | |
| | DSCC 95158 | | 0 | | | | | | | | | | | | | | | | | | | | |
| | COTS-Plus | TCB | 0 | | | | | | ■ X | | 0 | 0 ▲ | 0 X | | 0 X | 0 X | | 0 | 0 ▲ | ■ X | | | |
| ESA-ESCC3012 | LAT 1 | TAJ-ESA, TES | 0 ● | 0 | 0 | 0 ● | | | 0 | ● | 0 ● | 0 | 0 | 0 ● | level B ● | | 0 | | 0 | 0 | 0 | 0 | 0 |
| | LAT 2 | | 0 ● | | | ● | | | 0 | ● | 0 ● | 0 | 0 | 0 ● | level B ● | | 0 | | 0 | 0 | 0 | 0 | 0 |
| | LAT 3 | | ● | | | ● | | | | ● | 0 ● | 0 | 0 | 0 ● | level B ● | | 0 | | 0 | 0 | 0 | 0 | 0 |
| | NO LAT | | ● | | | ● | | | | ● | ● | | | | level B ● | | | | | | | | |

*Only Mil QPL ratings receive the steam age portion of solderability testing unless otherwise specified by the customer

**Testing of low ESR components requiring a mounted sample shall allow a 2X increase in catalog ESR for post measurements

*** = Dry Heat, Damp Heat, Storage, Low Air Pressure, Damp Heat

- 0 Standard Test
- ▲ Optional Test
- Qualification and or GRP C
- X Sample Test
- ★ COTS Upscreen 1000Hr 125°C
- ▶ AVX Standard DCL/ESR/DF 3 SIGMA
- ◆ DLA Standard DCL/ESR 3 SIGMA
- Part of Manufacturing Flow (PID)
- ▲ AVX Standard DCL 3 SIGMA

HIGH RELIABILITY TANTALUM CHIP PRODUCT FAMILY - DESIGN GUIDE

TAZ Series Case Size



TCP Module

TBC Series Case Sizes



TAZ FAMILY SIZES:

CWR09, CWR19, CWR29 and TCP Modules

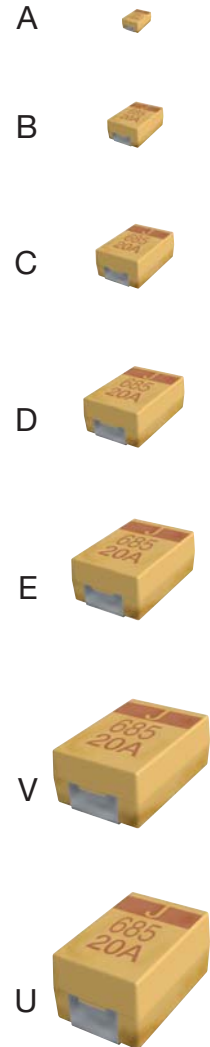
The TAZ family boasts the widest range of case sizes and fullest range of MIL-QPL qualifications of any tantalum chip family, making it the ideal choice for the MIL-Aerospace designer.

This family represents the most flexible of surface mount form factors. The case sizes originate from the original MIL chip sizes, enabling support for all legacy programs, but have been extended to include both smaller and larger case size options. There are ten case sizes covering the full Capacitance/Voltage range. Parts are suited to hybrid or PCB assembly, with case sizes A to E designed as low profile (.050" nom).

The Low ESR versions of the larger case sizes are ideally suited to power applications, and the H case is also footprint compatible with TBJ D / E case sizes.

This family is also the ideal replacement for conformal coated CWR06 styles in mechanically demanding applications.

TBJ Series Case Size



TBJ FAMILY SIZES:

DSCC 95158, 07016 & CWR11; TBM Ultra-Low ESR.

The TBJ family is based on EIA / Industrial standard sizes. While this series offers a more limited range of form factors (only 4 QPL case sizes, A through D, with an additional 2 case sizes (E & V) available to DSCC drawing), it does enable commercial designs / prototypes to be upgraded from commercial to COTS-Plus or even SRC9000 Space level for flight applications.

TBC FAMILY SIZES:

CWR15

TBC represents the world's smallest military approved tantalum chip capacitors technology. The case sizes are based on existing small case ceramic chip / resistor chip sizes; L, R & A case are equivalent to 0603, 0805 & 1206 sizes respectively, but with capacitance/voltage combinations significantly higher than available in 125°C rated ceramic devices. TBC represents a significant enabling technology for downsizing and reduced payload circuits for military and aerospace PCB, hybrid & flex circuit applications.

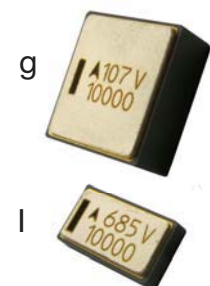
THH 230°C HERMETIC SERIES

Tantalum capacitor in SMD hermetic package for industrial applications like down-hole drilling, avionics and other high temperature, harsh environment application. Operational conditions 230°C/0.5xUr/1000 hrs or 200°C/0.5xUr/10000 hrs. Capacitance range 3.3-330µF, voltage range 16-63V in two case sizes, available with three optional termination designs. Manufactured using AVX patented Q process. Applying for DSCC approval.

TCH LOW ESR HERMETIC SERIES

Conductive Polymer in SMD hermetic package for aerospace, HighRel and other industrial applications. 10000hrs endurance at 85°C, 2000 hrs at 125°C. Capacitance range 15 - 680µF, voltage range 10-100V in two case sizes, available with three optional termination designs. Manufactured using AVX patented Q-process. Elektra award winner 2015 (product of the year). Applying for ESCC and DSCC approvals

THH & TCH Case Sizes



Surface Mount Products

PART NUMBERING, TEST & PACKAGING OPTIONS

Part Numbering:

AVX part numbers have 19 character fields. Standard characters are used to denote AVX series, case size, capacitance code, capacitance tolerance, voltage code and standard / Low ESR designator.

Test Designators:

The following table is a cross-reference between AVX and MIL designators for the various termination, test and inspection options available:

| Symbol | Parameter | Condition | Designator | |
|--------|---|-------------------------------------|------------|-----|
| | | | MIL | AVX |
| ^ | Termination Finish | Hot Solder Dip | C | 8 |
| | | Solder Fused | K | 0 |
| | | Solder Plated | H | H |
| | | Gold | B | 9 |
| | | Matte Sn | - | 7 |
| # | Lot inspection Conformance Level | MIL QPL (JAN brand) | - | M |
| | | DSCC Dwg | - | D |
| | | Lab/SCD/SRC9000 | - | L |
| | | Standard | - | S |
| ++ | Surge Current Test (also used for custom requirements) | No Surge | Z | 00 |
| | | 10 Cycles Ambient | A | 23 |
| | | 10 Cycles -55°C & +85°C | B | 24 |
| | | 10 Cycles -55°C & +85°C Pre-Weibull | C | 45 |
| @ | Voltage Conditioning (Reliability) Grade | Non ER | A | Z |
| | | B Weibull | B | B |
| | | C Weibull | C | C |
| | | D Weibull | D | D |
| * | Capacitance Tolerance | ±5% | J | J |
| | | ±10% | K | K |
| | | ±20% | M | M |
| 0 | Qualification Level | 0 = N/A | N/A | 0 |
| | | 0 = COTS-Plus or Mil 55365 | N/A | 0 |
| | | T = M55365 T Level | | T |
| | | 4 = HRC4000 Medical | | 4 |
| | | 5 = HRC5000 Medical | | 5 |
| | | 6 = HRC6000 Medical | | 6 |
| | | 9 = SRC9000 Space Level | | 9 |

Packaging Designators:

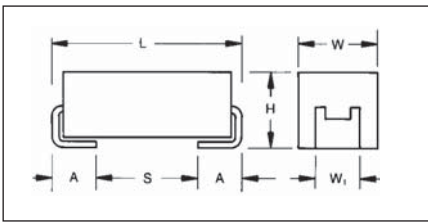
Due to the wide range of mounting processes that can be used for these products, there are many packaging options including bulk, tape / reel and waffle pack. Full dimensional information and packaging quantities are available in the packaging section (Applications Guide). Custom packaging is available for some product series (e.g. non-modular reel quantities, inverted in waffle (for wire bonding), special bar coding requirements, etc.). Please contact factory for custom requirements.

| Symbol | Parameter | Condition | Designator | |
|--------|-------------|------------------------|------------|-----|
| | | | MIL | AVX |
| □ | Bulk | Bulk | Default | B |
| | | Bulk - ESD Packaging | - | K |
| | Tape & Reel | 4" Reel | /TR4 | X |
| | | 7" Reel | /TR7 | R |
| | | 13" Reel | /TR13 | S |
| | Waffle Pack | Waffle Pack | /W | W |
| | | Waffle - ESD Packaging | - | L |

TAZ Series



CWR09 - MIL-PRF-55365/4 Established Reliability, COTS-Plus & Space Level



MARKING

(White marking on black body)



Polarity Stripe (+)

**Capacitance Code
Rated Voltage**

This is the original high reliability molded tantalum chip series and the case sizes still represent the most flexible of surface mount form factors. TAZ offers nine case sizes, eight of which (A through H) are fully qualified to MIL-PRF-55365/4, and also includes the original sub-miniature R case (non-QPL).

This series is fully interchangeable with CWR06 conformal types, while offering the advantages of molded body/compliant termination construction (ensuring no TCE mismatch with any substrate). This construction is compatible with a wide range of SMT board assembly processes including wave or reflow solder, conductive epoxy or compression bonding techniques.

The parts also carry full polarity and capacitance / voltage marking. The five smaller cases are characterized by their low profile construction, with the A case being the world's smallest molded military tantalum chip.

All 4V to 50V ratings are qualified to MIL-PRF-55365 Weibull "B", "C", "D" and "T" levels, with all surge options ("A", "B" & "C") available.

For Space Level applications, AVX SRC 9000 qualification is recommended (see ratings table for part number availability).

There are four termination finishes available: solder plated, fused solder plated, hot solder dipped and gold plated (these are "H", "K", "C" and "B" termination, respectively, per MIL-PRF-55365). In addition, the molding compound has been selected to meet the requirements of UL94V-0 (Flame Retardancy) and outgassing requirements of ASTM E-595.

For moisture sensitivity levels please refer to the High Reliability Tantalum MSL section located in the back of the High Reliability Tantalum Catalog.

CASE DIMENSIONS:

millimeters (inches)

| Case Code | Length (L) ±0.38 (0.015) | Width (W) ±0.38 (0.015) | Height (H) ±0.38 (0.015) | Term. Width (W _t) | Term. Length (A) +0.25/-0.13 (+0.010/-0.005) | S min | Typical Weight (g) |
|-----------|-------------------------------|--|-----------------------------|---|--|-----------------|--------------------|
| A | 2.54 (0.100) | 1.27 (0.050) | 1.27 (0.050) | 1.27±0.13 (0.050±0.005) | 0.76 (0.030) | 0.38 (0.015) | 0.016 |
| B | 3.81 (0.150) | 1.27 (0.050) | 1.27 (0.050) | 1.27±0.13 (0.050±0.005) | 0.76 (0.030) | 1.65 (0.065) | 0.025 |
| C | 5.08 (0.200) | 1.27 (0.050) | 1.27 (0.050) | 1.27±0.13 (0.050±0.005) | 0.76 (0.030) | 2.92 (0.115) | 0.035 |
| D | 3.81 (0.150) | 2.54 (0.100) | 1.27 (0.050) | 2.41+0.13/-0.25 (0.095+0.005/-0.010) | 0.76 (0.030) | 1.65 (0.065) | 0.045 |
| E | 5.08 (0.200) | 2.54 (0.100) | 1.27 (0.050) | 2.41+0.13/-0.25 (0.095+0.005/-0.010) | 0.76 (0.030) | 2.92 (0.115) | 0.065 |
| F | 5.59 (0.220) | 3.43 (0.135) | 1.78 (0.070) | 3.30±0.13 (0.130±0.005) | 0.76 (0.030) | 3.43 (0.135) | 0.125 |
| G | 6.73 (0.265) | 2.79 (0.110) | 2.79 (0.110) | 2.67±0.13 (0.105±0.005) | 1.27 (0.050) | 3.56 (0.140) | 0.205 |
| H | 7.24 (0.285) | 3.81 (0.150) | 2.79 (0.110) | 3.68+0.13/-0.51 (0.145+0.005/-0.020) | 1.27 (0.050) | 4.06 (0.160) | 0.335 |
| R | 2.05 (0.081) ±0.20 (0.008) | 1.30 (0.051) +0.20 (0.008) -0.10 (0.004) | 1.20 (0.047) max | 1.0±0.10 (0.039±0.004) | 0.50 (0.020) +0.30 (0.012) -0.20 (0.008) | 0.71 (0.028) | 0.010 |

CWR09 MIL-PRF-55365/4

CAPACITANCE AND RATED VOLTAGE, V_R (VOLTAGE CODE) RANGE (LETTER DENOTES CASE SIZE)

| Capacitance | | Rated Voltage DC (V _R) at 85°C | | | | | | | |
|-------------|------|--|--------|---------|---------|---------|---------|---------|---------|
| µF | Code | 4V (C) | 6V (D) | 10V (F) | 15V (H) | 20V (J) | 25V (K) | 35V (M) | 50V (N) |
| 0.10 | 104 | | | | | | | | A |
| 0.15 | 154 | | | | | | | | A |
| 0.22 | 224 | | | | | | | A | B |
| 0.33 | 334 | R | | R | | A | A | B | B |
| 0.47 | 474 | | | R | | A | B | B | C |
| 0.68 | 684 | | | | A | B | B | C | D |
| 1.0 | 105 | | | A/R | | B | C | D | E |
| 1.5 | 155 | | A | | B | C | D | E | F |
| 2.2 | 225 | A/R | | B | C | D | E | F | F |
| 3.3 | 335 | | B | C | D | E | | F | G |
| 4.7 | 475 | B | C | D | E | | F | G | H |
| 6.8 | 685 | C | D | E | | F | G | H | |
| 10 | 106 | D | E | | F | | G | | |
| 15 | 156 | E | | F | G | G | H | | |
| 22 | 226 | | F | | G | H | | | |
| 33 | 336 | F | | G | H | | | | |
| 47 | 476 | | G | H | | | | | |
| 68 | 686 | G | H | | | | | | |
| 100 | 107 | H | | | | | | | |

HOW TO ORDER

COTS-PLUS & MIL QPL (CWR09):

| TAZ | H | 686 | * | 006 | C | □ | # | @ | 0 | ^ | ++ |
|------|-----------|--|--|--|---|--|--|--|--|---|--|
| Type | Case Size | Capacitance Code pF code: 1st two digits represent significant figures 3rd digit represents multiplier (number of zeros to follow) | Capacitance Tolerance M = ±20% K = ±10% J = ±5% | Voltage Code 004 = 4Vdc 006 = 6Vdc 010 = 10Vdc 015 = 15Vdc 020 = 20Vdc 025 = 25Vdc 035 = 35Vdc 050 = 50Vdc | Standard or Low ESR Range C = Std ESR L = Low ESR | Packaging B = Bulk R = 7" T&R S = 13" T&R W = Waffle See page 8 for additional packaging options. | Inspection Level S = Std. Conformance L = Group A M = MIL (JAN) CWR09 | Reliability Grade Weibull: B = 0.1%/1000 hrs. 90% conf. C = 0.01%/1000 hrs. 90% conf. D = 0.001%/1000 hrs. 90% conf. Z = Non-ER | Qualification Level 0 = N/A T = T Level 9 = SRC9000 | Termination Finish H = Solder Plated 0 = Fused Solder Plated 8 = Hot Solder Dipped 9 = Gold Plated 7 = Matte Sn (COTS-Plus only) | Surge Test Option 00 = None 23 = 10 Cycles, +25°C 24 = 10 Cycles, -55°C & +85°C 45 = 10 cycles, -55°C & +85°C before Weibull |

For RoHS compliant products, please select correct termination style.

CWR09 P/N CROSS REFERENCE:

| CWR09 | D | ^ | 686 | * | @ | + | □ |
|-------|--|---|--|--|---|---|---|
| Type | Voltage Code C = 4Vdc D = 6Vdc F = 10Vdc H = 15Vdc J = 20Vdc K = 25Vdc M = 35Vdc N = 50Vdc | Termination Finish H = Solder Plated K = Solder Fused C = Hot Solder Dipped B = Gold Plated | Capacitance Code pF code: 1st two digits represent significant figures 3rd digit represents multiplier (number of zeros to follow) | Capacitance Tolerance M = ±20% K = ±10% J = ±5% | Reliability Grade Weibull: B = 0.1%/1000 hrs. 90% conf. C = 0.01%/1000 hrs. 90% conf. D = 0.001%/1000 hrs. 90% conf. T = T Level A = Non-ER | Surge Test Option A = 10 cycles, +25°C B = 10 cycles, -55°C & +85°C C = 10 cycles, -55°C & +85°C before Weibull If blank, None required | Packaging Bulk = Standard TR = 7" T&R TR13 = 13" T&R W = Waffle See page 8 for additional packaging options. |

For RoHS compliant products, please select correct termination style.

SPACE LEVEL OPTIONS TO SRC9000*:

| TAZ | H | 686 | * | 006 | C | □ | L | @ | 9 | ^ | ++ |
|------|-----------|--|--|--|---|--|---------------------------------|--|------------------------------------|--|---|
| Type | Case Size | Capacitance Code pF code: 1st two digits represent significant figures 3rd digit represents multiplier (number of zeros to follow) | Capacitance Tolerance M = ±20% K = ±10% J = ±5% | Voltage Code 004 = 4Vdc 006 = 6Vdc 010 = 10Vdc 015 = 15Vdc 020 = 20Vdc 025 = 25Vdc 035 = 35Vdc 050 = 50Vdc | Standard or Low ESR Range C = Std ESR L = Low ESR | Packaging B = Bulk R = 7" T&R S = 13" T&R W = Waffle See page 8 for additional packaging options. | Inspection Level L = Group A | Reliability Grade Weibull: B = 0.1%/1000 hrs. 90% conf. C = 0.01%/1000 hrs. 90% conf. D = 0.001%/1000 hrs. 90% conf. | Qualification Level 9 = SRC9000 | Termination Finish H = Solder Plated 0 = Fused Solder Plated 8 = Hot Solder Dipped 9 = Gold Plated | Surge Test Option 45 = 10 cycles, -55°C & +85°C before Weibull |

For RoHS compliant products, please select correct termination style.

*Contact factory for AVX SRC9000 Space Level SCD details.

TECHNICAL SPECIFICATIONS

| | | | | | | | | | | |
|------------------------------------|---|-----|-----|------|------|------|------|------|------|--|
| Technical Data: | Unless otherwise specified, all technical data relate to an ambient temperature of 25°C | | | | | | | | | |
| Capacitance Range: | 0.10 µF to 100 µF | | | | | | | | | |
| Capacitance Tolerance: | ±5%; ±10%; ±20% | | | | | | | | | |
| Rated Voltage (V _R) | ≤ 85°C: | 4 | 6 | 10 | 15 | 20 | 25 | 35 | 50 | |
| Category Voltage (V _C) | ≤ 125°C: | 2.7 | 4 | 6.7 | 10 | 13.3 | 16.7 | 23.3 | 33.3 | |
| Surge Voltage (V _S) | ≤ 85°C: | 5.3 | 8 | 13.3 | 20 | 26.7 | 33.3 | 46.7 | 66.7 | |
| Surge Voltage (V _S) | ≤ 125°C: | 3.5 | 5.3 | 8.7 | 13.3 | 17.8 | 22.2 | 31.1 | 44.5 | |
| Temperature Range: | -55°C to +125°C | | | | | | | | | |

TAZ Series



CWR09 - MIL-PRF-55365/4 Established Reliability, COTS-Plus & Space Level

| RATING & PART NUMBER REFERENCE | | | Parametric Specifications by Rating per MIL-PRF-55365/4 | | | | | | | | | Typical RMS Ripple Data by Rating | | | | | | | |
|--------------------------------|--------------------------------|--------------------------------|---|-------------------------------|------------------------------|--------------|------------|------------|-------------|-----------|---------------|-----------------------------------|---------------------------|---------------------------|----------------------------|---------------------------|---------------------------|----------------------------|------------|
| | | | Cap @ 120Hz µF @ 25°C | DC Rated Voltage @ +85°C V | ESR @ 100kHz Ohms @ +25°C | DCL max | | | DF Max | | | Power Dissipation W | 25°C Ripple A (100kHz) | 85°C Ripple A (100kHz) | 125°C Ripple A (100kHz) | 25°C Ripple V (100kHz) | 85°C Ripple V (100kHz) | 125°C Ripple V (100kHz) | |
| CWR09 P/N | AVX MIL & COTS-Plus P/N | AVX SRC9000 P/N | Case | µF @ 25°C | V @ +85°C | Ohms @ +25°C | +25°C (µA) | +85°C (µA) | +125°C (µA) | +25°C (%) | +85/125°C (%) | -55°C (%) | W | A (100kHz) | A (100kHz) | A (100kHz) | V (100kHz) | V (100kHz) | V (100kHz) |
| | TAZ R 334 * 004 C □ # @ 0 ^ ++ | | R | 0.33 | 4 | 45 | 1 | 10 | 12 | 6 | 8 | 8 | 0.030 | 0.03 | 0.02 | 0.01 | 1.16 | 1.05 | 0.46 |
| | TAZ R 225 * 004 C □ # @ 0 ^ ++ | | R | 2.2 | 4 | 12 | 1 | 10 | 12 | 6 | 8 | 8 | 0.030 | 0.05 | 0.05 | 0.02 | 0.60 | 0.54 | 0.24 |
| | TAZ A 225 * 004 C □ # @ 0 ^ ++ | TAZ A 225 * 004 C □ L @ 9 ^ ++ | A | 2.2 | 4 | 8 | 1 | 10 | 12 | 6 | 8 | 8 | 0.050 | 0.08 | 0.07 | 0.03 | 0.63 | 0.57 | 0.25 |
| CWR09C^475*0+ | TAZ B 475 * 004 C □ # @ 0 ^ ++ | TAZ B 475 * 004 C □ L @ 9 ^ ++ | B | 4.7 | 4 | 8 | 1 | 10 | 12 | 6 | 8 | 8 | 0.070 | 0.09 | 0.08 | 0.04 | 0.75 | 0.67 | 0.30 |
| CWR09C^685*0+ | TAZ C 685 * 004 C □ # @ 0 ^ ++ | TAZ C 685 * 004 C □ L @ 9 ^ ++ | C | 6.8 | 4 | 5.5 | 1 | 10 | 12 | 6 | 8 | 8 | 0.075 | 0.12 | 0.11 | 0.05 | 0.64 | 0.58 | 0.26 |
| CWR09C^106*0+ | TAZ D 106 * 004 C □ # @ 0 ^ ++ | TAZ D 106 * 004 C □ L @ 9 ^ ++ | D | 10 | 4 | 4 | 1 | 10 | 12 | 8 | 8 | 10 | 0.080 | 0.14 | 0.13 | 0.06 | 0.57 | 0.51 | 0.23 |
| CWR09C^156*0+ | TAZ E 156 * 004 C □ # @ 0 ^ ++ | TAZ E 156 * 004 C □ L @ 9 ^ ++ | E | 15 | 4 | 3.5 | 1 | 10 | 12 | 8 | 10 | 12 | 0.090 | 0.16 | 0.14 | 0.06 | 0.56 | 0.51 | 0.22 |
| CWR09C^336*0+ | TAZ F 336 * 004 C □ # @ 0 ^ ++ | TAZ F 336 * 004 C □ L @ 9 ^ ++ | F | 33 | 4 | 2.2 | 2 | 20 | 24 | 8 | 10 | 12 | 0.100 | 0.21 | 0.19 | 0.09 | 0.47 | 0.42 | 0.19 |
| CWR09C^686*0+ | TAZ G 686 * 004 C □ # @ 0 ^ ++ | TAZ G 686 * 004 C □ L @ 9 ^ ++ | G | 68 | 4 | 1.1 | 3 | 30 | 36 | 10 | 12 | 12 | 0.125 | 0.34 | 0.30 | 0.13 | 0.37 | 0.33 | 0.15 |
| CWR09C^107*0+ | TAZ H 107 * 004 C □ # @ 0 ^ ++ | TAZ H 107 * 004 C □ L @ 9 ^ ++ | H | 100 | 4 | 0.9 | 4 | 40 | 48 | 10 | 12 | 12 | 0.150 | 0.41 | 0.37 | 0.16 | 0.37 | 0.33 | 0.15 |
| CWR09D^155*0+ | TAZ A 155 * 006 C □ # @ 0 ^ ++ | TAZ A 155 * 006 C □ L @ 9 ^ ++ | A | 1.5 | 6 | 8 | 1 | 10 | 12 | 6 | 8 | 8 | 0.050 | 0.08 | 0.07 | 0.03 | 0.63 | 0.57 | 0.25 |
| CWR09D^335*0+ | TAZ B 335 * 006 C □ # @ 0 ^ ++ | TAZ B 335 * 006 C □ L @ 9 ^ ++ | B | 3.3 | 6 | 8 | 1 | 10 | 12 | 6 | 8 | 8 | 0.070 | 0.09 | 0.08 | 0.04 | 0.75 | 0.67 | 0.30 |
| CWR09D^475*0+ | TAZ C 475 * 006 C □ # @ 0 ^ ++ | TAZ C 475 * 006 C □ L @ 9 ^ ++ | C | 4.7 | 6 | 5.5 | 1 | 10 | 12 | 6 | 8 | 8 | 0.075 | 0.12 | 0.11 | 0.05 | 0.64 | 0.58 | 0.26 |
| CWR09D^685*0+ | TAZ D 685 * 006 C □ # @ 0 ^ ++ | TAZ D 685 * 006 C □ L @ 9 ^ ++ | D | 6.8 | 6 | 4.5 | 1 | 10 | 12 | 6 | 8 | 8 | 0.080 | 0.13 | 0.12 | 0.05 | 0.60 | 0.54 | 0.24 |
| CWR09D^106*0+ | TAZ E 106 * 006 C □ # @ 0 ^ ++ | TAZ E 106 * 006 C □ L @ 9 ^ ++ | E | 10 | 6 | 3.5 | 1 | 10 | 12 | 8 | 10 | 12 | 0.090 | 0.16 | 0.14 | 0.06 | 0.56 | 0.51 | 0.22 |
| CWR09D^226*0+ | TAZ F 226 * 006 C □ # @ 0 ^ ++ | TAZ F 226 * 006 C □ L @ 9 ^ ++ | F | 22 | 6 | 2.2 | 2 | 20 | 24 | 8 | 10 | 12 | 0.100 | 0.21 | 0.19 | 0.09 | 0.47 | 0.42 | 0.19 |
| CWR09D^476*0+ | TAZ G 476 * 006 C □ # @ 0 ^ ++ | TAZ G 476 * 006 C □ L @ 9 ^ ++ | G | 47 | 6 | 1.1 | 3 | 30 | 36 | 10 | 12 | 12 | 0.125 | 0.34 | 0.30 | 0.13 | 0.37 | 0.33 | 0.15 |
| CWR09D^686*0+ | TAZ H 686 * 006 C □ # @ 0 ^ ++ | TAZ H 686 * 006 C □ L @ 9 ^ ++ | H | 68 | 6 | 0.9 | 4 | 40 | 48 | 10 | 12 | 12 | 0.150 | 0.41 | 0.37 | 0.16 | 0.37 | 0.33 | 0.15 |
| | TAZ R 334 * 010 C □ # @ 0 ^ ++ | | R | 0.33 | 10 | 50 | 1 | 10 | 12 | 6 | 8 | 8 | 0.030 | 0.02 | 0.02 | 0.01 | 1.22 | 1.10 | 0.49 |
| | TAZ R 474 * 010 C □ # @ 0 ^ ++ | | R | 0.47 | 10 | 50 | 1 | 10 | 12 | 6 | 8 | 8 | 0.030 | 0.02 | 0.02 | 0.01 | 1.22 | 1.10 | 0.49 |
| | TAZ R 105 * 010 C □ # @ 0 ^ ++ | | R | 1 | 10 | 10 | 1 | 10 | 12 | 6 | 8 | 8 | 0.030 | 0.05 | 0.05 | 0.02 | 0.55 | 0.49 | 0.22 |
| CWR09F^105*0+ | TAZ A 105 * 010 C □ # @ 0 ^ ++ | TAZ A 105 * 010 C □ L @ 9 ^ ++ | A | 1 | 10 | 10 | 1 | 10 | 12 | 6 | 8 | 8 | 0.050 | 0.07 | 0.06 | 0.03 | 0.71 | 0.64 | 0.28 |
| CWR09F^225*0+ | TAZ B 225 * 010 C □ # @ 0 ^ ++ | TAZ B 225 * 010 C □ L @ 9 ^ ++ | B | 2.2 | 10 | 8 | 1 | 10 | 12 | 6 | 8 | 8 | 0.070 | 0.09 | 0.08 | 0.04 | 0.75 | 0.67 | 0.30 |
| CWR09F^335*0+ | TAZ C 335 * 010 C □ # @ 0 ^ ++ | TAZ C 335 * 010 C □ L @ 9 ^ ++ | C | 3.3 | 10 | 5.5 | 1 | 10 | 12 | 6 | 8 | 8 | 0.075 | 0.12 | 0.11 | 0.05 | 0.64 | 0.58 | 0.26 |
| CWR09F^475*0+ | TAZ D 475 * 010 C □ # @ 0 ^ ++ | TAZ D 475 * 010 C □ L @ 9 ^ ++ | D | 4.7 | 10 | 4.5 | 1 | 10 | 12 | 6 | 8 | 8 | 0.080 | 0.13 | 0.12 | 0.05 | 0.60 | 0.54 | 0.24 |
| CWR09F^685*0+ | TAZ E 685 * 010 C □ # @ 0 ^ ++ | TAZ E 685 * 010 C □ L @ 9 ^ ++ | E | 6.8 | 10 | 3.5 | 1 | 10 | 12 | 6 | 8 | 8 | 0.090 | 0.16 | 0.14 | 0.06 | 0.56 | 0.51 | 0.22 |
| CWR09F^156*0+ | TAZ F 156 * 010 C □ # @ 0 ^ ++ | TAZ F 156 * 010 C □ L @ 9 ^ ++ | F | 15 | 10 | 2.5 | 2 | 20 | 24 | 8 | 10 | 12 | 0.100 | 0.20 | 0.18 | 0.08 | 0.50 | 0.45 | 0.20 |
| CWR09F^336*0+ | TAZ G 336 * 010 C □ # @ 0 ^ ++ | TAZ G 336 * 010 C □ L @ 9 ^ ++ | G | 33 | 10 | 1.1 | 3 | 30 | 36 | 10 | 12 | 12 | 0.125 | 0.34 | 0.30 | 0.13 | 0.37 | 0.33 | 0.15 |
| CWR09F^476*0+ | TAZ H 476 * 010 C □ # @ 0 ^ ++ | TAZ H 476 * 010 C □ L @ 9 ^ ++ | H | 47 | 10 | 0.9 | 5 | 50 | 60 | 10 | 12 | 12 | 0.150 | 0.41 | 0.37 | 0.16 | 0.37 | 0.33 | 0.15 |
| CWR09H^684*0+ | TAZ A 684 * 015 C □ # @ 0 ^ ++ | TAZ A 684 * 015 C □ L @ 9 ^ ++ | A | 0.68 | 15 | 12 | 1 | 10 | 12 | 6 | 8 | 8 | 0.050 | 0.06 | 0.06 | 0.03 | 0.77 | 0.70 | 0.31 |
| CWR09H^155*0+ | TAZ B 155 * 015 C □ # @ 0 ^ ++ | TAZ B 155 * 015 C □ L @ 9 ^ ++ | B | 1.5 | 15 | 8 | 1 | 10 | 12 | 6 | 8 | 8 | 0.070 | 0.09 | 0.08 | 0.04 | 0.75 | 0.67 | 0.30 |
| CWR09H^225*0+ | TAZ C 225 * 015 C □ # @ 0 ^ ++ | TAZ C 225 * 015 C □ L @ 9 ^ ++ | C | 2.2 | 15 | 5.5 | 1 | 10 | 12 | 6 | 8 | 8 | 0.075 | 0.12 | 0.11 | 0.05 | 0.64 | 0.58 | 0.26 |
| CWR09H^335*0+ | TAZ D 335 * 015 C □ # @ 0 ^ ++ | TAZ D 335 * 015 C □ L @ 9 ^ ++ | D | 3.3 | 15 | 5 | 1 | 10 | 12 | 6 | 8 | 8 | 0.080 | 0.13 | 0.11 | 0.05 | 0.63 | 0.57 | 0.25 |
| CWR09H^475*0+ | TAZ E 475 * 015 C □ # @ 0 ^ ++ | TAZ E 475 * 015 C □ L @ 9 ^ ++ | E | 4.7 | 15 | 4 | 1 | 10 | 12 | 6 | 8 | 8 | 0.090 | 0.15 | 0.14 | 0.06 | 0.60 | 0.54 | 0.24 |
| CWR09H^106*0+ | TAZ F 106 * 015 C □ # @ 0 ^ ++ | TAZ F 106 * 015 C □ L @ 9 ^ ++ | F | 10 | 15 | 2.5 | 2 | 20 | 24 | 6 | 8 | 8 | 0.100 | 0.20 | 0.18 | 0.08 | 0.50 | 0.45 | 0.20 |
| CWR09H^226*0+ | TAZ G 226 * 015 C □ # @ 0 ^ ++ | TAZ G 226 * 015 C □ L @ 9 ^ ++ | G | 22 | 15 | 1.1 | 4 | 40 | 48 | 6 | 8 | 8 | 0.125 | 0.34 | 0.30 | 0.13 | 0.37 | 0.33 | 0.15 |
| CWR09H^336*0+ | TAZ H 336 * 015 C □ # @ 0 ^ ++ | TAZ H 336 * 015 C □ L @ 9 ^ ++ | H | 33 | 15 | 0.9 | 5 | 50 | 60 | 8 | 10 | 12 | 0.150 | 0.41 | 0.37 | 0.16 | 0.37 | 0.33 | 0.15 |
| CWR09J^474*0+ | TAZ A 474 * 020 C □ # @ 0 ^ ++ | TAZ A 474 * 020 C □ L @ 9 ^ ++ | A | 0.47 | 20 | 14 | 1 | 10 | 12 | 8 | 8 | 10 | 0.050 | 0.06 | 0.05 | 0.02 | 0.84 | 0.75 | 0.33 |
| CWR09J^684*0+ | TAZ B 684 * 020 C □ # @ 0 ^ ++ | TAZ B 684 * 020 C □ L @ 9 ^ ++ | B | 0.68 | 20 | 10 | 1 | 10 | 12 | 6 | 8 | 8 | 0.070 | 0.08 | 0.08 | 0.03 | 0.84 | 0.75 | 0.33 |
| CWR09J^105*0+ | TAZ B 105 * 020 C □ # @ 0 ^ ++ | TAZ B 105 * 020 C □ L @ 9 ^ ++ | B | 1 | 20 | 12 | 1 | 10 | 12 | 6 | 8 | 8 | 0.070 | 0.08 | 0.07 | 0.03 | 0.92 | 0.82 | 0.37 |
| CWR09J^155*0+ | TAZ C 155 * 020 C □ # @ 0 ^ ++ | TAZ C 155 * 020 C □ L @ 9 ^ ++ | C | 1.5 | 20 | 6 | 1 | 10 | 12 | 6 | 8 | 8 | 0.075 | 0.11 | 0.10 | 0.04 | 0.67 | 0.60 | 0.27 |
| CWR09J^225*0+ | TAZ D 225 * 020 C □ # @ 0 ^ ++ | TAZ D 225 * 020 C □ L @ 9 ^ ++ | D | 2.2 | 20 | 5 | 1 | 10 | 12 | 6 | 8 | 8 | 0.080 | 0.13 | 0.11 | 0.05 | 0.63 | 0.57 | 0.25 |
| CWR09J^335*0+ | TAZ E 335 * 020 C □ # @ 0 ^ ++ | TAZ E 335 * 020 C □ L @ 9 ^ ++ | E | 3.3 | 20 | 4 | 1 | 10 | 12 | 6 | 8 | 8 | 0.090 | 0.15 | 0.14 | 0.06 | 0.60 | 0.54 | 0.24 |
| CWR09J^685*0+ | TAZ F 685 * 020 C □ # @ 0 ^ ++ | TAZ F 685 * 020 C □ L @ 9 ^ ++ | F | 6.8 | 20 | 2.4 | 2 | 20 | 24 | 6 | 8 | 8 | 0.100 | 0.20 | 0.18 | 0.08 | 0.49 | 0.44 | 0.20 |
| CWR09J^156*0+ | TAZ G 156 * 020 C □ # @ 0 ^ ++ | TAZ G 156 * 020 C □ L @ 9 ^ ++ | G | 15 | 20 | 1.1 | 3 | 30 | 36 | 6 | 8 | 8 | 0.125 | 0.34 | 0.30 | 0.13 | 0.37 | 0.33 | 0.15 |
| CWR09J^226*0+ | TAZ H 226 * 020 C □ # @ 0 ^ ++ | TAZ H 226 * 020 C □ L @ 9 ^ ++ | H | 22 | 20 | 0.9 | 4 | 40 | 48 | 6 | 8 | 8 | 0.150 | 0.41 | 0.37 | 0.16 | 0.37 | 0.33 | 0.15 |
| CWR09K^334*0+ | TAZ A 334 * 025 C □ # @ 0 ^ ++ | TAZ A 334 * 025 C □ L @ 9 ^ ++ | A | 0.33 | 25 | 15 | 1 | 10 | 12 | 6 | 8 | 8 | 0.050 | 0.06 | 0.05 | 0.02 | 0.87 | 0.78 | 0.35 |
| CWR09K^684*0+ | TAZ B 684 * 025 C □ # @ 0 ^ ++ | TAZ B 684 * 025 C □ L @ 9 ^ ++ | B | 0.68 | 25 | 7.5 | 1 | 10 | 12 | 6 | 8 | 8 | 0.070 | 0.10 | 0.09 | 0.04 | 0.72 | 0.65 | 0.29 |
| CWR09K^105*0+ | TAZ C 105 * 025 C □ # @ 0 ^ ++ | TAZ C 105 * 025 C □ L @ 9 ^ ++ | C | 1 | 25 | 6.5 | 1 | 10 | 12 | 6 | 8 | 8 | 0.075 | 0.11 | 0.10 | 0.04 | 0.70 | 0.63 | 0.28 |
| CWR09K^155*0+ | TAZ D 155 * 025 C □ # @ 0 ^ ++ | TAZ D 155 * 025 C □ L @ 9 ^ ++ | D | 1.5 | 25 | 6.5 | 1 | 10 | 12 | 6 | 8 | 8 | 0.080 | 0.11 | 0.10 | 0.04 | 0.72 | 0.65 | 0.29 |
| CWR09K^225*0+ | TAZ E 225 * 025 C □ # @ 0 ^ ++ | TAZ E 225 * 025 C □ L @ 9 ^ ++ | E | 2.2 | 25 | 3.5 | 1 | 10 | 12 | 6 | 8 | 8 | 0.090 | 0.16 | 0.14 | 0.06 | 0.56 | 0.51 | 0.22 |
| CWR09K^475*0+ | TAZ F 475 * 025 C □ # @ 0 ^ ++ | TAZ F 475 * 025 C □ L @ 9 ^ ++ | F | 4.7 | 25 | 2.5 | 2 | 20 | 24 | 6 | 8 | 8 | 0.100 | 0.20 | 0.18 | 0.08 | 0.50 | 0.45 | 0.20 |
| CWR09K^685*0+ | TAZ G 685 * 025 C □ # @ 0 ^ ++ | TAZ G 685 * 025 C □ L @ 9 ^ ++ | G | 6.8 | 25 | 1.2 | 2 | 20 | 24 | 6 | 8 | 8 | 0.125 | 0.32 | 0.29 | 0.13 | 0.39 | 0.35 | 0.15 |
| CWR09K^106*0+ | TAZ G 106 * 025 C □ # @ 0 ^ ++ | TAZ G 106 * 025 C □ L @ 9 ^ ++ | G | 10 | 25 | 1.4 | 3 | | | | | | | | | | | | |

TAZ Series



CWR09 - MIL-PRF-55365/4 Established Reliability, COTS-Plus & Space Level

| RATING & PART NUMBER REFERENCE | | | Parametric Specifications by Rating per MIL-PRF-55365/4 | | | | | | | | | Typical RMS Ripple Data by Rating | | | | | | | |
|--------------------------------|--------------------------------|--------------------------------|---|-------------------------------------|------------------------------------|---------------|---------------|----------------|--------------|--------------------|--------------|-----------------------------------|---------------------------------|---------------------------------|----------------------------------|---------------------------------|---------------------------------|----------------------------------|------|
| | | | Cap @ 120Hz µF @ 25°C | DC Rated Voltage V @ +85°C | ESR @ 100kHz Ohms @ +25°C | DCL max | | | DF Max | | | Power Dissipation W | 25°C Ripple A (100kHz) | 85°C Ripple A (100kHz) | 125°C Ripple A (100kHz) | 25°C Ripple V (100kHz) | 85°C Ripple V (100kHz) | 125°C Ripple V (100kHz) | |
| | | | | | | +25°C (µA) | +85°C (µA) | +125°C (µA) | +25°C (%) | +(85/125)°C (%) | -55°C (%) | | | | | | | | |
| CWR09M^224*0+ | TAZ A 224 * 035 C □ # @ 0 ^ ++ | TAZ A 224 * 035 C □ L @ 9 ^ ++ | A | 0.22 | 35 | 18 | 1 | 10 | 12 | 6 | 8 | 8 | 0.050 | 0.05 | 0.05 | 0.02 | 0.95 | 0.85 | 0.38 |
| CWR09M^474*0+ | TAZ B 474 * 035 C □ # @ 0 ^ ++ | TAZ B 474 * 035 C □ L @ 9 ^ ++ | B | 0.47 | 35 | 10 | 1 | 10 | 12 | 6 | 8 | 8 | 0.070 | 0.08 | 0.08 | 0.03 | 0.84 | 0.75 | 0.33 |
| CWR09M^684*0+ | TAZ C 684 * 035 C □ # @ 0 ^ ++ | TAZ C 684 * 035 C □ L @ 9 ^ ++ | C | 0.68 | 35 | 8 | 1 | 10 | 12 | 6 | 8 | 8 | 0.075 | 0.10 | 0.09 | 0.04 | 0.77 | 0.70 | 0.31 |
| CWR09M^105*0+ | TAZ D 105 * 035 C □ # @ 0 ^ ++ | TAZ D 105 * 035 C □ L @ 9 ^ ++ | D | 1 | 35 | 6.5 | 1 | 10 | 12 | 6 | 8 | 8 | 0.080 | 0.11 | 0.10 | 0.04 | 0.72 | 0.65 | 0.29 |
| CWR09M^155*0+ | TAZ E 155 * 035 C □ # @ 0 ^ ++ | TAZ E 155 * 035 C □ L @ 9 ^ ++ | E | 1.5 | 35 | 4.5 | 1 | 10 | 12 | 6 | 8 | 8 | 0.090 | 0.14 | 0.13 | 0.06 | 0.64 | 0.57 | 0.25 |
| CWR09M^335*0+ | TAZ F 335 * 035 C □ # @ 0 ^ ++ | TAZ F 335 * 035 C □ L @ 9 ^ ++ | F | 3.3 | 35 | 2.5 | 1 | 10 | 12 | 6 | 8 | 8 | 0.100 | 0.20 | 0.18 | 0.08 | 0.50 | 0.45 | 0.20 |
| CWR09M^475*0+ | TAZ G 475 * 035 C □ # @ 0 ^ ++ | TAZ G 475 * 035 C □ L @ 9 ^ ++ | G | 4.7 | 35 | 1.5 | 2 | 20 | 24 | 6 | 8 | 8 | 0.125 | 0.29 | 0.26 | 0.12 | 0.43 | 0.39 | 0.17 |
| CWR09M^685*0+ | TAZ H 685 * 035 C □ # @ 0 ^ ++ | TAZ H 685 * 035 C □ L @ 9 ^ ++ | H | 6.8 | 35 | 1.3 | 3 | 30 | 36 | 6 | 8 | 8 | 0.150 | 0.34 | 0.31 | 0.14 | 0.44 | 0.40 | 0.18 |
| CWR09N^104*0+ | TAZ A 104 * 050 C □ # @ 0 ^ ++ | TAZ A 104 * 050 C □ L @ 9 ^ ++ | A | 0.1 | 50 | 22 | 1 | 10 | 12 | 6 | 8 | 8 | 0.050 | 0.05 | 0.04 | 0.02 | 1.05 | 0.94 | 0.42 |
| CWR09N^154*0+ | TAZ A 154 * 050 C □ # @ 0 ^ ++ | TAZ A 154 * 050 C □ L @ 9 ^ ++ | A | 0.15 | 50 | 17 | 1 | 10 | 12 | 6 | 8 | 8 | 0.050 | 0.05 | 0.05 | 0.02 | 0.92 | 0.83 | 0.37 |
| CWR09N^224*0+ | TAZ B 224 * 050 C □ # @ 0 ^ ++ | TAZ B 224 * 050 C □ L @ 9 ^ ++ | B | 0.22 | 50 | 14 | 1 | 10 | 12 | 6 | 8 | 8 | 0.070 | 0.07 | 0.06 | 0.03 | 0.99 | 0.89 | 0.40 |
| CWR09N^334*0+ | TAZ B 334 * 050 C □ # @ 0 ^ ++ | TAZ B 334 * 050 C □ L @ 9 ^ ++ | B | 0.33 | 50 | 12 | 1 | 10 | 12 | 6 | 8 | 8 | 0.070 | 0.08 | 0.07 | 0.03 | 0.92 | 0.82 | 0.37 |
| CWR09N^474*0+ | TAZ C 474 * 050 C □ # @ 0 ^ ++ | TAZ C 474 * 050 C □ L @ 9 ^ ++ | C | 0.47 | 50 | 8 | 1 | 10 | 12 | 6 | 8 | 8 | 0.075 | 0.10 | 0.09 | 0.04 | 0.77 | 0.70 | 0.31 |
| CWR09N^684*0+ | TAZ D 684 * 050 C □ # @ 0 ^ ++ | TAZ D 684 * 050 C □ L @ 9 ^ ++ | D | 0.68 | 50 | 7 | 1 | 10 | 12 | 6 | 8 | 8 | 0.080 | 0.11 | 0.10 | 0.04 | 0.75 | 0.67 | 0.30 |
| CWR09N^105*0+ | TAZ E 105 * 050 C □ # @ 0 ^ ++ | TAZ E 105 * 050 C □ L @ 9 ^ ++ | E | 1 | 50 | 6 | 1 | 10 | 12 | 6 | 8 | 8 | 0.090 | 0.12 | 0.11 | 0.05 | 0.73 | 0.66 | 0.29 |
| CWR09N^155*0+ | TAZ F 155 * 050 C □ # @ 0 ^ ++ | TAZ F 155 * 050 C □ L @ 9 ^ ++ | F | 1.5 | 50 | 4 | 1 | 10 | 12 | 6 | 8 | 8 | 0.100 | 0.16 | 0.14 | 0.06 | 0.63 | 0.57 | 0.25 |
| CWR09N^225*0+ | TAZ F 225 * 050 C □ # @ 0 ^ ++ | TAZ F 225 * 050 C □ L @ 9 ^ ++ | F | 2.2 | 50 | 2.5 | 2 | 20 | 24 | 6 | 8 | 8 | 0.100 | 0.20 | 0.18 | 0.08 | 0.50 | 0.45 | 0.20 |
| CWR09N^335*0+ | TAZ G 335 * 050 C □ # @ 0 ^ ++ | TAZ G 335 * 050 C □ L @ 9 ^ ++ | G | 3.3 | 50 | 2 | 2 | 20 | 24 | 6 | 8 | 8 | 0.125 | 0.25 | 0.23 | 0.10 | 0.50 | 0.45 | 0.20 |
| CWR09N^475*0+ | TAZ H 475 * 050 C □ # @ 0 ^ ++ | TAZ H 475 * 050 C □ L @ 9 ^ ++ | H | 4.7 | 50 | 1.5 | 3 | 30 | 36 | 6 | 8 | 8 | 0.150 | 0.32 | 0.28 | 0.13 | 0.47 | 0.43 | 0.19 |

All technical data relates to an ambient temperature of +25°C. Capacitance and DF are measured at 120Hz, 0.5V RMS with a maximum DC bias of 2.2 volts. DCL is measured at rated voltage after 5 minutes.

NOTE: AVX reserves the right to supply a higher voltage rating or tighter tolerance part in the same case size, to the same reliability standards.

TAZ Series



CWR19 - MIL-PRF-55365/11 Established Reliability, COTS-Plus & Space Level



An extended range of capacitor ratings beyond CWR09 that is fully qualified to MIL-PRF-55365/11, this series represents the most flexible of surface mount form factors, offering nine case sizes (the original A through H of CWR09) and adds the new X case size.

The molded body / compliant termination construction ensures no TCE mismatch with any substrate. This construction is compatible with a wide range of SMT board assembly processes including wave or reflow solder, conductive epoxy or compression bonding techniques. The parts also carry full polarity and capacitance / voltage marking.

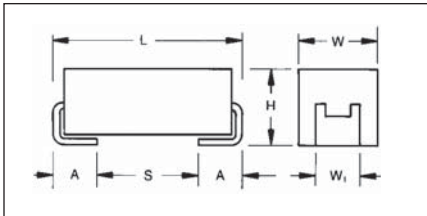
The four smaller cases are characterized by their low profile construction, with the A case being the world's smallest molded military tantalum chip.

The series is qualified to MIL-PRF-55365 Weibull "B", "C", "D" and "T" levels, with all surge options ("A", "B" & "C") available.

For Space Level applications, AVX SRC 9000 qualification is recommended (see ratings table for part number availability).

There are four termination finishes available: solder plated, fused solder plated, hot solder dipped and gold plated (these are "H", "K", "C" and "B" termination, respectively, per MIL-PRF-55365). In addition, the molding compound has been selected to meet the requirements of UL94V-0 (Flame Retardancy) and outgassing requirements of ASTM E-595.

For moisture sensitivity levels please refer to the High Reliability Tantalum MSL section located in the back of the High Reliability Tantalum Catalog.



MARKING

(White marking on black body)



Polarity Stripe (+)

Capacitance Code
Rated Voltage

CASE DIMENSIONS:

millimeters (inches)

| Case Code | Length (L) ±0.38 (0.015) | Width (W) ±0.38 (0.015) | Height (H) ±0.38 (0.015) | Term. Width (W _t) | Term. Length (A) +0.25/-0.13 (+0.010/-0.005) | S min | Typical Weight (g) |
|-----------|-----------------------------|----------------------------|-----------------------------|---|--|--------------|--------------------|
| A | 2.54 (0.100) | 1.27 (0.050) | 1.27 (0.050) | 1.27±0.13 (0.050±0.005) | 0.76 (0.030) | 0.38 (0.015) | 0.016 |
| B | 3.81 (0.150) | 1.27 (0.050) | 1.27 (0.050) | 1.27±0.13 (0.050±0.005) | 0.76 (0.030) | 1.65 (0.065) | 0.025 |
| C | 5.08 (0.200) | 1.27 (0.050) | 1.27 (0.050) | 1.27±0.13 (0.050±0.005) | 0.76 (0.030) | 2.92 (0.115) | 0.035 |
| D | 3.81 (0.150) | 2.54 (0.100) | 1.27 (0.050) | 2.41+0.13/-0.25 (0.095+0.005/-0.010) | 0.76 (0.030) | 1.65 (0.065) | 0.045 |
| E | 5.08 (0.200) | 2.54 (0.100) | 1.27 (0.050) | 2.41+0.13/-0.25 (0.095+0.005/-0.010) | 0.76 (0.030) | 2.92 (0.115) | 0.065 |
| F | 5.59 (0.220) | 3.43 (0.135) | 1.78 (0.070) | 3.30±0.13 (0.130±0.005) | 0.76 (0.030) | 3.43 (0.135) | 0.125 |
| G | 6.73 (0.265) | 2.79 (0.110) | 2.79 (0.110) | 2.67±0.13 (0.105±0.005) | 1.27 (0.050) | 3.56 (0.140) | 0.205 |
| H | 7.24 (0.285) | 3.81 (0.150) | 2.79 (0.110) | 3.68+0.13/-0.51 (0.145+0.005/-0.020) | 1.27 (0.050) | 4.06 (0.160) | 0.335 |
| X | 6.93 Max (0.273) | 5.41 Max (0.213) | 2.74 Max (0.108) | 3.05±0.13 (0.120±0.005) | 1.19 (0.047) | N/A | 0.420 |

CWR19-MIL-PRF 55365/11

CAPACITANCE AND RATED VOLTAGE, V_R (VOLTAGE CODE) RANGE (LETTER DENOTES CASE SIZE)

| Capacitance | | Rated voltage DC (V _R) at 85°C | | | | | | |
|-------------|------|--|--------|---------|---------|---------|---------|---------|
| µF | Code | 4V (C) | 6V (D) | 10V (F) | 15V (H) | 20V (J) | 25V (K) | 35V (M) |
| 0.33 | 334 | | | | | | | A |
| 0.47 | 474 | | | | | | A | |
| 0.68 | 684 | | | | | A | | |
| 1.0 | 105 | | | | A | A | B | |
| 1.5 | 155 | | | | A | B | | |
| 2.2 | 225 | | | A | A | B | D | |
| 3.3 | 335 | A | A | A | B | D | E | |
| 4.7 | 475 | A | A | B/C | B/C/D | E | | |
| 6.8 | 685 | A | B | B/C/D | D/E | E | F | G |
| 10 | 106 | B | B | B/C/D/E | D/E | E/F | | H |
| 15 | 156 | B | B/D/E | D/E | E/F | F | G | X |
| 22 | 226 | B/D | D/E | E | F | G | G/H | |
| 33 | 336 | D/E | E | F | F/G | H | H | |
| 47 | 476 | E | F | F/G | G/H | H/X | | |
| 68 | 686 | E | F/G | G | G/H | | | |
| 100 | 107 | F | G | G/H | H | | | |
| 150 | 157 | G | G | H/X | | | | |
| 220 | 227 | H | H | H | | | | |
| 330 | 337 | H | H | | | | | |

HOW TO ORDER

COTS-PLUS & MIL QPL (CWR19):

| | | | | | | | | | | | |
|-------------|------------------|---|---|--|--|---|---|---|---|--|---|
| TAZ | H | 227 | * | 006 | C | □ | # | @ | 0 | ^ | ++ |
| Type | Case Size | Capacitance Code pF code: 1st two digits represent significant figures 3rd digit represents multiplier (number of zeros to follow) | Capacitance Tolerance M = ±20% K = ±10% J = ±5% | Voltage Code 004 = 4Vdc 006 = 6Vdc 010 = 10Vdc 015 = 15Vdc 020 = 20Vdc 025 = 25Vdc 035 = 35Vdc | Standard or Low ESR Range C = Std ESR L = Low ESR | Packaging B = Bulk R = 7" T&R S = 13" T&R W = Waffle See page 8 for additional packaging options. | Inspection Level S = Std. Conformance L = Group A M = MIL (JAN) CWR19 | Reliability Grade Weibull: B = 0.1%/1000 hrs. 90% conf. C = 0.01%/1000 hrs. 90% conf. D = 0.001%/1000 hrs. 90% conf. Z = Non-ER | Qualification Level 0 = N/A T = T Level 9 = SRC9000 | Termination Finish H = Solder Plated 0 = Fused Solder Plated 8 = Hot Solder Dipped 9 = Gold Plated 7 = Matte Sn (COTS-Plus only) | Surge Test Option 00 = None 23 = 10 Cycles, +25°C 24 = 10 Cycles, -55°C & +85°C 45 = 10 cycles, -55°C & +85°C before Weibull |

For RoHS compliant products, please select correct termination style.

CWR19 P/N CROSS REFERENCE:

| | | | | | | | | |
|--------------|--|--|---|---|--|------------------|--|--|
| CWR19 | D | ^ | 227 | * | @ | H | + | □ |
| Type | Voltage Code C = 4Vdc D = 6Vdc F = 10Vdc H = 15Vdc J = 20Vdc K = 25Vdc M = 35Vdc | Termination Finish H = Solder Plated K = Solder Fused C = Hot Solder Dipped B = Gold Plated | Capacitance Code pF code: 1st two digits represent significant figures 3rd digit represents multiplier (number of zeros to follow) | Capacitance Tolerance M = ±20% K = ±10% J = ±5% | Reliability Grade Weibull: B = 0.1%/1000 hrs. 90% conf. C = 0.01%/1000 hrs. 90% conf. D = 0.001%/1000 hrs. 90% conf. T = T Level A = Non-ER | Case Size | Surge Test Option A = 10 cycles, +25°C B = 10 cycles, -55°C & +85°C C = 10 cycles, -55°C & +85°C before Weibull Z = None required | Packaging Bulk = Standard TR = 7" T&R TR13 = 13" T&R W = Waffle See page 8 for additional packaging options. |

For RoHS compliant products, please select correct termination style.

SPACE LEVEL OPTIONS TO SRC9000*:

| | | | | | | | | | | | |
|-------------|------------------|---|---|--|--|---|--|---|---|---|--|
| TAZ | H | 227 | * | 006 | C | □ | L | @ | 9 | ^ | ++ |
| Type | Case Size | Capacitance Code pF code: 1st two digits represent significant figures 3rd digit represents multiplier (number of zeros to follow) | Capacitance Tolerance M = ±20% K = ±10% J = ±5% | Voltage Code 004 = 4Vdc 006 = 6Vdc 010 = 10Vdc 015 = 15Vdc 020 = 20Vdc 025 = 25Vdc 035 = 35Vdc | Standard or Low ESR Range C = Std ESR L = Low ESR | Packaging B = Bulk R = 7" T&R S = 13" T&R W = Waffle See page 8 for additional packaging options. | Inspection Level L = Group A | Reliability Grade Weibull: B = 0.1%/1000 hrs. 90% conf. C = 0.01%/1000 hrs. 90% conf. D = 0.001%/1000 hrs. 90% conf. | Qualification Level 9 = SRC9000 | Termination Finish H = Solder Plated 0 = Fused Solder Plated 8 = Hot Solder Dipped 9 = Gold Plated | Surge Test Option 45 = 10 cycles, -55°C & +85°C before Weibull |

For RoHS compliant products, please select correct termination style.

*Contact factory for AVX SRC9000 Space Level SCD details.

TECHNICAL SPECIFICATIONS

| | | | | | | | | | |
|------------------------------------|---|-----|-----|------|------|------|------|------|--|
| Technical Data: | Unless otherwise specified, all technical data relate to an ambient temperature of 25°C | | | | | | | | |
| Capacitance Range: | 0.33 μF to 330 μF | | | | | | | | |
| Capacitance Tolerance: | ±5%; ±10%; ±20% | | | | | | | | |
| Rated Voltage (V _R) | ≤ 85°C: | 4 | 6 | 10 | 15 | 20 | 25 | 35 | |
| Category Voltage (V _C) | ≤ 125°C: | 2.7 | 4 | 6.7 | 10 | 13.3 | 16.7 | 23.3 | |
| Surge Voltage (V _S) | ≤ 85°C: | 5.3 | 8 | 13.3 | 20 | 26.7 | 33.3 | 46.7 | |
| Surge Voltage (V _S) | ≤ 125°C: | 3.5 | 5.3 | 8.7 | 13.3 | 17.8 | 22.2 | 31.1 | |
| Temperature Range: | -55°C to +125°C | | | | | | | | |

TAZ Series



CWR19 - MIL-PRF-55365/11 Established Reliability, COTS-Plus & Space Level

| RATING & PART NUMBER REFERENCE | | | Parametric Specifications by Rating per MIL-PRF-55365/11 | | | | | | | | | Typical RMS Ripple Data by Rating | | | | | | | |
|--------------------------------|--------------------------------|--------------------------------|--|-------------------------------|------------------------------|--------------|------------|------------|-------------|-----------|---------------|-----------------------------------|---------------------------|---------------------------|----------------------------|---------------------------|---------------------------|----------------------------|------------|
| | | | Cap @ 120Hz μF @ 25°C | DC Rated Voltage @ +85°C V | ESR @ 100kHz Ohms @ +25°C | DCL max | | | DF Max | | | Power Dissipation W | 25°C Ripple A (100kHz) | 85°C Ripple A (100kHz) | 125°C Ripple A (100kHz) | 25°C Ripple V (100kHz) | 85°C Ripple V (100kHz) | 125°C Ripple V (100kHz) | |
| CWR19 P/N | AVX MIL & COTS-Plus P/N | AVX SRC9000 P/N | Case | μF @ 25°C | V @ +85°C | Ohms @ +25°C | +25°C (μA) | +85°C (μA) | +125°C (μA) | +25°C (%) | +85/125°C (%) | -55°C (%) | W | A (100kHz) | A (100kHz) | A (100kHz) | V (100kHz) | V (100kHz) | V (100kHz) |
| CWR19C^335^@A+□ | TAZ A 335 * 004 C □ # @ 0 ^ ++ | TAZ A 335 * 004 C □ L @ 9 ^ ++ | A | 3.3 | 4 | 12 | 1 | 10 | 12 | 6 | 8 | 8 | 0.050 | 0.06 | 0.06 | 0.03 | 0.77 | 0.70 | 0.31 |
| CWR19C^475^@A+□ | TAZ A 475 * 004 C □ # @ 0 ^ ++ | TAZ A 475 * 004 C □ L @ 9 ^ ++ | A | 4.7 | 4 | 12 | 1 | 10 | 12 | 6 | 8 | 8 | 0.050 | 0.06 | 0.06 | 0.03 | 0.77 | 0.70 | 0.31 |
| CWR19C^685^@A+□ | TAZ A 685 * 004 C □ # @ 0 ^ ++ | TAZ A 685 * 004 C □ L @ 9 ^ ++ | A | 6.8 | 4 | 12 | 1 | 10 | 12 | 6 | 8 | 8 | 0.050 | 0.06 | 0.06 | 0.03 | 0.77 | 0.70 | 0.31 |
| CWR19C^106^@B+□ | TAZ B 106 * 004 C □ # @ 0 ^ ++ | TAZ B 106 * 004 C □ L @ 9 ^ ++ | B | 10 | 4 | 8 | 1 | 10 | 12 | 8 | 10 | 10 | 0.070 | 0.09 | 0.08 | 0.04 | 0.75 | 0.67 | 0.30 |
| CWR19C^156^@B+□ | TAZ B 156 * 004 C □ # @ 0 ^ ++ | TAZ B 156 * 004 C □ L @ 9 ^ ++ | B | 15 | 4 | 8 | 1 | 10 | 12 | 8 | 10 | 10 | 0.070 | 0.09 | 0.08 | 0.04 | 0.75 | 0.67 | 0.30 |
| CWR19C^226^@B+□ | TAZ B 226 * 004 C □ # @ 0 ^ ++ | TAZ B 226 * 004 C □ L @ 9 ^ ++ | B | 22 | 4 | 8 | 1 | 10 | 12 | 8 | 10 | 10 | 0.070 | 0.09 | 0.08 | 0.04 | 0.75 | 0.67 | 0.30 |
| CWR19C^226^@D+□ | TAZ D 226 * 004 C □ # @ 0 ^ ++ | TAZ D 226 * 004 C □ L @ 9 ^ ++ | D | 22 | 4 | 4 | 1 | 10 | 12 | 8 | 10 | 12 | 0.080 | 0.14 | 0.13 | 0.06 | 0.57 | 0.51 | 0.23 |
| CWR19C^336^@D+□ | TAZ D 336 * 004 C □ # @ 0 ^ ++ | TAZ D 336 * 004 C □ L @ 9 ^ ++ | D | 33 | 4 | 4 | 2 | 20 | 24 | 8 | 10 | 12 | 0.080 | 0.14 | 0.13 | 0.06 | 0.57 | 0.51 | 0.23 |
| CWR19C^336^@E+□ | TAZ E 336 * 004 C □ # @ 0 ^ ++ | TAZ E 336 * 004 C □ L @ 9 ^ ++ | E | 33 | 4 | 3 | 2 | 20 | 24 | 8 | 10 | 12 | 0.090 | 0.17 | 0.16 | 0.07 | 0.52 | 0.47 | 0.21 |
| CWR19C^476^@E+□ | TAZ E 476 * 004 C □ # @ 0 ^ ++ | TAZ E 476 * 004 C □ L @ 9 ^ ++ | E | 47 | 4 | 3 | 2 | 20 | 24 | 8 | 10 | 12 | 0.090 | 0.17 | 0.16 | 0.07 | 0.52 | 0.47 | 0.21 |
| CWR19C^686^@E+□ | TAZ E 686 * 004 C □ # @ 0 ^ ++ | TAZ E 686 * 004 C □ L @ 9 ^ ++ | E | 68 | 4 | 3 | 3 | 30 | 36 | 8 | 10 | 12 | 0.090 | 0.17 | 0.16 | 0.07 | 0.52 | 0.47 | 0.21 |
| CWR19C^107^@F+□ | TAZ F 107 * 004 C □ # @ 0 ^ ++ | TAZ F 107 * 004 C □ L @ 9 ^ ++ | F | 100 | 4 | 2 | 4 | 40 | 48 | 10 | 12 | 12 | 0.100 | 0.22 | 0.20 | 0.09 | 0.45 | 0.40 | 0.18 |
| CWR19C^157^@G+□ | TAZ G 157 * 004 C □ # @ 0 ^ ++ | TAZ G 157 * 004 C □ L @ 9 ^ ++ | G | 150 | 4 | 1 | 6 | 60 | 72 | 10 | 12 | 12 | 0.125 | 0.35 | 0.32 | 0.14 | 0.35 | 0.32 | 0.14 |
| CWR19C^227^@H+□ | TAZ H 227 * 004 C □ # @ 0 ^ ++ | TAZ H 227 * 004 C □ L @ 9 ^ ++ | H | 220 | 4 | 1 | 8 | 80 | 96 | 10 | 12 | 12 | 0.150 | 0.39 | 0.35 | 0.15 | 0.39 | 0.35 | 0.15 |
| CWR19C^337^@H+□ | TAZ H 337 * 004 C □ # @ 0 ^ ++ | TAZ H 337 * 004 C □ L @ 9 ^ ++ | H | 330 | 4 | 0.9 | 10 | 100 | 120 | 10 | 12 | 12 | 0.150 | 0.41 | 0.37 | 0.16 | 0.37 | 0.33 | 0.15 |
| CWR19D^335^@A+□ | TAZ A 335 * 006 C □ # @ 0 ^ ++ | TAZ A 335 * 006 C □ L @ 9 ^ ++ | A | 3.3 | 6 | 12 | 1 | 10 | 12 | 6 | 8 | 8 | 0.050 | 0.06 | 0.06 | 0.03 | 0.77 | 0.70 | 0.31 |
| CWR19D^475^@A+□ | TAZ A 475 * 006 C □ # @ 0 ^ ++ | TAZ A 475 * 006 C □ L @ 9 ^ ++ | A | 4.7 | 6 | 12 | 1 | 10 | 12 | 6 | 8 | 8 | 0.050 | 0.06 | 0.06 | 0.03 | 0.77 | 0.70 | 0.31 |
| CWR19D^685^@B+□ | TAZ B 685 * 006 C □ # @ 0 ^ ++ | TAZ B 685 * 006 C □ L @ 9 ^ ++ | B | 6.8 | 6 | 8 | 1 | 10 | 12 | 6 | 8 | 8 | 0.070 | 0.09 | 0.08 | 0.04 | 0.75 | 0.67 | 0.30 |
| CWR19D^106^@B+□ | TAZ B 106 * 006 C □ # @ 0 ^ ++ | TAZ B 106 * 006 C □ L @ 9 ^ ++ | B | 10 | 6 | 8 | 1 | 10 | 12 | 6 | 8 | 8 | 0.070 | 0.09 | 0.08 | 0.04 | 0.75 | 0.67 | 0.30 |
| CWR19D^156^@B+□ | TAZ B 156 * 006 C □ # @ 0 ^ ++ | TAZ B 156 * 006 C □ L @ 9 ^ ++ | B | 15 | 6 | 8 | 1 | 10 | 12 | 8 | 10 | 10 | 0.070 | 0.09 | 0.08 | 0.04 | 0.75 | 0.67 | 0.30 |
| CWR19D^156^@D+□ | TAZ D 156 * 006 C □ # @ 0 ^ ++ | TAZ D 156 * 006 C □ L @ 9 ^ ++ | D | 15 | 6 | 5 | 1 | 10 | 12 | 8 | 10 | 12 | 0.080 | 0.13 | 0.11 | 0.05 | 0.63 | 0.57 | 0.25 |
| CWR19D^226^@D+□ | TAZ D 226 * 006 C □ # @ 0 ^ ++ | TAZ D 226 * 006 C □ L @ 9 ^ ++ | D | 22 | 6 | 5 | 1 | 10 | 12 | 6 | 8 | 8 | 0.080 | 0.13 | 0.11 | 0.05 | 0.63 | 0.57 | 0.25 |
| CWR19D^156^@E+□ | TAZ E 156 * 006 C □ # @ 0 ^ ++ | TAZ E 156 * 006 C □ L @ 9 ^ ++ | E | 15 | 6 | 3 | 1 | 10 | 12 | 8 | 10 | 12 | 0.090 | 0.17 | 0.16 | 0.07 | 0.52 | 0.47 | 0.21 |
| CWR19D^226^@E+□ | TAZ E 226 * 006 C □ # @ 0 ^ ++ | TAZ E 226 * 006 C □ L @ 9 ^ ++ | E | 22 | 6 | 3.5 | 2 | 20 | 24 | 8 | 10 | 12 | 0.090 | 0.16 | 0.14 | 0.06 | 0.56 | 0.51 | 0.22 |
| CWR19D^336^@E+□ | TAZ E 336 * 006 C □ # @ 0 ^ ++ | TAZ E 336 * 006 C □ L @ 9 ^ ++ | E | 33 | 6 | 3.5 | 2 | 20 | 24 | 6 | 8 | 8 | 0.090 | 0.16 | 0.14 | 0.06 | 0.56 | 0.51 | 0.22 |
| CWR19D^476^@F+□ | TAZ F 476 * 006 C □ # @ 0 ^ ++ | TAZ F 476 * 006 C □ L @ 9 ^ ++ | F | 47 | 6 | 3.5 | 3 | 30 | 36 | 8 | 10 | 12 | 0.100 | 0.17 | 0.15 | 0.07 | 0.59 | 0.53 | 0.24 |
| CWR19D^686^@F+□ | TAZ F 686 * 006 C □ # @ 0 ^ ++ | TAZ F 686 * 006 C □ L @ 9 ^ ++ | F | 68 | 6 | 1.5 | 4 | 40 | 48 | 10 | 12 | 12 | 0.100 | 0.26 | 0.23 | 0.10 | 0.39 | 0.35 | 0.15 |
| CWR19D^686^@G+□ | TAZ G 686 * 006 C □ # @ 0 ^ ++ | TAZ G 686 * 006 C □ L @ 9 ^ ++ | G | 68 | 6 | 1 | 4 | 40 | 48 | 10 | 12 | 12 | 0.125 | 0.35 | 0.32 | 0.14 | 0.35 | 0.32 | 0.14 |
| CWR19D^107^@G+□ | TAZ G 107 * 006 C □ # @ 0 ^ ++ | TAZ G 107 * 006 C □ L @ 9 ^ ++ | G | 100 | 6 | 1.1 | 6 | 60 | 72 | 10 | 12 | 12 | 0.125 | 0.34 | 0.30 | 0.13 | 0.37 | 0.33 | 0.15 |
| CWR19D^157^@G+□ | TAZ G 157 * 006 C □ # @ 0 ^ ++ | TAZ G 157 * 006 C □ L @ 9 ^ ++ | G | 150 | 6 | 1.1 | 10 | 100 | 120 | 10 | 12 | 12 | 0.125 | 0.34 | 0.30 | 0.13 | 0.37 | 0.33 | 0.15 |
| CWR19D^227^@H+□ | TAZ H 227 * 006 C □ # @ 0 ^ ++ | TAZ H 227 * 006 C □ L @ 9 ^ ++ | H | 220 | 6 | 0.9 | 10 | 100 | 120 | 10 | 12 | 12 | 0.150 | 0.41 | 0.37 | 0.16 | 0.37 | 0.33 | 0.15 |
| CWR19D^337^@H+□ | TAZ H 337 * 006 C □ # @ 0 ^ ++ | TAZ H 337 * 006 C □ L @ 9 ^ ++ | H | 330 | 6 | 0.9 | 20 | 200 | 240 | 10 | 12 | 12 | 0.150 | 0.41 | 0.37 | 0.16 | 0.37 | 0.33 | 0.15 |
| CWR19F^225^@A+□ | TAZ A 225 * 010 C □ # @ 0 ^ ++ | TAZ A 225 * 010 C □ L @ 9 ^ ++ | A | 2.2 | 10 | 12 | 1 | 10 | 12 | 6 | 8 | 8 | 0.050 | 0.06 | 0.06 | 0.03 | 0.77 | 0.70 | 0.31 |
| CWR19F^335^@A+□ | TAZ A 335 * 010 C □ # @ 0 ^ ++ | TAZ A 335 * 010 C □ L @ 9 ^ ++ | A | 3.3 | 10 | 12 | 1 | 10 | 12 | 6 | 8 | 8 | 0.050 | 0.06 | 0.06 | 0.03 | 0.77 | 0.70 | 0.31 |
| CWR19F^475^@B+□ | TAZ B 475 * 010 C □ # @ 0 ^ ++ | TAZ B 475 * 010 C □ L @ 9 ^ ++ | B | 4.7 | 10 | 8 | 1 | 10 | 12 | 6 | 8 | 8 | 0.070 | 0.09 | 0.08 | 0.04 | 0.75 | 0.67 | 0.30 |
| CWR19F^685^@B+□ | TAZ B 685 * 010 C □ # @ 0 ^ ++ | TAZ B 685 * 010 C □ L @ 9 ^ ++ | B | 6.8 | 10 | 8 | 1 | 10 | 12 | 6 | 8 | 8 | 0.070 | 0.09 | 0.08 | 0.04 | 0.75 | 0.67 | 0.30 |
| CWR19F^106^@B+□ | TAZ B 106 * 010 C □ # @ 0 ^ ++ | TAZ B 106 * 010 C □ L @ 9 ^ ++ | B | 10 | 10 | 8 | 1 | 10 | 12 | 8 | 10 | 10 | 0.070 | 0.09 | 0.08 | 0.04 | 0.75 | 0.67 | 0.30 |
| CWR19F^475^@C+□ | TAZ C 475 * 010 C □ # @ 0 ^ ++ | TAZ C 475 * 010 C □ L @ 9 ^ ++ | C | 4.7 | 10 | 5.5 | 1 | 10 | 12 | 6 | 8 | 8 | 0.075 | 0.12 | 0.11 | 0.05 | 0.64 | 0.58 | 0.26 |
| CWR19F^685^@C+□ | TAZ C 685 * 010 C □ # @ 0 ^ ++ | TAZ C 685 * 010 C □ L @ 9 ^ ++ | C | 6.8 | 10 | 5.5 | 1 | 10 | 12 | 6 | 8 | 8 | 0.075 | 0.12 | 0.11 | 0.05 | 0.64 | 0.58 | 0.26 |
| CWR19F^106^@C+□ | TAZ C 106 * 010 C □ # @ 0 ^ ++ | TAZ C 106 * 010 C □ L @ 9 ^ ++ | C | 10 | 10 | 5.5 | 1 | 10 | 12 | 6 | 8 | 8 | 0.075 | 0.12 | 0.11 | 0.05 | 0.64 | 0.58 | 0.26 |
| CWR19F^685^@D+□ | TAZ D 685 * 010 C □ # @ 0 ^ ++ | TAZ D 685 * 010 C □ L @ 9 ^ ++ | D | 6.8 | 10 | 5 | 1 | 10 | 12 | 6 | 8 | 8 | 0.080 | 0.13 | 0.11 | 0.05 | 0.63 | 0.57 | 0.25 |
| CWR19F^106^@D+□ | TAZ D 106 * 010 C □ # @ 0 ^ ++ | TAZ D 106 * 010 C □ L @ 9 ^ ++ | D | 10 | 10 | 4 | 1 | 10 | 12 | 6 | 8 | 8 | 0.080 | 0.14 | 0.13 | 0.06 | 0.57 | 0.51 | 0.23 |
| CWR19F^156^@D+□ | TAZ D 156 * 010 C □ # @ 0 ^ ++ | TAZ D 156 * 010 C □ L @ 9 ^ ++ | D | 15 | 10 | 5 | 2 | 20 | 24 | 6 | 8 | 8 | 0.080 | 0.13 | 0.11 | 0.05 | 0.63 | 0.57 | 0.25 |
| CWR19F^106^@E+□ | TAZ E 106 * 010 C □ # @ 0 ^ ++ | TAZ E 106 * 010 C □ L @ 9 ^ ++ | E | 10 | 10 | 3.5 | 1 | 10 | 12 | 6 | 8 | 8 | 0.090 | 0.16 | 0.14 | 0.06 | 0.56 | 0.51 | 0.22 |
| CWR19F^156^@E+□ | TAZ E 156 * 010 C □ # @ 0 ^ ++ | TAZ E 156 * 010 C □ L @ 9 ^ ++ | E | 15 | 10 | 3 | 2 | 20 | 24 | 8 | 10 | 10 | 0.090 | 0.17 | 0.16 | 0.07 | 0.52 | 0.47 | 0.21 |
| CWR19F^226^@E+□ | TAZ E 226 * 010 C □ # @ 0 ^ ++ | TAZ E 226 * 010 C □ L @ 9 ^ ++ | E | 22 | 10 | 2 | 3 | 30 | 36 | 8 | 10 | 10 | 0.090 | 0.21 | 0.19 | 0.08 | 0.42 | 0.38 | 0.17 |
| CWR19F^336^@F+□ | TAZ F 336 * 010 C □ # @ 0 ^ ++ | TAZ F 336 * 010 C □ L @ 9 ^ ++ | F | 33 | 10 | 1.5 | 3 | 30 | 36 | 8 | 10 | 10 | 0.100 | 0.26 | 0.23 | 0.10 | 0.39 | 0.35 | 0.15 |
| CWR19F^476^@F+□ | TAZ F 476 * 010 C □ # @ 0 ^ ++ | TAZ F 476 * 010 C □ L @ 9 ^ ++ | F | 47 | 10 | 1.5 | 4 | 40 | 48 | 10 | 12 | 12 | 0.100 | 0.26 | 0.23 | 0.10 | 0.39 | 0.35 | 0.15 |
| CWR19F^476^@G+□ | TAZ G 476 * 010 C □ # @ 0 ^ ++ | TAZ G 476 * 010 C □ L @ 9 ^ ++ | G | 47 | 10 | 1 | 4 | 40 | 48 | 10 | 12 | 12 | 0.125 | 0.35 | 0.32 | 0.14 | 0.35 | 0.32 | 0.14 |
| CWR19F^686^@G+□ | TAZ G 686 * 010 C □ # @ 0 ^ ++ | TAZ G 686 * 010 C □ L @ 9 ^ ++ | G | 68 | 10 | 1.1 | 6 | 60 | 72 | 10 | 12 | 12 | 0.125 | 0.34 | 0.30 | 0.13 | 0.37 | 0.33 | 0.15 |
| CWR19F^107^@G+□ | TAZ G 107 * 010 C □ # @ 0 ^ ++ | TAZ G 107 * 010 C □ L @ 9 ^ ++ | G | 100 | 10 | 1.1 | 10 | 100 | 120 | 10 | 12 | 12 | 0.125 | 0.34 | 0.30 | 0.13 | 0.37 | 0.33 | 0.15 |
| CWR19F^107^@H+□ | TAZ H 107 * 010 C □ # @ 0 ^ ++ | TAZ H 107 * 010 C □ L @ 9 ^ ++ | H | 100 | 10 | 0.9 | 10 | 100 | 120 | 10 | 12 | 12 | 0.150 | 0.41 | 0.37 | 0.16 | 0.37 | 0.33 | 0.15 |
| CWR19F^157^@H+□ | TAZ H 157 * 010 C □ # @ 0 ^ ++ | TAZ H 157 * 010 C □ L @ 9 ^ ++ | H | 150 | 10 | 0.9 | 15 | 150 | 180 | 10 | 12 | 12 | 0.150 | 0.41 | 0.37 | 0.16 | 0.37 | 0.33 | 0.15 |
| CWR19F^227^@H+□ | TAZ H 227 * 010 C □ # @ 0 ^ ++ | TAZ H 227 * 010 C □ L @ 9 ^ ++ | H | 220 | 10 | 0.9 | 20 | 200 | 240 | 10 | 12 | 12 | 0.150 | 0.41 | 0.37 | 0.16 | 0.37 | 0.33 | 0.15 |
| CWR19F^157^@X+□ | TAZ X 157 * 010 C □ # @ 0 ^ ++ | TAZ X 157 * 010 C □ L @ 9 ^ ++ | X | 150 | 10 | 0.9 | 15 | 150 | 180 | 10 | 12 | 12 | 0.200 | 0.47 | 0.42 | 0.19 | 0.42 | 0.38 | 0.17 |

All technical data relates to ambient temperature of +25°C. Capacitance and DF are measured at 120Hz, 0.5V RMS with a maximum DC bias of 2.2 volts. DCL is measured at rated voltage after 5 minutes.

NOTE: AVX reserves the right to supply a higher voltage rating or tighter tolerance part in the same case size, to the same reliability standards.



TAZ Series



CWR19 - MIL-PRF-55365/11 Established Reliability, COTS-Plus & Space Level

| RATING & PART NUMBER REFERENCE | | | Parametric Specifications by Rating per MIL-PRF-55365/11 | | | | | | | | | Typical RMS Ripple Data by Rating | | | | | | | |
|--------------------------------|--------------------------------|--------------------------------|--|------------------|--------------|--------------|------------|------------|-------------|-----------|---------------|-----------------------------------|-------------|-------------|--------------|-------------|-------------|--------------|------------|
| | | | Cap @ 120Hz | DC Rated Voltage | ESR @ 100kHz | DCL max | | | DF Max | | | Power Dissipation | 25°C Ripple | 85°C Ripple | 125°C Ripple | 25°C Ripple | 85°C Ripple | 125°C Ripple | |
| CWR19 P/N | AVX MIL & COTS-Plus P/N | AVX SRC9000 P/N | Case | µF @ 25°C | V @ +85°C | Ohms @ +25°C | +25°C (µA) | +85°C (µA) | +125°C (µA) | +25°C (%) | +85/125°C (%) | -55°C (%) | W | A (100kHz) | A (100kHz) | A (100kHz) | V (100kHz) | V (100kHz) | V (100kHz) |
| CWR19H^105^@A+□ | TAZ A 105 * 015 C □ # @ 0 ^ ++ | TAZ A 105 * 015 C □ L @ 9 ^ ++ | A | 1 | 15 | 15 | 1 | 10 | 12 | 6 | 8 | 8 | 0.050 | 0.06 | 0.05 | 0.02 | 0.87 | 0.78 | 0.35 |
| CWR19H^155^@A+□ | TAZ A 155 * 015 C □ # @ 0 ^ ++ | TAZ A 155 * 015 C □ L @ 9 ^ ++ | A | 1.5 | 15 | 15 | 1 | 10 | 12 | 6 | 8 | 8 | 0.050 | 0.06 | 0.05 | 0.02 | 0.87 | 0.78 | 0.35 |
| CWR19H^225^@A+□ | TAZ A 225 * 015 C □ # @ 0 ^ ++ | TAZ A 225 * 015 C □ L @ 9 ^ ++ | A | 2.2 | 15 | 15 | 1 | 10 | 12 | 6 | 8 | 8 | 0.050 | 0.06 | 0.05 | 0.02 | 0.87 | 0.78 | 0.35 |
| CWR19H^335^@B+□ | TAZ B 335 * 015 C □ # @ 0 ^ ++ | TAZ B 335 * 015 C □ L @ 9 ^ ++ | B | 3.3 | 15 | 9 | 1 | 10 | 12 | 6 | 8 | 8 | 0.070 | 0.09 | 0.08 | 0.04 | 0.79 | 0.71 | 0.32 |
| CWR19H^475^@B+□ | TAZ B 475 * 015 C □ # @ 0 ^ ++ | TAZ B 475 * 015 C □ L @ 9 ^ ++ | B | 4.7 | 15 | 5 | 1 | 10 | 12 | 6 | 8 | 8 | 0.070 | 0.12 | 0.11 | 0.05 | 0.69 | 0.53 | 0.24 |
| CWR19H^475^@C+□ | TAZ C 475 * 015 C □ # @ 0 ^ ++ | TAZ C 475 * 015 C □ L @ 9 ^ ++ | C | 4.7 | 15 | 5.5 | 1 | 10 | 12 | 6 | 8 | 8 | 0.075 | 0.12 | 0.11 | 0.05 | 0.64 | 0.58 | 0.26 |
| CWR19H^475^@D+□ | TAZ D 475 * 015 C □ # @ 0 ^ ++ | TAZ D 475 * 015 C □ L @ 9 ^ ++ | D | 4.7 | 15 | 6 | 1 | 10 | 12 | 6 | 8 | 8 | 0.080 | 0.12 | 0.10 | 0.05 | 0.69 | 0.62 | 0.28 |
| CWR19H^685^@D+□ | TAZ D 685 * 015 C □ # @ 0 ^ ++ | TAZ D 685 * 015 C □ L @ 9 ^ ++ | D | 6.8 | 15 | 6 | 1 | 10 | 12 | 6 | 8 | 8 | 0.080 | 0.12 | 0.10 | 0.05 | 0.69 | 0.62 | 0.28 |
| CWR19H^106^@D+□ | TAZ D 106 * 015 C □ # @ 0 ^ ++ | TAZ D 106 * 015 C □ L @ 9 ^ ++ | D | 10 | 15 | 6 | 2 | 20 | 24 | 6 | 8 | 8 | 0.080 | 0.12 | 0.10 | 0.05 | 0.69 | 0.62 | 0.28 |
| CWR19H^685^@E+□ | TAZ E 685 * 015 C □ # @ 0 ^ ++ | TAZ E 685 * 015 C □ L @ 9 ^ ++ | E | 6.8 | 15 | 3 | 1 | 10 | 12 | 8 | 10 | 12 | 0.090 | 0.17 | 0.16 | 0.07 | 0.52 | 0.47 | 0.21 |
| CWR19H^106^@E+□ | TAZ E 106 * 015 C □ # @ 0 ^ ++ | TAZ E 106 * 015 C □ L @ 9 ^ ++ | E | 10 | 15 | 4 | 2 | 20 | 24 | 6 | 8 | 8 | 0.090 | 0.15 | 0.14 | 0.06 | 0.60 | 0.54 | 0.24 |
| CWR19H^156^@E+□ | TAZ E 156 * 015 C □ # @ 0 ^ ++ | TAZ E 156 * 015 C □ L @ 9 ^ ++ | E | 15 | 15 | 4 | 2 | 20 | 24 | 6 | 8 | 8 | 0.090 | 0.15 | 0.14 | 0.06 | 0.60 | 0.54 | 0.24 |
| CWR19H^156^@F+□ | TAZ F 156 * 015 C □ # @ 0 ^ ++ | TAZ F 156 * 015 C □ L @ 9 ^ ++ | F | 15 | 15 | 3 | 2 | 20 | 24 | 8 | 10 | 10 | 0.100 | 0.18 | 0.16 | 0.07 | 0.55 | 0.49 | 0.22 |
| CWR19H^226^@F+□ | TAZ F 226 * 015 C □ # @ 0 ^ ++ | TAZ F 226 * 015 C □ L @ 9 ^ ++ | F | 22 | 15 | 3 | 3 | 30 | 36 | 8 | 10 | 10 | 0.100 | 0.18 | 0.16 | 0.07 | 0.55 | 0.49 | 0.22 |
| CWR19H^336^@F+□ | TAZ F 336 * 015 C □ # @ 0 ^ ++ | TAZ F 336 * 015 C □ L @ 9 ^ ++ | F | 33 | 15 | 3 | 5 | 50 | 60 | 6 | 8 | 8 | 0.100 | 0.18 | 0.16 | 0.07 | 0.55 | 0.49 | 0.22 |
| CWR19H^336^@G+□ | TAZ G 336 * 015 C □ # @ 0 ^ ++ | TAZ G 336 * 015 C □ L @ 9 ^ ++ | G | 33 | 15 | 1.1 | 6 | 60 | 72 | 8 | 10 | 10 | 0.125 | 0.34 | 0.30 | 0.13 | 0.37 | 0.33 | 0.15 |
| CWR19H^476^@G+□ | TAZ G 476 * 015 C □ # @ 0 ^ ++ | TAZ G 476 * 015 C □ L @ 9 ^ ++ | G | 47 | 15 | 1.1 | 10 | 100 | 120 | 8 | 10 | 10 | 0.125 | 0.34 | 0.30 | 0.13 | 0.37 | 0.33 | 0.15 |
| CWR19H^686^@G+□ | TAZ G 686 * 015 C □ # @ 0 ^ ++ | TAZ G 686 * 015 C □ L @ 9 ^ ++ | G | 68 | 15 | 1.1 | 10 | 100 | 120 | 8 | 10 | 10 | 0.125 | 0.34 | 0.30 | 0.13 | 0.37 | 0.33 | 0.15 |
| CWR19H^476^@H+□ | TAZ H 476 * 015 C □ # @ 0 ^ ++ | TAZ H 476 * 015 C □ L @ 9 ^ ++ | H | 47 | 15 | 0.9 | 10 | 100 | 120 | 8 | 10 | 10 | 0.150 | 0.41 | 0.37 | 0.16 | 0.37 | 0.33 | 0.15 |
| CWR19H^686^@H+□ | TAZ H 686 * 015 C □ # @ 0 ^ ++ | TAZ H 686 * 015 C □ L @ 9 ^ ++ | H | 68 | 15 | 0.9 | 10 | 100 | 120 | 8 | 10 | 10 | 0.150 | 0.41 | 0.37 | 0.16 | 0.37 | 0.33 | 0.15 |
| CWR19H^107^@H+□ | TAZ H 107 * 015 C □ # @ 0 ^ ++ | TAZ H 107 * 015 C □ L @ 9 ^ ++ | H | 100 | 15 | 0.9 | 15 | 150 | 180 | 10 | 12 | 12 | 0.150 | 0.41 | 0.37 | 0.16 | 0.37 | 0.33 | 0.15 |
| CWR19J^684^@A+□ | TAZ A 684 * 020 C □ # @ 0 ^ ++ | TAZ A 684 * 020 C □ L @ 9 ^ ++ | A | 0.68 | 20 | 15 | 1 | 10 | 12 | 6 | 8 | 8 | 0.050 | 0.06 | 0.05 | 0.02 | 0.87 | 0.78 | 0.35 |
| CWR19J^105^@A+□ | TAZ A 105 * 020 C □ # @ 0 ^ ++ | TAZ A 105 * 020 C □ L @ 9 ^ ++ | A | 1 | 20 | 15 | 1 | 10 | 12 | 6 | 8 | 8 | 0.050 | 0.06 | 0.05 | 0.02 | 0.87 | 0.78 | 0.35 |
| CWR19J^155^@B+□ | TAZ B 155 * 020 C □ # @ 0 ^ ++ | TAZ B 155 * 020 C □ L @ 9 ^ ++ | B | 1.5 | 20 | 9 | 1 | 10 | 12 | 6 | 8 | 8 | 0.070 | 0.09 | 0.08 | 0.04 | 0.79 | 0.71 | 0.32 |
| CWR19J^225^@B+□ | TAZ B 225 * 020 C □ # @ 0 ^ ++ | TAZ B 225 * 020 C □ L @ 9 ^ ++ | B | 2.2 | 20 | 9 | 1 | 10 | 12 | 6 | 8 | 8 | 0.070 | 0.09 | 0.08 | 0.04 | 0.79 | 0.71 | 0.32 |
| CWR19J^335^@D+□ | TAZ D 335 * 020 C □ # @ 0 ^ ++ | TAZ D 335 * 020 C □ L @ 9 ^ ++ | D | 3.3 | 20 | 6 | 1 | 10 | 12 | 6 | 8 | 8 | 0.080 | 0.12 | 0.10 | 0.05 | 0.69 | 0.62 | 0.28 |
| CWR19J^475^@E+□ | TAZ E 475 * 020 C □ # @ 0 ^ ++ | TAZ E 475 * 020 C □ L @ 9 ^ ++ | E | 4.7 | 20 | 6 | 1 | 10 | 12 | 6 | 8 | 8 | 0.090 | 0.12 | 0.11 | 0.05 | 0.73 | 0.66 | 0.29 |
| CWR19J^685^@E+□ | TAZ E 685 * 020 C □ # @ 0 ^ ++ | TAZ E 685 * 020 C □ L @ 9 ^ ++ | E | 6.8 | 20 | 5 | 2 | 20 | 24 | 6 | 8 | 8 | 0.090 | 0.13 | 0.12 | 0.05 | 0.67 | 0.60 | 0.27 |
| CWR19J^106^@E+□ | TAZ E 106 * 020 C □ # @ 0 ^ ++ | TAZ E 106 * 020 C □ L @ 9 ^ ++ | E | 10 | 20 | 5 | 2 | 20 | 24 | 6 | 8 | 8 | 0.090 | 0.13 | 0.12 | 0.05 | 0.67 | 0.60 | 0.27 |
| CWR19J^106^@F+□ | TAZ F 106 * 020 C □ # @ 0 ^ ++ | TAZ F 106 * 020 C □ L @ 9 ^ ++ | F | 10 | 20 | 3 | 2 | 20 | 24 | 6 | 8 | 8 | 0.100 | 0.18 | 0.16 | 0.07 | 0.55 | 0.49 | 0.22 |
| CWR19J^156^@F+□ | TAZ F 156 * 020 C □ # @ 0 ^ ++ | TAZ F 156 * 020 C □ L @ 9 ^ ++ | F | 15 | 20 | 3 | 3 | 30 | 36 | 6 | 8 | 8 | 0.100 | 0.18 | 0.16 | 0.07 | 0.55 | 0.49 | 0.22 |
| CWR19J^226^@G+□ | TAZ G 226 * 020 C □ # @ 0 ^ ++ | TAZ G 226 * 020 C □ L @ 9 ^ ++ | G | 22 | 20 | 2.5 | 4 | 40 | 48 | 6 | 8 | 8 | 0.125 | 0.22 | 0.20 | 0.09 | 0.56 | 0.50 | 0.22 |
| CWR19J^336^@H+□ | TAZ H 336 * 020 C □ # @ 0 ^ ++ | TAZ H 336 * 020 C □ L @ 9 ^ ++ | H | 33 | 20 | 0.9 | 6 | 60 | 72 | 8 | 10 | 10 | 0.150 | 0.41 | 0.37 | 0.16 | 0.37 | 0.33 | 0.15 |
| CWR19J^476^@H+□ | TAZ H 476 * 020 C □ # @ 0 ^ ++ | TAZ H 476 * 020 C □ L @ 9 ^ ++ | H | 47 | 20 | 0.9 | 10 | 100 | 120 | 8 | 10 | 10 | 0.150 | 0.41 | 0.37 | 0.16 | 0.37 | 0.33 | 0.15 |
| CWR19J^476^@X+□ | TAZ X 476 * 020 C □ # @ 0 ^ ++ | TAZ X 476 * 020 C □ L @ 9 ^ ++ | X | 47 | 20 | 0.9 | 10 | 100 | 120 | 8 | 10 | 10 | 0.200 | 0.47 | 0.42 | 0.19 | 0.42 | 0.38 | 0.17 |
| CWR19K^474^@A+□ | TAZ A 474 * 025 C □ # @ 0 ^ ++ | TAZ A 474 * 025 C □ L @ 9 ^ ++ | A | 0.47 | 25 | 15 | 1 | 10 | 12 | 6 | 8 | 8 | 0.050 | 0.06 | 0.05 | 0.02 | 0.87 | 0.78 | 0.35 |
| CWR19K^105^@B+□ | TAZ B 105 * 025 C □ # @ 0 ^ ++ | TAZ B 105 * 025 C □ L @ 9 ^ ++ | B | 1 | 25 | 10 | 1 | 10 | 12 | 6 | 8 | 8 | 0.070 | 0.08 | 0.08 | 0.03 | 0.84 | 0.75 | 0.33 |
| CWR19K^225^@D+□ | TAZ D 225 * 025 C □ # @ 0 ^ ++ | TAZ D 225 * 025 C □ L @ 9 ^ ++ | D | 2.2 | 25 | 6 | 1 | 10 | 12 | 6 | 8 | 8 | 0.080 | 0.12 | 0.10 | 0.05 | 0.69 | 0.62 | 0.28 |
| CWR19K^335^@E+□ | TAZ E 335 * 025 C □ # @ 0 ^ ++ | TAZ E 335 * 025 C □ L @ 9 ^ ++ | E | 3.3 | 25 | 4 | 1 | 10 | 12 | 6 | 8 | 8 | 0.090 | 0.15 | 0.14 | 0.06 | 0.60 | 0.54 | 0.24 |
| CWR19K^685^@F+□ | TAZ F 685 * 025 C □ # @ 0 ^ ++ | TAZ F 685 * 025 C □ L @ 9 ^ ++ | F | 6.8 | 25 | 3 | 2 | 20 | 24 | 6 | 8 | 8 | 0.100 | 0.18 | 0.16 | 0.07 | 0.55 | 0.49 | 0.22 |
| CWR19K^156^@G+□ | TAZ G 156 * 025 C □ # @ 0 ^ ++ | TAZ G 156 * 025 C □ L @ 9 ^ ++ | G | 15 | 25 | 1.4 | 4 | 40 | 48 | 6 | 8 | 8 | 0.125 | 0.30 | 0.27 | 0.12 | 0.42 | 0.38 | 0.17 |
| CWR19K^226^@G+□ | TAZ G 226 * 025 C □ # @ 0 ^ ++ | TAZ G 226 * 025 C □ L @ 9 ^ ++ | G | 22 | 25 | 1.4 | 6 | 60 | 72 | 6 | 8 | 8 | 0.125 | 0.30 | 0.27 | 0.12 | 0.42 | 0.38 | 0.17 |
| CWR19K^226^@H+□ | TAZ H 226 * 025 C □ # @ 0 ^ ++ | TAZ H 226 * 025 C □ L @ 9 ^ ++ | H | 22 | 25 | 0.9 | 6 | 60 | 72 | 6 | 8 | 8 | 0.150 | 0.41 | 0.37 | 0.16 | 0.37 | 0.33 | 0.15 |
| CWR19K^336^@H+□ | TAZ H 336 * 025 C □ # @ 0 ^ ++ | TAZ H 336 * 025 C □ L @ 9 ^ ++ | H | 33 | 25 | 0.9 | 10 | 100 | 120 | 8 | 10 | 10 | 0.150 | 0.41 | 0.37 | 0.16 | 0.37 | 0.33 | 0.15 |
| CWR19M^334^@A+□ | TAZ A 334 * 035 C □ # @ 0 ^ ++ | TAZ A 334 * 035 C □ L @ 9 ^ ++ | A | 0.33 | 35 | 22 | 1 | 10 | 12 | 6 | 8 | 8 | 0.050 | 0.05 | 0.04 | 0.02 | 1.05 | 0.94 | 0.42 |
| CWR19M^685^@G+□ | TAZ G 685 * 035 C □ # @ 0 ^ ++ | TAZ G 685 * 035 C □ L @ 9 ^ ++ | G | 6.8 | 35 | 1.5 | 3 | 30 | 36 | 6 | 8 | 8 | 0.125 | 0.29 | 0.26 | 0.12 | 0.43 | 0.39 | 0.17 |
| CWR19M^106^@H+□ | TAZ H 106 * 035 C □ # @ 0 ^ ++ | TAZ H 106 * 035 C □ L @ 9 ^ ++ | H | 10 | 35 | 0.9 | 4 | 40 | 48 | 8 | 10 | 10 | 0.150 | 0.41 | 0.37 | 0.16 | 0.37 | 0.33 | 0.15 |
| CWR19M^156^@X+□ | TAZ X 156 * 035 C □ # @ 0 ^ ++ | TAZ X 156 * 035 C □ L @ 9 ^ ++ | X | 15 | 35 | 0.9 | 6 | 60 | 72 | 6 | 8 | 8 | 0.200 | 0.47 | 0.42 | 0.19 | 0.42 | 0.38 | 0.17 |

All technical data relates to an ambient temperature of +25°C. Capacitance and DF are measured at 120Hz, 0.5V RMS with a maximum DC bias of 2.2 volts. DCL is measured at rated voltage after 5 minutes.

NOTE: AVX reserves the right to supply a higher voltage rating or tighter tolerance part in the same case size, to the same reliability standards.



TAZ Series



CWR29 - MIL-PRF-55365/11 Established Reliability, COTS-Plus & Space Level



A low ESR version of CWR09 and CWR19 that is fully qualified to MIL-PRF-55365/11, the CWR29 series represents the most flexible of surface mount form factors and the optimum power handling for all filtering applications. It is offered in nine case sizes (the original A through H of CWR09 and adding the new X case size).

The molded body / compliant termination construction ensures no TCE mismatch with any substrate. This construction is compatible with a wide range of SMT board assembly processes including wave or reflow solder, conductive epoxy or compression bonding techniques. The parts also carry full polarity and capacitance / voltage marking.

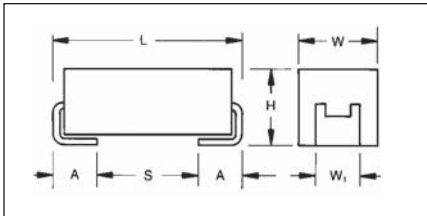
The five smaller cases are characterized by their low profile construction, with the A case being the world's smallest molded military tantalum chip.

The series is qualified to MIL-PRF-55365 Weibull "B", "C", "D" and "T" levels, with all surge options ("A", "B" & "C") available.

For Space Level applications, AVX SRC 9000 qualification is recommended (see ratings table for part number availability).

There are four termination finishes available: solder plated, fused solder plated, hot solder dipped and gold plated (these are "H", "K", "C" and "B" termination, respectively, per MIL-PRF-55365). In addition, the molding compound has been selected to meet the requirements of UL94V-0 (Flame Retardancy) and outgassing requirements of ASTM E-595.

For moisture sensitivity levels please refer to the High Reliability Tantalum MSL section located in the back of the High Reliability Tantalum Catalog.



CASE DIMENSIONS:

millimeters (inches)

| Case Code | Length (L) ±0.38 (0.015) | Width (W) ±0.38 (0.015) | Height (H) ±0.38 (0.015) | Term. Width (W _t) | Term. Length (A) +0.25/-0.13 (+0.010/-0.005) | S min | Typical Weight (g) |
|-----------|-----------------------------|----------------------------|-----------------------------|---|--|--------------|--------------------|
| A | 2.54 (0.100) | 1.27 (0.050) | 1.27 (0.050) | 1.27±0.13 (0.050±0.005) | 0.76 (0.030) | 0.38 (0.015) | 0.016 |
| B | 3.81 (0.150) | 1.27 (0.050) | 1.27 (0.050) | 1.27±0.13 (0.050±0.005) | 0.76 (0.030) | 1.65 (0.065) | 0.025 |
| C | 5.08 (0.200) | 1.27 (0.050) | 1.27 (0.050) | 1.27±0.13 (0.050±0.005) | 0.76 (0.030) | 2.92 (0.115) | 0.035 |
| D | 3.81 (0.150) | 2.54 (0.100) | 1.27 (0.050) | 2.41+0.13/-0.25 (0.095+0.005/-0.010) | 0.76 (0.030) | 1.65 (0.065) | 0.045 |
| E | 5.08 (0.200) | 2.54 (0.100) | 1.27 (0.050) | 2.41+0.13/-0.25 (0.095+0.005/-0.010) | 0.76 (0.030) | 2.92 (0.115) | 0.065 |
| F | 5.59 (0.220) | 3.43 (0.135) | 1.78 (0.070) | 3.30±0.13 (0.130±0.005) | 0.76 (0.030) | 3.43 (0.135) | 0.125 |
| G | 6.73 (0.265) | 2.79 (0.110) | 2.79 (0.110) | 2.67±0.13 (0.105±0.005) | 1.27 (0.050) | 3.56 (0.140) | 0.205 |
| H | 7.24 (0.285) | 3.81 (0.150) | 2.79 (0.110) | 3.68+0.13/-0.51 (0.145+0.005/-0.020) | 1.27 (0.050) | 4.06 (0.160) | 0.335 |
| X | 6.93 Max (0.273) | 5.41 Max (0.213) | 2.74 Max (0.108) | 3.05±0.13 (0.120±0.005) | 1.19 (0.047) | N/A | 0.420 |

MARKING

(White marking on black body)



Polarity Stripe (+)

Capacitance Code
Rated Voltage

CWR29-MIL-PRF 55365/11

CAPACITANCE AND RATED VOLTAGE, V_R (VOLTAGE CODE) RANGE (LETTER DENOTES CASE SIZE)

| Capacitance | | Rated voltage DC (V _R) at 85°C | | | | | | | |
|-------------|------|--|--------|---------|---------|---------|---------|---------|---------|
| µF | Code | 4V (C) | 6V (D) | 10V (F) | 15V (H) | 20V (J) | 25V (K) | 35V (M) | 50V (N) |
| 0.10 | 104 | | | | | | | | A |
| 0.15 | 154 | | | | | | | | A |
| 0.22 | 224 | | | | | | | A | B |
| 0.33 | 334 | | | | | | A | A | B |
| 0.47 | 474 | | | | | A | A | B | C |
| 0.68 | 684 | | | | A | A/B | B | C | D |
| 1.0 | 105 | | | A | A | A/B | B/C | D | E |
| 1.5 | 155 | | A | | A/B | B/C | D | E | F |
| 2.2 | 225 | A | | A/B | A/C | B/D | D/E | | F |
| 3.3 | 335 | A | A/B | A/C | B/D | D/E | E | F | G |
| 4.7 | 475 | A/B | A/C | B/C/D | B/C/D/E | D/E | E | F | G |
| 6.8 | 685 | A/C | B/D | B/C/D/E | D/E | E/F | F/G | G/H | H |
| 10 | 106 | B/D | B/E | B/C/D/E | D/E/F | E/F | G | H | |
| 15 | 156 | B/E | B/D/E | D/E/F | E/F | F/G | G/H | X | |
| 22 | 226 | B/D | D/E/F | E | F/G | G/H | G/H | | |
| 33 | 336 | D/E/F | E | F/G | F/G/H | H | H | | |
| 47 | 476 | E | F/G | F/G/H | G/H | H/X | | | |
| 68 | 686 | E/G | F/G/H | G | G/H | | | | |
| 100 | 107 | F/H | G | G/H | H | | | | |
| 150 | 157 | G | G | H/X | | | | | |
| 220 | 227 | H | H | H | | | | | |
| 330 | 337 | H | H | | | | | | |



TAZ Series



CWR29 - MIL-PRF-55365/11 Established Reliability, COTS-Plus & Space Level

HOW TO ORDER

COTS-PLUS & MIL QPL (CWR29):

| TAZ | H | 227 | * | 006 | C | □ | # | @ | 0 | ^ | ++ |
|------|-----------|--|--|--|---|--|--|--|--|---|--|
| Type | Case Size | Capacitance Code pF code: 1st two digits represent significant figures 3rd digit represents multiplier (number of zeros to follow) | Capacitance Tolerance M = ±20% K = ±10% J = ±5% | Voltage Code 004 = 4Vdc 006 = 6Vdc 010 = 10Vdc 015 = 15Vdc 020 = 20Vdc 025 = 25Vdc 035 = 35Vdc 050 = 50Vdc | Standard or Low ESR Range C = Std ESR L = Low ESR | Packaging B = Bulk R = 7" T&R S = 13" T&R W = Waffle See page 8 for additional packaging options. | Inspection Level S = Std. Conformance L = Group A M = MIL (JAN) CWR29 | Reliability Grade Weibull: B = 0.1%/1000 hrs. 90% conf. C = 0.01%/1000 hrs. 90% conf. D = 0.001%/1000 hrs. 90% conf. Z = Non-ER | Qualification Level 0 = N/A T = T Level 9 = SRC9000 | Termination Finish H = Solder Plated 0 = Fused Solder Plated 8 = Hot Solder Dipped 9 = Gold Plated 7 = Matte Sn (COTS-Plus only) | Surge Test Option 00 = None 23 = 10 Cycles, +25°C 24 = 10 Cycles, -55°C & +85°C 45 = 10 cycles, -55°C & +85°C before Weibull |

For RoHS compliant products, please select correct termination style.

CWR29 P/N CROSS REFERENCE:

| CWR29 | D | ^ | 227 | * | @ | H | + | □ |
|-------|--|---|--|--|---|-----------|---|---|
| Type | Voltage Code C = 4Vdc D = 6Vdc F = 10Vdc H = 15Vdc J = 20Vdc K = 25Vdc M = 35Vdc N = 50Vdc | Termination Finish H = Solder Plated K = Solder Fused C = Hot Solder Dipped B = Gold Plated | Capacitance Code pF code: 1st two digits represent significant figures 3rd digit represents multiplier (number of zeros to follow) | Capacitance Tolerance M = ±20% K = ±10% J = ±5% | Reliability Grade Weibull: B = 0.1%/1000 hrs. 90% conf. C = 0.01%/1000 hrs. 90% conf. D = 0.001%/1000 hrs. 90% conf. T = T Level A = Non-ER | Case Size | Surge Test Option A = 10 cycles, +25°C B = 10 cycles, -55°C & +85°C C = 10 cycles, -55°C & +85°C before Weibull Z = None required | Packaging Bulk = Standard TR = 7" T&R TR13 = 13" T&R W = Waffle See page 8 for additional packaging options. |

For RoHS compliant products, please select correct termination style.

SPACE LEVEL OPTIONS TO SRC9000*:

| TAZ | H | 227 | * | 006 | C | □ | L | @ | 9 | ^ | ++ |
|------|-----------|--|--|--|---|--|---------------------------------|--|------------------------------------|--|---|
| Type | Case Size | Capacitance Code pF code: 1st two digits represent significant figures 3rd digit represents multiplier (number of zeros to follow) | Capacitance Tolerance M = ±20% K = ±10% J = ±5% | Voltage Code 004 = 4Vdc 006 = 6Vdc 010 = 10Vdc 015 = 15Vdc 020 = 20Vdc 025 = 25Vdc 035 = 35Vdc 050 = 50Vdc | Standard or Low ESR Range C = Std ESR L = Low ESR | Packaging B = Bulk R = 7" T&R S = 13" T&R W = Waffle See page 8 for additional packaging options. | Inspection Level L = Group A | Reliability Grade Weibull: B = 0.1%/1000 hrs. 90% conf. C = 0.01%/1000 hrs. 90% conf. D = 0.001%/1000 hrs. 90% conf. | Qualification Level 9 = SRC9000 | Termination Finish H = Solder Plated 0 = Fused Solder Plated 8 = Hot Solder Dipped 9 = Gold Plated | Surge Test Option 45 = 10 cycles, -55°C & +85°C before Weibull |

For RoHS compliant products, please select correct termination style.

*Contact factory for AVX SRC9000 Space Level SCD details.

TECHNICAL SPECIFICATIONS

| | | | | | | | | | | |
|------------------------------------|---|-----|-----|------|------|------|------|------|------|--|
| Technical Data: | Unless otherwise specified, all technical data relate to an ambient temperature of 25°C | | | | | | | | | |
| Capacitance Range: | 0.10 µF to 330 µF | | | | | | | | | |
| Capacitance Tolerance: | ±5%; ±10%; ±20% | | | | | | | | | |
| Rated Voltage (V _R) | ≤ 85°C: | 4 | 6 | 10 | 15 | 20 | 25 | 35 | 50 | |
| Category Voltage (V _C) | ≤ 125°C: | 2.7 | 4 | 6.7 | 10 | 13.3 | 16.7 | 23.3 | 33.3 | |
| Surge Voltage (V _S) | ≤ 85°C: | 5.3 | 8 | 13.3 | 20 | 26.7 | 33.3 | 46.7 | 66.7 | |
| Surge Voltage (V _S) | ≤ 125°C: | 3.5 | 5.3 | 8.7 | 13.3 | 17.8 | 22.2 | 31.1 | 44.5 | |
| Temperature Range: | -55°C to +125°C | | | | | | | | | |

TAZ Series



CWR29 - MIL-PRF-55365/11 Established Reliability, COTS-Plus & Space Level

| RATING & PART NUMBER REFERENCE | | | Parametric Specifications by Rating per MIL-PRF-55365/11 | | | | | | | | | Typical RMS Ripple Data by Rating | | | | | | | |
|--------------------------------|--------------------------------|--------------------------------|--|-------------------------------------|------------------------------------|---------|-------|-------|--------|-------|-------|-----------------------------------|---------------------------------|---------------------------------|----------------------------------|---------------------------------|---------------------------------|----------------------------------|------|
| | | | Cap @ 120Hz µF @ 25°C | DC Rated Voltage V @ +85°C | ESR @ 100kHz Ohms @ +25°C | DCL max | | | DF Max | | | Power Dissipation W | 25°C Ripple A (100kHz) | 85°C Ripple A (100kHz) | 125°C Ripple A (100kHz) | 25°C Ripple V (100kHz) | 85°C Ripple V (100kHz) | 125°C Ripple V (100kHz) | |
| CWR29 P/N | AVX MIL & COTS-Plus P/N | AVX SRC9000 P/N | Case | +25°C | +85°C | +125°C | +25°C | +85°C | +125°C | +25°C | +85°C | +125°C | W | A | A | A | V | V | V |
| CWR29C^225^@A+□ | TAZ A 225 * 004 L □ # @ 0 ^ ++ | TAZ A 225 * 004 L □ L @ 9 ^ ++ | A | 2.2 | 4 | 4 | 1 | 10 | 12 | 6 | 8 | 8 | 0.050 | 0.11 | 0.10 | 0.04 | 0.45 | 0.40 | 0.18 |
| CWR29C^335^@A+□ | TAZ A 335 * 004 L □ # @ 0 ^ ++ | TAZ A 335 * 004 L □ L @ 9 ^ ++ | A | 3.3 | 4 | 6 | 1 | 10 | 12 | 6 | 8 | 8 | 0.050 | 0.09 | 0.08 | 0.04 | 0.55 | 0.49 | 0.22 |
| CWR29C^475^@A+□ | TAZ A 475 * 004 L □ # @ 0 ^ ++ | TAZ A 475 * 004 L □ L @ 9 ^ ++ | A | 4.7 | 4 | 6 | 1 | 10 | 12 | 6 | 8 | 8 | 0.050 | 0.09 | 0.08 | 0.04 | 0.55 | 0.49 | 0.22 |
| CWR29C^475^@B+□ | TAZ B 475 * 004 L □ # @ 0 ^ ++ | TAZ B 475 * 004 L □ L @ 9 ^ ++ | B | 4.7 | 4 | 3.2 | 1 | 10 | 12 | 6 | 8 | 8 | 0.070 | 0.15 | 0.13 | 0.06 | 0.47 | 0.43 | 0.19 |
| CWR29C^685^@A+□ | TAZ A 685 * 004 L □ # @ 0 ^ ++ | TAZ A 685 * 004 L □ L @ 9 ^ ++ | A | 6.8 | 4 | 6 | 1 | 10 | 12 | 6 | 8 | 8 | 0.050 | 0.09 | 0.08 | 0.04 | 0.55 | 0.49 | 0.22 |
| CWR29C^685^@C+□ | TAZ C 685 * 004 L □ # @ 0 ^ ++ | TAZ C 685 * 004 L □ L @ 9 ^ ++ | C | 6.8 | 4 | 2.2 | 1 | 10 | 12 | 6 | 8 | 8 | 0.075 | 0.18 | 0.17 | 0.07 | 0.41 | 0.37 | 0.16 |
| CWR29C^106^@B+□ | TAZ B 106 * 004 L □ # @ 0 ^ ++ | TAZ B 106 * 004 L □ L @ 9 ^ ++ | B | 10 | 4 | 3.2 | 1 | 10 | 12 | 8 | 10 | 10 | 0.070 | 0.15 | 0.13 | 0.06 | 0.47 | 0.43 | 0.19 |
| CWR29C^106^@D+□ | TAZ D 106 * 004 L □ # @ 0 ^ ++ | TAZ D 106 * 004 L □ L @ 9 ^ ++ | D | 10 | 4 | 1.3 | 1 | 10 | 12 | 8 | 10 | 10 | 0.080 | 0.25 | 0.22 | 0.10 | 0.32 | 0.29 | 0.13 |
| CWR29C^156^@B+□ | TAZ B 156 * 004 L □ # @ 0 ^ ++ | TAZ B 156 * 004 L □ L @ 9 ^ ++ | B | 15 | 4 | 3.2 | 1 | 10 | 12 | 8 | 10 | 10 | 0.070 | 0.15 | 0.13 | 0.06 | 0.47 | 0.43 | 0.19 |
| CWR29C^156^@E+□ | TAZ E 156 * 004 L □ # @ 0 ^ ++ | TAZ E 156 * 004 L □ L @ 9 ^ ++ | E | 15 | 4 | 1 | 1 | 10 | 12 | 8 | 10 | 12 | 0.090 | 0.30 | 0.27 | 0.12 | 0.30 | 0.27 | 0.12 |
| CWR29C^226^@B+□ | TAZ B 226 * 004 L □ # @ 0 ^ ++ | TAZ B 226 * 004 L □ L @ 9 ^ ++ | B | 22 | 4 | 3.2 | 1 | 10 | 12 | 8 | 10 | 10 | 0.070 | 0.15 | 0.13 | 0.06 | 0.47 | 0.43 | 0.19 |
| CWR29C^226^@D+□ | TAZ D 226 * 004 L □ # @ 0 ^ ++ | TAZ D 226 * 004 L □ L @ 9 ^ ++ | D | 22 | 4 | 1.3 | 1 | 10 | 12 | 8 | 10 | 12 | 0.080 | 0.25 | 0.22 | 0.10 | 0.32 | 0.29 | 0.13 |
| CWR29C^336^@D+□ | TAZ D 336 * 004 L □ # @ 0 ^ ++ | TAZ D 336 * 004 L □ L @ 9 ^ ++ | D | 33 | 4 | 1.3 | 2 | 20 | 24 | 8 | 10 | 12 | 0.080 | 0.25 | 0.22 | 0.10 | 0.32 | 0.29 | 0.13 |
| CWR29C^336^@E+□ | TAZ E 336 * 004 L □ # @ 0 ^ ++ | TAZ E 336 * 004 L □ L @ 9 ^ ++ | E | 33 | 4 | 0.9 | 2 | 20 | 24 | 8 | 10 | 12 | 0.090 | 0.32 | 0.28 | 0.13 | 0.28 | 0.26 | 0.11 |
| CWR29C^336^@F+□ | TAZ F 336 * 004 L □ # @ 0 ^ ++ | TAZ F 336 * 004 L □ L @ 9 ^ ++ | F | 33 | 4 | 0.6 | 2 | 20 | 24 | 8 | 10 | 12 | 0.100 | 0.41 | 0.37 | 0.16 | 0.24 | 0.22 | 0.10 |
| CWR29C^476^@E+□ | TAZ E 476 * 004 L □ # @ 0 ^ ++ | TAZ E 476 * 004 L □ L @ 9 ^ ++ | E | 47 | 4 | 0.9 | 2 | 20 | 24 | 8 | 10 | 12 | 0.090 | 0.32 | 0.28 | 0.13 | 0.28 | 0.26 | 0.11 |
| CWR29C^686^@E+□ | TAZ E 686 * 004 L □ # @ 0 ^ ++ | TAZ E 686 * 004 L □ L @ 9 ^ ++ | E | 68 | 4 | 0.9 | 3 | 30 | 36 | 8 | 10 | 12 | 0.090 | 0.32 | 0.28 | 0.13 | 0.28 | 0.26 | 0.11 |
| CWR29C^686^@G+□ | TAZ G 686 * 004 L □ # @ 0 ^ ++ | TAZ G 686 * 004 L □ L @ 9 ^ ++ | G | 68 | 4 | 0.275 | 3 | 30 | 36 | 10 | 12 | 12 | 0.125 | 0.67 | 0.61 | 0.27 | 0.19 | 0.17 | 0.07 |
| CWR29C^107^@F+□ | TAZ F 107 * 004 L □ # @ 0 ^ ++ | TAZ F 107 * 004 L □ L @ 9 ^ ++ | F | 100 | 4 | 0.55 | 4 | 40 | 48 | 10 | 12 | 12 | 0.100 | 0.43 | 0.38 | 0.17 | 0.23 | 0.21 | 0.09 |
| CWR29C^107^@H+□ | TAZ H 107 * 004 L □ # @ 0 ^ ++ | TAZ H 107 * 004 L □ L @ 9 ^ ++ | H | 100 | 4 | 0.18 | 4 | 40 | 48 | 10 | 12 | 12 | 0.150 | 0.91 | 0.82 | 0.37 | 0.16 | 0.15 | 0.07 |
| CWR29C^157^@G+□ | TAZ G 157 * 004 L □ # @ 0 ^ ++ | TAZ G 157 * 004 L □ L @ 9 ^ ++ | G | 150 | 4 | 0.25 | 6 | 60 | 72 | 10 | 12 | 12 | 0.125 | 0.71 | 0.64 | 0.28 | 0.18 | 0.16 | 0.07 |
| CWR29C^227^@H+□ | TAZ H 227 * 004 L □ # @ 0 ^ ++ | TAZ H 227 * 004 L □ L @ 9 ^ ++ | H | 220 | 4 | 0.2 | 8 | 80 | 96 | 10 | 12 | 12 | 0.150 | 0.87 | 0.78 | 0.35 | 0.17 | 0.16 | 0.07 |
| CWR29C^337^@H+□ | TAZ H 337 * 004 L □ # @ 0 ^ ++ | TAZ H 337 * 004 L □ L @ 9 ^ ++ | H | 330 | 4 | 0.18 | 10 | 100 | 120 | 10 | 12 | 12 | 0.150 | 0.91 | 0.82 | 0.37 | 0.16 | 0.15 | 0.07 |
| CWR29D^155^@A+□ | TAZ A 155 * 006 L □ # @ 0 ^ ++ | TAZ A 155 * 006 L □ L @ 9 ^ ++ | A | 1.5 | 6 | 4 | 1 | 10 | 12 | 6 | 8 | 8 | 0.050 | 0.11 | 0.10 | 0.04 | 0.45 | 0.40 | 0.18 |
| CWR29D^335^@A+□ | TAZ A 335 * 006 L □ # @ 0 ^ ++ | TAZ A 335 * 006 L □ L @ 9 ^ ++ | A | 3.3 | 6 | 6 | 1 | 10 | 12 | 6 | 8 | 8 | 0.050 | 0.09 | 0.08 | 0.04 | 0.55 | 0.49 | 0.22 |
| CWR29D^335^@B+□ | TAZ B 335 * 006 L □ # @ 0 ^ ++ | TAZ B 335 * 006 L □ L @ 9 ^ ++ | B | 3.3 | 6 | 3.2 | 1 | 10 | 12 | 6 | 8 | 8 | 0.070 | 0.15 | 0.13 | 0.06 | 0.47 | 0.43 | 0.19 |
| CWR29D^475^@A+□ | TAZ A 475 * 006 L □ # @ 0 ^ ++ | TAZ A 475 * 006 L □ L @ 9 ^ ++ | A | 4.7 | 6 | 6 | 1 | 10 | 12 | 6 | 8 | 8 | 0.050 | 0.09 | 0.08 | 0.04 | 0.55 | 0.49 | 0.22 |
| CWR29D^475^@C+□ | TAZ C 475 * 006 L □ # @ 0 ^ ++ | TAZ C 475 * 006 L □ L @ 9 ^ ++ | C | 4.7 | 6 | 2.2 | 1 | 10 | 12 | 6 | 8 | 8 | 0.075 | 0.18 | 0.17 | 0.07 | 0.41 | 0.37 | 0.16 |
| CWR29D^685^@B+□ | TAZ B 685 * 006 L □ # @ 0 ^ ++ | TAZ B 685 * 006 L □ L @ 9 ^ ++ | B | 6.8 | 6 | 3.2 | 1 | 10 | 12 | 6 | 8 | 8 | 0.070 | 0.15 | 0.13 | 0.06 | 0.47 | 0.43 | 0.19 |
| CWR29D^685^@D+□ | TAZ D 685 * 006 L □ # @ 0 ^ ++ | TAZ D 685 * 006 L □ L @ 9 ^ ++ | D | 6.8 | 6 | 1.5 | 1 | 10 | 12 | 6 | 8 | 8 | 0.080 | 0.23 | 0.21 | 0.09 | 0.35 | 0.31 | 0.14 |
| CWR29D^106^@B+□ | TAZ B 106 * 006 L □ # @ 0 ^ ++ | TAZ B 106 * 006 L □ L @ 9 ^ ++ | B | 10 | 6 | 3.2 | 1 | 10 | 12 | 6 | 8 | 8 | 0.070 | 0.15 | 0.13 | 0.06 | 0.47 | 0.43 | 0.19 |
| CWR29D^106^@E+□ | TAZ E 106 * 006 L □ # @ 0 ^ ++ | TAZ E 106 * 006 L □ L @ 9 ^ ++ | E | 10 | 6 | 1 | 1 | 10 | 12 | 8 | 10 | 12 | 0.090 | 0.30 | 0.27 | 0.12 | 0.30 | 0.27 | 0.12 |
| CWR29D^156^@B+□ | TAZ B 156 * 006 L □ # @ 0 ^ ++ | TAZ B 156 * 006 L □ L @ 9 ^ ++ | B | 15 | 6 | 3.2 | 1 | 10 | 12 | 8 | 10 | 10 | 0.070 | 0.15 | 0.13 | 0.06 | 0.47 | 0.43 | 0.19 |
| CWR29D^156^@D+□ | TAZ D 156 * 006 L □ # @ 0 ^ ++ | TAZ D 156 * 006 L □ L @ 9 ^ ++ | D | 15 | 6 | 1.7 | 1 | 10 | 12 | 8 | 10 | 12 | 0.080 | 0.22 | 0.20 | 0.09 | 0.37 | 0.33 | 0.15 |
| CWR29D^156^@E+□ | TAZ E 156 * 006 L □ # @ 0 ^ ++ | TAZ E 156 * 006 L □ L @ 9 ^ ++ | E | 15 | 6 | 0.9 | 1 | 10 | 12 | 8 | 10 | 12 | 0.090 | 0.32 | 0.28 | 0.13 | 0.28 | 0.26 | 0.11 |
| CWR29D^226^@D+□ | TAZ D 226 * 006 L □ # @ 0 ^ ++ | TAZ D 226 * 006 L □ L @ 9 ^ ++ | D | 22 | 6 | 1.7 | 1 | 10 | 12 | 6 | 8 | 8 | 0.080 | 0.22 | 0.20 | 0.09 | 0.37 | 0.33 | 0.15 |
| CWR29D^226^@E+□ | TAZ E 226 * 006 L □ # @ 0 ^ ++ | TAZ E 226 * 006 L □ L @ 9 ^ ++ | E | 22 | 6 | 1 | 2 | 20 | 24 | 8 | 10 | 12 | 0.090 | 0.30 | 0.27 | 0.12 | 0.30 | 0.27 | 0.12 |
| CWR29D^226^@F+□ | TAZ F 226 * 006 L □ # @ 0 ^ ++ | TAZ F 226 * 006 L □ L @ 9 ^ ++ | F | 22 | 6 | 0.6 | 2 | 20 | 24 | 8 | 10 | 12 | 0.100 | 0.41 | 0.37 | 0.16 | 0.24 | 0.22 | 0.10 |
| CWR29D^336^@E+□ | TAZ E 336 * 006 L □ # @ 0 ^ ++ | TAZ E 336 * 006 L □ L @ 9 ^ ++ | E | 33 | 6 | 1 | 2 | 20 | 24 | 6 | 8 | 8 | 0.090 | 0.30 | 0.27 | 0.12 | 0.30 | 0.27 | 0.12 |
| CWR29D^476^@F+□ | TAZ F 476 * 006 L □ # @ 0 ^ ++ | TAZ F 476 * 006 L □ L @ 9 ^ ++ | F | 47 | 6 | 1 | 3 | 30 | 36 | 8 | 10 | 12 | 0.100 | 0.32 | 0.28 | 0.13 | 0.32 | 0.28 | 0.13 |
| CWR29D^476^@G+□ | TAZ G 476 * 006 L □ # @ 0 ^ ++ | TAZ G 476 * 006 L □ L @ 9 ^ ++ | G | 47 | 6 | 0.275 | 3 | 30 | 36 | 10 | 12 | 12 | 0.125 | 0.67 | 0.61 | 0.27 | 0.19 | 0.17 | 0.07 |
| CWR29D^686^@F+□ | TAZ F 686 * 006 L □ # @ 0 ^ ++ | TAZ F 686 * 006 L □ L @ 9 ^ ++ | F | 68 | 6 | 0.4 | 4 | 40 | 48 | 10 | 12 | 12 | 0.100 | 0.50 | 0.45 | 0.20 | 0.20 | 0.18 | 0.08 |
| CWR29D^686^@G+□ | TAZ G 686 * 006 L □ # @ 0 ^ ++ | TAZ G 686 * 006 L □ L @ 9 ^ ++ | G | 68 | 6 | 0.25 | 4 | 40 | 48 | 10 | 12 | 12 | 0.125 | 0.71 | 0.64 | 0.28 | 0.18 | 0.16 | 0.07 |
| CWR29D^686^@H+□ | TAZ H 686 * 006 L □ # @ 0 ^ ++ | TAZ H 686 * 006 L □ L @ 9 ^ ++ | H | 68 | 6 | 0.18 | 4 | 40 | 48 | 10 | 12 | 12 | 0.150 | 0.91 | 0.82 | 0.37 | 0.16 | 0.15 | 0.07 |
| CWR29D^107^@G+□ | TAZ G 107 * 006 L □ # @ 0 ^ ++ | TAZ G 107 * 006 L □ L @ 9 ^ ++ | G | 100 | 6 | 0.275 | 6 | 60 | 72 | 10 | 12 | 12 | 0.125 | 0.67 | 0.61 | 0.27 | 0.19 | 0.17 | 0.07 |
| CWR29D^157^@G+□ | TAZ G 157 * 006 L □ # @ 0 ^ ++ | TAZ G 157 * 006 L □ L @ 9 ^ ++ | G | 150 | 6 | 0.275 | 10 | 100 | 120 | 10 | 12 | 12 | 0.125 | 0.67 | 0.61 | 0.27 | 0.19 | 0.17 | 0.07 |
| CWR29D^227^@H+□ | TAZ H 227 * 006 L □ # @ 0 ^ ++ | TAZ H 227 * 006 L □ L @ 9 ^ ++ | H | 220 | 6 | 0.18 | 10 | 100 | 120 | 10 | 12 | 12 | 0.150 | 0.91 | 0.82 | 0.37 | 0.16 | 0.15 | 0.07 |
| CWR29D^337^@H+□ | TAZ H 337 * 006 L □ # @ 0 ^ ++ | TAZ H 337 * 006 L □ L @ 9 ^ ++ | H | 330 | 6 | 0.18 | 20 | 200 | 240 | 10 | 12 | 12 | 0.150 | 0.91 | 0.82 | 0.37 | 0.16 | 0.15 | 0.07 |
| CWR29F^105^@A+□ | TAZ A 105 * 010 L □ # @ 0 ^ ++ | TAZ A 105 * 010 L □ L @ 9 ^ ++ | A | 1 | 10 | 5 | 1 | 10 | 12 | 6 | 8 | 8 | 0.050 | 0.10 | 0.09 | 0.04 | 0.50 | 0.45 | 0.20 |
| CWR29F^225^@A+□ | TAZ A 225 * 010 L □ # @ 0 ^ ++ | TAZ A 225 * 010 L □ L @ 9 ^ ++ | A | 2.2 | 10 | 6 | 1 | 10 | 12 | 6 | 8 | 8 | 0.050 | 0.09 | 0.08 | 0.04 | 0.55 | 0.49 | 0.22 |
| CWR29F^225^@B+□ | TAZ B 225 * 010 L □ # @ 0 ^ ++ | TAZ B 225 * 010 L □ L @ 9 ^ ++ | B | 2.2 | 10 | 3.2 | 1 | 10 | 12 | 6 | 8 | 8 | 0.070 | 0.15 | 0.13 | 0.06 | 0.47 | 0.43 | 0.19 |
| CWR29F^335^@A+□ | TAZ A 335 * 010 L □ # @ 0 ^ ++ | TAZ A 335 * 010 L □ L @ 9 ^ ++ | A | 3.3 | 10 | 6 | 1 | 10 | 12 | 6 | 8 | 8 | 0.050 | 0.09 | 0.08 | 0.04 | 0.55 | 0.49 | 0.22 |
| CWR29F^335^@C+□ | TAZ C 335 * 010 L □ # @ 0 ^ ++ | TAZ C 335 * 010 L □ L @ 9 ^ ++ | C | 3.3 | 10 | 2.2 | 1 | 10 | 12 | 6 | 8 | 8 | 0.075 | 0.18 | 0.17 | 0.07 | 0.41 | 0.37 | 0.16 |
| CWR29F^475^@B+□ | TAZ B 475 * 010 L □ # @ 0 ^ ++ | TAZ B 475 * 010 L □ L @ 9 ^ ++ | B | 4.7 | 10 | 3.2 | 1 | 10 | 12 | 6 | 8 | 8 | 0.070 | 0.15 | 0.13 | 0.06 | 0.47 | 0.43 | 0.19 |
| CWR29F^475^@C+□ | TAZ C 475 * 010 L □ # @ 0 ^ ++ | TAZ C 475 * 010 L □ L @ 9 ^ ++ | C | 4.7 | 10 | 2.2 | 1 | 10 | 12 | 6 | 8 | 8 | 0.075 | 0.18 | 0.17 | 0.07 | 0.41 | 0.37 | 0.16 |

All technical data relates to an ambient temperature of +25°C. Capacitance and DF are measured at 120Hz, 0.5V RMS with a maximum DC bias of 2.2 volts. DCL is measured at rated voltage after 5 minutes.

NOTE: AVX reserves the right to supply a higher voltage rating or tighter tolerance part in the same case size, to the same reliability standards.



TAZ Series



CWR29 - MIL-PRF-55365/11 Established Reliability, COTS-Plus & Space Level

| RATING & PART NUMBER REFERENCE | | | Parametric Specifications by Rating per MIL-PRF-55365/11 | | | | | | | | | Typical RMS Ripple Data by Rating | | | | | | | |
|--------------------------------|--------------------------------|--------------------------------|--|-------------------------------------|------------------------------------|---------|-------|-------|--------|-------|-------|-----------------------------------|---------------------------------|---------------------------------|----------------------------------|---------------------------------|---------------------------------|----------------------------------|------|
| | | | Cap @ 120Hz µF @ 25°C | DC Rated Voltage V @ +85°C | ESR @ 100kHz Ohms @ +25°C | DCL max | | | DF Max | | | Power Dissipation W | 25°C Ripple A (100kHz) | 85°C Ripple A (100kHz) | 125°C Ripple A (100kHz) | 25°C Ripple V (100kHz) | 85°C Ripple V (100kHz) | 125°C Ripple V (100kHz) | |
| CWR29 P/N | AVX MIL & COTS-Plus P/N | AVX SRC9000 P/N | Case | +25°C | +85°C | +125°C | +25°C | +85°C | +125°C | +25°C | +85°C | +125°C | W | A | A | A | V | V | V |
| CWR29F^475^@D+□ | TAZ D 475 * 010 L □ # @ 0 ^ ++ | TAZ D 475 * 010 L □ L @ 9 ^ ++ | D | 4.7 | 10 | 1.5 | 1 | 10 | 12 | 6 | 8 | 8 | 0.080 | 0.23 | 0.21 | 0.09 | 0.35 | 0.31 | 0.14 |
| CWR29F^685^@B+□ | TAZ B 685 * 010 L □ # @ 0 ^ ++ | TAZ B 685 * 010 L □ L @ 9 ^ ++ | B | 6.8 | 10 | 3.2 | 1 | 10 | 12 | 6 | 8 | 8 | 0.070 | 0.15 | 0.13 | 0.06 | 0.47 | 0.43 | 0.19 |
| CWR29F^685^@C+□ | TAZ C 685 * 010 L □ # @ 0 ^ ++ | TAZ C 685 * 010 L □ L @ 9 ^ ++ | C | 6.8 | 10 | 2.2 | 1 | 10 | 12 | 6 | 8 | 8 | 0.075 | 0.18 | 0.17 | 0.07 | 0.41 | 0.37 | 0.16 |
| CWR29F^685^@D+□ | TAZ D 685 * 010 L □ # @ 0 ^ ++ | TAZ D 685 * 010 L □ L @ 9 ^ ++ | D | 6.8 | 10 | 1.7 | 1 | 10 | 12 | 6 | 8 | 8 | 0.080 | 0.22 | 0.20 | 0.09 | 0.37 | 0.33 | 0.15 |
| CWR29F^685^@E+□ | TAZ E 685 * 010 L □ # @ 0 ^ ++ | TAZ E 685 * 010 L □ L @ 9 ^ ++ | E | 6.8 | 10 | 1 | 1 | 10 | 12 | 6 | 8 | 8 | 0.090 | 0.30 | 0.27 | 0.12 | 0.30 | 0.27 | 0.12 |
| CWR29F^106^@B+□ | TAZ B 106 * 010 L □ # @ 0 ^ ++ | TAZ B 106 * 010 L □ L @ 9 ^ ++ | B | 10 | 10 | 3.2 | 1 | 10 | 12 | 8 | 10 | 10 | 0.070 | 0.15 | 0.13 | 0.06 | 0.47 | 0.43 | 0.19 |
| CWR29F^106^@C+□ | TAZ C 106 * 010 L □ # @ 0 ^ ++ | TAZ C 106 * 010 L □ L @ 9 ^ ++ | C | 10 | 10 | 2.2 | 1 | 10 | 12 | 6 | 8 | 8 | 0.075 | 0.18 | 0.17 | 0.07 | 0.41 | 0.37 | 0.16 |
| CWR29F^106^@D+□ | TAZ D 106 * 010 L □ # @ 0 ^ ++ | TAZ D 106 * 010 L □ L @ 9 ^ ++ | D | 10 | 10 | 1.3 | 1 | 10 | 12 | 6 | 8 | 8 | 0.080 | 0.25 | 0.22 | 0.10 | 0.32 | 0.29 | 0.13 |
| CWR29F^106^@E+□ | TAZ E 106 * 010 L □ # @ 0 ^ ++ | TAZ E 106 * 010 L □ L @ 9 ^ ++ | E | 10 | 10 | 1 | 1 | 10 | 12 | 6 | 8 | 8 | 0.090 | 0.30 | 0.27 | 0.12 | 0.30 | 0.27 | 0.12 |
| CWR29F^156^@D+□ | TAZ D 156 * 010 L □ # @ 0 ^ ++ | TAZ D 156 * 010 L □ L @ 9 ^ ++ | D | 15 | 10 | 1.7 | 2 | 20 | 24 | 6 | 8 | 8 | 0.080 | 0.22 | 0.20 | 0.09 | 0.37 | 0.33 | 0.15 |
| CWR29F^156^@E+□ | TAZ E 156 * 010 L □ # @ 0 ^ ++ | TAZ E 156 * 010 L □ L @ 9 ^ ++ | E | 15 | 10 | 0.9 | 2 | 20 | 24 | 6 | 10 | 10 | 0.090 | 0.32 | 0.28 | 0.13 | 0.28 | 0.26 | 0.11 |
| CWR29F^156^@F+□ | TAZ F 156 * 010 L □ # @ 0 ^ ++ | TAZ F 156 * 010 L □ L @ 9 ^ ++ | F | 15 | 10 | 0.7 | 2 | 20 | 24 | 8 | 8 | 10 | 0.100 | 0.38 | 0.34 | 0.15 | 0.26 | 0.24 | 0.11 |
| CWR29F^226^@E+□ | TAZ E 226 * 010 L □ # @ 0 ^ ++ | TAZ E 226 * 010 L □ L @ 9 ^ ++ | E | 22 | 10 | 0.6 | 3 | 30 | 36 | 8 | 10 | 10 | 0.090 | 0.39 | 0.35 | 0.15 | 0.23 | 0.21 | 0.09 |
| CWR29F^336^@F+□ | TAZ F 336 * 010 L □ # @ 0 ^ ++ | TAZ F 336 * 010 L □ L @ 9 ^ ++ | F | 33 | 10 | 0.4 | 3 | 30 | 36 | 8 | 10 | 10 | 0.100 | 0.50 | 0.45 | 0.20 | 0.20 | 0.18 | 0.08 |
| CWR29F^336^@G+□ | TAZ G 336 * 010 L □ # @ 0 ^ ++ | TAZ G 336 * 010 L □ L @ 9 ^ ++ | G | 33 | 10 | 0.275 | 3 | 30 | 36 | 10 | 12 | 12 | 0.125 | 0.67 | 0.61 | 0.27 | 0.19 | 0.17 | 0.07 |
| CWR29F^476^@F+□ | TAZ F 476 * 010 L □ # @ 0 ^ ++ | TAZ F 476 * 010 L □ L @ 9 ^ ++ | F | 47 | 10 | 0.4 | 4 | 40 | 48 | 10 | 12 | 12 | 0.100 | 0.50 | 0.45 | 0.20 | 0.20 | 0.18 | 0.08 |
| CWR29F^476^@G+□ | TAZ G 476 * 010 L □ # @ 0 ^ ++ | TAZ G 476 * 010 L □ L @ 9 ^ ++ | G | 47 | 10 | 0.25 | 4 | 40 | 48 | 10 | 12 | 12 | 0.125 | 0.71 | 0.64 | 0.28 | 0.18 | 0.16 | 0.07 |
| CWR29F^476^@H+□ | TAZ H 476 * 010 L □ # @ 0 ^ ++ | TAZ H 476 * 010 L □ L @ 9 ^ ++ | H | 47 | 10 | 0.18 | 5 | 50 | 60 | 10 | 12 | 12 | 0.150 | 0.91 | 0.82 | 0.37 | 0.16 | 0.15 | 0.07 |
| CWR29F^686^@G+□ | TAZ G 686 * 010 L □ # @ 0 ^ ++ | TAZ G 686 * 010 L □ L @ 9 ^ ++ | G | 68 | 10 | 0.275 | 6 | 60 | 72 | 10 | 12 | 12 | 0.125 | 0.67 | 0.61 | 0.27 | 0.19 | 0.17 | 0.07 |
| CWR29F^107^@G+□ | TAZ G 107 * 010 L □ # @ 0 ^ ++ | TAZ G 107 * 010 L □ L @ 9 ^ ++ | G | 100 | 10 | 0.275 | 10 | 100 | 120 | 10 | 12 | 12 | 0.125 | 0.67 | 0.61 | 0.27 | 0.19 | 0.17 | 0.07 |
| CWR29F^107^@H+□ | TAZ H 107 * 010 L □ # @ 0 ^ ++ | TAZ H 107 * 010 L □ L @ 9 ^ ++ | H | 100 | 10 | 0.18 | 10 | 100 | 120 | 10 | 12 | 12 | 0.150 | 0.91 | 0.82 | 0.37 | 0.16 | 0.15 | 0.07 |
| CWR29F^157^@H+□ | TAZ H 157 * 010 L □ # @ 0 ^ ++ | TAZ H 157 * 010 L □ L @ 9 ^ ++ | H | 150 | 10 | 0.18 | 15 | 150 | 180 | 10 | 12 | 12 | 0.150 | 0.91 | 0.82 | 0.37 | 0.16 | 0.15 | 0.07 |
| CWR29F^157^@X+□ | TAZ X 157 * 010 L □ # @ 0 ^ ++ | TAZ X 157 * 010 L □ L @ 9 ^ ++ | X | 150 | 10 | 0.065 | 15 | 150 | 180 | 10 | 12 | 12 | 0.200 | 1.75 | 1.58 | 0.70 | 0.11 | 0.10 | 0.05 |
| CWR29F^227^@H+□ | TAZ H 227 * 010 L □ # @ 0 ^ ++ | TAZ H 227 * 010 L □ L @ 9 ^ ++ | H | 220 | 10 | 0.18 | 20 | 200 | 240 | 10 | 12 | 12 | 0.150 | 0.91 | 0.82 | 0.37 | 0.16 | 0.15 | 0.07 |
| CWR29H^684^@A+□ | TAZ A 684 * 015 L □ # @ 0 ^ ++ | TAZ A 684 * 015 L □ L @ 9 ^ ++ | A | 0.68 | 15 | 6 | 1 | 10 | 12 | 6 | 8 | 8 | 0.050 | 0.09 | 0.08 | 0.04 | 0.55 | 0.49 | 0.22 |
| CWR29H^105^@A+□ | TAZ A 105 * 015 L □ # @ 0 ^ ++ | TAZ A 105 * 015 L □ L @ 9 ^ ++ | A | 1 | 15 | 7.5 | 1 | 10 | 12 | 6 | 8 | 8 | 0.050 | 0.08 | 0.07 | 0.03 | 0.61 | 0.55 | 0.24 |
| CWR29H^155^@A+□ | TAZ A 155 * 015 L □ # @ 0 ^ ++ | TAZ A 155 * 015 L □ L @ 9 ^ ++ | A | 1.5 | 15 | 7.5 | 1 | 10 | 12 | 6 | 8 | 8 | 0.050 | 0.08 | 0.07 | 0.03 | 0.61 | 0.55 | 0.24 |
| CWR29H^155^@B+□ | TAZ B 155 * 015 L □ # @ 0 ^ ++ | TAZ B 155 * 015 L □ L @ 9 ^ ++ | B | 1.5 | 15 | 3.2 | 1 | 10 | 12 | 6 | 8 | 8 | 0.070 | 0.15 | 0.13 | 0.06 | 0.47 | 0.43 | 0.19 |
| CWR29H^225^@A+□ | TAZ A 225 * 015 L □ # @ 0 ^ ++ | TAZ A 225 * 015 L □ L @ 9 ^ ++ | A | 2.2 | 15 | 7.5 | 1 | 10 | 12 | 6 | 8 | 8 | 0.050 | 0.08 | 0.07 | 0.03 | 0.61 | 0.55 | 0.24 |
| CWR29H^225^@C+□ | TAZ C 225 * 015 L □ # @ 0 ^ ++ | TAZ C 225 * 015 L □ L @ 9 ^ ++ | C | 2.2 | 15 | 2.2 | 1 | 10 | 12 | 6 | 8 | 8 | 0.075 | 0.18 | 0.17 | 0.07 | 0.41 | 0.37 | 0.16 |
| CWR29H^335^@B+□ | TAZ B 335 * 015 L □ # @ 0 ^ ++ | TAZ B 335 * 015 L □ L @ 9 ^ ++ | B | 3.3 | 15 | 3.6 | 1 | 10 | 12 | 6 | 8 | 8 | 0.070 | 0.14 | 0.13 | 0.06 | 0.50 | 0.45 | 0.20 |
| CWR29H^335^@D+□ | TAZ D 335 * 015 L □ # @ 0 ^ ++ | TAZ D 335 * 015 L □ L @ 9 ^ ++ | D | 3.3 | 15 | 1.7 | 1 | 10 | 12 | 6 | 8 | 8 | 0.080 | 0.22 | 0.20 | 0.09 | 0.37 | 0.33 | 0.15 |
| CWR29H^475^@B+□ | TAZ B 475 * 015 L □ # @ 0 ^ ++ | TAZ B 475 * 015 L □ L @ 9 ^ ++ | B | 4.7 | 15 | 2 | 1 | 10 | 12 | 6 | 8 | 8 | 0.070 | 0.19 | 0.17 | 0.07 | 0.37 | 0.34 | 0.15 |
| CWR29H^475^@C+□ | TAZ C 475 * 015 L □ # @ 0 ^ ++ | TAZ C 475 * 015 L □ L @ 9 ^ ++ | C | 4.7 | 15 | 2.2 | 1 | 10 | 12 | 6 | 8 | 8 | 0.075 | 0.18 | 0.17 | 0.07 | 0.41 | 0.37 | 0.16 |
| CWR29H^475^@D+□ | TAZ D 475 * 015 L □ # @ 0 ^ ++ | TAZ D 475 * 015 L □ L @ 9 ^ ++ | D | 4.7 | 15 | 2 | 1 | 10 | 12 | 6 | 8 | 8 | 0.080 | 0.20 | 0.18 | 0.08 | 0.40 | 0.36 | 0.16 |
| CWR29H^475^@E+□ | TAZ E 475 * 015 L □ # @ 0 ^ ++ | TAZ E 475 * 015 L □ L @ 9 ^ ++ | E | 4.7 | 15 | 1.2 | 1 | 10 | 12 | 6 | 8 | 8 | 0.090 | 0.27 | 0.25 | 0.11 | 0.33 | 0.30 | 0.13 |
| CWR29H^685^@D+□ | TAZ D 685 * 015 L □ # @ 0 ^ ++ | TAZ D 685 * 015 L □ L @ 9 ^ ++ | D | 6.8 | 15 | 2 | 1 | 10 | 12 | 6 | 8 | 8 | 0.080 | 0.20 | 0.18 | 0.08 | 0.40 | 0.36 | 0.16 |
| CWR29H^685^@E+□ | TAZ E 685 * 015 L □ # @ 0 ^ ++ | TAZ E 685 * 015 L □ L @ 9 ^ ++ | E | 6.8 | 15 | 0.9 | 1 | 10 | 12 | 8 | 10 | 12 | 0.090 | 0.32 | 0.28 | 0.13 | 0.28 | 0.26 | 0.11 |
| CWR29H^106^@D+□ | TAZ D 106 * 015 L □ # @ 0 ^ ++ | TAZ D 106 * 015 L □ L @ 9 ^ ++ | D | 10 | 15 | 2 | 2 | 20 | 24 | 6 | 8 | 8 | 0.080 | 0.20 | 0.18 | 0.08 | 0.40 | 0.36 | 0.16 |
| CWR29H^106^@E+□ | TAZ E 106 * 015 L □ # @ 0 ^ ++ | TAZ E 106 * 015 L □ L @ 9 ^ ++ | E | 10 | 15 | 1.2 | 2 | 20 | 24 | 6 | 8 | 8 | 0.090 | 0.27 | 0.25 | 0.11 | 0.33 | 0.30 | 0.13 |
| CWR29H^106^@F+□ | TAZ F 106 * 015 L □ # @ 0 ^ ++ | TAZ F 106 * 015 L □ L @ 9 ^ ++ | F | 10 | 15 | 0.667 | 2 | 20 | 24 | 6 | 8 | 8 | 0.100 | 0.39 | 0.35 | 0.15 | 0.26 | 0.23 | 0.10 |
| CWR29H^156^@E+□ | TAZ E 156 * 015 L □ # @ 0 ^ ++ | TAZ E 156 * 015 L □ L @ 9 ^ ++ | E | 15 | 15 | 1.2 | 2 | 20 | 24 | 6 | 8 | 8 | 0.090 | 0.27 | 0.25 | 0.11 | 0.33 | 0.30 | 0.13 |
| CWR29H^156^@F+□ | TAZ F 156 * 015 L □ # @ 0 ^ ++ | TAZ F 156 * 015 L □ L @ 9 ^ ++ | F | 15 | 15 | 0.8 | 2 | 20 | 24 | 8 | 10 | 10 | 0.100 | 0.35 | 0.32 | 0.14 | 0.28 | 0.25 | 0.11 |
| CWR29H^226^@F+□ | TAZ F 226 * 015 L □ # @ 0 ^ ++ | TAZ F 226 * 015 L □ L @ 9 ^ ++ | F | 22 | 15 | 0.8 | 3 | 30 | 36 | 8 | 10 | 10 | 0.100 | 0.35 | 0.32 | 0.14 | 0.28 | 0.25 | 0.11 |
| CWR29H^226^@G+□ | TAZ G 226 * 015 L □ # @ 0 ^ ++ | TAZ G 226 * 015 L □ L @ 9 ^ ++ | G | 22 | 15 | 0.275 | 4 | 40 | 48 | 6 | 8 | 8 | 0.125 | 0.67 | 0.61 | 0.27 | 0.19 | 0.17 | 0.07 |
| CWR29H^336^@F+□ | TAZ F 336 * 015 L □ # @ 0 ^ ++ | TAZ F 336 * 015 L □ L @ 9 ^ ++ | F | 33 | 15 | 0.8 | 5 | 50 | 60 | 6 | 8 | 8 | 0.100 | 0.35 | 0.32 | 0.14 | 0.28 | 0.25 | 0.11 |
| CWR29H^336^@G+□ | TAZ G 336 * 015 L □ # @ 0 ^ ++ | TAZ G 336 * 015 L □ L @ 9 ^ ++ | G | 33 | 15 | 0.275 | 6 | 60 | 72 | 8 | 10 | 10 | 0.125 | 0.67 | 0.61 | 0.27 | 0.19 | 0.17 | 0.07 |
| CWR29H^336^@H+□ | TAZ H 336 * 015 L □ # @ 0 ^ ++ | TAZ H 336 * 015 L □ L @ 9 ^ ++ | H | 33 | 15 | 0.18 | 5 | 50 | 60 | 8 | 10 | 10 | 0.150 | 0.91 | 0.82 | 0.37 | 0.16 | 0.15 | 0.07 |
| CWR29H^476^@G+□ | TAZ G 476 * 015 L □ # @ 0 ^ ++ | TAZ G 476 * 015 L □ L @ 9 ^ ++ | G | 47 | 15 | 0.275 | 10 | 100 | 120 | 8 | 10 | 10 | 0.125 | 0.67 | 0.61 | 0.27 | 0.19 | 0.17 | 0.07 |
| CWR29H^476^@H+□ | TAZ H 476 * 015 L □ # @ 0 ^ ++ | TAZ H 476 * 015 L □ L @ 9 ^ ++ | H | 47 | 15 | 0.18 | 10 | 100 | 120 | 8 | 10 | 10 | 0.150 | 0.91 | 0.82 | 0.37 | 0.16 | 0.15 | 0.07 |
| CWR29H^686^@G+□ | TAZ G 686 * 015 L □ # @ 0 ^ ++ | TAZ G 686 * 015 L □ L @ 9 ^ ++ | G | 68 | 15 | 0.275 | 10 | 100 | 120 | 8 | 10 | 10 | 0.125 | 0.67 | 0.61 | 0.27 | 0.19 | 0.17 | 0.07 |
| CWR29H^686^@H+□ | TAZ H 686 * 015 L □ # @ 0 ^ ++ | TAZ H 686 * 015 L □ L @ 9 ^ ++ | H | 68 | 15 | 0.18 | 10 | 100 | 120 | 8 | 10 | 10 | 0.150 | 0.91 | 0.82 | 0.37 | 0.16 | 0.15 | 0.07 |
| CWR29H^107^@H+□ | TAZ H 107 * 015 L □ # @ 0 ^ ++ | TAZ H 107 * 015 L □ L @ 9 ^ ++ | H | 100 | 15 | 0.18 | 15 | 150 | 180 | 10 | 12 | 12 | 0.150 | 0.91 | 0.82 | 0.37 | 0.16 | 0.15 | 0.07 |
| CWR29J^474^@A+□ | TAZ A 474 * 020 L □ # @ 0 ^ ++ | TAZ A 474 * 020 L □ L @ 9 ^ ++ | A | 0.47 | 20 | 7.5 | 1 | 10 | 12 | 8 | 8 | 10 | 0.050 | 0.08 | 0.07 | 0.03 | 0.61 | 0.55 | 0.24 |
| CWR29J^684^@A+□ | TAZ A 684 * 020 L □ # @ 0 ^ ++ | TAZ A 684 * 020 L □ L @ 9 ^ ++ | A | 0.68 | 20 | 7.5 | 1 | 10 | 12 | 6 | 8 | 8 | 0.050 | 0.08 | 0.07 | 0.03 | 0.61 | 0.55 | 0.24 |

All technical data relates to an ambient temperature of +25°C. Capacitance and DF are measured at 120Hz, 0.5V RMS with a maximum DC bias of 2.2 volts. DCL is measured at rated voltage after 5 minutes.

NOTE: AVX reserves the right to supply a higher voltage rating or tighter tolerance part in the same case size, to the same reliability standards.



TAZ Series



CWR29 - MIL-PRF-55365/11 Established Reliability, COTS-Plus & Space Level

| RATING & PART NUMBER REFERENCE | | | Parametric Specifications by Rating per MIL-PRF-55365/11 | | | | | | | | | Typical RMS Ripple Data by Rating | | | | | | | |
|--------------------------------|--------------------------------|--------------------------------|--|-------------------------------------|------------------------------------|---------|-------|-----------|--------|---|----|-----------------------------------|---------------------------------|---------------------------------|----------------------------------|---------------------------------|---------------------------------|----------------------------------|------|
| | | | Cap @ 120Hz µF @ 25°C | DC Rated Voltage V @ +85°C | ESR @ 100kHz Ohms @ +25°C | DCL max | | | DF Max | | | Power Dissipation W | 25°C Ripple A (100kHz) | 85°C Ripple A (100kHz) | 125°C Ripple A (100kHz) | 25°C Ripple V (100kHz) | 85°C Ripple V (100kHz) | 125°C Ripple V (100kHz) | |
| CWR29 P/N | AVX MIL & COTS-Plus P/N | AVX SRC9000 P/N | Case | +25°C | +85°C | +125°C | +25°C | +85/125°C | -55°C | | | | | | | | | | |
| CWR29J^684^@B+□ | TAZ B 684 * 020 L □ # @ 0 ^ ++ | TAZ B 684 * 020 L □ L @ 9 ^ ++ | B | 0.68 | 20 | 5.6 | 1 | 10 | 12 | 6 | 8 | 8 | 0.070 | 0.11 | 0.10 | 0.04 | 0.63 | 0.56 | 0.25 |
| CWR29J^105^@A+□ | TAZ A 105 * 020 L □ # @ 0 ^ ++ | TAZ A 105 * 020 L □ L @ 9 ^ ++ | A | 1 | 20 | 7.5 | 1 | 10 | 12 | 6 | 8 | 8 | 0.050 | 0.08 | 0.07 | 0.03 | 0.61 | 0.55 | 0.24 |
| CWR29J^105^@B+□ | TAZ B 105 * 020 L □ # @ 0 ^ ++ | TAZ B 105 * 020 L □ L @ 9 ^ ++ | B | 1 | 20 | 4.8 | 1 | 10 | 12 | 6 | 8 | 8 | 0.070 | 0.12 | 0.11 | 0.05 | 0.58 | 0.52 | 0.23 |
| CWR29J^155^@B+□ | TAZ B 155 * 020 L □ # @ 0 ^ ++ | TAZ B 155 * 020 L □ L @ 9 ^ ++ | B | 1.5 | 20 | 3.6 | 1 | 10 | 12 | 6 | 8 | 8 | 0.070 | 0.14 | 0.13 | 0.06 | 0.50 | 0.45 | 0.20 |
| CWR29J^155^@C+□ | TAZ C 155 * 020 L □ # @ 0 ^ ++ | TAZ C 155 * 020 L □ L @ 9 ^ ++ | C | 1.5 | 20 | 2.4 | 1 | 10 | 12 | 6 | 8 | 8 | 0.075 | 0.18 | 0.16 | 0.07 | 0.42 | 0.38 | 0.17 |
| CWR29J^225^@B+□ | TAZ B 225 * 020 L □ # @ 0 ^ ++ | TAZ B 225 * 020 L □ L @ 9 ^ ++ | B | 2.2 | 20 | 3.6 | 1 | 10 | 12 | 6 | 8 | 8 | 0.070 | 0.14 | 0.13 | 0.06 | 0.50 | 0.45 | 0.20 |
| CWR29J^225^@D+□ | TAZ D 225 * 020 L □ # @ 0 ^ ++ | TAZ D 225 * 020 L □ L @ 9 ^ ++ | D | 2.2 | 20 | 1.7 | 1 | 10 | 12 | 6 | 8 | 8 | 0.080 | 0.22 | 0.20 | 0.09 | 0.37 | 0.33 | 0.15 |
| CWR29J^335^@D+□ | TAZ D 335 * 020 L □ # @ 0 ^ ++ | TAZ D 335 * 020 L □ L @ 9 ^ ++ | D | 3.3 | 20 | 2 | 1 | 10 | 12 | 6 | 8 | 8 | 0.080 | 0.20 | 0.18 | 0.08 | 0.40 | 0.36 | 0.16 |
| CWR29J^335^@E+□ | TAZ E 335 * 020 L □ # @ 0 ^ ++ | TAZ E 335 * 020 L □ L @ 9 ^ ++ | E | 3.3 | 20 | 1.2 | 1 | 10 | 12 | 6 | 8 | 8 | 0.090 | 0.27 | 0.25 | 0.11 | 0.33 | 0.30 | 0.13 |
| CWR29J^475^@E+□ | TAZ E 475 * 020 L □ # @ 0 ^ ++ | TAZ E 475 * 020 L □ L @ 9 ^ ++ | E | 4.7 | 20 | 1.7 | 1 | 10 | 12 | 6 | 8 | 8 | 0.090 | 0.23 | 0.21 | 0.09 | 0.39 | 0.35 | 0.16 |
| CWR29J^685^@E+□ | TAZ E 685 * 020 L □ # @ 0 ^ ++ | TAZ E 685 * 020 L □ L @ 9 ^ ++ | E | 6.8 | 20 | 1.5 | 2 | 20 | 24 | 6 | 8 | 8 | 0.090 | 0.24 | 0.22 | 0.10 | 0.37 | 0.33 | 0.15 |
| CWR29J^685^@F+□ | TAZ F 685 * 020 L □ # @ 0 ^ ++ | TAZ F 685 * 020 L □ L @ 9 ^ ++ | F | 6.8 | 20 | 0.7 | 2 | 20 | 24 | 6 | 8 | 8 | 0.100 | 0.38 | 0.34 | 0.15 | 0.26 | 0.24 | 0.11 |
| CWR29J^106^@E+□ | TAZ E 106 * 020 L □ # @ 0 ^ ++ | TAZ E 106 * 020 L □ L @ 9 ^ ++ | E | 10 | 20 | 1.5 | 2 | 20 | 24 | 6 | 8 | 8 | 0.090 | 0.24 | 0.22 | 0.10 | 0.37 | 0.33 | 0.15 |
| CWR29J^106^@F+□ | TAZ F 106 * 020 L □ # @ 0 ^ ++ | TAZ F 106 * 020 L □ L @ 9 ^ ++ | F | 10 | 20 | 0.8 | 2 | 20 | 24 | 6 | 8 | 8 | 0.100 | 0.35 | 0.32 | 0.14 | 0.28 | 0.25 | 0.11 |
| CWR29J^156^@F+□ | TAZ F 156 * 020 L □ # @ 0 ^ ++ | TAZ F 156 * 020 L □ L @ 9 ^ ++ | F | 15 | 20 | 0.8 | 3 | 30 | 36 | 6 | 8 | 8 | 0.100 | 0.35 | 0.32 | 0.14 | 0.28 | 0.25 | 0.11 |
| CWR29J^156^@G+□ | TAZ G 156 * 020 L □ # @ 0 ^ ++ | TAZ G 156 * 020 L □ L @ 9 ^ ++ | G | 15 | 20 | 0.275 | 3 | 30 | 36 | 6 | 8 | 8 | 0.125 | 0.67 | 0.61 | 0.27 | 0.19 | 0.17 | 0.07 |
| CWR29J^226^@G+□ | TAZ G 226 * 020 L □ # @ 0 ^ ++ | TAZ G 226 * 020 L □ L @ 9 ^ ++ | G | 22 | 20 | 0.625 | 4 | 40 | 48 | 6 | 8 | 8 | 0.125 | 0.45 | 0.40 | 0.18 | 0.28 | 0.25 | 0.11 |
| CWR29J^226^@H+□ | TAZ H 226 * 020 L □ # @ 0 ^ ++ | TAZ H 226 * 020 L □ L @ 9 ^ ++ | H | 22 | 20 | 0.18 | 4 | 40 | 48 | 6 | 8 | 8 | 0.150 | 0.91 | 0.82 | 0.37 | 0.16 | 0.15 | 0.07 |
| CWR29J^336^@H+□ | TAZ H 336 * 020 L □ # @ 0 ^ ++ | TAZ H 336 * 020 L □ L @ 9 ^ ++ | H | 33 | 20 | 0.18 | 6 | 60 | 72 | 6 | 8 | 10 | 0.150 | 0.91 | 0.82 | 0.37 | 0.16 | 0.15 | 0.07 |
| CWR29J^476^@H+□ | TAZ H 476 * 020 L □ # @ 0 ^ ++ | TAZ H 476 * 020 L □ L @ 9 ^ ++ | H | 47 | 20 | 0.18 | 10 | 100 | 120 | 8 | 10 | 10 | 0.150 | 0.91 | 0.82 | 0.37 | 0.16 | 0.15 | 0.07 |
| CWR29J^476^@X+□ | TAZ X 476 * 020 L □ # @ 0 ^ ++ | TAZ X 476 * 020 L □ L @ 9 ^ ++ | X | 47 | 20 | 0.11 | 10 | 100 | 120 | 8 | 10 | 10 | 0.200 | 1.35 | 1.21 | 0.54 | 0.15 | 0.13 | 0.06 |
| CWR29K^334^@A+□ | TAZ A 334 * 025 L □ # @ 0 ^ ++ | TAZ A 334 * 025 L □ L @ 9 ^ ++ | A | 0.33 | 25 | 7.5 | 1 | 10 | 12 | 6 | 8 | 8 | 0.050 | 0.08 | 0.07 | 0.03 | 0.61 | 0.55 | 0.24 |
| CWR29K^474^@A+□ | TAZ A 474 * 025 L □ # @ 0 ^ ++ | TAZ A 474 * 025 L □ L @ 9 ^ ++ | A | 0.47 | 25 | 7.5 | 1 | 10 | 12 | 6 | 8 | 8 | 0.050 | 0.08 | 0.07 | 0.03 | 0.61 | 0.55 | 0.24 |
| CWR29K^684^@B+□ | TAZ B 684 * 025 L □ # @ 0 ^ ++ | TAZ B 684 * 025 L □ L @ 9 ^ ++ | B | 0.68 | 25 | 4 | 1 | 10 | 12 | 6 | 8 | 8 | 0.070 | 0.13 | 0.12 | 0.05 | 0.53 | 0.48 | 0.21 |
| CWR29K^105^@B+□ | TAZ B 105 * 025 L □ # @ 0 ^ ++ | TAZ B 105 * 025 L □ L @ 9 ^ ++ | B | 1 | 25 | 4 | 1 | 10 | 12 | 6 | 8 | 8 | 0.070 | 0.13 | 0.12 | 0.05 | 0.53 | 0.48 | 0.21 |
| CWR29K^105^@C+□ | TAZ C 105 * 025 L □ # @ 0 ^ ++ | TAZ C 105 * 025 L □ L @ 9 ^ ++ | C | 1 | 25 | 2.6 | 1 | 10 | 12 | 6 | 8 | 8 | 0.075 | 0.17 | 0.15 | 0.07 | 0.44 | 0.40 | 0.18 |
| CWR29K^155^@D+□ | TAZ D 155 * 025 L □ # @ 0 ^ ++ | TAZ D 155 * 025 L □ L @ 9 ^ ++ | D | 1.5 | 25 | 1.7 | 1 | 10 | 12 | 6 | 8 | 8 | 0.080 | 0.22 | 0.20 | 0.09 | 0.37 | 0.33 | 0.15 |
| CWR29K^225^@D+□ | TAZ D 225 * 025 L □ # @ 0 ^ ++ | TAZ D 225 * 025 L □ L @ 9 ^ ++ | D | 2.2 | 25 | 2 | 1 | 10 | 12 | 6 | 8 | 8 | 0.080 | 0.20 | 0.18 | 0.08 | 0.40 | 0.36 | 0.16 |
| CWR29K^225^@E+□ | TAZ E 225 * 025 L □ # @ 0 ^ ++ | TAZ E 225 * 025 L □ L @ 9 ^ ++ | E | 2.2 | 25 | 1 | 1 | 10 | 12 | 6 | 8 | 8 | 0.090 | 0.30 | 0.27 | 0.12 | 0.30 | 0.27 | 0.12 |
| CWR29K^335^@E+□ | TAZ E 335 * 025 L □ # @ 0 ^ ++ | TAZ E 335 * 025 L □ L @ 9 ^ ++ | E | 3.3 | 25 | 1.2 | 1 | 10 | 12 | 6 | 8 | 8 | 0.090 | 0.27 | 0.25 | 0.11 | 0.33 | 0.30 | 0.13 |
| CWR29K^475^@F+□ | TAZ F 475 * 025 L □ # @ 0 ^ ++ | TAZ F 475 * 025 L □ L @ 9 ^ ++ | F | 4.7 | 25 | 0.7 | 2 | 20 | 24 | 6 | 8 | 8 | 0.100 | 0.38 | 0.34 | 0.15 | 0.26 | 0.24 | 0.11 |
| CWR29K^685^@F+□ | TAZ F 685 * 025 L □ # @ 0 ^ ++ | TAZ F 685 * 025 L □ L @ 9 ^ ++ | F | 6.8 | 25 | 0.8 | 2 | 20 | 24 | 6 | 8 | 8 | 0.100 | 0.35 | 0.32 | 0.14 | 0.28 | 0.25 | 0.11 |
| CWR29K^685^@G+□ | TAZ G 685 * 025 L □ # @ 0 ^ ++ | TAZ G 685 * 025 L □ L @ 9 ^ ++ | G | 6.8 | 25 | 0.3 | 2 | 20 | 24 | 6 | 8 | 8 | 0.125 | 0.65 | 0.58 | 0.26 | 0.19 | 0.17 | 0.08 |
| CWR29K^106^@G+□ | TAZ G 106 * 025 L □ # @ 0 ^ ++ | TAZ G 106 * 025 L □ L @ 9 ^ ++ | G | 10 | 25 | 0.35 | 3 | 30 | 36 | 6 | 8 | 8 | 0.125 | 0.60 | 0.54 | 0.24 | 0.21 | 0.19 | 0.08 |
| CWR29K^156^@G+□ | TAZ G 156 * 025 L □ # @ 0 ^ ++ | TAZ G 156 * 025 L □ L @ 9 ^ ++ | G | 15 | 25 | 0.35 | 4 | 40 | 48 | 6 | 8 | 8 | 0.125 | 0.60 | 0.54 | 0.24 | 0.21 | 0.19 | 0.08 |
| CWR29K^156^@H+□ | TAZ H 156 * 025 L □ # @ 0 ^ ++ | TAZ H 156 * 025 L □ L @ 9 ^ ++ | H | 15 | 25 | 0.2 | 4 | 40 | 48 | 6 | 8 | 8 | 0.150 | 0.87 | 0.78 | 0.35 | 0.17 | 0.16 | 0.07 |
| CWR29K^226^@G+□ | TAZ G 226 * 025 L □ # @ 0 ^ ++ | TAZ G 226 * 025 L □ L @ 9 ^ ++ | G | 22 | 25 | 0.35 | 6 | 60 | 72 | 6 | 8 | 8 | 0.125 | 0.60 | 0.54 | 0.24 | 0.21 | 0.19 | 0.08 |
| CWR29K^226^@H+□ | TAZ H 226 * 025 L □ # @ 0 ^ ++ | TAZ H 226 * 025 L □ L @ 9 ^ ++ | H | 22 | 25 | 0.18 | 6 | 60 | 72 | 6 | 8 | 8 | 0.150 | 0.91 | 0.82 | 0.37 | 0.16 | 0.15 | 0.07 |
| CWR29K^336^@H+□ | TAZ H 336 * 025 L □ # @ 0 ^ ++ | TAZ H 336 * 025 L □ L @ 9 ^ ++ | H | 33 | 25 | 0.18 | 10 | 100 | 120 | 8 | 10 | 10 | 0.150 | 0.91 | 0.82 | 0.37 | 0.16 | 0.15 | 0.07 |
| CWR29M^224^@A+□ | TAZ A 224 * 035 L □ # @ 0 ^ ++ | TAZ A 224 * 035 L □ L @ 9 ^ ++ | A | 0.22 | 35 | 12 | 1 | 10 | 12 | 6 | 8 | 8 | 0.050 | 0.06 | 0.06 | 0.03 | 0.77 | 0.70 | 0.31 |
| CWR29M^334^@A+□ | TAZ A 334 * 035 L □ # @ 0 ^ ++ | TAZ A 334 * 035 L □ L @ 9 ^ ++ | A | 0.33 | 35 | 12 | 1 | 10 | 12 | 6 | 8 | 8 | 0.050 | 0.06 | 0.06 | 0.03 | 0.77 | 0.70 | 0.31 |
| CWR29M^474^@B+□ | TAZ B 474 * 035 L □ # @ 0 ^ ++ | TAZ B 474 * 035 L □ L @ 9 ^ ++ | B | 0.47 | 35 | 6.8 | 1 | 10 | 12 | 6 | 8 | 8 | 0.070 | 0.10 | 0.09 | 0.04 | 0.69 | 0.62 | 0.28 |
| CWR29M^684^@C+□ | TAZ C 684 * 035 L □ # @ 0 ^ ++ | TAZ C 684 * 035 L □ L @ 9 ^ ++ | C | 0.68 | 35 | 4 | 1 | 10 | 12 | 6 | 8 | 8 | 0.075 | 0.14 | 0.12 | 0.05 | 0.55 | 0.49 | 0.22 |
| CWR29M^105^@D+□ | TAZ D 105 * 035 L □ # @ 0 ^ ++ | TAZ D 105 * 035 L □ L @ 9 ^ ++ | D | 1 | 35 | 2.2 | 1 | 10 | 12 | 6 | 8 | 8 | 0.080 | 0.19 | 0.17 | 0.08 | 0.42 | 0.38 | 0.17 |
| CWR29M^155^@E+□ | TAZ E 155 * 035 L □ # @ 0 ^ ++ | TAZ E 155 * 035 L □ L @ 9 ^ ++ | E | 1.5 | 35 | 1.3 | 1 | 10 | 12 | 6 | 8 | 8 | 0.090 | 0.26 | 0.24 | 0.11 | 0.34 | 0.31 | 0.14 |
| CWR29M^335^@F+□ | TAZ F 335 * 035 L □ # @ 0 ^ ++ | TAZ F 335 * 035 L □ L @ 9 ^ ++ | F | 3.3 | 35 | 0.7 | 1 | 10 | 12 | 6 | 8 | 8 | 0.100 | 0.38 | 0.34 | 0.15 | 0.26 | 0.24 | 0.11 |
| CWR29M^475^@G+□ | TAZ G 475 * 035 L □ # @ 0 ^ ++ | TAZ G 475 * 035 L □ L @ 9 ^ ++ | G | 4.7 | 35 | 0.375 | 2 | 20 | 24 | 6 | 8 | 8 | 0.125 | 0.58 | 0.52 | 0.23 | 0.22 | 0.19 | 0.09 |
| CWR29M^685^@G+□ | TAZ G 685 * 035 L □ # @ 0 ^ ++ | TAZ G 685 * 035 L □ L @ 9 ^ ++ | G | 6.8 | 35 | 0.375 | 3 | 30 | 36 | 6 | 8 | 8 | 0.125 | 0.58 | 0.52 | 0.23 | 0.22 | 0.19 | 0.09 |
| CWR29M^685^@H+□ | TAZ H 685 * 035 L □ # @ 0 ^ ++ | TAZ H 685 * 035 L □ L @ 9 ^ ++ | H | 6.8 | 35 | 0.5 | 3 | 30 | 36 | 6 | 8 | 8 | 0.150 | 0.55 | 0.49 | 0.22 | 0.27 | 0.25 | 0.11 |
| CWR29M^106^@H+□ | TAZ H 106 * 035 L □ # @ 0 ^ ++ | TAZ H 106 * 035 L □ L @ 9 ^ ++ | H | 10 | 35 | 0.5 | 4 | 40 | 48 | 8 | 10 | 10 | 0.150 | 0.55 | 0.49 | 0.22 | 0.27 | 0.25 | 0.11 |
| CWR29M^156^@X+□ | TAZ X 156 * 035 L □ # @ 0 ^ ++ | TAZ X 156 * 035 L □ L @ 9 ^ ++ | X | 15 | 35 | 0.19 | 6 | 60 | 72 | 6 | 8 | 8 | 0.200 | 1.03 | 0.92 | 0.41 | 0.19 | 0.18 | 0.08 |
| CWR29N^104^@A+□ | TAZ A 104 * 050 L □ # @ 0 ^ ++ | TAZ A 104 * 050 L □ L @ 9 ^ ++ | A | 0.1 | 50 | 12 | 1 | 10 | 12 | 6 | 8 | 8 | 0.050 | 0.06 | 0.06 | 0.03 | 0.77 | 0.70 | 0.31 |
| CWR29N^154^@A+□ | TAZ A 154 * 050 L □ # @ 0 ^ ++ | TAZ A 154 * 050 L □ L @ 9 ^ ++ | A | 0.15 | 50 | 12 | 1 | 10 | 12 | 6 | 8 | 8 | 0.050 | 0.06 | 0.06 | 0.03 | 0.77 | 0.70 | 0.31 |

All technical data relates to an ambient temperature of +25°C. Capacitance and DF are measured at 120Hz, 0.5V RMS with a maximum DC bias of 2.2 volts. DCL is measured at rated voltage after 5 minutes.

NOTE: AVX reserves the right to supply a higher voltage rating or tighter tolerance part in the same case size, to the same reliability standards.



TAZ Series



CWR29 - MIL-PRF-55365/11 Established Reliability, COTS-Plus & Space Level

| RATING & PART NUMBER REFERENCE | | | | Parametric Specifications by Rating per MIL-PRF-55365/11 | | | | | | | Typical RMS Ripple Data by Rating | | | | | | | | |
|--------------------------------|--------------------------------|--------------------------------|------|--|-------------------------------------|------------------------------------|--------------------------|---------------|----------------|--------------|-----------------------------------|--------------|---------------------------|---------------------------------|---------------------------------|----------------------------------|---------------------------------|---------------------------------|----------------------------------|
| | | | | Cap @ 120Hz μF @ 25°C | DC Rated Voltage V @ +85°C | ESR @ 100kHz Ohms @ +25°C | DCL max +25°C (μA) | +85°C (μA) | +125°C (μA) | +25°C (%) | DF Max +(85/125)°C (%) | -55°C (%) | Power Dissipation W | 25°C Ripple A (100kHz) | 85°C Ripple A (100kHz) | 125°C Ripple A (100kHz) | 25°C Ripple V (100kHz) | 85°C Ripple V (100kHz) | 125°C Ripple V (100kHz) |
| CWR29 P/N | AVX MIL & COTS-Plus P/N | AVX SRC9000 P/N | Case | | | | | | | | | | | | | | | | |
| CWR29N^224^@B+□ | TAZ B 224 * 050 L □ # @ 0 ^ ++ | TAZ B 224 * 050 L □ L @ 9 ^ ++ | B | 0.22 | 50 | 6.8 | 1 | 10 | 12 | 6 | 8 | 8 | 0.070 | 0.10 | 0.09 | 0.04 | 0.69 | 0.62 | 0.28 |
| CWR29N^334^@B+□ | TAZ B 334 * 050 L □ # @ 0 ^ ++ | TAZ B 334 * 050 L □ L @ 9 ^ ++ | B | 0.33 | 50 | 4.8 | 1 | 10 | 12 | 6 | 8 | 8 | 0.070 | 0.12 | 0.11 | 0.05 | 0.58 | 0.52 | 0.23 |
| CWR29N^474^@C+□ | TAZ C 474 * 050 L □ # @ 0 ^ ++ | TAZ C 474 * 050 L □ L @ 9 ^ ++ | C | 0.47 | 50 | 3.2 | 1 | 10 | 12 | 6 | 8 | 8 | 0.075 | 0.15 | 0.14 | 0.06 | 0.49 | 0.44 | 0.20 |
| CWR29N^684^@D+□ | TAZ D 684 * 050 L □ # @ 0 ^ ++ | TAZ D 684 * 050 L □ L @ 9 ^ ++ | D | 0.68 | 50 | 2.3 | 1 | 10 | 12 | 6 | 8 | 8 | 0.080 | 0.19 | 0.17 | 0.07 | 0.43 | 0.39 | 0.17 |
| CWR29N^105^@E+□ | TAZ E 105 * 050 L □ # @ 0 ^ ++ | TAZ E 105 * 050 L □ L @ 9 ^ ++ | E | 1 | 50 | 1.7 | 1 | 10 | 12 | 6 | 8 | 8 | 0.090 | 0.23 | 0.21 | 0.09 | 0.39 | 0.35 | 0.16 |
| CWR29N^155^@F+□ | TAZ F 155 * 050 L □ # @ 0 ^ ++ | TAZ F 155 * 050 L □ L @ 9 ^ ++ | F | 1.5 | 50 | 1.1 | 1 | 10 | 12 | 6 | 8 | 8 | 0.100 | 0.30 | 0.27 | 0.12 | 0.33 | 0.30 | 0.13 |
| CWR29N^225^@F+□ | TAZ F 225 * 050 L □ # @ 0 ^ ++ | TAZ F 225 * 050 L □ L @ 9 ^ ++ | F | 2.2 | 50 | 0.7 | 2 | 20 | 24 | 6 | 8 | 8 | 0.100 | 0.38 | 0.34 | 0.15 | 0.26 | 0.24 | 0.11 |
| CWR29N^335^@G+□ | TAZ G 335 * 050 L □ # @ 0 ^ ++ | TAZ G 335 * 050 L □ L @ 9 ^ ++ | G | 3.3 | 50 | 0.5 | 2 | 20 | 24 | 6 | 8 | 8 | 0.125 | 0.50 | 0.45 | 0.20 | 0.25 | 0.23 | 0.10 |
| CWR29N^475^@H+□ | TAZ H 475 * 050 L □ # @ 0 ^ ++ | TAZ H 475 * 050 L □ L @ 9 ^ ++ | H | 4.7 | 50 | 0.5 | 3 | 30 | 36 | 6 | 8 | 8 | 0.150 | 0.55 | 0.49 | 0.22 | 0.27 | 0.25 | 0.11 |

All technical data relates to an ambient temperature of +25°C. Capacitance and DF are measured at 120Hz, 0.5V RMS with a maximum DC bias of 2.2 volts. DCL is measured at rated voltage after 5 minutes.

NOTE: AVX reserves the right to supply a higher voltage rating or tighter tolerance part in the same case size, to the same reliability standards.

TAZ Series



HRC5000 Medical Implantable Grade



The TAZ HRC5000 Medical Grade series is designed for use in medical implantable applications. These are based off of the MIL-PRF-55365 case sizes and feature extremely low DC leakage levels well below typical values.

These components are manufactured and tested in the AVX Biddeford Maine factory which is ISO 13485 certified. Weibull grading and surge current testing options per MIL-PRF-55365 are

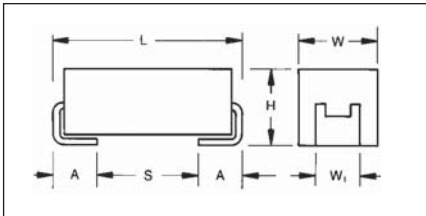
available along with several plating options including tin/lead solder, 100% tin, or gold terminations.

To request an additional rating not listed here, or for more information on HRC5000 testing details, please contact the factory.

For moisture sensitivity levels please refer to the High Reliability Tantalum MSL section located in the back of the High Reliability Tantalum Catalog.

CASE DIMENSIONS:

millimeters (inches)



| Case Code | Length (L) ±0.38 (0.015) | Width (W) ±0.38 (0.015) | Height (H) ±0.38 (0.015) | Term. Width (W _t) | Term. Length (A) +0.25/-0.13 (+0.010/-0.005) | S min | Typical Weight (g) |
|-----------|-----------------------------|----------------------------|-----------------------------|---|--|--------------|--------------------|
| A | 2.54 (0.100) | 1.27 (0.050) | 1.27 (0.050) | 1.27±0.13 (0.050±0.005) | 0.76 (0.030) | 0.38 (0.015) | 0.016 |
| B | 3.81 (0.150) | 1.27 (0.050) | 1.27 (0.050) | 1.27±0.13 (0.050±0.005) | 0.76 (0.030) | 1.65 (0.065) | 0.025 |
| C | 5.08 (0.200) | 1.27 (0.050) | 1.27 (0.050) | 1.27±0.13 (0.050±0.005) | 0.76 (0.030) | 2.92 (0.115) | 0.035 |
| D | 3.81 (0.150) | 2.54 (0.100) | 1.27 (0.050) | 2.41+0.13/-0.25 (0.095+0.005/-0.010) | 0.76 (0.030) | 1.65 (0.065) | 0.045 |
| E | 5.08 (0.200) | 2.54 (0.100) | 1.27 (0.050) | 2.41+0.13/-0.25 (0.095+0.005/-0.010) | 0.76 (0.030) | 2.92 (0.115) | 0.065 |
| F | 5.59 (0.220) | 3.43 (0.135) | 1.78 (0.070) | 3.30±0.13 (0.130±0.005) | 0.76 (0.030) | 3.43 (0.135) | 0.125 |
| G | 6.73 (0.265) | 2.79 (0.110) | 2.79 (0.110) | 2.67±0.13 (0.105±0.005) | 1.27 (0.050) | 3.56 (0.140) | 0.205 |
| H | 7.24 (0.285) | 3.81 (0.150) | 2.79 (0.110) | 3.68+0.13/-0.51 (0.145+0.005/-0.020) | 1.27 (0.050) | 4.06 (0.160) | 0.335 |

MARKING

(White marking on black body)



Polarity Stripe (+)

**Capacitance Code
Rated Voltage**

CAPACITANCE AND RATED VOLTAGE, V_R (VOLTAGE CODE) RANGE (LETTER DENOTES CASE SIZE)

| Capacitance | | Rated Voltage | | | | | | | | |
|-------------|------|---------------|---------|-------|-----|-------|-----|-----|-----|-----|
| µF | Code | 4V | 6V | 10V | 12V | 15V | 20V | 25V | 35V | 50V |
| 0.10 | 104 | | | | | | | | | A |
| 0.15 | 154 | | | | | | | | | A |
| 0.22 | 224 | | | | | | | | A | |
| 0.33 | 334 | | | | | | | A | B | |
| 0.47 | 474 | | | | | | A | | | |
| 0.68 | 684 | | | | | A | | | | |
| 1 | 105 | | | A | | A | A/B | B | D | E |
| 1.5 | 155 | | A | A | | B | D | | | |
| 2.2 | 225 | A | A | A/B | | A/B/C | B/D | D/E | | F |
| 3.3 | 335 | | A/B | A/B | | B/D | E | E | F | G |
| 4.7 | 475 | A/B | A | B/D | | B/D/E | D/E | F | | |
| 6 | 605 | | | | | | | | | |
| 6.8 | 685 | A | D | B/D/E | | D/E/F | D/E | F | | |
| 10 | 106 | D | B/D/E | B/D/E | | D/E/F | E | G | H | |
| 14 | 146 | | | E | | | | | | |
| 15 | 156 | | B/D/F | D/E/F | | E | F/G | G/H | | |
| 22 | 226 | | F | D/E/F | E | F/G | G/H | H | | |
| 33 | 336 | E/F | E | F/G | | F/H | | | | |
| 47 | 476 | E | E/F/G | F/G/H | | G | H | | | |
| 68 | 686 | E/G | E/F/G/H | G | | | | | | |
| 100 | 107 | F | G | H | | H | | | | |
| 150 | 157 | | G | H | | | | | | |
| 220 | 227 | | | H | | | | | | |
| 300 | 307 | | H | | | | | | | |
| 330 | 337 | | H | | | | | | | |

HRC5000 Medical Implantable Grade

HOW TO ORDER

| TAZ | E | 106 | * | 010 | C | □ | L | @ | 5 | ^ | ++ |
|--|------------------|--|---------------------------------|--|----------------------------|--------------------------------------|-------------------------|---|----------------------------|--|---|
| Type | Case Size | Capacitance Code | Capacitance Tolerance | Voltage Code | ESR | Packaging | Inspection Level | Reliability Grade | Qualification Level | Termination Finish | Surge Test Option |
| | | pF code: 1st two digits represent significant figures 3rd digit represents multiplier (number of zeros to follow) | J = ±5% K = ±10% M = ±20% | 004 = 4Vdc 006 = 6Vdc 010 = 10Vdc 015 = 15Vdc 020 = 20Vdc 025 = 25Vdc 035 = 35Vdc 050 = 50Vdc | C = Std ESR L = Low ESR | B = Bulk R = 7* T&R W = Waffle | L = Group A | Weibull: B = 0.1%/1000 hrs. 90% conf. C = 0.01%/1000 hrs. 90% conf. | 5 = HRC5000 | H = Solder Plated 0 = Solder Fused 9 = Gold Plated 7 = 100% Tin | 00 = None 23 = 10 Cycles, +25°C 24 = 10 Cycles, -55°C & +85°C 45 = 10 Cycles, -55°C & +85°C before Weibull |
| <p>LEAD-FREE LEAD-FREE COMPATIBLE COMPONENT RoHS COMPLIANT</p> <p><small>For RoHS compliant products, please select correct termination style.</small></p> | | | | | | | | | | | |

*Contact factory for AVX HRC5000 Medical Grade SCD details.

TECHNICAL SPECIFICATIONS

| | | | | | | | | | | |
|------------------------------------|---|-----|-----|------|------|------|------|------|------|--|
| Technical Data: | Unless otherwise specified, all technical data relate to an ambient temperature of 25°C | | | | | | | | | |
| Capacitance Range: | 0.10 µF to 330 µF | | | | | | | | | |
| Capacitance Tolerance: | ±5%; ±10%; ±20% | | | | | | | | | |
| Rated Voltage (V _R) | ≤ 85°C: | 4 | 6 | 10 | 15 | 20 | 25 | 35 | 50 | |
| Category Voltage (V _C) | ≤ 125°C: | 2.7 | 4 | 6.7 | 10 | 13.3 | 16.7 | 23.3 | 33.3 | |
| Surge Voltage (V _S) | ≤ 85°C: | 5.3 | 8 | 13.3 | 20 | 26.7 | 33.3 | 46.7 | 66.7 | |
| Surge Voltage (V _S) | ≤ 125°C: | 3.5 | 5.3 | 8.7 | 13.3 | 17.8 | 22.2 | 31.1 | 44.5 | |
| Temperature Range: | -55°C to +125°C | | | | | | | | | |

TAZ Series

HRC5000 Medical Implantable Grade



| RATING & PART NUMBER REFERENCE | | Parametric Specifications by Rating | | | | | | | | | Typical RMS Ripple Data by Rating | | | | | | |
|--------------------------------|------|-------------------------------------|------------------|--------------|---------|--------|--------|--------|-------------|-------|-----------------------------------|---------------------|---------------------|----------------------|---------------------|---------------------|----------------------|
| | | Cap @ 120Hz | DC Rated Voltage | ESR @ 100kHz | DCL max | | | DF max | | | Power Dissipation | 25°C Ripple Current | 85°C Ripple Current | 125°C Ripple Current | 25°C Ripple Voltage | 85°C Ripple Voltage | 125°C Ripple Voltage |
| | | | | | +25°C | +85°C | +125°C | +25°C | +(85/125)°C | -55°C | | | | | | | |
| AVX P/N | Case | µF @ 25°C | V @ +85°C | Ohms @ +25°C | (µA) | (µA) | (µA) | (%) | (%) | (%) | W | A (100kHz) | A (100kHz) | A (100kHz) | V (100kHz) | V (100kHz) | V (100kHz) |
| TAZA225*004L□□@5^++ | A | 2.2 | 4 | 4 | 0.100 | 1.000 | 1.200 | 6 | 8 | 8 | 0.050 | 0.112 | 0.101 | 0.045 | 0.447 | 0.402 | 0.179 |
| TAZA475*004L□□@5^++ | A | 4.7 | 4 | 6 | 0.100 | 1.000 | 1.200 | 6 | 8 | 8 | 0.050 | 0.091 | 0.082 | 0.037 | 0.548 | 0.493 | 0.219 |
| TAZB475*004L□□@5^++ | B | 4.7 | 4 | 3.2 | 0.100 | 1.000 | 1.200 | 6 | 8 | 8 | 0.070 | 0.148 | 0.133 | 0.059 | 0.473 | 0.426 | 0.189 |
| TAZA685*004L□□@5^++ | A | 6.8 | 4 | 6 | 0.100 | 1.000 | 1.200 | 6 | 8 | 8 | 0.050 | 0.091 | 0.082 | 0.037 | 0.548 | 0.493 | 0.219 |
| TAZD106*004L□□@5^++ | D | 10 | 4 | 1.3 | 0.100 | 1.000 | 1.200 | 8 | 8 | 10 | 0.080 | 0.248 | 0.223 | 0.099 | 0.322 | 0.290 | 0.129 |
| TAZE336*004L□□@5^++ | E | 33 | 4 | 0.9 | 0.330 | 3.300 | 3.960 | 8 | 10 | 12 | 0.090 | 0.316 | 0.285 | 0.126 | 0.285 | 0.256 | 0.114 |
| TAZF336*004L□□@5^++ | F | 33 | 4 | 0.6 | 0.330 | 3.300 | 3.960 | 8 | 10 | 12 | 0.100 | 0.408 | 0.367 | 0.163 | 0.245 | 0.220 | 0.098 |
| TAZE476*004L□□@5^++ | E | 47 | 4 | 0.9 | 0.470 | 4.700 | 5.640 | 8 | 10 | 12 | 0.090 | 0.316 | 0.285 | 0.126 | 0.285 | 0.256 | 0.114 |
| TAZE686*004L□□@5^++ | E | 68 | 4 | 0.9 | 0.680 | 6.800 | 8.160 | 8 | 10 | 12 | 0.090 | 0.316 | 0.285 | 0.126 | 0.285 | 0.256 | 0.114 |
| TAZG686*004L□□@5^++ | G | 68 | 4 | 0.275 | 0.680 | 6.800 | 8.160 | 10 | 12 | 12 | 0.125 | 0.674 | 0.607 | 0.270 | 0.185 | 0.167 | 0.074 |
| TAZF107*004L□□@5^++ | F | 100 | 4 | 0.55 | 1.000 | 10.000 | 12.000 | 10 | 12 | 12 | 0.100 | 0.426 | 0.384 | 0.171 | 0.235 | 0.211 | 0.094 |
| TAZA155*006L□□@5^++ | A | 1.5 | 6 | 4 | 0.100 | 1.000 | 1.200 | 6 | 8 | 8 | 0.050 | 0.112 | 0.101 | 0.045 | 0.447 | 0.402 | 0.179 |
| TAZA225*006C□□@5^++ | A | 2.2 | 6 | 12 | 0.100 | 1.000 | 1.200 | 6 | 8 | 8 | 0.050 | 0.065 | 0.058 | 0.026 | 0.775 | 0.697 | 0.310 |
| TAZA335*006L□□@5^++ | A | 3.3 | 6 | 6 | 0.100 | 1.000 | 1.200 | 6 | 8 | 8 | 0.050 | 0.091 | 0.082 | 0.037 | 0.548 | 0.493 | 0.219 |
| TAZB335*006L□□@5^++ | B | 3.3 | 6 | 3.2 | 0.100 | 1.000 | 1.200 | 6 | 8 | 8 | 0.070 | 0.148 | 0.133 | 0.059 | 0.473 | 0.426 | 0.189 |
| TAZA475*006L□□@5^++ | A | 4.7 | 6 | 6 | 0.100 | 1.000 | 1.200 | 6 | 8 | 8 | 0.050 | 0.091 | 0.082 | 0.037 | 0.548 | 0.493 | 0.219 |
| TAZD685*006L□□@5^++ | D | 6.8 | 6 | 1.5 | 0.102 | 1.020 | 1.224 | 6 | 8 | 8 | 0.080 | 0.231 | 0.208 | 0.092 | 0.346 | 0.312 | 0.139 |
| TAZB106*006L□□@5^++ | B | 10 | 6 | 3.2 | 0.150 | 1.500 | 1.800 | 6 | 8 | 8 | 0.070 | 0.148 | 0.133 | 0.059 | 0.473 | 0.426 | 0.189 |
| TAZD106*006C□□@5^++ | D | 10 | 6 | 6 | 0.150 | 1.500 | 1.800 | 6 | 8 | 8 | 0.080 | 0.115 | 0.104 | 0.046 | 0.693 | 0.624 | 0.277 |
| TAZE106*006L□□@5^++ | E | 10 | 6 | 1 | 0.150 | 1.500 | 1.800 | 8 | 10 | 12 | 0.090 | 0.300 | 0.270 | 0.120 | 0.300 | 0.270 | 0.120 |
| TAZB156*006L□□@5^++ | B | 15 | 6 | 3.2 | 0.225 | 2.250 | 2.700 | 8 | 10 | 10 | 0.070 | 0.148 | 0.133 | 0.059 | 0.473 | 0.426 | 0.189 |
| TAZD156*006L□□@5^++ | D | 15 | 6 | 1.7 | 0.225 | 2.250 | 2.700 | 8 | 10 | 12 | 0.080 | 0.217 | 0.195 | 0.087 | 0.369 | 0.332 | 0.148 |
| TAZF156*006C□□@5^++ | F | 15 | 6 | 0.3 | 0.225 | 2.250 | 2.700 | 6 | 8 | 8 | 0.100 | 0.577 | 0.520 | 0.231 | 0.173 | 0.156 | 0.069 |
| TAZF226*006L□□@5^++ | F | 22 | 6 | 0.6 | 0.330 | 3.300 | 3.960 | 8 | 10 | 12 | 0.100 | 0.408 | 0.367 | 0.163 | 0.245 | 0.220 | 0.098 |
| TAZE336*006L□□@5^++ | E | 33 | 6 | 1 | 0.495 | 4.950 | 5.940 | 6 | 8 | 8 | 0.090 | 0.300 | 0.270 | 0.120 | 0.300 | 0.270 | 0.120 |
| TAZE476*006C□□@5^++ | E | 47 | 6 | 5 | 0.705 | 7.050 | 8.460 | 6 | 8 | 8 | 0.090 | 0.134 | 0.121 | 0.054 | 0.671 | 0.604 | 0.268 |
| TAZF476*006L□□@5^++ | F | 47 | 6 | 1 | 0.705 | 7.050 | 8.460 | 8 | 10 | 12 | 0.100 | 0.316 | 0.285 | 0.126 | 0.316 | 0.285 | 0.126 |
| TAZG476*006L□□@5^++ | G | 47 | 6 | 0.275 | 0.705 | 7.050 | 8.460 | 10 | 12 | 12 | 0.125 | 0.674 | 0.607 | 0.270 | 0.185 | 0.167 | 0.074 |
| TAZE686*006C□□@5^++ | E | 68 | 6 | 2 | 1.020 | 10.200 | 12.240 | 10 | 12 | 12 | 0.090 | 0.212 | 0.191 | 0.085 | 0.424 | 0.382 | 0.170 |
| TAZF686*006L□□@5^++ | F | 68 | 6 | 0.4 | 1.020 | 10.200 | 12.240 | 10 | 12 | 12 | 0.100 | 0.500 | 0.450 | 0.200 | 0.200 | 0.180 | 0.080 |
| TAZG686*006L□□@5^++ | G | 68 | 6 | 0.25 | 1.020 | 10.200 | 12.240 | 10 | 12 | 12 | 0.125 | 0.707 | 0.636 | 0.283 | 0.177 | 0.159 | 0.071 |
| TAZH686*006L□□@5^++ | H | 68 | 6 | 0.18 | 1.020 | 10.200 | 12.240 | 10 | 12 | 12 | 0.150 | 0.913 | 0.822 | 0.365 | 0.164 | 0.148 | 0.066 |
| TAZG107*006L□□@5^++ | G | 100 | 6 | 0.275 | 1.500 | 15.000 | 18.000 | 10 | 12 | 12 | 0.125 | 0.674 | 0.607 | 0.270 | 0.185 | 0.167 | 0.074 |
| TAZG157*006L□□@5^++ | G | 150 | 6 | 0.275 | 2.250 | 22.500 | 27.000 | 10 | 12 | 12 | 0.125 | 0.674 | 0.607 | 0.270 | 0.185 | 0.167 | 0.074 |
| TAZH307*006C□□@5^++ | H | 300 | 6 | 0.9 | 4.500 | 45.000 | 54.000 | 15 | 18 | 18 | 0.150 | 0.408 | 0.367 | 0.163 | 0.367 | 0.331 | 0.147 |
| TAZH337*006L□□@5^++ | H | 330 | 6 | 0.18 | 4.950 | 49.500 | 59.400 | 10 | 12 | 12 | 0.150 | 0.913 | 0.822 | 0.365 | 0.164 | 0.148 | 0.066 |
| TAZR334*010C□□@5^++ | R | 0.33 | 10 | 50 | 0.100 | 1.000 | 1.200 | 6 | 8 | 8 | 0.030 | 0.024 | 0.022 | 0.010 | 1.225 | 1.102 | 0.490 |
| TAZA105*010L□□@5^++ | A | 1 | 10 | 5 | 0.100 | 1.000 | 1.200 | 6 | 8 | 8 | 0.050 | 0.100 | 0.090 | 0.040 | 0.500 | 0.450 | 0.200 |
| TAZA155*010C□□@5^++ | A | 1.5 | 10 | 12 | 0.100 | 1.000 | 1.200 | 6 | 8 | 8 | 0.050 | 0.065 | 0.058 | 0.026 | 0.775 | 0.697 | 0.310 |
| TAZA225*010L□□@5^++ | A | 2.2 | 10 | 6 | 0.100 | 1.000 | 1.200 | 6 | 8 | 8 | 0.050 | 0.091 | 0.082 | 0.037 | 0.548 | 0.493 | 0.219 |
| TAZR225*010L□□@5^++ | B | 2.2 | 10 | 3.2 | 0.100 | 1.000 | 1.200 | 6 | 8 | 8 | 0.070 | 0.148 | 0.133 | 0.059 | 0.473 | 0.426 | 0.189 |
| TAZA335*010L□□@5^++ | A | 3.3 | 10 | 6 | 0.100 | 1.000 | 1.200 | 6 | 8 | 8 | 0.050 | 0.091 | 0.082 | 0.037 | 0.548 | 0.493 | 0.219 |
| TAZB335*010C□□@5^++ | B | 3.3 | 10 | 18 | 0.100 | 1.000 | 1.200 | 6 | 8 | 8 | 0.070 | 0.062 | 0.056 | 0.025 | 1.122 | 1.010 | 0.449 |

All technical data relates to an ambient temperature of +25°C. Capacitance and DF are measured at 120Hz, 0.5V RMS with a maximum DC bias of 2.2 volts. DCL is measured at rated voltage after 5 minutes.

NOTE: AVX reserves the right to supply a higher voltage rating or tighter tolerance part in the same case size, to the same reliability standards.



TAZ Series

HRC5000 Medical Implantable Grade



| RATING & PART NUMBER REFERENCE | | Parametric Specifications by Rating | | | | | | | | | Typical RMS Ripple Data by Rating | | | | | | |
|--------------------------------|------|-------------------------------------|------------------|--------------|---------|--------|--------|--------|-------------|-------|-----------------------------------|---------------------|---------------------|----------------------|---------------------|---------------------|----------------------|
| | | Cap @ 120Hz | DC Rated Voltage | ESR @ 100kHz | DCL max | | | DF max | | | Power Dissipation | 25°C Ripple Current | 85°C Ripple Current | 125°C Ripple Current | 25°C Ripple Voltage | 85°C Ripple Voltage | 125°C Ripple Voltage |
| | | | | | +25°C | +85°C | +125°C | +25°C | +(85/125)°C | -55°C | | | | | | | |
| AVX P/N | Case | µF @ 25°C | V @ +85°C | Ohms @ +25°C | (µA) | (µA) | (µA) | (%) | (%) | (%) | | | | | | | |
| TAZB475*010L□□@5^++ | B | 4.7 | 10 | 3.2 | 0.200 | 2.000 | 2.400 | 6 | 8 | 8 | 0.070 | 0.148 | 0.133 | 0.059 | 0.473 | 0.426 | 0.189 |
| TAZD475*010L□□@5^++ | D | 4.7 | 10 | 1.5 | 0.200 | 2.000 | 2.400 | 6 | 8 | 8 | 0.080 | 0.231 | 0.208 | 0.092 | 0.346 | 0.312 | 0.139 |
| TAZB685*010L□□@5^++ | B | 6.8 | 10 | 3.2 | 0.170 | 1.700 | 2.040 | 6 | 8 | 8 | 0.070 | 0.148 | 0.133 | 0.059 | 0.473 | 0.426 | 0.189 |
| TAZD685*010L□□@5^++ | D | 6.8 | 10 | 1.7 | 0.170 | 1.700 | 2.040 | 6 | 8 | 8 | 0.080 | 0.217 | 0.195 | 0.087 | 0.369 | 0.332 | 0.148 |
| TAZE685*010L□□@5^++ | E | 6.8 | 10 | 1 | 0.170 | 1.700 | 2.040 | 6 | 8 | 8 | 0.090 | 0.300 | 0.270 | 0.120 | 0.300 | 0.270 | 0.120 |
| TAZB106*010L□□@5^++ | B | 10 | 10 | 3.2 | 0.250 | 2.500 | 3.000 | 8 | 10 | 10 | 0.070 | 0.148 | 0.133 | 0.059 | 0.473 | 0.426 | 0.189 |
| TAZD106*010L□□@5^++ | D | 10 | 10 | 1.3 | 0.250 | 2.500 | 3.000 | 6 | 8 | 8 | 0.080 | 0.248 | 0.223 | 0.099 | 0.322 | 0.290 | 0.129 |
| TAZE106*010L□□@5^++ | E | 10 | 10 | 1 | 0.250 | 2.500 | 3.000 | 6 | 8 | 8 | 0.090 | 0.300 | 0.270 | 0.120 | 0.300 | 0.270 | 0.120 |
| TAZE146*010C□□@5^++ | E | 14 | 10 | 3 | 0.350 | 3.500 | 4.200 | 6 | 8 | 8 | 0.090 | 0.173 | 0.156 | 0.069 | 0.520 | 0.468 | 0.208 |
| TAZD156*010L□□@5^++ | D | 15 | 10 | 1.7 | 0.375 | 3.750 | 4.500 | 6 | 8 | 8 | 0.080 | 0.217 | 0.195 | 0.087 | 0.369 | 0.332 | 0.148 |
| TAZE156*010L□□@5^++ | E | 15 | 10 | 0.9 | 0.375 | 3.750 | 4.500 | 8 | 10 | 10 | 0.090 | 0.316 | 0.285 | 0.126 | 0.285 | 0.256 | 0.114 |
| TAZF156*010L□□@5^++ | F | 15 | 10 | 0.7 | 0.375 | 3.750 | 4.500 | 8 | 8 | 10 | 0.100 | 0.378 | 0.340 | 0.151 | 0.265 | 0.238 | 0.106 |
| TAZD226*010C□□@5^++ | D | 22 | 10 | 8 | 0.550 | 5.500 | 6.600 | 6 | 8 | 8 | 0.080 | 0.100 | 0.090 | 0.040 | 0.800 | 0.720 | 0.320 |
| TAZE226*010L□□@5^++ | E | 22 | 10 | 0.6 | 0.550 | 5.500 | 6.600 | 8 | 10 | 10 | 0.090 | 0.387 | 0.349 | 0.155 | 0.232 | 0.209 | 0.093 |
| TAZF226*010C□□@5^++ | F | 22 | 10 | 3 | 0.550 | 5.500 | 6.600 | 8 | 10 | 10 | 0.100 | 0.183 | 0.164 | 0.073 | 0.548 | 0.493 | 0.219 |
| TAZF336*010L□□@5^++ | F | 33 | 10 | 0.4 | 0.825 | 8.250 | 9.900 | 8 | 10 | 10 | 0.100 | 0.500 | 0.450 | 0.200 | 0.200 | 0.180 | 0.080 |
| TAZG336*010L□□@5^++ | G | 33 | 10 | 0.275 | 0.825 | 8.250 | 9.900 | 10 | 12 | 12 | 0.125 | 0.674 | 0.607 | 0.270 | 0.185 | 0.167 | 0.074 |
| TAZF476*010L□□@5^++ | F | 47 | 10 | 0.4 | 1.175 | 11.750 | 14.100 | 10 | 12 | 12 | 0.100 | 0.500 | 0.450 | 0.200 | 0.200 | 0.180 | 0.080 |
| TAZG476*010L□□@5^++ | G | 47 | 10 | 0.25 | 1.175 | 11.750 | 14.100 | 10 | 12 | 12 | 0.125 | 0.707 | 0.636 | 0.283 | 0.177 | 0.159 | 0.071 |
| TAZH476*010L□□@5^++ | H | 47 | 10 | 0.18 | 1.175 | 11.750 | 14.100 | 10 | 12 | 12 | 0.150 | 0.913 | 0.822 | 0.365 | 0.164 | 0.148 | 0.066 |
| TAZG686*010L□□@5^++ | G | 68 | 10 | 0.275 | 1.700 | 17.000 | 20.400 | 10 | 12 | 12 | 0.125 | 0.674 | 0.607 | 0.270 | 0.185 | 0.167 | 0.074 |
| TAZH107*010L□□@5^++ | H | 100 | 10 | 0.18 | 2.500 | 25.000 | 30.000 | 10 | 12 | 12 | 0.150 | 0.913 | 0.822 | 0.365 | 0.164 | 0.148 | 0.066 |
| TAZH157*010L□□@5^++ | H | 150 | 10 | 0.18 | 3.750 | 37.500 | 45.000 | 10 | 12 | 12 | 0.150 | 0.913 | 0.822 | 0.365 | 0.164 | 0.148 | 0.066 |
| TAZH227*010L□□@5^++ | H | 220 | 10 | 0.18 | 5.500 | 55.000 | 66.000 | 10 | 12 | 12 | 0.150 | 0.913 | 0.822 | 0.365 | 0.164 | 0.148 | 0.066 |
| TAZE226*012C□□@5^++ | E | 22 | 12 | 0.5 | 0.660 | 6.600 | 7.920 | 6 | 8 | 8 | 0.090 | 0.424 | 0.382 | 0.170 | 0.212 | 0.191 | 0.085 |
| TAZA684*015L□□@5^++ | A | 0.68 | 15 | 6 | 0.100 | 1.000 | 1.200 | 6 | 8 | 8 | 0.050 | 0.091 | 0.082 | 0.037 | 0.548 | 0.493 | 0.219 |
| TAZA105*015L□□@5^++ | A | 1 | 15 | 7.5 | 0.100 | 1.000 | 1.200 | 6 | 8 | 8 | 0.050 | 0.082 | 0.073 | 0.033 | 0.612 | 0.551 | 0.245 |
| TAZA225*015L□□@5^++ | A | 2.2 | 15 | 7.5 | 0.200 | 2.000 | 2.400 | 6 | 8 | 8 | 0.050 | 0.082 | 0.073 | 0.033 | 0.612 | 0.551 | 0.245 |
| TAZB225*015C□□@5^++ | B | 2.2 | 15 | 5.5 | 0.100 | 1.000 | 1.200 | 6 | 8 | 8 | 0.070 | 0.113 | 0.102 | 0.045 | 0.620 | 0.558 | 0.248 |
| TAZB335*015L□□@5^++ | B | 3.3 | 15 | 3.6 | 0.290 | 2.900 | 3.480 | 6 | 8 | 8 | 0.070 | 0.139 | 0.125 | 0.056 | 0.502 | 0.452 | 0.201 |
| TAZD335*015L□□@5^++ | D | 3.3 | 15 | 1.7 | 0.124 | 1.238 | 1.485 | 6 | 8 | 8 | 0.080 | 0.217 | 0.195 | 0.087 | 0.369 | 0.332 | 0.148 |
| TAZB475*015L□□@5^++ | B | 4.7 | 15 | 2 | 0.250 | 2.500 | 3.000 | 6 | 8 | 8 | 0.070 | 0.187 | 0.168 | 0.075 | 0.374 | 0.337 | 0.150 |
| TAZD475*015L□□@5^++ | D | 4.7 | 15 | 2 | 0.250 | 2.500 | 3.000 | 6 | 8 | 8 | 0.080 | 0.200 | 0.180 | 0.080 | 0.400 | 0.360 | 0.160 |
| TAZE475*015L□□@5^++ | E | 4.7 | 15 | 1.2 | 0.245 | 2.450 | 2.940 | 6 | 8 | 8 | 0.090 | 0.274 | 0.246 | 0.110 | 0.329 | 0.296 | 0.131 |
| TAZD106*015L□□@5^++ | D | 10 | 15 | 2 | 0.375 | 3.750 | 4.500 | 6 | 8 | 8 | 0.080 | 0.200 | 0.180 | 0.080 | 0.400 | 0.360 | 0.160 |
| TAZE106*015L□□@5^++ | E | 10 | 15 | 1.2 | 0.375 | 3.750 | 4.500 | 6 | 8 | 8 | 0.090 | 0.274 | 0.246 | 0.110 | 0.329 | 0.296 | 0.131 |
| TAZF106*015L□□@5^++ | F | 10 | 15 | 0.667 | 0.375 | 3.750 | 4.500 | 6 | 8 | 8 | 0.100 | 0.387 | 0.348 | 0.155 | 0.258 | 0.232 | 0.103 |
| TAZE156*015L□□@5^++ | E | 15 | 15 | 1.2 | 0.563 | 5.625 | 6.750 | 6 | 8 | 8 | 0.090 | 0.274 | 0.246 | 0.110 | 0.329 | 0.296 | 0.131 |
| TAZF226*015L□□@5^++ | F | 22 | 15 | 0.8 | 0.825 | 8.250 | 9.900 | 8 | 10 | 10 | 0.100 | 0.354 | 0.318 | 0.141 | 0.283 | 0.255 | 0.113 |
| TAZG226*015L□□@5^++ | G | 22 | 15 | 0.275 | 0.825 | 8.250 | 9.900 | 6 | 8 | 8 | 0.125 | 0.674 | 0.607 | 0.270 | 0.185 | 0.167 | 0.074 |
| TAZF336*015L□□@5^++ | F | 33 | 15 | 0.8 | 1.238 | 12.375 | 14.850 | 6 | 8 | 8 | 0.100 | 0.354 | 0.318 | 0.141 | 0.283 | 0.255 | 0.113 |
| TAZH336*015L□□@5^++ | H | 33 | 15 | 0.18 | 1.238 | 12.375 | 14.850 | 8 | 8 | 10 | 0.150 | 0.913 | 0.822 | 0.365 | 0.164 | 0.148 | 0.066 |
| TAZG476*015L□□@5^++ | G | 47 | 15 | 0.275 | 1.763 | 17.625 | 21.150 | 8 | 10 | 10 | 0.125 | 0.674 | 0.607 | 0.270 | 0.185 | 0.167 | 0.074 |

All technical data relates to an ambient temperature of +25°C. Capacitance and DF are measured at 120Hz, 0.5V RMS with a maximum DC bias of 2.2 volts. DCL is measured at rated voltage after 5 minutes.

NOTE: AVX reserves the right to supply a higher voltage rating or tighter tolerance part in the same case size, to the same reliability standards.

TAZ Series

HRC5000 Medical Implantable Grade



| RATING & PART NUMBER REFERENCE | | Parametric Specifications by Rating | | | | | | | | | Typical RMS Ripple Data by Rating | | | | | | |
|--------------------------------|------|-------------------------------------|------------------|--------------|---------|--------|--------|--------|-------------|-------|-----------------------------------|----------------|----------------|----------------|----------------|----------------|----------------|
| | | Cap @ 120Hz | DC Rated Voltage | ESR @ 100kHz | DCL max | | | DF max | | | Power Dissipation | 25°C | 85°C | 125°C | 25°C | 85°C | 125°C |
| | | | | | +25°C | +85°C | +125°C | +25°C | +(85/125)°C | -55°C | | Ripple Current | Ripple Current | Ripple Current | Ripple Voltage | Ripple Voltage | Ripple Voltage |
| AVX P/N | Case | µF @ 25°C | V @ +85°C | Ohms @ +25°C | (µA) | (µA) | (µA) | (%) | (%) | (%) | W | A (100kHz) | A (100kHz) | A (100kHz) | V (100kHz) | V (100kHz) | V (100kHz) |
| TAZH107*015L□□@5^++ | H | 100 | 15 | 0.18 | 3.750 | 37.500 | 45.000 | 10 | 12 | 12 | 0.150 | 0.913 | 0.822 | 0.365 | 0.164 | 0.148 | 0.066 |
| TAZA474*020L□□@5^++ | A | 0.47 | 20 | 7.5 | 0.100 | 1.000 | 1.200 | 8 | 8 | 10 | 0.050 | 0.082 | 0.073 | 0.033 | 0.612 | 0.551 | 0.245 |
| TAZA105*020L□□@5^++ | A | 1 | 20 | 7.5 | 0.100 | 1.000 | 1.200 | 6 | 8 | 8 | 0.050 | 0.082 | 0.073 | 0.033 | 0.612 | 0.551 | 0.245 |
| TAZB105*020L□□@5^++ | B | 1 | 20 | 4.8 | 0.100 | 1.000 | 1.200 | 6 | 8 | 8 | 0.070 | 0.121 | 0.109 | 0.048 | 0.580 | 0.522 | 0.232 |
| TAZB155*020L□□@5^++ | B | 1.5 | 20 | 3.6 | 0.100 | 1.000 | 1.200 | 6 | 8 | 8 | 0.070 | 0.139 | 0.125 | 0.056 | 0.502 | 0.452 | 0.201 |
| TAZB225*020L□□@5^++ | B | 2.2 | 20 | 3.6 | 0.110 | 1.100 | 1.320 | 6 | 8 | 8 | 0.070 | 0.139 | 0.125 | 0.056 | 0.502 | 0.452 | 0.201 |
| TAZD225*020L□□@5^++ | D | 2.2 | 20 | 1.7 | 0.225 | 2.250 | 2.700 | 6 | 8 | 8 | 0.080 | 0.217 | 0.195 | 0.087 | 0.369 | 0.332 | 0.148 |
| TAZE335*020L□□@5^++ | E | 3.3 | 20 | 1.2 | 0.165 | 1.650 | 1.980 | 6 | 8 | 8 | 0.090 | 0.274 | 0.246 | 0.110 | 0.329 | 0.296 | 0.131 |
| TAZD475*020C□□@5^++ | D | 4.7 | 20 | 6 | 0.235 | 2.350 | 2.820 | 6 | 8 | 8 | 0.080 | 0.115 | 0.104 | 0.046 | 0.693 | 0.624 | 0.277 |
| TAZE475*020L□□@5^++ | E | 4.7 | 20 | 1.7 | 0.235 | 2.350 | 2.820 | 6 | 8 | 8 | 0.090 | 0.230 | 0.207 | 0.092 | 0.391 | 0.352 | 0.156 |
| TAZD685*020C□□@5^++ | D | 6.8 | 20 | 4 | 0.450 | 4.500 | 5.400 | 6 | 8 | 8 | 0.080 | 0.141 | 0.127 | 0.057 | 0.566 | 0.509 | 0.226 |
| TAZE685*020L□□@5^++ | E | 6.8 | 20 | 1.5 | 0.450 | 4.500 | 5.400 | 6 | 8 | 8 | 0.090 | 0.245 | 0.220 | 0.098 | 0.367 | 0.331 | 0.147 |
| TAZE106*020L□□@5^++ | E | 10 | 20 | 1.5 | 0.500 | 5.000 | 6.000 | 6 | 8 | 8 | 0.090 | 0.245 | 0.220 | 0.098 | 0.367 | 0.331 | 0.147 |
| TAZF156*020L□□@5^++ | F | 15 | 20 | 0.8 | 0.750 | 7.500 | 9.000 | 6 | 8 | 8 | 0.100 | 0.354 | 0.318 | 0.141 | 0.283 | 0.255 | 0.113 |
| TAZG156*020L□□@5^++ | G | 15 | 20 | 0.275 | 0.750 | 7.500 | 9.000 | 6 | 8 | 8 | 0.125 | 0.674 | 0.607 | 0.270 | 0.185 | 0.167 | 0.074 |
| TAZG226*020L□□@5^++ | G | 22 | 20 | 0.625 | 1.100 | 11.000 | 13.200 | 6 | 8 | 8 | 0.125 | 0.447 | 0.402 | 0.179 | 0.280 | 0.252 | 0.112 |
| TAZH226*020L□□@5^++ | H | 22 | 20 | 0.18 | 1.100 | 11.000 | 13.200 | 6 | 8 | 8 | 0.150 | 0.913 | 0.822 | 0.365 | 0.164 | 0.148 | 0.066 |
| TAZH476*020L□□@5^++ | H | 47 | 20 | 0.18 | 2.350 | 23.500 | 28.200 | 8 | 10 | 10 | 0.150 | 0.913 | 0.822 | 0.365 | 0.164 | 0.148 | 0.066 |
| TAZA334*025L□□@5^++ | A | 0.33 | 25 | 15 | 0.100 | 1.000 | 1.200 | 6 | 8 | 8 | 0.050 | 0.058 | 0.052 | 0.023 | 0.866 | 0.779 | 0.346 |
| TAZB105*025L□□@5^++ | B | 1 | 25 | 4 | 0.160 | 1.600 | 1.920 | 6 | 8 | 8 | 0.070 | 0.132 | 0.119 | 0.053 | 0.529 | 0.476 | 0.212 |
| TAZD155*025L□□@5^++ | D | 1.5 | 25 | 1.7 | 0.200 | 2.000 | 2.400 | 6 | 8 | 8 | 0.080 | 0.217 | 0.195 | 0.087 | 0.369 | 0.332 | 0.148 |
| TAZD225*025L□□@5^++ | D | 2.2 | 25 | 2 | 0.215 | 2.150 | 2.580 | 6 | 8 | 8 | 0.080 | 0.200 | 0.180 | 0.080 | 0.400 | 0.360 | 0.160 |
| TAZE225*025L□□@5^++ | E | 2.2 | 25 | 1 | 0.230 | 2.300 | 2.760 | 6 | 8 | 8 | 0.090 | 0.300 | 0.270 | 0.120 | 0.300 | 0.270 | 0.120 |
| TAZE335*025L□□@5^++ | E | 3.3 | 25 | 1.2 | 0.245 | 2.450 | 2.940 | 6 | 8 | 8 | 0.090 | 0.274 | 0.246 | 0.110 | 0.329 | 0.296 | 0.131 |
| TAZF475*025L□□@5^++ | F | 4.7 | 25 | 0.7 | 0.294 | 2.938 | 3.525 | 6 | 8 | 8 | 0.100 | 0.378 | 0.340 | 0.151 | 0.265 | 0.238 | 0.106 |
| TAZF685*025L□□@5^++ | F | 6.8 | 25 | 0.8 | 0.425 | 4.250 | 5.100 | 6 | 8 | 8 | 0.100 | 0.354 | 0.318 | 0.141 | 0.283 | 0.255 | 0.113 |
| TAZG106*025L□□@5^++ | G | 10 | 25 | 0.35 | 0.625 | 6.250 | 7.500 | 6 | 8 | 8 | 0.125 | 0.598 | 0.538 | 0.239 | 0.209 | 0.188 | 0.084 |
| TAZH226*025L□□@5^++ | H | 22 | 25 | 0.18 | 1.375 | 13.750 | 16.500 | 6 | 8 | 8 | 0.150 | 0.913 | 0.822 | 0.365 | 0.164 | 0.148 | 0.066 |
| TAZA224*035L□□@5^++ | A | 0.22 | 35 | 12 | 0.100 | 1.000 | 1.200 | 6 | 8 | 8 | 0.050 | 0.065 | 0.058 | 0.026 | 0.775 | 0.697 | 0.310 |
| TAZB474*035L□□@5^++ | B | 0.47 | 35 | 6.8 | 0.100 | 1.000 | 1.200 | 6 | 8 | 8 | 0.070 | 0.101 | 0.091 | 0.041 | 0.690 | 0.621 | 0.276 |
| TAZD105*035L□□@5^++ | D | 1 | 35 | 2.2 | 0.100 | 1.000 | 1.200 | 6 | 8 | 8 | 0.080 | 0.191 | 0.172 | 0.076 | 0.420 | 0.378 | 0.168 |
| TAZF335*035L□□@5^++ | F | 3.3 | 35 | 0.7 | 0.289 | 2.888 | 3.465 | 6 | 8 | 8 | 0.100 | 0.378 | 0.340 | 0.151 | 0.265 | 0.238 | 0.106 |
| TAZH106*035L□□@5^++ | H | 10 | 35 | 0.5 | 0.875 | 8.750 | 10.500 | 8 | 10 | 10 | 0.150 | 0.548 | 0.493 | 0.219 | 0.274 | 0.246 | 0.110 |
| TAZA104*050L□□@5^++ | A | 0.1 | 50 | 12 | 0.100 | 1.000 | 1.200 | 6 | 8 | 8 | 0.050 | 0.065 | 0.058 | 0.026 | 0.775 | 0.697 | 0.310 |
| TAZA154*050L□□@5^++ | A | 0.15 | 50 | 12 | 0.100 | 1.000 | 1.200 | 6 | 8 | 8 | 0.050 | 0.065 | 0.058 | 0.026 | 0.775 | 0.697 | 0.310 |
| TAZE105*050L□□@5^++ | E | 1 | 50 | 1.7 | 0.125 | 1.250 | 1.500 | 6 | 8 | 8 | 0.090 | 0.230 | 0.207 | 0.092 | 0.391 | 0.352 | 0.156 |
| TAZF225*050L□□@5^++ | F | 2.2 | 50 | 0.7 | 0.275 | 2.750 | 3.300 | 6 | 8 | 8 | 0.100 | 0.378 | 0.340 | 0.151 | 0.265 | 0.238 | 0.106 |
| TAZG335*050L□□@5^++ | G | 3.3 | 50 | 0.5 | 0.413 | 4.125 | 4.950 | 6 | 8 | 8 | 0.125 | 0.500 | 0.450 | 0.200 | 0.250 | 0.225 | 0.100 |

All technical data relates to an ambient temperature of +25°C. Capacitance and DF are measured at 120Hz, 0.5V RMS with a maximum DC bias of 2.2 volts. DCL is measured at rated voltage after 5 minutes.

NOTE: AVX reserves the right to supply a higher voltage rating or tighter tolerance part in the same case size, to the same reliability standards.

TAZ Series



HRC6000 Medical Implantable Grade



The TAZ HRC6000 Medical Grade series is the next generation of our internally qualified implantable medical grade tantalum capacitors. These components are screened using our newly designed Q-Process to effectively remove components that may experience parametric shifts through customer processing or display instability through life testing.

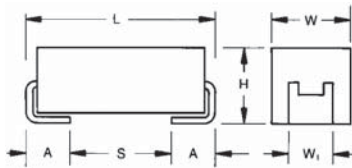
Due to the deficiencies of Weibull grading and its tendency to Burn-In potentially unstable units, this Q-Process utilizes a Product Level Designation system based on a simulated production routine performed on a sample from the population. Once that is completed a

calculation is done based on the performance of the sample which can take into account the application conditions of the end customer. This system also allows for derating recommendations to be relaxed as illustrated by the section below.

These components are manufactured and tested in the AVX Biddeford Maine facility which is ISO 13485 certified. For more information on this process or to request a specific rating please contact the factory. In addition, DC leakage testing at application voltage is available upon request.

CASE DIMENSIONS:

millimeters (inches)



| Case Code | Length (L) ±0.38 (0.015) | Width (W) ±0.38 (0.015) | Height (H) ±0.38 (0.015) | Term. Width (W _t) | Term. Length (A) +0.25/-0.13 (+0.010/-0.005) | S min | Typical Weight (g) |
|-----------|--------------------------------|-------------------------------|--------------------------------|---|--|-----------------|--------------------|
| E | 5.08 (0.200) | 2.54 (0.100) | 1.27 (0.050) | 2.41+0.13/-0.25 (0.095+0.005/-0.010) | 0.76 (0.030) | 2.92 (0.115) | 0.065 |

MARKING

(White marking on black body)



Polarity Stripe (+)

Capacitance Code
Rated Voltage

CAPACITANCE AND RATED VOLTAGE, V_R (VOLTAGE CODE) RANGE (LETTER DENOTES CASE SIZE)

| Capacitance | | Rated Voltage | | |
|-------------|------|---------------|-----|-----|
| µF | Code | 6V | 10V | 15V |
| 0.15 | 154 | | | |
| 0.22 | 224 | | | |
| 0.33 | 334 | | | |
| 0.47 | 474 | | | |
| 0.68 | 684 | | | A* |
| 1 | 105 | | A* | |
| 1.5 | 155 | A* | | |
| 2.2 | 225 | | | |
| 3.3 | 335 | | | |
| 4.7 | 475 | | | |
| 6.8 | 685 | | | |
| 10 | 106 | | | E |
| 15 | 156 | | E | |
| 22 | 226 | | | |
| 33 | 336 | | | |
| 47 | 476 | | | |
| 68 | 686 | | | |

Available ratings



*Codes under development - subject to change.

TAZ Series



HRC6000 Medical Implantable Grade

HOW TO ORDER

| | | | | | | | | | | | |
|--|------------------|--|---------------------------------|--|----------------------------|--------------------------------------|-------------------------|---|----------------------------|--|---|
| TAZ | E | 106 | * | 015 | C | □ | L | Q | 6 | ^ | ++ |
| Type | Case Size | Capacitance Code | Capacitance Tolerance | Voltage Code | ESR | Packaging | Inspection Level | Reliability Grade | Qualification Level | Termination Finish | Surge Test Option |
| | | pF code: 1st two digits represent significant figures 3rd digit represents multiplier (number of zeros to follow) | J = ±5% K = ±10% M = ±20% | 006 = 6Vdc 010 = 10Vdc 015 = 15Vdc | C = Std ESR L = Low ESR | B = Bulk R = 7* T&R W = Waffle | L = Group A | Product Level Designator: Q = 0.1%/1000 hrs. Minimum, 60% conf | 6 = HRC6000 | H = Solder Plated 0 = Solder Fused 9 = Gold Plated 7 = 100% Tin | 00 = None 23 = 10 Cycles, +25°C 24 = 10 Cycles, -55°C & +85°C 45 = 10 Cycles, -55°C & +85°C before Weibull |
|   <p>For RoHS compliant products, please select correct termination style.</p> | | | | | | | | | | | |

*Contact factory for AVX HRC6000 Medical Grade SCD details.

TECHNICAL SPECIFICATIONS

| | | | | | |
|------------------------------------|---|---|-----|----|--|
| Technical Data: | Unless otherwise specified, all technical data relate to an ambient temperature of 25°C | | | | |
| Capacitance Range: | 0.68 µF to 15 µF | | | | |
| Capacitance Tolerance: | ±5%; ±10%; ±20% | | | | |
| Rated Voltage (V _R) | ≤ 85°C: | 6 | 10 | 15 | |
| Category Voltage (V _C) | ≤ 125°C: | 4 | 6.7 | 10 | |
| Temperature Range: | -55°C to +125°C | | | | |

TAZ Series



HRC6000 Medical Implantable Grade

| RATING & PART NUMBER REFERENCE | | Parametric Specifications by Rating | | | | | | | | | Typical RMS Ripple Data by Rating | | | | | | |
|--------------------------------|------|-------------------------------------|------------------|--------------|---------|-------|--------|--------|-------------|-------|-----------------------------------|---------------------|---------------------|----------------------|---------------------|---------------------|----------------------|
| | | Cap @ 120Hz | DC Rated Voltage | ESR @ 100kHz | DCL max | | | DF max | | | Power Dissipation | 25°C Ripple Current | 85°C Ripple Current | 125°C Ripple Current | 25°C Ripple Voltage | 85°C Ripple Voltage | 125°C Ripple Voltage |
| | | | | | +25°C | +85°C | +125°C | +25°C | +(85/125)°C | -55°C | | | | | | | |
| AVX HRC6000 P/N | Case | µF @ 25°C | V @ +85°C | Ohms @ +25°C | (µA) | (µA) | (µA) | (%) | (%) | (%) | W | A (100kHz) | A (100kHz) | A (100kHz) | V (100kHz) | V (100kHz) | V (100kHz) |
| TAZE156*010C□□LQ6^++ | E | 15 | 10 | 3 | 0.375 | 3.75 | 4.50 | 8 | 10 | 10 | 0.090 | 0.173 | 0.156 | 0.069 | 0.520 | 0.468 | 0.208 |
| TAZE106*015C□□LQ6^++ | E | 10 | 15 | 4 | 0.375 | 3.75 | 4.50 | 6 | 8 | 8 | 0.090 | 0.150 | 0.135 | 0.060 | 0.600 | 0.540 | 0.240 |

All technical data relates to an ambient temperature of +25°C. Capacitance and DF are measured at 120Hz, 0.5V RMS with a maximum DC bias of 2.2 volts. DCL is measured at rated voltage after 5 minutes.

NOTE: AVX reserves the right to supply a higher voltage rating or tighter tolerance part in the same case size, to the same reliability standards.

HRC6000 DERATING GUIDELINES

Due to our new Q-Process technology the need for a typical 50% derating of the capacitors rated voltage in application is no longer needed. Below is a table outlining some of the common applications where these components are utilized along with appropriate derating recommendations. When determining the appropriate capacitor voltage rating to utilize, the application voltage is determined by the maximum D.C. voltage with the addition of any A.C. ripple voltage that may be present.

| Recommended Derating | Application |
|----------------------|-------------|
| 20% | Filtering |
| 0% | Pacing |
| 0% | Hold-Up |
| 0% | Charging |

TCP Series - DSCC 09009



TCP Series Low ESR Tantalum Modules



TCP Series tantalum modules represent high packing density for applications utilizing multiple components in a parallel configuration, and are available with testing to DSCC 09009.

These modules feature stacked assemblies of CWR29 capacitors which provide ultra low ESR and utilize established reliability capacitors (Weibull Grade voltage conditioning) in accordance with MIL-PRF-55365. They can also be supplied with SRC9000 Space Level components.

The stacked construction of fully molded capacitors is compatible with a wide range of SMT board assembly processes including reflow solder or conductive epoxy.

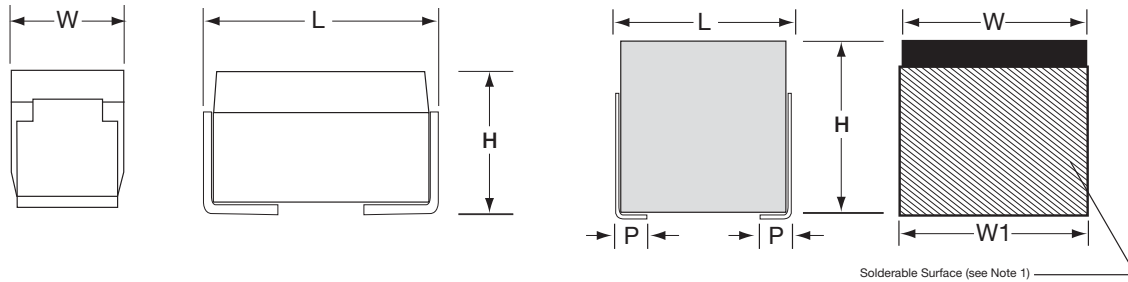
There are two termination finishes available: hot solder dipped ("C") and gold plated ("B").

The molding compound has been selected to meet the requirements of UL94V-0 and outgassing requirements of ASTM E-595.

For moisture sensitivity levels please refer to the High Reliability Tantalum MSL section located in the back of the High Reliability Tantalum Catalog.

**Note: Additional form factors and ratings are available.
Contact plant for details.**

DIMENSIONS



CASE DIMENSIONS:

millimeters (inches)

| Case Code | Length (L) ±0.38 (0.015) | Width (W) ±0.38 (0.015) | Height (H) ±0.38 (0.015) | Term. Width (W ₁) ±0.38 (0.015) | Term. Length (P) For Reference Only |
|-----------|-----------------------------|----------------------------|-----------------------------|--|--|
| 2H | 7.82 (0.308) | 4.06 (0.160) | 6.10 (0.240) | 4.06 (0.160) | 1.52 (0.060) |
| 4H | 7.82 (0.308) | 8.13 (0.320) | 6.10 (0.240) | 8.13 (0.320) | 1.52 (0.060) |
| 6H | 7.82 (0.308) | 8.13 (0.320) | 9.14 (0.360) | 8.13 (0.320) | 1.52 (0.060) |

Additional form factors and ratings are available – contact plant for details.

CAPACITANCE AND RATED VOLTAGE CASE SIZE (ESR IN mΩ)

| Capacitance | | Rated voltage DC (V _R) to 85°C | | | | | | |
|-------------|------|--|---------|---------|---------|---------|----------|----------|
| μF | Code | 6V | 10V | 15V | 20V | 25V | 35V | 50V |
| 9.4 | 945 | | | | | | | 2H (200) |
| 18.8 | 196 | | | | | | | 4H (100) |
| 20 | 206 | | | | | | 2H (200) | |
| 28.2 | 286 | | | | | | | 6H (67) |
| 40 | 406 | | | | | | 4H (100) | |
| 60 | 606 | | | | | | 6H (67) | |
| 66 | 666 | | | | | 2H (85) | | |
| 94 | 946 | | | | 2H (75) | | | |
| 132 | 137 | | | | | 4H (43) | | |
| 188 | 197 | | | | 4H (38) | | | |
| 198 | 207 | | | | | 6H (28) | | |
| 200 | 207 | | | 2H (63) | | | | |
| 282 | 287 | | | | 6H (25) | | | |
| 400 | 407 | | | 4H (31) | | | | |
| 440 | 447 | | 2H (50) | | | | | |
| 600 | 607 | | | 6H (21) | | | | |
| 660 | 667 | 2H (50) | | | | | | |
| 880 | 887 | | 4H (25) | | | | | |
| 1,320 | 138 | 4H (25) | 6H (17) | | | | | |
| 1,980 | 208 | 6H (17) | | | | | | |



TCP Series - DSCC 09009



TCP Series Low ESR Tantalum Modules

HOW TO ORDER

| TC | 2H | 945 | K | 050 | L | R | # | @ | 0 | ^ | ++ |
|-------------|------------------|---|---|---|---|--|--|---|--|---|---|
| Type | Case Size | Capacitance Code pF code: 1st two digits represent significant figures 3rd digit represents multiplier (number of zeros to follow) | Capacitance Tolerance M = ±20% K = ±10% J = ±5% | Voltage Code 006 = 6Vdc 010 = 10Vdc 015 = 15Vdc 020 = 20Vdc 025 = 25Vdc 035 = 35Vdc 050 = 50Vdc | Standard or Low ESR Range L = Low ESR | Packaging B = Bulk R = 7" T&R | Inspection Level S = Std. Conformance L = Group A D = DSCC DWG | Reliability Grade Weibull: B = 0.1%/1000 hrs. 90% conf. C = 0.01%/1000 hrs. 90% conf. D = 0.001%/1000 hrs. 90% conf. Z = Non-ER | Qualification Level 0 = N/A 9 = SRC9000 | Termination Finish 8 = Hot Solder Dipped 9 = Gold Plated | Surge Test Option 00 = None 23 = 10 Cycles, +25°C 24 = 10 Cycles, -55°C & +85°C 45 = 10 cycles, -55°C & +85°C before Weibull |



DSCC DWG P/N:

| 09009 | -01 | K | B | C | A |
|--------------------------|---|--|---|--|---|
| DSCC DWG 09009 | Dash Number See Rating Tables | Capacitance Tolerance K = ±10% M = ±20% | Reliability Grade B = B Weibull C = C Weibull D = D Weibull | Termination Finish B = Gold Plated (10 microinch minimum) C = Hot Solder Dip (60 microinch minimum) | Surge Test Option A = 10 cycles, +25°C B = 10 cycles, -55°C & +85°C C = 10 cycles, -55°C & +85°C before Weibull Z = None required Per MIL-PRF-55365 |



TECHNICAL SPECIFICATIONS

| | | | | | | | | | | |
|------------------------------------|---|-----|------|------|------|------|------|------|--|--|
| Technical Data: | Unless otherwise specified, all technical data relate to an ambient temperature of 25°C | | | | | | | | | |
| Capacitance Range: | 9.4 μF to 1,980 μF | | | | | | | | | |
| Capacitance Tolerance: | ±5%; ±10%; ±20% | | | | | | | | | |
| Rated Voltage (V _R) | ≤ 85°C: | 6 | 10 | 15 | 20 | 25 | 35 | 50 | | |
| Category Voltage (V _C) | ≤ 125°C: | 4 | 6.7 | 10 | 13.3 | 16.7 | 23.3 | 33.3 | | |
| Surge Voltage (V _S) | ≤ 85°C: | 8 | 13.3 | 20 | 26.7 | 33.3 | 46.7 | 66.7 | | |
| Surge Voltage (V _S) | ≤ 125°C: | 5.3 | 8.7 | 13.3 | 17.8 | 22.2 | 31.1 | 44.5 | | |
| Temperature Range: | -55°C to +125°C | | | | | | | | | |

TCP Series



TCP Series Low ESR Tantalum Modules

RATINGS & PART NUMBER REFERENCE

| 2-STACK | | Parametric Specifications by Rating | | | | | | | | | | Typical RMS Ripple Data by Rating | | | | | |
|----------|--------------|-------------------------------------|-----------|------------------------------|---------------------|-------|--------|----------------------------|-------------|-------|------------------------------|-----------------------------------|--------|------------------------------|-------|--------|------|
| AVX P/N | Case | Cap μF | Volt V | ESR @ 100 kHz +25°C mΩ | DC Leakage (max) μA | | | Dissipation Factor (max) % | | | 100kHz Ripple Current Rating | | | 100kHz Ripple Voltage Rating | | | |
| | | | | | +25°C | +85°C | +125°C | +25°C | +(85/125)°C | -55°C | A | A | A | V | V | V | |
| | | | | | +25°C | +85°C | +125°C | +25°C | +(85/125)°C | -55°C | +25°C | +85°C | +125°C | +25°C | +85°C | +125°C | |
| TC2H 667 | *006L#D^00++ | 2H | 660 | 6 | 50 | 39.6 | 396 | 495 | 10 | 12 | 12 | 2.4 | 2.2 | 1.0 | 0.12 | 0.11 | 0.05 |
| TC2H 447 | *010L#D^00++ | 2H | 440 | 10 | 50 | 44 | 440 | 550 | 10 | 12 | 12 | 2.4 | 2.2 | 1.0 | 0.12 | 0.11 | 0.05 |
| TC2H 207 | *015L#D^00++ | 2H | 200 | 15 | 63 | 30 | 300 | 375 | 10 | 12 | 12 | 2.2 | 2.0 | 0.9 | 0.14 | 0.12 | 0.05 |
| TC2H 946 | *020L#D^00++ | 2H | 94 | 20 | 75 | 18.8 | 188 | 235 | 8 | 10 | 10 | 2.0 | 1.8 | 0.8 | 0.15 | 0.14 | 0.06 |
| TC2H 666 | *025L#D^00++ | 2H | 66 | 25 | 85 | 16.5 | 165 | 206 | 8 | 10 | 10 | 1.9 | 1.7 | 0.8 | 0.16 | 0.14 | 0.06 |
| TC2H 206 | *035L#D^00++ | 2H | 20 | 35 | 200 | 7 | 70 | 88 | 8 | 10 | 10 | 1.2 | 1.1 | 0.5 | 0.24 | 0.22 | 0.10 |
| TC2H 945 | *050L#D^00++ | 2H | 9.4 | 50 | 200 | 4.7 | 47 | 59 | 6 | 8 | 8 | 1.2 | 1.1 | 0.5 | 0.24 | 0.22 | 0.10 |

| 4-STACK | | Parametric Specifications by Rating | | | | | | | | | | Typical RMS Ripple Data by Rating | | | | | |
|----------|--------------|-------------------------------------|-----------|------------------------------|---------------------|-------|--------|----------------------------|-------------|-------|------------------------------|-----------------------------------|--------|------------------------------|-------|--------|------|
| AVX P/N | Case | Cap μF | Volt V | ESR @ 100 kHz +25°C mΩ | DC Leakage (max) μA | | | Dissipation Factor (max) % | | | 100kHz Ripple Current Rating | | | 100kHz Ripple Voltage Rating | | | |
| | | | | | +25°C | +85°C | +125°C | +25°C | +(85/125)°C | -55°C | A | A | A | V | V | V | |
| | | | | | +25°C | +85°C | +125°C | +25°C | +(85/125)°C | -55°C | +25°C | +85°C | +125°C | +25°C | +85°C | +125°C | |
| TC4H 138 | *006L#D^00++ | 4H | 1320 | 6 | 25 | 79.2 | 792 | 990 | 10 | 12 | 12 | 4.2 | 3.8 | 1.7 | 0.11 | 0.10 | 0.04 |
| TC4H 887 | *010L#D^00++ | 4H | 880 | 10 | 25 | 88 | 880 | 1100 | 10 | 12 | 12 | 4.2 | 3.8 | 1.7 | 0.11 | 0.10 | 0.04 |
| TC4H 407 | *015L#D^00++ | 4H | 400 | 15 | 31 | 60 | 600 | 750 | 10 | 12 | 12 | 3.8 | 3.4 | 1.5 | 0.12 | 0.11 | 0.05 |
| TC4H 197 | *020L#D^00++ | 4H | 188 | 20 | 38 | 37.6 | 376 | 470 | 8 | 10 | 10 | 3.5 | 3.2 | 1.4 | 0.13 | 0.12 | 0.05 |
| TC4H 137 | *025L#D^00++ | 4H | 132 | 25 | 43 | 33 | 330 | 413 | 8 | 10 | 10 | 3.2 | 2.9 | 1.3 | 0.14 | 0.13 | 0.06 |
| TC4H 406 | *035L#D^00++ | 4H | 40 | 35 | 100 | 14 | 140 | 175 | 8 | 10 | 10 | 2.1 | 1.9 | 0.8 | 0.21 | 0.19 | 0.08 |
| TC4H 196 | *050L#D^00++ | 4H | 18.8 | 50 | 100 | 9.4 | 94 | 118 | 6 | 8 | 8 | 2.1 | 1.9 | 0.8 | 0.21 | 0.19 | 0.08 |

| 6-STACK | | Parametric Specifications by Rating | | | | | | | | | | Typical RMS Ripple Data by Rating | | | | | |
|----------|--------------|-------------------------------------|-----------|------------------------------|---------------------|-------|--------|----------------------------|-------------|-------|------------------------------|-----------------------------------|--------|------------------------------|-------|--------|------|
| AVX P/N | Case | Cap μF | Volt V | ESR @ 100 kHz +25°C mΩ | DC Leakage (max) μA | | | Dissipation Factor (max) % | | | 100kHz Ripple Current Rating | | | 100kHz Ripple Voltage Rating | | | |
| | | | | | +25°C | +85°C | +125°C | +25°C | +(85/125)°C | -55°C | A | A | A | V | V | V | |
| | | | | | +25°C | +85°C | +125°C | +25°C | +(85/125)°C | -55°C | +25°C | +85°C | +125°C | +25°C | +85°C | +125°C | |
| TC6H 208 | *006L#D^00++ | 6H | 1980 | 6 | 17 | 118.8 | 1188 | 1485 | 10 | 12 | 12 | 5.9 | 5.3 | 2.4 | 0.10 | 0.09 | 0.04 |
| TC6H 138 | *010L#D^00++ | 6H | 1320 | 10 | 17 | 132 | 1320 | 1650 | 10 | 12 | 12 | 5.9 | 5.3 | 2.4 | 0.10 | 0.09 | 0.04 |
| TC6H 607 | *015L#D^00++ | 6H | 600 | 15 | 21 | 90 | 900 | 1125 | 10 | 12 | 12 | 5.2 | 4.7 | 2.1 | 0.11 | 0.10 | 0.04 |
| TC6H 287 | *020L#D^00++ | 6H | 282 | 20 | 25 | 56.4 | 564 | 705 | 8 | 10 | 10 | 4.8 | 4.3 | 1.9 | 0.12 | 0.11 | 0.05 |
| TC6H 207 | *025L#D^00++ | 6H | 198 | 25 | 28 | 49.5 | 495 | 619 | 8 | 10 | 10 | 4.5 | 4.1 | 1.8 | 0.13 | 0.11 | 0.05 |
| TC6H 606 | *035L#D^00++ | 6H | 60 | 35 | 67 | 21 | 210 | 263 | 8 | 10 | 10 | 2.9 | 2.6 | 1.2 | 0.19 | 0.17 | 0.08 |
| TC6H 286 | *050L#D^00++ | 6H | 28.2 | 50 | 67 | 14.1 | 141 | 176 | 6 | 8 | 8 | 2.9 | 2.6 | 1.2 | 0.19 | 0.17 | 0.08 |

All technical data relates to an ambient temperature of +25°C. Capacitance and DF are measured at 120Hz, 0.5V RMS with a maximum DC bias of 2.2 volts. DCL is measured at rated voltage after 5 minutes.

NOTE: AVX reserves the right to supply a higher voltage rating or tighter tolerance part in the same case size, to the same reliability standards.

TBJ Series



CWR11 - MIL-PRF-55365/8 Established Reliability, COTS-Plus & Space Level



Fully qualified to MIL-PRF-55365/8, the CWR11 is the military version of EIA-535BAAC, with four case sizes designed for maximum packaging efficiency on 8mm & 12mm tape for high volume production (ensuring no TCE mismatch with any substrate). This construction is compatible with a wide range of SMT board assembly processes including wave or reflow solder, conductive epoxy or compression bonding techniques. The part also carries full polarity, capacitance / voltage and JAN brand marking.

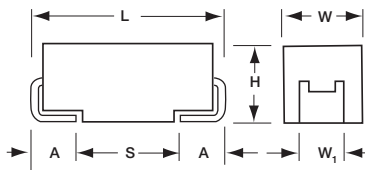
For Space Level applications, AVX SRC9000 qualification is recommended (see ratings table for part number availability).

There are four termination finishes available: solder plated, fused solder plated, hot solder dipped and gold plated (these are "H", "K", "C" and "B" termination, respectively, per MIL-PRF-55365).

The molding compound has been selected to meet the requirements of UL94V-0 (Flame Retardancy) and out-gassing requirements of ASTM E-595.

For moisture sensitivity levels please refer to the High Reliability Tantalum MSL section located in the back of the High Reliability Tantalum Catalog.

The series is qualified to MIL-PRF-55365 Weibull "B", "C", "D" and "T" levels, with all surge options ("A", "B" & "C") available.



MARKING

(Brown marking on gold body)



Polarity Stripe (+)

"J" for "JAN" Brand
Capacitance Code

Rated Voltage
Manufacturer's ID

CASE DIMENSIONS: millimeters (inches)

| Case Code | EIA Metric | Length (L) | Width (W) | Height (H) | Term. Width (W ₁) ±0.10 (±0.004) | Term. Length A ±0.30(±0.012) | S min |
|-----------|------------|----------------------------|----------------------------|----------------------------|---|---------------------------------|--------------|
| A | 3216-18 | 3.20±0.20 (0.126±0.008) | 1.60±0.20 (0.063±0.008) | 1.60±0.20 (0.063±0.008) | 1.20 (0.047) | 0.80 (0.031) | 1.80 (0.071) |
| B | 3528-21 | 3.50±0.20 (0.138±0.008) | 2.80±0.20 (0.110±0.008) | 1.90±0.20 (0.075±0.008) | 2.20 (0.087) | 0.80 (0.031) | 1.40 (0.055) |
| C | 6032-28 | 6.00±0.30 (0.236±0.012) | 3.20±0.30 (0.126±0.012) | 2.50±0.30 (0.098±0.012) | 2.20 (0.087) | 1.30 (0.051) | 2.90 (0.114) |
| D | 7343-31 | 7.30±0.30 (0.287±0.012) | 4.30±0.30 (0.169±0.012) | 2.80±0.30 (0.110±0.012) | 2.40 (0.094) | 1.30 (0.051) | 4.40 (0.173) |

CAPACITANCE AND RATED VOLTAGE, V_R (MIL VOLTAGE CODE) RANGE CASE SIZE

| Capacitance | | Rated voltage DC (V _R) to 85°C | | | | | | | |
|-------------|------|--|--------|---------|---------|---------|---------|---------|---------|
| µF | Code | 4V (C) | 6V (D) | 10V (F) | 15V (H) | 20V (J) | 25V (K) | 35V (M) | 50V (N) |
| 0.10 | 104 | | | | | | | A | A |
| 0.15 | 154 | | | | | | | A | B |
| 0.22 | 224 | | | | | | | A | B |
| 0.33 | 334 | | | | | | A | A | B |
| 0.47 | 474 | | | | | A | A | B | C |
| 0.68 | 684 | | | | A | A | B | B | C |
| 1.0 | 105 | | | A | A | A | B | B | C |
| 1.5 | 155 | | A | A | A | B | B | C | D |
| 2.2 | 225 | A | A | A | B | B | C | C | D |
| 3.3 | 335 | | A | B | B | B | C | C | D |
| 4.7 | 475 | A | B | B | B | C | C | D | D |
| 6.8 | 685 | B | B | B | | C | D | D | |
| 10 | 106 | B | B | | C | | D | | |
| 15 | 156 | B | C | C | | D | D | | |
| 22 | 226 | | C | | D | D | | | |
| 33 | 336 | C | | D | D | | | | |
| 47 | 476 | | D | D | | | | | |
| 68 | 686 | D | D | | | | | | |
| 100 | 107 | D | | | | | | | |

TBJ Series



CWR11 - MIL-PRF-55365/8 Established Reliability, COTS-Plus & Space Level

HOW TO ORDER

COTS-PLUS & MIL QPL (CWR11):

| | | | | | | | | | | | |
|-------------|------------------|---|---|---|--|---|---|---|---|--|---|
| TBJ | D | 686 | * | 006 | C | □ | # | @ | 0 | ^ | ++ |
| Type | Case Size | Capacitance Code pF code: 1st two digits represent significant figures 3rd digit represents multiplier (number of zeros to follow) | Capacitance Tolerance M = ±20% K = ±10% J = ±5% | Voltage Code 004 = 4Vdc 006 = 6Vdc 010 = 10Vdc 015 = 15Vdc 020 = 20Vdc 025 = 25Vdc 035 = 35Vdc 050 = 50Vdc | Standard or Low ESR Range C = Std ESR L = Low ESR | Packaging B = Bulk R = 7" T&R S = 13" T&R W = Waffle See page 8 for additional packaging options. | Inspection Level S = Std. Conformance L = Group A M = MIL (JAN) CWR11 | Reliability Grade Weibull: B = 0.1%/1000 hrs. 90% conf. C = 0.01%/1000 hrs. 90% conf. D = 0.001%/1000 hrs. 90% conf. Z = Non-ER | Qualification Level 0 = N/A T = T Level 9 = SRC9000 | Termination Finish H = Solder Plated 0 = Fused Solder Plated 8 = Hot Solder Dipped 9 = Gold Plated 7 = Matte Sn (COTS-Plus only) | Surge Test Option 00 = None 23 = 10 Cycles, +25°C 24 = 10 Cycles, -55°C & +85°C 45 = 10 cycles, -55°C & +85°C before Weibull |

LEAD-FREE
LEAD-FREE COMPATIBLE COMPONENT

RoHS
COMPLIANT

For RoHS compliant products, please select correct termination style.

CWR11 P/N CROSS REFERENCE:

| | | | | | | | |
|--------------|---|--|---|---|--|--|--|
| CWR11 | D | ^ | 686 | * | @ | + | □ |
| Type | Voltage Code C = 4Vdc D = 6Vdc F = 10Vdc H = 15Vdc J = 20Vdc K = 25Vdc M = 35Vdc N = 50Vdc | Termination Finish H = Solder Plated K = Solder Fused C = Hot Solder Dipped B = Gold Plated | Capacitance Code pF code: 1st two digits represent significant figures 3rd digit represents multiplier (number of zeros to follow) | Capacitance Tolerance M = ±20% K = ±10% J = ±5% | Reliability Grade Weibull: B = 0.1%/1000 hrs. 90% conf. C = 0.01%/1000 hrs. 90% conf. D = 0.001%/1000 hrs. 90% conf. T = T Level A = Non-ER | Surge Test Option A = 10 cycles, +25°C B = 10 cycles, -55°C & +85°C C = 10 cycles, -55°C & +85°C before Weibull If blank, None required | Packaging Bulk = Standard TR = 7" T&R WR = 13" T&R W = Waffle See page 8 for additional packaging options. |

LEAD-FREE
LEAD-FREE COMPATIBLE COMPONENT

RoHS
COMPLIANT

For RoHS compliant products, please select correct termination style.

SPACE LEVEL OPTIONS TO SRC9000*:

| | | | | | | | | | | | |
|-------------|------------------|---|---|---|--|---|--|---|---|---|--|
| TBJ | D | 686 | * | 006 | C | □ | L | @ | 9 | ^ | ++ |
| Type | Case Size | Capacitance Code pF code: 1st two digits represent significant figures 3rd digit represents multiplier (number of zeros to follow) | Capacitance Tolerance M = ±20% K = ±10% J = ±5% | Voltage Code 004 = 4Vdc 006 = 6Vdc 010 = 10Vdc 015 = 15Vdc 020 = 20Vdc 025 = 25Vdc 035 = 35Vdc 050 = 50Vdc | Standard or Low ESR Range C = Std ESR L = Low ESR | Packaging B = Bulk R = 7" T&R S = 13" T&R W = Waffle See page 8 for additional packaging options. | Inspection Level L = Group A | Reliability Grade Weibull: B = 0.1%/1000 hrs. 90% conf. C = 0.01%/1000 hrs. 90% conf. D = 0.001%/1000 hrs. 90% conf. | Qualification Level 9 = SRC9000 | Termination Finish H = Solder Plated 0 = Fused Solder Plated 8 = Hot Solder Dipped 9 = Gold Plated | Surge Test Option 45 = 10 cycles, -55°C & +85°C before Weibull |

LEAD-FREE
LEAD-FREE COMPATIBLE COMPONENT

RoHS
COMPLIANT

For RoHS compliant products, please select correct termination style.

*Contact factory for AVX SRC9000 Space Level SCD details.

TECHNICAL SPECIFICATIONS

| | | | | | | | | | | |
|------------------------------------|---|-----|-----|------|------|------|------|------|------|--|
| Technical Data: | Unless otherwise specified, all technical data relate to an ambient temperature of 25°C | | | | | | | | | |
| Capacitance Range: | 0.10 µF to 100 µF | | | | | | | | | |
| Capacitance Tolerance: | ±5%; ±10%; ±20% | | | | | | | | | |
| Rated Voltage (V _R) | ≤ 85°C: | 4 | 6 | 10 | 16 | 20 | 25 | 35 | 50 | |
| Category Voltage (V _C) | ≤ 125°C: | 2.7 | 4 | 6.7 | 10 | 13.3 | 16.7 | 23.3 | 33.3 | |
| Surge Voltage (V _S) | ≤ 85°C: | 5.3 | 8 | 13.3 | 20 | 26.7 | 33.3 | 46.7 | 66.7 | |
| Surge Voltage (V _S) | ≤ 125°C: | 3.5 | 5.3 | 8.7 | 13.3 | 17.8 | 22.2 | 31.1 | 44.5 | |
| Temperature Range: | -55°C to +125°C | | | | | | | | | |



CWR11 - MIL-PRF-55365/8 Established Reliability, COTS-Plus & Space Level

| RATING & PART NUMBER REFERENCE | | | Parametric Specifications by Rating per MIL-PRF-55365/8 | | | | | | | | | Typical RMS Ripple Data by Rating | | | | | | | |
|--------------------------------|-------------------------------|-------------------------------|---|-------------------------------|------------------------------|----------------|--------------|------------------|--------------|---|----|-----------------------------------|---------------------------|---------------------------|----------------------------|---------------------------|---------------------------|----------------------------|------|
| | | | Cap @ 120Hz µF @ 25°C | DC Rated Voltage @ +85°C V | ESR @ 100kHz Ohms @ +25°C | DCL max | | | DF Max | | | Power Dissipation W | 25°C Ripple A (100kHz) | 85°C Ripple A (100kHz) | 125°C Ripple A (100kHz) | 25°C Ripple V (100kHz) | 85°C Ripple V (100kHz) | 125°C Ripple V (100kHz) | |
| CWR11 P/N | AVX COTS-Plus P/N | AVX SRC9000 P/N | Case | +25°C (µA) | +85°C (µA) | +125°C (µA) | +25°C (%) | +85/125°C (%) | -55°C (%) | | | | | | | | | | |
| CWR11C^225^@+□ | TBJA 225 * 004 C □ # @ 0 ^ ++ | TBJA 225 * 004 C □ L @ 9 ^ ++ | A | 2.2 | 4 | 8 | 0.5 | 5 | 6 | 6 | 9 | 9 | 0.075 | 0.10 | 0.09 | 0.04 | 0.77 | 0.70 | 0.31 |
| CWR11C^475^@+□ | TBJA 475 * 004 C □ # @ 0 ^ ++ | TBJA 475 * 004 C □ L @ 9 ^ ++ | A | 4.7 | 4 | 8 | 0.5 | 5 | 6 | 6 | 9 | 9 | 0.075 | 0.10 | 0.09 | 0.04 | 0.77 | 0.70 | 0.31 |
| CWR11C^685^@+□ | TBJB 685 * 004 C □ # @ 0 ^ ++ | TBJB 685 * 004 C □ L @ 9 ^ ++ | B | 6.8 | 4 | 5.5 | 0.5 | 5 | 6 | 6 | 9 | 9 | 0.085 | 0.12 | 0.11 | 0.05 | 0.68 | 0.62 | 0.27 |
| CWR11C^106^@+□ | TBJB 106 * 004 C □ # @ 0 ^ ++ | TBJB 106 * 004 C □ L @ 9 ^ ++ | B | 10 | 4 | 4 | 0.5 | 5 | 6 | 6 | 9 | 9 | 0.085 | 0.15 | 0.13 | 0.06 | 0.58 | 0.52 | 0.23 |
| CWR11C^156^@+□ | TBJB 156 * 004 C □ # @ 0 ^ ++ | TBJB 156 * 004 C □ L @ 9 ^ ++ | B | 15 | 4 | 3.5 | 0.6 | 6 | 7.2 | 6 | 9 | 9 | 0.085 | 0.16 | 0.14 | 0.06 | 0.55 | 0.49 | 0.22 |
| CWR11C^336^@+□ | TBJC 336 * 004 C □ # @ 0 ^ ++ | TBJC 336 * 004 C □ L @ 9 ^ ++ | C | 33 | 4 | 2.2 | 1.3 | 13 | 15.6 | 6 | 9 | 9 | 0.110 | 0.22 | 0.20 | 0.09 | 0.49 | 0.44 | 0.20 |
| CWR11C^686^@+□ | TBJD 686 * 004 C □ # @ 0 ^ ++ | TBJD 686 * 004 C □ L @ 9 ^ ++ | D | 68 | 4 | 1.1 | 2.7 | 27 | 32.4 | 6 | 9 | 9 | 0.150 | 0.37 | 0.33 | 0.15 | 0.41 | 0.37 | 0.16 |
| CWR11C^107^@+□ | TBJD 107 * 004 C □ # @ 0 ^ ++ | TBJD 107 * 004 C □ L @ 9 ^ ++ | D | 100 | 4 | 0.9 | 4 | 40 | 48 | 8 | 12 | 12 | 0.150 | 0.41 | 0.37 | 0.16 | 0.37 | 0.33 | 0.15 |
| CWR11D^155^@+□ | TBJA 155 * 006 C □ # @ 0 ^ ++ | TBJA 155 * 006 C □ L @ 9 ^ ++ | A | 1.5 | 6 | 8 | 0.5 | 5 | 6 | 6 | 9 | 9 | 0.075 | 0.10 | 0.09 | 0.04 | 0.77 | 0.70 | 0.31 |
| CWR11D^225^@+□ | TBJA 225 * 006 C □ # @ 0 ^ ++ | TBJA 225 * 006 C □ L @ 9 ^ ++ | A | 2.2 | 6 | 8 | 0.5 | 5 | 6 | 6 | 9 | 9 | 0.075 | 0.10 | 0.09 | 0.04 | 0.77 | 0.70 | 0.31 |
| CWR11D^335^@+□ | TBJA 335 * 006 C □ # @ 0 ^ ++ | TBJA 335 * 006 C □ L @ 9 ^ ++ | A | 3.3 | 6 | 8 | 0.5 | 5 | 6 | 6 | 9 | 9 | 0.075 | 0.10 | 0.09 | 0.04 | 0.77 | 0.70 | 0.31 |
| CWR11D^475^@+□ | TBJB 475 * 006 C □ # @ 0 ^ ++ | TBJB 475 * 006 C □ L @ 9 ^ ++ | B | 4.7 | 6 | 5.5 | 0.5 | 5 | 6 | 6 | 9 | 9 | 0.085 | 0.12 | 0.11 | 0.05 | 0.68 | 0.62 | 0.27 |
| CWR11D^685^@+□ | TBJB 685 * 006 C □ # @ 0 ^ ++ | TBJB 685 * 006 C □ L @ 9 ^ ++ | B | 6.8 | 6 | 4.5 | 0.5 | 5 | 6 | 6 | 9 | 9 | 0.085 | 0.14 | 0.12 | 0.05 | 0.62 | 0.56 | 0.25 |
| CWR11D^106^@+□ | TBJB 106 * 006 C □ # @ 0 ^ ++ | TBJB 106 * 006 C □ L @ 9 ^ ++ | B | 10 | 6 | 3.5 | 0.6 | 6 | 7.2 | 6 | 9 | 9 | 0.085 | 0.16 | 0.14 | 0.06 | 0.55 | 0.49 | 0.22 |
| CWR11D^156^@+□ | TBJC 156 * 006 C □ # @ 0 ^ ++ | TBJC 156 * 006 C □ L @ 9 ^ ++ | C | 15 | 6 | 3 | 0.9 | 9 | 10.8 | 6 | 9 | 9 | 0.110 | 0.19 | 0.17 | 0.08 | 0.57 | 0.52 | 0.23 |
| CWR11D^226^@+□ | TBJC 226 * 006 C □ # @ 0 ^ ++ | TBJC 226 * 006 C □ L @ 9 ^ ++ | C | 22 | 6 | 2.2 | 1.4 | 14 | 16.8 | 6 | 9 | 9 | 0.110 | 0.22 | 0.20 | 0.09 | 0.49 | 0.44 | 0.20 |
| CWR11D^476^@+□ | TBJD 476 * 006 C □ # @ 0 ^ ++ | TBJD 476 * 006 C □ L @ 9 ^ ++ | D | 47 | 6 | 1.1 | 2.8 | 28 | 33.6 | 6 | 9 | 9 | 0.150 | 0.37 | 0.33 | 0.15 | 0.41 | 0.37 | 0.16 |
| CWR11D^686^@+□ | TBJD 686 * 006 C □ # @ 0 ^ ++ | TBJD 686 * 006 C □ L @ 9 ^ ++ | D | 68 | 6 | 0.9 | 4.3 | 43 | 51.6 | 6 | 9 | 9 | 0.150 | 0.41 | 0.37 | 0.16 | 0.37 | 0.33 | 0.15 |
| CWR11F^105^@+□ | TBJA 105 * 010 C □ # @ 0 ^ ++ | TBJA 105 * 010 C □ L @ 9 ^ ++ | A | 1 | 10 | 10 | 0.5 | 5 | 6 | 4 | 6 | 6 | 0.075 | 0.09 | 0.08 | 0.03 | 0.87 | 0.78 | 0.35 |
| CWR11F^155^@+□ | TBJA 155 * 010 C □ # @ 0 ^ ++ | TBJA 155 * 010 C □ L @ 9 ^ ++ | A | 1.5 | 10 | 8 | 0.5 | 5 | 6 | 6 | 9 | 9 | 0.075 | 0.10 | 0.09 | 0.04 | 0.77 | 0.70 | 0.31 |
| CWR11F^225^@+□ | TBJA 225 * 010 C □ # @ 0 ^ ++ | TBJA 225 * 010 C □ L @ 9 ^ ++ | A | 2.2 | 10 | 8 | 0.5 | 5 | 6 | 6 | 9 | 9 | 0.075 | 0.10 | 0.09 | 0.04 | 0.77 | 0.70 | 0.31 |
| CWR11F^335^@+□ | TBJB 335 * 010 C □ # @ 0 ^ ++ | TBJB 335 * 010 C □ L @ 9 ^ ++ | B | 3.3 | 10 | 5.5 | 0.5 | 5 | 6 | 6 | 9 | 9 | 0.085 | 0.12 | 0.11 | 0.05 | 0.68 | 0.62 | 0.27 |
| CWR11F^475^@+□ | TBJB 475 * 010 C □ # @ 0 ^ ++ | TBJB 475 * 010 C □ L @ 9 ^ ++ | B | 4.7 | 10 | 4.5 | 0.5 | 5 | 6 | 6 | 9 | 9 | 0.085 | 0.14 | 0.12 | 0.05 | 0.62 | 0.56 | 0.25 |
| CWR11F^685^@+□ | TBJB 685 * 010 C □ # @ 0 ^ ++ | TBJB 685 * 010 C □ L @ 9 ^ ++ | B | 6.8 | 10 | 3.5 | 0.7 | 7 | 8.4 | 6 | 9 | 9 | 0.085 | 0.16 | 0.14 | 0.06 | 0.55 | 0.49 | 0.22 |
| CWR11F^156^@+□ | TBJC 156 * 010 C □ # @ 0 ^ ++ | TBJC 156 * 010 C □ L @ 9 ^ ++ | C | 15 | 10 | 2.5 | 1.5 | 15 | 18 | 6 | 6 | 9 | 0.110 | 0.21 | 0.19 | 0.08 | 0.52 | 0.47 | 0.21 |
| CWR11F^336^@+□ | TBJD 336 * 010 C □ # @ 0 ^ ++ | TBJD 336 * 010 C □ L @ 9 ^ ++ | D | 33 | 10 | 1.1 | 3.3 | 33 | 39.6 | 6 | 9 | 9 | 0.150 | 0.37 | 0.33 | 0.15 | 0.41 | 0.37 | 0.16 |
| CWR11F^476^@+□ | TBJD 476 * 010 C □ # @ 0 ^ ++ | TBJD 476 * 010 C □ L @ 9 ^ ++ | D | 47 | 10 | 0.9 | 4.7 | 47 | 56.4 | 6 | 9 | 9 | 0.150 | 0.41 | 0.37 | 0.16 | 0.37 | 0.33 | 0.15 |
| CWR11H^684^@+□ | TBJA 684 * 015 C □ # @ 0 ^ ++ | TBJA 684 * 015 C □ L @ 9 ^ ++ | A | 0.68 | 15 | 12 | 0.5 | 5 | 6 | 4 | 6 | 6 | 0.075 | 0.08 | 0.07 | 0.03 | 0.95 | 0.85 | 0.38 |
| CWR11H^105^@+□ | TBJA 105 * 015 C □ # @ 0 ^ ++ | TBJA 105 * 015 C □ L @ 9 ^ ++ | A | 1 | 15 | 10 | 0.5 | 5 | 6 | 4 | 6 | 6 | 0.075 | 0.09 | 0.08 | 0.03 | 0.87 | 0.78 | 0.35 |
| CWR11H^155^@+□ | TBJA 155 * 015 C □ # @ 0 ^ ++ | TBJA 155 * 015 C □ L @ 9 ^ ++ | A | 1.5 | 15 | 8 | 0.5 | 5 | 6 | 6 | 9 | 9 | 0.075 | 0.10 | 0.09 | 0.04 | 0.77 | 0.70 | 0.31 |
| CWR11H^225^@+□ | TBJB 225 * 015 C □ # @ 0 ^ ++ | TBJB 225 * 015 C □ L @ 9 ^ ++ | B | 2.2 | 15 | 5.5 | 0.5 | 5 | 6 | 6 | 9 | 9 | 0.085 | 0.12 | 0.11 | 0.05 | 0.68 | 0.62 | 0.27 |
| CWR11H^335^@+□ | TBJB 335 * 015 C □ # @ 0 ^ ++ | TBJB 335 * 015 C □ L @ 9 ^ ++ | B | 3.3 | 15 | 5 | 0.5 | 5 | 6 | 6 | 8 | 9 | 0.085 | 0.13 | 0.12 | 0.05 | 0.65 | 0.59 | 0.26 |
| CWR11H^475^@+□ | TBJB 475 * 015 C □ # @ 0 ^ ++ | TBJB 475 * 015 C □ L @ 9 ^ ++ | B | 4.7 | 15 | 4 | 0.7 | 7 | 8.4 | 6 | 9 | 9 | 0.085 | 0.15 | 0.13 | 0.06 | 0.58 | 0.52 | 0.23 |
| CWR11H^106^@+□ | TBJC 106 * 015 C □ # @ 0 ^ ++ | TBJC 106 * 015 C □ L @ 9 ^ ++ | C | 10 | 15 | 2.5 | 1.6 | 16 | 19.2 | 6 | 8 | 9 | 0.110 | 0.21 | 0.19 | 0.08 | 0.52 | 0.47 | 0.21 |
| CWR11H^226^@+□ | TBJD 226 * 015 C □ # @ 0 ^ ++ | TBJD 226 * 015 C □ L @ 9 ^ ++ | D | 22 | 15 | 1.1 | 3.3 | 33 | 39.6 | 6 | 8 | 9 | 0.150 | 0.37 | 0.33 | 0.15 | 0.41 | 0.37 | 0.16 |
| CWR11H^336^@+□ | TBJD 336 * 015 C □ # @ 0 ^ ++ | TBJD 336 * 015 C □ L @ 9 ^ ++ | D | 33 | 15 | 0.9 | 5.3 | 53 | 63.6 | 6 | 9 | 9 | 0.150 | 0.41 | 0.37 | 0.16 | 0.37 | 0.33 | 0.15 |
| CWR11J^474^@+□ | TBJA 474 * 020 C □ # @ 0 ^ ++ | TBJA 474 * 020 C □ L @ 9 ^ ++ | A | 0.47 | 20 | 14 | 0.5 | 5 | 6 | 4 | 6 | 6 | 0.075 | 0.07 | 0.07 | 0.03 | 1.02 | 0.92 | 0.41 |
| CWR11J^684^@+□ | TBJA 684 * 020 C □ # @ 0 ^ ++ | TBJA 684 * 020 C □ L @ 9 ^ ++ | A | 0.68 | 20 | 12 | 0.5 | 5 | 6 | 4 | 6 | 6 | 0.075 | 0.08 | 0.07 | 0.03 | 0.95 | 0.85 | 0.38 |
| CWR11J^105^@+□ | TBJA 105 * 020 C □ # @ 0 ^ ++ | TBJA 105 * 020 C □ L @ 9 ^ ++ | A | 1 | 20 | 10 | 0.5 | 5 | 6 | 4 | 6 | 6 | 0.075 | 0.09 | 0.08 | 0.03 | 0.87 | 0.78 | 0.35 |
| CWR11J^155^@+□ | TBJB 155 * 020 C □ # @ 0 ^ ++ | TBJB 155 * 020 C □ L @ 9 ^ ++ | B | 1.5 | 20 | 6 | 0.5 | 5 | 6 | 6 | 9 | 9 | 0.085 | 0.12 | 0.11 | 0.05 | 0.71 | 0.64 | 0.29 |
| CWR11J^225^@+□ | TBJB 225 * 020 C □ # @ 0 ^ ++ | TBJB 225 * 020 C □ L @ 9 ^ ++ | B | 2.2 | 20 | 5 | 0.5 | 5 | 6 | 6 | 8 | 9 | 0.085 | 0.13 | 0.12 | 0.05 | 0.65 | 0.59 | 0.26 |
| CWR11J^335^@+□ | TBJB 335 * 020 C □ # @ 0 ^ ++ | TBJB 335 * 020 C □ L @ 9 ^ ++ | B | 3.3 | 20 | 4 | 0.7 | 7 | 8.4 | 6 | 9 | 9 | 0.085 | 0.15 | 0.13 | 0.06 | 0.58 | 0.52 | 0.23 |
| CWR11J^475^@+□ | TBJC 475 * 020 C □ # @ 0 ^ ++ | TBJC 475 * 020 C □ L @ 9 ^ ++ | C | 4.7 | 20 | 3 | 1 | 10 | 12 | 6 | 8 | 9 | 0.110 | 0.19 | 0.17 | 0.08 | 0.57 | 0.52 | 0.23 |
| CWR11J^685^@+□ | TBJC 685 * 020 C □ # @ 0 ^ ++ | TBJC 685 * 020 C □ L @ 9 ^ ++ | C | 6.8 | 20 | 2.4 | 1.4 | 14 | 16.8 | 6 | 9 | 9 | 0.110 | 0.21 | 0.19 | 0.09 | 0.51 | 0.46 | 0.21 |
| CWR11J^156^@+□ | TBJD 156 * 020 C □ # @ 0 ^ ++ | TBJD 156 * 020 C □ L @ 9 ^ ++ | D | 15 | 20 | 1.1 | 3 | 30 | 36 | 6 | 8 | 9 | 0.150 | 0.37 | 0.33 | 0.15 | 0.41 | 0.37 | 0.16 |
| CWR11J^226^@+□ | TBJD 226 * 020 C □ # @ 0 ^ ++ | TBJD 226 * 020 C □ L @ 9 ^ ++ | D | 22 | 20 | 0.9 | 4.4 | 44 | 52.8 | 6 | 9 | 9 | 0.150 | 0.41 | 0.37 | 0.16 | 0.37 | 0.33 | 0.15 |
| CWR11K^334^@+□ | TBJA 334 * 025 C □ # @ 0 ^ ++ | TBJA 334 * 025 C □ L @ 9 ^ ++ | A | 0.33 | 25 | 15 | 0.5 | 5 | 6 | 4 | 6 | 6 | 0.075 | 0.07 | 0.06 | 0.03 | 1.06 | 0.95 | 0.42 |
| CWR11K^474^@+□ | TBJA 474 * 025 C □ # @ 0 ^ ++ | TBJA 474 * 025 C □ L @ 9 ^ ++ | A | 0.47 | 25 | 14 | 0.5 | 5 | 6 | 4 | 6 | 6 | 0.075 | 0.07 | 0.07 | 0.03 | 1.02 | 0.92 | 0.41 |
| CWR11K^684^@+□ | TBJB 684 * 025 C □ # @ 0 ^ ++ | TBJB 684 * 025 C □ L @ 9 ^ ++ | B | 0.68 | 25 | 7.5 | 0.5 | 5 | 6 | 4 | 6 | 6 | 0.085 | 0.11 | 0.10 | 0.04 | 0.80 | 0.72 | 0.32 |
| CWR11K^105^@+□ | TBJB 105 * 025 C □ # @ 0 ^ ++ | TBJB 105 * 025 C □ L @ 9 ^ ++ | B | 1 | 25 | 6.5 | 0.5 | 5 | 6 | 4 | 6 | 6 | 0.085 | 0.11 | 0.10 | 0.05 | 0.74 | 0.67 | 0.30 |
| CWR11K^155^@+□ | TBJB 155 * 025 C □ # @ 0 ^ ++ | TBJB 155 * 025 C □ L @ 9 ^ ++ | B | 1.5 | 25 | 6.5 | 0.5 | 5 | 6 | 6 | 8 | 9 | 0.085 | 0.11 | 0.10 | 0.05 | 0.74 | 0.67 | 0.30 |
| CWR11K^225^@+□ | TBJC 225 * 025 C □ # @ 0 ^ ++ | TBJC 225 * 025 C □ L @ 9 ^ ++ | C | 2.2 | 25 | 3.5 | 0.6 | 6 | 7.2 | 6 | 9 | 9 | 0.110 | 0.18 | 0.16 | 0.07 | 0.62 | 0.56 | 0.25 |
| CWR11K^335^@+□ | TBJC 335 * 025 C □ # @ 0 ^ ++ | TBJC 335 * 025 C □ L @ 9 ^ ++ | C | 3.3 | 25 | 3.5 | 0.9 | 9 | 10.8 | 6 | 8 | 9 | 0.110 | 0.18 | 0.16 | 0.07 | 0.62 | 0.56 | 0.25 |
| CWR11K^475^@+□ | TBJC 475 * 025 C □ # @ 0 ^ ++ | TBJC 475 * 025 C □ L @ 9 ^ ++ | C | 4.7 | 25 | 2.5 | 1.2 | 12 | 14.4 | 6 | 9 | 9 | 0.110 | 0.21 | 0.19 | 0.08 | 0.52 | 0.47 | 0.21 |
| CWR11K^685^@+□ | TBJD 685 * 025 C □ # @ 0 ^ ++ | TBJD 685 * 025 C □ L @ 9 ^ ++ | D | 6.8 | 25 | 1.4 | 1.7 | 17 | 20.4 | 6 | 9 | 9 | 0.150 | 0.33 | 0.29 | 0.13 | 0.46 | 0.41 | 0.18 |

All technical data relates to an ambient temperature of +25°C. Capacitance and DF are measured at 120Hz, 0.5V RMS with a maximum DC bias of 2.2 volts. DCL is measured at rated voltage after 5 minutes.

NOTE: AVX reserves the right to supply a higher voltage rating or tighter tolerance part in the same case size, to the same reliability standards.

TBJ Series



CWR11 - MIL-PRF-55365/8 Established Reliability, COTS-Plus & Space Level

| RATING & PART NUMBER REFERENCE | | | | Parametric Specifications by Rating per MIL-PRF-55365/8 | | | | | | | | | Typical RMS Ripple Data by Rating | | | | | | |
|--------------------------------|--------------------------------|--------------------------------|------|---|-------------------------------|------------------------------|---------|-------------|-------|--------|---|---|-----------------------------------|---------------------------|---------------------------|----------------------------|---------------------------|---------------------------|----------------------------|
| | | | | Cap @ 120Hz µF @ 25°C | DC Rated Voltage V @ +85°C | ESR @ 100kHz Ohms @ +25°C | DCL max | | | DF Max | | | Power Dissipation W | 25°C Ripple A (100kHz) | 85°C Ripple A (100kHz) | 125°C Ripple A (100kHz) | 25°C Ripple V (100kHz) | 85°C Ripple V (100kHz) | 125°C Ripple V (100kHz) |
| CWR11 P/N | AVX COTS-Plus P/N | AVX SRC9000 P/N | Case | +25°C | +85°C | +125°C | +25°C | +(85/125)°C | -55°C | | | | | | | | | | |
| CWR11K^106^@+□ | TBJ D 106 * 025 C □ # @ 0 ^ ++ | TBJ D 106 * 025 C □ L @ 9 ^ ++ | D | 10 | 25 | 1.2 | 2.5 | 25 | 30 | 6 | 8 | 9 | 0.150 | 0.35 | 0.32 | 0.14 | 0.42 | 0.38 | 0.17 |
| CWR11K^156^@+□ | TBJ D 156 * 025 C □ # @ 0 ^ ++ | TBJ D 156 * 025 C □ L @ 9 ^ ++ | D | 15 | 25 | 1 | 3.8 | 38 | 45.6 | 6 | 9 | 9 | 0.150 | 0.39 | 0.35 | 0.15 | 0.39 | 0.35 | 0.15 |
| CWR11M^104^@+□ | TBJ A 104 * 035 C □ # @ 0 ^ ++ | TBJ A 104 * 035 C □ L @ 9 ^ ++ | A | 0.1 | 35 | 24 | 0.5 | 5 | 6 | 4 | 6 | 6 | 0.075 | 0.06 | 0.05 | 0.02 | 1.34 | 1.21 | 0.54 |
| CWR11M^154^@+□ | TBJ A 154 * 035 C □ # @ 0 ^ ++ | TBJ A 154 * 035 C □ L @ 9 ^ ++ | A | 0.15 | 35 | 21 | 0.5 | 5 | 6 | 4 | 6 | 6 | 0.075 | 0.06 | 0.05 | 0.02 | 1.25 | 1.13 | 0.50 |
| CWR11M^224^@+□ | TBJ A 224 * 035 C □ # @ 0 ^ ++ | TBJ A 224 * 035 C □ L @ 9 ^ ++ | A | 0.22 | 35 | 18 | 0.5 | 5 | 6 | 4 | 6 | 6 | 0.075 | 0.06 | 0.06 | 0.03 | 1.16 | 1.05 | 0.46 |
| CWR11M^334^@+□ | TBJ A 334 * 035 C □ # @ 0 ^ ++ | TBJ A 334 * 035 C □ L @ 9 ^ ++ | A | 0.33 | 35 | 15 | 0.5 | 5 | 6 | 4 | 6 | 6 | 0.075 | 0.07 | 0.06 | 0.03 | 1.06 | 0.95 | 0.42 |
| CWR11M^474^@+□ | TBJ B 474 * 035 C □ # @ 0 ^ ++ | TBJ B 474 * 035 C □ L @ 9 ^ ++ | B | 0.47 | 35 | 10 | 0.5 | 5 | 6 | 4 | 6 | 6 | 0.085 | 0.09 | 0.08 | 0.04 | 0.92 | 0.83 | 0.37 |
| CWR11M^684^@+□ | TBJ B 684 * 035 C □ # @ 0 ^ ++ | TBJ B 684 * 035 C □ L @ 9 ^ ++ | B | 0.68 | 35 | 8 | 0.5 | 5 | 6 | 4 | 6 | 6 | 0.085 | 0.10 | 0.09 | 0.04 | 0.82 | 0.74 | 0.33 |
| CWR11M^105^@+□ | TBJ B 105 * 035 C □ # @ 0 ^ ++ | TBJ B 105 * 035 C □ L @ 9 ^ ++ | B | 1 | 35 | 6.5 | 0.5 | 5 | 6 | 4 | 6 | 6 | 0.085 | 0.11 | 0.10 | 0.05 | 0.74 | 0.67 | 0.30 |
| CWR11M^155^@+□ | TBJ C 155 * 035 C □ # @ 0 ^ ++ | TBJ C 155 * 035 C □ L @ 9 ^ ++ | C | 1.5 | 35 | 4.5 | 0.5 | 5 | 6 | 6 | 8 | 9 | 0.110 | 0.16 | 0.14 | 0.06 | 0.70 | 0.63 | 0.28 |
| CWR11M^225^@+□ | TBJ C 225 * 035 C □ # @ 0 ^ ++ | TBJ C 225 * 035 C □ L @ 9 ^ ++ | C | 2.2 | 35 | 3.5 | 0.8 | 8 | 9.6 | 6 | 8 | 9 | 0.110 | 0.18 | 0.16 | 0.07 | 0.62 | 0.56 | 0.25 |
| CWR11M^335^@+□ | TBJ C 335 * 035 C □ # @ 0 ^ ++ | TBJ C 335 * 035 C □ L @ 9 ^ ++ | C | 3.3 | 35 | 2.5 | 1.2 | 12 | 14.4 | 6 | 8 | 9 | 0.110 | 0.21 | 0.19 | 0.08 | 0.52 | 0.47 | 0.21 |
| CWR11M^475^@+□ | TBJ D 475 * 035 C □ # @ 0 ^ ++ | TBJ D 475 * 035 C □ L @ 9 ^ ++ | D | 4.7 | 35 | 1.5 | 1.7 | 17 | 20.4 | 6 | 8 | 9 | 0.150 | 0.32 | 0.28 | 0.13 | 0.47 | 0.43 | 0.19 |
| CWR11M^685^@+□ | TBJ D 685 * 035 C □ # @ 0 ^ ++ | TBJ D 685 * 035 C □ L @ 9 ^ ++ | D | 6.8 | 35 | 1.3 | 2.4 | 24 | 28.8 | 6 | 9 | 9 | 0.150 | 0.34 | 0.31 | 0.14 | 0.44 | 0.40 | 0.18 |
| CWR11N^104^@+□ | TBJ A 104 * 050 C □ # @ 0 ^ ++ | TBJ A 104 * 050 C □ L @ 9 ^ ++ | A | 0.1 | 50 | 22 | 0.5 | 5 | 12 | 6 | 8 | 8 | 0.075 | 0.06 | 0.05 | 0.02 | 1.28 | 1.16 | 0.51 |
| CWR11N^154^@+□ | TBJ B 154 * 050 C □ # @ 0 ^ ++ | TBJ B 154 * 050 C □ L @ 9 ^ ++ | B | 0.15 | 50 | 17 | 0.5 | 5 | 6 | 4 | 6 | 6 | 0.085 | 0.07 | 0.06 | 0.03 | 1.20 | 1.08 | 0.48 |
| CWR11N^224^@+□ | TBJ B 224 * 050 C □ # @ 0 ^ ++ | TBJ B 224 * 050 C □ L @ 9 ^ ++ | B | 0.22 | 50 | 14 | 0.5 | 5 | 6 | 4 | 6 | 6 | 0.085 | 0.08 | 0.07 | 0.03 | 1.09 | 0.98 | 0.44 |
| CWR11N^334^@+□ | TBJ B 334 * 050 C □ # @ 0 ^ ++ | TBJ B 334 * 050 C □ L @ 9 ^ ++ | B | 0.33 | 50 | 12 | 0.5 | 5 | 6 | 4 | 6 | 6 | 0.085 | 0.08 | 0.08 | 0.03 | 1.01 | 0.91 | 0.40 |
| CWR11N^474^@+□ | TBJ C 474 * 050 C □ # @ 0 ^ ++ | TBJ C 474 * 050 C □ L @ 9 ^ ++ | C | 0.47 | 50 | 8 | 0.5 | 5 | 6 | 4 | 6 | 6 | 0.110 | 0.12 | 0.11 | 0.05 | 0.94 | 0.84 | 0.38 |
| CWR11N^684^@+□ | TBJ C 684 * 050 C □ # @ 0 ^ ++ | TBJ C 684 * 050 C □ L @ 9 ^ ++ | C | 0.68 | 50 | 7 | 0.5 | 5 | 6 | 4 | 6 | 6 | 0.110 | 0.13 | 0.11 | 0.05 | 0.88 | 0.79 | 0.35 |
| CWR11N^105^@+□ | TBJ C 105 * 050 C □ # @ 0 ^ ++ | TBJ C 105 * 050 C □ L @ 9 ^ ++ | C | 1 | 50 | 6 | 0.5 | 5 | 6 | 4 | 6 | 6 | 0.110 | 0.14 | 0.12 | 0.05 | 0.81 | 0.73 | 0.32 |
| CWR11N^155^@+□ | TBJ D 155 * 050 C □ # @ 0 ^ ++ | TBJ D 155 * 050 C □ L @ 9 ^ ++ | D | 1.5 | 50 | 4 | 0.8 | 8 | 9.6 | 6 | 8 | 9 | 0.150 | 0.19 | 0.17 | 0.08 | 0.77 | 0.70 | 0.31 |
| CWR11N^225^@+□ | TBJ D 225 * 050 C □ # @ 0 ^ ++ | TBJ D 225 * 050 C □ L @ 9 ^ ++ | D | 2.2 | 50 | 2.5 | 1.1 | 11 | 13.2 | 6 | 8 | 9 | 0.150 | 0.24 | 0.22 | 0.10 | 0.61 | 0.55 | 0.24 |
| CWR11N^335^@+□ | TBJ D 335 * 050 C □ # @ 0 ^ ++ | TBJ D 335 * 050 C □ L @ 9 ^ ++ | D | 3.3 | 50 | 2 | 1.7 | 17 | 20.4 | 6 | 9 | 9 | 0.150 | 0.27 | 0.25 | 0.11 | 0.55 | 0.49 | 0.22 |
| CWR11N^475^@+□ | TBJ D 475 * 050 C □ # @ 0 ^ ++ | TBJ D 475 * 050 C □ L @ 9 ^ ++ | D | 4.7 | 50 | 1.5 | 2.4 | 24 | 28.8 | 6 | 9 | 9 | 0.150 | 0.32 | 0.28 | 0.13 | 0.47 | 0.43 | 0.19 |

All technical data relates to an ambient temperature of +25°C. Capacitance and DF are measured at 120Hz, 0.5V RMS with a maximum DC bias of 2.2 volts. DCL is measured at rated voltage after 5 minutes.

NOTE: AVX reserves the right to supply a higher voltage rating or tighter tolerance part in the same case size, to the same reliability standards.



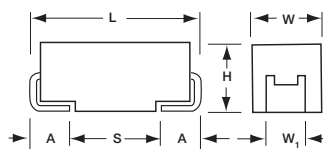
The TBJ COTS-Plus series, based on the CWR11 form factor, is a high reliability series encompassing the current range of EIA Low ESR ratings. These ratings are available with Weibull grading (B and C), surge current testing (A, B, C) per MIL-PRF-55365 Rev. G, and optional Group A from MIL-PRF-55365.

For Space Level applications, AVX SRC9000 qualification is recommended. Please refer to the TBJ COTS-Plus SRC9000 Datasheet for part number availability.

There are five termination finishes available: solder plated, fused solder plated, hot solder dipped, 100% Tin and gold plated (these correspond to "H", "K", "C", "7" and "B" termination, respectively). The molding compound has been selected to meet the requirements of UL94V-0 (Flame Retardancy) and outgassing requirements of ASTM E-595.

For moisture sensitivity levels please refer to the High Reliability Tantalum MSL section located in the back of the High Reliability Tantalum Catalog.

CASE DIMENSIONS: millimeters (inches)

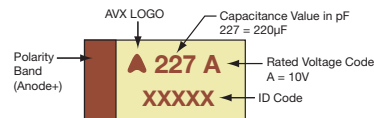


| Code | EIA Code | EIA Metric | L±0.20 (0.008) | W+0.20 (0.008) -0.10 (0.004) | H+0.20 (0.008) -0.10 (0.004) | W ₁ ±0.20 (0.008) | A+0.30 (0.012) -0.20 (0.008) | S Min. |
|------|----------|------------|----------------|------------------------------|------------------------------|------------------------------|------------------------------|--------------|
| A | 1206 | 3216-18 | 3.20 (0.126) | 1.60 (0.063) | 1.60 (0.063) | 1.20 (0.047) | 0.80 (0.031) | 1.10 (0.043) |
| B | 1210 | 3528-21 | 3.50 (0.138) | 2.80 (0.110) | 1.90 (0.075) | 2.20 (0.087) | 0.80 (0.031) | 1.40 (0.055) |
| C | 2312 | 6032-28 | 6.00 (0.236) | 3.20 (0.126) | 2.60 (0.102) | 2.20 (0.087) | 1.30 (0.051) | 2.90 (0.114) |
| D | 2917 | 7343-31 | 7.30 (0.287) | 4.30 (0.169) | 2.90 (0.114) | 2.40 (0.094) | 1.30 (0.051) | 4.40 (0.173) |
| E | 2917 | 7343-43 | 7.30 (0.287) | 4.30 (0.169) | 4.10 (0.162) | 2.40 (0.094) | 1.30 (0.051) | 4.40 (0.173) |
| V | 2924 | 7361-38 | 7.30 (0.287) | 6.10 (0.240) | 3.55 (0.140) | 3.10 (0.120) | 1.30 (0.051) | 4.40 (0.173) |

W₁ dimension applies to the termination width for A dimensional area only.

MARKING

A, B, C, D, E, V CASE



HOW TO ORDER

AVX PART NUMBER:

| TBJ | D | 227 | * | 035 | C | B | S | Z | 0 | 0 | 00 |
|-------------|------------------|--|------------------------------|--|----------------------------|---|-------------------------------------|---|----------------------------|--|---|
| Type | Case Size | Capacitance Code | Capacitance Tolerance | Voltage Code | ESR | Packaging | Inspection Level | Reliability Grade | Qualification Level | Termination Finish | Surge Test Option |
| | | pF code: 1st two digits represent significant figures 3rd digit represents multiplier (number of zeros to follow) | K = ±10% M = ±20% | 002 = 2Vdc 004 = 4Vdc 006 = 6.3Vdc 010 = 10Vdc 016 = 16Vdc 020 = 20Vdc 025 = 25Vdc 035 = 35Vdc 050 = 50Vdc | C = Std ESR L = Low ESR | B = Bulk R = 7" T&R S = 13" T&R W = Waffle | S = Std. Conformance L = Group A | Weibull: B = 0.1%/1000 hrs. 90% conf. C = 0.01%/1000 hrs. 90% conf. Z = Non-ER | 0 = N/A | H = Solder Plated 0 = Fused Solder Plated 8 = Hot Solder Dipped 9 = Gold Plated 7 = Matte Sn | 00 = None 23 = 10 Cycles, +25°C 24 = 10 Cycles, -55°C & +85°C 45 = 10 cycles, -55°C & +85°C before Weibull |



For RoHS compliant products, please select correct termination style.

TECHNICAL SPECIFICATIONS

| | | | | | | | | | | |
|------------------------------------|---|-----|-----|---|----|----|----|----|----|----|
| Technical Data: | Unless otherwise specified, all technical data relate to an ambient temperature of 25°C | | | | | | | | | |
| Capacitance Range: | 0.10 µF to 1500 µF | | | | | | | | | |
| Capacitance Tolerance: | ±10%; ±20% | | | | | | | | | |
| Rated Voltage (V _R) | ≤ 85°C: | 2 | 4 | 6 | 10 | 16 | 20 | 25 | 35 | 50 |
| Category Voltage (V _C) | ≤ 125°C: | 1.4 | 2.7 | 4 | 7 | 10 | 13 | 17 | 23 | 33 |
| Surge Voltage (V _S) | ≤ 85°C: | 2.6 | 5.2 | 8 | 13 | 20 | 26 | 32 | 46 | 65 |
| Surge Voltage (V _S) | ≤ 125°C: | 1.7 | 3.4 | 5 | 8 | 13 | 16 | 20 | 28 | 40 |
| Temperature Range: | -55°C to +125°C | | | | | | | | | |

CAPACITANCE AND RATED VOLTAGE, V_R (VOLTAGE CODE) RANGE (LETTER DENOTES CASE SIZE)

| Capacitance | | Rated Voltage DC (V_R) to 85°C | | | | | | | | | |
|-------------|------|------------------------------------|------------------------------------|--|---|----------|---|--|---|---|----------------------------|
| μF | Code | 2V | 4V | 6V | 10V | 15V | 16V | 20V | 25V | 35V | 50V |
| 0.10 | 104 | | | | | | | | | A(24000) | A(22000) |
| 0.15 | 154 | | | | | | | | | A(21000) | A(9000, 21000) B(17000) |
| 0.22 | 224 | | | | | | | | | A(6000, 18000) | A(7000, 18000) B(14000) |
| 0.33 | 334 | | | | | | | | | A(6000, 15000) | B(12000) |
| 0.47 | 474 | | | | | | | A(14000) | A(7000, 14000) | A(6000, 12000) B(4000, 10000) | C(8000) |
| 0.68 | 684 | | | | | A(12000) | A(12000) | A(12000) | A(6000, 10000) B(7500) | A(6000, 8000) B(8000) | A(7900) C(7000) |
| 1.0 | 105 | | | | A(10000) | A(10000) | A(10000) | A(3000, 10000) | A(8000) B(6500) | A(3000, 7500) B(2000, 6500) | C(2500, 6000) |
| 1.5 | 155 | | | A(8000) | A(8000) | A(8000) | | A(6500) B(6000) | A(3000, 7500) B(1800, 6500) | A(7500) B(2500, 5200) C(4500) | C(1500, 5000) D(4000) |
| 2.2 | 225 | | A(8000) | A(8000) | A(1800, 8000) | B(5500) | A(1800, 5500) B(5000) | A(3000, 5300) B(5000) | A(7000) B(900, 4500) C(3500) | A(1500, 4500) B(2000, 4200) C(1000, 3500) | D(1200, 2500) |
| 3.3 | 335 | | | A(8000) | A(5500) B(5500) | B(5000) | A(3500, 5000) B(4500) | A(2500) B(1300, 4000) | A(2800) B(750, 3500) C(3500) | B(1000, 3500) C(700, 2500) | D(800, 2000) |
| 4.7 | 475 | | A(8000) | A(6000) B(5500) | A(1400, 5000) B(4500) | B(4000) | A(2000, 4000) B(800, 3100) | A(1800, 4000) B(750, 3000) C(3000) | A(2800) B(1500, 2300) C(2500) | B(700, 3100) C(600, 2200) D(500, 1500) | D(300, 1500) |
| 6.8 | 685 | | A(6500) B(5500) | A(1800, 5000) B(4500) | A(1800, 4000) B(3500) | | A(1500, 2500) B(60, 2500) C(2500) | A(1000) B(600, 2500) C(700, 2400) | B(700, 2800) C(500, 2000) D(1400) | C(350, 1800) D(500, 1300) | D(500, 1000) |
| 10 | 106 | | A(6000) B(4000) | A(1500, 4000) B(3500) | A(1800, 3000) B(2500) C(2500) | C(2500) | A(1000, 3000) B(500, 2800) C(500, 2500) | B(1000, 2100) C(500, 1900) | C(500, 1800) D(1200) | C(600, 1600) D(300, 1000) E(200, 250) | E(400, 500) V(650) |
| 15 | 156 | | A(4000) B(3500) | A(1500, 3500) B(3500) C(3000) | A(1000, 3200) B(450, 2800) C(2500) | | B(800, 2500) C(1800) | B(500, 2000) C(400, 1700) D(1100) | C(220, 300) D(300, 1000) | C(350, 1400) D(300, 900) | D(600) E(250, 600) |
| 22 | 226 | | A(3500) | A(500, 3000) B(375, 2500) C(2200) | B(700, 2400) C(300, 1000) | D(1100) | B(600, 2300) C(375, 1600) D(1100) | B(400, 600) C(150, 1600) D(200, 900) | C(275, 1400) D(200, 900) | D(400, 900) E(300, 900) | V(390, 600) |
| 33 | 336 | | A(3000) B(2800) C(2200) | A(600) B(600, 2200) C(1800) | A(700, 1700) B(250, 1800) C(150, 1600) D(1100) | D(900) | B(350) C(300, 1500) D(200, 900) | C(300, 1500) D(100, 900) | D(100, 900) E(300, 900) | D(300, 900) E(100, 250) V(200) | |
| 47 | 476 | | A(500) B(2400) | A(800) B(250, 350) C(300, 1600) D(1100) | B(250, 350) C(200, 1200) D(100, 900) | | C(350, 1500) D(150, 900) | D(100, 200) E(70, 250) | D(250, 900) E(80, 100) | E(200, 250) V(200, 400) | |
| 68 | 686 | | C(1600) D(1100) | B(250, 1800) C(150, 1600) D(900) | B(600) C(80, 1200) D(100, 900) | | C(125, 200) D(70, 900) | D(70, 900) E(150, 900) | E(125, 200) V(95) | V(150, 200) | |
| 100 | 107 | | A(1400) B(200, 1600) C(1300) | B(250, 400) C(150, 900) D(900) | B(400) C(200, 1200) D(100, 900) E(125) | | D(125, 900) E(100, 900) | D(85, 100) E(100, 150) V(85, 200) | V(100) | | |
| 150 | 157 | B(150) | B(250) C(70, 80) | C(50, 90) D(50, 900) | D(150, 900) E(100) | | D(150, 900) E(100, 300) V(45, 75) | E(300) V(80) | | | |
| 220 | 227 | B(150, 200) D(45) | D(40, 900) | C(70, 1200) D(100, 900) E(100) | D(150, 900) E(100, 900) | | E(100, 150) V(75, 150) | | | | |
| 330 | 337 | | C(100) D(35, 45) E(900) | D(45, 50) E(100, 900) V(100) | D(150, 900) E(60, 900) V(60, 100) | | | | | | |
| 470 | 477 | D(35) | D(45, 100) E(35) | D(45, 60) E(50, 900) V(55, 100) | E(50, 900) V(60, 100) | | | | | | |
| 680 | 687 | D(35, 50) E(35, 50) | D(45, 60) E(40, 60) | E(45, 60) V(35, 40) | | | | | | | |
| 1000 | 108 | E(30, 40) | E(60) V(25, 35) | V(40, 50) | | | | | | | |
| 1500 | 158 | D(100) E(50) V(30, 40) | E(50, 75) V(50, 75) | | | | | | | | |

Available Ratings: ESR limits quoted in brackets (mOhms)

Notes: Voltage ratings are minimum values. AVX reserves the right to supply higher ratings in the same case size, to the same reliability standards.

TBJ Series

COTS-Plus



| RATING & PART NUMBER REFERENCE | | Parametric Specifications by Rating per MIL-PRF-55365/4 | | | | | | | | | Typical RMS Ripple Data by Rating | | | | | | |
|--------------------------------|---|---|-------------------------------|------------------------------|---------------|---------------|----------------|--------------|------------------|--------------|-----------------------------------|--------------------------------------|--------------------------------------|---------------------------------------|--------------------------------------|--------------------------------------|---------------------------------------|
| | | Cap @ 120Hz µF @ 25°C | DC Rated Voltage V @ +85°C | ESR @ 100kHz Ohms @ +25°C | DCL max | | | DF Max | | | Power Dissipation W | 25°C Ripple Current A (100kHz) | 85°C Ripple Current A (100kHz) | 125°C Ripple Current A (100kHz) | 25°C Ripple Voltage V (100kHz) | 85°C Ripple Voltage V (100kHz) | 125°C Ripple Voltage V (100kHz) |
| | | | | | +25°C (µA) | +85°C (µA) | +125°C (µA) | +25°C (%) | +85/125°C (%) | -55°C (%) | | | | | | | |
| TBJB157*002L□#@0^++ | B | 150 | 2 | 0.15 | 3 | 30 | 60 | 10 | 12 | 14 | 0.085 | 0.753 | 0.677 | 0.301 | 0.113 | 0.102 | 0.045 |
| TBJB227*002C□#@0^++ | B | 220 | 2 | 0.2 | 4.4 | 44 | 88 | 16 | 19 | 21 | 0.085 | 0.652 | 0.587 | 0.261 | 0.130 | 0.117 | 0.052 |
| TBJB227*002L□#@0^++ | B | 220 | 2 | 0.15 | 4.4 | 44 | 88 | 16 | 19 | 21 | 0.085 | 0.753 | 0.677 | 0.301 | 0.113 | 0.102 | 0.045 |
| TBJD227*002L□#@0^++ | D | 220 | 2 | 0.045 | 4.4 | 44 | 88 | 8 | 10 | 12 | 0.150 | 1.826 | 1.643 | 0.730 | 0.082 | 0.074 | 0.033 |
| TBJD477*002L□#@0^++ | D | 470 | 2 | 0.035 | 9.4 | 94 | 188 | 8 | 10 | 12 | 0.150 | 2.070 | 1.863 | 0.828 | 0.072 | 0.065 | 0.029 |
| TBJD687*002C□#@0^++ | D | 680 | 2 | 0.05 | 13.6 | 136 | 272 | 16 | 19 | 21 | 0.150 | 1.732 | 1.559 | 0.693 | 0.087 | 0.078 | 0.035 |
| TBJD687*002L□#@0^++ | D | 680 | 2 | 0.035 | 13.6 | 136 | 272 | 16 | 19 | 21 | 0.150 | 2.070 | 1.863 | 0.828 | 0.072 | 0.065 | 0.029 |
| TBJE687*002C□#@0^++ | E | 680 | 2 | 0.05 | 13.6 | 136 | 272 | 10 | 12 | 14 | 0.165 | 1.817 | 1.635 | 0.727 | 0.091 | 0.082 | 0.036 |
| TBJE687*002L□#@0^++ | E | 680 | 2 | 0.035 | 13.6 | 136 | 272 | 10 | 12 | 14 | 0.165 | 2.171 | 1.954 | 0.868 | 0.076 | 0.068 | 0.030 |
| TBJE108*002C□#@0^++ | E | 1000 | 2 | 0.04 | 20 | 200 | 400 | 14 | 17 | 20 | 0.165 | 2.031 | 1.828 | 0.812 | 0.081 | 0.073 | 0.032 |
| TBJE108*002L□#@0^++ | E | 1000 | 2 | 0.03 | 20 | 200 | 400 | 14 | 17 | 20 | 0.165 | 2.345 | 2.111 | 0.938 | 0.070 | 0.063 | 0.028 |
| TBJD158*002L□#@0^++ | D | 1500 | 2 | 0.1 | 30 | 300 | 600 | 60 | 90 | 90 | 0.150 | 1.225 | 1.102 | 0.490 | 0.122 | 0.110 | 0.049 |
| TBJE158*002L□#@0^++ | E | 1500 | 2 | 0.05 | 30 | 300 | 600 | 20 | 24 | 28 | 0.165 | 1.817 | 1.635 | 0.727 | 0.091 | 0.082 | 0.036 |
| TBJV158*002C□#@0^++ | V | 1500 | 2 | 0.04 | 30 | 300 | 600 | 20 | 24 | 28 | 0.250 | 2.500 | 2.250 | 1.000 | 0.100 | 0.090 | 0.040 |
| TBJV158*002L□#@0^++ | V | 1500 | 2 | 0.03 | 30 | 300 | 600 | 20 | 24 | 28 | 0.250 | 2.887 | 2.598 | 1.155 | 0.087 | 0.078 | 0.035 |
| TBJA225*004C□#@0^++ | A | 2.2 | 4 | 8 | 0.088 | 0.88 | 1.76 | 6 | 9 | 9 | 0.075 | 0.097 | 0.087 | 0.039 | 0.775 | 0.697 | 0.310 |
| TBJA475*004C□#@0^++ | A | 4.7 | 4 | 8 | 0.188 | 1.88 | 3.76 | 6 | 9 | 9 | 0.075 | 0.097 | 0.087 | 0.039 | 0.775 | 0.697 | 0.310 |
| TBJA685*004C□#@0^++ | A | 6.8 | 4 | 6.5 | 0.272 | 2.72 | 5.44 | 6 | 9 | 10 | 0.075 | 0.107 | 0.097 | 0.043 | 0.698 | 0.628 | 0.279 |
| TBJB685*004C□#@0^++ | B | 6.8 | 4 | 5.5 | 0.272 | 2.72 | 5.44 | 6 | 9 | 9 | 0.085 | 0.124 | 0.112 | 0.050 | 0.684 | 0.615 | 0.273 |
| TBJA106*004C□#@0^++ | A | 10 | 4 | 6 | 0.4 | 4 | 8 | 6 | 9 | 10 | 0.075 | 0.112 | 0.101 | 0.045 | 0.671 | 0.604 | 0.268 |
| TBJB106*004C□#@0^++ | B | 10 | 4 | 4 | 0.4 | 4 | 8 | 6 | 9 | 9 | 0.085 | 0.146 | 0.131 | 0.058 | 0.583 | 0.525 | 0.233 |
| TBJA156*004C□#@0^++ | A | 15 | 4 | 4 | 0.6 | 6 | 12 | 6 | 9 | 10 | 0.075 | 0.137 | 0.123 | 0.055 | 0.548 | 0.493 | 0.219 |
| TBJB156*004C□#@0^++ | B | 15 | 4 | 3.5 | 0.6 | 6 | 12 | 6 | 9 | 9 | 0.085 | 0.156 | 0.140 | 0.062 | 0.545 | 0.491 | 0.218 |
| TBJA226*004C□#@0^++ | A | 22 | 4 | 3 | 0.88 | 8.8 | 17.6 | 6 | 9 | 10 | 0.075 | 0.146 | 0.132 | 0.059 | 0.512 | 0.461 | 0.205 |
| TBJA336*004C□#@0^++ | A | 33 | 4 | 3 | 1.32 | 13.2 | 26.4 | 6 | 9 | 9 | 0.075 | 0.158 | 0.142 | 0.063 | 0.474 | 0.427 | 0.190 |
| TBJB336*004C□#@0^++ | B | 33 | 4 | 2.8 | 1.32 | 13.2 | 26.4 | 6 | 9 | 10 | 0.085 | 0.174 | 0.157 | 0.070 | 0.488 | 0.439 | 0.195 |
| TBJC336*004C□#@0^++ | C | 33 | 4 | 2.2 | 1.32 | 13.2 | 26.4 | 6 | 9 | 9 | 0.110 | 0.224 | 0.201 | 0.089 | 0.492 | 0.443 | 0.197 |
| TBJA476*004L□#@0^++ | A | 47 | 4 | 0.5 | 1.88 | 18.8 | 37.6 | 8 | 10 | 12 | 0.075 | 0.387 | 0.349 | 0.155 | 0.194 | 0.174 | 0.077 |
| TBJB476*004C□#@0^++ | B | 47 | 4 | 2.4 | 1.88 | 18.8 | 37.6 | 6 | 9 | 10 | 0.085 | 0.188 | 0.169 | 0.075 | 0.452 | 0.406 | 0.181 |
| TBJC686*004C□#@0^++ | C | 68 | 4 | 1.6 | 2.72 | 27.2 | 54.4 | 6 | 9 | 10 | 0.110 | 0.262 | 0.236 | 0.105 | 0.420 | 0.378 | 0.168 |
| TBJD686*004C□#@0^++ | D | 68 | 4 | 1.1 | 2.72 | 27.2 | 54.4 | 6 | 9 | 9 | 0.150 | 0.369 | 0.332 | 0.148 | 0.406 | 0.366 | 0.162 |
| TBJA107*004C□#@0^++ | A | 100 | 4 | 1.4 | 4 | 40 | 80 | 30 | 36 | 42 | 0.075 | 0.231 | 0.208 | 0.093 | 0.324 | 0.292 | 0.130 |
| TBJB107*004C□#@0^++ | B | 100 | 4 | 1.6 | 4 | 40 | 80 | 8 | 10 | 12 | 0.085 | 0.230 | 0.207 | 0.092 | 0.369 | 0.332 | 0.148 |
| TBJB107*004L□#@0^++ | B | 100 | 4 | 0.2 | 4 | 40 | 80 | 8 | 10 | 12 | 0.085 | 0.652 | 0.587 | 0.261 | 0.130 | 0.117 | 0.052 |
| TBJC107*004C□#@0^++ | C | 100 | 4 | 1.3 | 4 | 40 | 80 | 6 | 9 | 10 | 0.110 | 0.291 | 0.262 | 0.116 | 0.378 | 0.340 | 0.151 |
| TBJB157*004L□#@0^++ | B | 150 | 4 | 0.25 | 6 | 60 | 120 | 10 | 12 | 12 | 0.085 | 0.583 | 0.525 | 0.233 | 0.146 | 0.131 | 0.058 |
| TBJC157*004C□#@0^++ | C | 150 | 4 | 0.08 | 6 | 60 | 120 | 6 | 9 | 10 | 0.110 | 1.173 | 1.055 | 0.469 | 0.094 | 0.084 | 0.038 |
| TBJC157*004L□#@0^++ | C | 150 | 4 | 0.07 | 6 | 60 | 120 | 6 | 9 | 10 | 0.110 | 1.254 | 1.128 | 0.501 | 0.088 | 0.079 | 0.035 |
| TBJD227*004C□#@0^++ | D | 220 | 4 | 0.9 | 8.8 | 88 | 176 | 8 | 10 | 12 | 0.150 | 0.408 | 0.367 | 0.163 | 0.367 | 0.331 | 0.147 |
| TBJD227*004L□#@0^++ | D | 220 | 4 | 0.04 | 8.8 | 88 | 176 | 8 | 10 | 12 | 0.150 | 1.936 | 1.743 | 0.775 | 0.077 | 0.070 | 0.031 |
| TBJC337*004L□#@0^++ | C | 330 | 4 | 0.1 | 13.2 | 132 | 264 | 8 | 10 | 12 | 0.110 | 1.049 | 0.944 | 0.420 | 0.105 | 0.094 | 0.042 |
| TBJD337*004C□#@0^++ | D | 330 | 4 | 0.045 | 13.2 | 132 | 264 | 8 | 10 | 12 | 0.150 | 1.826 | 1.643 | 0.730 | 0.082 | 0.074 | 0.033 |
| TBJD337*004L□#@0^++ | D | 330 | 4 | 0.035 | 13.2 | 132 | 264 | 8 | 10 | 12 | 0.150 | 2.070 | 1.863 | 0.828 | 0.072 | 0.065 | 0.029 |
| TBJE337*004C□#@0^++ | E | 330 | 4 | 0.9 | 13.2 | 132 | 264 | 8 | 10 | 12 | 0.165 | 0.428 | 0.385 | 0.171 | 0.385 | 0.347 | 0.154 |
| TBJD477*004C□#@0^++ | D | 470 | 4 | 0.1 | 18.8 | 188 | 376 | 12 | 14 | 16 | 0.150 | 1.225 | 1.102 | 0.490 | 0.122 | 0.110 | 0.049 |
| TBJD477*004L□#@0^++ | D | 470 | 4 | 0.045 | 18.8 | 188 | 376 | 12 | 14 | 16 | 0.150 | 1.826 | 1.643 | 0.730 | 0.082 | 0.074 | 0.033 |
| TBJE477*004L□#@0^++ | E | 470 | 4 | 0.035 | 18.8 | 188 | 376 | 12 | 14 | 16 | 0.165 | 2.171 | 1.954 | 0.868 | 0.076 | 0.068 | 0.030 |
| TBJD687*004C□#@0^++ | D | 680 | 4 | 0.06 | 27.2 | 272 | 544 | 14 | 17 | 20 | 0.150 | 1.581 | 1.423 | 0.632 | 0.095 | 0.085 | 0.038 |
| TBJD687*004L□#@0^++ | D | 680 | 4 | 0.045 | 27.2 | 272 | 544 | 14 | 17 | 20 | 0.150 | 1.826 | 1.643 | 0.730 | 0.082 | 0.074 | 0.033 |
| TBJE687*004C□#@0^++ | E | 680 | 4 | 0.06 | 27.2 | 272 | 544 | 10 | 12 | 14 | 0.165 | 1.658 | 1.492 | 0.663 | 0.099 | 0.090 | 0.040 |
| TBJE687*004L□#@0^++ | E | 680 | 4 | 0.04 | 27.2 | 272 | 544 | 10 | 12 | 14 | 0.165 | 2.031 | 1.828 | 0.812 | 0.081 | 0.073 | 0.032 |
| TBJE108*004L□#@0^++ | E | 1000 | 4 | 0.06 | 40 | 400 | 800 | 14 | 17 | 20 | 0.165 | 1.658 | 1.492 | 0.663 | 0.099 | 0.090 | 0.040 |
| TBJV108*004C□#@0^++ | V | 1000 | 4 | 0.035 | 40 | 400 | 800 | 16 | 19 | 21 | 0.250 | 2.673 | 2.405 | 1.069 | 0.094 | 0.084 | 0.037 |
| TBJV108*004L□#@0^++ | V | 1000 | 4 | 0.025 | 40 | 400 | 800 | 16 | 18 | 20 | 0.250 | 3.162 | 2.846 | 1.265 | 0.079 | 0.071 | 0.032 |
| TBJE158*004C□#@0^++ | E | 1500 | 4 | 0.075 | 60 | 600 | 1200 | 30 | 36 | 42 | 0.165 | 1.483 | 1.335 | 0.593 | 0.111 | 0.100 | 0.044 |
| TBJE158*004L□#@0^++ | E | 1500 | 4 | 0.05 | 60 | 600 | 1200 | 30 | 36 | 42 | 0.165 | 1.817 | 1.635 | 0.727 | 0.091 | 0.082 | 0.036 |

All technical data relates to an ambient temperature of +25°C. Capacitance and DF are measured at 120Hz, 0.5V RMS with a maximum DC bias of 2.2 volts. DCL is measured at rated voltage after 5 minutes.

NOTE: AVX reserves the right to supply a higher voltage rating or tighter tolerance part in the same case size, to the same reliability standards.

TBJ Series

COTS-Plus



| RATING & PART NUMBER REFERENCE | | Parametric Specifications by Rating per MIL-PRF-55365/4 | | | | | | | | | Typical RMS Ripple Data by Rating | | | | | | |
|--------------------------------|---|---|-------------------------------|---------------------------------|---------------|---------------|----------------|--------------|--------------|---------------|-----------------------------------|--------------------------------------|--------------------------------------|---------------------------------------|--------------------------------------|--------------------------------------|---------------------------------------|
| | | Cap @ 120Hz µF @ 25°C | DC Rated Voltage V @ +85°C | ESR @ 100kHz Ohms @ +25°C | DCL max | | | DF Max | | | Power Dissipation W | 25°C Ripple Current A (100kHz) | 85°C Ripple Current A (100kHz) | 125°C Ripple Current A (100kHz) | 25°C Ripple Voltage V (100kHz) | 85°C Ripple Voltage V (100kHz) | 125°C Ripple Voltage V (100kHz) |
| | | | | | +25°C (µA) | +85°C (µA) | +125°C (µA) | +25°C (%) | +85°C (%) | +125°C (%) | | | | | | | |
| TBJV158*004C□#@0^++ | V | 1500 | 4 | 0.075 | 60 | 600 | 1200 | 30 | 36 | 42 | 0.250 | 1.826 | 1.643 | 0.730 | 0.123 | 0.055 | |
| TBJV158*004L□#@0^++ | V | 1500 | 4 | 0.05 | 60 | 600 | 1200 | 30 | 36 | 42 | 0.250 | 2.236 | 2.012 | 0.894 | 0.112 | 0.045 | |
| TBJA155*006C□#@0^++ | A | 1.5 | 6 | 8 | 0.09 | 0.9 | 1.08 | 6 | 9 | 9 | 0.075 | 0.097 | 0.087 | 0.039 | 0.775 | 0.697 | |
| TBJA225*006C□#@0^++ | A | 2.2 | 6 | 8 | 0.132 | 1.32 | 1.584 | 6 | 9 | 9 | 0.075 | 0.097 | 0.087 | 0.039 | 0.775 | 0.697 | |
| TBJA335*006C□#@0^++ | A | 3.3 | 6 | 8 | 0.198 | 1.98 | 2.376 | 6 | 9 | 9 | 0.075 | 0.097 | 0.087 | 0.039 | 0.775 | 0.697 | |
| TBJA475*006C□#@0^++ | A | 4.7 | 6 | 6 | 0.282 | 2.82 | 5.64 | 6 | 9 | 10 | 0.075 | 0.112 | 0.101 | 0.045 | 0.671 | 0.604 | |
| TBJB475*006C□#@0^++ | B | 4.7 | 6 | 5.5 | 0.282 | 2.82 | 3.384 | 6 | 9 | 9 | 0.085 | 0.124 | 0.112 | 0.050 | 0.684 | 0.615 | |
| TBJA685*006C□#@0^++ | A | 6.8 | 6 | 5 | 0.408 | 4.08 | 8.16 | 6 | 9 | 10 | 0.075 | 0.122 | 0.110 | 0.049 | 0.612 | 0.551 | |
| TBJA685*006L□#@0^++ | A | 6.8 | 6 | 1.8 | 0.408 | 4.08 | 8.16 | 6 | 9 | 10 | 0.075 | 0.204 | 0.184 | 0.082 | 0.367 | 0.331 | |
| TBJB685*006C□#@0^++ | B | 6.8 | 6 | 4.5 | 0.408 | 4.08 | 4.896 | 6 | 9 | 9 | 0.085 | 0.137 | 0.124 | 0.055 | 0.618 | 0.557 | |
| TBJA106*006C□#@0^++ | A | 10 | 6 | 4 | 0.6 | 6 | 12 | 6 | 9 | 10 | 0.075 | 0.137 | 0.123 | 0.055 | 0.548 | 0.493 | |
| TBJA106*006L□#@0^++ | A | 10 | 6 | 1.5 | 0.6 | 6 | 12 | 6 | 9 | 10 | 0.075 | 0.224 | 0.201 | 0.089 | 0.335 | 0.302 | |
| TBJB106*006C□#@0^++ | B | 10 | 6 | 3.5 | 0.6 | 6 | 7.2 | 6 | 9 | 9 | 0.085 | 0.156 | 0.140 | 0.062 | 0.545 | 0.491 | |
| TBJA156*006C□#@0^++ | A | 15 | 6 | 3.5 | 0.9 | 9 | 18 | 6 | 9 | 10 | 0.075 | 0.146 | 0.132 | 0.059 | 0.512 | 0.461 | |
| TBJA156*006L□#@0^++ | A | 15 | 6 | 1.5 | 0.9 | 9 | 18 | 6 | 9 | 10 | 0.075 | 0.224 | 0.201 | 0.089 | 0.335 | 0.302 | |
| TBJB156*006C□#@0^++ | B | 15 | 6 | 3.5 | 0.225 | 2.25 | 4.5 | 6 | 9 | 10 | 0.085 | 0.156 | 0.140 | 0.062 | 0.545 | 0.491 | |
| TBJC156*006C□#@0^++ | C | 15 | 6 | 3 | 0.9 | 9 | 10.8 | 6 | 6 | 9 | 0.110 | 0.191 | 0.172 | 0.077 | 0.574 | 0.517 | |
| TBJA226*006C□#@0^++ | A | 22 | 6 | 3 | 1.32 | 13.2 | 26.4 | 6 | 6 | 10 | 0.075 | 0.158 | 0.142 | 0.063 | 0.474 | 0.427 | |
| TBJA226*006L□#@0^++ | A | 22 | 6 | 0.5 | 1.32 | 13.2 | 26.4 | 6 | 9 | 10 | 0.075 | 0.387 | 0.349 | 0.155 | 0.194 | 0.174 | |
| TBJB226*006C□#@0^++ | B | 22 | 6 | 2.5 | 1.32 | 13.2 | 26.4 | 6 | 9 | 10 | 0.085 | 0.184 | 0.166 | 0.074 | 0.461 | 0.415 | |
| TBJB226*006L□#@0^++ | B | 22 | 6 | 0.375 | 1.32 | 13.2 | 26.4 | 6 | 9 | 10 | 0.085 | 0.476 | 0.428 | 0.190 | 0.179 | 0.161 | |
| TBJC226*006C□#@0^++ | C | 22 | 6 | 2.2 | 1.32 | 13.2 | 15.84 | 6 | 9 | 9 | 0.110 | 0.224 | 0.201 | 0.089 | 0.492 | 0.443 | |
| TBJA336*006L□#@0^++ | A | 33 | 6 | 0.6 | 1.98 | 19.8 | 39.6 | 8 | 10 | 12 | 0.075 | 0.354 | 0.318 | 0.141 | 0.212 | 0.191 | |
| TBJB336*006C□#@0^++ | B | 33 | 6 | 2.2 | 1.98 | 19.8 | 39.6 | 6 | 9 | 10 | 0.085 | 0.197 | 0.177 | 0.079 | 0.432 | 0.389 | |
| TBJB336*006L□#@0^++ | B | 33 | 6 | 0.6 | 1.98 | 19.8 | 39.6 | 6 | 9 | 10 | 0.085 | 0.376 | 0.339 | 0.151 | 0.226 | 0.203 | |
| TBJC336*006C□#@0^++ | C | 33 | 6 | 1.8 | 1.98 | 19.8 | 39.6 | 6 | 9 | 10 | 0.110 | 0.247 | 0.222 | 0.099 | 0.445 | 0.400 | |
| TBJA476*006L□#@0^++ | A | 47 | 6 | 0.8 | 2.82 | 28.2 | 56.4 | 10 | 12 | 14 | 0.075 | 0.306 | 0.276 | 0.122 | 0.245 | 0.220 | |
| TBJB476*006C□#@0^++ | B | 47 | 6 | 0.35 | 2.82 | 28.2 | 56.4 | 6 | 9 | 10 | 0.085 | 0.493 | 0.444 | 0.197 | 0.172 | 0.155 | |
| TBJB476*006L□#@0^++ | B | 47 | 6 | 0.25 | 2.82 | 28.2 | 56.4 | 6 | 9 | 10 | 0.085 | 0.583 | 0.525 | 0.233 | 0.146 | 0.131 | |
| TBJC476*006C□#@0^++ | C | 47 | 6 | 1.6 | 2.82 | 28.2 | 56.4 | 6 | 9 | 10 | 0.110 | 0.262 | 0.236 | 0.105 | 0.420 | 0.378 | |
| TBJC476*006L□#@0^++ | C | 47 | 6 | 0.3 | 2.82 | 28.2 | 56.4 | 6 | 9 | 10 | 0.110 | 0.606 | 0.545 | 0.242 | 0.182 | 0.163 | |
| TBJD476*006C□#@0^++ | D | 47 | 6 | 1.1 | 2.82 | 28.2 | 33.84 | 6 | 6 | 9 | 0.150 | 0.369 | 0.332 | 0.148 | 0.406 | 0.366 | |
| TBJB686*006C□#@0^++ | B | 68 | 6 | 1.8 | 4.08 | 40.8 | 81.6 | 8 | 10 | 12 | 0.085 | 0.217 | 0.196 | 0.087 | 0.391 | 0.352 | |
| TBJB686*006L□#@0^++ | B | 68 | 6 | 0.25 | 4.08 | 40.8 | 81.6 | 8 | 9 | 10 | 0.085 | 0.583 | 0.525 | 0.233 | 0.146 | 0.131 | |
| TBJC686*006C□#@0^++ | C | 68 | 6 | 1.6 | 4.08 | 40.8 | 81.6 | 6 | 9 | 10 | 0.110 | 0.262 | 0.236 | 0.105 | 0.420 | 0.378 | |
| TBJC686*006L□#@0^++ | C | 68 | 6 | 0.15 | 4.08 | 40.8 | 81.6 | 6 | 9 | 10 | 0.110 | 0.856 | 0.771 | 0.343 | 0.128 | 0.116 | |
| TBJD686*006C□#@0^++ | D | 68 | 6 | 0.9 | 4.08 | 40.8 | 48.96 | 6 | 9 | 9 | 0.150 | 0.408 | 0.367 | 0.163 | 0.367 | 0.331 | |
| TBJB107*006C□#@0^++ | B | 100 | 6 | 0.4 | 6 | 60 | 120 | 10 | 12 | 14 | 0.085 | 0.461 | 0.415 | 0.184 | 0.184 | 0.166 | |
| TBJB107*006L□#@0^++ | B | 100 | 6 | 0.25 | 6 | 60 | 120 | 10 | 12 | 14 | 0.085 | 0.583 | 0.525 | 0.233 | 0.146 | 0.131 | |
| TBJC107*006C□#@0^++ | C | 100 | 6 | 0.9 | 6 | 60 | 120 | 6 | 9 | 10 | 0.110 | 0.350 | 0.315 | 0.140 | 0.315 | 0.283 | |
| TBJC107*006L□#@0^++ | C | 100 | 6 | 0.15 | 6 | 60 | 120 | 6 | 9 | 10 | 0.110 | 0.856 | 0.771 | 0.343 | 0.128 | 0.116 | |
| TBJD107*006C□#@0^++ | D | 100 | 6 | 0.9 | 6 | 60 | 120 | 6 | 9 | 10 | 0.150 | 0.408 | 0.367 | 0.163 | 0.367 | 0.331 | |
| TBJC157*006C□#@0^++ | C | 150 | 6 | 0.09 | 9 | 90 | 180 | 6 | 9 | 10 | 0.110 | 1.106 | 0.995 | 0.442 | 0.099 | 0.090 | |
| TBJC157*006L□#@0^++ | C | 150 | 6 | 0.05 | 9 | 90 | 180 | 6 | 9 | 10 | 0.110 | 1.483 | 1.335 | 0.593 | 0.074 | 0.067 | |
| TBJD157*006C□#@0^++ | D | 150 | 6 | 0.9 | 9 | 90 | 180 | 6 | 9 | 10 | 0.150 | 0.408 | 0.367 | 0.163 | 0.367 | 0.331 | |
| TBJD157*006L□#@0^++ | D | 150 | 6 | 0.05 | 9 | 90 | 180 | 6 | 9 | 10 | 0.150 | 1.732 | 1.559 | 0.693 | 0.087 | 0.078 | |
| TBJC227*006C□#@0^++ | C | 220 | 6 | 1.2 | 13.2 | 132 | 264 | 10 | 12 | 14 | 0.110 | 0.303 | 0.272 | 0.121 | 0.363 | 0.327 | |
| TBJC227*006L□#@0^++ | C | 220 | 6 | 0.07 | 13.2 | 132 | 264 | 8 | 10 | 12 | 0.110 | 1.254 | 1.128 | 0.501 | 0.088 | 0.079 | |
| TBJD227*006C□#@0^++ | D | 220 | 6 | 0.9 | 13.2 | 132 | 264 | 8 | 10 | 12 | 0.150 | 0.408 | 0.367 | 0.163 | 0.367 | 0.331 | |
| TBJD227*006L□#@0^++ | D | 220 | 6 | 0.1 | 13.2 | 132 | 264 | 8 | 10 | 12 | 0.150 | 1.225 | 1.102 | 0.490 | 0.122 | 0.110 | |
| TBJE227*006L□#@0^++ | E | 220 | 6 | 0.1 | 13.2 | 132 | 264 | 8 | 10 | 12 | 0.165 | 1.285 | 1.156 | 0.514 | 0.128 | 0.116 | |
| TBJD337*006C□#@0^++ | D | 330 | 6 | 0.05 | 19.8 | 198 | 396 | 8 | 10 | 12 | 0.150 | 1.732 | 1.559 | 0.693 | 0.087 | 0.078 | |
| TBJD337*006L□#@0^++ | D | 330 | 6 | 0.045 | 19.8 | 198 | 396 | 8 | 10 | 12 | 0.150 | 1.826 | 1.643 | 0.730 | 0.082 | 0.074 | |
| TBJE337*006C□#@0^++ | E | 330 | 6 | 0.9 | 19.8 | 198 | 396 | 8 | 10 | 12 | 0.165 | 0.428 | 0.385 | 0.171 | 0.385 | 0.347 | |
| TBJE337*006L□#@0^++ | E | 330 | 6 | 0.1 | 19.8 | 198 | 396 | 8 | 10 | 12 | 0.165 | 1.285 | 1.156 | 0.514 | 0.128 | 0.116 | |
| TBJV337*006L□#@0^++ | V | 330 | 6 | 0.1 | 19.8 | 198 | 396 | 8 | 10 | 12 | 0.250 | 1.581 | 1.423 | 0.632 | 0.158 | 0.142 | |

All technical data relates to an ambient temperature of +25°C. Capacitance and DF are measured at 120Hz, 0.5V RMS with a maximum DC bias of 2.2 volts. DCL is measured at rated voltage after 5 minutes.

NOTE: AVX reserves the right to supply a higher voltage rating or tighter tolerance part in the same case size, to the same reliability standards.



TBJ Series

COTS-Plus



| RATING & PART NUMBER REFERENCE | | Parametric Specifications by Rating per MIL-PRF-55365/4 | | | | | | | | | Typical RMS Ripple Data by Rating | | | | | | |
|--------------------------------|---|---|-------------------------------|--------------------|---------------|---------------|----------------|--------------|--------------|---------------|-----------------------------------|--------------------------------------|--------------------------------------|---------------------------------------|--------------------------------------|--------------------------------------|---------------------------------------|
| | | Cap @ 120Hz µF @ 25°C | DC Rated Voltage @ +85°C V | ESR @ 25°C Ohms | DCL max | | | DF Max | | | Power Dissipation W | 25°C Ripple Current A (100kHz) | 85°C Ripple Current A (100kHz) | 125°C Ripple Current A (100kHz) | 25°C Ripple Voltage V (100kHz) | 85°C Ripple Voltage V (100kHz) | 125°C Ripple Voltage V (100kHz) |
| | | | | | +25°C (µA) | +85°C (µA) | +125°C (µA) | +25°C (%) | +85°C (%) | +125°C (%) | | | | | | | |
| TBJD477*006C□#@0^++ | D | 470 | 6 | 0.06 | 28.2 | 282 | 564 | 12 | 14 | 16 | 0.150 | 1.581 | 1.423 | 0.632 | 0.095 | 0.085 | 0.038 |
| TBJD477*006L□#@0^++ | D | 470 | 6 | 0.045 | 28.2 | 282 | 564 | 12 | 14 | 16 | 0.150 | 1.826 | 1.643 | 0.730 | 0.082 | 0.074 | 0.033 |
| TBJE477*006C□#@0^++ | E | 470 | 6 | 0.9 | 28.2 | 282 | 564 | 10 | 12 | 14 | 0.165 | 0.428 | 0.385 | 0.171 | 0.385 | 0.347 | 0.154 |
| TBJE477*006L□#@0^++ | E | 470 | 6 | 0.05 | 28.2 | 282 | 564 | 10 | 12 | 14 | 0.165 | 1.817 | 1.635 | 0.727 | 0.091 | 0.082 | 0.036 |
| TBJV477*006C□#@0^++ | V | 470 | 6 | 0.1 | 28.2 | 282 | 564 | 10 | 12 | 12 | 0.250 | 1.581 | 1.423 | 0.632 | 0.158 | 0.142 | 0.063 |
| TBJV477*006L□#@0^++ | V | 470 | 6 | 0.055 | 28.2 | 282 | 564 | 10 | 12 | 14 | 0.250 | 2.132 | 1.919 | 0.853 | 0.117 | 0.106 | 0.047 |
| TBJE687*006C□#@0^++ | E | 680 | 6 | 0.06 | 40.8 | 408 | 816 | 10 | 12 | 14 | 0.165 | 1.658 | 1.492 | 0.663 | 0.099 | 0.090 | 0.040 |
| TBJE687*006L□#@0^++ | E | 680 | 6 | 0.045 | 40.8 | 408 | 816 | 10 | 12 | 14 | 0.165 | 1.915 | 1.723 | 0.766 | 0.086 | 0.078 | 0.034 |
| TBJV687*006C□#@0^++ | V | 680 | 6 | 0.04 | 40.8 | 408 | 816 | 10 | 12 | 14 | 0.250 | 2.500 | 2.250 | 1.000 | 0.100 | 0.090 | 0.040 |
| TBJV687*006L□#@0^++ | V | 680 | 6 | 0.035 | 40.8 | 408 | 816 | 14 | 17 | 20 | 0.250 | 2.673 | 2.405 | 1.069 | 0.094 | 0.084 | 0.037 |
| TBJV108*006C□#@0^++ | V | 1000 | 6 | 0.05 | 60 | 600 | 1200 | 16 | 19 | 21 | 0.250 | 2.236 | 2.012 | 0.894 | 0.112 | 0.101 | 0.045 |
| TBJV108*006L□#@0^++ | V | 1000 | 6 | 0.04 | 60 | 600 | 1200 | 16 | 19 | 21 | 0.250 | 2.500 | 2.250 | 1.000 | 0.100 | 0.090 | 0.040 |
| TBJA105*010C□#@0^++ | A | 1 | 10 | 10 | 0.1 | 1 | 1.2 | 4 | 6 | 6 | 0.075 | 0.087 | 0.078 | 0.035 | 0.866 | 0.779 | 0.346 |
| TBJA155*010C□#@0^++ | A | 1.5 | 10 | 8 | 0.15 | 1.5 | 1.8 | 6 | 6 | 9 | 0.075 | 0.097 | 0.087 | 0.039 | 0.775 | 0.697 | 0.310 |
| TBJA225*010C□#@0^++ | A | 2.2 | 10 | 8 | 0.22 | 2.2 | 2.64 | 6 | 9 | 9 | 0.075 | 0.097 | 0.087 | 0.039 | 0.775 | 0.697 | 0.310 |
| TBJA225*010L□#@0^++ | A | 2.2 | 10 | 1.8 | 0.22 | 2.2 | 4.4 | 6 | 9 | 10 | 0.075 | 0.204 | 0.184 | 0.082 | 0.367 | 0.331 | 0.147 |
| TBJA335*010C□#@0^++ | A | 3.3 | 10 | 5.5 | 0.33 | 3.3 | 6.6 | 6 | 9 | 10 | 0.075 | 0.117 | 0.105 | 0.047 | 0.642 | 0.578 | 0.257 |
| TBJB335*010C□#@0^++ | B | 3.3 | 10 | 5.5 | 0.33 | 3.3 | 3.96 | 6 | 9 | 9 | 0.085 | 0.124 | 0.112 | 0.050 | 0.684 | 0.615 | 0.273 |
| TBJA475*010C□#@0^++ | A | 4.7 | 10 | 5 | 0.47 | 4.7 | 9.4 | 6 | 9 | 10 | 0.075 | 0.122 | 0.110 | 0.049 | 0.612 | 0.551 | 0.245 |
| TBJA475*010L□#@0^++ | A | 4.7 | 10 | 1.4 | 0.47 | 4.7 | 9.4 | 6 | 9 | 10 | 0.075 | 0.231 | 0.208 | 0.093 | 0.324 | 0.292 | 0.130 |
| TBJB475*010C□#@0^++ | B | 4.7 | 10 | 4.5 | 0.47 | 4.7 | 5.64 | 6 | 9 | 9 | 0.085 | 0.137 | 0.124 | 0.055 | 0.618 | 0.557 | 0.247 |
| TBJA685*010C□#@0^++ | A | 6.8 | 10 | 4 | 0.68 | 6.8 | 13.6 | 6 | 9 | 10 | 0.075 | 0.137 | 0.123 | 0.055 | 0.548 | 0.493 | 0.219 |
| TBJA685*010L□#@0^++ | A | 6.8 | 10 | 1.8 | 0.68 | 6.8 | 13.6 | 6 | 9 | 10 | 0.075 | 0.204 | 0.184 | 0.082 | 0.367 | 0.331 | 0.147 |
| TBJB685*010C□#@0^++ | B | 6.8 | 10 | 3.5 | 0.68 | 6.8 | 8.16 | 6 | 9 | 9 | 0.085 | 0.156 | 0.140 | 0.062 | 0.545 | 0.491 | 0.218 |
| TBJA106*010C□#@0^++ | A | 10 | 10 | 3 | 1 | 10 | 20 | 6 | 9 | 10 | 0.075 | 0.158 | 0.142 | 0.063 | 0.474 | 0.427 | 0.190 |
| TBJA106*010L□#@0^++ | A | 10 | 10 | 1.8 | 1 | 10 | 20 | 6 | 9 | 10 | 0.075 | 0.204 | 0.184 | 0.082 | 0.367 | 0.331 | 0.147 |
| TBJB106*010C□#@0^++ | B | 10 | 10 | 2.5 | 1 | 10 | 20 | 6 | 9 | 10 | 0.085 | 0.184 | 0.166 | 0.074 | 0.461 | 0.415 | 0.184 |
| TBJC106*010C□#@0^++ | C | 10 | 10 | 2.5 | 1 | 10 | 20 | 6 | 9 | 10 | 0.110 | 0.210 | 0.189 | 0.084 | 0.524 | 0.472 | 0.210 |
| TBJA156*010C□#@0^++ | A | 15 | 10 | 3.2 | 1.5 | 15 | 30 | 6 | 9 | 10 | 0.075 | 0.153 | 0.138 | 0.061 | 0.490 | 0.441 | 0.196 |
| TBJA156*010L□#@0^++ | A | 15 | 10 | 1 | 1.5 | 15 | 30 | 6 | 9 | 10 | 0.075 | 0.274 | 0.246 | 0.110 | 0.274 | 0.246 | 0.110 |
| TBJB156*010C□#@0^++ | B | 15 | 10 | 2.8 | 1.5 | 15 | 30 | 6 | 9 | 10 | 0.085 | 0.174 | 0.157 | 0.070 | 0.488 | 0.439 | 0.195 |
| TBJB156*010L□#@0^++ | B | 15 | 10 | 0.45 | 1.5 | 15 | 30 | 6 | 9 | 10 | 0.085 | 0.435 | 0.391 | 0.174 | 0.196 | 0.176 | 0.078 |
| TBJC156*010C□#@0^++ | C | 15 | 10 | 2.5 | 1.5 | 15 | 18 | 6 | 6 | 9 | 0.110 | 0.210 | 0.189 | 0.084 | 0.524 | 0.472 | 0.210 |
| TBJB226*010C□#@0^++ | B | 22 | 10 | 2.4 | 2.2 | 22 | 44 | 6 | 9 | 10 | 0.085 | 0.188 | 0.169 | 0.075 | 0.452 | 0.406 | 0.181 |
| TBJB226*010L□#@0^++ | B | 22 | 10 | 0.7 | 2.2 | 22 | 44 | 6 | 9 | 10 | 0.085 | 0.348 | 0.314 | 0.139 | 0.244 | 0.220 | 0.098 |
| TBJC226*010C□#@0^++ | C | 22 | 10 | 1 | 2.2 | 22 | 44 | 6 | 9 | 10 | 0.110 | 0.332 | 0.298 | 0.133 | 0.332 | 0.298 | 0.133 |
| TBJC226*010L□#@0^++ | C | 22 | 10 | 0.3 | 2.2 | 22 | 44 | 6 | 9 | 10 | 0.110 | 0.606 | 0.545 | 0.242 | 0.182 | 0.163 | 0.073 |
| TBJA336*010C□#@0^++ | A | 33 | 10 | 1.7 | 3.3 | 33 | 66 | 8 | 10 | 12 | 0.075 | 0.210 | 0.189 | 0.084 | 0.357 | 0.321 | 0.143 |
| TBJA336*010L□#@0^++ | A | 33 | 10 | 0.7 | 3.3 | 33 | 66 | 8 | 10 | 12 | 0.075 | 0.327 | 0.295 | 0.131 | 0.229 | 0.206 | 0.092 |
| TBJB336*010C□#@0^++ | B | 33 | 10 | 1.8 | 3.3 | 33 | 66 | 6 | 9 | 10 | 0.085 | 0.217 | 0.196 | 0.087 | 0.391 | 0.352 | 0.156 |
| TBJB336*010L□#@0^++ | B | 33 | 10 | 0.25 | 3.3 | 33 | 66 | 6 | 8 | 10 | 0.085 | 0.583 | 0.525 | 0.233 | 0.146 | 0.131 | 0.058 |
| TBJC336*010C□#@0^++ | C | 33 | 10 | 1.6 | 3.3 | 33 | 66 | 6 | 9 | 10 | 0.110 | 0.262 | 0.236 | 0.105 | 0.420 | 0.378 | 0.168 |
| TBJC336*010L□#@0^++ | C | 33 | 10 | 0.15 | 3.3 | 33 | 66 | 6 | 9 | 10 | 0.110 | 0.856 | 0.771 | 0.343 | 0.128 | 0.116 | 0.051 |
| TBJD336*010C□#@0^++ | D | 33 | 10 | 1.1 | 3.3 | 33 | 39.6 | 6 | 9 | 9 | 0.150 | 0.369 | 0.332 | 0.148 | 0.406 | 0.366 | 0.162 |
| TBJB476*010C□#@0^++ | B | 47 | 10 | 0.35 | 4.7 | 47 | 94 | 8 | 10 | 12 | 0.085 | 0.493 | 0.444 | 0.197 | 0.172 | 0.155 | 0.069 |
| TBJB476*010L□#@0^++ | B | 47 | 10 | 0.25 | 4.7 | 47 | 94 | 8 | 10 | 12 | 0.085 | 0.583 | 0.525 | 0.233 | 0.146 | 0.131 | 0.058 |
| TBJC476*010C□#@0^++ | C | 47 | 10 | 1.2 | 4.7 | 47 | 94 | 6 | 9 | 10 | 0.110 | 0.303 | 0.272 | 0.121 | 0.363 | 0.327 | 0.145 |
| TBJC476*010L□#@0^++ | C | 47 | 10 | 0.2 | 4.7 | 47 | 94 | 6 | 9 | 10 | 0.110 | 0.742 | 0.667 | 0.297 | 0.148 | 0.133 | 0.059 |
| TBJD476*010C□#@0^++ | D | 47 | 10 | 0.9 | 4.7 | 47 | 56.4 | 6 | 9 | 9 | 0.150 | 0.408 | 0.367 | 0.163 | 0.367 | 0.331 | 0.147 |
| TBJD476*010L□#@0^++ | D | 47 | 10 | 0.1 | 4.7 | 47 | 94 | 6 | 9 | 10 | 0.150 | 1.225 | 1.102 | 0.490 | 0.122 | 0.110 | 0.049 |
| TBJB686*010C□#@0^++ | B | 68 | 10 | 0.6 | 6.8 | 68 | 136 | 8 | 10 | 12 | 0.085 | 0.376 | 0.339 | 0.151 | 0.226 | 0.203 | 0.090 |
| TBJC686*010C□#@0^++ | C | 68 | 10 | 1.2 | 6.8 | 68 | 136 | 6 | 10 | 12 | 0.110 | 0.303 | 0.272 | 0.121 | 0.363 | 0.327 | 0.145 |
| TBJC686*010L□#@0^++ | C | 68 | 10 | 0.08 | 6.8 | 68 | 136 | 6 | 10 | 12 | 0.110 | 1.173 | 1.055 | 0.469 | 0.094 | 0.084 | 0.038 |
| TBJD686*010C□#@0^++ | D | 68 | 10 | 0.9 | 6.8 | 68 | 136 | 6 | 9 | 10 | 0.150 | 0.408 | 0.367 | 0.163 | 0.367 | 0.331 | 0.147 |
| TBJD686*010L□#@0^++ | D | 68 | 10 | 0.1 | 6.8 | 68 | 136 | 6 | 9 | 10 | 0.150 | 1.225 | 1.102 | 0.490 | 0.122 | 0.110 | 0.049 |
| TBJB107*010C□#@0^++ | B | 100 | 10 | 0.4 | 10 | 100 | 200 | 8 | 10 | 12 | 0.085 | 0.461 | 0.415 | 0.184 | 0.184 | 0.166 | 0.074 |

All technical data relates to an ambient temperature of +25°C. Capacitance and DF are measured at 120Hz, 0.5V RMS with a maximum DC bias of 2.2 volts. DCL is measured at rated voltage after 5 minutes.

NOTE: AVX reserves the right to supply a higher voltage rating or tighter tolerance part in the same case size, to the same reliability standards.



TBJ Series

COTS-Plus



| RATING & PART NUMBER REFERENCE | | Parametric Specifications by Rating per MIL-PRF-55365/4 | | | | | | | | | Typical RMS Ripple Data by Rating | | | | | | |
|--------------------------------|---|---|-------------------------------|------------------------------|---------------|---------------|----------------|--------------|------------------|--------------|-----------------------------------|--------------------------------------|--------------------------------------|---------------------------------------|--------------------------------------|--------------------------------------|---------------------------------------|
| | | Cap @ 120Hz µF @ 25°C | DC Rated Voltage V @ +85°C | ESR @ 100kHz Ohms @ +25°C | DCL max | | | DF Max | | | Power Dissipation W | 25°C Ripple Current A (100kHz) | 85°C Ripple Current A (100kHz) | 125°C Ripple Current A (100kHz) | 25°C Ripple Voltage V (100kHz) | 85°C Ripple Voltage V (100kHz) | 125°C Ripple Voltage V (100kHz) |
| | | | | | +25°C (µA) | +85°C (µA) | +125°C (µA) | +25°C (%) | +85/125°C (%) | -55°C (%) | | | | | | | |
| TBJC107*010C□#@0^++ | C | 100 | 10 | 1.2 | 10 | 100 | 200 | 8 | 10 | 12 | 0.110 | 0.303 | 0.272 | 0.121 | 0.363 | 0.327 | 0.145 |
| TBJC107*010L□#@0^++ | C | 100 | 10 | 0.2 | 10 | 100 | 200 | 8 | 10 | 12 | 0.110 | 0.742 | 0.667 | 0.297 | 0.148 | 0.133 | 0.059 |
| TBJD107*010C□#@0^++ | D | 100 | 10 | 0.9 | 10 | 100 | 200 | 6 | 9 | 10 | 0.150 | 0.408 | 0.367 | 0.163 | 0.367 | 0.331 | 0.147 |
| TBJD107*010L□#@0^++ | D | 100 | 10 | 0.1 | 10 | 100 | 200 | 6 | 9 | 10 | 0.150 | 1.225 | 1.102 | 0.490 | 0.122 | 0.110 | 0.049 |
| TBJE107*010C□#@0^++ | E | 100 | 10 | 0.125 | 10 | 100 | 200 | 6 | 9 | 10 | 0.165 | 1.285 | 1.156 | 0.514 | 0.128 | 0.116 | 0.051 |
| TBJD157*010C□#@0^++ | D | 150 | 10 | 0.9 | 15 | 150 | 300 | 8 | 10 | 12 | 0.150 | 0.408 | 0.367 | 0.163 | 0.367 | 0.331 | 0.147 |
| TBJD157*010L□#@0^++ | D | 150 | 10 | 0.1 | 15 | 150 | 300 | 8 | 10 | 12 | 0.150 | 1.225 | 1.102 | 0.490 | 0.122 | 0.110 | 0.049 |
| TBJE157*010C□#@0^++ | E | 150 | 10 | 0.1 | 15 | 150 | 300 | 8 | 10 | 12 | 0.165 | 1.285 | 1.156 | 0.514 | 0.128 | 0.116 | 0.051 |
| TBJD227*010C□#@0^++ | D | 220 | 10 | 0.9 | 22 | 220 | 440 | 8 | 10 | 12 | 0.150 | 0.408 | 0.367 | 0.163 | 0.367 | 0.331 | 0.147 |
| TBJD227*010L□#@0^++ | D | 220 | 10 | 0.15 | 22 | 220 | 440 | 8 | 10 | 12 | 0.150 | 1.000 | 0.900 | 0.400 | 0.150 | 0.135 | 0.060 |
| TBJE227*010C□#@0^++ | E | 220 | 10 | 0.9 | 22 | 220 | 440 | 8 | 10 | 12 | 0.165 | 0.428 | 0.385 | 0.171 | 0.385 | 0.347 | 0.154 |
| TBJE227*010L□#@0^++ | E | 220 | 10 | 0.1 | 22 | 220 | 440 | 8 | 10 | 12 | 0.165 | 1.285 | 1.156 | 0.514 | 0.128 | 0.116 | 0.051 |
| TBJD337*010C□#@0^++ | D | 330 | 10 | 0.15 | 33 | 330 | 660 | 8 | 10 | 12 | 0.150 | 1.000 | 0.900 | 0.400 | 0.150 | 0.135 | 0.060 |
| TBJE337*010C□#@0^++ | E | 330 | 10 | 0.9 | 33 | 330 | 660 | 8 | 10 | 12 | 0.165 | 0.428 | 0.385 | 0.171 | 0.385 | 0.347 | 0.154 |
| TBJE337*010L□#@0^++ | E | 330 | 10 | 0.06 | 33 | 330 | 660 | 8 | 10 | 12 | 0.165 | 1.658 | 1.492 | 0.663 | 0.099 | 0.090 | 0.040 |
| TBJV337*010C□#@0^++ | V | 330 | 10 | 0.1 | 33 | 330 | 660 | 8 | 10 | 12 | 0.250 | 1.581 | 1.423 | 0.632 | 0.158 | 0.142 | 0.063 |
| TBJV337*010L□#@0^++ | V | 330 | 10 | 0.06 | 33 | 330 | 660 | 10 | 10 | 12 | 0.250 | 2.041 | 1.837 | 0.816 | 0.122 | 0.110 | 0.049 |
| TBJE477*010C□#@0^++ | E | 470 | 10 | 0.9 | 47 | 470 | 940 | 10 | 12 | 14 | 0.165 | 0.428 | 0.385 | 0.171 | 0.385 | 0.347 | 0.154 |
| TBJE477*010L□#@0^++ | E | 470 | 10 | 0.05 | 47 | 470 | 940 | 10 | 12 | 14 | 0.165 | 1.817 | 1.635 | 0.727 | 0.091 | 0.082 | 0.036 |
| TBJV477*010C□#@0^++ | V | 470 | 10 | 0.1 | 47 | 470 | 940 | 10 | 12 | 14 | 0.250 | 1.581 | 1.423 | 0.632 | 0.158 | 0.142 | 0.063 |
| TBJV477*010L□#@0^++ | V | 470 | 10 | 0.06 | 47 | 470 | 940 | 10 | 12 | 14 | 0.250 | 2.041 | 1.837 | 0.816 | 0.122 | 0.110 | 0.049 |
| TBJA684*015C□#@0^++ | A | 0.68 | 15 | 12 | 0.102 | 1.02 | 1.224 | 4 | 6 | 6 | 0.075 | 0.079 | 0.071 | 0.032 | 0.949 | 0.854 | 0.379 |
| TBJA105*015C□#@0^++ | A | 1 | 15 | 10 | 0.15 | 1.5 | 1.8 | 4 | 6 | 6 | 0.075 | 0.087 | 0.078 | 0.035 | 0.866 | 0.779 | 0.346 |
| TBJA155*015C□#@0^++ | A | 1.5 | 15 | 8 | 0.225 | 2.25 | 2.7 | 6 | 9 | 9 | 0.075 | 0.097 | 0.087 | 0.039 | 0.775 | 0.697 | 0.310 |
| TBJB225*015C□#@0^++ | B | 2.2 | 15 | 5.5 | 0.33 | 3.3 | 3.96 | 6 | 9 | 9 | 0.085 | 0.124 | 0.112 | 0.050 | 0.684 | 0.615 | 0.273 |
| TBJB335*015C□#@0^++ | B | 3.3 | 15 | 5 | 0.495 | 4.95 | 5.94 | 6 | 8 | 9 | 0.085 | 0.130 | 0.117 | 0.052 | 0.652 | 0.587 | 0.261 |
| TBJB475*015C□#@0^++ | B | 4.7 | 15 | 4 | 0.705 | 7.05 | 8.46 | 6 | 8 | 8 | 0.085 | 0.146 | 0.131 | 0.058 | 0.583 | 0.525 | 0.233 |
| TBJC106*015C□#@0^++ | C | 10 | 15 | 2.5 | 1.5 | 15 | 18 | 6 | 8 | 9 | 0.110 | 0.210 | 0.189 | 0.084 | 0.524 | 0.472 | 0.210 |
| TBJD226*015C□#@0^++ | D | 22 | 15 | 1.1 | 3.3 | 33 | 39.6 | 6 | 8 | 9 | 0.150 | 0.369 | 0.332 | 0.148 | 0.406 | 0.366 | 0.162 |
| TBJD336*015C□#@0^++ | D | 33 | 15 | 0.9 | 4.95 | 49.5 | 59.4 | 6 | 8 | 10 | 0.150 | 0.408 | 0.367 | 0.163 | 0.367 | 0.331 | 0.147 |
| TBJD157*015L□#@0^++ | D | 150 | 15 | 0.05 | 5.625 | 56.25 | 112.5 | 6 | 9 | 10 | 0.150 | 1.732 | 1.559 | 0.693 | 0.087 | 0.078 | 0.035 |
| TBJA684*016C□#@0^++ | A | 0.68 | 16 | 12 | 0.109 | 1.088 | 2.176 | 4 | 6 | 6 | 0.075 | 0.079 | 0.071 | 0.032 | 0.949 | 0.854 | 0.379 |
| TBJA105*016C□#@0^++ | A | 1 | 16 | 10 | 0.16 | 1.6 | 3.2 | 4 | 6 | 6 | 0.075 | 0.087 | 0.078 | 0.035 | 0.866 | 0.779 | 0.346 |
| TBJA225*016C□#@0^++ | A | 2.2 | 16 | 5.5 | 0.352 | 3.52 | 7.04 | 6 | 9 | 10 | 0.075 | 0.117 | 0.105 | 0.047 | 0.642 | 0.578 | 0.257 |
| TBJA225*016L□#@0^++ | A | 2.2 | 16 | 1.8 | 0.352 | 3.52 | 7.04 | 6 | 9 | 10 | 0.075 | 0.204 | 0.184 | 0.082 | 0.367 | 0.331 | 0.147 |
| TBJB225*016C□#@0^++ | B | 2.2 | 16 | 5 | 0.352 | 3.52 | 7.04 | 6 | 8 | 8 | 0.085 | 0.130 | 0.117 | 0.052 | 0.652 | 0.587 | 0.261 |
| TBJA335*016C□#@0^++ | A | 3.3 | 16 | 5 | 0.528 | 5.28 | 10.56 | 6 | 9 | 10 | 0.075 | 0.122 | 0.110 | 0.049 | 0.612 | 0.551 | 0.245 |
| TBJA335*016L□#@0^++ | A | 3.3 | 16 | 3.5 | 0.528 | 5.28 | 10.56 | 6 | 9 | 10 | 0.075 | 0.146 | 0.132 | 0.059 | 0.512 | 0.461 | 0.205 |
| TBJB335*016C□#@0^++ | B | 3.3 | 16 | 4.5 | 0.528 | 5.28 | 10.56 | 6 | 9 | 10 | 0.085 | 0.137 | 0.124 | 0.055 | 0.618 | 0.557 | 0.247 |
| TBJA475*016C□#@0^++ | A | 4.7 | 16 | 4 | 0.752 | 7.52 | 15.04 | 6 | 9 | 10 | 0.075 | 0.137 | 0.123 | 0.055 | 0.548 | 0.493 | 0.219 |
| TBJA475*016L□#@0^++ | A | 4.7 | 16 | 2 | 0.752 | 7.52 | 15.04 | 6 | 9 | 10 | 0.075 | 0.194 | 0.174 | 0.077 | 0.387 | 0.349 | 0.155 |
| TBJB475*016C□#@0^++ | B | 4.7 | 16 | 3.1 | 0.752 | 7.52 | 15.04 | 6 | 8 | 8 | 0.085 | 0.166 | 0.149 | 0.066 | 0.513 | 0.462 | 0.205 |
| TBJB475*016L□#@0^++ | B | 4.7 | 16 | 0.8 | 0.752 | 7.52 | 15.04 | 6 | 9 | 10 | 0.085 | 0.326 | 0.293 | 0.130 | 0.261 | 0.235 | 0.104 |
| TBJA685*016C□#@0^++ | A | 6.8 | 16 | 2.5 | 1.088 | 10.88 | 21.76 | 6 | 9 | 10 | 0.075 | 0.173 | 0.156 | 0.069 | 0.433 | 0.390 | 0.173 |
| TBJA685*016L□#@0^++ | A | 6.8 | 16 | 1.5 | 1.088 | 10.88 | 21.76 | 6 | 9 | 10 | 0.075 | 0.224 | 0.201 | 0.089 | 0.335 | 0.302 | 0.134 |
| TBJB685*016C□#@0^++ | B | 6.8 | 16 | 2.5 | 1.088 | 10.88 | 21.76 | 6 | 9 | 10 | 0.085 | 0.184 | 0.166 | 0.074 | 0.461 | 0.415 | 0.184 |
| TBJB685*016L□#@0^++ | B | 6.8 | 16 | 0.6 | 1.088 | 10.88 | 21.76 | 6 | 9 | 10 | 0.085 | 0.376 | 0.339 | 0.151 | 0.226 | 0.203 | 0.090 |
| TBJC685*016C□#@0^++ | C | 6.8 | 16 | 2.5 | 1.088 | 10.88 | 21.76 | 6 | 9 | 10 | 0.110 | 0.210 | 0.189 | 0.084 | 0.524 | 0.472 | 0.210 |
| TBJA106*016C□#@0^++ | A | 10 | 16 | 3 | 1.6 | 16 | 32 | 8 | 10 | 12 | 0.075 | 0.158 | 0.142 | 0.063 | 0.474 | 0.427 | 0.190 |
| TBJA106*016L□#@0^++ | A | 10 | 16 | 1 | 1.6 | 16 | 32 | 8 | 10 | 12 | 0.075 | 0.274 | 0.246 | 0.110 | 0.274 | 0.246 | 0.110 |
| TBJB106*016C□#@0^++ | B | 10 | 16 | 2.8 | 1.6 | 16 | 32 | 6 | 9 | 10 | 0.085 | 0.174 | 0.157 | 0.070 | 0.488 | 0.439 | 0.195 |
| TBJB106*016L□#@0^++ | B | 10 | 16 | 0.5 | 1.6 | 16 | 32 | 6 | 9 | 10 | 0.085 | 0.412 | 0.371 | 0.165 | 0.206 | 0.186 | 0.082 |
| TBJC106*016C□#@0^++ | C | 10 | 16 | 2.5 | 1.6 | 16 | 32 | 6 | 8 | 10 | 0.110 | 0.210 | 0.189 | 0.084 | 0.524 | 0.472 | 0.210 |
| TBJC106*016L□#@0^++ | C | 10 | 16 | 0.5 | 1.6 | 16 | 32 | 6 | 9 | 10 | 0.110 | 0.469 | 0.422 | 0.188 | 0.235 | 0.211 | 0.094 |
| TBJC156*016C□#@0^++ | B | 15 | 16 | 2.5 | 2.4 | 24 | 48 | 6 | 9 | 10 | 0.085 | 0.184 | 0.166 | 0.074 | 0.461 | 0.415 | 0.184 |
| TBJB156*016L□#@0^++ | B | 15 | 16 | 0.8 | 2.4 | 24 | 48 | 6 | 9 | 10 | 0.085 | 0.326 | 0.293 | 0.130 | 0.261 | 0.235 | 0.104 |

All technical data relates to an ambient temperature of +25°C. Capacitance and DF are measured at 120Hz, 0.5V RMS with a maximum DC bias of 2.2 volts. DCL is measured at rated voltage after 5 minutes.

NOTE: AVX reserves the right to supply a higher voltage rating or tighter tolerance part in the same case size, to the same reliability standards.



TBJ Series

COTS-Plus



| RATING & PART NUMBER REFERENCE | | Parametric Specifications by Rating per MIL-PRF-55365/4 | | | | | | | | | Typical RMS Ripple Data by Rating | | | | | | |
|--------------------------------|---|---|-------------------------------|------------------------------|---------------|---------------|----------------|--------------|--------------|---------------|-----------------------------------|--------------------------------------|--------------------------------------|---------------------------------------|--------------------------------------|--------------------------------------|---------------------------------------|
| | | Cap @ 120Hz µF @ 25°C | DC Rated Voltage V @ +85°C | ESR @ 100kHz Ohms @ +25°C | DCL max | | | DF Max | | | Power Dissipation W | 25°C Ripple Current A (100kHz) | 85°C Ripple Current A (100kHz) | 125°C Ripple Current A (100kHz) | 25°C Ripple Voltage V (100kHz) | 85°C Ripple Voltage V (100kHz) | 125°C Ripple Voltage V (100kHz) |
| | | | | | +25°C (µA) | +85°C (µA) | +125°C (µA) | +25°C (%) | +85°C (%) | +125°C (%) | | | | | | | |
| TBJC156*016C□#@0^++ | C | 15 | 16 | 1.8 | 2.4 | 24 | 48 | 6 | 9 | 10 | 0.110 | 0.247 | 0.222 | 0.099 | 0.445 | 0.400 | 0.178 |
| TBJB226*016C□#@0^++ | B | 22 | 16 | 2.3 | 3.52 | 35.2 | 70.4 | 6 | 9 | 10 | 0.085 | 0.192 | 0.173 | 0.077 | 0.442 | 0.398 | 0.177 |
| TBJB226*016L□#@0^++ | B | 22 | 16 | 0.6 | 3.52 | 35.2 | 70.4 | 6 | 9 | 10 | 0.085 | 0.376 | 0.339 | 0.151 | 0.226 | 0.203 | 0.090 |
| TBJC226*016C□#@0^++ | C | 22 | 16 | 1.6 | 3.52 | 35.2 | 70.4 | 6 | 9 | 10 | 0.110 | 0.262 | 0.236 | 0.105 | 0.420 | 0.378 | 0.168 |
| TBJC226*016L□#@0^++ | C | 22 | 16 | 0.375 | 3.52 | 35.2 | 70.4 | 6 | 9 | 10 | 0.110 | 0.542 | 0.487 | 0.217 | 0.203 | 0.183 | 0.081 |
| TBJD226*016C□#@0^++ | D | 22 | 16 | 1.1 | 3.52 | 35.2 | 70.4 | 6 | 8 | 9 | 0.150 | 0.369 | 0.332 | 0.148 | 0.406 | 0.366 | 0.162 |
| TBJB336*016L□#@0^++ | B | 33 | 16 | 0.35 | 5.28 | 52.8 | 105.6 | 8 | 10 | 12 | 0.085 | 0.493 | 0.444 | 0.197 | 0.172 | 0.155 | 0.069 |
| TBJC336*016C□#@0^++ | C | 33 | 16 | 1.5 | 5.28 | 52.8 | 105.6 | 6 | 9 | 10 | 0.110 | 0.271 | 0.244 | 0.108 | 0.406 | 0.366 | 0.162 |
| TBJC336*016L□#@0^++ | C | 33 | 16 | 0.3 | 5.28 | 52.8 | 105.6 | 6 | 9 | 10 | 0.110 | 0.606 | 0.545 | 0.242 | 0.182 | 0.163 | 0.073 |
| TBJD336*016C□#@0^++ | D | 33 | 16 | 0.9 | 5.28 | 52.8 | 105.6 | 6 | 9 | 10 | 0.150 | 0.408 | 0.367 | 0.163 | 0.367 | 0.331 | 0.147 |
| TBJD336*016L□#@0^++ | D | 33 | 16 | 0.2 | 5.28 | 52.8 | 105.6 | 6 | 9 | 10 | 0.150 | 0.866 | 0.779 | 0.346 | 0.173 | 0.156 | 0.069 |
| TBJC476*016C□#@0^++ | C | 47 | 16 | 1.5 | 7.52 | 75.2 | 150.4 | 6 | 9 | 10 | 0.110 | 0.271 | 0.244 | 0.108 | 0.406 | 0.366 | 0.162 |
| TBJC476*016L□#@0^++ | C | 47 | 16 | 0.35 | 7.52 | 75.2 | 150.4 | 6 | 9 | 10 | 0.110 | 0.561 | 0.505 | 0.224 | 0.196 | 0.177 | 0.078 |
| TBJD476*016C□#@0^++ | D | 47 | 16 | 0.9 | 7.52 | 75.2 | 150.4 | 6 | 9 | 10 | 0.150 | 0.408 | 0.367 | 0.163 | 0.367 | 0.331 | 0.147 |
| TBJD476*016L□#@0^++ | D | 47 | 16 | 0.15 | 7.52 | 75.2 | 150.4 | 6 | 9 | 10 | 0.150 | 1.000 | 0.900 | 0.400 | 0.150 | 0.135 | 0.060 |
| TBJC686*016C□#@0^++ | C | 68 | 16 | 0.2 | 10.88 | 108.8 | 217.6 | 6 | 9 | 10 | 0.110 | 0.742 | 0.667 | 0.297 | 0.148 | 0.133 | 0.059 |
| TBJC686*016L□#@0^++ | C | 68 | 16 | 0.125 | 10.88 | 108.8 | 217.6 | 6 | 9 | 10 | 0.110 | 0.938 | 0.844 | 0.375 | 0.117 | 0.106 | 0.047 |
| TBJD686*016C□#@0^++ | D | 68 | 16 | 0.9 | 10.88 | 108.8 | 217.6 | 6 | 9 | 10 | 0.150 | 0.408 | 0.367 | 0.163 | 0.367 | 0.331 | 0.147 |
| TBJD686*016L□#@0^++ | D | 68 | 16 | 0.07 | 10.88 | 108.8 | 217.6 | 6 | 9 | 10 | 0.150 | 1.464 | 1.317 | 0.586 | 0.102 | 0.092 | 0.041 |
| TBJD107*016C□#@0^++ | D | 100 | 16 | 0.9 | 16 | 160 | 320 | 6 | 9 | 10 | 0.150 | 0.408 | 0.367 | 0.163 | 0.367 | 0.331 | 0.147 |
| TBJD107*016L□#@0^++ | D | 100 | 16 | 0.125 | 16 | 160 | 320 | 6 | 9 | 10 | 0.150 | 1.095 | 0.986 | 0.438 | 0.137 | 0.123 | 0.055 |
| TBJE107*016C□#@0^++ | E | 100 | 16 | 0.9 | 16 | 160 | 320 | 6 | 9 | 10 | 0.165 | 0.428 | 0.385 | 0.171 | 0.385 | 0.347 | 0.154 |
| TBJE107*016L□#@0^++ | E | 100 | 16 | 0.1 | 16 | 160 | 320 | 6 | 9 | 10 | 0.165 | 1.285 | 1.156 | 0.514 | 0.128 | 0.116 | 0.051 |
| TBJD157*016C□#@0^++ | D | 150 | 16 | 0.9 | 24 | 240 | 480 | 6 | 9 | 10 | 0.150 | 0.408 | 0.367 | 0.163 | 0.367 | 0.331 | 0.147 |
| TBJD157*016L□#@0^++ | D | 150 | 16 | 0.15 | 24 | 240 | 480 | 6 | 9 | 10 | 0.150 | 1.000 | 0.900 | 0.400 | 0.150 | 0.135 | 0.060 |
| TBJE157*016C□#@0^++ | E | 150 | 16 | 0.3 | 24 | 240 | 480 | 6 | 9 | 10 | 0.165 | 0.742 | 0.667 | 0.297 | 0.222 | 0.200 | 0.089 |
| TBJE157*016L□#@0^++ | E | 150 | 16 | 0.1 | 24 | 240 | 480 | 6 | 9 | 10 | 0.165 | 1.285 | 1.156 | 0.514 | 0.128 | 0.116 | 0.051 |
| TBJV157*016C□#@0^++ | V | 150 | 16 | 0.075 | 24 | 240 | 480 | 8 | 10 | 12 | 0.250 | 1.826 | 1.643 | 0.730 | 0.137 | 0.123 | 0.055 |
| TBJV157*016L□#@0^++ | V | 150 | 16 | 0.045 | 24 | 240 | 480 | 6 | 8 | 10 | 0.250 | 2.357 | 2.121 | 0.943 | 0.106 | 0.095 | 0.042 |
| TBJE227*016C□#@0^++ | E | 220 | 16 | 0.15 | 35.2 | 352 | 704 | 10 | 12 | 14 | 0.165 | 1.049 | 0.944 | 0.420 | 0.157 | 0.142 | 0.063 |
| TBJE227*016L□#@0^++ | E | 220 | 16 | 0.1 | 35.2 | 352 | 704 | 10 | 12 | 14 | 0.165 | 1.285 | 1.156 | 0.514 | 0.128 | 0.116 | 0.051 |
| TBJV227*016C□#@0^++ | V | 220 | 16 | 0.15 | 35.2 | 352 | 704 | 8 | 10 | 12 | 0.250 | 1.291 | 1.162 | 0.516 | 0.194 | 0.174 | 0.077 |
| TBJV227*016L□#@0^++ | V | 220 | 16 | 0.075 | 35.2 | 352 | 704 | 8 | 10 | 12 | 0.250 | 1.826 | 1.643 | 0.730 | 0.137 | 0.123 | 0.055 |
| TBJA474*020C□#@0^++ | A | 0.47 | 20 | 14 | 0.5 | 5 | 10 | 4 | 6 | 6 | 0.075 | 0.073 | 0.066 | 0.029 | 1.025 | 0.922 | 0.410 |
| TBJA684*020C□#@0^++ | A | 0.68 | 20 | 12 | 0.136 | 1.36 | 1.632 | 4 | 6 | 6 | 0.075 | 0.079 | 0.071 | 0.032 | 0.949 | 0.854 | 0.379 |
| TBJA105*020C□#@0^++ | A | 1 | 20 | 10 | 0.2 | 2 | 2.4 | 4 | 6 | 6 | 0.075 | 0.087 | 0.078 | 0.035 | 0.866 | 0.779 | 0.346 |
| TBJA105*020L□#@0^++ | A | 1 | 20 | 3 | 0.2 | 2 | 4 | 4 | 6 | 6 | 0.075 | 0.158 | 0.142 | 0.063 | 0.474 | 0.427 | 0.190 |
| TBJA155*020C□#@0^++ | A | 1.5 | 20 | 6.5 | 0.3 | 3 | 6 | 4 | 8 | 10 | 0.075 | 0.107 | 0.097 | 0.043 | 0.698 | 0.628 | 0.279 |
| TBJB155*020C□#@0^++ | B | 1.5 | 20 | 6 | 0.3 | 3 | 3.6 | 6 | 9 | 9 | 0.085 | 0.119 | 0.107 | 0.048 | 0.714 | 0.643 | 0.286 |
| TBJA225*020C□#@0^++ | A | 2.2 | 20 | 5.3 | 0.44 | 4.4 | 8.8 | 6 | 8 | 8 | 0.075 | 0.158 | 0.142 | 0.063 | 0.474 | 0.427 | 0.190 |
| TBJA225*020L□#@0^++ | A | 2.2 | 20 | 3 | 0.44 | 4.4 | 8.8 | 6 | 9 | 10 | 0.075 | 0.158 | 0.142 | 0.063 | 0.474 | 0.427 | 0.190 |
| TBJB225*020C□#@0^++ | B | 2.2 | 20 | 5 | 0.44 | 4.4 | 5.28 | 6 | 8 | 9 | 0.085 | 0.130 | 0.117 | 0.052 | 0.652 | 0.587 | 0.261 |
| TBJA335*020L□#@0^++ | A | 3.3 | 20 | 2.5 | 0.66 | 6.6 | 13.2 | 6 | 9 | 10 | 0.075 | 0.173 | 0.156 | 0.069 | 0.433 | 0.390 | 0.173 |
| TBJB335*020C□#@0^++ | B | 3.3 | 20 | 4 | 0.66 | 6.6 | 7.92 | 6 | 9 | 9 | 0.085 | 0.146 | 0.131 | 0.058 | 0.583 | 0.525 | 0.233 |
| TBJB335*020L□#@0^++ | B | 3.3 | 20 | 1.3 | 0.66 | 6.6 | 13.2 | 6 | 9 | 10 | 0.085 | 0.256 | 0.230 | 0.102 | 0.332 | 0.299 | 0.133 |
| TBJA475*020C□#@0^++ | A | 4.7 | 20 | 4 | 0.94 | 9.4 | 18.8 | 6 | 8 | 10 | 0.075 | 0.137 | 0.123 | 0.055 | 0.548 | 0.493 | 0.219 |
| TBJA475*020L□#@0^++ | A | 4.7 | 20 | 1.8 | 0.94 | 9.4 | 18.8 | 6 | 8 | 10 | 0.075 | 0.204 | 0.184 | 0.082 | 0.367 | 0.331 | 0.147 |
| TBJB475*020C□#@0^++ | B | 4.7 | 20 | 3 | 0.94 | 9.4 | 18.8 | 6 | 8 | 10 | 0.085 | 0.168 | 0.151 | 0.067 | 0.505 | 0.454 | 0.202 |
| TBJB475*020L□#@0^++ | B | 4.7 | 20 | 0.75 | 0.94 | 9.4 | 18.8 | 6 | 9 | 10 | 0.085 | 0.337 | 0.303 | 0.135 | 0.252 | 0.227 | 0.101 |
| TBJC475*020C□#@0^++ | C | 4.7 | 20 | 3 | 0.94 | 9.4 | 11.28 | 6 | 8 | 9 | 0.110 | 0.191 | 0.172 | 0.077 | 0.574 | 0.517 | 0.230 |
| TBJA685*020L□#@0^++ | A | 6.8 | 20 | 1 | 1.36 | 13.6 | 27.2 | 6 | 9 | 10 | 0.075 | 0.274 | 0.246 | 0.110 | 0.274 | 0.246 | 0.110 |
| TBJB685*020C□#@0^++ | B | 6.8 | 20 | 2.5 | 1.36 | 13.6 | 27.2 | 6 | 8 | 10 | 0.085 | 0.184 | 0.166 | 0.074 | 0.461 | 0.415 | 0.184 |
| TBJB685*020L□#@0^++ | B | 6.8 | 20 | 0.6 | 1.36 | 13.6 | 27.2 | 6 | 9 | 10 | 0.085 | 0.376 | 0.339 | 0.151 | 0.226 | 0.203 | 0.090 |
| TBJC685*020C□#@0^++ | C | 6.8 | 20 | 2.4 | 1.36 | 13.6 | 16.32 | 6 | 9 | 9 | 0.110 | 0.214 | 0.193 | 0.086 | 0.514 | 0.462 | 0.206 |
| TBJC685*020L□#@0^++ | C | 6.8 | 20 | 0.7 | 1.36 | 13.6 | 27.2 | 6 | 9 | 10 | 0.110 | 0.396 | 0.357 | 0.159 | 0.277 | 0.250 | 0.111 |
| TBJB106*020C□#@0^++ | B | 10 | 20 | 2.1 | 2 | 20 | 40 | 6 | 8 | 10 | 0.085 | 0.201 | 0.181 | 0.080 | 0.422 | 0.380 | 0.169 |

All technical data relates to an ambient temperature of +25°C. Capacitance and DF are measured at 120Hz, 0.5V RMS with a maximum DC bias of 2.2 volts. DCL is measured at rated voltage after 5 minutes.

NOTE: AVX reserves the right to supply a higher voltage rating or tighter tolerance part in the same case size, to the same reliability standards.

| RATING & PART NUMBER REFERENCE | | Parametric Specifications by Rating per MIL-PRF-55365/4 | | | | | | | | | Typical RMS Ripple Data by Rating | | | | | | |
|--------------------------------|---|---|-------------------------------|------------------------------|---------------|---------------|----------------|--------------|--------------|---------------|-----------------------------------|--------------------------------------|--------------------------------------|---------------------------------------|--------------------------------------|--------------------------------------|---------------------------------------|
| | | Cap @ 120Hz µF @ 25°C | DC Rated Voltage V @ +85°C | ESR @ 100kHz Ohms @ +25°C | DCL max | | | DF Max | | | Power Dissipation W | 25°C Ripple Current A (100kHz) | 85°C Ripple Current A (100kHz) | 125°C Ripple Current A (100kHz) | 25°C Ripple Voltage V (100kHz) | 85°C Ripple Voltage V (100kHz) | 125°C Ripple Voltage V (100kHz) |
| | | | | | +25°C (µA) | +85°C (µA) | +125°C (µA) | +25°C (%) | +85°C (%) | +125°C (%) | | | | | | | |
| TBJ106*020L□#@0^++ | B | 10 | 20 | 1 | 2 | 20 | 40 | 6 | 8 | 10 | 0.085 | 0.292 | 0.262 | 0.117 | 0.292 | 0.262 | 0.117 |
| TBJC106*020C□#@0^++ | C | 10 | 20 | 1.9 | 2 | 20 | 40 | 6 | 8 | 10 | 0.110 | 0.241 | 0.217 | 0.096 | 0.457 | 0.411 | 0.183 |
| TBJC106*020L□#@0^++ | C | 10 | 20 | 0.5 | 2 | 20 | 40 | 6 | 9 | 10 | 0.110 | 0.469 | 0.422 | 0.188 | 0.235 | 0.211 | 0.094 |
| TBJB156*020C□#@0^++ | B | 15 | 20 | 2 | 3 | 30 | 60 | 6 | 8 | 10 | 0.085 | 0.206 | 0.186 | 0.082 | 0.412 | 0.371 | 0.165 |
| TBJB156*020L□#@0^++ | B | 15 | 20 | 0.5 | 3 | 30 | 60 | 6 | 9 | 10 | 0.085 | 0.412 | 0.371 | 0.165 | 0.206 | 0.186 | 0.082 |
| TBJC156*020C□#@0^++ | C | 15 | 20 | 1.7 | 3 | 30 | 60 | 6 | 8 | 10 | 0.110 | 0.254 | 0.229 | 0.102 | 0.432 | 0.389 | 0.173 |
| TBJC156*020L□#@0^++ | C | 15 | 20 | 0.4 | 3 | 30 | 60 | 6 | 8 | 10 | 0.110 | 0.524 | 0.472 | 0.210 | 0.210 | 0.189 | 0.084 |
| TBJD156*020C□#@0^++ | D | 15 | 20 | 1.1 | 3 | 30 | 36 | 6 | 8 | 9 | 0.150 | 0.369 | 0.332 | 0.148 | 0.406 | 0.366 | 0.162 |
| TBJB226*020C□#@0^++ | B | 22 | 20 | 0.6 | 4.4 | 44 | 88 | 6 | 9 | 10 | 0.085 | 0.376 | 0.339 | 0.151 | 0.226 | 0.203 | 0.090 |
| TBJB226*020L□#@0^++ | B | 22 | 20 | 0.4 | 4.4 | 44 | 88 | 6 | 9 | 10 | 0.085 | 0.461 | 0.415 | 0.184 | 0.184 | 0.166 | 0.074 |
| TBJC226*020C□#@0^++ | C | 22 | 20 | 1.6 | 4.4 | 44 | 88 | 6 | 8 | 10 | 0.110 | 0.262 | 0.236 | 0.105 | 0.420 | 0.378 | 0.168 |
| TBJC226*020L□#@0^++ | C | 22 | 20 | 0.15 | 4.4 | 44 | 88 | 6 | 8 | 10 | 0.110 | 0.856 | 0.771 | 0.343 | 0.128 | 0.116 | 0.051 |
| TBJD226*020C□#@0^++ | D | 22 | 20 | 0.9 | 4.4 | 44 | 52.8 | 6 | 9 | 9 | 0.150 | 0.408 | 0.367 | 0.163 | 0.367 | 0.331 | 0.147 |
| TBJD226*020L□#@0^++ | D | 22 | 20 | 0.2 | 4.4 | 44 | 88 | 6 | 9 | 10 | 0.150 | 0.866 | 0.779 | 0.346 | 0.173 | 0.156 | 0.069 |
| TBJC336*020C□#@0^++ | C | 33 | 20 | 1.5 | 6.6 | 66 | 132 | 6 | 8 | 10 | 0.110 | 0.271 | 0.244 | 0.108 | 0.406 | 0.366 | 0.162 |
| TBJC336*020L□#@0^++ | C | 33 | 20 | 0.3 | 6.6 | 66 | 132 | 6 | 9 | 10 | 0.110 | 0.606 | 0.545 | 0.242 | 0.182 | 0.163 | 0.073 |
| TBJD336*020C□#@0^++ | D | 33 | 20 | 0.9 | 6.6 | 66 | 132 | 6 | 8 | 10 | 0.150 | 0.408 | 0.367 | 0.163 | 0.367 | 0.331 | 0.147 |
| TBJD336*020L□#@0^++ | D | 33 | 20 | 0.1 | 6.6 | 66 | 132 | 6 | 8 | 10 | 0.150 | 1.225 | 1.102 | 0.490 | 0.122 | 0.110 | 0.049 |
| TBJD476*020C□#@0^++ | D | 47 | 20 | 0.2 | 9.4 | 94 | 188 | 6 | 8 | 10 | 0.150 | 0.866 | 0.779 | 0.346 | 0.173 | 0.156 | 0.069 |
| TBJD476*020L□#@0^++ | D | 47 | 20 | 0.1 | 9.4 | 94 | 188 | 6 | 8 | 10 | 0.150 | 1.225 | 1.102 | 0.490 | 0.122 | 0.110 | 0.049 |
| TBJE476*020C□#@0^++ | E | 47 | 20 | 0.25 | 9.4 | 94 | 188 | 6 | 8 | 8 | 0.165 | 0.812 | 0.731 | 0.325 | 0.203 | 0.183 | 0.081 |
| TBJE476*020L□#@0^++ | E | 47 | 20 | 0.07 | 9.4 | 94 | 188 | 6 | 9 | 10 | 0.165 | 1.535 | 1.382 | 0.614 | 0.107 | 0.097 | 0.043 |
| TBJD686*020C□#@0^++ | D | 68 | 20 | 0.9 | 13.6 | 136 | 272 | 6 | 8 | 10 | 0.150 | 0.408 | 0.367 | 0.163 | 0.367 | 0.331 | 0.147 |
| TBJD686*020L□#@0^++ | D | 68 | 20 | 0.07 | 13.6 | 136 | 272 | 6 | 9 | 10 | 0.150 | 1.464 | 1.317 | 0.586 | 0.102 | 0.092 | 0.041 |
| TBJE686*020C□#@0^++ | E | 68 | 20 | 0.9 | 13.6 | 136 | 272 | 6 | 8 | 10 | 0.165 | 0.428 | 0.385 | 0.171 | 0.385 | 0.347 | 0.154 |
| TBJE686*020L□#@0^++ | E | 68 | 20 | 0.15 | 13.6 | 136 | 272 | 6 | 8 | 10 | 0.165 | 1.049 | 0.944 | 0.420 | 0.157 | 0.142 | 0.063 |
| TBJD107*020C□#@0^++ | D | 100 | 20 | 0.1 | 20 | 200 | 400 | 6 | 9 | 10 | 0.150 | 1.225 | 1.102 | 0.490 | 0.122 | 0.110 | 0.049 |
| TBJD107*020L□#@0^++ | D | 100 | 20 | 0.085 | 20 | 200 | 400 | 6 | 9 | 10 | 0.150 | 1.328 | 1.196 | 0.531 | 0.113 | 0.102 | 0.045 |
| TBJE107*020C□#@0^++ | E | 100 | 20 | 0.15 | 20 | 200 | 400 | 6 | 9 | 10 | 0.165 | 1.049 | 0.944 | 0.420 | 0.157 | 0.142 | 0.063 |
| TBJE107*020L□#@0^++ | E | 100 | 20 | 0.1 | 20 | 200 | 400 | 6 | 9 | 10 | 0.165 | 1.285 | 1.156 | 0.514 | 0.128 | 0.116 | 0.051 |
| TBJV107*020C□#@0^++ | V | 100 | 20 | 0.2 | 20 | 200 | 400 | 8 | 10 | 12 | 0.250 | 1.118 | 1.006 | 0.447 | 0.224 | 0.201 | 0.089 |
| TBJV107*020L□#@0^++ | V | 100 | 20 | 0.085 | 20 | 200 | 400 | 8 | 10 | 12 | 0.250 | 1.715 | 1.543 | 0.686 | 0.146 | 0.131 | 0.058 |
| TBJE157*020C□#@0^++ | E | 150 | 20 | 0.3 | 30 | 300 | 600 | 8 | 10 | 10 | 0.165 | 0.742 | 0.667 | 0.297 | 0.222 | 0.200 | 0.089 |
| TBJV157*020L□#@0^++ | V | 150 | 20 | 0.08 | 30 | 300 | 600 | 8 | 10 | 12 | 0.250 | 1.768 | 1.591 | 0.707 | 0.141 | 0.127 | 0.057 |
| TBJA334*025C□#@0^++ | A | 0.33 | 25 | 15 | 0.083 | 0.825 | 0.99 | 4 | 6 | 6 | 0.075 | 0.071 | 0.064 | 0.028 | 1.061 | 0.955 | 0.424 |
| TBJA474*025C□#@0^++ | A | 0.47 | 25 | 14 | 0.118 | 1.175 | 1.41 | 4 | 6 | 6 | 0.075 | 0.073 | 0.066 | 0.029 | 1.025 | 0.922 | 0.410 |
| TBJA474*025L□#@0^++ | A | 0.47 | 25 | 7 | 0.118 | 1.175 | 2.35 | 4 | 6 | 6 | 0.075 | 0.104 | 0.093 | 0.041 | 0.725 | 0.652 | 0.290 |
| TBJA684*025C□#@0^++ | A | 0.68 | 25 | 10 | 0.68 | 6.8 | 13.6 | 4 | 6 | 8 | 0.075 | 0.087 | 0.078 | 0.035 | 0.866 | 0.779 | 0.346 |
| TBJA684*025L□#@0^++ | A | 0.68 | 25 | 6 | 0.17 | 1.7 | 3.4 | 4 | 6 | 6 | 0.075 | 0.112 | 0.101 | 0.045 | 0.671 | 0.604 | 0.268 |
| TBJB684*025C□#@0^++ | B | 0.68 | 25 | 7.5 | 0.17 | 1.7 | 2.04 | 4 | 6 | 6 | 0.085 | 0.106 | 0.096 | 0.043 | 0.798 | 0.719 | 0.319 |
| TBJA105*025C□#@0^++ | A | 1 | 25 | 8 | 0.25 | 2.5 | 5 | 4 | 6 | 6 | 0.075 | 0.097 | 0.087 | 0.039 | 0.775 | 0.697 | 0.310 |
| TBJB105*025C□#@0^++ | B | 1 | 25 | 6.5 | 0.25 | 2.5 | 3 | 4 | 6 | 6 | 0.085 | 0.114 | 0.103 | 0.046 | 0.743 | 0.669 | 0.297 |
| TBJA155*025C□#@0^++ | A | 1.5 | 25 | 7.5 | 0.375 | 3.75 | 7.5 | 6 | 8 | 10 | 0.075 | 0.100 | 0.090 | 0.040 | 0.750 | 0.675 | 0.300 |
| TBJA155*025L□#@0^++ | A | 1.5 | 25 | 3 | 0.375 | 3.75 | 7.5 | 6 | 8 | 10 | 0.075 | 0.158 | 0.142 | 0.063 | 0.474 | 0.427 | 0.190 |
| TBJB155*025C□#@0^++ | B | 1.5 | 25 | 6.5 | 0.375 | 3.75 | 4.5 | 6 | 8 | 9 | 0.085 | 0.114 | 0.103 | 0.046 | 0.743 | 0.669 | 0.297 |
| TBJB155*025L□#@0^++ | B | 1.5 | 25 | 1.8 | 0.375 | 3.75 | 7.5 | 6 | 9 | 10 | 0.085 | 0.217 | 0.196 | 0.087 | 0.391 | 0.352 | 0.156 |
| TBJB225*025C□#@0^++ | B | 2.2 | 25 | 4.5 | 0.55 | 5.5 | 11 | 6 | 8 | 10 | 0.085 | 0.137 | 0.124 | 0.055 | 0.618 | 0.557 | 0.247 |
| TBJB225*025L□#@0^++ | B | 2.2 | 25 | 0.9 | 0.55 | 5.5 | 11 | 6 | 9 | 10 | 0.085 | 0.307 | 0.277 | 0.123 | 0.277 | 0.249 | 0.111 |
| TBJC225*025C□#@0^++ | C | 2.2 | 25 | 3.5 | 0.55 | 5.5 | 6.6 | 6 | 9 | 9 | 0.110 | 0.177 | 0.160 | 0.071 | 0.620 | 0.558 | 0.248 |
| TBJA335*025C□#@0^++ | A | 3.3 | 25 | 1.5 | 0.825 | 8.25 | 16.5 | 6 | 9 | 10 | 0.075 | 0.224 | 0.201 | 0.089 | 0.335 | 0.302 | 0.134 |
| TBJA335*025L□#@0^++ | A | 3.3 | 25 | 1 | 0.825 | 8.25 | 16.5 | 6 | 9 | 10 | 0.075 | 0.274 | 0.246 | 0.110 | 0.274 | 0.246 | 0.110 |
| TBJB335*025C□#@0^++ | B | 3.3 | 25 | 3.5 | 0.825 | 8.25 | 16.5 | 6 | 8 | 10 | 0.085 | 0.156 | 0.140 | 0.062 | 0.545 | 0.491 | 0.218 |
| TBJB335*025L□#@0^++ | B | 3.3 | 25 | 0.75 | 0.825 | 8.25 | 16.5 | 6 | 9 | 10 | 0.085 | 0.337 | 0.303 | 0.135 | 0.252 | 0.227 | 0.101 |
| TBJC335*025C□#@0^++ | C | 3.3 | 25 | 3.5 | 0.825 | 8.25 | 9.9 | 6 | 8 | 9 | 0.110 | 0.177 | 0.160 | 0.071 | 0.620 | 0.558 | 0.248 |
| TBJA475*025C□#@0^++ | A | 4.7 | 25 | 2.8 | 1.175 | 11.75 | 23.5 | 6 | 9 | 10 | 0.075 | 0.164 | 0.147 | 0.065 | 0.458 | 0.412 | 0.183 |
| TBJB475*025C□#@0^++ | B | 4.7 | 25 | 2.8 | 1.175 | 11.75 | 23.5 | 6 | 8 | 10 | 0.085 | 0.174 | 0.157 | 0.070 | 0.488 | 0.439 | 0.195 |

All technical data relates to an ambient temperature of +25°C. Capacitance and DF are measured at 120Hz, 0.5V RMS with a maximum DC bias of 2.2 volts. DCL is measured at rated voltage after 5 minutes.

NOTE: AVX reserves the right to supply a higher voltage rating or tighter tolerance part in the same case size, to the same reliability standards.

TBJ Series

COTS-Plus



| RATING & PART NUMBER REFERENCE | | Parametric Specifications by Rating per MIL-PRF-55365/4 | | | | | | | | | Typical RMS Ripple Data by Rating | | | | | | |
|--------------------------------|---|---|--------------------------|----------------------------|---------------|---------------|----------------|--------------|------------------|--------------|-----------------------------------|--------------------------------------|--------------------------------------|---------------------------------------|--------------------------------------|--------------------------------------|---------------------------------------|
| | | Cap @ 120Hz µF @ 25°C | DC Rated Voltage @ +85°C | ESR @ 25°C Ohms @ +25°C | DCL max | | | DF Max | | | Power Dissipation W | 25°C Ripple Current A (100kHz) | 85°C Ripple Current A (100kHz) | 125°C Ripple Current A (100kHz) | 25°C Ripple Voltage V (100kHz) | 85°C Ripple Voltage V (100kHz) | 125°C Ripple Voltage V (100kHz) |
| | | | | | +25°C (µA) | +85°C (µA) | +125°C (µA) | +25°C (%) | +85/125°C (%) | -55°C (%) | | | | | | | |
| TBJB475*025L□#@0^++ | B | 4.7 | 25 | 1.5 | 1.175 | 11.75 | 23.5 | 6 | 8 | 10 | 0.085 | 0.238 | 0.214 | 0.095 | 0.357 | 0.321 | 0.143 |
| TBJC475*025C□#@0^++ | C | 4.7 | 25 | 2.5 | 1.175 | 11.75 | 14.1 | 6 | 9 | 9 | 0.110 | 0.210 | 0.189 | 0.084 | 0.524 | 0.472 | 0.210 |
| TBJB685*025C□#@0^++ | B | 6.8 | 25 | 2.8 | 1.7 | 17 | 34 | 6 | 8 | 10 | 0.085 | 0.174 | 0.157 | 0.070 | 0.488 | 0.439 | 0.195 |
| TBJB685*025L□#@0^++ | B | 6.8 | 25 | 0.7 | 1.7 | 17 | 34 | 6 | 9 | 10 | 0.085 | 0.348 | 0.314 | 0.139 | 0.244 | 0.220 | 0.098 |
| TBJC685*025C□#@0^++ | C | 6.8 | 25 | 2 | 1.7 | 17 | 34 | 6 | 8 | 10 | 0.110 | 0.235 | 0.211 | 0.094 | 0.469 | 0.422 | 0.188 |
| TBJC685*025L□#@0^++ | C | 6.8 | 25 | 0.5 | 1.7 | 17 | 34 | 6 | 9 | 10 | 0.110 | 0.469 | 0.422 | 0.188 | 0.235 | 0.211 | 0.094 |
| TBJD685*025C□#@0^++ | D | 6.8 | 25 | 1.4 | 1.7 | 17 | 20.4 | 6 | 9 | 9 | 0.150 | 0.327 | 0.295 | 0.131 | 0.458 | 0.412 | 0.183 |
| TBJC106*025C□#@0^++ | C | 10 | 25 | 1.8 | 2.5 | 25 | 50 | 6 | 8 | 10 | 0.110 | 0.247 | 0.222 | 0.099 | 0.445 | 0.400 | 0.178 |
| TBJC106*025L□#@0^++ | C | 10 | 25 | 0.5 | 2.5 | 25 | 50 | 6 | 8 | 10 | 0.110 | 0.469 | 0.422 | 0.188 | 0.235 | 0.211 | 0.094 |
| TBJD106*025C□#@0^++ | D | 10 | 25 | 1.2 | 2.5 | 25 | 30 | 6 | 8 | 9 | 0.150 | 0.354 | 0.318 | 0.141 | 0.424 | 0.382 | 0.170 |
| TBJC156*025C□#@0^++ | C | 15 | 25 | 0.3 | 3.75 | 37.5 | 75 | 6 | 9 | 10 | 0.110 | 0.606 | 0.545 | 0.242 | 0.182 | 0.163 | 0.073 |
| TBJC156*025L□#@0^++ | C | 15 | 25 | 0.22 | 3.75 | 37.5 | 75 | 6 | 9 | 10 | 0.110 | 0.707 | 0.636 | 0.283 | 0.156 | 0.140 | 0.062 |
| TBJD156*025C□#@0^++ | D | 15 | 25 | 1 | 3.75 | 37.5 | 45 | 6 | 9 | 9 | 0.150 | 0.387 | 0.349 | 0.155 | 0.387 | 0.349 | 0.155 |
| TBJD156*025L□#@0^++ | D | 15 | 25 | 0.3 | 3.75 | 37.5 | 75 | 6 | 8 | 9 | 0.150 | 0.707 | 0.636 | 0.283 | 0.212 | 0.191 | 0.085 |
| TBJC226*025C□#@0^++ | C | 22 | 25 | 1.4 | 5.5 | 55 | 110 | 6 | 8 | 10 | 0.110 | 0.280 | 0.252 | 0.112 | 0.392 | 0.353 | 0.157 |
| TBJC226*025L□#@0^++ | C | 22 | 25 | 0.275 | 5.5 | 55 | 110 | 6 | 8 | 10 | 0.110 | 0.632 | 0.569 | 0.253 | 0.174 | 0.157 | 0.070 |
| TBJD226*025C□#@0^++ | D | 22 | 25 | 0.9 | 5.5 | 55 | 110 | 6 | 8 | 10 | 0.150 | 0.408 | 0.367 | 0.163 | 0.367 | 0.331 | 0.147 |
| TBJD226*025L□#@0^++ | D | 22 | 25 | 0.2 | 5.5 | 55 | 110 | 6 | 8 | 10 | 0.150 | 0.866 | 0.779 | 0.346 | 0.173 | 0.156 | 0.069 |
| TBJD336*025C□#@0^++ | D | 33 | 25 | 0.9 | 8.25 | 82.5 | 165 | 6 | 8 | 10 | 0.150 | 0.408 | 0.367 | 0.163 | 0.367 | 0.331 | 0.147 |
| TBJD336*025L□#@0^++ | D | 33 | 25 | 0.1 | 8.25 | 82.5 | 165 | 6 | 8 | 10 | 0.150 | 1.225 | 1.102 | 0.490 | 0.122 | 0.110 | 0.049 |
| TBJE336*025C□#@0^++ | E | 33 | 25 | 0.9 | 8.25 | 82.5 | 165 | 6 | 8 | 10 | 0.165 | 0.428 | 0.385 | 0.171 | 0.385 | 0.347 | 0.154 |
| TBJE336*025L□#@0^++ | E | 33 | 25 | 0.3 | 8.25 | 82.5 | 165 | 6 | 8 | 10 | 0.165 | 0.742 | 0.667 | 0.297 | 0.222 | 0.200 | 0.089 |
| TBJD476*025C□#@0^++ | D | 47 | 25 | 0.9 | 11.75 | 117.5 | 235 | 6 | 8 | 10 | 0.150 | 0.408 | 0.367 | 0.163 | 0.367 | 0.331 | 0.147 |
| TBJD476*025L□#@0^++ | D | 47 | 25 | 0.25 | 11.75 | 117.5 | 235 | 6 | 8 | 10 | 0.150 | 0.775 | 0.697 | 0.310 | 0.194 | 0.174 | 0.077 |
| TBJE476*025C□#@0^++ | E | 47 | 25 | 0.1 | 11.75 | 117.5 | 235 | 6 | 9 | 10 | 0.165 | 1.285 | 1.156 | 0.514 | 0.128 | 0.116 | 0.051 |
| TBJE476*025L□#@0^++ | E | 47 | 25 | 0.08 | 11.75 | 117.5 | 235 | 6 | 9 | 10 | 0.165 | 1.436 | 1.293 | 0.574 | 0.115 | 0.103 | 0.046 |
| TBJE686*025C□#@0^++ | E | 68 | 25 | 0.2 | 17 | 170 | 340 | 6 | 9 | 10 | 0.165 | 0.908 | 0.817 | 0.363 | 0.182 | 0.163 | 0.073 |
| TBJE686*025L□#@0^++ | E | 68 | 25 | 0.125 | 17 | 170 | 340 | 6 | 9 | 10 | 0.165 | 1.149 | 1.034 | 0.460 | 0.144 | 0.129 | 0.057 |
| TBJV686*025L□#@0^++ | V | 68 | 25 | 0.095 | 17 | 170 | 340 | 6 | 9 | 10 | 0.250 | 1.622 | 1.460 | 0.649 | 0.154 | 0.139 | 0.062 |
| TBJV107*025L□#@0^++ | V | 100 | 25 | 0.1 | 25 | 250 | 500 | 8 | 10 | 12 | 0.250 | 1.581 | 1.423 | 0.632 | 0.158 | 0.142 | 0.063 |
| TBJA104*035C□#@0^++ | A | 0.1 | 35 | 24 | 0.035 | 0.35 | 0.42 | 4 | 6 | 6 | 0.075 | 0.056 | 0.050 | 0.022 | 1.342 | 1.207 | 0.537 |
| TBJA154*035C□#@0^++ | A | 0.15 | 35 | 21 | 0.5 | 5 | 10 | 4 | 6 | 6 | 0.075 | 0.060 | 0.054 | 0.024 | 1.255 | 1.129 | 0.502 |
| TBJA224*035C□#@0^++ | A | 0.22 | 35 | 18 | 0.5 | 5 | 10 | 4 | 6 | 6 | 0.075 | 0.065 | 0.058 | 0.026 | 1.162 | 1.046 | 0.465 |
| TBJA224*035L□#@0^++ | A | 0.22 | 35 | 6 | 0.077 | 0.77 | 1.54 | 4 | 6 | 6 | 0.075 | 0.112 | 0.101 | 0.045 | 0.671 | 0.604 | 0.268 |
| TBJA334*035C□#@0^++ | A | 0.33 | 35 | 15 | 0.5 | 5 | 10 | 4 | 6 | 6 | 0.075 | 0.071 | 0.064 | 0.028 | 1.061 | 0.955 | 0.424 |
| TBJA334*035L□#@0^++ | A | 0.33 | 35 | 6 | 0.116 | 1.155 | 2.31 | 4 | 6 | 6 | 0.075 | 0.112 | 0.101 | 0.045 | 0.671 | 0.604 | 0.268 |
| TBJA474*035C□#@0^++ | A | 0.47 | 35 | 12 | 0.165 | 1.645 | 3.29 | 4 | 6 | 8 | 0.075 | 0.079 | 0.071 | 0.032 | 0.949 | 0.854 | 0.379 |
| TBJA474*035L□#@0^++ | A | 0.47 | 35 | 6 | 0.165 | 1.645 | 3.29 | 4 | 6 | 6 | 0.075 | 0.112 | 0.101 | 0.045 | 0.671 | 0.604 | 0.268 |
| TBJB474*035C□#@0^++ | B | 0.47 | 35 | 10 | 0.165 | 1.645 | 1.974 | 4 | 6 | 6 | 0.085 | 0.092 | 0.083 | 0.037 | 0.922 | 0.830 | 0.369 |
| TBJB474*035L□#@0^++ | B | 0.47 | 35 | 4 | 0.165 | 1.645 | 3.29 | 4 | 6 | 6 | 0.085 | 0.146 | 0.131 | 0.058 | 0.583 | 0.525 | 0.233 |
| TBJA684*035C□#@0^++ | A | 0.68 | 35 | 8 | 0.238 | 2.38 | 4.76 | 4 | 6 | 8 | 0.075 | 0.097 | 0.087 | 0.039 | 0.775 | 0.697 | 0.310 |
| TBJA684*035L□#@0^++ | A | 0.68 | 35 | 6 | 0.238 | 2.38 | 4.76 | 4 | 6 | 6 | 0.075 | 0.112 | 0.101 | 0.045 | 0.671 | 0.604 | 0.268 |
| TBJB684*035C□#@0^++ | B | 0.68 | 35 | 8 | 0.238 | 2.38 | 2.856 | 4 | 6 | 6 | 0.085 | 0.103 | 0.093 | 0.041 | 0.825 | 0.742 | 0.330 |
| TBJA105*035C□#@0^++ | A | 1 | 35 | 7.5 | 0.35 | 3.5 | 7 | 4 | 6 | 6 | 0.075 | 0.100 | 0.090 | 0.040 | 0.750 | 0.675 | 0.300 |
| TBJA105*035L□#@0^++ | A | 1 | 35 | 3 | 0.35 | 3.5 | 7 | 4 | 6 | 6 | 0.075 | 0.158 | 0.142 | 0.063 | 0.474 | 0.427 | 0.190 |
| TBJB105*035C□#@0^++ | B | 1 | 35 | 6.5 | 0.35 | 3.5 | 4.2 | 4 | 6 | 6 | 0.085 | 0.114 | 0.103 | 0.046 | 0.743 | 0.669 | 0.297 |
| TBJB105*035L□#@0^++ | B | 1 | 35 | 2 | 0.35 | 3.5 | 7 | 4 | 6 | 6 | 0.085 | 0.206 | 0.186 | 0.082 | 0.412 | 0.371 | 0.165 |
| TBJA155*035C□#@0^++ | A | 1.5 | 35 | 7.5 | 0.525 | 5.25 | 10.5 | 6 | 8 | 9 | 0.075 | 0.100 | 0.090 | 0.040 | 0.750 | 0.675 | 0.300 |
| TBJB155*035C□#@0^++ | B | 1.5 | 35 | 5.2 | 0.525 | 5.25 | 10.5 | 6 | 8 | 9 | 0.085 | 0.128 | 0.115 | 0.051 | 0.665 | 0.598 | 0.266 |
| TBJB155*035L□#@0^++ | B | 1.5 | 35 | 2.5 | 0.525 | 5.25 | 10.5 | 6 | 9 | 10 | 0.085 | 0.184 | 0.166 | 0.074 | 0.461 | 0.415 | 0.184 |
| TBJC155*035C□#@0^++ | C | 1.5 | 35 | 4.5 | 0.525 | 5.25 | 6.3 | 6 | 8 | 9 | 0.110 | 0.156 | 0.141 | 0.063 | 0.704 | 0.633 | 0.281 |
| TBJA225*035C□#@0^++ | A | 2.2 | 35 | 4.5 | 0.77 | 7.7 | 15.4 | 6 | 9 | 9 | 0.075 | 0.129 | 0.116 | 0.052 | 0.581 | 0.523 | 0.232 |
| TBJA225*035L□#@0^++ | A | 2.2 | 35 | 1.5 | 0.77 | 7.7 | 15.4 | 6 | 9 | 10 | 0.075 | 0.224 | 0.201 | 0.089 | 0.335 | 0.302 | 0.134 |
| TBJB225*035C□#@0^++ | B | 2.2 | 35 | 4.2 | 0.77 | 7.7 | 15.4 | 6 | 8 | 9 | 0.085 | 0.142 | 0.128 | 0.057 | 0.597 | 0.538 | 0.239 |
| TBJB225*035L□#@0^++ | B | 2.2 | 35 | 2 | 0.77 | 7.7 | 15.4 | 6 | 8 | 9 | 0.085 | 0.206 | 0.186 | 0.082 | 0.412 | 0.371 | 0.165 |
| TBJC225*035C□#@0^++ | C | 2.2 | 35 | 3.5 | 0.77 | 7.7 | 9.24 | 6 | 8 | 9 | 0.110 | 0.177 | 0.160 | 0.071 | 0.620 | 0.558 | 0.248 |

All technical data relates to an ambient temperature of +25°C. Capacitance and DF are measured at 120Hz, 0.5V RMS with a maximum DC bias of 2.2 volts. DCL is measured at rated voltage after 5 minutes.

NOTE: AVX reserves the right to supply a higher voltage rating or tighter tolerance part in the same case size, to the same reliability standards.

TBJ Series

COTS-Plus



| RATING & PART NUMBER REFERENCE | | Parametric Specifications by Rating per MIL-PRF-55365/4 | | | | | | | | | Typical RMS Ripple Data by Rating | | | | | | |
|--------------------------------|---|---|-------------------------------|------------------------------|---------------|---------------|----------------|--------------|------------------|--------------|-----------------------------------|--------------------------------------|--------------------------------------|---------------------------------------|--------------------------------------|--------------------------------------|---------------------------------------|
| | | Cap @ 120Hz µF @ 25°C | DC Rated Voltage V @ +85°C | ESR @ 100kHz Ohms @ +25°C | DCL max | | | DF Max | | | Power Dissipation W | 25°C Ripple Current A (100kHz) | 85°C Ripple Current A (100kHz) | 125°C Ripple Current A (100kHz) | 25°C Ripple Voltage V (100kHz) | 85°C Ripple Voltage V (100kHz) | 125°C Ripple Voltage V (100kHz) |
| | | | | | +25°C (µA) | +85°C (µA) | +125°C (µA) | +25°C (%) | +85/125°C (%) | -55°C (%) | | | | | | | |
| TBJC225*035L□#@0^++ | C | 2.2 | 35 | 1 | 0.77 | 7.7 | 15.4 | 6 | 9 | 10 | 0.110 | 0.332 | 0.298 | 0.133 | 0.332 | 0.298 | 0.133 |
| TBJB335*035C□#@0^++ | B | 3.3 | 35 | 3.5 | 1.155 | 11.55 | 23.1 | 6 | 8 | 9 | 0.085 | 0.156 | 0.140 | 0.062 | 0.545 | 0.491 | 0.218 |
| TBJB335*035L□#@0^++ | B | 3.3 | 35 | 1 | 1.155 | 11.55 | 23.1 | 6 | 9 | 10 | 0.085 | 0.292 | 0.262 | 0.117 | 0.292 | 0.262 | 0.117 |
| TBJC335*035C□#@0^++ | C | 3.3 | 35 | 2.5 | 1.155 | 11.55 | 13.86 | 6 | 8 | 9 | 0.110 | 0.210 | 0.189 | 0.084 | 0.524 | 0.472 | 0.210 |
| TBJC335*035L□#@0^++ | C | 3.3 | 35 | 0.7 | 1.155 | 11.55 | 23.1 | 6 | 9 | 10 | 0.110 | 0.396 | 0.357 | 0.159 | 0.277 | 0.250 | 0.111 |
| TBJB475*035C□#@0^++ | B | 4.7 | 35 | 3.1 | 1.645 | 16.45 | 32.9 | 6 | 8 | 9 | 0.085 | 0.166 | 0.149 | 0.066 | 0.513 | 0.462 | 0.205 |
| TBJB475*035L□#@0^++ | B | 4.7 | 35 | 0.7 | 1.645 | 16.45 | 32.9 | 6 | 8 | 8 | 0.085 | 0.348 | 0.314 | 0.139 | 0.244 | 0.220 | 0.098 |
| TBJC475*035C□#@0^++ | C | 4.7 | 35 | 2.2 | 1.645 | 16.45 | 32.9 | 6 | 8 | 9 | 0.110 | 0.224 | 0.201 | 0.089 | 0.492 | 0.443 | 0.197 |
| TBJC475*035L□#@0^++ | C | 4.7 | 35 | 0.6 | 1.645 | 16.45 | 32.9 | 6 | 8 | 9 | 0.110 | 0.428 | 0.385 | 0.171 | 0.257 | 0.231 | 0.103 |
| TBJD475*035C□#@0^++ | D | 4.7 | 35 | 1.5 | 1.645 | 16.45 | 19.74 | 6 | 8 | 9 | 0.150 | 0.316 | 0.285 | 0.126 | 0.474 | 0.427 | 0.190 |
| TBJD475*035L□#@0^++ | D | 4.7 | 35 | 0.5 | 1.645 | 16.45 | 32.9 | 6 | 8 | 9 | 0.150 | 0.548 | 0.493 | 0.219 | 0.274 | 0.246 | 0.110 |
| TBJC685*035C□#@0^++ | C | 6.8 | 35 | 1.8 | 2.38 | 23.8 | 47.6 | 6 | 9 | 9 | 0.110 | 0.247 | 0.222 | 0.099 | 0.445 | 0.400 | 0.178 |
| TBJC685*035L□#@0^++ | C | 6.8 | 35 | 0.35 | 2.38 | 23.8 | 47.6 | 6 | 9 | 10 | 0.110 | 0.561 | 0.505 | 0.224 | 0.196 | 0.177 | 0.078 |
| TBJD685*035C□#@0^++ | D | 6.8 | 35 | 1.3 | 2.38 | 23.8 | 28.56 | 6 | 9 | 9 | 0.150 | 0.340 | 0.306 | 0.136 | 0.442 | 0.397 | 0.177 |
| TBJD685*035L□#@0^++ | D | 6.8 | 35 | 0.5 | 2.38 | 23.8 | 47.6 | 6 | 9 | 9 | 0.150 | 0.548 | 0.493 | 0.219 | 0.274 | 0.246 | 0.110 |
| TBJC106*035C□#@0^++ | C | 10 | 35 | 1.6 | 3.5 | 35 | 70 | 6 | 9 | 9 | 0.110 | 0.262 | 0.236 | 0.105 | 0.420 | 0.378 | 0.168 |
| TBJC106*035L□#@0^++ | C | 10 | 35 | 0.6 | 3.5 | 35 | 70 | 6 | 9 | 9 | 0.110 | 0.428 | 0.385 | 0.171 | 0.257 | 0.231 | 0.103 |
| TBJD106*035C□#@0^++ | D | 10 | 35 | 1 | 3.5 | 35 | 70 | 6 | 9 | 9 | 0.150 | 0.387 | 0.349 | 0.155 | 0.387 | 0.349 | 0.155 |
| TBJD106*035L□#@0^++ | D | 10 | 35 | 0.3 | 3.5 | 35 | 70 | 6 | 9 | 9 | 0.150 | 0.707 | 0.636 | 0.283 | 0.212 | 0.191 | 0.085 |
| TBJE106*035C□#@0^++ | E | 10 | 35 | 0.25 | 3.5 | 35 | 70 | 6 | 9 | 10 | 0.165 | 0.812 | 0.731 | 0.325 | 0.203 | 0.183 | 0.081 |
| TBJE106*035L□#@0^++ | E | 10 | 35 | 0.2 | 3.5 | 35 | 70 | 6 | 9 | 10 | 0.165 | 0.908 | 0.817 | 0.363 | 0.182 | 0.163 | 0.073 |
| TBJC156*035C□#@0^++ | C | 15 | 35 | 1.4 | 5.25 | 52.5 | 105 | 6 | 9 | 9 | 0.110 | 0.280 | 0.252 | 0.112 | 0.392 | 0.353 | 0.157 |
| TBJC156*035L□#@0^++ | C | 15 | 35 | 0.35 | 5.25 | 52.5 | 105 | 6 | 9 | 10 | 0.110 | 0.561 | 0.505 | 0.224 | 0.196 | 0.177 | 0.078 |
| TBJD156*035C□#@0^++ | D | 15 | 35 | 0.9 | 5.25 | 52.5 | 105 | 6 | 9 | 9 | 0.150 | 0.408 | 0.367 | 0.163 | 0.367 | 0.331 | 0.147 |
| TBJD156*035L□#@0^++ | D | 15 | 35 | 0.3 | 5.25 | 52.5 | 105 | 6 | 9 | 9 | 0.150 | 0.707 | 0.636 | 0.283 | 0.212 | 0.191 | 0.085 |
| TBJD226*035C□#@0^++ | D | 22 | 35 | 0.9 | 7.7 | 77 | 154 | 6 | 9 | 9 | 0.150 | 0.408 | 0.367 | 0.163 | 0.367 | 0.331 | 0.147 |
| TBJD226*035L□#@0^++ | D | 22 | 35 | 0.4 | 7.7 | 77 | 154 | 6 | 9 | 9 | 0.150 | 0.612 | 0.551 | 0.245 | 0.245 | 0.220 | 0.098 |
| TBJE226*035C□#@0^++ | E | 22 | 35 | 0.9 | 7.7 | 77 | 154 | 6 | 9 | 9 | 0.165 | 0.428 | 0.385 | 0.171 | 0.385 | 0.347 | 0.154 |
| TBJE226*035L□#@0^++ | E | 22 | 35 | 0.3 | 7.7 | 77 | 154 | 6 | 9 | 9 | 0.165 | 0.742 | 0.667 | 0.297 | 0.222 | 0.200 | 0.089 |
| TBJD336*035C□#@0^++ | D | 33 | 35 | 0.9 | 11.55 | 115.5 | 231 | 6 | 9 | 9 | 0.150 | 0.408 | 0.367 | 0.163 | 0.367 | 0.331 | 0.147 |
| TBJD336*035L□#@0^++ | D | 33 | 35 | 0.3 | 11.55 | 115.5 | 231 | 6 | 9 | 9 | 0.150 | 0.707 | 0.636 | 0.283 | 0.212 | 0.191 | 0.085 |
| TBJE336*035C□#@0^++ | E | 33 | 35 | 0.25 | 11.55 | 115.5 | 231 | 6 | 9 | 10 | 0.165 | 0.812 | 0.731 | 0.325 | 0.203 | 0.183 | 0.081 |
| TBJE336*035L□#@0^++ | E | 33 | 35 | 0.1 | 11.55 | 115.5 | 231 | 6 | 8 | 10 | 0.165 | 1.285 | 1.156 | 0.514 | 0.128 | 0.116 | 0.051 |
| TBJV336*035L□#@0^++ | V | 33 | 35 | 0.2 | 11.55 | 115.5 | 231 | 6 | 9 | 10 | 0.250 | 1.118 | 1.006 | 0.447 | 0.224 | 0.201 | 0.089 |
| TBJE476*035C□#@0^++ | E | 47 | 35 | 0.25 | 16.45 | 164.5 | 329 | 6 | 8 | 10 | 0.165 | 0.812 | 0.731 | 0.325 | 0.203 | 0.183 | 0.081 |
| TBJE476*035L□#@0^++ | E | 47 | 35 | 0.2 | 16.45 | 164.5 | 329 | 6 | 9 | 9 | 0.165 | 0.908 | 0.817 | 0.363 | 0.182 | 0.163 | 0.073 |
| TBJV476*035C□#@0^++ | V | 47 | 35 | 0.4 | 16.45 | 164.5 | 329 | 6 | 9 | 10 | 0.250 | 0.791 | 0.712 | 0.316 | 0.316 | 0.285 | 0.126 |
| TBJV476*035L□#@0^++ | V | 47 | 35 | 0.2 | 16.45 | 164.5 | 329 | 6 | 10 | 10 | 0.250 | 1.118 | 1.006 | 0.447 | 0.224 | 0.201 | 0.089 |
| TBJV686*035C□#@0^++ | V | 68 | 35 | 0.2 | 23.8 | 238 | 476 | 6 | 9 | 10 | 0.250 | 1.118 | 1.006 | 0.447 | 0.224 | 0.201 | 0.089 |
| TBJV686*035L□#@0^++ | V | 68 | 35 | 0.15 | 23.8 | 238 | 476 | 6 | 9 | 10 | 0.250 | 1.291 | 1.162 | 0.516 | 0.194 | 0.174 | 0.077 |
| TBJA104*050C□#@0^++ | A | 0.1 | 50 | 22 | 0.05 | 0.5 | 0.6 | 6 | 8 | 8 | 0.075 | 0.058 | 0.053 | 0.023 | 1.285 | 1.156 | 0.514 |
| TBJA154*050C□#@0^++ | A | 0.15 | 50 | 21 | 0.02 | 0.2 | 0.4 | 4 | 6 | 6 | 0.075 | 0.060 | 0.054 | 0.024 | 1.255 | 1.129 | 0.502 |
| TBJA154*050L□#@0^++ | A | 0.15 | 50 | 9 | 0.075 | 0.75 | 1.5 | 4 | 6 | 6 | 0.075 | 0.091 | 0.082 | 0.037 | 0.822 | 0.739 | 0.329 |
| TBJB154*050C□#@0^++ | B | 0.15 | 50 | 17 | 0.075 | 0.75 | 0.9 | 4 | 6 | 6 | 0.085 | 0.071 | 0.064 | 0.028 | 1.202 | 1.082 | 0.481 |
| TBJA224*050C□#@0^++ | A | 0.22 | 50 | 18 | 0.11 | 1.1 | 2.2 | 4 | 6 | 6 | 0.075 | 0.065 | 0.058 | 0.026 | 1.162 | 1.046 | 0.465 |
| TBJA224*050L□#@0^++ | A | 0.22 | 50 | 7 | 0.11 | 1.1 | 2.2 | 4 | 6 | 6 | 0.075 | 0.104 | 0.093 | 0.041 | 0.725 | 0.652 | 0.290 |
| TBJB224*050C□#@0^++ | B | 0.22 | 50 | 14 | 0.11 | 1.1 | 1.32 | 4 | 6 | 6 | 0.085 | 0.078 | 0.070 | 0.031 | 1.091 | 0.982 | 0.436 |
| TBJB334*050C□#@0^++ | B | 0.33 | 50 | 12 | 0.165 | 1.65 | 1.98 | 4 | 6 | 6 | 0.085 | 0.084 | 0.076 | 0.034 | 1.010 | 0.909 | 0.404 |
| TBJC474*050C□#@0^++ | C | 0.47 | 50 | 8 | 0.235 | 2.35 | 2.82 | 4 | 6 | 6 | 0.110 | 0.117 | 0.106 | 0.047 | 0.938 | 0.844 | 0.375 |
| TBJA684*050C□#@0^++ | A | 0.68 | 50 | 7.9 | 0.34 | 3.4 | 6.8 | 4 | 6 | 8 | 0.075 | 0.097 | 0.088 | 0.039 | 0.770 | 0.693 | 0.308 |
| TBJC684*050C□#@0^++ | C | 0.68 | 50 | 7 | 0.34 | 3.4 | 4.08 | 4 | 6 | 6 | 0.110 | 0.125 | 0.113 | 0.050 | 0.877 | 0.790 | 0.351 |
| TBJC105*050C□#@0^++ | C | 1 | 50 | 6 | 0.5 | 5 | 6 | 4 | 6 | 6 | 0.110 | 0.135 | 0.122 | 0.054 | 0.812 | 0.731 | 0.325 |
| TBJC105*050L□#@0^++ | C | 1 | 50 | 2.5 | 0.5 | 5 | 10 | 4 | 6 | 6 | 0.110 | 0.210 | 0.189 | 0.084 | 0.524 | 0.472 | 0.210 |
| TBJC155*050C□#@0^++ | C | 1.5 | 50 | 5 | 0.75 | 7.5 | 15 | 6 | 8 | 9 | 0.110 | 0.148 | 0.133 | 0.059 | 0.742 | 0.667 | 0.297 |
| TBJC155*050L□#@0^++ | C | 1.5 | 50 | 1.5 | 0.75 | 7.5 | 15 | 6 | 9 | 10 | 0.110 | 0.271 | 0.244 | 0.108 | 0.406 | 0.366 | 0.162 |
| TBJD155*050C□#@0^++ | D | 1.5 | 50 | 4 | 0.75 | 7.5 | 9 | 6 | 8 | 9 | 0.150 | 0.194 | 0.174 | 0.077 | 0.775 | 0.697 | 0.310 |

All technical data relates to an ambient temperature of +25°C. Capacitance and DF are measured at 120Hz, 0.5V RMS with a maximum DC bias of 2.2 volts. DCL is measured at rated voltage after 5 minutes.

NOTE: AVX reserves the right to supply a higher voltage rating or tighter tolerance part in the same case size, to the same reliability standards.

TBJ Series

COTS-Plus



| RATING & PART NUMBER REFERENCE | | Parametric Specifications by Rating per MIL-PRF-55365/4 | | | | | | | | | Typical RMS Ripple Data by Rating | | | | | | |
|--------------------------------|---|---|-------------------------------|------------------------------|---------|-------|--------|--------|-----------|-------|-----------------------------------|--------------------------------------|--------------------------------------|---------------------------------------|--------------------------------------|--------------------------------------|---------------------------------------|
| | | Cap @ 120Hz µF @ 25°C | DC Rated Voltage V @ +85°C | ESR @ 100kHz Ohms @ +25°C | DCL max | | | DF Max | | | Power Dissipation W | 25°C Ripple Current A (100kHz) | 85°C Ripple Current A (100kHz) | 125°C Ripple Current A (100kHz) | 25°C Ripple Voltage V (100kHz) | 85°C Ripple Voltage V (100kHz) | 125°C Ripple Voltage V (100kHz) |
| | | | | | +25°C | +85°C | +125°C | +25°C | +85/125°C | -55°C | | | | | | | |
| | | | | | (µA) | (µA) | (µA) | (%) | (%) | (%) | | | | | | | |
| TBJD225*050C□#@0^++ | D | 2.2 | 50 | 2.5 | 1.1 | 11 | 13.2 | 6 | 8 | 9 | 0.150 | 0.245 | 0.220 | 0.098 | 0.612 | 0.551 | 0.245 |
| TBJD225*050L□#@0^++ | D | 2.2 | 50 | 1.2 | 1.1 | 11 | 22 | 6 | 9 | 10 | 0.150 | 0.354 | 0.318 | 0.141 | 0.424 | 0.382 | 0.170 |
| TBJD335*050C□#@0^++ | D | 3.3 | 50 | 2 | 1.65 | 16.5 | 19.8 | 6 | 9 | 9 | 0.150 | 0.274 | 0.246 | 0.110 | 0.548 | 0.493 | 0.219 |
| TBJD335*050L□#@0^++ | D | 3.3 | 50 | 0.8 | 1.65 | 16.5 | 33 | 6 | 9 | 10 | 0.150 | 0.433 | 0.390 | 0.173 | 0.346 | 0.312 | 0.139 |
| TBJD475*050C□#@0^++ | D | 4.7 | 50 | 1.5 | 2.35 | 23.5 | 28.2 | 6 | 9 | 9 | 0.150 | 0.316 | 0.285 | 0.126 | 0.474 | 0.427 | 0.190 |
| TBJD475*050L□#@0^++ | D | 4.7 | 50 | 0.3 | 2.35 | 23.5 | 47 | 6 | 9 | 9 | 0.150 | 0.707 | 0.636 | 0.283 | 0.212 | 0.191 | 0.085 |
| TBJD685*050C□#@0^++ | D | 6.8 | 50 | 1 | 3.4 | 34 | 68 | 6 | 9 | 9 | 0.150 | 0.387 | 0.349 | 0.155 | 0.387 | 0.349 | 0.155 |
| TBJD685*050L□#@0^++ | D | 6.8 | 50 | 0.5 | 3.4 | 34 | 68 | 6 | 9 | 9 | 0.150 | 0.548 | 0.493 | 0.219 | 0.274 | 0.246 | 0.110 |
| TBJE106*050C□#@0^++ | E | 10 | 50 | 0.5 | 5 | 50 | 100 | 6 | 9 | 10 | 0.165 | 0.574 | 0.517 | 0.230 | 0.287 | 0.259 | 0.115 |
| TBJE106*050L□#@0^++ | E | 10 | 50 | 0.4 | 5 | 50 | 100 | 6 | 9 | 10 | 0.165 | 0.642 | 0.578 | 0.257 | 0.257 | 0.231 | 0.103 |
| TBJV106*050C□#@0^++ | V | 10 | 50 | 0.65 | 5 | 50 | 100 | 3 | | | 0.250 | 0.620 | 0.558 | 0.248 | 0.403 | 0.363 | 0.161 |
| TBJD156*050C□#@0^++ | D | 15 | 50 | 0.6 | 7.5 | 75 | 150 | 4 | 6 | 6 | 0.150 | 0.500 | 0.450 | 0.200 | 0.300 | 0.270 | 0.120 |
| TBJE156*050C□#@0^++ | E | 15 | 50 | 0.6 | 7.5 | 75 | 150 | 8 | 10 | 12 | 0.165 | 0.524 | 0.472 | 0.210 | 0.315 | 0.283 | 0.126 |
| TBJE156*050L□#@0^++ | E | 15 | 50 | 0.25 | 7.5 | 75 | 150 | 6 | 9 | 10 | 0.165 | 0.812 | 0.731 | 0.325 | 0.203 | 0.183 | 0.081 |
| TBJV226*050C□#@0^++ | V | 22 | 50 | 0.6 | 11 | 110 | 220 | 8 | 10 | 12 | 0.250 | 0.645 | 0.581 | 0.258 | 0.387 | 0.349 | 0.155 |
| TBJV226*050L□#@0^++ | V | 22 | 50 | 0.39 | 11 | 110 | 220 | 8 | 10 | 12 | 0.250 | 0.801 | 0.721 | 0.320 | 0.312 | 0.281 | 0.125 |

All technical data relates to an ambient temperature of +25°C. Capacitance and DF are measured at 120Hz, 0.5V RMS with a maximum DC bias of 2.2 volts. DCL is measured at rated voltage after 5 minutes.

NOTE: AVX reserves the right to supply a higher voltage rating or tighter tolerance part in the same case size, to the same reliability standards.

TBJ Series



COTS-Plus – SRC9000 Space Level



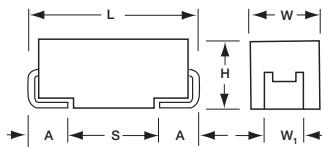
The TBJ COTS-Plus – SRC9000 series has been refined to incorporate only those commercially up-screened ratings which have been deemed suitable for mission critical and space level applications.

These capacitors have a more conservative design approach when compared to other up-screened components utilizing established CV powders and higher dielectric formation ratios. The DCL is typically 25% lower while still offering aggressive ESR values.

Currently there are 6 case sizes with the wide capacitance range available in a given voltage range.

These ratings are available with Weibull grading (B and C), surge current testing MIL-PRF-55365 Rev. G (A, B, C), optional Group A from MIL-PRF-55365, and the extensive SRC9000 space level screening.

For moisture sensitivity levels please refer to the High Reliability Tantalum MSL section located in the back of the High Reliability Tantalum Catalog.



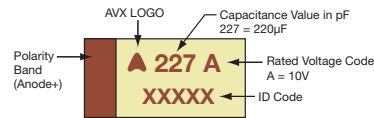
CASE DIMENSIONS: millimeters (inches)

| Code | EIA Code | EIA Metric | L±0.20 (0.008) | W+0.20 (0.008) -0.10 (0.004) | H+0.20 (0.008) -0.10 (0.004) | W ₁ ±0.20 (0.008) | A+0.30 (0.012) -0.20 (0.008) | S Min. |
|------|----------|------------|----------------|------------------------------|------------------------------|------------------------------|------------------------------|--------------|
| A | 1206 | 3216-18 | 3.20 (0.126) | 1.60 (0.063) | 1.60 (0.063) | 1.20 (0.047) | 0.80 (0.031) | 1.10 (0.043) |
| B | 1210 | 3528-21 | 3.50 (0.138) | 2.80 (0.110) | 1.90 (0.075) | 2.20 (0.087) | 0.80 (0.031) | 1.40 (0.055) |
| C | 2312 | 6032-28 | 6.00 (0.236) | 3.20 (0.126) | 2.60 (0.102) | 2.20 (0.087) | 1.30 (0.051) | 2.90 (0.114) |
| D | 2917 | 7343-31 | 7.30 (0.287) | 4.30 (0.169) | 2.90 (0.114) | 2.40 (0.094) | 1.30 (0.051) | 4.40 (0.173) |
| E | 2917 | 7343-43 | 7.30 (0.287) | 4.30 (0.169) | 4.10 (0.162) | 2.40 (0.094) | 1.30 (0.051) | 4.40 (0.173) |
| U | 2924 | 7361-43 | 7.30 (0.287) | 6.10 (0.240) | 4.10 (0.162) | 3.10 (0.120) | 1.30 (0.051) | 4.40 (0.173) |

W₁ dimension applies to the termination width for A dimensional area only.

MARKING

A, B, C, D, E, U CASE



CAPACITANCE AND RATED VOLTAGE, V_R (VOLTAGE CODE) RANGE (LETTER DENOTES CASE SIZE)

| Capacitance | | Rated Voltage DC (V _R) to 85°C | | | | | | |
|-------------|------|--|---|---|--|--------------------------------|--|--------------------------------|
| µF | Code | 6.3V (J) | 10V (A) | 16V (C) | 20V (D) | 25V (E) | 35V (V) | 50V (T) |
| 0.10 | 104 | | | | | | A(20000) | |
| 0.15 | 154 | | | | | | A(6000, 16470) | |
| 0.22 | 224 | | | | | | A(6000, 13710) | A(7000, 7500) |
| 0.33 | 334 | | | | | | A(6000, 11280) | A(7000) |
| 0.47 | 474 | | | | | | A(4000, 9530) | B(5000) |
| 0.68 | 684 | | | | | | A(6000, 7980) | B(2000, 4000) |
| 1.0 | 105 | | | A(10000) | A(3000, 6630) | A(3000, 6630) | A(3000, 6630) B(2000, 3400) | B(2000, 3400) C(3000) |
| 1.5 | 155 | | A(7000) | | A(3000, 5640) | A(3000, 5640) B(5000) | A(2000, 3100) B(2500, 5460) | C(1500, 2500) |
| 2.2 | 225 | | A(7000) | A(3500, 4550) | A(3000, 4550) | A(1600, 2900) B(1200, 4550) | B(2000, 4550) | C(1000, 1700) D(1200, 2000) |
| 3.3 | 335 | | | A(3500, 3750) B(4500) | A(2500, 3750) B(1300, 3740) | B(2000, 3740) | B(1000, 3740) C(800, 1840) D(2000) | C(1000, 1400) D(800, 1100) |
| 4.7 | 475 | | A(2000, 2900) | A(2000, 3160) B(1500, 3160) | A(1800, 2500) B(1000, 3160) | B(1000, 3160) | B(1500, 2200) C(600, 1410) D(1500) | D(600, 900) |
| 6.8 | 685 | | A(1800, 4000) B(3000) | A(1500, 2000) B(1200, 2650) C(2500) | B(1000, 2650) C(2000) | B(1000, 1500) C(600, 1070) | C(600, 1070) D(1300) | D(700) |
| 10 | 106 | A(1500, 2000) B(3000) | A(1800, 2200) B(800, 2200) | B(800, 2200) C(2000) | B(1000, 2200) C(500, 800) | C(600, 800) D(1200) | C(600, 800) D(250, 800) | E(300, 700) |
| 15 | 156 | A(1500, 2030) B(700, 2030) | A(1000, 1800) B(600, 2030) C(2000) | B(800, 2000) | B(500, 1400) C(400, 750) D(1100) | C(500, 720) D(300, 720) | D(225, 720) | U(500) |
| 22 | 226 | A(900, 1700) B(600, 1880) C(2000) | B(700, 1800) | B(600, 1100) C(350, 700) D(1100) | C(400, 650) D(150, 650) | D(300, 650) | D(200, 650) | U(500) |
| 33 | 336 | B(600, 1740) C(1800) | B(650, 1000) C(300, 590) D(1100) | C(300, 590) | C(300, 590) D(250, 590) | D(400, 590) | E(250, 590) | |
| 47 | 476 | B(500, 1620) C(250, 540) | C(300, 540) D(400) | C(350, 540) D(200, 340) | D(200, 540) | D(250, 540) E(150, 540) | U(200,400) | |
| 68 | 686 | C(200, 490) | C(300, 490) | D(150, 490) | D(200, 490) E(125, 490) | U(500) | | |
| 100 | 107 | C(300, 440) | C(200, 500) D(150, 440) E(100, 440) | D(150, 450) E(150, 450) | E(150, 300) | U(500) | | |
| 150 | 157 | C(300, 500) D(150, 400) | D(150, 400) E(150, 400) | E(150, 300) | U(250, 500) | | | |
| 220 | 227 | D(150, 360) | D(500) E(150, 360) | U(200,500) | | | | |
| 330 | 337 | D(400) E(150, 330) | E(100, 300) | U(200, 400) | | | | |
| 470 | 477 | E(200, 250) | U(200, 400) | | | | | |
| 680 | 687 | U(250,500) | | | | | | |

Available Ratings: ESR limits quoted in brackets (mOhms)

Engineering samples - please contact manufacturer

*Codes under development - subject to change.

Notes: Voltage ratings are minimum values. AVX reserves the right to supply higher ratings in the same case size, to the same reliability standards.



TBJ Series



COTS-Plus – SRC9000 Space Level

HOW TO ORDER

AVX PART NUMBER:

| TBJ | D | 227 | * | 035 | R | B | S | Z | 0 | 0 | 00 |
|------|-----------|---|-----------------------|--|----------------------------|--|-------------------------------------|---|-------------------------------|---|---|
| Type | Case Size | Capacitance Code | Capacitance Tolerance | Voltage Code | ESR | Packaging | Inspection Level | Reliability Grade | Qualification Level | Termination Finish | Surge Test Option |
| | | pF code: 1st two digits represent significant figures 3rd digit represents multiplier (number of zeros to follow) | M = ±20% K = ±10% | 006 = 6.3Vdc 010 = 10Vdc 016 = 16Vdc 020 = 20Vdc 025 = 25Vdc 035 = 35Vdc 050 = 50Vdc | R = Std ESR J = Low ESR | B = Bulk R = 7" T&R S = 13" T&R W = Waffle* | S = Std. Conformance L = Group A | Weibull: B = 0.1%/1000 hrs. 90% conf. C = 0.01%/1000 hrs. 90% conf. Z = Non-ER | 0 = N/A 9 = SRC9000 | H = Solder Plated 0 = Fused Solder Plated 8 = Hot Solder Dipped 9 = Gold Plated 7 = Matte Sn (COTS-Plus only) | 00 = None 23 = 10 Cycles, +25°C 24 = 10 Cycles, -55°C & +85°C 45 = 10 cycles, -55°C & +85°C before Weibull |

*Waffle packaging not available for the TBJ U case

For RoHS compliant products, please select correct termination style.

SPACE LEVEL OPTIONS TO SRC9000*:

| TBJ | D | 227 | * | 035 | R | B | L | C | 9 | 0 | 45 |
|------|-----------|---|-----------------------|--------------|----------------------------|--|------------------|-------------------------------|---------------------|--|--|
| Type | Case Size | Capacitance Code | Capacitance Tolerance | Voltage Code | ESR | Packaging | Inspection Level | Reliability Grade | Qualification Level | Termination Finish | Surge Test Option |
| | | pF code: 1st two digits represent significant figures 3rd digit represents multiplier (number of zeros to follow) | M = ±20% K = ±10% | | R = Std ESR J = Low ESR | B = Bulk R = 7" T&R S = 13" T&R W = Waffle* See page 8 for additional packaging options. | L = Group A | C = 0.01%/1000 hrs. 90% conf. | 9 = SRC9000 | H = Solder Plated 0 = Fused Solder Plated 8 = Hot Solder Dipped 9 = Gold Plated | 45 = 10 cycles, -55°C & +85°C before Weibull |

*Waffle packaging not available for the TBJ U case

*Contact factory for AVX SRC9000 Space Level SCD details.

For RoHS compliant products, please select correct termination style.

TECHNICAL SPECIFICATIONS

| | | | | | | | | | |
|------------------------------------|---|-----|----|----|----|----|----|----|--|
| Technical Data: | All technical data relate to an ambient temperature of 25°C | | | | | | | | |
| Capacitance Range: | 0.10 µF to 680 µF | | | | | | | | |
| Capacitance Tolerance: | ±10%; ±20% | | | | | | | | |
| Leakage Current DCL: | 0.0075CV | | | | | | | | |
| Rated Voltage (V _R) | ≤ 85°C: | 6.3 | 10 | 16 | 20 | 25 | 35 | 50 | |
| Category Voltage (V _C) | ≤ 125°C: | 4 | 7 | 10 | 13 | 17 | 23 | 33 | |
| Surge Voltage (V _S) | ≤ 85°C: | 8 | 13 | 20 | 26 | 32 | 46 | 65 | |
| Surge Voltage (V _S) | ≤ 125°C: | 5 | 8 | 13 | 16 | 20 | 28 | 40 | |
| Temperature Range: | -55°C to +125°C | | | | | | | | |

TBJ Series

COTS-Plus – SRC9000 Space Level



| RATING & PART NUMBER REFERENCE | | | Parametric Specifications by Rating | | | | | | | | | Typical RMS Ripple Data by Rating | | | | | | |
|--------------------------------|---------------------------|------|-------------------------------------|-------------------------------------|-------------------------------------|---------------|---------------|----------------|--------------|------------------|--------------|-----------------------------------|----------------------------------|----------------------------------|-----------------------------------|----------------------------------|----------------------------------|-----------------------------------|
| | | | Cap @ 120Hz μF @ 25°C | DC Rated Voltage V @ +85°C | ESR @ 100kHz mOhms @ +25°C | DCL max | | | DF Max | | | Power Dissipation W | 25°C Ripple mA (100kHz) | 85°C Ripple mA (100kHz) | 125°C Ripple mA (100kHz) | 25°C Ripple mV (100kHz) | 85°C Ripple mV (100kHz) | 125°C Ripple mV (100kHz) |
| | | | | | | +25°C (μA) | +85°C (μA) | +125°C (μA) | +25°C (%) | +85/125°C (%) | -55°C (%) | | | | | | | |
| AVX P/N | AVX SRC9000 P/N | Case | | | | | | | | | | | | | | | | |
| TBJA106*006 R □ # @ 0 ^ ++ | TBJA106*006 R □ LC 9 ^ 45 | A | 10 | 6.3 | 2200 | 0.45 | 4.5 | 9 | 6 | 9 | 10 | 0.075 | 185 | 166 | 74 | 406 | 366 | 162 |
| TBJA106*006 J □ # @ 0 ^ ++ | TBJA106*006 J □ LC 9 ^ 45 | A | 10 | 6.3 | 1500 | 0.45 | 4.5 | 9 | 6 | 9 | 10 | 0.075 | 224 | 201 | 89 | 335 | 302 | 134 |
| TBJB106*006 R □ # @ 0 ^ ++ | TBJB106*006 R □ LC 9 ^ 45 | B | 10 | 6.3 | 3000 | 0.45 | 4.5 | 9 | 6 | 9 | 10 | 0.085 | 168 | 151 | 67 | 505 | 454 | 202 |
| TBJA156*006 R □ # @ 0 ^ ++ | TBJA156*006 R □ LC 9 ^ 45 | A | 15 | 6.3 | 2030 | 0.68 | 6.8 | 13.6 | 6 | 9 | 10 | 0.075 | 192 | 173 | 77 | 390 | 351 | 156 |
| TBJA156*006 J □ # @ 0 ^ ++ | TBJA156*006 J □ LC 9 ^ 45 | A | 15 | 6.3 | 1500 | 0.68 | 6.8 | 13.6 | 6 | 9 | 10 | 0.075 | 224 | 201 | 89 | 335 | 302 | 134 |
| TBJB156*006 R □ # @ 0 ^ ++ | TBJB156*006 R □ LC 9 ^ 45 | B | 15 | 6.3 | 2030 | 0.68 | 6.8 | 13.6 | 6 | 9 | 10 | 0.085 | 205 | 184 | 82 | 415 | 374 | 166 |
| TBJB156*006 J □ # @ 0 ^ ++ | TBJB156*006 J □ LC 9 ^ 45 | B | 15 | 6.3 | 700 | 0.68 | 6.8 | 13.6 | 6 | 9 | 10 | 0.085 | 348 | 314 | 139 | 244 | 220 | 98 |
| TBJA226*006 R □ # @ 0 ^ ++ | TBJA226*006 R □ LC 9 ^ 45 | A | 22 | 6.3 | 1700 | 0.99 | 9.9 | 19.8 | 6 | 9 | 10 | 0.075 | 210 | 189 | 84 | 357 | 321 | 143 |
| TBJA226*006 J □ # @ 0 ^ ++ | TBJA226*006 J □ LC 9 ^ 45 | A | 22 | 6.3 | 900 | 0.99 | 9.9 | 19.8 | 6 | 9 | 10 | 0.075 | 289 | 260 | 115 | 260 | 234 | 104 |
| TBJB226*006 R □ # @ 0 ^ ++ | TBJB226*006 R □ LC 9 ^ 45 | B | 22 | 6.3 | 1880 | 0.99 | 9.9 | 19.8 | 6 | 9 | 10 | 0.085 | 213 | 191 | 85 | 400 | 360 | 160 |
| TBJB226*006 J □ # @ 0 ^ ++ | TBJB226*006 J □ LC 9 ^ 45 | B | 22 | 6.3 | 600 | 0.99 | 9.9 | 19.8 | 6 | 9 | 10 | 0.085 | 376 | 339 | 151 | 226 | 203 | 90 |
| TBJC226*006 R □ # @ 0 ^ ++ | TBJC226*006 R □ LC 9 ^ 45 | C | 22 | 6.3 | 2000 | 0.99 | 9.9 | 19.8 | 6 | 9 | 10 | 0.110 | 235 | 211 | 94 | 469 | 422 | 188 |
| TBJB336*006 R □ # @ 0 ^ ++ | TBJB336*006 R □ LC 9 ^ 45 | B | 33 | 6.3 | 1740 | 1.5 | 15 | 30 | 6 | 9 | 10 | 0.085 | 221 | 199 | 88 | 385 | 346 | 154 |
| TBJC336*006 J □ # @ 0 ^ ++ | TBJC336*006 J □ LC 9 ^ 45 | B | 33 | 6.3 | 600 | 1.5 | 15 | 30 | 6 | 9 | 10 | 0.085 | 376 | 339 | 151 | 226 | 203 | 90 |
| TBJC336*006 R □ # @ 0 ^ ++ | TBJC336*006 R □ LC 9 ^ 45 | C | 33 | 6.3 | 1800 | 1.5 | 15 | 30 | 6 | 9 | 10 | 0.110 | 247 | 222 | 99 | 445 | 400 | 178 |
| TBJB476*006 R □ # @ 0 ^ ++ | TBJB476*006 R □ LC 9 ^ 45 | B | 47 | 6.3 | 1620 | 2.1 | 21 | 42 | 6 | 9 | 10 | 0.085 | 229 | 206 | 92 | 371 | 334 | 148 |
| TBJB476*006 J □ # @ 0 ^ ++ | TBJB476*006 J □ LC 9 ^ 45 | B | 47 | 6.3 | 500 | 2.1 | 21 | 42 | 6 | 9 | 10 | 0.085 | 412 | 371 | 165 | 206 | 186 | 82 |
| TBJC476*006 R □ # @ 0 ^ ++ | TBJC476*006 R □ LC 9 ^ 45 | C | 47 | 6.3 | 540 | 2.1 | 21 | 42 | 6 | 9 | 10 | 0.110 | 451 | 406 | 181 | 244 | 219 | 97 |
| TBJC476*006 J □ # @ 0 ^ ++ | TBJC476*006 J □ LC 9 ^ 45 | C | 47 | 6.3 | 250 | 2.1 | 21 | 42 | 6 | 9 | 10 | 0.110 | 663 | 597 | 265 | 166 | 149 | 66 |
| TBJC686*006 R □ # @ 0 ^ ++ | TBJC686*006 R □ LC 9 ^ 45 | C | 68 | 6.3 | 490 | 3.1 | 31 | 62 | 6 | 9 | 10 | 0.110 | 474 | 426 | 190 | 232 | 209 | 93 |
| TBJC686*006 J □ # @ 0 ^ ++ | TBJC686*006 J □ LC 9 ^ 45 | C | 68 | 6.3 | 200 | 3.1 | 31 | 62 | 6 | 9 | 10 | 0.110 | 742 | 667 | 297 | 148 | 133 | 59 |
| TBJC107*006 R □ # @ 0 ^ ++ | TBJC107*006 R □ LC 9 ^ 45 | C | 100 | 6.3 | 440 | 4.5 | 45 | 90 | 6 | 9 | 10 | 0.110 | 500 | 450 | 200 | 220 | 198 | 88 |
| TBJC107*006 J □ # @ 0 ^ ++ | TBJC107*006 J □ LC 9 ^ 45 | C | 100 | 6.3 | 300 | 4.5 | 45 | 90 | 6 | 9 | 10 | 0.110 | 606 | 545 | 242 | 182 | 163 | 73 |
| TBJC157*006 R □ # @ 0 ^ ++ | TBJC157*006 R □ LC 9 ^ 45 | C | 150 | 6.3 | 500 | 6.8 | 68 | 136 | 8 | 10 | 12 | 0.110 | 469 | 422 | 188 | 235 | 211 | 94 |
| TBJC157*006 J □ # @ 0 ^ ++ | TBJC157*006 J □ LC 9 ^ 45 | C | 150 | 6.3 | 300 | 6.8 | 68 | 136 | 8 | 10 | 12 | 0.110 | 606 | 545 | 242 | 182 | 163 | 73 |
| TBJD157*006 R □ # @ 0 ^ ++ | TBJD157*006 R □ LC 9 ^ 45 | D | 150 | 6.3 | 400 | 6.8 | 68 | 136 | 6 | 9 | 10 | 0.150 | 612 | 551 | 245 | 245 | 220 | 98 |
| TBJD157*006 J □ # @ 0 ^ ++ | TBJD157*006 J □ LC 9 ^ 45 | D | 150 | 6.3 | 150 | 6.8 | 68 | 136 | 6 | 9 | 10 | 0.150 | 1000 | 900 | 400 | 150 | 135 | 60 |
| TBJD227*006 R □ # @ 0 ^ ++ | TBJD227*006 R □ LC 9 ^ 45 | D | 220 | 6.3 | 360 | 9.9 | 99 | 198 | 8 | 10 | 12 | 0.150 | 645 | 581 | 258 | 232 | 209 | 93 |
| TBJD227*006 J □ # @ 0 ^ ++ | TBJD227*006 J □ LC 9 ^ 45 | D | 220 | 6.3 | 150 | 9.9 | 99 | 198 | 8 | 10 | 12 | 0.150 | 1000 | 900 | 400 | 150 | 135 | 60 |
| TBJD337*006 R □ # @ 0 ^ ++ | TBJD337*006 R □ LC 9 ^ 45 | D | 330 | 6.3 | 400 | 14 | 140 | 280 | 8 | 10 | 12 | 0.150 | 612 | 551 | 245 | 245 | 220 | 98 |
| TBJE337*006 R □ # @ 0 ^ ++ | TBJE337*006 R □ LC 9 ^ 45 | E | 330 | 6.3 | 330 | 14 | 140 | 280 | 8 | 10 | 12 | 0.165 | 707 | 636 | 283 | 233 | 210 | 93 |
| TBJE337*006 J □ # @ 0 ^ ++ | TBJE337*006 J □ LC 9 ^ 45 | E | 330 | 6.3 | 150 | 14 | 140 | 280 | 8 | 10 | 12 | 0.165 | 1049 | 944 | 420 | 157 | 142 | 63 |
| TBJE477*006 R □ # @ 0 ^ ++ | TBJE477*006 R □ LC 9 ^ 45 | E | 470 | 6.3 | 250 | 21 | 210 | 420 | 8 | 10 | 12 | 0.165 | 812 | 731 | 325 | 203 | 183 | 81 |
| TBJE477*006 J □ # @ 0 ^ ++ | TBJE477*006 J □ LC 9 ^ 45 | E | 470 | 6.3 | 200 | 21 | 210 | 420 | 8 | 10 | 12 | 0.165 | 908 | 817 | 363 | 182 | 163 | 73 |
| TBJU687*006 R □ # @ 0 ^ ++ | TBJU687*006 R □ LC 9 ^ 45 | U | 680 | 6.3 | 500 | 30 | 300 | 600 | 30 | 45 | 45 | 0.165 | 574 | 517 | 230 | 287 | 259 | 115 |
| TBJU687*006 J □ # @ 0 ^ ++ | TBJU687*006 J □ LC 9 ^ 45 | U | 680 | 6.3 | 250 | 30 | 300 | 600 | 30 | 45 | 45 | 0.165 | 812 | 731 | 325 | 203 | 183 | 81 |
| TBJA155*010 R □ # @ 0 ^ ++ | TBJA155*010 R □ LC 9 ^ 45 | A | 1.5 | 10 | 7000 | 0.3 | 3 | 6 | 6 | 9 | 10 | 0.075 | 104 | 93 | 41 | 725 | 652 | 290 |
| TBJA225*010 R □ # @ 0 ^ ++ | TBJA225*010 R □ LC 9 ^ 45 | A | 2.2 | 10 | 7000 | 0.3 | 3 | 6 | 6 | 9 | 10 | 0.075 | 104 | 93 | 41 | 725 | 652 | 290 |
| TBJA475*010 R □ # @ 0 ^ ++ | TBJA475*010 R □ LC 9 ^ 45 | A | 4.7 | 10 | 2900 | 0.35 | 3.5 | 7 | 6 | 9 | 10 | 0.075 | 161 | 145 | 64 | 466 | 420 | 187 |
| TBJA475*010 J □ # @ 0 ^ ++ | TBJA475*010 J □ LC 9 ^ 45 | A | 4.7 | 10 | 2000 | 0.35 | 3.5 | 7 | 6 | 9 | 10 | 0.075 | 194 | 174 | 77 | 387 | 349 | 155 |
| TBJA685*010 R □ # @ 0 ^ ++ | TBJA685*010 R □ LC 9 ^ 45 | A | 6.8 | 10 | 2650 | 0.51 | 5.1 | 10.2 | 6 | 9 | 10 | 0.075 | 168 | 151 | 67 | 446 | 401 | 178 |
| TBJA685*010 J □ # @ 0 ^ ++ | TBJA685*010 J □ LC 9 ^ 45 | A | 6.8 | 10 | 1800 | 0.51 | 5.1 | 10.2 | 6 | 9 | 10 | 0.075 | 204 | 184 | 82 | 367 | 331 | 147 |
| TBJB685*010 R □ # @ 0 ^ ++ | TBJB685*010 R □ LC 9 ^ 45 | B | 6.8 | 10 | 3000 | 0.51 | 5.1 | 10.2 | 6 | 9 | 10 | 0.085 | 168 | 151 | 67 | 505 | 454 | 202 |
| TBJA106*010 R □ # @ 0 ^ ++ | TBJA106*010 R □ LC 9 ^ 45 | A | 10 | 10 | 2200 | 0.75 | 7.5 | 15 | 6 | 9 | 10 | 0.075 | 185 | 166 | 74 | 406 | 366 | 162 |
| TBJA106*010 J □ # @ 0 ^ ++ | TBJA106*010 J □ LC 9 ^ 45 | A | 10 | 10 | 1800 | 0.75 | 7.5 | 15 | 6 | 9 | 10 | 0.075 | 204 | 184 | 82 | 367 | 331 | 147 |
| TBJB106*010 R □ # @ 0 ^ ++ | TBJB106*010 R □ LC 9 ^ 45 | B | 10 | 10 | 2200 | 0.75 | 7.5 | 15 | 6 | 9 | 10 | 0.085 | 197 | 177 | 79 | 432 | 389 | 173 |
| TBJB106*010 J □ # @ 0 ^ ++ | TBJB106*010 J □ LC 9 ^ 45 | B | 10 | 10 | 800 | 0.75 | 7.5 | 15 | 6 | 9 | 10 | 0.085 | 326 | 293 | 130 | 261 | 235 | 104 |
| TBJA156*010 R □ # @ 0 ^ ++ | TBJA156*010 R □ LC 9 ^ 45 | A | 15 | 10 | 1800 | 1.1 | 11 | 22 | 6 | 9 | 10 | 0.075 | 204 | 184 | 82 | 367 | 331 | 147 |
| TBJA156*010 J □ # @ 0 ^ ++ | TBJA156*010 J □ LC 9 ^ 45 | A | 15 | 10 | 1000 | 1.1 | 11 | 22 | 6 | 9 | 10 | 0.075 | 274 | 246 | 110 | 274 | 246 | 110 |
| TBJB156*010 R □ # @ 0 ^ ++ | TBJB156*010 R □ LC 9 ^ 45 | B | 15 | 10 | 2030 | 1.1 | 11 | 22 | 6 | 9 | 10 | 0.085 | 205 | 184 | 82 | 415 | 374 | 166 |
| TBJB156*010 J □ # @ 0 ^ ++ | TBJB156*010 J □ LC 9 ^ 45 | B | 15 | 10 | 600 | 1.1 | 11 | 22 | 6 | 9 | 10 | 0.085 | 376 | 339 | 151 | 226 | 203 | 90 |
| TBJC156*010 R □ # @ 0 ^ ++ | TBJC156*010 R □ LC 9 ^ 45 | C | 15 | 10 | 2000 | 1.1 | 11 | 22 | 6 | 9 | 10 | 0.110 | 235 | 211 | 94 | 469 | 422 | 188 |
| TBJB226*010 R □ # @ 0 ^ ++ | TBJB226*010 R □ LC 9 ^ 45 | B | 22 | 10 | 1880 | 1.7 | 17 | 34 | 6 | 9 | 10 | 0.085 | 213 | 191 | 85 | 400 | 360 | 160 |

All technical data relates to an ambient temperature of +25°C. Capacitance and DF are measured at 120Hz, 0.5V RMS with a maximum DC bias of 2.2 volts. DCL is measured at rated voltage after 5 minutes.

NOTE: AVX reserves the right to supply a higher voltage rating or tighter tolerance part in the same case size, to the same reliability standards.

TBJ Series

COTS-Plus – SRC9000 Space Level



| RATING & PART NUMBER REFERENCE | | | Parametric Specifications by Rating | | | | | | | | | Typical RMS Ripple Data by Rating | | | | | | |
|--------------------------------|---------------------------|------|-------------------------------------|-------------------------------------|-------------------------------------|---------------|---------------|----------------|--------------|------------------|--------------|-----------------------------------|----------------------------------|----------------------------------|-----------------------------------|----------------------------------|----------------------------------|-----------------------------------|
| | | | Cap @ 120Hz µF @ 25°C | DC Rated Voltage V @ +85°C | ESR @ 100kHz mOhms @ +25°C | DCL max | | | DF Max | | | Power Dissipation W | 25°C Ripple mA (100kHz) | 85°C Ripple mA (100kHz) | 125°C Ripple mA (100kHz) | 25°C Ripple mV (100kHz) | 85°C Ripple mV (100kHz) | 125°C Ripple mV (100kHz) |
| | | | | | | +25°C (µA) | +85°C (µA) | +125°C (µA) | +25°C (%) | +85/125°C (%) | -55°C (%) | | | | | | | |
| AVX P/N | AVX SRC9000 P/N | Case | | | | | | | | | | | | | | | | |
| TBJB226*010 J □ # @ 0 ^ ++ | TBJB226*010 J □ LC 9 ^ 45 | B | 22 | 10 | 700 | 1.7 | 17 | 34 | 6 | 9 | 10 | 0.085 | 348 | 314 | 139 | 244 | 220 | 98 |
| TBJB336*010 R □ # @ 0 ^ ++ | TBJB336*010 R □ LC 9 ^ 45 | B | 33 | 10 | 1000 | 2.5 | 25 | 50 | 6 | 9 | 10 | 0.085 | 292 | 262 | 117 | 292 | 262 | 117 |
| TBJB336*010 J □ # @ 0 ^ ++ | TBJB336*010 J □ LC 9 ^ 45 | B | 33 | 10 | 650 | 2.5 | 25 | 50 | 6 | 9 | 10 | 0.085 | 362 | 325 | 145 | 235 | 212 | 94 |
| TBJC336*010 R □ # @ 0 ^ ++ | TBJC336*010 R □ LC 9 ^ 45 | C | 33 | 10 | 590 | 2.5 | 25 | 50 | 6 | 9 | 10 | 0.110 | 432 | 389 | 173 | 255 | 229 | 102 |
| TBJC336*010 J □ # @ 0 ^ ++ | TBJC336*010 J □ LC 9 ^ 45 | C | 33 | 10 | 300 | 2.5 | 25 | 50 | 6 | 9 | 10 | 0.110 | 606 | 545 | 242 | 182 | 163 | 73 |
| TBJD336*010 R □ # @ 0 ^ ++ | TBJD336*010 R □ LC 9 ^ 45 | D | 33 | 10 | 1100 | 2.5 | 25 | 50 | 6 | 9 | 10 | 0.150 | 369 | 332 | 148 | 406 | 366 | 162 |
| TBJC476*010 R □ # @ 0 ^ ++ | TBJC476*010 R □ LC 9 ^ 45 | C | 47 | 10 | 540 | 3.5 | 35 | 70 | 6 | 9 | 10 | 0.110 | 451 | 406 | 181 | 244 | 219 | 97 |
| TBJC476*010 J □ # @ 0 ^ ++ | TBJC476*010 J □ LC 9 ^ 45 | C | 47 | 10 | 300 | 3.5 | 35 | 70 | 6 | 9 | 10 | 0.110 | 606 | 545 | 242 | 182 | 163 | 73 |
| TBJD476*010 R □ # @ 0 ^ ++ | TBJD476*010 R □ LC 9 ^ 45 | D | 47 | 10 | 400 | 3.5 | 35 | 70 | 6 | 9 | 10 | 0.150 | 612 | 551 | 245 | 245 | 220 | 98 |
| TBJC686*010 R □ # @ 0 ^ ++ | TBJC686*010 R □ LC 9 ^ 45 | C | 68 | 10 | 490 | 5.1 | 51 | 102 | 6 | 9 | 10 | 0.110 | 474 | 426 | 190 | 232 | 209 | 93 |
| TBJC686*010 J □ # @ 0 ^ ++ | TBJC686*010 J □ LC 9 ^ 45 | C | 68 | 10 | 300 | 5.1 | 51 | 102 | 6 | 9 | 10 | 0.110 | 606 | 545 | 242 | 182 | 163 | 73 |
| TBJC107*010 R □ # @ 0 ^ ++ | TBJC107*010 R □ LC 9 ^ 45 | C | 100 | 10 | 500 | 7.5 | 75 | 150 | 8 | 10 | 12 | 0.110 | 469 | 422 | 188 | 235 | 211 | 94 |
| TBJC107*010 J □ # @ 0 ^ ++ | TBJC107*010 J □ LC 9 ^ 45 | C | 100 | 10 | 200 | 7.5 | 75 | 150 | 8 | 10 | 12 | 0.110 | 742 | 667 | 297 | 148 | 133 | 59 |
| TBJD107*010 R □ # @ 0 ^ ++ | TBJD107*010 R □ LC 9 ^ 45 | D | 100 | 10 | 440 | 7.5 | 75 | 150 | 6 | 9 | 10 | 0.150 | 584 | 525 | 234 | 257 | 231 | 103 |
| TBJD107*010 J □ # @ 0 ^ ++ | TBJD107*010 J □ LC 9 ^ 45 | D | 100 | 10 | 150 | 7.5 | 75 | 150 | 6 | 9 | 10 | 0.150 | 1000 | 900 | 400 | 150 | 135 | 60 |
| TBJE107*010 R □ # @ 0 ^ ++ | TBJE107*010 R □ LC 9 ^ 45 | E | 100 | 10 | 440 | 7.5 | 75 | 150 | 6 | 9 | 10 | 0.165 | 612 | 551 | 245 | 269 | 242 | 108 |
| TBJE107*010 J □ # @ 0 ^ ++ | TBJE107*010 J □ LC 9 ^ 45 | E | 100 | 10 | 100 | 7.5 | 75 | 150 | 6 | 9 | 10 | 0.165 | 1285 | 1156 | 514 | 128 | 116 | 51 |
| TBJD157*010 R □ # @ 0 ^ ++ | TBJD157*010 R □ LC 9 ^ 45 | D | 150 | 10 | 400 | 11 | 110 | 220 | 8 | 10 | 12 | 0.150 | 612 | 551 | 245 | 245 | 220 | 98 |
| TBJD157*010 J □ # @ 0 ^ ++ | TBJD157*010 J □ LC 9 ^ 45 | D | 150 | 10 | 150 | 11 | 110 | 220 | 8 | 10 | 12 | 0.150 | 1000 | 900 | 400 | 150 | 135 | 60 |
| TBJE157*010 R □ # @ 0 ^ ++ | TBJE157*010 R □ LC 9 ^ 45 | E | 150 | 10 | 400 | 11 | 110 | 220 | 8 | 10 | 12 | 0.165 | 642 | 578 | 257 | 257 | 231 | 103 |
| TBJE157*010 J □ # @ 0 ^ ++ | TBJE157*010 J □ LC 9 ^ 45 | E | 150 | 10 | 150 | 11 | 110 | 220 | 8 | 10 | 12 | 0.165 | 1049 | 944 | 420 | 157 | 142 | 63 |
| TBJD227*010 R □ # @ 0 ^ ++ | TBJD227*010 R □ LC 9 ^ 45 | D | 220 | 10 | 500 | 17 | 170 | 340 | 8 | 10 | 12 | 0.150 | 548 | 493 | 219 | 274 | 246 | 110 |
| TBJE227*010 R □ # @ 0 ^ ++ | TBJE227*010 R □ LC 9 ^ 45 | E | 220 | 10 | 360 | 17 | 170 | 340 | 8 | 10 | 12 | 0.165 | 677 | 609 | 271 | 244 | 219 | 97 |
| TBJE227*010 J □ # @ 0 ^ ++ | TBJE227*010 J □ LC 9 ^ 45 | E | 220 | 10 | 150 | 17 | 170 | 340 | 8 | 10 | 12 | 0.165 | 1049 | 944 | 420 | 157 | 142 | 63 |
| TBJE337*010 R □ # @ 0 ^ ++ | TBJE337*010 R □ LC 9 ^ 45 | E | 330 | 10 | 300 | 25 | 250 | 500 | 8 | 10 | 12 | 0.165 | 742 | 667 | 297 | 222 | 200 | 89 |
| TBJE337*010 J □ # @ 0 ^ ++ | TBJE337*010 J □ LC 9 ^ 45 | E | 330 | 10 | 100 | 25 | 250 | 500 | 8 | 10 | 12 | 0.165 | 1285 | 1156 | 514 | 128 | 116 | 51 |
| TBJU477*010 R □ # @ 0 ^ ++ | TBJU477*010 R □ LC 9 ^ 45 | U | 470 | 10 | 400 | 35 | 350 | 700 | 30 | 45 | 45 | 0.165 | 642 | 578 | 257 | 257 | 231 | 103 |
| TBJU477*010 J □ # @ 0 ^ ++ | TBJU477*010 J □ LC 9 ^ 45 | U | 470 | 10 | 200 | 35 | 350 | 700 | 30 | 45 | 45 | 0.165 | 908 | 817 | 363 | 182 | 163 | 73 |
| TBJA105*016 R □ # @ 0 ^ ++ | TBJA105*016 R □ LC 9 ^ 45 | A | 1 | 16 | 10000 | 0.3 | 3 | 6 | 6 | 9 | 10 | 0.075 | 87 | 78 | 35 | 866 | 779 | 346 |
| TBJA225*016 R □ # @ 0 ^ ++ | TBJA225*016 R □ LC 9 ^ 45 | A | 2.2 | 16 | 4550 | 0.3 | 3 | 6 | 6 | 9 | 10 | 0.075 | 128 | 116 | 51 | 584 | 526 | 234 |
| TBJA225*016 J □ # @ 0 ^ ++ | TBJA225*016 J □ LC 9 ^ 45 | A | 2.2 | 16 | 3500 | 0.3 | 3 | 6 | 6 | 9 | 10 | 0.075 | 146 | 132 | 59 | 512 | 461 | 205 |
| TBJA335*016 R □ # @ 0 ^ ++ | TBJA335*016 R □ LC 9 ^ 45 | A | 3.3 | 16 | 3740 | 0.4 | 4 | 8 | 6 | 9 | 10 | 0.075 | 142 | 127 | 57 | 530 | 477 | 212 |
| TBJA335*016 J □ # @ 0 ^ ++ | TBJA335*016 J □ LC 9 ^ 45 | A | 3.3 | 16 | 3500 | 0.4 | 4 | 8 | 6 | 9 | 10 | 0.075 | 146 | 132 | 59 | 512 | 461 | 205 |
| TBJB335*016 R □ # @ 0 ^ ++ | TBJB335*016 R □ LC 9 ^ 45 | B | 3.3 | 16 | 4500 | 0.4 | 4 | 8 | 6 | 9 | 10 | 0.085 | 137 | 124 | 55 | 618 | 557 | 247 |
| TBJA475*016 R □ # @ 0 ^ ++ | TBJA475*016 R □ LC 9 ^ 45 | A | 4.7 | 16 | 3160 | 0.56 | 5.6 | 11.2 | 6 | 9 | 10 | 0.075 | 154 | 139 | 62 | 487 | 438 | 195 |
| TBJA475*016 J □ # @ 0 ^ ++ | TBJA475*016 J □ LC 9 ^ 45 | A | 4.7 | 16 | 2000 | 0.56 | 5.6 | 11.2 | 6 | 9 | 10 | 0.075 | 194 | 174 | 77 | 387 | 349 | 155 |
| TBJB475*016 R □ # @ 0 ^ ++ | TBJB475*016 R □ LC 9 ^ 45 | B | 4.7 | 16 | 3160 | 0.56 | 5.6 | 11.2 | 6 | 9 | 10 | 0.085 | 164 | 148 | 66 | 518 | 466 | 207 |
| TBJB475*016 J □ # @ 0 ^ ++ | TBJB475*016 J □ LC 9 ^ 45 | B | 4.7 | 16 | 1500 | 0.56 | 5.6 | 11.2 | 6 | 9 | 10 | 0.085 | 238 | 214 | 95 | 357 | 321 | 143 |
| TBJA685*016 R □ # @ 0 ^ ++ | TBJA685*016 R □ LC 9 ^ 45 | A | 6.8 | 16 | 2000 | 0.82 | 8.2 | 16.4 | 4 | 6 | 8 | 0.075 | 194 | 174 | 77 | 387 | 349 | 155 |
| TBJA685*016 J □ # @ 0 ^ ++ | TBJA685*016 J □ LC 9 ^ 45 | A | 6.8 | 16 | 1500 | 0.82 | 8.2 | 16.4 | 4 | 6 | 8 | 0.075 | 224 | 201 | 89 | 335 | 302 | 134 |
| TBJB685*016 R □ # @ 0 ^ ++ | TBJB685*016 R □ LC 9 ^ 45 | B | 6.8 | 16 | 2650 | 0.82 | 8.2 | 16.4 | 6 | 9 | 10 | 0.085 | 179 | 161 | 72 | 475 | 427 | 190 |
| TBJB685*016 J □ # @ 0 ^ ++ | TBJB685*016 J □ LC 9 ^ 45 | B | 6.8 | 16 | 1200 | 0.82 | 8.2 | 16.4 | 6 | 9 | 10 | 0.085 | 266 | 240 | 106 | 319 | 287 | 128 |
| TBJC685*016 R □ # @ 0 ^ ++ | TBJC685*016 R □ LC 9 ^ 45 | C | 6.8 | 16 | 2500 | 0.82 | 8.2 | 16.4 | 6 | 9 | 10 | 0.110 | 210 | 189 | 84 | 524 | 472 | 210 |
| TBJB106*016 R □ # @ 0 ^ ++ | TBJB106*016 R □ LC 9 ^ 45 | B | 10 | 16 | 2200 | 1.2 | 12 | 24 | 6 | 9 | 10 | 0.085 | 197 | 177 | 79 | 432 | 389 | 173 |
| TBJB106*016 J □ # @ 0 ^ ++ | TBJB106*016 J □ LC 9 ^ 45 | B | 10 | 16 | 800 | 1.2 | 12 | 24 | 6 | 9 | 10 | 0.085 | 326 | 293 | 130 | 261 | 235 | 104 |
| TBJC106*016 R □ # @ 0 ^ ++ | TBJC106*016 R □ LC 9 ^ 45 | C | 10 | 16 | 2000 | 1.2 | 12 | 24 | 6 | 9 | 10 | 0.110 | 235 | 211 | 94 | 469 | 422 | 188 |
| TBJB156*016 R □ # @ 0 ^ ++ | TBJB156*016 R □ LC 9 ^ 45 | B | 15 | 16 | 2030 | 1.8 | 18 | 36 | 6 | 9 | 10 | 0.085 | 205 | 184 | 82 | 415 | 374 | 166 |
| TBJB156*016 J □ # @ 0 ^ ++ | TBJB156*016 J □ LC 9 ^ 45 | B | 15 | 16 | 800 | 1.8 | 18 | 36 | 6 | 9 | 10 | 0.085 | 326 | 293 | 130 | 261 | 235 | 104 |
| TBJB226*016 R □ # @ 0 ^ ++ | TBJB226*016 R □ LC 9 ^ 45 | B | 22 | 16 | 1100 | 2.6 | 26 | 52 | 6 | 9 | 10 | 0.085 | 278 | 250 | 111 | 306 | 275 | 122 |
| TBJB226*016 J □ # @ 0 ^ ++ | TBJB226*016 J □ LC 9 ^ 45 | B | 22 | 16 | 600 | 2.6 | 26 | 52 | 6 | 9 | 10 | 0.085 | 376 | 339 | 151 | 226 | 203 | 90 |
| TBJC226*016 R □ # @ 0 ^ ++ | TBJC226*016 R □ LC 9 ^ 45 | C | 22 | 16 | 700 | 2.6 | 26 | 52 | 6 | 9 | 10 | 0.110 | 396 | 357 | 159 | 277 | 250 | 111 |
| TBJC226*016 J □ # @ 0 ^ ++ | TBJC226*016 J □ LC 9 ^ 45 | C | 22 | 16 | 350 | 2.6 | 26 | 52 | 6 | 9 | 10 | 0.110 | 561 | 505 | 224 | 196 | 177 | 78 |
| TBJD226*016 R □ # @ 0 ^ ++ | TBJD226*016 R □ LC 9 ^ 45 | D | 22 | 16 | 1100 | 2.6 | 26 | 52 | 6 | 9 | 10 | 0.150 | 369 | 332 | 148 | 406 | 366 | 162 |
| TBJC336*016 R □ # @ 0 ^ ++ | TBJC336*016 R □ LC 9 ^ 45 | C | 33 | 16 | 590 | 4 | 40 | 80 | 6 | 9 | 10 | 0.110 | 432 | 389 | 173 | 255 | 229 | 102 |
| TBJC336*016 J □ # @ 0 ^ ++ | TBJC336*016 J □ LC 9 ^ 45 | C | 33 | 16 | 300 | 4 | 40 | 80 | 6 | 9 | 10 | 0.110 | 606 | 545 | 242 | 182 | 163 | 73 |

All technical data relates to an ambient temperature of +25°C. Capacitance and DF are measured at 120Hz, 0.5V RMS with a maximum DC bias of 2.2 volts. DCL is measured at rated voltage after 5 minutes.

NOTE: AVX reserves the right to supply a higher voltage rating or tighter tolerance part in the same case size, to the same reliability standards.

TBJ Series

COTS-Plus – SRC9000 Space Level



| RATING & PART NUMBER REFERENCE | | | Parametric Specifications by Rating | | | | | | | | | Typical RMS Ripple Data by Rating | | | | | | |
|--------------------------------|---------------------------|---|-------------------------------------|-------------------------------------|-------------------------------------|---------------|---------------|----------------|--------------|--------------|---------------|-----------------------------------|----------------------------------|----------------------------------|-----------------------------------|----------------------------------|----------------------------------|-----------------------------------|
| | | | Cap @ 120Hz µF @ 25°C | DC Rated Voltage V @ +85°C | ESR @ 100kHz mOhms @ +25°C | DCL max | | | DF Max | | | Power Dissipation W | 25°C Ripple mA (100kHz) | 85°C Ripple mA (100kHz) | 125°C Ripple mA (100kHz) | 25°C Ripple mV (100kHz) | 85°C Ripple mV (100kHz) | 125°C Ripple mV (100kHz) |
| | | | | | | +25°C (µA) | +85°C (µA) | +125°C (µA) | +25°C (%) | +85°C (%) | +125°C (%) | | | | | | | |
| TBJC476*016 R □ # @ 0 ^ ++ | TBJC476*016 R □ LC 9 ^ 45 | C | 47 | 16 | 540 | 5.6 | 56 | 112 | 6 | 9 | 10 | 0.110 | 451 | 406 | 181 | 244 | 219 | 97 |
| TBJC476*016 J □ # @ 0 ^ ++ | TBJC476*016 J □ LC 9 ^ 45 | C | 47 | 16 | 350 | 5.6 | 56 | 112 | 6 | 9 | 10 | 0.110 | 561 | 505 | 224 | 196 | 177 | 78 |
| TBJD476*016 R □ # @ 0 ^ ++ | TBJD476*016 R □ LC 9 ^ 45 | D | 47 | 16 | 540 | 5.6 | 56 | 112 | 6 | 9 | 10 | 0.150 | 527 | 474 | 211 | 285 | 256 | 114 |
| TBJD476*016 J □ # @ 0 ^ ++ | TBJD476*016 J □ LC 9 ^ 45 | D | 47 | 16 | 200 | 5.6 | 56 | 112 | 6 | 9 | 10 | 0.150 | 866 | 779 | 346 | 173 | 156 | 69 |
| TBJD686*016 R □ # @ 0 ^ ++ | TBJD686*016 R □ LC 9 ^ 45 | D | 68 | 16 | 490 | 8.2 | 82 | 164 | 6 | 9 | 10 | 0.150 | 553 | 498 | 221 | 271 | 244 | 108 |
| TBJD686*016 J □ # @ 0 ^ ++ | TBJD686*016 J □ LC 9 ^ 45 | D | 68 | 16 | 150 | 8.2 | 82 | 164 | 6 | 9 | 10 | 0.150 | 1000 | 900 | 400 | 150 | 135 | 60 |
| TBJD107*016 R □ # @ 0 ^ ++ | TBJD107*016 R □ LC 9 ^ 45 | D | 100 | 16 | 440 | 12 | 120 | 240 | 6 | 9 | 10 | 0.150 | 584 | 525 | 234 | 257 | 231 | 103 |
| TBJD107*016 J □ # @ 0 ^ ++ | TBJD107*016 J □ LC 9 ^ 45 | D | 100 | 16 | 150 | 12 | 120 | 240 | 6 | 9 | 10 | 0.150 | 1000 | 900 | 400 | 150 | 135 | 60 |
| TBJE107*016 R □ # @ 0 ^ ++ | TBJE107*016 R □ LC 9 ^ 45 | E | 100 | 16 | 440 | 12 | 120 | 240 | 6 | 9 | 10 | 0.165 | 612 | 551 | 245 | 269 | 242 | 108 |
| TBJE107*016 J □ # @ 0 ^ ++ | TBJE107*016 J □ LC 9 ^ 45 | E | 100 | 16 | 150 | 12 | 120 | 240 | 6 | 9 | 10 | 0.165 | 1049 | 944 | 420 | 157 | 142 | 63 |
| TBJE157*016 R □ # @ 0 ^ ++ | TBJE157*016 R □ LC 9 ^ 45 | E | 150 | 16 | 300 | 16 | 160 | 320 | 6 | 9 | 10 | 0.165 | 742 | 667 | 297 | 222 | 200 | 89 |
| TBJE157*016 J □ # @ 0 ^ ++ | TBJE157*016 J □ LC 9 ^ 45 | E | 150 | 16 | 150 | 16 | 160 | 320 | 6 | 9 | 10 | 0.165 | 1049 | 944 | 420 | 157 | 142 | 63 |
| TBJU227*016 R □ # @ 0 ^ ++ | TBJU227*016 R □ LC 9 ^ 45 | U | 220 | 16 | 500 | 26.4 | 264 | 528 | 12 | 15 | 15 | 0.165 | 574 | 517 | 230 | 287 | 259 | 115 |
| TBJU227*016 J □ # @ 0 ^ ++ | TBJU227*016 J □ LC 9 ^ 45 | U | 220 | 16 | 200 | 26.4 | 264 | 528 | 12 | 15 | 15 | 0.165 | 908 | 817 | 363 | 182 | 163 | 73 |
| TBJU337*016 R □ # @ 0 ^ ++ | TBJU337*016 R □ LC 9 ^ 45 | U | 330 | 16 | 400 | 39 | 390 | 780 | 30 | 45 | 45 | 0.165 | 642 | 578 | 257 | 257 | 231 | 103 |
| TBJU337*016 J □ # @ 0 ^ ++ | TBJU337*016 J □ LC 9 ^ 45 | U | 330 | 16 | 200 | 39 | 390 | 780 | 30 | 45 | 45 | 0.165 | 908 | 817 | 363 | 182 | 163 | 73 |
| TBJA105*020 R □ # @ 0 ^ ++ | TBJA105*020 R □ LC 9 ^ 45 | A | 1 | 20 | 6630 | 0.3 | 3 | 6 | 4 | 6 | 8 | 0.075 | 106 | 96 | 43 | 705 | 635 | 282 |
| TBJA105*020 J □ # @ 0 ^ ++ | TBJA105*020 J □ LC 9 ^ 45 | A | 1 | 20 | 3000 | 0.3 | 3 | 6 | 4 | 6 | 8 | 0.075 | 158 | 142 | 63 | 474 | 427 | 190 |
| TBJA155*020 R □ # @ 0 ^ ++ | TBJA155*020 R □ LC 9 ^ 45 | A | 1.5 | 20 | 5460 | 0.3 | 3 | 6 | 6 | 9 | 10 | 0.075 | 117 | 105 | 47 | 640 | 576 | 256 |
| TBJA155*020 J □ # @ 0 ^ ++ | TBJA155*020 J □ LC 9 ^ 45 | A | 1.5 | 20 | 3000 | 0.3 | 3 | 6 | 6 | 9 | 10 | 0.075 | 158 | 142 | 63 | 474 | 427 | 190 |
| TBJA225*020 R □ # @ 0 ^ ++ | TBJA225*020 R □ LC 9 ^ 45 | A | 2.2 | 20 | 4550 | 0.33 | 3.3 | 6.6 | 6 | 9 | 10 | 0.075 | 128 | 116 | 51 | 584 | 526 | 234 |
| TBJA225*020 J □ # @ 0 ^ ++ | TBJA225*020 J □ LC 9 ^ 45 | A | 2.2 | 20 | 3000 | 0.33 | 3.3 | 6.6 | 6 | 9 | 10 | 0.075 | 158 | 142 | 63 | 474 | 427 | 190 |
| TBJA335*020 R □ # @ 0 ^ ++ | TBJA335*020 R □ LC 9 ^ 45 | A | 3.3 | 20 | 3740 | 0.5 | 5 | 10 | 6 | 9 | 10 | 0.075 | 142 | 127 | 57 | 530 | 477 | 212 |
| TBJA335*020 J □ # @ 0 ^ ++ | TBJA335*020 J □ LC 9 ^ 45 | A | 3.3 | 20 | 2500 | 0.5 | 5 | 10 | 6 | 9 | 10 | 0.075 | 173 | 156 | 69 | 433 | 390 | 173 |
| TBJB335*020 R □ # @ 0 ^ ++ | TBJB335*020 R □ LC 9 ^ 45 | B | 3.3 | 20 | 3740 | 0.5 | 5 | 10 | 6 | 9 | 10 | 0.085 | 151 | 136 | 60 | 564 | 507 | 226 |
| TBJB335*020 J □ # @ 0 ^ ++ | TBJB335*020 J □ LC 9 ^ 45 | B | 3.3 | 20 | 1300 | 0.5 | 5 | 10 | 6 | 9 | 10 | 0.085 | 256 | 230 | 102 | 332 | 299 | 133 |
| TBJA475*020 R □ # @ 0 ^ ++ | TBJA475*020 R □ LC 9 ^ 45 | A | 4.7 | 20 | 2500 | 0.71 | 7.1 | 14.2 | 5 | 8 | 10 | 0.075 | 173 | 156 | 69 | 433 | 390 | 173 |
| TBJA475*020 J □ # @ 0 ^ ++ | TBJA475*020 J □ LC 9 ^ 45 | A | 4.7 | 20 | 1800 | 0.71 | 7.1 | 14.2 | 5 | 8 | 10 | 0.075 | 204 | 184 | 82 | 367 | 331 | 147 |
| TBJB475*020 R □ # @ 0 ^ ++ | TBJB475*020 R □ LC 9 ^ 45 | B | 4.7 | 20 | 3160 | 0.71 | 7.1 | 14.2 | 6 | 9 | 10 | 0.085 | 164 | 148 | 66 | 518 | 466 | 207 |
| TBJB475*020 J □ # @ 0 ^ ++ | TBJB475*020 J □ LC 9 ^ 45 | B | 4.7 | 20 | 1000 | 0.71 | 7.1 | 14.2 | 6 | 9 | 10 | 0.085 | 292 | 262 | 117 | 292 | 262 | 117 |
| TBJB685*020 R □ # @ 0 ^ ++ | TBJB685*020 R □ LC 9 ^ 45 | B | 6.8 | 20 | 2650 | 1 | 10 | 20 | 6 | 9 | 10 | 0.085 | 179 | 161 | 72 | 475 | 427 | 190 |
| TBJB685*020 J □ # @ 0 ^ ++ | TBJB685*020 J □ LC 9 ^ 45 | B | 6.8 | 20 | 1000 | 1 | 10 | 20 | 6 | 9 | 10 | 0.085 | 292 | 262 | 117 | 292 | 262 | 117 |
| TBJC685*020 R □ # @ 0 ^ ++ | TBJC685*020 R □ LC 9 ^ 45 | C | 6.8 | 20 | 2000 | 1 | 10 | 20 | 6 | 9 | 10 | 0.110 | 235 | 211 | 94 | 469 | 422 | 188 |
| TBJB106*020 R □ # @ 0 ^ ++ | TBJB106*020 R □ LC 9 ^ 45 | B | 10 | 20 | 2200 | 1.5 | 15 | 30 | 6 | 9 | 10 | 0.085 | 197 | 177 | 79 | 432 | 389 | 173 |
| TBJB106*020 J □ # @ 0 ^ ++ | TBJB106*020 J □ LC 9 ^ 45 | B | 10 | 20 | 1000 | 1.5 | 15 | 30 | 6 | 9 | 10 | 0.085 | 292 | 262 | 117 | 292 | 262 | 117 |
| TBJC106*020 R □ # @ 0 ^ ++ | TBJC106*020 R □ LC 9 ^ 45 | C | 10 | 20 | 800 | 1.5 | 15 | 30 | 6 | 9 | 10 | 0.110 | 371 | 334 | 148 | 297 | 267 | 119 |
| TBJC106*020 J □ # @ 0 ^ ++ | TBJC106*020 J □ LC 9 ^ 45 | C | 10 | 20 | 500 | 1.5 | 15 | 30 | 6 | 9 | 10 | 0.110 | 469 | 422 | 188 | 235 | 211 | 94 |
| TBJB156*020 R □ # @ 0 ^ ++ | TBJB156*020 R □ LC 9 ^ 45 | B | 15 | 20 | 1400 | 2.3 | 23 | 46 | 6 | 9 | 10 | 0.085 | 246 | 222 | 99 | 345 | 310 | 138 |
| TBJB156*020 J □ # @ 0 ^ ++ | TBJB156*020 J □ LC 9 ^ 45 | B | 15 | 20 | 500 | 2.3 | 23 | 46 | 6 | 9 | 10 | 0.085 | 412 | 371 | 165 | 206 | 186 | 82 |
| TBJC156*020 R □ # @ 0 ^ ++ | TBJC156*020 R □ LC 9 ^ 45 | C | 15 | 20 | 720 | 2.3 | 23 | 46 | 6 | 9 | 10 | 0.110 | 391 | 352 | 156 | 281 | 253 | 113 |
| TBJC156*020 J □ # @ 0 ^ ++ | TBJC156*020 J □ LC 9 ^ 45 | C | 15 | 20 | 400 | 2.3 | 23 | 46 | 6 | 9 | 10 | 0.110 | 524 | 472 | 210 | 210 | 189 | 84 |
| TBJD156*020 R □ # @ 0 ^ ++ | TBJD156*020 R □ LC 9 ^ 45 | D | 15 | 20 | 1100 | 2.3 | 23 | 46 | 6 | 9 | 10 | 0.150 | 369 | 332 | 148 | 406 | 366 | 162 |
| TBJC226*020 R □ # @ 0 ^ ++ | TBJC226*020 R □ LC 9 ^ 45 | C | 22 | 20 | 650 | 3.3 | 33 | 66 | 6 | 9 | 10 | 0.110 | 411 | 370 | 165 | 267 | 241 | 107 |
| TBJC226*020 J □ # @ 0 ^ ++ | TBJC226*020 J □ LC 9 ^ 45 | C | 22 | 20 | 400 | 3.3 | 33 | 66 | 6 | 9 | 10 | 0.110 | 524 | 472 | 210 | 210 | 189 | 84 |
| TBJD226*020 R □ # @ 0 ^ ++ | TBJD226*020 R □ LC 9 ^ 45 | D | 22 | 20 | 650 | 3.3 | 33 | 66 | 6 | 9 | 10 | 0.150 | 480 | 432 | 192 | 312 | 281 | 125 |
| TBJD226*020 J □ # @ 0 ^ ++ | TBJD226*020 J □ LC 9 ^ 45 | D | 22 | 20 | 150 | 3.3 | 33 | 66 | 6 | 9 | 10 | 0.150 | 1000 | 900 | 400 | 150 | 135 | 60 |
| TBJC336*020 R □ # @ 0 ^ ++ | TBJC336*020 R □ LC 9 ^ 45 | C | 33 | 20 | 590 | 5 | 50 | 100 | 6 | 9 | 10 | 0.110 | 432 | 389 | 173 | 255 | 229 | 102 |
| TBJC336*020 J □ # @ 0 ^ ++ | TBJC336*020 J □ LC 9 ^ 45 | C | 33 | 20 | 300 | 5 | 50 | 100 | 6 | 9 | 10 | 0.110 | 606 | 545 | 242 | 182 | 163 | 73 |
| TBJD336*020 R □ # @ 0 ^ ++ | TBJD336*020 R □ LC 9 ^ 45 | D | 33 | 20 | 590 | 5 | 50 | 100 | 6 | 9 | 10 | 0.150 | 504 | 454 | 202 | 297 | 268 | 119 |
| TBJD336*020 J □ # @ 0 ^ ++ | TBJD336*020 J □ LC 9 ^ 45 | D | 33 | 20 | 250 | 5 | 50 | 100 | 6 | 9 | 10 | 0.150 | 775 | 697 | 310 | 194 | 174 | 77 |
| TBJD476*020 R □ # @ 0 ^ ++ | TBJD476*020 R □ LC 9 ^ 45 | D | 47 | 20 | 540 | 7.1 | 71 | 142 | 6 | 9 | 10 | 0.150 | 527 | 474 | 211 | 285 | 256 | 114 |
| TBJD476*020 J □ # @ 0 ^ ++ | TBJD476*020 J □ LC 9 ^ 45 | D | 47 | 20 | 200 | 7.1 | 71 | 142 | 6 | 9 | 10 | 0.150 | 866 | 779 | 346 | 173 | 156 | 69 |
| TBJD686*020 R □ # @ 0 ^ ++ | TBJD686*020 R □ LC 9 ^ 45 | D | 68 | 20 | 490 | 10 | 100 | 200 | 6 | 9 | 10 | 0.150 | 553 | 498 | 221 | 271 | 244 | 108 |
| TBJD686*020 J □ # @ 0 ^ ++ | TBJD686*020 J □ LC 9 ^ 45 | D | 68 | 20 | 200 | 10 | 100 | 200 | 6 | 9 | 10 | 0.150 | 866 | 779 | 346 | 173 | 156 | 69 |
| TBJE686*020 R □ # @ 0 ^ ++ | TBJE686*020 R □ LC 9 ^ 45 | E | 68 | 20 | 490 | 10 | 100 | 200 | 6 | 9 | 10 | 0.165 | 580 | 522 | 232 | 284 | 256 | 114 |
| TBJE686*020 J □ # @ 0 ^ ++ | TBJE686*020 J □ LC 9 ^ 45 | E | 68 | 20 | 120 | 10 | 100 | 200 | 6 | 9 | 10 | 0.165 | 1173 | 1055 | 469 | 141 | 127 | 56 |
| TBJE107*020 R □ # @ 0 ^ ++ | TBJE107*020 R □ LC 9 ^ 45 | E | 100 | 20 | 300 | 15 | 150 | 300 | 6 | 9 | 10 | 0.165 | 742 | 667 | 297 | 222 | 200 | 89 |

All technical data relates to an ambient temperature of +25°C. Capacitance and DF are measured at 120Hz, 0.5V RMS with a maximum DC bias of 2.2 volts. DCL is measured at rated voltage after 5 minutes.

NOTE: AVX reserves the right to supply a higher voltage rating or tighter tolerance part in the same case size, to the same reliability standards.



TBJ Series

COTS-Plus – SRC9000 Space Level



| RATING & PART NUMBER REFERENCE | | | Parametric Specifications by Rating | | | | | | | | Typical RMS Ripple Data by Rating | | | | | | | |
|--------------------------------|---------------------------|------|-------------------------------------|-------------------------------------|-------------------------------------|---------|-------|--------|--------|-----------|-----------------------------------|----------------------------------|----------------------------------|-----------------------------------|----------------------------------|----------------------------------|-----------------------------------|-------|
| | | | Cap @ 120Hz μF @ 25°C | DC Rated Voltage V @ +85°C | ESR @ 100kHz mOhms @ +25°C | DCL max | | | DF Max | | Power Dissipation W | 25°C Ripple mA (100kHz) | 85°C Ripple mA (100kHz) | 125°C Ripple mA (100kHz) | 25°C Ripple mV (100kHz) | 85°C Ripple mV (100kHz) | 125°C Ripple mV (100kHz) | |
| | | | | | | +25°C | +85°C | +125°C | +25°C | +85/125°C | | | | | | | | -55°C |
| AVX P/N | AVX SRC9000 P/N | Case | (μA) | (μA) | (μA) | (%) | (%) | (%) | | | | | | | | | | |
| TBJE107*020 J □ # @ 0 ^ ++ | TBJE107*020 J □ LC 9 ^ 45 | E | 100 | 20 | 150 | 15 | 150 | 300 | 6 | 9 | 10 | 0.165 | 1049 | 944 | 420 | 157 | 142 | 63 |
| TBJU157*020 R □ # @ 0 ^ ++ | TBJU157*020 R □ LC 9 ^ 45 | U | 150 | 20 | 500 | 22 | 220 | 440 | 30 | 45 | 45 | 0.165 | 574 | 517 | 230 | 287 | 259 | 115 |
| TBJU157*020 J □ # @ 0 ^ ++ | TBJU157*020 J □ LC 9 ^ 45 | U | 150 | 20 | 250 | 22 | 220 | 440 | 30 | 45 | 45 | 0.165 | 812 | 731 | 325 | 203 | 183 | 81 |
| TBJA474*025 R □ # @ 0 ^ ++ | TBJA474*025 R □ LC 9 ^ 45 | A | 0.47 | 25 | 9530 | 0.3 | 3 | 6 | 4 | 6 | 8 | 0.075 | 89 | 80 | 35 | 845 | 761 | 338 |
| TBJA474*025 J □ # @ 0 ^ ++ | TBJA474*025 J □ LC 9 ^ 45 | A | 0.47 | 25 | 7000 | 0.3 | 3 | 6 | 4 | 6 | 8 | 0.075 | 104 | 93 | 41 | 725 | 652 | 290 |
| TBJA684*025 R □ # @ 0 ^ ++ | TBJA684*025 R □ LC 9 ^ 45 | A | 0.68 | 25 | 7980 | 0.3 | 3 | 6 | 4 | 6 | 8 | 0.075 | 97 | 87 | 39 | 774 | 696 | 309 |
| TBJA684*025 J □ # @ 0 ^ ++ | TBJA684*025 J □ LC 9 ^ 45 | A | 0.68 | 25 | 6000 | 0.3 | 3 | 6 | 4 | 6 | 8 | 0.075 | 112 | 101 | 45 | 671 | 604 | 268 |
| TBJA105*025 R □ # @ 0 ^ ++ | TBJA105*025 R □ LC 9 ^ 45 | A | 1 | 25 | 6630 | 0.3 | 3 | 6 | 4 | 6 | 8 | 0.075 | 106 | 96 | 43 | 705 | 635 | 282 |
| TBJA105*025 J □ # @ 0 ^ ++ | TBJA105*025 J □ LC 9 ^ 45 | A | 1 | 25 | 3000 | 0.3 | 3 | 6 | 4 | 6 | 8 | 0.075 | 158 | 142 | 63 | 474 | 427 | 190 |
| TBJA155*025 R □ # @ 0 ^ ++ | TBJA155*025 R □ LC 9 ^ 45 | A | 1.5 | 25 | 5460 | 0.3 | 3 | 6 | 6 | 9 | 10 | 0.075 | 117 | 105 | 47 | 640 | 576 | 256 |
| TBJA155*025 J □ # @ 0 ^ ++ | TBJA155*025 J □ LC 9 ^ 45 | A | 1.5 | 25 | 3000 | 0.3 | 3 | 6 | 6 | 9 | 10 | 0.075 | 158 | 142 | 63 | 474 | 427 | 190 |
| TBJB155*025 R □ # @ 0 ^ ++ | TBJB155*025 R □ LC 9 ^ 45 | B | 1.5 | 25 | 5000 | 0.3 | 3 | 6 | 6 | 9 | 10 | 0.085 | 130 | 117 | 52 | 652 | 587 | 261 |
| TBJA225*025 R □ # @ 0 ^ ++ | TBJA225*025 R □ LC 9 ^ 45 | A | 2.2 | 25 | 2900 | 0.41 | 4.1 | 8.2 | 6 | 9 | 10 | 0.075 | 161 | 145 | 64 | 466 | 420 | 187 |
| TBJA225*025 J □ # @ 0 ^ ++ | TBJA225*025 J □ LC 9 ^ 45 | A | 2.2 | 25 | 1600 | 0.41 | 4.1 | 8.2 | 6 | 9 | 10 | 0.075 | 217 | 195 | 87 | 346 | 312 | 139 |
| TBJB225*025 R □ # @ 0 ^ ++ | TBJB225*025 R □ LC 9 ^ 45 | B | 2.2 | 25 | 4650 | 0.41 | 4.1 | 8.2 | 6 | 9 | 10 | 0.085 | 137 | 123 | 55 | 622 | 560 | 249 |
| TBJB225*025 J □ # @ 0 ^ ++ | TBJB225*025 J □ LC 9 ^ 45 | B | 2.2 | 25 | 1200 | 0.41 | 4.1 | 8.2 | 6 | 9 | 10 | 0.085 | 266 | 240 | 106 | 319 | 287 | 128 |
| TBJB335*025 R □ # @ 0 ^ ++ | TBJB335*025 R □ LC 9 ^ 45 | B | 3.3 | 25 | 3740 | 0.62 | 6.2 | 12.4 | 6 | 9 | 10 | 0.085 | 151 | 136 | 60 | 564 | 507 | 226 |
| TBJB335*025 J □ # @ 0 ^ ++ | TBJB335*025 J □ LC 9 ^ 45 | B | 3.3 | 25 | 2000 | 0.62 | 6.2 | 12.4 | 6 | 9 | 10 | 0.085 | 206 | 186 | 82 | 412 | 371 | 165 |
| TBJB475*025 R □ # @ 0 ^ ++ | TBJB475*025 R □ LC 9 ^ 45 | B | 4.7 | 25 | 3160 | 0.88 | 8.8 | 17.6 | 6 | 9 | 10 | 0.085 | 164 | 148 | 66 | 518 | 466 | 207 |
| TBJB475*025 J □ # @ 0 ^ ++ | TBJB475*025 J □ LC 9 ^ 45 | B | 4.7 | 25 | 1000 | 0.88 | 8.8 | 17.6 | 6 | 9 | 10 | 0.085 | 292 | 262 | 117 | 292 | 262 | 117 |
| TBJB685*025 R □ # @ 0 ^ ++ | TBJB685*025 R □ LC 9 ^ 45 | B | 6.8 | 25 | 1500 | 1.3 | 13 | 26 | 6 | 9 | 10 | 0.085 | 238 | 214 | 95 | 357 | 321 | 143 |
| TBJB685*025 J □ # @ 0 ^ ++ | TBJB685*025 J □ LC 9 ^ 45 | B | 6.8 | 25 | 1000 | 1.3 | 13 | 26 | 6 | 9 | 10 | 0.085 | 292 | 262 | 117 | 292 | 262 | 117 |
| TBJC685*025 R □ # @ 0 ^ ++ | TBJC685*025 R □ LC 9 ^ 45 | C | 6.8 | 25 | 1070 | 1.3 | 13 | 26 | 6 | 9 | 10 | 0.110 | 321 | 289 | 128 | 343 | 309 | 137 |
| TBJC685*025 J □ # @ 0 ^ ++ | TBJC685*025 J □ LC 9 ^ 45 | C | 6.8 | 25 | 600 | 1.3 | 13 | 26 | 6 | 9 | 10 | 0.110 | 428 | 385 | 171 | 257 | 231 | 103 |
| TBJC106*025 R □ # @ 0 ^ ++ | TBJC106*025 R □ LC 9 ^ 45 | C | 10 | 25 | 800 | 1.9 | 19 | 38 | 6 | 9 | 10 | 0.110 | 371 | 334 | 148 | 297 | 267 | 119 |
| TBJC106*025 J □ # @ 0 ^ ++ | TBJC106*025 J □ LC 9 ^ 45 | C | 10 | 25 | 600 | 1.9 | 19 | 38 | 6 | 9 | 10 | 0.110 | 428 | 385 | 171 | 257 | 231 | 103 |
| TBJD106*025 R □ # @ 0 ^ ++ | TBJD106*025 R □ LC 9 ^ 45 | D | 10 | 25 | 1200 | 1.9 | 19 | 38 | 6 | 9 | 10 | 0.150 | 354 | 318 | 141 | 424 | 382 | 170 |
| TBJC156*025 R □ # @ 0 ^ ++ | TBJC156*025 R □ LC 9 ^ 45 | C | 15 | 25 | 720 | 2.8 | 28 | 56 | 6 | 9 | 10 | 0.110 | 391 | 352 | 156 | 281 | 253 | 113 |
| TBJC156*025 J □ # @ 0 ^ ++ | TBJC156*025 J □ LC 9 ^ 45 | C | 15 | 25 | 500 | 2.8 | 28 | 56 | 6 | 9 | 10 | 0.110 | 469 | 422 | 188 | 235 | 211 | 94 |
| TBJD156*025 R □ # @ 0 ^ ++ | TBJD156*025 R □ LC 9 ^ 45 | D | 15 | 25 | 720 | 2.8 | 28 | 56 | 6 | 9 | 10 | 0.150 | 456 | 411 | 183 | 329 | 296 | 131 |
| TBJD156*025 J □ # @ 0 ^ ++ | TBJD156*025 J □ LC 9 ^ 45 | D | 15 | 25 | 300 | 2.8 | 28 | 56 | 6 | 9 | 10 | 0.150 | 707 | 636 | 283 | 212 | 191 | 85 |
| TBJD226*025 R □ # @ 0 ^ ++ | TBJD226*025 R □ LC 9 ^ 45 | D | 22 | 25 | 650 | 4.1 | 41 | 82 | 6 | 9 | 10 | 0.150 | 480 | 432 | 192 | 312 | 281 | 125 |
| TBJD226*025 J □ # @ 0 ^ ++ | TBJD226*025 J □ LC 9 ^ 45 | D | 22 | 25 | 300 | 4.1 | 41 | 82 | 6 | 9 | 10 | 0.150 | 707 | 636 | 283 | 212 | 191 | 85 |
| TBJD336*025 R □ # @ 0 ^ ++ | TBJD336*025 R □ LC 9 ^ 45 | D | 33 | 25 | 590 | 6.2 | 62 | 124 | 6 | 9 | 10 | 0.150 | 504 | 454 | 202 | 297 | 268 | 119 |
| TBJD336*025 J □ # @ 0 ^ ++ | TBJD336*025 J □ LC 9 ^ 45 | D | 33 | 25 | 400 | 6.2 | 62 | 124 | 6 | 9 | 10 | 0.150 | 612 | 551 | 245 | 245 | 220 | 98 |
| TBJD476*025 R □ # @ 0 ^ ++ | TBJD476*025 R □ LC 9 ^ 45 | D | 47 | 25 | 540 | 8.8 | 88 | 176 | 6 | 9 | 10 | 0.150 | 527 | 474 | 211 | 285 | 256 | 114 |
| TBJD476*025 J □ # @ 0 ^ ++ | TBJD476*025 J □ LC 9 ^ 45 | D | 47 | 25 | 250 | 8.8 | 88 | 176 | 6 | 9 | 10 | 0.150 | 775 | 697 | 310 | 194 | 174 | 77 |
| TBJE476*025 R □ # @ 0 ^ ++ | TBJE476*025 R □ LC 9 ^ 45 | E | 47 | 25 | 540 | 8.8 | 88 | 176 | 6 | 9 | 10 | 0.165 | 553 | 497 | 221 | 298 | 269 | 119 |
| TBJE476*025 J □ # @ 0 ^ ++ | TBJE476*025 J □ LC 9 ^ 45 | E | 47 | 25 | 150 | 8.8 | 88 | 176 | 6 | 9 | 10 | 0.165 | 1049 | 944 | 420 | 157 | 142 | 63 |
| TBJU686*025 R □ # @ 0 ^ ++ | TBJU686*025 R □ LC 9 ^ 45 | U | 68 | 25 | 500 | 12 | 120 | 240 | 30 | 45 | 45 | 0.165 | 574 | 517 | 230 | 287 | 259 | 115 |
| TBJU107*025 R □ # @ 0 ^ ++ | TBJU107*025 R □ LC 9 ^ 45 | U | 100 | 25 | 500 | 18 | 180 | 360 | 30 | 45 | 45 | 0.165 | 574 | 517 | 230 | 287 | 259 | 115 |
| TBJA104*035 R □ # @ 0 ^ ++ | TBJA104*035 R □ LC 9 ^ 45 | A | 0.1 | 35 | 20000 | 0.3 | 3 | 6 | 4 | 6 | 8 | 0.075 | 61 | 55 | 24 | 1225 | 1102 | 490 |
| TBJA154*035 R □ # @ 0 ^ ++ | TBJA154*035 R □ LC 9 ^ 45 | A | 0.15 | 35 | 16470 | 0.3 | 3 | 6 | 4 | 6 | 8 | 0.075 | 67 | 61 | 27 | 1111 | 1000 | 445 |
| TBJA154*035 J □ # @ 0 ^ ++ | TBJA154*035 J □ LC 9 ^ 45 | A | 0.15 | 35 | 6000 | 0.3 | 3 | 6 | 4 | 6 | 8 | 0.075 | 112 | 101 | 45 | 671 | 604 | 268 |
| TBJA224*035 R □ # @ 0 ^ ++ | TBJA224*035 R □ LC 9 ^ 45 | A | 0.22 | 35 | 13710 | 0.3 | 3 | 6 | 4 | 6 | 8 | 0.075 | 74 | 67 | 30 | 1014 | 913 | 406 |
| TBJA224*035 J □ # @ 0 ^ ++ | TBJA224*035 J □ LC 9 ^ 45 | A | 0.22 | 35 | 6000 | 0.3 | 3 | 6 | 4 | 6 | 8 | 0.075 | 112 | 101 | 45 | 671 | 604 | 268 |
| TBJA334*035 R □ # @ 0 ^ ++ | TBJA334*035 R □ LC 9 ^ 45 | A | 0.33 | 35 | 11280 | 0.3 | 3 | 6 | 4 | 6 | 8 | 0.075 | 82 | 73 | 33 | 920 | 828 | 368 |
| TBJA334*035 J □ # @ 0 ^ ++ | TBJA334*035 J □ LC 9 ^ 45 | A | 0.33 | 35 | 6000 | 0.3 | 3 | 6 | 4 | 6 | 8 | 0.075 | 112 | 101 | 45 | 671 | 604 | 268 |
| TBJA474*035 R □ # @ 0 ^ ++ | TBJA474*035 R □ LC 9 ^ 45 | A | 0.47 | 35 | 9530 | 0.3 | 3 | 6 | 4 | 6 | 8 | 0.075 | 89 | 80 | 35 | 845 | 761 | 338 |
| TBJA474*035 J □ # @ 0 ^ ++ | TBJA474*035 J □ LC 9 ^ 45 | A | 0.47 | 35 | 4000 | 0.3 | 3 | 6 | 4 | 6 | 8 | 0.075 | 137 | 123 | 55 | 548 | 493 | 219 |
| TBJA684*035 R □ # @ 0 ^ ++ | TBJA684*035 R □ LC 9 ^ 45 | A | 0.68 | 35 | 7980 | 0.3 | 3 | 6 | 4 | 6 | 8 | 0.075 | 97 | 87 | 39 | 774 | 696 | 309 |
| TBJA684*035 J □ # @ 0 ^ ++ | TBJA684*035 J □ LC 9 ^ 45 | A | 0.68 | 35 | 6000 | 0.3 | 3 | 6 | 4 | 6 | 8 | 0.075 | 112 | 101 | 45 | 671 | 604 | 268 |
| TBJA105*035 R □ # @ 0 ^ ++ | TBJA105*035 R □ LC 9 ^ 45 | A | 1 | 35 | 6630 | 0.3 | 3 | 6 | 4 | 6 | 8 | 0.075 | 106 | 96 | 43 | 705 | 635 | 282 |
| TBJA105*035 J □ # @ 0 ^ ++ | TBJA105*035 J □ LC 9 ^ 45 | A | 1 | 35 | 3000 | 0.3 | 3 | 6 | 4 | 6 | 8 | 0.075 | 158 | 142 | 63 | 474 | 427 | 190 |
| TBJB105*035 R □ # @ 0 ^ ++ | TBJB105*035 R □ LC 9 ^ 45 | B | 1 | 35 | 3400 | 0.3 | 3 | 6 | 4 | 6 | 8 | 0.085 | 158 | 142 | 63 | 538 | 484 | 215 |
| TBJB105*035 J □ # @ 0 ^ ++ | TBJB105*035 J □ LC 9 ^ 45 | B | 1 | 35 | 2000 | 0.3 | 3 | 6 | 4 | 6 | 8 | 0.085 | 206 | 186 | 82 | 412 | 371 | 165 |
| TBJA155*035 R □ # @ 0 ^ ++ | TBJA155*035 R □ LC 9 ^ 45 | A | 1.5 | 35 | 3100 | 0.39 | 3.9 | 7.8 | 6 | 9 | 10 | 0.075 | 156 | 140 | 62 | 482 | 434 | 193 |

All technical data relates to an ambient temperature of +25°C. Capacitance and DF are measured at 120Hz, 0.5V RMS with a maximum DC bias of 2.2 volts. DCL is measured at rated voltage after 5 minutes.

NOTE: AVX reserves the right to supply a higher voltage rating or tighter tolerance part in the same case size, to the same reliability standards.



TBJ Series

COTS-Plus – SRC9000 Space Level



| RATING & PART NUMBER REFERENCE | | | Parametric Specifications by Rating | | | | | | | | Typical RMS Ripple Data by Rating | | | | | | | |
|--------------------------------|---------------------------|------|-------------------------------------|-------------------------------|-------------------------------|---------------|---------------|----------------|--------------|------------------|-----------------------------------|----------------------------|----------------------------|-----------------------------|----------------------------|----------------------------|-----------------------------|-----|
| | | | Cap @ 120Hz μF @ 25°C | DC Rated Voltage @ +85°C V | ESR @ 100kHz mOhms @ +25°C | DCL max | | | DF Max | | Power Dissipation W | 25°C Ripple mA (100kHz) | 85°C Ripple mA (100kHz) | 125°C Ripple mA (100kHz) | 25°C Ripple mV (100kHz) | 85°C Ripple mV (100kHz) | 125°C Ripple mV (100kHz) | |
| AVX P/N | AVX SRC9000 P/N | Case | | | | +25°C (μA) | +85°C (μA) | +125°C (μA) | +25°C (%) | +85/125°C (%) | -55°C (%) | | | | | | | |
| TBJA155*035 J □ # @ 0 ^ ++ | TBJA155*035 J □ LC 9 ^ 45 | A | 1.5 | 35 | 2000 | 0.39 | 3.9 | 7.8 | 6 | 9 | 10 | 0.075 | 194 | 174 | 77 | 387 | 349 | 155 |
| TBJB155*035 R □ # @ 0 ^ ++ | TBJB155*035 R □ LC 9 ^ 45 | B | 1.5 | 35 | 5460 | 0.39 | 3.9 | 7.8 | 6 | 9 | 10 | 0.085 | 125 | 112 | 50 | 681 | 613 | 272 |
| TBJB155*035 J □ # @ 0 ^ ++ | TBJB155*035 J □ LC 9 ^ 45 | B | 1.5 | 35 | 2500 | 0.39 | 3.9 | 7.8 | 6 | 9 | 10 | 0.085 | 184 | 166 | 74 | 461 | 415 | 184 |
| TBJB225*035 R □ # @ 0 ^ ++ | TBJB225*035 R □ LC 9 ^ 45 | B | 2.2 | 35 | 4550 | 0.58 | 5.8 | 11.6 | 6 | 9 | 10 | 0.085 | 137 | 123 | 55 | 622 | 560 | 249 |
| TBJB225*035 J □ # @ 0 ^ ++ | TBJB225*035 J □ LC 9 ^ 45 | B | 2.2 | 35 | 2000 | 0.58 | 5.8 | 11.6 | 6 | 9 | 10 | 0.085 | 206 | 186 | 82 | 412 | 371 | 165 |
| TBJC335*035 R □ # @ 0 ^ ++ | TBJC335*035 R □ LC 9 ^ 45 | B | 3.3 | 35 | 3740 | 0.87 | 8.7 | 17.4 | 6 | 9 | 10 | 0.085 | 151 | 136 | 60 | 564 | 507 | 226 |
| TBJC335*035 J □ # @ 0 ^ ++ | TBJC335*035 J □ LC 9 ^ 45 | B | 3.3 | 35 | 1000 | 0.87 | 8.7 | 17.4 | 6 | 9 | 10 | 0.085 | 292 | 262 | 117 | 292 | 262 | 117 |
| TBJC335*035 R □ # @ 0 ^ ++ | TBJC335*035 R □ LC 9 ^ 45 | C | 3.3 | 35 | 1840 | 0.87 | 8.7 | 17.4 | 6 | 9 | 10 | 0.110 | 245 | 220 | 98 | 450 | 405 | 180 |
| TBJC335*035 J □ # @ 0 ^ ++ | TBJC335*035 J □ LC 9 ^ 45 | C | 3.3 | 35 | 800 | 0.87 | 8.7 | 17.4 | 6 | 9 | 10 | 0.110 | 371 | 334 | 148 | 297 | 267 | 119 |
| TBJD335*035 R □ # @ 0 ^ ++ | TBJD335*035 R □ LC 9 ^ 45 | D | 3.3 | 35 | 2000 | 0.87 | 8.7 | 17.4 | 6 | 9 | 10 | 0.150 | 274 | 246 | 110 | 548 | 493 | 219 |
| TBJB475*035 R □ # @ 0 ^ ++ | TBJB475*035 R □ LC 9 ^ 45 | B | 4.7 | 35 | 2200 | 1.2 | 12 | 24 | 6 | 9 | 10 | 0.085 | 197 | 177 | 79 | 432 | 389 | 173 |
| TBJB475*035 J □ # @ 0 ^ ++ | TBJB475*035 J □ LC 9 ^ 45 | B | 4.7 | 35 | 1500 | 1.2 | 12 | 24 | 6 | 9 | 10 | 0.085 | 238 | 214 | 95 | 357 | 321 | 143 |
| TBJC475*035 R □ # @ 0 ^ ++ | TBJC475*035 R □ LC 9 ^ 45 | C | 4.7 | 35 | 1410 | 1.2 | 12 | 24 | 6 | 9 | 10 | 0.110 | 279 | 251 | 112 | 394 | 354 | 158 |
| TBJC475*035 J □ # @ 0 ^ ++ | TBJC475*035 J □ LC 9 ^ 45 | C | 4.7 | 35 | 600 | 1.2 | 12 | 24 | 6 | 9 | 10 | 0.110 | 428 | 385 | 171 | 257 | 231 | 103 |
| TBJD475*035 R □ # @ 0 ^ ++ | TBJD475*035 R □ LC 9 ^ 45 | D | 4.7 | 35 | 1500 | 1.2 | 12 | 24 | 6 | 9 | 10 | 0.150 | 316 | 285 | 126 | 474 | 427 | 190 |
| TBJC685*035 R □ # @ 0 ^ ++ | TBJC685*035 R □ LC 9 ^ 45 | C | 6.8 | 35 | 1070 | 1.8 | 18 | 36 | 6 | 9 | 10 | 0.110 | 321 | 289 | 128 | 343 | 309 | 137 |
| TBJC685*035 J □ # @ 0 ^ ++ | TBJC685*035 J □ LC 9 ^ 45 | C | 6.8 | 35 | 600 | 1.8 | 18 | 36 | 6 | 9 | 10 | 0.110 | 428 | 385 | 171 | 257 | 231 | 103 |
| TBJD685*035 R □ # @ 0 ^ ++ | TBJD685*035 R □ LC 9 ^ 45 | D | 6.8 | 35 | 1300 | 1.8 | 18 | 36 | 6 | 9 | 10 | 0.150 | 340 | 306 | 136 | 442 | 397 | 177 |
| TBJC106*035 R □ # @ 0 ^ ++ | TBJC106*035 R □ LC 9 ^ 45 | C | 10 | 35 | 800 | 2.6 | 26 | 52 | 6 | 9 | 10 | 0.110 | 371 | 334 | 148 | 297 | 267 | 119 |
| TBJC106*035 J □ # @ 0 ^ ++ | TBJC106*035 J □ LC 9 ^ 45 | C | 10 | 35 | 600 | 2.6 | 26 | 52 | 6 | 9 | 10 | 0.110 | 428 | 385 | 171 | 257 | 231 | 103 |
| TBJD106*035 R □ # @ 0 ^ ++ | TBJD106*035 R □ LC 9 ^ 45 | D | 10 | 35 | 800 | 2.6 | 26 | 52 | 6 | 9 | 10 | 0.150 | 433 | 390 | 173 | 346 | 312 | 139 |
| TBJD106*035 J □ # @ 0 ^ ++ | TBJD106*035 J □ LC 9 ^ 45 | D | 10 | 35 | 250 | 2.6 | 26 | 52 | 6 | 9 | 10 | 0.150 | 775 | 697 | 310 | 194 | 174 | 77 |
| TBJD156*035 R □ # @ 0 ^ ++ | TBJD156*035 R □ LC 9 ^ 45 | D | 15 | 35 | 720 | 3.9 | 39 | 78 | 6 | 9 | 10 | 0.150 | 456 | 411 | 183 | 329 | 296 | 131 |
| TBJD156*035 J □ # @ 0 ^ ++ | TBJD156*035 J □ LC 9 ^ 45 | D | 15 | 35 | 225 | 3.9 | 39 | 78 | 6 | 9 | 10 | 0.150 | 816 | 735 | 327 | 184 | 165 | 73 |
| TBJD226*035 R □ # @ 0 ^ ++ | TBJD226*035 R □ LC 9 ^ 45 | D | 22 | 35 | 650 | 5.8 | 58 | 116 | 6 | 9 | 10 | 0.150 | 480 | 432 | 192 | 312 | 281 | 125 |
| TBJD226*035 J □ # @ 0 ^ ++ | TBJD226*035 J □ LC 9 ^ 45 | D | 22 | 35 | 200 | 5.8 | 58 | 116 | 6 | 9 | 10 | 0.150 | 866 | 779 | 346 | 173 | 156 | 69 |
| TBJE336*035 R □ # @ 0 ^ ++ | TBJE336*035 R □ LC 9 ^ 45 | E | 33 | 35 | 590 | 8.7 | 87 | 174 | 6 | 9 | 10 | 0.165 | 529 | 476 | 212 | 312 | 281 | 125 |
| TBJE336*035 J □ # @ 0 ^ ++ | TBJE336*035 J □ LC 9 ^ 45 | E | 33 | 35 | 250 | 8.7 | 87 | 174 | 6 | 9 | 10 | 0.165 | 812 | 731 | 325 | 203 | 183 | 81 |
| TBJU476*035 R □ # @ 0 ^ ++ | TBJU476*035 R □ LC 9 ^ 45 | U | 47 | 35 | 400 | 12.3 | 123 | 246 | 10 | 12 | 12 | 0.165 | 642 | 578 | 257 | 257 | 231 | 103 |
| TBJU476*035 J □ # @ 0 ^ ++ | TBJU476*035 J □ LC 9 ^ 45 | U | 47 | 35 | 200 | 12.3 | 123 | 246 | 10 | 12 | 12 | 0.165 | 908 | 817 | 363 | 182 | 163 | 73 |
| TBJA224*050 R □ # @ 0 ^ ++ | TBJA224*050 R □ LC 9 ^ 45 | A | 0.22 | 50 | 7200 | 0.3 | 3 | 6 | 4 | 6 | 8 | 0.075 | 100 | 90 | 40 | 750 | 675 | 300 |
| TBJA224*050 J □ # @ 0 ^ ++ | TBJA224*050 J □ LC 9 ^ 45 | A | 0.22 | 50 | 7000 | 0.3 | 3 | 6 | 4 | 6 | 8 | 0.075 | 104 | 93 | 41 | 725 | 652 | 290 |
| TBJA334*050 R □ # @ 0 ^ ++ | TBJA334*050 R □ LC 9 ^ 45 | A | 0.33 | 50 | 7000 | 0.3 | 3 | 6 | 4 | 6 | 8 | 0.075 | 104 | 93 | 41 | 725 | 652 | 290 |
| TBJB474*050 R □ # @ 0 ^ ++ | TBJB474*050 R □ LC 9 ^ 45 | B | 0.47 | 50 | 5000 | 0.3 | 3 | 6 | 4 | 6 | 8 | 0.085 | 130 | 117 | 52 | 652 | 587 | 261 |
| TBJB684*050 R □ # @ 0 ^ ++ | TBJB684*050 R □ LC 9 ^ 45 | B | 0.68 | 50 | 4000 | 0.3 | 3 | 6 | 4 | 6 | 8 | 0.085 | 146 | 131 | 58 | 583 | 525 | 233 |
| TBJB684*050 J □ # @ 0 ^ ++ | TBJB684*050 J □ LC 9 ^ 45 | B | 0.68 | 50 | 2000 | 0.3 | 3 | 6 | 4 | 6 | 8 | 0.085 | 206 | 186 | 82 | 412 | 371 | 165 |
| TBJB105*050 R □ # @ 0 ^ ++ | TBJB105*050 R □ LC 9 ^ 45 | B | 1 | 50 | 3400 | 0.4 | 4 | 8 | 4 | 6 | 8 | 0.085 | 158 | 142 | 63 | 538 | 484 | 215 |
| TBJB105*050 J □ # @ 0 ^ ++ | TBJB105*050 J □ LC 9 ^ 45 | B | 1 | 50 | 2000 | 0.4 | 4 | 8 | 4 | 6 | 8 | 0.085 | 206 | 186 | 82 | 412 | 371 | 165 |
| TBJC105*050 R □ # @ 0 ^ ++ | TBJC105*050 R □ LC 9 ^ 45 | C | 1 | 50 | 3000 | 0.4 | 4 | 8 | 4 | 6 | 8 | 0.110 | 191 | 172 | 77 | 574 | 517 | 230 |
| TBJC155*050 R □ # @ 0 ^ ++ | TBJC155*050 R □ LC 9 ^ 45 | C | 1.5 | 50 | 2500 | 0.6 | 6 | 12 | 6 | 9 | 10 | 0.110 | 210 | 189 | 84 | 524 | 472 | 210 |
| TBJC155*050 J □ # @ 0 ^ ++ | TBJC155*050 J □ LC 9 ^ 45 | C | 1.5 | 50 | 1500 | 0.6 | 6 | 12 | 6 | 9 | 10 | 0.110 | 271 | 244 | 108 | 406 | 366 | 162 |
| TBJC225*050 R □ # @ 0 ^ ++ | TBJC225*050 R □ LC 9 ^ 45 | C | 2.2 | 50 | 1700 | 0.8 | 8 | 16 | 6 | 9 | 10 | 0.110 | 254 | 229 | 102 | 432 | 389 | 173 |
| TBJC225*050 J □ # @ 0 ^ ++ | TBJC225*050 J □ LC 9 ^ 45 | C | 2.2 | 50 | 1000 | 0.8 | 8 | 16 | 6 | 9 | 10 | 0.110 | 332 | 298 | 133 | 332 | 298 | 133 |
| TBJD225*050 R □ # @ 0 ^ ++ | TBJD225*050 R □ LC 9 ^ 45 | D | 2.2 | 50 | 2000 | 0.8 | 8 | 16 | 4.5 | 7 | 9 | 0.150 | 274 | 246 | 110 | 548 | 493 | 219 |
| TBJD225*050 J □ # @ 0 ^ ++ | TBJD225*050 J □ LC 9 ^ 45 | D | 2.2 | 50 | 1200 | 0.8 | 8 | 16 | 4.5 | 7 | 9 | 0.150 | 354 | 318 | 141 | 424 | 382 | 170 |
| TBJC335*050 R □ # @ 0 ^ ++ | TBJC335*050 R □ LC 9 ^ 45 | C | 3.3 | 50 | 1400 | 1.2 | 12 | 24 | 6 | 9 | 10 | 0.110 | 280 | 252 | 112 | 392 | 353 | 157 |
| TBJC335*050 J □ # @ 0 ^ ++ | TBJC335*050 J □ LC 9 ^ 45 | C | 3.3 | 50 | 1000 | 1.2 | 12 | 24 | 6 | 9 | 10 | 0.110 | 332 | 298 | 133 | 332 | 298 | 133 |
| TBJD335*050 R □ # @ 0 ^ ++ | TBJD335*050 R □ LC 9 ^ 45 | D | 3.3 | 50 | 1100 | 1.2 | 12 | 24 | 4.5 | 7 | 9 | 0.150 | 369 | 332 | 148 | 406 | 366 | 162 |
| TBJD335*050 J □ # @ 0 ^ ++ | TBJD335*050 J □ LC 9 ^ 45 | D | 3.3 | 50 | 800 | 1.2 | 12 | 24 | 4.5 | 7 | 9 | 0.150 | 433 | 390 | 173 | 346 | 312 | 139 |
| TBJD475*050 R □ # @ 0 ^ ++ | TBJD475*050 R □ LC 9 ^ 45 | D | 4.7 | 50 | 900 | 1.8 | 18 | 36 | 4.5 | 7 | 9 | 0.150 | 408 | 367 | 163 | 367 | 331 | 147 |
| TBJD475*050 J □ # @ 0 ^ ++ | TBJD475*050 J □ LC 9 ^ 45 | D | 4.7 | 50 | 600 | 1.8 | 18 | 36 | 4.5 | 7 | 9 | 0.150 | 500 | 450 | 200 | 300 | 270 | 120 |
| TBJD685*050 R □ # @ 0 ^ ++ | TBJD685*050 R □ LC 9 ^ 45 | D | 6.8 | 50 | 700 | 2.6 | 26 | 52 | 4.5 | 7 | 9 | 0.150 | 463 | 417 | 185 | 324 | 292 | 130 |
| TBJE106*050 R □ # @ 0 ^ ++ | TBJE106*050 R □ LC 9 ^ 45 | E | 10 | 50 | 700 | 3.8 | 38 | 76 | 4.5 | 7 | 9 | 0.165 | 486 | 437 | 194 | 340 | 306 | 136 |
| TBJE106*050 J □ # @ 0 ^ ++ | TBJE106*050 J □ LC 9 ^ 45 | E | 10 | 50 | 300 | 3.8 | 38 | 76 | 4.5 | 7 | 9 | 0.165 | 742 | 667 | 297 | 222 | 200 | 89 |
| TBJU156*050 R □ # @ 0 ^ ++ | TBJU156*050 R □ LC 9 ^ 45 | U | 15 | 50 | 500 | 5.6 | 56 | 112 | 30 | 45 | 45 | 0.165 | 574 | 517 | 230 | 287 | 259 | 115 |
| TBJU226*050 R □ # @ 0 ^ ++ | TBJU226*050 R □ LC 9 ^ 45 | U | 22 | 50 | 500 | 8.2 | 82 | 164 | 30 | 45 | 45 | 0.165 | 574 | 517 | 230 | 287 | 259 | 115 |

All technical data relates to an ambient temperature of +25°C. Capacitance and DF are measured at 120Hz, 0.5V RMS with a maximum DC bias of 2.2 volts. DCL is measured at rated voltage after 5 minutes.

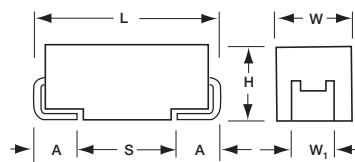
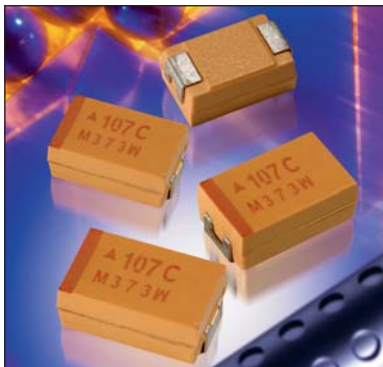
NOTE: AVX reserves the right to supply a higher voltage rating or tighter tolerance part in the same case size, to the same reliability standards.



DSCC Dwgs 07016 & 95158



COTS-Plus



MARKING

(Brown marking on gold body)



Polarity Stripe (+)
Capacitance Code
Rated Voltage
Manufacturer's ID
Lot Number

The DSCC 07016 & 95158 families, based on the CWR11 form factor, are high reliability series encompassing the current range of EIA Low ESR ratings. DSCC 07016 has the widest range of case sizes, capacitance / voltage ratings, and is offered with Weibull Grade "B" and "C" reliability with all MIL-PRF-55365 Rev. G surge test options ("A", "B" & "C").

For Space Level applications, AVX SRC9000 qualification is recommend. Please refer to the TBJ COTS-Plus SRC9000 datasheet for part number availability.

There are four termination finishes available: solder plated, fused solder plated, hot solder dipped and gold plated (these correspond to "H", "K", "C" and "B" termination, respectively, per MIL-PRF-55365).

The molding compound has been selected to meet the requirements of UL94V-0 (Flame Retardancy) and outgassing requirements of ASTM E-595.

For moisture sensitivity levels please refer to the High Reliability Tantalum MSL section located in the back of the High Reliability Tantalum Catalog.

CASE DIMENSIONS: millimeters (inches)

| Code | EIA Code | EIA Metric | L±0.20 (0.008) | W+0.20 (0.008) -0.10 (0.004) | H+0.20 (0.008) -0.10 (0.004) | W ₁ ±0.20 (0.008) | A+0.30 (0.012) -0.20 (0.008) | S Min. |
|------|----------|------------|----------------|------------------------------|------------------------------|------------------------------|------------------------------|--------------|
| A | 1206 | 3216-18 | 3.20 (0.126) | 1.60 (0.063) | 1.60 (0.063) | 1.20 (0.047) | 0.80 (0.031) | 1.10 (0.043) |
| B | 1210 | 3528-21 | 3.50 (0.138) | 2.80 (0.110) | 1.90 (0.075) | 2.20 (0.087) | 0.80 (0.031) | 1.40 (0.055) |
| C | 2312 | 6032-28 | 6.00 (0.236) | 3.20 (0.126) | 2.60 (0.102) | 2.20 (0.087) | 1.30 (0.051) | 2.90 (0.114) |
| D | 2917 | 7343-31 | 7.30 (0.287) | 4.30 (0.169) | 2.90 (0.114) | 2.40 (0.094) | 1.30 (0.051) | 4.40 (0.173) |
| E | 2917 | 7343-43 | 7.30 (0.287) | 4.30 (0.169) | 4.10 (0.162) | 2.40 (0.094) | 1.30 (0.051) | 4.40 (0.173) |
| V | 2924 | 7361-38 | 7.30 (0.287) | 6.10 (0.240) | 3.55 (0.140) | 3.10 (0.120) | 1.30 (0.051) | 4.40 (0.173) |

W₁ dimension applies to the termination width for A dimensional area only.

CAPACITANCE AND RATED VOLTAGE, V_R (EIA VOLTAGE CODE) RANGE LETTER DENOTES CASE SIZE (ESR LIMITS IN PARENTHESES)

| Capacitance | | Rated Voltage DC (V _R) to 85°C | | | | | | | |
|-------------|------|--|-------------------------|-------------------------------|--------------------------|-------------------------|---------------------------------|------------------------------|-----------------|
| µF | Code | 4V (G) | 6V (J) | 10V (A) | 16V (C) | 20V (D) | 25V (E) | 35V (V) | 50V (T) |
| 0.15 | 154 | | | | | | | | A(15000) |
| 0.22 | 224 | | | | | | | | A(18000) |
| 0.47 | 474 | | | | | | | A(12000) | A(9500)/B(9500) |
| 0.68 | 684 | | | | | | A(10000) | A(8000) | A(7900) |
| 1.0 | 105 | | | | | | A(8000) | A(7500) | A(6600)/B(7000) |
| 1.5 | 155 | | | | | A(6500) | A(3000,7500) | A(7500)/B(5200) | C(2000)/D(1500) |
| 2.2 | 225 | | | | A(5500) | A(3000) | A(7000)/B(2000) | B(2000) | D(1200) |
| 3.3 | 335 | | A(8000) | | A(3500,5000) | | B(2000) | B(1000) | D(800) |
| 4.7 | 475 | | A(6000) | A(5000) | A(2000) | A(1800,4000) B(1000) | A(3100) B(700,1500) | B(1500) C(600)/D(450) | D(300) |
| 6.8 | 685 | | A(5000) | A(4000) | A(1500)/B(1200) | B(1000) | B(700,2800) C(700) | C(350)/D(400) E(300) | D(300,600) |
| 10 | 106 | | A(4000) | A(1800,3000) | A(3000)/B(900) | B(500,1000) C(700) | C(300,500) | C(1600)/D(125,300) E(250) | |
| 15 | 156 | | A(3500) | A(1000,3200) B(600) | B(500,800) | B(500)/C(450) D(275) | D(275)/E(200) | C(450)/D(100,300) E(225) | |
| 22 | 226 | | A(3000)/B(600) | B(500,700) C(300) | B(500,600) C(150,375) | B(600)/C(400) D(275) | C(275,400) D(100,200)/E(225) | D(125,400) E(125,300) | |
| 33 | 336 | A(3000) | B(600) | A(700)/B(425,650) C(500) | C(100,300) D(250) | C(300) D(100,200) | D(90,300) E(100,175) | D(200,300) E(300) | |
| 47 | 476 | | C(300) | C(200,350) D(200) | C(110,350) D(80,200) | D(100,200) E(150) | D(175,250) | E(250)/V(200) | |
| 68 | 686 | A(1500) | B(500)/C(200) D(175) | C(80,300) D(150)/E(150) | D(150) | D(70,200) E(150,200) | V(95) | | |
| 100 | 107 | A(1400) B(900) | C(75,150) | C(75,200) D(50,100)/E(100) | D(50,125) E(125) | V(60) | | | |
| 150 | 157 | | D(125)/E(125) | D(50,100)/E(100) | D(60,150)/V(45) | | | | |
| 220 | 227 | | D(100,125) E(100) | D(50,150) E(50,100) | V(50) | | | | |
| 330 | 337 | | E(50,150) | D(50,150) E(50,100)/V(40) | | | | | |
| 470 | 477 | | E(50,200)/V(40) | E(50,200)/V(40) | | | | | |
| 1000 | 108 | E(200) | | | | | | | |

NOTE: EIA standards for Low ESR solid tantalum capacitors allow an ESR movement of 1.25 times initial limit post mounting.



DSCC Dwgs 07016 & 95158



COTS-Plus

HOW TO ORDER

DSCC DWG P/N:

07016

DSCC DWG
07016

-001

Dash
Number
See Rating
Tables

K

Capacitance
Tolerance
K = $\pm 10\%$
M = $\pm 20\%$

B

Reliability
Grade
B = B Weibull
C = C Weibull
D = D Weibull

C

Termination Finish
B = Gold Plated (10 microinch minimum)
H = Solder Plated (50 microinch minimum)
C = Hot Solder Dip (60 microinch minimum)

A

Surge Test
Option
A = 10 cycles, +25°C
B = 10 cycles,
-55°C & +85°C
C = 10 cycles,
-55°C & +85°C
before Weibull
Z = None required
Per MIL-PRF-55365



For RoHS compliant products,
please select correct termination style.

95158

DSCC DWG
95158

-01

Dash
Number
See Rating
Tables

K

Capacitance
Tolerance
K = $\pm 10\%$
M = $\pm 20\%$

H

Termination Finish
B = Gold Plated (10 microinch minimum)
H = Solder Plated (100 microinch minimum)



For RoHS compliant products,
please select correct termination style.

TECHNICAL SPECIFICATIONS

| | | | | | | | | | | |
|----------------------------|---|-----|---|----|----|----|----|----|----|--|
| Technical Data: | Unless otherwise specified, all technical data relate to an ambient temperature of 25°C | | | | | | | | | |
| Capacitance Range: | 0.15 μ F to 1000 μ F | | | | | | | | | |
| Capacitance Tolerance: | $\pm 10\%$; $\pm 20\%$ | | | | | | | | | |
| Rated Voltage (V_R) | $\leq 85^\circ\text{C}$: | 4 | 6 | 10 | 16 | 20 | 25 | 35 | 50 | |
| Category Voltage (V_C) | $\leq 125^\circ\text{C}$: | 2.7 | 4 | 7 | 10 | 13 | 17 | 23 | 33 | |
| Surge Voltage (V_S) | $\leq 85^\circ\text{C}$: | 5.2 | 8 | 13 | 20 | 26 | 32 | 46 | 65 | |
| Surge Voltage (V_S) | $\leq 125^\circ\text{C}$: | 3.4 | 5 | 8 | 12 | 16 | 20 | 28 | 40 | |
| Temperature Range: | -55°C to +125°C | | | | | | | | | |

DSCC Dwgs 07016 & 95158



COTS-Plus

| RATING & PART NUMBER REFERENCE | | Parametric Specifications by Rating per DSCC 95158 or 07016 where applicable | | | | | | | | | Typical RMS Ripple Data by Rating | | | | | | |
|--------------------------------|-------|--|-------------------------------|-------------------------------|---------------|---------------|----------------|--------------|--------------|---------------|-----------------------------------|---------------------------|---------------------------|----------------------------|---------------------------|---------------------------|----------------------------|
| | | Cap @ 120Hz µF @ 25°C | DC Rated Voltage V @ +85°C | ESR @ 100kHz mOhms @ +25°C | DCL max | | | DF Max | | | Power Dissipation W | 25°C Ripple A (100kHz) | 85°C Ripple A (100kHz) | 125°C Ripple A (100kHz) | 25°C Ripple V (100kHz) | 85°C Ripple V (100kHz) | 125°C Ripple V (100kHz) |
| | | | | | +25°C (µA) | +85°C (µA) | +125°C (µA) | +25°C (%) | +85°C (%) | +125°C (%) | | | | | | | |
| 07016 001 * @ ^+ A | 33 | 4 | 3000 | 1.4 | 14 | 17 | 6 | 9 | 9 | 0.075 | 0.16 | 0.14 | 0.06 | 0.47 | 0.43 | 0.19 | |
| 07016 002 * @ ^+ A | 68 | 4 | 1500 | 2.7 | 27 | 32 | 10 | 12 | 14 | 0.075 | 0.22 | 0.20 | 0.09 | 0.34 | 0.30 | 0.13 | |
| 07016 003 * @ ^+ A | 100 | 4 | 1400 | 4 | 40 | 48 | 30 | 36 | 42 | 0.075 | 0.23 | 0.21 | 0.09 | 0.32 | 0.29 | 0.13 | |
| 07016 004 * @ ^+ B | 100 | 4 | 900 | 4 | 40 | 48 | 8 | 10 | 12 | 0.085 | 0.31 | 0.28 | 0.12 | 0.28 | 0.25 | 0.11 | |
| 07016 005 * @ ^+ E | 1,000 | 4 | 200 | 40 | 400 | 480 | 60 | 90 | 90 | 0.165 | 0.91 | 0.82 | 0.36 | 0.18 | 0.16 | 0.07 | |
| 07016 006 * @ ^+ A | 3.3 | 6 | 8000 | 0.5 | 5 | 6 | 6 | 9 | 9 | 0.075 | 0.10 | 0.09 | 0.04 | 0.77 | 0.70 | 0.31 | |
| 07016 007 * @ ^+ A | 4.7 | 6 | 6000 | 0.5 | 5 | 6 | 6 | 9 | 10 | 0.075 | 0.11 | 0.10 | 0.04 | 0.67 | 0.60 | 0.27 | |
| 07016 008 * @ ^+ A | 6.8 | 6 | 5000 | 0.5 | 5 | 6 | 6 | 9 | 10 | 0.075 | 0.12 | 0.11 | 0.05 | 0.61 | 0.55 | 0.24 | |
| 07016 009 * @ ^+ A | 10 | 6 | 4000 | 0.6 | 10 | 11 | 6 | 9 | 10 | 0.075 | 0.14 | 0.12 | 0.05 | 0.55 | 0.49 | 0.22 | |
| 07016 010 * @ ^+ A | 15 | 6 | 3500 | 0.9 | 10 | 11 | 6 | 9 | 10 | 0.075 | 0.15 | 0.13 | 0.06 | 0.51 | 0.46 | 0.20 | |
| 07016 011 * @ ^+ A | 22 | 6 | 3000 | 1.4 | 14 | 17 | 6 | 9 | 10 | 0.075 | 0.16 | 0.14 | 0.06 | 0.47 | 0.43 | 0.19 | |
| 07016 012 * @ ^+ B | 22 | 6 | 600 | 1.4 | 14 | 17 | 6 | 9 | 10 | 0.085 | 0.38 | 0.34 | 0.15 | 0.23 | 0.20 | 0.09 | |
| 07016 013 * @ ^+ B | 33 | 6 | 600 | 2.1 | 21 | 25 | 6 | 9 | 10 | 0.085 | 0.38 | 0.34 | 0.15 | 0.23 | 0.20 | 0.09 | |
| 07016 014 * @ ^+ C | 47 | 6 | 300 | 3 | 30 | 36 | 6 | 9 | 10 | 0.110 | 0.61 | 0.54 | 0.24 | 0.18 | 0.16 | 0.07 | |
| 07016 015 * @ ^+ B | 68 | 6 | 500 | 4.3 | 43 | 51 | 8 | 10 | 12 | 0.085 | 0.41 | 0.37 | 0.16 | 0.21 | 0.19 | 0.08 | |
| 07016 016 * @ ^+ C | 68 | 6 | 200 | 4.3 | 43 | 51 | 6 | 9 | 10 | 0.110 | 0.74 | 0.67 | 0.30 | 0.15 | 0.13 | 0.06 | |
| 95158 01 * ^ D | 68 | 6 | 175 | 3.3 | 19.8 | 33 | 4 | 6 | 6 | 0.150 | 0.93 | 0.83 | 0.37 | 0.16 | 0.15 | 0.06 | |
| 07016 017 * @ ^+ C | 100 | 6 | 150 | 6.3 | 63 | 76 | 6 | 9 | 10 | 0.110 | 0.86 | 0.77 | 0.34 | 0.13 | 0.12 | 0.05 | |
| 07016 018 * @ ^+ C | 100 | 6 | 75 | 6.3 | 63 | 76 | 6 | 9 | 10 | 0.110 | 1.21 | 1.09 | 0.48 | 0.09 | 0.08 | 0.04 | |
| 07016 019 * @ ^+ D | 150 | 6 | 125 | 9.5 | 95 | 113 | 6 | 9 | 10 | 0.150 | 1.10 | 0.99 | 0.44 | 0.14 | 0.12 | 0.05 | |
| 95158 02 * ^ E | 150 | 6 | 125 | 7.2 | 43.2 | 72 | 6 | 8 | 8 | 0.165 | 1.15 | 1.03 | 0.46 | 0.14 | 0.13 | 0.06 | |
| 07016 020 * @ ^+ D | 220 | 6 | 125 | 13.9 | 139 | 166 | 8 | 10 | 12 | 0.150 | 1.10 | 0.99 | 0.44 | 0.14 | 0.12 | 0.05 | |
| 95158 25 * ^ D | 220 | 6 | 100 | 13.2 | 132 | 165 | 8 | 10 | 12 | 0.150 | 1.22 | 1.10 | 0.49 | 0.12 | 0.11 | 0.05 | |
| 95158 03 * ^ E | 220 | 6 | 100 | 13.2 | 132 | 165 | 8 | 12 | 12 | 0.165 | 1.28 | 1.16 | 0.51 | 0.13 | 0.12 | 0.05 | |
| 07016 021 * @ ^+ E | 330 | 6 | 150 | 20.8 | 208 | 249 | 8 | 10 | 12 | 0.165 | 1.05 | 0.94 | 0.42 | 0.16 | 0.14 | 0.06 | |
| 07016 022 * @ ^+ E | 330 | 6 | 50 | 20.8 | 208 | 249 | 8 | 10 | 12 | 0.165 | 1.82 | 1.63 | 0.73 | 0.09 | 0.08 | 0.04 | |
| 07016 023 M @ ^+ E | 470 | 6 | 200 | 29.6 | 296 | 355 | 10 | 12 | 14 | 0.165 | 0.91 | 0.82 | 0.36 | 0.18 | 0.16 | 0.07 | |
| 07016 024 M @ ^+ E | 470 | 6 | 50 | 29.6 | 296 | 355 | 10 | 12 | 14 | 0.165 | 1.82 | 1.63 | 0.73 | 0.09 | 0.08 | 0.04 | |
| 07016 025 * @ ^+ V | 470 | 6 | 40 | 29.6 | 296 | 355 | 10 | 12 | 12 | 0.250 | 2.50 | 2.25 | 1.00 | 0.10 | 0.09 | 0.04 | |
| 07016 026 * @ ^+ A | 4.7 | 10 | 5000 | 0.5 | 5 | 6 | 6 | 9 | 10 | 0.075 | 0.12 | 0.11 | 0.05 | 0.61 | 0.55 | 0.24 | |
| 07016 027 * @ ^+ A | 6.8 | 10 | 4000 | 0.7 | 7 | 8 | 6 | 9 | 10 | 0.075 | 0.14 | 0.12 | 0.05 | 0.55 | 0.49 | 0.22 | |
| 07016 028 * @ ^+ A | 10 | 10 | 3000 | 1 | 10 | 12 | 6 | 9 | 10 | 0.075 | 0.16 | 0.14 | 0.06 | 0.47 | 0.43 | 0.19 | |
| 07016 029 * @ ^+ A | 10 | 10 | 1800 | 1 | 10 | 12 | 6 | 9 | 10 | 0.075 | 0.20 | 0.18 | 0.08 | 0.37 | 0.33 | 0.15 | |
| 07016 030 * @ ^+ A | 15 | 10 | 3200 | 1.6 | 16 | 19 | 6 | 9 | 10 | 0.075 | 0.15 | 0.14 | 0.06 | 0.49 | 0.44 | 0.20 | |
| 07016 031 * @ ^+ A | 15 | 10 | 1000 | 1.6 | 16 | 19 | 6 | 9 | 10 | 0.075 | 0.27 | 0.25 | 0.11 | 0.27 | 0.25 | 0.11 | |
| 07016 032 * @ ^+ B | 15 | 10 | 600 | 1.6 | 16 | 19 | 6 | 9 | 10 | 0.085 | 0.38 | 0.34 | 0.15 | 0.23 | 0.20 | 0.09 | |
| 07016 033 * @ ^+ B | 22 | 10 | 700 | 2.2 | 22 | 26 | 6 | 9 | 10 | 0.085 | 0.35 | 0.31 | 0.14 | 0.24 | 0.22 | 0.10 | |
| 07016 034 * @ ^+ B | 22 | 10 | 500 | 2.2 | 22 | 26 | 6 | 9 | 10 | 0.085 | 0.41 | 0.37 | 0.16 | 0.21 | 0.19 | 0.08 | |
| 07016 035 * @ ^+ C | 22 | 10 | 300 | 2.2 | 22 | 26 | 6 | 9 | 10 | 0.110 | 0.61 | 0.54 | 0.24 | 0.18 | 0.16 | 0.07 | |
| 07016 036 * @ ^+ A | 33 | 10 | 700 | 3.3 | 33 | 40 | 8 | 10 | 12 | 0.075 | 0.33 | 0.29 | 0.13 | 0.23 | 0.21 | 0.09 | |
| 07016 037 * @ ^+ B | 33 | 10 | 650 | 3.3 | 33 | 40 | 6 | 9 | 10 | 0.085 | 0.36 | 0.33 | 0.14 | 0.24 | 0.21 | 0.09 | |
| 07016 038 * @ ^+ B | 33 | 10 | 425 | 3.3 | 33 | 40 | 6 | 9 | 10 | 0.085 | 0.45 | 0.40 | 0.18 | 0.19 | 0.17 | 0.08 | |
| 07016 039 * @ ^+ C | 33 | 10 | 500 | 3.3 | 33 | 40 | 6 | 9 | 10 | 0.110 | 0.47 | 0.42 | 0.19 | 0.23 | 0.21 | 0.09 | |
| 07016 040 * @ ^+ C | 47 | 10 | 350 | 4.7 | 47 | 56 | 6 | 9 | 10 | 0.110 | 0.56 | 0.50 | 0.22 | 0.20 | 0.18 | 0.08 | |
| 07016 041 * @ ^+ C | 47 | 10 | 200 | 4.7 | 47 | 56 | 6 | 9 | 10 | 0.110 | 0.74 | 0.67 | 0.30 | 0.15 | 0.13 | 0.06 | |
| 95158 -04 * ^ D | 47 | 10 | 200 | 3.8 | 22.8 | 38 | 4 | 6 | 6 | 0.150 | 0.87 | 0.78 | 0.35 | 0.17 | 0.16 | 0.07 | |
| 07016 042 * @ ^+ C | 68 | 10 | 300 | 6.8 | 68 | 82 | 8 | 10 | 12 | 0.110 | 0.61 | 0.54 | 0.24 | 0.18 | 0.16 | 0.07 | |
| 07016 043 * @ ^+ C | 68 | 10 | 80 | 6.8 | 68 | 82 | 8 | 10 | 12 | 0.110 | 1.17 | 1.06 | 0.47 | 0.09 | 0.08 | 0.04 | |
| 07016 044 * @ ^+ D | 68 | 10 | 150 | 6.8 | 68 | 82 | 6 | 9 | 10 | 0.150 | 1.00 | 0.90 | 0.40 | 0.15 | 0.14 | 0.06 | |
| 95158 05 * ^ E | 68 | 10 | 150 | 5.4 | 32.4 | 54 | 4 | 6 | 6 | 0.165 | 1.05 | 0.94 | 0.42 | 0.16 | 0.14 | 0.06 | |
| 07016 045 * @ ^+ C | 100 | 10 | 200 | 10 | 100 | 120 | 8 | 10 | 12 | 0.110 | 0.74 | 0.67 | 0.30 | 0.15 | 0.13 | 0.06 | |
| 07016 046 * @ ^+ C | 100 | 10 | 75 | 10 | 100 | 120 | 8 | 10 | 12 | 0.110 | 1.21 | 1.09 | 0.48 | 0.09 | 0.08 | 0.04 | |
| 95158 06 * ^ D | 100 | 10 | 100 | 10 | 100 | 125 | 8 | 12 | 12 | 0.150 | 1.22 | 1.10 | 0.49 | 0.12 | 0.11 | 0.05 | |
| 07016 047 * @ ^+ D | 100 | 10 | 50 | 10 | 100 | 120 | 6 | 9 | 10 | 0.150 | 1.73 | 1.56 | 0.69 | 0.09 | 0.08 | 0.03 | |
| 95158 07 * ^ E | 100 | 10 | 100 | 8 | 48 | 80 | 6 | 8 | 8 | 0.165 | 1.28 | 1.16 | 0.51 | 0.13 | 0.12 | 0.05 | |

All technical data relates to an ambient temperature of +25°C. Capacitance and DF are measured at 120Hz, 0.5V RMS with a maximum DC bias of 2.2 volts. DCL is measured at rated voltage after 5 minutes.

NOTE: AVX reserves the right to supply a higher voltage rating or tighter tolerance part in the same case size, to the same reliability standards.

DSCC Dwgs 07016 & 95158



COTS-Plus

| RATING & PART NUMBER REFERENCE | | Parametric Specifications by Rating per DSCC 95158 or 07016 where applicable | | | | | | | | | Typical RMS Ripple Data by Rating | | | | | | |
|--------------------------------|---------|--|-------------------------------|-------------------------------|---------------|---------------|----------------|--------------|--------------------|--------------|-----------------------------------|---------------------------|---------------------------|----------------------------|---------------------------|---------------------------|----------------------------|
| | | Cap @ 120Hz µF @ 25°C | DC Rated Voltage V @ +85°C | ESR @ 100kHz mOhms @ +25°C | DCL max | | | DF Max | | | Power Dissipation W | 25°C Ripple A (100kHz) | 85°C Ripple A (100kHz) | 125°C Ripple A (100kHz) | 25°C Ripple V (100kHz) | 85°C Ripple V (100kHz) | 125°C Ripple V (100kHz) |
| | | | | | +25°C (µA) | +85°C (µA) | +125°C (µA) | +25°C (%) | +(85/125)°C (%) | -55°C (%) | | | | | | | |
| DSCC P/N | Case | | | | | | | | | | | | | | | | |
| 95158 26 | * ^ A | D | 150 | 10 | 100 | 15 | 150 | 187.5 | 8 | 10 | 12 | 0.150 | 1.22 | 1.10 | 0.49 | 0.11 | 0.05 |
| 07016 048 | * @ ^ + | D | 150 | 10 | 50 | 15 | 150 | 180 | 8 | 10 | 12 | 0.150 | 1.73 | 1.56 | 0.69 | 0.09 | 0.03 |
| 95158 08 | * ^ A | E | 150 | 10 | 100 | 15 | 150 | 187.5 | 8 | 12 | 12 | 0.165 | 1.28 | 1.16 | 0.51 | 0.13 | 0.05 |
| 07016 049 | * @ ^ + | D | 220 | 10 | 150 | 22 | 220 | 264 | 8 | 10 | 12 | 0.150 | 1.00 | 0.90 | 0.40 | 0.15 | 0.06 |
| 07016 050 | M @ ^ + | D | 220 | 10 | 50 | 15 | 150 | 180 | 8 | 10 | 12 | 0.150 | 1.73 | 1.56 | 0.69 | 0.09 | 0.03 |
| 95158 28 | * ^ A | E | 220 | 10 | 100 | 15 | 150 | 187.5 | 8 | 10 | 12 | 0.165 | 1.28 | 1.16 | 0.51 | 0.13 | 0.05 |
| 07016 051 | * @ ^ + | E | 220 | 10 | 50 | 22 | 220 | 264 | 8 | 10 | 12 | 0.165 | 1.82 | 1.63 | 0.73 | 0.09 | 0.04 |
| 07016 052 | M @ ^ + | D | 330 | 10 | 150 | 33 | 330 | 396 | 8 | 10 | 12 | 0.150 | 1.00 | 0.90 | 0.40 | 0.15 | 0.06 |
| 07016 053 | M @ ^ + | D | 330 | 10 | 50 | 33 | 330 | 396 | 8 | 10 | 12 | 0.150 | 1.73 | 1.56 | 0.69 | 0.09 | 0.03 |
| 07016 054 | * @ ^ + | E | 330 | 10 | 100 | 33 | 330 | 396 | 8 | 10 | 12 | 0.165 | 1.28 | 1.16 | 0.51 | 0.13 | 0.05 |
| 07016 055 | * @ ^ + | E | 330 | 10 | 50 | 33 | 330 | 396 | 8 | 10 | 12 | 0.165 | 1.82 | 1.63 | 0.73 | 0.09 | 0.04 |
| 07016 056 | * @ ^ + | V | 330 | 10 | 40 | 33 | 330 | 396 | 8 | 10 | 12 | 0.250 | 2.50 | 2.25 | 1.00 | 0.10 | 0.04 |
| 07016 057 | M @ ^ + | E | 470 | 10 | 200 | 47 | 470 | 564 | 10 | 12 | 14 | 0.165 | 0.91 | 0.82 | 0.36 | 0.18 | 0.07 |
| 07016 058 | M @ ^ + | E | 470 | 10 | 50 | 47 | 470 | 564 | 10 | 12 | 14 | 0.165 | 1.82 | 1.63 | 0.73 | 0.09 | 0.04 |
| 07016 059 | * @ ^ + | V | 470 | 10 | 40 | 47 | 470 | 564 | 10 | 12 | 14 | 0.250 | 2.50 | 2.25 | 1.00 | 0.09 | 0.04 |
| 07016 060 | * @ ^ + | A | 2.2 | 16 | 5500 | 0.5 | 5 | 6 | 6 | 9 | 10 | 0.075 | 0.12 | 0.11 | 0.05 | 0.64 | 0.26 |
| 07016 061 | * @ ^ + | A | 3.3 | 16 | 5000 | 0.5 | 5 | 6 | 6 | 9 | 10 | 0.075 | 0.12 | 0.11 | 0.05 | 0.61 | 0.24 |
| 07016 062 | * @ ^ + | A | 3.3 | 16 | 3500 | 0.5 | 5 | 6 | 6 | 9 | 10 | 0.075 | 0.15 | 0.13 | 0.06 | 0.51 | 0.20 |
| 07016 063 | * @ ^ + | A | 4.7 | 16 | 2000 | 0.8 | 8 | 10 | 6 | 9 | 10 | 0.075 | 0.19 | 0.17 | 0.08 | 0.39 | 0.15 |
| 07016 064 | * @ ^ + | A | 6.8 | 16 | 1500 | 1.1 | 11 | 13 | 6 | 9 | 10 | 0.075 | 0.22 | 0.20 | 0.09 | 0.34 | 0.13 |
| 07016 065 | * @ ^ + | B | 6.8 | 16 | 1200 | 1.1 | 11 | 13 | 6 | 9 | 10 | 0.085 | 0.27 | 0.24 | 0.11 | 0.32 | 0.13 |
| 07016 066 | * @ ^ + | A | 10 | 16 | 3000 | 1.6 | 16 | 19 | 6 | 9 | 10 | 0.075 | 0.16 | 0.14 | 0.06 | 0.47 | 0.19 |
| 07016 067 | * @ ^ + | B | 10 | 16 | 900 | 1.6 | 16 | 19 | 6 | 9 | 10 | 0.085 | 0.32 | 0.29 | 0.13 | 0.26 | 0.10 |
| 07016 068 | * @ ^ + | B | 15 | 16 | 800 | 2.4 | 24 | 29 | 6 | 9 | 10 | 0.085 | 0.33 | 0.29 | 0.13 | 0.26 | 0.10 |
| 07016 069 | * @ ^ + | B | 15 | 16 | 500 | 2.4 | 24 | 29 | 6 | 9 | 10 | 0.085 | 0.41 | 0.37 | 0.16 | 0.21 | 0.08 |
| 07016 070 | * @ ^ + | B | 22 | 16 | 600 | 3.6 | 36 | 43 | 6 | 9 | 10 | 0.085 | 0.38 | 0.34 | 0.15 | 0.23 | 0.09 |
| 07016 071 | * @ ^ + | C | 22 | 16 | 375 | 3.6 | 36 | 43 | 6 | 9 | 10 | 0.110 | 0.54 | 0.49 | 0.22 | 0.20 | 0.08 |
| 07016 072 | * @ ^ + | C | 22 | 16 | 150 | 3.6 | 36 | 43 | 6 | 9 | 10 | 0.110 | 0.86 | 0.77 | 0.34 | 0.13 | 0.05 |
| 07016 073 | * @ ^ + | B | 22 | 16 | 500 | 3.6 | 36 | 43 | 6 | 9 | 10 | 0.085 | 0.41 | 0.37 | 0.16 | 0.21 | 0.08 |
| 07016 074 | * @ ^ + | C | 33 | 16 | 300 | 5.3 | 53 | 64 | 6 | 9 | 10 | 0.110 | 0.61 | 0.54 | 0.24 | 0.18 | 0.07 |
| 07016 075 | * @ ^ + | C | 33 | 16 | 100 | 5.3 | 53 | 64 | 6 | 9 | 10 | 0.110 | 1.05 | 0.94 | 0.42 | 0.10 | 0.04 |
| 95158 09 | * ^ A | D | 33 | 16 | 250 | 4.2 | 25.2 | 42 | 4 | 6 | 6 | 0.150 | 0.77 | 0.70 | 0.31 | 0.19 | 0.08 |
| 07016 076 | * @ ^ + | C | 47 | 16 | 350 | 7.6 | 76 | 91 | 6 | 9 | 10 | 0.110 | 0.56 | 0.50 | 0.22 | 0.20 | 0.08 |
| 07016 077 | * @ ^ + | C | 47 | 16 | 110 | 7.6 | 76 | 91 | 6 | 9 | 10 | 0.110 | 1.00 | 0.90 | 0.40 | 0.11 | 0.04 |
| 07016 078 | * @ ^ + | D | 47 | 16 | 80 | 7.6 | 76 | 91 | 6 | 9 | 10 | 0.150 | 1.37 | 1.23 | 0.55 | 0.11 | 0.04 |
| 95158 10 | * ^ A | D | 47 | 16 | 200 | 7.5 | 75 | 94 | 6 | 9 | 9 | 0.150 | 0.87 | 0.78 | 0.35 | 0.17 | 0.07 |
| 07016 079 | * @ ^ + | D | 68 | 16 | 150 | 10.9 | 109 | 131 | 6 | 9 | 10 | 0.150 | 1.00 | 0.90 | 0.40 | 0.15 | 0.06 |
| 07016 080 | * @ ^ + | D | 100 | 16 | 125 | 16 | 160 | 192 | 6 | 9 | 10 | 0.150 | 1.10 | 0.99 | 0.44 | 0.14 | 0.05 |
| 07016 081 | * @ ^ + | D | 100 | 16 | 50 | 16 | 160 | 192 | 6 | 9 | 10 | 0.150 | 1.73 | 1.56 | 0.69 | 0.09 | 0.03 |
| 95158 11 | * ^ A | E | 100 | 16 | 125 | 16 | 160 | 200 | 8 | 12 | 12 | 0.165 | 1.15 | 1.03 | 0.46 | 0.14 | 0.06 |
| 07016 082 | M @ ^ + | D | 150 | 16 | 150 | 24 | 240 | 288 | 6 | 9 | 10 | 0.150 | 1.00 | 0.90 | 0.40 | 0.15 | 0.06 |
| 07016 083 | M @ ^ + | D | 150 | 16 | 60 | 24 | 240 | 288 | 6 | 9 | 10 | 0.150 | 1.58 | 1.42 | 0.63 | 0.09 | 0.04 |
| 07016 084 | * @ ^ + | V | 150 | 16 | 45 | 24 | 480 | 288 | 6 | 8 | 10 | 0.250 | 2.36 | 2.12 | 0.94 | 0.11 | 0.04 |
| 07016 085 | * @ ^ + | V | 220 | 16 | 50 | 35.2 | 352 | 422 | 8 | 10 | 12 | 0.250 | 2.24 | 2.01 | 0.89 | 0.11 | 0.04 |
| 07016 086 | * @ ^ + | A | 1.5 | 20 | 6500 | 0.5 | 5 | 6 | 6 | 8 | 10 | 0.075 | 0.11 | 0.10 | 0.04 | 0.70 | 0.28 |
| 07016 087 | * @ ^ + | A | 2.2 | 20 | 3000 | 0.5 | 5 | 6 | 6 | 8 | 10 | 0.075 | 0.16 | 0.14 | 0.06 | 0.47 | 0.19 |
| 07016 088 | * @ ^ + | A | 4.7 | 20 | 4000 | 1 | 10 | 12 | 6 | 8 | 10 | 0.075 | 0.14 | 0.12 | 0.05 | 0.55 | 0.22 |
| 07016 089 | * @ ^ + | A | 4.7 | 20 | 1800 | 1 | 10 | 12 | 6 | 8 | 10 | 0.075 | 0.20 | 0.18 | 0.08 | 0.37 | 0.15 |
| 07016 090 | * @ ^ + | B | 4.7 | 20 | 1000 | 2 | 20 | 24 | 6 | 8 | 10 | 0.085 | 0.29 | 0.26 | 0.12 | 0.29 | 0.12 |
| 07016 091 | * @ ^ + | B | 6.8 | 20 | 1000 | 1.4 | 14 | 17 | 6 | 8 | 10 | 0.085 | 0.29 | 0.26 | 0.12 | 0.29 | 0.12 |
| 07016 092 | * @ ^ + | B | 10 | 20 | 1000 | 0.7 | 7 | 8 | 6 | 8 | 10 | 0.085 | 0.29 | 0.26 | 0.12 | 0.29 | 0.12 |
| 07016 093 | * @ ^ + | B | 10 | 20 | 500 | 0.7 | 7 | 8 | 6 | 8 | 10 | 0.085 | 0.41 | 0.37 | 0.16 | 0.21 | 0.08 |
| 07016 094 | * @ ^ + | C | 10 | 20 | 700 | 1.4 | 14 | 17 | 6 | 8 | 10 | 0.110 | 0.40 | 0.36 | 0.16 | 0.28 | 0.11 |
| 07016 095 | * @ ^ + | B | 15 | 20 | 500 | 3 | 30 | 36 | 6 | 8 | 10 | 0.085 | 0.41 | 0.37 | 0.16 | 0.21 | 0.08 |
| 07016 096 | * @ ^ + | C | 15 | 20 | 450 | 3 | 30 | 36 | 6 | 8 | 10 | 0.110 | 0.49 | 0.44 | 0.20 | 0.22 | 0.09 |
| 95158 12 | * ^ A | D | 15 | 20 | 275 | 2.4 | 14.4 | 24 | 4 | 6 | 6 | 0.150 | 0.74 | 0.66 | 0.30 | 0.20 | 0.08 |

All technical data relates to an ambient temperature of +25°C. Capacitance and DF are measured at 120Hz, 0.5V RMS with a maximum DC bias of 2.2 volts. DCL is measured at rated voltage after 5 minutes.

NOTE: AVX reserves the right to supply a higher voltage rating or tighter tolerance part in the same case size, to the same reliability standards.



DSCC Dwgs 07016 & 95158



COTS-Plus

| RATING & PART NUMBER REFERENCE | | Parametric Specifications by Rating per DSCC 95158 or 07016 where applicable | | | | | | | | | Typical RMS Ripple Data by Rating | | | | | | |
|--------------------------------|---------|--|-------------------------------|-------------------------------|---------------|---------------|----------------|--------------|--------------------|--------------|-----------------------------------|---------------------------|---------------------------|----------------------------|---------------------------|---------------------------|----------------------------|
| | | Cap @ 120Hz µF @ 25°C | DC Rated Voltage @ +85°C V | ESR @ 100kHz @ +25°C mOhms | DCL max | | | DF Max | | | Power Dissipation W | 25°C Ripple A (100kHz) | 85°C Ripple A (100kHz) | 125°C Ripple A (100kHz) | 25°C Ripple V (100kHz) | 85°C Ripple V (100kHz) | 125°C Ripple V (100kHz) |
| | | | | | +25°C (µA) | +85°C (µA) | +125°C (µA) | +25°C (%) | +(85/125)°C (%) | -55°C (%) | | | | | | | |
| DSCC P/N | Case | | | | | | | | | | | | | | | | |
| 07016 097 | * @ ^ + | B | 22 | 20 | 600 | 4.4 | 44 | 53 | 6 | 8 | 10 | 0.085 | 0.38 | 0.34 | 0.15 | 0.20 | 0.09 |
| 07016 098 | * @ ^ + | C | 22 | 20 | 400 | 4.4 | 44 | 53 | 6 | 8 | 10 | 0.110 | 0.52 | 0.47 | 0.21 | 0.19 | 0.08 |
| 95158 13 | * ^ | D | 22 | 20 | 275 | 3.5 | 21 | 35 | 4 | 6 | 6 | 0.150 | 0.74 | 0.66 | 0.30 | 0.20 | 0.18 |
| 07016 099 | * @ ^ + | C | 33 | 20 | 300 | 6.6 | 66 | 79 | 6 | 8 | 10 | 0.110 | 0.61 | 0.54 | 0.24 | 0.18 | 0.16 |
| 07016 100 | * @ ^ + | D | 33 | 20 | 200 | 6.6 | 66 | 79 | 6 | 8 | 10 | 0.150 | 0.87 | 0.78 | 0.35 | 0.17 | 0.16 |
| 07016 101 | * @ ^ + | D | 33 | 20 | 100 | 6.6 | 66 | 79 | 6 | 8 | 10 | 0.150 | 1.22 | 1.10 | 0.49 | 0.12 | 0.11 |
| 07016 102 | * @ ^ + | D | 47 | 20 | 200 | 9.4 | 94 | 113 | 6 | 8 | 10 | 0.150 | 0.87 | 0.78 | 0.35 | 0.17 | 0.16 |
| 07016 103 | * @ ^ + | D | 47 | 20 | 100 | 9.4 | 94 | 113 | 6 | 8 | 10 | 0.150 | 1.22 | 1.10 | 0.49 | 0.12 | 0.11 |
| 95158 14 | * ^ | E | 47 | 20 | 150 | 7.5 | 45 | 75 | 4 | 6 | 6 | 0.165 | 1.05 | 0.94 | 0.42 | 0.16 | 0.14 |
| 07016 104 | * @ ^ + | D | 68 | 20 | 200 | 13.6 | 136 | 163 | 6 | 8 | 10 | 0.150 | 0.87 | 0.78 | 0.35 | 0.17 | 0.16 |
| 07016 105 | * @ ^ + | D | 68 | 20 | 70 | 13.6 | 136 | 163 | 6 | 8 | 10 | 0.150 | 1.46 | 1.32 | 0.59 | 0.10 | 0.09 |
| 07016 106 | * @ ^ + | E | 68 | 20 | 200 | 13.6 | 136 | 163 | 6 | 8 | 10 | 0.165 | 0.91 | 0.82 | 0.36 | 0.18 | 0.16 |
| 95158 15 | * ^ | E | 68 | 20 | 150 | 13.6 | 136 | 170 | 6 | 8 | 9 | 0.165 | 1.05 | 0.94 | 0.42 | 0.16 | 0.14 |
| 07016 107 | * @ ^ + | V | 100 | 20 | 60 | 20 | 200 | 240 | 8 | 10 | 12 | 0.250 | 2.04 | 1.84 | 0.82 | 0.12 | 0.11 |
| 07016 108 | M @ ^ + | A | 0.7 | 25 | 10000 | 0.5 | 5 | 6 | 4 | 6 | 8 | 0.075 | 0.09 | 0.08 | 0.03 | 0.87 | 0.78 |
| 07016 109 | * @ ^ + | A | 1.0 | 25 | 8000 | 0.5 | 5 | 6 | 4 | 6 | 8 | 0.075 | 0.10 | 0.09 | 0.04 | 0.77 | 0.70 |
| 07016 110 | * @ ^ + | A | 1.5 | 25 | 7500 | 0.5 | 5 | 6 | 6 | 8 | 10 | 0.075 | 0.10 | 0.09 | 0.04 | 0.75 | 0.68 |
| 07016 111 | * @ ^ + | A | 1.5 | 25 | 3000 | 0.5 | 5 | 6 | 6 | 8 | 10 | 0.075 | 0.16 | 0.14 | 0.06 | 0.47 | 0.43 |
| 07016 112 | * @ ^ + | A | 2.2 | 25 | 7000 | 0.5 | 5 | 6 | 6 | 8 | 10 | 0.075 | 0.10 | 0.09 | 0.04 | 0.72 | 0.65 |
| 07016 113 | * @ ^ + | B | 2.2 | 25 | 2000 | 0.5 | 5 | 6 | 6 | 8 | 10 | 0.085 | 0.21 | 0.19 | 0.08 | 0.41 | 0.37 |
| 07016 114 | * @ ^ + | B | 3.3 | 25 | 2000 | 0.5 | 5 | 6 | 6 | 8 | 10 | 0.085 | 0.21 | 0.19 | 0.08 | 0.41 | 0.37 |
| 07016 115 | * @ ^ + | A | 4.7 | 25 | 3100 | 1.2 | 12 | 14 | 6 | 9 | 10 | 0.075 | 0.16 | 0.14 | 0.06 | 0.48 | 0.43 |
| 07016 116 | * @ ^ + | B | 4.7 | 25 | 1500 | 1.2 | 12 | 14 | 6 | 8 | 10 | 0.085 | 0.24 | 0.21 | 0.10 | 0.36 | 0.32 |
| 07016 117 | * @ ^ + | B | 4.7 | 25 | 700 | 1.2 | 12 | 14 | 6 | 8 | 10 | 0.085 | 0.35 | 0.31 | 0.14 | 0.24 | 0.22 |
| 07016 118 | * @ ^ + | B | 6.8 | 25 | 2800 | 1.7 | 17 | 20 | 6 | 8 | 10 | 0.085 | 0.17 | 0.16 | 0.07 | 0.49 | 0.44 |
| 07016 119 | * @ ^ + | B | 6.8 | 25 | 700 | 1.7 | 17 | 20 | 6 | 8 | 10 | 0.085 | 0.35 | 0.31 | 0.14 | 0.24 | 0.22 |
| 07016 120 | * @ ^ + | C | 6.8 | 25 | 700 | 1.7 | 17 | 20 | 6 | 8 | 10 | 0.110 | 0.40 | 0.36 | 0.16 | 0.28 | 0.25 |
| 07016 121 | * @ ^ + | C | 10 | 25 | 500 | 2.5 | 25 | 30 | 6 | 8 | 10 | 0.110 | 0.47 | 0.42 | 0.19 | 0.23 | 0.21 |
| 07016 122 | * @ ^ + | C | 10 | 25 | 300 | 2.5 | 25 | 30 | 6 | 8 | 10 | 0.110 | 0.61 | 0.54 | 0.24 | 0.18 | 0.16 |
| 95158 16 | * ^ | D | 15 | 25 | 275 | 3.8 | 38 | 46.9 | 6 | 9 | 9 | 0.150 | 0.74 | 0.66 | 0.30 | 0.20 | 0.18 |
| 95158 17 | * ^ | E | 15 | 25 | 200 | 3 | 18 | 30 | 4 | 6 | 6 | 0.165 | 0.91 | 0.82 | 0.36 | 0.18 | 0.16 |
| 07016 123 | * @ ^ + | C | 22 | 25 | 400 | 5.5 | 55 | 66 | 6 | 8 | 10 | 0.110 | 0.52 | 0.47 | 0.21 | 0.21 | 0.19 |
| 07016 124 | * @ ^ + | C | 22 | 25 | 275 | 5.5 | 55 | 66 | 6 | 8 | 10 | 0.110 | 0.63 | 0.57 | 0.25 | 0.17 | 0.16 |
| 07016 125 | * @ ^ + | D | 22 | 25 | 200 | 5.5 | 55 | 66 | 6 | 8 | 10 | 0.150 | 0.87 | 0.78 | 0.35 | 0.17 | 0.16 |
| 07016 126 | * @ ^ + | D | 22 | 25 | 100 | 5.5 | 55 | 66 | 6 | 8 | 10 | 0.150 | 1.22 | 1.10 | 0.49 | 0.12 | 0.11 |
| 95158 18 | * ^ | E | 22 | 25 | 225 | 4.4 | 26.4 | 44 | 4 | 6 | 6 | 0.165 | 0.86 | 0.77 | 0.34 | 0.19 | 0.17 |
| 07016 127 | * @ ^ + | D | 33 | 25 | 300 | 8.3 | 83 | 100 | 6 | 8 | 10 | 0.150 | 0.71 | 0.64 | 0.28 | 0.21 | 0.19 |
| 07016 128 | * @ ^ + | D | 33 | 25 | 90 | 8.3 | 83 | 100 | 6 | 8 | 10 | 0.150 | 1.22 | 1.10 | 0.49 | 0.12 | 0.11 |
| 95158 19 | * ^ | E | 33 | 25 | 175 | 6.6 | 39.6 | 66 | 4 | 6 | 6 | 0.165 | 0.97 | 0.87 | 0.39 | 0.17 | 0.15 |
| 07016 129 | * @ ^ + | E | 33 | 25 | 100 | 8.3 | 83 | 100 | 6 | 8 | 10 | 0.165 | 1.35 | 1.22 | 0.54 | 0.12 | 0.11 |
| 07016 130 | M @ ^ + | D | 47 | 25 | 250 | 11.8 | 118 | 142 | 6 | 8 | 10 | 0.150 | 0.77 | 0.70 | 0.31 | 0.19 | 0.17 |
| 07016 131 | M @ ^ + | D | 47 | 25 | 175 | 11.8 | 118 | 142 | 6 | 8 | 10 | 0.150 | 0.93 | 0.83 | 0.37 | 0.16 | 0.15 |
| 07016 132 | * @ ^ + | V | 68 | 25 | 95 | 17 | 170 | 204 | 8 | 10 | 12 | 0.250 | 1.62 | 1.46 | 0.65 | 0.15 | 0.14 |
| 07016 133 | M @ ^ + | A | 0.47 | 35 | 12000 | 0.5 | 5 | 6 | 4 | 6 | 8 | 0.075 | 0.08 | 0.07 | 0.03 | 0.95 | 0.85 |
| 07016 134 | M @ ^ + | A | 0.68 | 35 | 8000 | 0.5 | 5 | 6 | 4 | 6 | 8 | 0.075 | 0.10 | 0.09 | 0.04 | 0.77 | 0.70 |
| 07016 135 | * @ ^ + | A | 1.0 | 35 | 7500 | 0.5 | 5 | 6 | 4 | 6 | 6 | 0.075 | 0.10 | 0.09 | 0.04 | 0.75 | 0.68 |
| 07016 136 | * @ ^ + | A | 1.5 | 35 | 7500 | 0.5 | 5 | 6 | 6 | 8 | 9 | 0.075 | 0.10 | 0.09 | 0.04 | 0.75 | 0.68 |
| 07016 137 | * @ ^ + | B | 1.5 | 35 | 5200 | 0.5 | 5 | 6 | 6 | 8 | 9 | 0.085 | 0.13 | 0.12 | 0.05 | 0.66 | 0.60 |
| 07016 138 | * @ ^ + | B | 2.2 | 35 | 2000 | 0.8 | 8 | 10 | 6 | 8 | 9 | 0.085 | 0.21 | 0.19 | 0.08 | 0.41 | 0.37 |
| 07016 139 | * @ ^ + | B | 3.3 | 35 | 1000 | 1.2 | 12 | 14 | 6 | 8 | 9 | 0.085 | 0.29 | 0.26 | 0.12 | 0.29 | 0.26 |
| 07016 140 | * @ ^ + | B | 4.7 | 35 | 1500 | 1.6 | 16 | 19 | 6 | 8 | 9 | 0.085 | 0.24 | 0.21 | 0.10 | 0.36 | 0.32 |
| 95158 29 | * ^ | C | 4.7 | 35 | 600 | 1.7 | 10.2 | 17 | 6 | 8 | 9 | 0.110 | 0.43 | 0.39 | 0.17 | 0.26 | 0.23 |
| 07016 141 | * @ ^ + | D | 4.7 | 35 | 450 | 1.6 | 16 | 20 | 6 | 8 | 9 | 0.110 | 0.49 | 0.44 | 0.20 | 0.22 | 0.20 |
| 07016 142 | * @ ^ + | C | 6.8 | 35 | 350 | 2.4 | 24 | 29 | 6 | 9 | 9 | 0.150 | 0.65 | 0.59 | 0.26 | 0.23 | 0.21 |
| 07016 143 | * @ ^ + | D | 6.8 | 35 | 400 | 2.4 | 24 | 29 | 6 | 9 | 9 | 0.165 | 0.64 | 0.58 | 0.26 | 0.26 | 0.23 |

All technical data relates to an ambient temperature of +25°C. Capacitance and DF are measured at 120Hz, 0.5V RMS with a maximum DC bias of 2.2 volts. DCL is measured at rated voltage after 5 minutes.

NOTE: AVX reserves the right to supply a higher voltage rating or tighter tolerance part in the same case size, to the same reliability standards.

DSCC Dwgs 07016 & 95158



COTS-Plus

| RATING & PART NUMBER REFERENCE | | Parametric Specifications by Rating per DSCC 95158 or 07016 where applicable | | | | | | | | | Typical RMS Ripple Data by Rating | | | | | | | |
|--------------------------------|---------|--|-------------------------------|-------------------------------|---------------|---------------|----------------|--------------|--------------------|--------------|-----------------------------------|---------------------------|---------------------------|----------------------------|---------------------------|---------------------------|----------------------------|------|
| | | Cap @ 120Hz µF @ 25°C | DC Rated Voltage V @ +85°C | ESR @ 100kHz mOhms @ +25°C | DCL max | | | DF Max | | | Power Dissipation W | 25°C Ripple A (100kHz) | 85°C Ripple A (100kHz) | 125°C Ripple A (100kHz) | 25°C Ripple V (100kHz) | 85°C Ripple V (100kHz) | 125°C Ripple V (100kHz) | |
| | | | | | +25°C (µA) | +85°C (µA) | +125°C (µA) | +25°C (%) | +(85/125)°C (%) | -55°C (%) | | | | | | | | |
| DSCC P/N | Case | | | | | | | | | | | | | | | | | |
| 95158 20 | * ^ ^ | E | 6.8 | 35 | 300 | 1.9 | 11.4 | 19 | 4 | 6 | 6 | 0.165 | 0.74 | 0.67 | 0.30 | 0.22 | 0.20 | 0.09 |
| 07016 144 | * @ ^ + | C | 10 | 35 | 1600 | 3.5 | 35 | 42 | 6 | 9 | 9 | 0.110 | 0.26 | 0.24 | 0.10 | 0.42 | 0.38 | 0.17 |
| 95158 27 | * ^ ^ | D | 10 | 35 | 300 | 3.5 | 35 | 42 | 4 | 6 | 6 | 0.150 | 0.71 | 0.64 | 0.28 | 0.21 | 0.19 | 0.08 |
| 07016 145 | * @ ^ + | D | 10 | 35 | 125 | 3.5 | 35 | 42 | 6 | 9 | 9 | 0.150 | 1.10 | 0.99 | 0.44 | 0.14 | 0.12 | 0.05 |
| 95158 21 | * ^ ^ | E | 10 | 35 | 250 | 2.8 | 16.8 | 28 | 4 | 6 | 6 | 0.165 | 0.81 | 0.73 | 0.32 | 0.20 | 0.18 | 0.08 |
| 07016 146 | * @ ^ + | C | 15 | 35 | 450 | 5.3 | 53 | 64 | 6 | 9 | 9 | 0.110 | 0.49 | 0.44 | 0.20 | 0.22 | 0.20 | 0.09 |
| 07016 147 | * @ ^ + | D | 15 | 35 | 300 | 5.3 | 53 | 64 | 6 | 9 | 9 | 0.150 | 0.71 | 0.64 | 0.28 | 0.21 | 0.19 | 0.08 |
| 07016 148 | * @ ^ + | D | 15 | 35 | 100 | 5.3 | 53 | 64 | 6 | 9 | 9 | 0.150 | 1.22 | 1.10 | 0.49 | 0.12 | 0.11 | 0.05 |
| 95158 22 | * ^ ^ | E | 15 | 35 | 225 | 5.3 | 53 | 65.6 | 6 | 9 | 9 | 0.165 | 0.86 | 0.77 | 0.34 | 0.19 | 0.17 | 0.08 |
| 07016 149 | * @ ^ + | D | 22 | 35 | 400 | 7.7 | 77 | 92 | 6 | 9 | 9 | 0.150 | 0.61 | 0.55 | 0.24 | 0.24 | 0.22 | 0.10 |
| 07016 150 | * @ ^ + | D | 22 | 35 | 125 | 7.7 | 77 | 92 | 6 | 9 | 9 | 0.150 | 1.10 | 0.99 | 0.44 | 0.14 | 0.12 | 0.05 |
| 95158 23 | * ^ ^ | E | 22 | 35 | 300 | 7.7 | 77 | 96.3 | 6 | 9 | 9 | 0.165 | 0.74 | 0.67 | 0.30 | 0.22 | 0.20 | 0.09 |
| 07016 151 | * @ ^ + | E | 22 | 35 | 125 | 7.7 | 77 | 92 | 6 | 9 | 9 | 0.165 | 1.15 | 1.03 | 0.46 | 0.14 | 0.13 | 0.06 |
| 07016 152 | M @ ^ + | D | 33 | 35 | 300 | 11.6 | 116 | 139 | 6 | 9 | 9 | 0.150 | 0.71 | 0.64 | 0.28 | 0.21 | 0.19 | 0.08 |
| 07016 153 | M @ ^ + | D | 33 | 35 | 200 | 11.6 | 116 | 139 | 6 | 9 | 9 | 0.150 | 0.87 | 0.78 | 0.35 | 0.17 | 0.16 | 0.07 |
| 07016 154 | M @ ^ + | E | 33 | 35 | 300 | 11.6 | 116 | 139 | 6 | 9 | 9 | 0.165 | 0.74 | 0.67 | 0.30 | 0.22 | 0.20 | 0.09 |
| 07016 155 | M @ ^ + | E | 47 | 35 | 250 | 16.5 | 165 | 197 | 6 | 9 | 9 | 0.165 | 0.81 | 0.73 | 0.32 | 0.20 | 0.18 | 0.08 |
| 07016 156 | M @ ^ + | V | 47 | 35 | 200 | 16.5 | 165 | 197 | 6 | 9 | 9 | 0.250 | 1.12 | 1.01 | 0.45 | 0.22 | 0.20 | 0.09 |
| 07016 157 | M @ ^ + | A | 0.15 | 50 | 15000 | 0.5 | 5 | 6 | 4 | 6 | 6 | 0.075 | 0.07 | 0.06 | 0.03 | 1.06 | 0.95 | 0.42 |
| 07016 158 | M @ ^ + | A | 0.22 | 50 | 18000 | 0.5 | 5 | 6 | 4 | 6 | 6 | 0.075 | 0.06 | 0.06 | 0.03 | 1.16 | 1.05 | 0.46 |
| 07016 159 | * @ ^ + | A | 0.47 | 50 | 9500 | 0.5 | 5 | 6 | 4 | 6 | 6 | 0.075 | 0.09 | 0.08 | 0.04 | 0.84 | 0.76 | 0.34 |
| 07016 160 | * @ ^ + | B | 0.47 | 50 | 9500 | 0.5 | 5 | 6 | 4 | 6 | 6 | 0.085 | 0.09 | 0.09 | 0.04 | 0.90 | 0.81 | 0.36 |
| 07016 161 | * @ ^ + | A | 0.68 | 50 | 7900 | 0.5 | 5 | 6 | 4 | 6 | 6 | 0.075 | 0.10 | 0.09 | 0.04 | 0.77 | 0.69 | 0.31 |
| 07016 162 | M @ ^ + | A | 1.0 | 50 | 6600 | 0.5 | 5 | 6 | 4 | 6 | 6 | 0.075 | 0.11 | 0.10 | 0.04 | 0.70 | 0.63 | 0.28 |
| 07016 163 | * @ ^ + | B | 1.0 | 50 | 7000 | 0.5 | 5 | 6 | 4 | 6 | 6 | 0.085 | 0.11 | 0.10 | 0.04 | 0.77 | 0.69 | 0.31 |
| 07016 164 | * @ ^ + | C | 1.5 | 50 | 2000 | 0.8 | 8 | 10 | 6 | 8 | 9 | 0.110 | 0.23 | 0.21 | 0.09 | 0.47 | 0.42 | 0.19 |
| 07016 165 | * @ ^ + | D | 1.5 | 50 | 1500 | 0.8 | 8 | 10 | 6 | 8 | 9 | 0.150 | 0.32 | 0.28 | 0.13 | 0.47 | 0.43 | 0.19 |
| 07016 166 | * @ ^ + | D | 2.2 | 50 | 1200 | 1.1 | 11 | 13 | 6 | 8 | 9 | 0.150 | 0.35 | 0.32 | 0.14 | 0.42 | 0.38 | 0.17 |
| 07016 167 | * @ ^ + | D | 3.3 | 50 | 800 | 1.7 | 17 | 20 | 6 | 9 | 9 | 0.150 | 0.43 | 0.39 | 0.17 | 0.35 | 0.31 | 0.14 |
| 07016 168 | * @ ^ + | D | 4.7 | 50 | 300 | 2.4 | 24 | 29 | 6 | 9 | 9 | 0.150 | 0.71 | 0.64 | 0.28 | 0.21 | 0.19 | 0.08 |
| 07016 169 | * @ ^ + | D | 6.8 | 50 | 600 | 3.4 | 34 | 41 | 6 | 6 | 6 | 0.150 | 0.50 | 0.45 | 0.20 | 0.30 | 0.27 | 0.12 |
| 07016 170 | * @ ^ + | D | 6.8 | 50 | 300 | 3.4 | 34 | 41 | 6 | 6 | 6 | 0.150 | 0.71 | 0.64 | 0.28 | 0.21 | 0.19 | 0.08 |

All technical data relates to an ambient temperature of +25°C. Capacitance and DF are measured at 120Hz, 0.5V RMS with a maximum DC bias of 2.2 volts. DCL is measured at rated voltage after 5 minutes.

NOTE: AVX reserves the right to supply a higher voltage rating or tighter tolerance part in the same case size, to the same reliability standards.

T4J – Medical Series



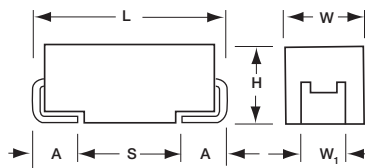
HRC4000 Implantable Non Life Support and Non Implantable Life Support



The AVX T4J series is designed for use in Implantable - Non-Life support or Non-Implantable - Life support medical applications. These components are screened using our newly designed Q-Process to effectively remove components that may experience parametric shifts through customer processing or display instability through life testing.

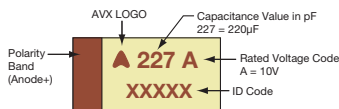


For RoHS compliant products, please select correct termination style.



MARKING

A, B, C, D, E, U CASE



FEATURES

- Dedicated to medical applications
- HRC4000 - Implantable, Non-Life support
- Non-Implantable, Life support
- -55 to +125°C operation temperature
- Basic reliability better than 0.1%/1000hours
- Custom DCL / ESR options on selected parts

T4J Standard – Standard option DCL and ESR limits including Q-Process screening.

T4J Custom – A custom option where specific DCL and ESR parameter limits can be agreed based Q-Process statistical screening. DCL down to 0.005CV on selected codes

APPLICATIONS

- Medical, Implantable - Non-Life support and Non-Implantable - Life support

For additional information on Q-process please consult the AVX technical publication “Reaching the Highest Reliability for Tantalum Capacitors” (see the link: <http://www.avx.com/docs/techinfo/Qprocess.pdf>)

CASE DIMENSIONS: millimeters (inches)

| Code | EIA Code | EIA Metric | L±0.20 (0.008) | W+0.20 (0.008) -0.10 (0.004) | H+0.20 (0.008) -0.10 (0.004) | W ₁ ±0.20 (0.008) | A+0.30 (0.012) -0.20 (0.008) | S Min. |
|------|----------|------------|----------------|------------------------------|------------------------------|------------------------------|------------------------------|--------------|
| A | 1206 | 3216-18 | 3.20 (0.126) | 1.60 (0.063) | 1.60 (0.063) | 1.20 (0.047) | 0.80 (0.031) | 1.10 (0.043) |
| B | 1210 | 3528-21 | 3.50 (0.138) | 2.80 (0.110) | 1.90 (0.075) | 2.20 (0.087) | 0.80 (0.031) | 1.40 (0.055) |
| C | 2312 | 6032-28 | 6.00 (0.236) | 3.20 (0.126) | 2.60 (0.102) | 2.20 (0.087) | 1.30 (0.051) | 2.90 (0.114) |
| D | 2917 | 7343-31 | 7.30 (0.287) | 4.30 (0.169) | 2.90 (0.114) | 2.40 (0.094) | 1.30 (0.051) | 4.40 (0.173) |
| E | 2917 | 7343-43 | 7.30 (0.287) | 4.30 (0.169) | 4.10 (0.162) | 2.40 (0.094) | 1.30 (0.051) | 4.40 (0.173) |
| U | 2924 | 7361-43 | 7.30 (0.287) | 6.10 (0.240) | 4.10 (0.162) | 3.10 (0.120) | 1.30 (0.051) | 4.40 (0.173) |

W₁ dimension applies to the termination width for A dimensional area only.

CAPACITANCE AND RATED VOLTAGE, V_R (VOLTAGE CODE) RANGE (LETTER DENOTES CASE SIZE)

| Capacitance | | Rated Voltage DC (V _R) to 85°C (Voltage Code) | | | | | | |
|-------------|------|---|---------|---------|--------|--------|--------|---------|
| µF | Code | 6.3V (J) | 10V (A) | 16V (C) | 20 (D) | 25 (E) | 35 (V) | 50V (T) |
| 1.0 | 105 | | | | | | A | C |
| 1.5 | 155 | | | | | A | B | C |
| 2.2 | 225 | | | | | B | B | C |
| 3.3 | 335 | | | | A* | B | B | C |
| 4.7 | 475 | | | A* | B | B | C | D |
| 6.8 | 685 | | A | B | B | C | C | D |
| 10 | 106 | A | A | B | B/C | C | C | E |
| 15 | 156 | A | B | B | C | C | D | |
| 22 | 226 | B | B | C | C | D | D | |
| 33 | 336 | B | C | C | D | D | E | |
| 47 | 476 | B/C | C | D | D | D | | |
| 68 | 686 | B/C | C | D | E | | | |
| 100 | 107 | B/C | D | E | E | | | |
| 150 | 157 | D | D | E | | | | |
| 220 | 227 | D | E | U | | | | |
| 330 | 337 | E | E | | | | | |
| 470 | 477 | E | U | | | | | |
| 680 | 687 | U | | | | | | |

Available Ratings

Engineering samples - please contact manufacturer

*Codes under development

Please contact the factory for codes not listed in the table.

Note: Voltage ratings are minimum values. AVX reserves the right to supply higher ratings in the same case size, to the same reliability standards with customer written approval.



T4J – Medical Series



HRC4000 Implantable Non Life Support and Non Implantable Life Support

HOW TO ORDER

| T4J | E | 336 | K | 035 | C | □ | L | Q | 4 | ^ | 00 |
|-------------|-------------------------------------|--|------------------------------|---|--|---|---|---|---|---|---|
| Type | Case Size See table above | Capacitance Code pF code: 1st two digits represent significant figures 3rd digit represents multiplier (number of zeros to follow) | Tolerance K = ±10% | Rated DC Voltage 006 = 6.3Vdc 010 = 10Vdc 016 = 16Vdc 020 = 20Vdc 025 = 25Vdc 035 = 35Vdc 050 = 50Vdc | Standard or Low ESR Range C = Std ESR L = Low ESR | Packaging R = 7" Reel B = Bulk | Inspection Level L = Lab Inspection | Reliability Grade Q = Q-Process Screening | Qualification Level 4 = HCR4000 | Termination 7 = 100% Tin 9 = Gold Plated H = SnPb Non RoHS H,9 = (Contact Manufacturer) Non RoHS | Suffix 00 = Standard XX = Custom |

TECHNICAL SPECIFICATIONS

| | | | | | | | | | |
|------------------------------------|---|-----|----|----|----|----|----|----|--|
| Technical Data: | All technical data relate to an ambient temperature of +25°C | | | | | | | | |
| Capacitance Range: | 1 µF to 680 µF | | | | | | | | |
| Capacitance Tolerance: | ±10% | | | | | | | | |
| Leakage Current DCL: | 0.01CV (Custom potential down to 0.005CV available upon request) | | | | | | | | |
| Rated Voltage (V _R) | ≤ 85°C: | 6.3 | 10 | 16 | 20 | 25 | 35 | 50 | |
| Category Voltage (V _C) | ≤ 125°C: | 4 | 7 | 10 | 13 | 17 | 23 | 33 | |
| Surge Voltage (V _S) | ≤ 85°C: | 8 | 13 | 20 | 26 | 32 | 46 | 65 | |
| Surge Voltage (V _S) | ≤ 125°C: | 5 | 8 | 13 | 16 | 20 | 28 | 40 | |
| Temperature Range: | -55°C to +125°C | | | | | | | | |
| Reliability: | 0.1% / 1000hrs at 25°C, VR with 0.1Ω/V series impedance, 90% confidence level | | | | | | | | |

T4J – Medical Series



HRC4000 Implantable Non Life Support and Non Implantable Life Support

RATINGS & PART NUMBER REFERENCE

| AVX Part No. | Case Size | Capacitance (µF) | Rated Voltage (V) | Rated Temperature (°C) | Category Voltage (V) | Category Temperature (°C) | DCL Max. (µA) | DF Max. (%) | ESR Max. @ 100kHz (mΩ) | MSL | 100kHz RMS Current (mA) | | |
|------------------------|-----------|------------------|-------------------|------------------------|----------------------|---------------------------|---------------|-------------|------------------------|-----|-------------------------|------|-------|
| | | | | | | | | | | | 25°C | 85°C | 125°C |
| 6.3 Volt @ 85°C | | | | | | | | | | | | | |
| T4JA106K006C□□LQ4^00 | A | 10 | 6.3 | 85 | 4 | 125 | 0.6 | 6 | 1500 | 3 | 224 | 201 | 89 |
| T4JA156K006C□□LQ4^00 | A | 15 | 6.3 | 85 | 4 | 125 | 0.9 | 6 | 1500 | 3 | 224 | 201 | 89 |
| T4JB226K006C□□LQ4^00 | B | 22 | 6.3 | 85 | 4 | 125 | 1.4 | 6 | 600 | 3 | 376 | 339 | 151 |
| T4JB336K006C□□LQ4^00 | B | 33 | 6.3 | 85 | 4 | 125 | 2.1 | 6 | 600 | 3 | 376 | 339 | 151 |
| T4JB476K006C□□LQ4^00 | B | 47 | 6.3 | 85 | 4 | 125 | 2.8 | 8 | 1500 | 3 | 238 | 214 | 95 |
| T4JC476K006C□□LQ4^00 | C | 47 | 6.3 | 85 | 4 | 125 | 3.0 | 6 | 300 | 3 | 606 | 545 | 242 |
| T4JB686K006C□□LQ4^00 | B | 68 | 6.3 | 85 | 4 | 125 | 4.0 | 8 | 900 | 3 | 307 | 277 | 123 |
| T4JC686K006C□□LQ4^00 | C | 68 | 6.3 | 85 | 4 | 125 | 4.3 | 6 | 300 | 3 | 606 | 545 | 242 |
| T4JB107K006C□□LQ4^00 | B | 100 | 6.3 | 85 | 4 | 125 | 3.0 | 10 | 1400 | 3 | 246 | 222 | 99 |
| T4JC107K006C□□LQ4^00 | C | 100 | 6.3 | 85 | 4 | 125 | 6.3 | 6 | 300 | 3 | 606 | 545 | 242 |
| T4JD157K006C□□LQ4^00 | D | 150 | 6.3 | 85 | 4 | 125 | 9.5 | 6 | 200 | 3 | 866 | 779 | 346 |
| T4JD227K006C□□LQ4^00 | D | 220 | 6.3 | 85 | 4 | 125 | 13.9 | 8 | 200 | 3 | 866 | 779 | 346 |
| T4JE337K006C□□LQ4^00 | E | 330 | 6.3 | 85 | 4 | 125 | 20.8 | 8 | 200 | 3 | 908 | 817 | 363 |
| T4JE477K006C□□LQ4^00 | E | 470 | 6.3 | 85 | 4 | 125 | 29.6 | 8 | 200 | 3 | 908 | 817 | 363 |
| T4JU687K006C□□LQ4^00 | U | 680 | 6.3 | 85 | 4 | 125 | 42.8 | 12 | 250 | 3 | 812 | 731 | 325 |
| 10 Volt @ 85°C | | | | | | | | | | | | | |
| T4JA685K010C□□LQ4^00 | A | 6.8 | 10 | 85 | 7 | 125 | 0.7 | 6 | 2000 | 3 | 194 | 174 | 77 |
| T4JA106K010C□□LQ4^00 | A | 10 | 10 | 85 | 7 | 125 | 1 | 6 | 2000 | 3 | 194 | 174 | 77 |
| T4JB156K010C□□LQ4^00 | B | 15 | 10 | 85 | 7 | 125 | 1.5 | 6 | 700 | 3 | 348 | 314 | 139 |
| T4JB226K010C□□LQ4^00 | B | 22 | 10 | 85 | 7 | 125 | 2.2 | 6 | 700 | 3 | 348 | 314 | 139 |
| T4JC336K010C□□LQ4^00 | C | 33 | 10 | 85 | 7 | 125 | 3.3 | 6 | 300 | 3 | 606 | 545 | 242 |
| T4JC476K010C□□LQ4^00 | C | 47 | 10 | 85 | 7 | 125 | 4.7 | 6 | 300 | 3 | 606 | 545 | 242 |
| T4JC686K010C□□LQ4^00 | C | 68 | 10 | 85 | 7 | 125 | 6.8 | 6 | 300 | 3 | 606 | 545 | 242 |
| T4JD107K010C□□LQ4^00 | D | 100 | 10 | 85 | 7 | 125 | 10.0 | 6 | 150 | 3 | 1000 | 900 | 400 |
| T4JD157K010C□□LQ4^00 | D | 150 | 10 | 85 | 7 | 125 | 15.0 | 8 | 150 | 3 | 1000 | 900 | 400 |
| T4JE227K010C□□LQ4^00 | E | 220 | 10 | 85 | 7 | 125 | 22.0 | 8 | 150 | 3 | 1049 | 944 | 420 |
| T4JE337K010C□□LQ4^00 | E | 330 | 10 | 85 | 7 | 125 | 33.0 | 8 | 150 | 3 | 1049 | 944 | 420 |
| T4JU477K010C□□LQ4^00 | U | 470 | 10 | 85 | 7 | 125 | 47.0 | 12 | 200 | 3 | 908 | 817 | 363 |
| 16 Volt @ 85°C | | | | | | | | | | | | | |
| T4JB685K016C□□LQ4^00 | B | 6.8 | 16 | 85 | 10 | 125 | 1.1 | 6 | 1200 | 3 | 266 | 240 | 106 |
| T4JB106K016C□□LQ4^00 | B | 10 | 16 | 85 | 10 | 125 | 1.6 | 6 | 1200 | 3 | 266 | 240 | 106 |
| T4JB156K016C□□LQ4^00 | B | 15 | 16 | 85 | 10 | 125 | 2.4 | 6 | 1200 | 3 | 266 | 240 | 106 |
| T4JC226K016C□□LQ4^00 | C | 22 | 16 | 85 | 10 | 125 | 3.5 | 6 | 350 | 3 | 561 | 505 | 224 |
| T4JC336K016C□□LQ4^00 | C | 33 | 16 | 85 | 10 | 125 | 5.3 | 6 | 350 | 3 | 561 | 505 | 224 |
| T4JD476K016C□□LQ4^00 | D | 47 | 16 | 85 | 10 | 125 | 7.5 | 6 | 200 | 3 | 866 | 779 | 346 |
| T4JD686K016C□□LQ4^00 | D | 68 | 16 | 85 | 10 | 125 | 10.9 | 6 | 200 | 3 | 866 | 779 | 346 |
| T4JE107K016C□□LQ4^00 | E | 100 | 16 | 85 | 10 | 125 | 16.0 | 6 | 150 | 3 | 1049 | 944 | 420 |
| T4JE157K016C□□LQ4^00 | E | 150 | 16 | 85 | 10 | 125 | 24.0 | 6 | 150 | 3 | 1049 | 944 | 420 |
| T4JU227K016C□□LQ4^00 | U | 220 | 16 | 85 | 10 | 125 | 35.2 | 12 | 200 | 3 | 908 | 817 | 363 |
| 20 Volt @ 85°C | | | | | | | | | | | | | |
| T4JB475K020C□□LQ4^00 | B | 4.7 | 20 | 85 | 13 | 125 | 1.0 | 6 | 1000 | 3 | 292 | 262 | 117 |
| T4JB685K020C□□LQ4^00 | B | 6.8 | 20 | 85 | 13 | 125 | 1.4 | 6 | 1000 | 3 | 292 | 262 | 117 |
| T4JB106K020C□□LQ4^00 | B | 10 | 20 | 85 | 13 | 125 | 1.0 | 6 | 1000 | 3 | 292 | 262 | 117 |
| T4JB106K020L□□LQ4^00 | B | 10 | 20 | 85 | 13 | 125 | 1.0 | 6 | 500 | 3 | 412 | 371 | 165 |
| T4JC106K020C□□LQ4^00 | C | 10 | 20 | 85 | 13 | 125 | 2.0 | 6 | 500 | 3 | 469 | 422 | 188 |
| T4JC156K020C□□LQ4^00 | C | 15 | 20 | 85 | 13 | 125 | 3.0 | 6 | 500 | 3 | 469 | 422 | 188 |
| T4JC226K020C□□LQ4^00 | C | 22 | 20 | 85 | 13 | 125 | 4.4 | 6 | 500 | 3 | 469 | 422 | 188 |
| T4JD336K020C□□LQ4^00 | D | 33 | 20 | 85 | 13 | 125 | 6.6 | 6 | 250 | 3 | 775 | 697 | 310 |
| T4JD476K020C□□LQ4^00 | D | 47 | 20 | 85 | 13 | 125 | 9.4 | 6 | 250 | 3 | 775 | 697 | 310 |
| T4JE686K020C□□LQ4^00 | E | 68 | 20 | 85 | 13 | 125 | 13.6 | 6 | 200 | 3 | 908 | 817 | 363 |
| T4JE107K020C□□LQ4^00 | E | 100 | 20 | 85 | 13 | 125 | 20.0 | 6 | 200 | 3 | 908 | 817 | 363 |

T4J – Medical Series



HRC4000 Implantable Non Life Support and Non Implantable Life Support

| AVX Part No. | Case Size | Capacitance (µF) | Rated Voltage (V) | Rated Temperature (°C) | Category Voltage (V) | Category Temperature (°C) | DCL Max. (µA) | DF Max. (%) | ESR Max. @ 100kHz (mΩ) | MSL | 100kHz RMS Current (mA) | | |
|-----------------------|-----------|------------------|-------------------|------------------------|----------------------|---------------------------|---------------|-------------|------------------------|-----|-------------------------|------|-------|
| | | | | | | | | | | | 25°C | 85°C | 125°C |
| 25 Volt @ 85°C | | | | | | | | | | | | | |
| T4JA155K025C□LQ4^00 | A | 1.5 | 25 | 85 | 17 | 125 | 0.4 | 6 | 3000 | 3 | 158 | 142 | 63 |
| T4JB225K025C□LQ4^00 | B | 2.2 | 25 | 85 | 17 | 125 | 0.6 | 6 | 2000 | 3 | 206 | 186 | 82 |
| T4JB335K025C□LQ4^00 | B | 3.3 | 25 | 85 | 17 | 125 | 0.8 | 6 | 2000 | 3 | 206 | 186 | 82 |
| T4JB475K025C□LQ4^00 | B | 4.7 | 25 | 85 | 17 | 125 | 1.2 | 6 | 2000 | 3 | 206 | 186 | 82 |
| T4JC685K025C□LQ4^00 | C | 6.8 | 25 | 85 | 17 | 125 | 1.7 | 6 | 600 | 3 | 428 | 385 | 171 |
| T4JC106K025C□LQ4^00 | C | 10 | 25 | 85 | 17 | 125 | 2.5 | 6 | 600 | 3 | 428 | 385 | 171 |
| T4JC156K025C□LQ4^00 | C | 15 | 25 | 85 | 17 | 125 | 3.8 | 6 | 600 | 3 | 428 | 385 | 171 |
| T4JD226K025C□LQ4^00 | D | 22 | 25 | 85 | 17 | 125 | 5.5 | 6 | 400 | 3 | 612 | 551 | 245 |
| T4JD336K025C□LQ4^00 | D | 33 | 25 | 85 | 17 | 125 | 8.3 | 6 | 400 | 3 | 612 | 551 | 245 |
| T4JD476K025C□LQ4^00 | D | 47 | 25 | 85 | 17 | 125 | 11.8 | 6 | 400 | 3 | 612 | 551 | 245 |
| 35 Volt @ 85°C | | | | | | | | | | | | | |
| T4JA105K035C□LQ4^00 | A | 1.0 | 35 | 85 | 23 | 125 | 0.4 | 6 | 3000 | 3 | 158 | 142 | 63 |
| T4JA105K035L□LQ4^00 | A | 1.0 | 35 | 85 | 23 | 125 | 0.2 | 6 | 1000 | 3 | 274 | 246 | 110 |
| T4JB155K035C□LQ4^00 | B | 1.5 | 35 | 85 | 23 | 125 | 0.5 | 6 | 2500 | 3 | 184 | 166 | 74 |
| T4JB225K035C□LQ4^00 | B | 2.2 | 35 | 85 | 23 | 125 | 0.8 | 6 | 2500 | 3 | 184 | 166 | 74 |
| T4JB335K035C□LQ4^00 | B | 3.3 | 35 | 85 | 23 | 125 | 1.2 | 6 | 2500 | 3 | 184 | 166 | 74 |
| T4JC475K035C□LQ4^00 | C | 4.7 | 35 | 85 | 23 | 125 | 1.6 | 6 | 600 | 3 | 428 | 385 | 171 |
| T4JC685K035C□LQ4^00 | C | 6.8 | 35 | 85 | 23 | 125 | 2.4 | 6 | 600 | 3 | 428 | 385 | 171 |
| T4JC106K035C□LQ4^00 | C | 10 | 35 | 85 | 23 | 125 | 3.5 | 6 | 600 | 3 | 428 | 385 | 171 |
| T4JD156K035C□LQ4^00 | D | 15 | 35 | 85 | 23 | 125 | 5.3 | 6 | 400 | 3 | 612 | 551 | 245 |
| T4JD226K035C□LQ4^00 | D | 22 | 35 | 85 | 23 | 125 | 7.7 | 6 | 400 | 3 | 612 | 551 | 245 |
| T4JE336K035C□LQ4^00 | E | 33 | 35 | 85 | 23 | 125 | 11.6 | 6 | 250 | 3 | 812 | 731 | 325 |
| 50 Volt @ 85°C | | | | | | | | | | | | | |
| T4JC105K050C□LQ4^00 | C | 1 | 50 | 85 | 33 | 125 | 0.5 | 4 | 1500 | 3 | 271 | 244 | 108 |
| T4JC155K050C□LQ4^00 | C | 1.5 | 50 | 85 | 33 | 125 | 0.8 | 6 | 1500 | 3 | 271 | 244 | 108 |
| T4JC225K050C□LQ4^00 | C | 2.2 | 50 | 85 | 33 | 125 | 1.1 | 6 | 1500 | 3 | 271 | 244 | 108 |
| T4JC335K050C□LQ4^00 | C | 3.3 | 50 | 85 | 33 | 125 | 1.7 | 6 | 1500 | 3 | 271 | 244 | 108 |
| T4JD475K050C□LQ4^00 | D | 4.7 | 50 | 85 | 33 | 125 | 2.4 | 4.5 | 600 | 3 | 500 | 450 | 200 |
| T4JD685K050C□LQ4^00 | D | 6.8 | 50 | 85 | 33 | 125 | 3.4 | 4.5 | 600 | 3 | 500 | 450 | 200 |
| T4JE106K050C□LQ4^00 | E | 10 | 50 | 85 | 33 | 125 | 5.0 | 4.5 | 400 | 3 | 642 | 578 | 257 |

Moisture Sensitivity Level (MSL) is defined according to J-STD-020.

All technical data relates to an ambient temperature of +25°C. Capacitance and DF are measured at 120Hz, 0.5V RMS with a maximum DC bias of 2.2 volts. DCL is measured at rated voltage after 5 minutes.

The EIA & CECC standards for low ESR Solid Tantalum Capacitors allow an ESR movement to 1.25 times catalogue limit post mounting.

T4J – Medical Series



HRC4000 Implantable Non Life Support and Non Implantable Life Support

QUALIFICATION TABLE

| TEST | T4J HRC4000 (Temperature range -55°C to +125°C) | | | | | | | | | | |
|-----------------------|--|---------------|----------------|--------------------|------------------------------|------------|-----------|------------|------------|------------|------------|
| | Condition | | | Characteristics | | | | | | | |
| Endurance | Determine after application of rated voltage for 2000 +48/-0 hours at 85±2°C and then leaving 1-2 hours at room temperature. Also determine of 125°C temperature, category voltage for 2000 +48/-0 hours and then leaving 1-2 hours at room temperature. Power supply impedance to be ≤0.1Ω/V. | | | Visual examination | no visible damage | | | | | | |
| | | | | DCL | 1.25 x initial limit | | | | | | |
| | | | | ΔC/C | within ±10% of initial value | | | | | | |
| | | | | DF | initial limit | | | | | | |
| | | | | ESR | 1.25 x initial limit | | | | | | |
| Storage Life | 125°C, 0V, 2000h | | | Visual examination | no visible damage | | | | | | |
| | | | | DCL | 1.25 x initial limit | | | | | | |
| | | | | ΔC/C | within ±10% of initial value | | | | | | |
| | | | | DF | initial limit | | | | | | |
| | | | | ESR | 1.25 x initial limit | | | | | | |
| Temperature Stability | Step | Temperature°C | Duration (min) | | +20°C | -55°C | +20°C | +85°C | +125°C | +20°C | |
| | 1 | +20±2 | 15 | DCL | IL* | n/a | IL* | 10 x IL* | 12.5 x IL* | IL* | |
| | 2 | -55+0/-3 | 15 | | ΔC/C | n/a | +0/-10% | ±5% | +10/-0% | +12/-0% | ±5% |
| | 3 | +20±2 | 15 | DF | | IL* | 1.5 x IL* | IL* | 1.5 x IL* | 2 x IL* | IL* |
| | 4 | +85+3/-0 | 15 | | ESR | 1.25 x IL* | 2.5 x IL* | 1.25 x IL* | 1.25 x IL* | 1.25 x IL* | 1.25 x IL* |
| | 5 | +125+3/-0 | 15 | | | | | | | | |
| | 6 | +20±2 | 15 | | | | | | | | |
| Surge Voltage | Test temperature: 125°C+3/0°C Test voltage: Category voltage at 125°C Surge voltage: 1.3x category voltage at 125°C Series protection resistance 1000±100Ω Discharge resistance: 1000Ω Number of cycles: 1000x Cycle duration: 6min; 30 sec charge, 5min 30 sec discharge | | | Visual examination | no visible damage | | | | | | |
| | | | | DCL | initial limit | | | | | | |
| | | | | ΔC/C | within ±5% of initial value | | | | | | |
| | | | | DF | initial limit | | | | | | |
| | | | | ESR | 1.25 x initial limit | | | | | | |

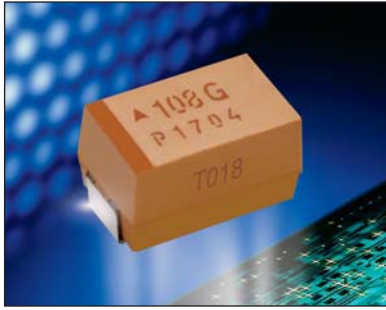
*Initial Limit

LOT ACCEPTANCE TESTING

| TEST | T4J HRC4000 (Temperature range -55°C to +125°C) | | |
|---------------------|---|-----------------|-----------------------------|
| | Condition | Characteristics | |
| Lot Acceptance Test | 25 Pieces from each lot <ul style="list-style-type: none"> • Read and Record Initial Electricals • Bake Out @ 125°C for 2 Hours • Mount using AVX recommended profile • Read and Record Post Mounting Electricals • Life Test: 6 hours, 2/3 R.V., 125°C • Read and Record Post Electricals | DCL | initial limit |
| | | ΔC/C | within ±5% of initial value |
| | | DF | initial limit |
| | | ESR | 1.25 x initial limit |
| | | | |

TBM Multianode

Tantalum Ultra Low ESR Space Level



TBM Space Level series is screened to SRC9000 and utilizes an internal multi-anode design to achieve ultra-low ESR which improves performance in high ripple power application.

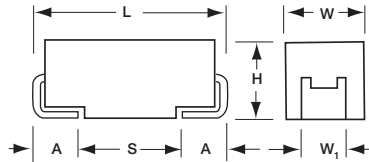
TBM Space Level is available with Weibull Grade "C" reliability and MIL-PRF-55365 Rev. G surge test option "C".

There are four termination finishes available: solder plated, fused solder plated, hot solder dipped and gold plated (these correspond to

"H", "K", "C" and "B" termination, respectively, per MIL-PRF-55365).

The molding compound has been selected to meet the requirements of UL94V-0 (Flame Retardancy) and outgassing requirements of ASTM E-595.

For moisture sensitivity levels please refer to the High Reliability Tantalum MSL section located in the back of the High Reliability Tantalum Catalog.



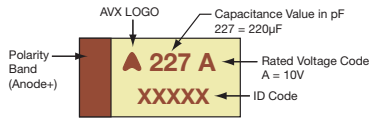
CASE DIMENSIONS: millimeters (inches)

| Code | L±0.20 (0.008) | W+0.20 (0.008) -0.10 (0.004) | H+0.20 (0.008) -0.10 (0.004) | W ₁ ±0.20 (0.008) | A+0.30 (0.012) -0.20 (0.008) | S Min. |
|------|-------------------|---------------------------------|---------------------------------|---------------------------------|---------------------------------|--------------|
| D | 7.30 (0.287) | 4.30 (0.169) | 2.90 (0.114) | 2.40 (0.094) | 1.30 (0.051) | 4.40 (0.173) |
| E | 7.30 (0.287) | 4.30 (0.169) | 4.10 (0.162) | 2.40 (0.094) | 1.30 (0.051) | 4.40 (0.173) |

W₁ dimension applies to the termination width for A dimensional area only.

MARKING

D, E CASE



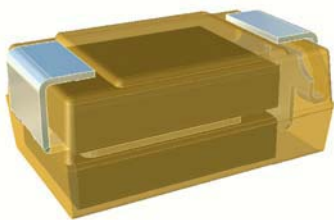
CAPACITANCE AND RATED VOLTAGE RANGE LETTER DENOTES CASE SIZE ESR LIMIT IN BRACKETS

| Capacitance | | Rated Voltage DC (V _R) to 85°C | | | | | | | | |
|-------------|------|--|--------|--------|---------|---------|----------|----------|---------|--------------------|
| µF | Code | 2.5V (e) | 4V (G) | 6V (J) | 10V (A) | 12V (B) | 16V (C) | 20V (D) | 25V (E) | 35V (V) |
| 22 | 226 | | | | | | | | | D(70) E(60,100) |
| 33 | 336 | | | | | | | | D(65) | E(50,65) |
| 47 | 476 | | | | | | | | E(65) | |
| 68 | 686 | | | | | | | | | |
| 100 | 107 | | | | | | | E(35,45) | | |
| 150 | 157 | | | | | | E(30,40) | | | |
| 220 | 227 | | | | D(35) | E(35) | | | | |
| 330 | 337 | | D(35) | D(35) | E(35) | | | | | |
| 470 | 477 | | D(35) | E(30) | | | | | | |
| 680 | 687 | | E(23) | | | | | | | |
| 1000 | 108 | D(25) | E(23) | | | | | | | |
| 1500 | 158 | E(18) | | | | | | | | |

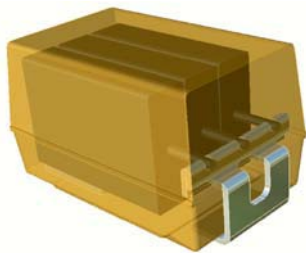
Available Ratings: ESR limits quoted in brackets (mOhms)

Notes: Voltage ratings are minimum values. AVX reserves the right to supply higher ratings in the same case size, to the same reliability standards. EIA standards for Low ESR solid tantalum capacitors allow an ESR movement of 1.25 times initial limit post mounting.

TBM D MULTIANODE CONSTRUCTION



TBM E MULTIANODE CONSTRUCTION



HOW TO ORDER

SPACE LEVEL OPTIONS TO SRC9000:

| TBM | E | 477 | * | 006 | L | □ | L | @ | 9 | ^ | ++ |
|-------------|------------------|---|------------------------------|--|----------------------------------|---|-------------------------|--|----------------------------|--|--|
| Type | Case Size | Capacitance Code | Capacitance Tolerance | Voltage Code | Standard or Low ESR Range | Packaging | Inspection Level | Reliability Grade | Qualification Level | Termination Finish | Surge Test Option |
| | | pF code: 1st two digits represent significant figures 3rd digit represents multiplier (number of zeros to follow) | M = ±20% K = ±10% | 002 = 2.5Vdc 004 = 4Vdc 006 = 6Vdc 010 = 10Vdc 012 = 12Vdc 016 = 16Vdc 020 = 20Vdc 025 = 25Vdc 035 = 35Vdc | C = Std ESR L = Low ESR | B = Bulk R = 7" T&R S = 13" T&R W = Waffle See page 8 for additional packaging options. | L = Group A | Weibull: C = 0.01%/1000 hrs. 90% conf. | 9 = SRC9000 | H = Solder Plated 0 = Fused Solder Plated 8 = Hot Solder Dipped 9 = Gold Plated | 45 = 10 cycles, -55°C & +85°C before Weibull |

For RoHS compliant products, please select correct termination style.

TECHNICAL SPECIFICATIONS

Technical Data: Unless otherwise specified, all technical data relate to an ambient temperature of +25°C

| | | | | | | | | | | | |
|------------------------------------|------------------|-----|-----|---|----|------|----|----|----|----|--|
| Capacitance Range: | 22 µF to 1500 µF | | | | | | | | | | |
| Capacitance Tolerance: | ±10%; ±20% | | | | | | | | | | |
| Rated Voltage DC (V _R) | ≤ +85°C: | 2.5 | 4 | 6 | 10 | 12 | 16 | 20 | 25 | 35 | |
| Category Voltage (V _C) | ≤ +125°C: | 1.7 | 2.7 | 4 | 7 | 8.4 | 10 | 13 | 17 | 23 | |
| Surge Voltage (V _S) | ≤ +85°C: | 3.3 | 5.2 | 8 | 13 | 15.6 | 20 | 26 | 32 | 46 | |
| Surge Voltage (V _S) | ≤ +125°C: | 2.2 | 3.4 | 5 | 8 | 9.6 | 12 | 16 | 20 | 28 | |
| Temperature Range: | -55°C to +125°C | | | | | | | | | | |

TBM Multianode



Tantalum Ultra Low ESR Space Level

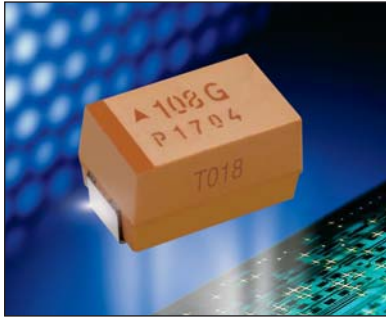
| RATING & PART NUMBER REFERENCE | | Parametric Specifications by Rating | | | | | | | | | Typical RMS Ripple Data by Rating | | | | | | |
|---|------|-------------------------------------|-------------------------------|-------------------------------|------------|------------|-------------|-----------|---------------|-----------|-----------------------------------|---------------------------|---------------------------|----------------------------|---------------------------|---------------------------|----------------------------|
| | | Cap @ 120Hz µF @ 25°C | DC Rated Voltage V @ +85°C | ESR @ 100kHz mOhms @ +25°C | DCL max | | | DF max | | | Power Dissipation W | 25°C Ripple A (100kHz) | 85°C Ripple A (100kHz) | 125°C Ripple A (100kHz) | 25°C Ripple V (100kHz) | 85°C Ripple V (100kHz) | 125°C Ripple V (100kHz) |
| | | | | | +25°C (µA) | +85°C (µA) | +125°C (µA) | +25°C (%) | +85/125°C (%) | -55°C (%) | | | | | | | |
| AVX P/N | Case | | | | | | | | | | | | | | | | |
| 2.5 Volt @ 85°C (1.7 Volt @ 125°C) | | | | | | | | | | | | | | | | | |
| TBMD108*002L□LC9^45 | D | 1000 | 2.5 | 25 | 18.8 | 188 | 376 | 8 | 11 | 12 | 0.255 | 3.194 | 2.874 | 1.277 | 0.080 | 0.072 | 0.032 |
| TBME158*002C□LC9^45 | E | 1500 | 2.5 | 18 | 28.1 | 281 | 562 | 6 | 9 | 10 | 0.270 | 3.873 | 3.486 | 1.549 | 0.070 | 0.063 | 0.028 |
| 4 Volt @ 85°C (2.7 Volt @ 125°C) | | | | | | | | | | | | | | | | | |
| TBMD337*004L□LC9^45 | D | 330 | 4 | 35 | 9.9 | 99 | 198 | 8 | 11 | 12 | 0.255 | 2.699 | 2.429 | 1.080 | 0.094 | 0.085 | 0.038 |
| TBMD477*004L□LC9^45 | D | 470 | 4 | 35 | 14.1 | 141 | 282 | 8 | 11 | 12 | 0.255 | 2.699 | 2.429 | 1.080 | 0.094 | 0.085 | 0.038 |
| TBME687*004C□LC9^45 | E | 680 | 4 | 23 | 20.4 | 204 | 408 | 6 | 9 | 10 | 0.270 | 3.426 | 3.084 | 1.370 | 0.079 | 0.071 | 0.032 |
| TBME108*004C□LC9^45 | E | 1000 | 4 | 23 | 30 | 300 | 600 | 6 | 9 | 10 | 0.270 | 3.426 | 3.084 | 1.370 | 0.079 | 0.071 | 0.032 |
| 6 Volt @ 85°C (4 Volt @ 125°C) | | | | | | | | | | | | | | | | | |
| TBMD337*006L□LC9^45 | D | 330 | 6 | 35 | 14.9 | 149 | 298 | 8 | 11 | 12 | 0.255 | 2.699 | 2.429 | 1.080 | 0.094 | 0.085 | 0.038 |
| TBME477*006C□LC9^45 | E | 470 | 6 | 30 | 21.2 | 212 | 424 | 6 | 9 | 10 | 0.270 | 3.000 | 2.700 | 1.200 | 0.090 | 0.081 | 0.036 |
| 10 Volt @ 85°C (7 Volt @ 125°C) | | | | | | | | | | | | | | | | | |
| TBMD227*010L□LC9^45 | D | 220 | 10 | 35 | 16.5 | 165 | 330 | 8 | 11 | 12 | 0.255 | 2.699 | 2.429 | 1.080 | 0.094 | 0.085 | 0.038 |
| TBME337*010C□LC9^45 | E | 330 | 10 | 35 | 24.8 | 248 | 496 | 6 | 9 | 10 | 0.270 | 2.777 | 2.500 | 1.111 | 0.097 | 0.087 | 0.039 |
| 12 Volt @ 85°C (8.4 Volt @ 125°C) | | | | | | | | | | | | | | | | | |
| TBME227*012C□LC9^45 | E | 220 | 12 | 35 | 19.8 | 198 | 396 | 6 | 9 | 10 | 0.270 | 2.777 | 2.500 | 1.111 | 0.097 | 0.087 | 0.039 |
| 16 Volt @ 85°C (10 Volt @ 125°C) | | | | | | | | | | | | | | | | | |
| TBME157*016L□LC9^45 | E | 150 | 16 | 30 | 18 | 180 | 360 | 6 | 9 | 10 | 0.270 | 3.000 | 2.700 | 1.200 | 0.090 | 0.081 | 0.036 |
| TBME157*016C□LC9^45 | E | 150 | 16 | 40 | 18 | 180 | 360 | 6 | 9 | 10 | 0.270 | 2.598 | 2.338 | 1.039 | 0.104 | 0.094 | 0.042 |
| 20 Volt @ 85°C (13 Volt @ 125°C) | | | | | | | | | | | | | | | | | |
| TBME107*020L□LC9^45 | E | 100 | 20 | 35 | 15 | 150 | 300 | 6 | 9 | 10 | 0.270 | 2.777 | 2.500 | 1.111 | 0.097 | 0.087 | 0.039 |
| TBME107*020C□LC9^45 | E | 100 | 20 | 45 | 15 | 150 | 300 | 6 | 9 | 10 | 0.270 | 2.449 | 2.205 | 0.980 | 0.110 | 0.099 | 0.044 |
| 25 Volt @ 85°C (17 Volt @ 125°C) | | | | | | | | | | | | | | | | | |
| TBMD336*025L□LC9^45 | D | 33 | 25 | 65 | 6.2 | 62 | 124 | 8 | 11 | 12 | 0.255 | 1.981 | 1.783 | 0.792 | 0.129 | 0.116 | 0.051 |
| TBME476*025L□LC9^45 | E | 47 | 25 | 65 | 8.8 | 88 | 176 | 6 | 9 | 10 | 0.270 | 2.038 | 1.834 | 0.815 | 0.132 | 0.119 | 0.053 |
| 35 Volt @ 85°C (23 Volt @ 125°C) | | | | | | | | | | | | | | | | | |
| TBMD226*035L□LC9^45 | D | 22 | 35 | 70 | 5.8 | 58 | 116 | 8 | 11 | 12 | 0.255 | 1.909 | 1.718 | 0.763 | 0.134 | 0.120 | 0.053 |
| TBME226*035L□LC9^45 | E | 22 | 35 | 60 | 5.8 | 58 | 116 | 6 | 9 | 10 | 0.270 | 2.121 | 1.909 | 0.849 | 0.127 | 0.115 | 0.051 |
| TBME226*035C□LC9^45 | E | 22 | 35 | 100 | 5.8 | 58 | 116 | 6 | 9 | 10 | 0.270 | 1.643 | 1.479 | 0.657 | 0.164 | 0.148 | 0.066 |
| TBME336*035L□LC9^45 | E | 33 | 35 | 50 | 8.7 | 87 | 174 | 6 | 9 | 10 | 0.270 | 2.324 | 2.091 | 0.930 | 0.116 | 0.105 | 0.046 |
| TBME336*035C□LC9^45 | E | 33 | 35 | 65 | 8.7 | 87 | 174 | 6 | 9 | 10 | 0.270 | 2.038 | 1.834 | 0.815 | 0.132 | 0.119 | 0.053 |

All technical data relates to an ambient temperature of +25°C. Capacitance and DF are measured at 120Hz, 0.5V RMS with a maximum DC bias of 2.2 volts. DCL is measured at rated voltage after 5 minutes.

NOTE: AVX reserves the right to supply a higher voltage rating or tighter tolerance part in the same case size, to the same reliability standards.

TBM Multianode

Tantalum Ultra Low ESR COTS-Plus



TBM COTS-Plus series uses an internal multi-anode design to achieve ultra-low ESR which improves performance in high ripple power applications.

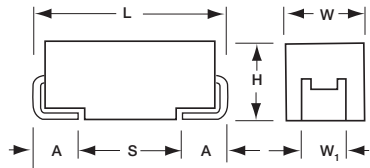
TBM is available with Weibull Grade “B” reliability and all MIL-PRF-55365 Rev. G surge test options (“A”, “B” & “C”).

There are four termination finishes available: solder plated, fused solder plated, hot solder dipped and gold plated (these

correspond to “H”, “K”, “C” and “B” termination, respectively, per MIL-PRF-55365).

The molding compound has been selected to meet the requirements of UL94V-0 (Flame Retardancy) and outgassing requirements of ASTM E-595.

For moisture sensitivity levels please refer to the High Reliability Tantalum MSL section located in the back of the High Reliability Tantalum Catalog.



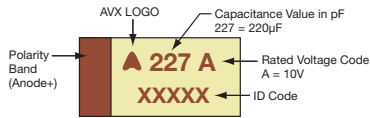
CASE DIMENSIONS: millimeters (inches)

| Code | L±0.20 (0.008) | W+0.20 (0.008) -0.10 (0.004) | H+0.20 (0.008) -0.10 (0.004) | W ₁ ±0.20 (0.008) | A+0.30 (0.012) -0.20 (0.008) | S Min. |
|------|-------------------|---------------------------------|---------------------------------|---------------------------------|---------------------------------|--------------|
| D | 7.30 (0.287) | 4.30 (0.169) | 2.90 (0.114) | 2.40 (0.094) | 1.30 (0.051) | 4.40 (0.173) |
| E | 7.30 (0.287) | 4.30 (0.169) | 4.10 (0.162) | 2.40 (0.094) | 1.30 (0.051) | 4.40 (0.173) |
| V | 7.30 (0.287) | 6.10 (0.240) | 3.55 (0.140) | 3.10 (0.120) | 1.30 (0.051) | 4.40 (0.173) |

W₁ dimension applies to the termination width for A dimensional area only.

MARKING

D, E, V CASE



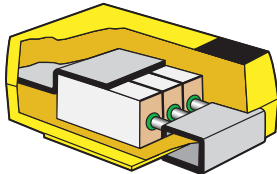
CAPACITANCE AND RATED VOLTAGE RANGE LETTER DENOTES CASE SIZE ESR LIMIT IN BRACKETS

| Capacitance | | Rated Voltage DC (V _R) to 85°C | | | | | | | | |
|-------------|------|--|-------------------|--------------|----------|---------|----------|----------|---------|--------------------|
| µF | Code | 2.5V (e) | 4V (G) | 6V (J) | 10V (A) | 12V (B) | 16V (C) | 20V (D) | 25V (E) | 35V (V) |
| 22 | 226 | | | | | | | | | D(70) E(60,100) |
| 33 | 336 | | | | | | | | D(65) | E(50,65) |
| 47 | 476 | | | | | | | | E(65) | E(55) |
| 68 | 686 | | | | | | | | E(45) | |
| 100 | 107 | | | | | | | E(35,45) | | |
| 150 | 157 | | | | | | E(30,40) | | | |
| 220 | 227 | | | | D(35) | E(35) | E(25) | | | |
| 330 | 337 | | D(35) | D(35) | E(23,35) | | | | | |
| 470 | 477 | | D(35) | E(18,30) | E(23) | | | | | |
| 680 | 687 | | E(18,23) | E(18), V(23) | | | | | | |
| 1000 | 108 | D(25) | E(18,23) V(18) | | | | | | | |
| 1500 | 158 | E(12,18) | E(15) | | | | | | | |
| 2000 | 208 | | | | | | | | | |

Available Ratings: ESR limits quoted in brackets (mOhms)

Notes: Voltage ratings are minimum values. AVX reserves the right to supply higher ratings in the same case size, to the same reliability standards. EIA standards for Low ESR solid tantalum capacitors allow an ESR movement of 1.25 times initial limit post mounting.

TBM D MULTIANODE CONSTRUCTION



TBM Multianode



Tantalum Ultra Low ESR COTS-Plus

HOW TO ORDER

COTS-PLUS:

| TBM | E | 477 | * | 006 | L | □ | # | @ | 0 | ^ | ++ |
|------|-----------|---|-----------------------|--|----------------------------|---|-------------------------------------|--|---------------------|--|---|
| Type | Case Size | Capacitance Code | Capacitance Tolerance | Voltage Code | Standard or Low ESR Range | Packaging | Inspection Level | Reliability Grade | Qualification Level | Termination Finish | Surge Test Option |
| | | pF code: 1st two digits represent significant figures 3rd digit represents multiplier (number of zeros to follow) | M = ±20% K = ±10% | 002 = 2.5Vdc 004 = 4Vdc 006 = 6Vdc 010 = 10Vdc 012 = 12Vdc 016 = 16Vdc 020 = 20Vdc 025 = 25Vdc 035 = 35Vdc | C = Std ESR L = Low ESR | B = Bulk R = 7" T&R S = 13" T&R W = Waffle See page 8 for additional packaging options. | S = Std. Conformance L = Group A | Weibull: B = 0.1%/1000 hrs. 90% conf. Z = Non-ER | 0 = N/A | H = Solder Plated 0 = Fused Solder Plated 8 = Hot Solder Dipped 9 = Gold Plated 7 = Matte Sn | 00 = None 23 = 10 Cycles, +25°C 24 = 10 Cycles, -55°C & +85°C 45 = 10 cycles, -55°C & +85°C before Weibull |



TECHNICAL SPECIFICATIONS

Technical Data: Unless otherwise specified, all technical data relate to an ambient temperature of +25°C

| | | | | | | | | | | | |
|------------------------------------|------------------|-----|-----|---|----|------|----|----|----|----|--|
| Capacitance Range: | 22 µF to 1500 µF | | | | | | | | | | |
| Capacitance Tolerance: | ±10%; ±20% | | | | | | | | | | |
| Rated Voltage DC (V _R) | ≤ +85°C: | 2.5 | 4 | 6 | 10 | 12 | 16 | 20 | 25 | 35 | |
| Category Voltage (V _C) | ≤ +125°C: | 1.7 | 2.7 | 4 | 7 | 8.4 | 10 | 13 | 17 | 23 | |
| Surge Voltage (V _S) | ≤ +85°C: | 3.3 | 5.2 | 8 | 13 | 15.6 | 20 | 26 | 32 | 46 | |
| Surge Voltage (V _S) | ≤ +125°C: | 2.2 | 3.4 | 5 | 8 | 9.6 | 12 | 16 | 20 | 28 | |
| Temperature Range: | -55°C to +125°C | | | | | | | | | | |

TBM Multianode

Tantalum Ultra Low ESR COTS-Plus



| RATING & PART NUMBER REFERENCE | | Parametric Specifications by Rating | | | | | | | | | Typical RMS Ripple Data by Rating | | | | | | |
|---|------|-------------------------------------|------------------|---------------|---------|-------|--------|--------|-----------|-------|-----------------------------------|---------------------|---------------------|----------------------|---------------------|---------------------|----------------------|
| | | Cap @ 120Hz | DC Rated Voltage | ESR @ 100kHz | DCL max | | | DF max | | | Power Dissipation | 25°C Ripple Current | 85°C Ripple Current | 125°C Ripple Current | 25°C Ripple Voltage | 85°C Ripple Voltage | 125°C Ripple Voltage |
| | | | | | +25°C | +85°C | +125°C | +25°C | +85/125°C | -55°C | | | | | | | |
| AVX P/N | Case | µF @ 25°C | V @ +85°C | mOhms @ +25°C | (µA) | (µA) | (µA) | (%) | (%) | (%) | W | A (100kHz) | A (100kHz) | A (100kHz) | V (100kHz) | V (100kHz) | V (100kHz) |
| 2.5 Volt @ 85°C (1.7 Volt @ 125°C) | | | | | | | | | | | | | | | | | |
| TBMD108*002L□SB0^++ | D | 1000 | 2.5 | 25 | 18.8 | 188 | 376 | 8 | 11 | 12 | 0.255 | 3.194 | 2.874 | 1.277 | 0.080 | 0.072 | 0.032 |
| TBME158*002C□SB0^++ | E | 1500 | 2.5 | 18 | 28.1 | 281 | 562 | 6 | 9 | 10 | 0.270 | 3.873 | 3.486 | 1.549 | 0.070 | 0.063 | 0.028 |
| TBME158*002L□SB0^++ | E | 1500 | 2.5 | 12 | 38 | 380 | 760 | 6 | 9 | 10 | 0.270 | 4.743 | 4.269 | 1.897 | 0.057 | 0.051 | 0.023 |
| 4 Volt @ 85°C (2.7 Volt @ 125°C) | | | | | | | | | | | | | | | | | |
| TBMD337*004L□SB0^++ | D | 330 | 4 | 35 | 9.9 | 99 | 198 | 8 | 11 | 12 | 0.255 | 2.699 | 2.429 | 1.080 | 0.094 | 0.085 | 0.038 |
| TBMD477*004L□SB0^++ | D | 470 | 4 | 35 | 14.1 | 141 | 282 | 8 | 11 | 12 | 0.255 | 2.699 | 2.429 | 1.080 | 0.094 | 0.085 | 0.038 |
| TBME687*004C□SB0^++ | E | 680 | 4 | 23 | 20.4 | 204 | 408 | 6 | 9 | 10 | 0.270 | 3.426 | 3.084 | 1.370 | 0.079 | 0.071 | 0.032 |
| TBME687*004L□SB0^++ | E | 680 | 4 | 18 | 27 | 270 | 540 | 6 | 9 | 10 | 0.270 | 3.873 | 3.486 | 1.549 | 0.070 | 0.063 | 0.028 |
| TBME108*004C□SB0^++ | E | 1000 | 4 | 23 | 30 | 300 | 600 | 6 | 9 | 10 | 0.270 | 3.426 | 3.084 | 1.370 | 0.079 | 0.071 | 0.032 |
| TBME108*004L□SB0^++ | E | 1000 | 4 | 18 | 40 | 400 | 800 | 6 | 9 | 10 | 0.270 | 3.873 | 3.486 | 1.549 | 0.070 | 0.063 | 0.028 |
| TBMV108*004L□SB0^++ | V | 1000 | 4 | 18 | 40 | 400 | 800 | 6 | 9 | 10 | 0.285 | 3.979 | 3.581 | 1.592 | 0.072 | 0.064 | 0.029 |
| TBME158*004L□SB0^++ | E | 1500 | 4 | 15 | 40 | 400 | 800 | 6 | 9 | 10 | 0.270 | 4.243 | 3.818 | 1.697 | 0.064 | 0.057 | 0.025 |
| 6 Volt @ 85°C (4 Volt @ 125°C) | | | | | | | | | | | | | | | | | |
| TBMD337*006L□SB0^++ | D | 330 | 6 | 35 | 14.9 | 149 | 298 | 8 | 11 | 12 | 0.255 | 2.699 | 2.429 | 1.080 | 0.094 | 0.085 | 0.038 |
| TBME477*006C□SB0^++ | E | 470 | 6 | 30 | 21.2 | 212 | 424 | 6 | 9 | 10 | 0.270 | 3.000 | 2.700 | 1.200 | 0.090 | 0.081 | 0.036 |
| TBME477*006L□SB0^++ | E | 470 | 6 | 18 | 28 | 280 | 560 | 6 | 9 | 10 | 0.270 | 3.873 | 3.486 | 1.549 | 0.070 | 0.063 | 0.028 |
| TBME687*006L□SB0^++ | E | 680 | 6 | 18 | 41 | 410 | 820 | 6 | 9 | 10 | 0.270 | 3.873 | 3.486 | 1.549 | 0.070 | 0.063 | 0.028 |
| TBMV687*006L□SB0^++ | V | 680 | 6 | 23 | 41 | 410 | 820 | 6 | 9 | 10 | 0.285 | 3.520 | 3.168 | 1.408 | 0.081 | 0.073 | 0.032 |
| 10 Volt @ 85°C (7 Volt @ 125°C) | | | | | | | | | | | | | | | | | |
| TBMD227*010L□SB0^++ | D | 220 | 10 | 35 | 16.5 | 165 | 330 | 8 | 11 | 12 | 0.255 | 2.699 | 2.429 | 1.080 | 0.094 | 0.085 | 0.038 |
| TBME337*010C□SB0^++ | E | 330 | 10 | 35 | 24.8 | 248 | 496 | 6 | 9 | 10 | 0.270 | 2.777 | 2.500 | 1.111 | 0.097 | 0.087 | 0.039 |
| TBME337*010L□SB0^++ | E | 330 | 10 | 23 | 33 | 330 | 660 | 6 | 9 | 10 | 0.270 | 3.426 | 3.084 | 1.370 | 0.079 | 0.071 | 0.032 |
| TBME477*010L□SB0^++ | E | 470 | 10 | 23 | 47 | 470 | 940 | 6 | 9 | 10 | 0.270 | 3.426 | 3.084 | 1.370 | 0.079 | 0.071 | 0.032 |
| 12 Volt @ 85°C (8.4 Volt @ 125°C) | | | | | | | | | | | | | | | | | |
| TBME227*012C□SB0^++ | E | 220 | 12 | 35 | 19.8 | 198 | 396 | 6 | 9 | 10 | 0.270 | 2.777 | 2.500 | 1.111 | 0.097 | 0.087 | 0.039 |
| 16 Volt @ 85°C (10 Volt @ 125°C) | | | | | | | | | | | | | | | | | |
| TBME157*016C□SB0^++ | E | 150 | 16 | 40 | 18 | 180 | 360 | 6 | 9 | 10 | 0.270 | 2.598 | 2.338 | 1.039 | 0.104 | 0.094 | 0.042 |
| TBME157*016L□SB0^++ | E | 150 | 16 | 30 | 18 | 180 | 360 | 6 | 9 | 10 | 0.270 | 3.000 | 2.700 | 1.200 | 0.090 | 0.081 | 0.036 |
| TBME227*016L□SB0^++ | E | 220 | 16 | 25 | 35 | 350 | 700 | 6 | 9 | 10 | 0.270 | 3.286 | 2.958 | 1.315 | 0.082 | 0.074 | 0.033 |
| 20 Volt @ 85°C (13 Volt @ 125°C) | | | | | | | | | | | | | | | | | |
| TBME107*020C□SB0^++ | E | 100 | 20 | 45 | 15 | 150 | 300 | 6 | 9 | 10 | 0.270 | 2.449 | 2.205 | 0.980 | 0.110 | 0.099 | 0.044 |
| TBME107*020L□SB0^++ | E | 100 | 20 | 35 | 15 | 150 | 300 | 6 | 9 | 10 | 0.270 | 2.777 | 2.500 | 1.111 | 0.097 | 0.087 | 0.039 |
| 25 Volt @ 85°C (17 Volt @ 125°C) | | | | | | | | | | | | | | | | | |
| TBMD336*025L□SB0^++ | D | 33 | 25 | 65 | 6.2 | 62 | 124 | 8 | 11 | 12 | 0.255 | 1.981 | 1.783 | 0.792 | 0.129 | 0.116 | 0.051 |
| TBME476*025L□SB0^++ | E | 47 | 25 | 65 | 8.8 | 88 | 176 | 6 | 9 | 10 | 0.270 | 2.038 | 1.834 | 0.815 | 0.132 | 0.119 | 0.053 |
| TBME686*025L□SB0^++ | E | 68 | 25 | 45 | 17 | 170 | 340 | 6 | 9 | 10 | 0.270 | 2.449 | 2.205 | 0.980 | 0.110 | 0.099 | 0.044 |
| 35 Volt @ 85°C (23 Volt @ 125°C) | | | | | | | | | | | | | | | | | |
| TBMD226*035L□SB0^++ | D | 22 | 35 | 70 | 5.8 | 58 | 116 | 8 | 11 | 12 | 0.255 | 1.909 | 1.718 | 0.763 | 0.134 | 0.120 | 0.053 |
| TBME226*035C□SB0^++ | E | 22 | 35 | 100 | 5.8 | 58 | 116 | 6 | 9 | 10 | 0.270 | 1.643 | 1.479 | 0.657 | 0.164 | 0.148 | 0.066 |
| TBME226*035L□SB0^++ | E | 22 | 35 | 60 | 5.8 | 58 | 116 | 6 | 9 | 10 | 0.270 | 2.121 | 1.909 | 0.849 | 0.127 | 0.115 | 0.051 |
| TBME336*035C□SB0^++ | E | 33 | 35 | 65 | 8.7 | 87 | 174 | 6 | 9 | 10 | 0.270 | 2.038 | 1.834 | 0.815 | 0.132 | 0.119 | 0.053 |
| TBME336*035L□SB0^++ | E | 33 | 35 | 50 | 8.7 | 87 | 174 | 6 | 9 | 10 | 0.270 | 2.324 | 2.091 | 0.930 | 0.116 | 0.105 | 0.046 |
| TBME476*035L□SB0^++ | E | 47 | 35 | 55 | 16 | 160 | 320 | 6 | 9 | 10 | 0.270 | 2.216 | 1.994 | 0.886 | 0.122 | 0.110 | 0.049 |

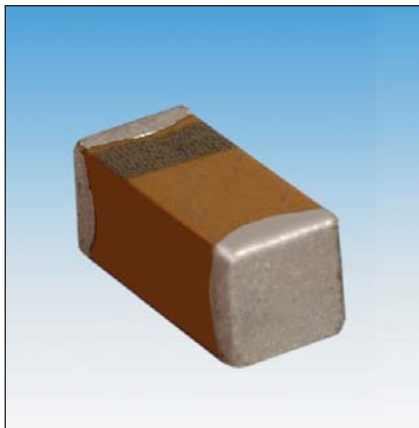
All technical data relates to an ambient temperature of +25°C. Capacitance and DF are measured at 120Hz, 0.5V RMS with a maximum DC bias of 2.2 volts. DCL is measured at rated voltage after 5 minutes.

NOTE: AVX reserves the right to supply a higher voltage rating or tighter tolerance part in the same case size, to the same reliability standards.

TBC Series



CWR15 MIL-PRF-55365/12 Established Reliability, COTS-Plus & Space Level



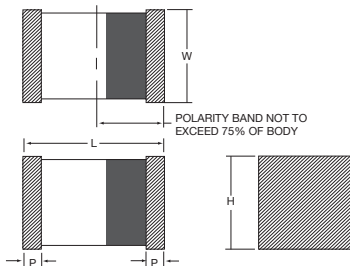
AVX announces the world's smallest military approved tantalum chip capacitors. The CWR15 offers 0603, 0805 and 1206 case sizes in capacitance/voltage combinations previously only available in much larger packages. The revolutionary AVX TACmicrochip® technology offers designers significant opportunity to downsize circuits for military and aerospace applications.

The product is manufactured in the AVX Tantalum high reliability facility in Biddeford, Maine which is also home to the CWR09, CWR11, CWR19 and CWR29 product lines.

For moisture sensitivity levels please refer to the High Reliability Tantalum MSL section located in the back of the High Reliability Tantalum Catalog.

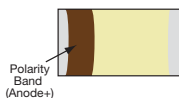
CASE DIMENSIONS: millimeters (inches)

| Case Code | Length (L) | Width (W) | Height (H) | Term. Width (W _t) |
|-----------|---|---|---|---|
| A | 3.20±0.20 (0.126±0.008) | 1.60±0.20 (0.063±0.008) | 1.60±0.20 (0.063±0.008) | 0.15+0.35/-0.00 (0.006+0.014/-0.000) |
| L | 1.60+0.25/-0.15 (0.063+0.010/-0.006) | 0.84+0.20/-0.10 (0.033+0.008/-0.004) | 0.84+0.20/-0.10 (0.033+0.008/-0.004) | 0.15+0.35/-0.00 (0.006+0.014/-0.000) |
| R | 2.00+0.25/-0.15 (0.079+0.010/-0.006) | 1.35+0.20/-0.10 (0.053+0.008/-0.004) | 1.35+0.20/-0.10 (0.053+0.008/-0.004) | 0.15+0.35/-0.00 (0.006+0.014/-0.000) |



MARKING

A, L, R CASE



CAPACITANCE AND RATED VOLTAGE, V_R (VOLTAGE CODE) RANGE (LETTER DENOTES CASE SIZE)

| Capacitance | | Voltage Rating DC (V _R) at 85°C | | | |
|-------------|------|---|--------|---------|---------|
| µF | Code | 4V (C) | 6V (D) | 10V (F) | 20V (J) |
| 0.47 | 474 | | | L | L |
| 0.68 | 684 | | | L | |
| 1.0 | 105 | | | L | |
| 1.5 | 155 | | | L | |
| 2.2 | 225 | | | L | |
| 3.3 | 335 | | L | R | |
| 4.7 | 475 | | L | R | |
| 6.8 | 685 | L | R | R | |
| 10 | 106 | R | R | R | |
| 15 | 156 | R | R | A | |
| 22 | 226 | R | A | | |
| 33 | 336 | R | A | | |
| 47 | 476 | | A | | |
| 68 | 686 | A | | | |

Further extensions of the CWR15 product are planned for later in 2009. A new case size will be added, and the voltage range will be extended to 20 volts. Ratings of 100 µF at 4 volts to 10 µF at 20 volts will be included in this extension of the product line.

TBC Series



CWR15 MIL-PRF-55365/12 Established Reliability, COTS-Plus & Space Level

HOW TO ORDER

COTS-PLUS & MIL QPL (CWR15):

| | | | | | | | | | | | |
|-------------|------------------|--|---------------------------------|--|----------------------------------|---|--|---|---------------------------------------|---|---|
| TBC | L | 685 | * | 004 | C | □ | # | @ | 0 | ^ | ++ |
| Type | Case Size | Capacitance Code | Capacitance Tolerance | Voltage Code | Standard or Low ESR Range | Packaging | Inspection Level | Reliability Grade | Qualification Level | Termination Finish | Surge Test Option |
| | | pF code: 1st two digits represent significant figures 3rd digit represents multiplier (number of zeros to follow) | M = ±20% K = ±10% J = ±5% | 004 = 4Vdc 006 = 6Vdc 010 = 10Vdc 020 = 20Vdc | C = Std ESR | B = Bulk R = 7" T&R S = 13" T&R W = Waffle See page 8 for additional packaging options. | S = Std. Conformance L = Group A M = MIL (JAN) CWR15 | Weibull: B = 0.1%/1000 hrs. 90% conf. C = 0.01%/1000 hrs. 90% conf. D = 0.001%/1000 hrs. 90% conf. Z = Non-ER | 0 = N/A T = T Level 9 = SRC9000 | 0 = Fused Solder Plated 9 = Gold Plated 7 = Matte Sn (COTS-Plus only) | 00 = None 23 = 10 Cycles, +25°C 24 = 10 Cycles, -55°C & +85°C 45 = 10 cycles, -55°C & +85°C before Weibull |

For RoHS compliant products, please select correct termination style.

CWR15 P/N CROSS REFERENCE:

| | | | | | | | |
|--------------|--|---|---|---|--|------------------|---|
| CWR15 | F | C | 685 | * | - | L | + |
| Style | Voltage Code | Termination Finish | Capacitance Code | Capacitance Tolerance | Product Level Designator | Case Size | Surge Test Option |
| | C = 4Vdc D = 6Vdc F = 10Vdc J = 20Vdc | B = Gold Plated K = Solder Fused <small>For RoHS compliant products, please select correct termination style.</small> | pF code: 1st two digits represent significant figures 3rd digit represents number of zeros to follow | J = ±5% K = ±10% M = ±20% See page 8 for additional packaging options. | Weibull: B = 0.1%/1000 hrs. 90% conf. C = 0.01%/1000 hrs. 90% conf. D = 0.001%/1000 hrs. 90% conf. T = T Level A = Non-ER | | A = +25°C after Weibull B = -55°C & +85°C after Weibull C = -55°C & +85°C before Weibull Z = None Required |

SPACE LEVEL OPTIONS TO SRC9000*:

| | | | | | | | | | | | |
|-------------|------------------|--|---------------------------------|--|----------------------------------|---|-------------------------|---|----------------------------|--|--|
| TBC | L | 685 | * | 004 | C | □ | L | @ | 9 | ^ | ++ |
| Type | Case Size | Capacitance Code | Capacitance Tolerance | Voltage Code | Standard or Low ESR Range | Packaging | Inspection Level | Reliability Grade | Qualification Level | Termination Finish | Surge Test Option |
| | | pF code: 1st two digits represent significant figures 3rd digit represents multiplier (number of zeros to follow) | M = ±20% K = ±10% J = ±5% | 004 = 4Vdc 006 = 6Vdc 010 = 10Vdc 020 = 20Vdc | C = Std ESR L = Low ESR | B = Bulk R = 7" T&R S = 13" T&R W = Waffle See page 8 for additional packaging options. | L = Group A | Weibull: B = 0.1%/1000 hrs. 90% conf. C = 0.01%/1000 hrs. 90% conf. D = 0.001%/1000 hrs. 90% conf. | 9 = SRC9000 | 0 = Fused Solder Plated 9 = Gold Plated | 45 = 10 cycles, -55°C & +85°C before Weibull |

For RoHS compliant products, please select correct termination style.

*Contact factory for AVX SRC9000 Space Level SCD details.

TECHNICAL SPECIFICATIONS

| | | | | | |
|------------------------------------|---|-----|-----|------|------|
| Technical Data: | Unless otherwise specified, all technical data relate to an ambient temperature of 25°C | | | | |
| Capacitance Range: | 0.47 µF to 68 µF | | | | |
| Capacitance Tolerance: | ±5%; ±10%; ±20% | | | | |
| Rated Voltage (V _R) | ≤ 85°C: | 4 | 6 | 10 | 20 |
| Category Voltage (V _C) | ≤ 125°C: | 2.7 | 4 | 6.7 | 13.3 |
| Surge Voltage (V _S) | ≤ 85°C: | 5.3 | 8 | 13.3 | 26.7 |
| Surge Voltage (V _S) | ≤ 125°C: | 3.5 | 5.3 | 8.7 | 17.8 |
| Temperature Range: | -55°C to +125°C | | | | |

TBC Series



CWR15 MIL-PRF-55365/12 Established Reliability, COTS-Plus & Space Level

| RATING & PART NUMBER REFERENCE | | | | Parametric Specifications by Rating per MIL-PRF-55365/12 | | | | | | | Typical RMS Ripple Data by Rating | | | | | | | | |
|--------------------------------|--------------------------------|--------------------------------|------|--|-------------------------------------|------------------------------------|---------|-------|--------|--------|-----------------------------------|--------|---------------------------|---------------------------------|---------------------------------|----------------------------------|---------------------------------|---------------------------------|----------------------------------|
| | | | | Cap @ 120Hz μF @ 25°C | DC Rated Voltage V @ +85°C | ESR @ 100kHz Ohms @ +25°C | DCL max | | | DF Max | | | Power Dissipation W | 25°C Ripple A (100kHz) | 85°C Ripple A (100kHz) | 125°C Ripple A (100kHz) | 25°C Ripple V (100kHz) | 85°C Ripple V (100kHz) | 125°C Ripple V (100kHz) |
| CWR15 P/N | AVX MIL & COTS-Plus P/N | AVX SRC9000 P/N | Case | +25°C | +85°C | +125°C | +25°C | +85°C | +125°C | +25°C | +85°C | +125°C | | | | | | | |
| CWR15CK685^L+ | TBC L 685 * 004 C □ # @ 0 ^ + | TBC L 685 * 004 C □ L @ 9 ^ + | L | 6.8 | 4 | 10 | 0.5 | 5 | 6 | 8 | 16 | 12 | 0.025 | 0.05 | 0.05 | 0.02 | 0.50 | 0.45 | 0.20 |
| CWR15CK106^R+ | TBC R 106 * 004 C □ # @ 0 ^ ++ | TBC R 106 * 004 C □ L @ 9 ^ ++ | R | 10 | 4 | 6 | 0.5 | 5 | 6 | 8 | 16 | 12 | 0.045 | 0.09 | 0.08 | 0.03 | 0.52 | 0.47 | 0.21 |
| CWR15CK156^R+ | TBC R 156 * 004 C □ # @ 0 ^ ++ | TBC R 156 * 004 C □ L @ 9 ^ ++ | R | 15 | 4 | 6 | 0.6 | 6 | 7 | 8 | 16 | 12 | 0.045 | 0.09 | 0.08 | 0.03 | 0.52 | 0.47 | 0.21 |
| CWR15CK226^R+ | TBC R 226 * 004 C □ # @ 0 ^ + | TBC R 226 * 004 C □ L @ 9 ^ + | R | 22 | 4 | 6 | 0.9 | 9 | 11 | 8 | 16 | 12 | 0.045 | 0.09 | 0.08 | 0.03 | 0.52 | 0.47 | 0.21 |
| CWR15CK336^R+ | TBC R 336 * 004 C □ # @ 0 ^ + | TBC R 336 * 004 C □ L @ 9 ^ + | R | 33 | 4 | 6 | 1.3 | 13 | 16 | 10 | 20 | 15 | 0.045 | 0.09 | 0.08 | 0.03 | 0.52 | 0.47 | 0.21 |
| CWR15CK686^A+ | TBC A 686 * 004 C □ # @ 0 ^ + | TBC A 686 * 004 C □ L @ 9 ^ + | A | 68 | 4 | 1 | 2.7 | 27 | 33 | 15 | 30 | 23 | 0.040 | 0.20 | 0.18 | 0.08 | 0.20 | 0.18 | 0.08 |
| CWR15DK335^L+ | TBC L 335 * 006 C □ # @ 0 ^ + | TBC L 335 * 006 C □ L @ 9 ^ + | L | 3.3 | 6 | 10 | 0.5 | 5 | 6 | 6 | 12 | 9 | 0.025 | 0.05 | 0.05 | 0.02 | 0.50 | 0.45 | 0.20 |
| CWR15DK475^L+ | TBC L 475 * 006 C □ # @ 0 ^ + | TBC L 475 * 006 C □ L @ 9 ^ + | L | 4.7 | 6 | 10 | 0.5 | 5 | 6 | 8 | 16 | 12 | 0.025 | 0.05 | 0.05 | 0.02 | 0.50 | 0.45 | 0.20 |
| CWR15DK685^R+ | TBC R 685 * 006 C □ # @ 0 ^ ++ | TBC R 685 * 006 C □ L @ 9 ^ ++ | R | 6.8 | 6 | 6 | 0.5 | 5 | 6 | 8 | 16 | 12 | 0.045 | 0.09 | 0.08 | 0.03 | 0.52 | 0.47 | 0.21 |
| CWR15DK106^R+ | TBC R 106 * 006 C □ # @ 0 ^ ++ | TBC R 106 * 006 C □ L @ 9 ^ ++ | R | 10 | 6 | 6 | 0.6 | 6 | 7 | 8 | 16 | 12 | 0.045 | 0.09 | 0.08 | 0.03 | 0.52 | 0.47 | 0.21 |
| CWR15DK156^R+ | TBC R 156 * 006 C □ # @ 0 ^ ++ | TBC R 156 * 006 C □ L @ 9 ^ ++ | R | 15 | 6 | 6 | 0.9 | 9 | 11 | 8 | 16 | 12 | 0.045 | 0.09 | 0.08 | 0.03 | 0.52 | 0.47 | 0.21 |
| CWR15DK226^A+ | TBC A 226 * 006 C □ # @ 0 ^ + | TBC A 226 * 006 C □ L @ 9 ^ + | A | 22 | 6 | 6 | 1.4 | 14 | 17 | 10 | 20 | 15 | 0.040 | 0.08 | 0.07 | 0.03 | 0.49 | 0.44 | 0.20 |
| CWR15DK336^A+ | TBC A 336 * 006 C □ # @ 0 ^ + | TBC A 336 * 006 C □ L @ 9 ^ + | A | 33 | 6 | 6 | 2 | 20 | 24 | 10 | 20 | 15 | 0.040 | 0.08 | 0.07 | 0.03 | 0.49 | 0.44 | 0.20 |
| CWR15DK476^A+ | TBC A 476 * 006 C □ # @ 0 ^ + | TBC A 476 * 006 C □ L @ 9 ^ + | A | 47 | 6 | 4 | 2.8 | 28 | 34 | 15 | 30 | 23 | 0.040 | 0.10 | 0.09 | 0.04 | 0.40 | 0.36 | 0.16 |
| CWR15FK474^L+ | TBC L 474 * 010 C □ # @ 0 ^ + | TBC L 474 * 010 C □ L @ 9 ^ + | L | 0.47 | 10 | 12 | 0.5 | 5 | 6 | 6 | 12 | 9 | 0.025 | 0.05 | 0.04 | 0.02 | 0.55 | 0.49 | 0.22 |
| CWR15FK684^L+ | TBC L 684 * 010 C □ # @ 0 ^ + | TBC L 684 * 010 C □ L @ 9 ^ + | L | 0.68 | 10 | 10 | 0.5 | 5 | 6 | 6 | 12 | 9 | 0.025 | 0.05 | 0.05 | 0.02 | 0.50 | 0.45 | 0.20 |
| CWR15FK105^L+ | TBC L 105 * 010 C □ # @ 0 ^ + | TBC L 105 * 010 C □ L @ 9 ^ + | L | 1 | 10 | 10 | 0.5 | 5 | 6 | 6 | 12 | 9 | 0.025 | 0.05 | 0.05 | 0.02 | 0.50 | 0.45 | 0.20 |
| CWR15FK155^L+ | TBC L 155 * 010 C □ # @ 0 ^ + | TBC L 155 * 010 C □ L @ 9 ^ + | L | 1.5 | 10 | 10 | 0.5 | 5 | 6 | 6 | 12 | 9 | 0.025 | 0.05 | 0.05 | 0.02 | 0.50 | 0.45 | 0.20 |
| CWR15FK225^L+ | TBC L 225 * 010 C □ # @ 0 ^ + | TBC L 225 * 010 C □ L @ 9 ^ + | L | 2.2 | 10 | 10 | 0.5 | 5 | 6 | 6 | 12 | 9 | 0.025 | 0.05 | 0.05 | 0.02 | 0.50 | 0.45 | 0.20 |
| CWR15FK335^R+ | TBC R 335 * 010 C □ # @ 0 ^ + | TBC R 335 * 010 C □ L @ 9 ^ + | R | 3.3 | 10 | 6 | 0.5 | 5 | 6 | 8 | 16 | 12 | 0.045 | 0.09 | 0.08 | 0.03 | 0.52 | 0.47 | 0.21 |
| CWR15FK475^R+ | TBC R 475 * 010 C □ # @ 0 ^ + | TBC R 475 * 010 C □ L @ 9 ^ + | R | 4.7 | 10 | 6 | 0.5 | 5 | 6 | 8 | 16 | 12 | 0.045 | 0.09 | 0.08 | 0.03 | 0.52 | 0.47 | 0.21 |
| CWR15FK685^R+ | TBC R 685 * 010 C □ # @ 0 ^ + | TBC R 685 * 010 C □ L @ 9 ^ + | R | 6.8 | 10 | 6 | 0.7 | 7 | 8.5 | 8 | 16 | 12 | 0.045 | 0.09 | 0.08 | 0.03 | 0.52 | 0.47 | 0.21 |
| CWR15FK106^R+ | TBC R 106 * 010 C □ # @ 0 ^ + | TBC R 106 * 010 C □ L @ 9 ^ + | R | 10 | 10 | 6 | 1 | 10 | 12 | 8 | 16 | 12 | 0.045 | 0.09 | 0.08 | 0.03 | 0.52 | 0.47 | 0.21 |
| CWR15FK156^R+ | TBC A 156 * 010 C □ # @ 0 ^ + | TBC A 156 * 010 C □ L @ 9 ^ + | A | 15 | 10 | 6 | 1.5 | 15 | 18 | 10 | 20 | 15 | 0.040 | 0.08 | 0.07 | 0.03 | 0.49 | 0.44 | 0.20 |
| CWR15JK474^R+ | TBC L 474 * 020 C □ # @ 0 ^ + | TBC L 474 * 020 C □ L @ 9 ^ + | L | 0.47 | 20 | 24 | 0.5 | 5 | 6 | 6 | 12 | 9 | 0.025 | 0.03 | 0.03 | 0.01 | 0.77 | 0.70 | 0.31 |

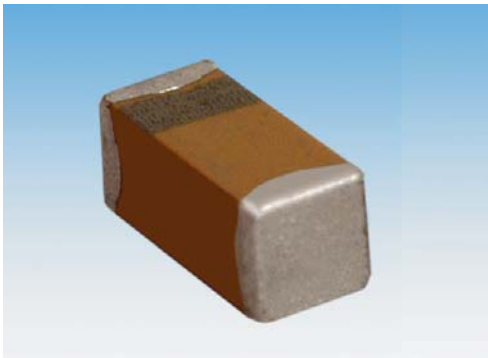
All technical data relates to an ambient temperature of +25°C. Capacitance and DF are measured at 120Hz, 0.5V RMS with a maximum DC bias of 2.2 volts. DCL is measured at rated voltage after 5 minutes.

NOTE: AVX reserves the right to supply a higher voltage rating or tighter tolerance part in the same case size, to the same reliability standards.



TBC Series

TBC COTS-Plus

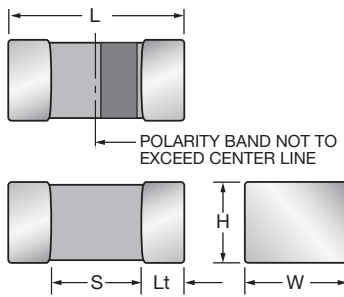


TBC COTS-Plus series extends the range of CWR15. TBC is available with Weibull grade “B” reliability and all MIL-PRF-55365 Rev. G surge test options (“A”, “B” & “C”).

For Space Level applications, AVX SRC9000 ratings are available as shown in the rating table.

There are three termination finishes available: fused solder plated, gold plated, and 100% tin.

For moisture sensitivity levels please refer to the High Reliability Tantalum MSL section located in the back of the High Reliability Tantalum Catalog.

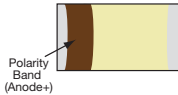


CASE DIMENSIONS: millimeters (inches)

| Code | EIA Code | EIA Metric | Length (L) | Width (W) | Height (H) | Termination Spacing(S) | Minimum Termination Length (Lt) | Average Mass |
|------|----------|------------|--|--|--|---------------------------|---------------------------------|--------------|
| A | 1206 | 3216-18 | 3.20±0.20 (0.126±0.008) | 1.60±0.20 (0.063±0.008) | 1.60±0.20 (0.063±0.008) | 1.80 min. (0.071 min.) | 0.15 (0.006) | 44.6mg |
| L | 0603 | 1608-10 | 1.60 ^{+0.25} _{-0.15} (0.063 ^{+0.010} _{-0.006}) | 0.84 ^{+0.20} _{-0.10} (0.033 ^{+0.008} _{-0.004}) | 0.84 ^{+0.20} _{-0.10} (0.033 ^{+0.008} _{-0.004}) | 0.55 min. (0.022 min.) | 0.15 (0.006) | 8.6mg |
| R | 0805 | 2012-15 | 2.00 ^{+0.25} _{-0.15} (0.079 ^{+0.010} _{-0.006}) | 1.35 ^{+0.20} _{-0.10} (0.053 ^{+0.008} _{-0.004}) | 1.35 ^{+0.20} _{-0.10} (0.053 ^{+0.008} _{-0.004}) | 0.70 min. (0.027 min.) | 0.15 (0.006) | 29.9mg |

MARKING

A, L, R CASE



CAPACITANCE AND RATED VOLTAGE, V_R (VOLTAGE CODE) RANGE (LETTER DENOTES CASE SIZE)

| Capacitance | | Voltage Rating DC (V _R) at 85°C | | | | | |
|-------------|------|---|------|-----|-----|-----|-----|
| µF | Code | 4V | 6.3V | 10V | 16V | 20V | 25V |
| 0.33 | 334 | | | | | | |
| 0.47 | 474 | | | L | L | L | L |
| 0.68 | 684 | | | L | L | L | |
| 1.0 | 105 | | | L | | | |
| 1.5 | 155 | | | L | | | |
| 2.2 | 225 | | | L | | | |
| 3.3 | 335 | | | R | | R | |
| 4.7 | 475 | | L | R | R | | |
| 6.8 | 685 | | R | R | R | | |
| 10 | 106 | R | R | R | A | | |
| 15 | 156 | R | | A | | | |
| 22 | 226 | R | A | | | | |
| 33 | 336 | R | A | | | | |
| 47 | 476 | | A | | | | |
| 68 | 686 | A | | | | | |

TBC Series



TBC COTS-Plus

HOW TO ORDER

COTS-PLUS:

| TBC | L | 685 | * | 004 | C | □ | # | @ | 0 | ^ | ++ |
|-------------|------------------|---|---|---|---|---|--|--|--|--|---|
| Type | Case Size | Capacitance Code pF code: 1st two digits represent significant figures 3rd digit represents multiplier (number of zeros to follow) | Capacitance Tolerance M = ±20% K = ±10% J = ±5% | Voltage Code 004 = 4Vdc 006 = 6.3Vdc 010 = 10Vdc 016 = 16Vdc 020 = 20Vdc 025 = 25Vdc | Standard or Low ESR Range C = Std ESR | Packaging B = Bulk R = 7" T&R S = 13" T&R W = Waffle See page 8 for additional packaging options. | Inspection Level S = Std. Conformance L = Group A | Reliability Grade Weibull: B = 0.1%/1000 hrs. 90% conf. C = 0.01%/1000 hrs. 90% conf. D = 0.001%/1000 hrs. 90% conf. Z = Non-ER None required | Qualification Level 0 = N/A 9 = SRC9000 | Termination Finish 0 = Fused Solder Plated 9 = Gold Plated 7 = Matte Sn (COTS-Plus only) | Surge Test Option 00 = None 23 = 10 Cycles, +25°C 24 = 10 Cycles, -55°C & +85°C 45 = 10 cycles, -55°C & +85°C before Weibull |



SPACE LEVEL OPTIONS TO SRC9000*:

| TBC | L | 685 | * | 004 | C | □ | L | @ | 9 | ^ | ++ |
|-------------|------------------|---|---|---|--|---|--|---|---|---|--|
| Type | Case Size | Capacitance Code pF code: 1st two digits represent significant figures 3rd digit represents multiplier (number of zeros to follow) | Capacitance Tolerance M = ±20% K = ±10% J = ±5% | Voltage Code 004 = 4Vdc 006 = 6.3Vdc 010 = 10Vdc 016 = 16Vdc 020 = 20Vdc 025 = 25Vdc | Standard or Low ESR Range C = Std ESR L = Low ESR | Packaging B = Bulk R = 7" T&R S = 13" T&R W = Waffle See page 8 for additional packaging options. | Inspection Level L = Group A | Reliability Grade Weibull: B = 0.1%/1000 hrs. 90% conf. C = 0.01%/1000 hrs. 90% conf. D = 0.001%/1000 hrs. 90% conf. | Qualification Level 9 = SRC9000 | Termination Finish 0 = Fused Solder Plated 9 = Gold Plated | Surge Test Option 45 = 10 cycles, -55°C & +85°C before Weibull |



*Contact factory for AVX SRC9000 Space Level SCD details.

TECHNICAL SPECIFICATIONS

| | | | | | | | | |
|------------------------------------|--|-----|-----|----|----|----|----|--|
| Technical Data: | All technical data relate to an ambient temperature of +25°C | | | | | | | |
| Capacitance Range: | 0.33 µF to 68 µF | | | | | | | |
| Capacitance Tolerance: | ±5%; ±10%; ±20% | | | | | | | |
| Leakage Current DCL: | 0.01CV or 0.5µA whichever is the greater | | | | | | | |
| Rated Voltage (V _R) | ≤ +85°C: | 4 | 6.3 | 10 | 16 | 20 | 25 | |
| Category Voltage (V _C) | ≤ +125°C: | 2.7 | 4 | 7 | 10 | 13 | 17 | |
| Surge Voltage (V _S) | ≤ +85°C: | 5.2 | 8 | 13 | 20 | 26 | 32 | |
| Surge Voltage (V _S) | ≤ +125°C: | 3.2 | 5 | 8 | 12 | 16 | 20 | |
| Temperature Range: | -55°C to +125°C | | | | | | | |

TBC Series

TBC COTS-Plus



| RATING & PART NUMBER REFERENCE | | | | Parametric Specifications by Rating | | | | | | | | | Typical RMS Ripple Data by Rating | | | | | | |
|---|------------------------------|------|---|-------------------------------------|---------------------|-----------------|---------|-------|--------|--------|-------------|-------|-----------------------------------|----------------|----------------|-----------------|----------------|----------------|-----------------|
| | | | | Cap @ 120Hz | DC Rated Voltage | ESR @ 100kHz | DCL max | | | DF Max | | | Power Dissipation | 25°C Ripple | 85°C Ripple | 125°C Ripple | 25°C Ripple | 85°C Ripple | 125°C Ripple |
| | | | | | | | +25°C | +85°C | +125°C | +25°C | +(85/125)°C | -55°C | | | | | | | |
| AVX P/N | AVX SRC9000 P/N | Case | | μF @ 25°C | V @ +85°C | Ohms @ +25°C | (μA) | (μA) | (μA) | (%) | (%) | (%) | W | A (100kHz) | A (100kHz) | V (100kHz) | V (100kHz) | V (100kHz) | |
| 4 Volt @ 85°C (2.7 Volt @ 125°C) | | | | | | | | | | | | | | | | | | | |
| TBC R 106 * 004 C # @ 0 ^ ++ | TBC R 106 * 004 C L @ 9 ^ ++ | 0805 | R | 10 | 4.0 | 6 | 0.5 | 5.0 | 6.3 | 8 | 16 | 12 | 0.045 | 0.09 | 0.08 | 0.03 | 0.52 | 0.47 | 0.21 |
| TBC R 156 * 004 C # @ 0 ^ ++ | TBC R 156 * 004 C L @ 9 ^ ++ | 0805 | R | 15 | 4.0 | 6 | 0.6 | 6.0 | 7.5 | 8 | 16 | 12 | 0.045 | 0.09 | 0.08 | 0.03 | 0.52 | 0.47 | 0.21 |
| TBC R 226 * 004 C # @ 0 ^ ++ | TBC R 226 * 004 C L @ 9 ^ ++ | 0805 | R | 22 | 4.0 | 6 | 0.9 | 8.8 | 11.0 | 15 | 30 | 23 | 0.045 | 0.09 | 0.08 | 0.03 | 0.52 | 0.47 | 0.21 |
| TBC R 336 * 004 C # @ 0 ^ ++ | TBC R 336 * 004 C L @ 9 ^ ++ | 0805 | R | 33 | 4.0 | 6 | 1.3 | 13.2 | 16.5 | 10 | 20 | 15 | 0.045 | 0.09 | 0.08 | 0.03 | 0.52 | 0.47 | 0.21 |
| TBC A 686 * 004 C # @ 0 ^ ++ | TBC A 686 * 004 C L @ 9 ^ ++ | 1206 | A | 68 | 4.0 | 1 | 2.7 | 27.2 | 34.0 | 15 | 30 | 23 | 0.040 | 0.20 | 0.18 | 0.08 | 0.20 | 0.18 | 0.08 |
| 6.3 Volt @ 85°C (4 Volt @ 125°C) | | | | | | | | | | | | | | | | | | | |
| TBC L 475 * 006 C # @ 0 ^ ++ | TBC L 475 * 006 C L @ 9 ^ ++ | 0603 | L | 4.7 | 6.3 | 10 | 0.5 | 5.0 | 6.3 | 8 | 16 | 12 | 0.025 | 0.05 | 0.05 | 0.02 | 0.50 | 0.45 | 0.20 |
| TBC R 685 * 006 C # @ 0 ^ ++ | TBC R 685 * 006 C L @ 9 ^ ++ | 0805 | R | 6.8 | 6.3 | 6 | 0.5 | 5.0 | 6.3 | 8 | 16 | 12 | 0.045 | 0.09 | 0.08 | 0.03 | 0.52 | 0.47 | 0.21 |
| TBC R 106 * 006 C # @ 0 ^ ++ | TBC R 106 * 006 C L @ 9 ^ ++ | 0805 | R | 10 | 6.3 | 6 | 0.6 | 6.3 | 7.9 | 8 | 16 | 12 | 0.045 | 0.09 | 0.08 | 0.03 | 0.52 | 0.47 | 0.21 |
| TBC A 226 K 006 C # @ 0 ^ ++ | TBC A 226 K 006 C L @ 9 ^ ++ | 1206 | A | 22 | 6.3 | 6 | 1.4 | 13.9 | 17.3 | 10 | 20 | 15 | 0.040 | 0.08 | 0.07 | 0.03 | 0.49 | 0.44 | 0.20 |
| TBC A 336 K 006 C # @ 0 ^ ++ | TBC A 336 K 006 C L @ 9 ^ ++ | 1206 | A | 33 | 6.3 | 6 | 2.1 | 20.8 | 26.0 | 10 | 20 | 15 | 0.040 | 0.08 | 0.07 | 0.03 | 0.49 | 0.44 | 0.20 |
| TBC A 476 * 006 C # @ 0 ^ ++ | TBC A 476 * 006 C L @ 9 ^ ++ | 1206 | A | 47 | 6.3 | 1 | 3.0 | 29.6 | 37.0 | 15 | 30 | 23 | 0.040 | 0.20 | 0.18 | 0.08 | 0.20 | 0.18 | 0.08 |
| 10 Volt @ 85°C (7 Volt @ 125°C) | | | | | | | | | | | | | | | | | | | |
| TBC L 474 * 010 C # @ 0 ^ ++ | TBC L 474 * 010 C L @ 9 ^ ++ | 0603 | L | 0.47 | 10 | 12 | 0.5 | 5.0 | 6.3 | 6 | 12 | 9 | 0.025 | 0.05 | 0.04 | 0.02 | 0.55 | 0.49 | 0.22 |
| TBC L 684 * 010 C # @ 0 ^ ++ | TBC L 684 * 010 C L @ 9 ^ ++ | 0603 | L | 0.68 | 10 | 10 | 0.5 | 5.0 | 6.3 | 6 | 12 | 9 | 0.025 | 0.05 | 0.05 | 0.02 | 0.50 | 0.45 | 0.20 |
| TBC L 105 * 010 C # @ 0 ^ ++ | TBC L 105 * 010 C L @ 9 ^ ++ | 0603 | L | 1.0 | 10 | 10 | 0.5 | 5.0 | 6.3 | 6 | 12 | 9 | 0.025 | 0.05 | 0.05 | 0.02 | 0.50 | 0.45 | 0.20 |
| TBC L 155 * 010 C # @ 0 ^ ++ | TBC L 155 * 010 C L @ 9 ^ ++ | 0603 | L | 1.5 | 10 | 10 | 0.5 | 5.0 | 6.3 | 6 | 12 | 9 | 0.025 | 0.05 | 0.05 | 0.02 | 0.50 | 0.45 | 0.20 |
| TBC L 225 * 010 C # @ 0 ^ ++ | TBC L 225 * 010 C L @ 9 ^ ++ | 0603 | L | 2.2 | 10 | 10 | 0.5 | 5.0 | 6.3 | 6 | 12 | 9 | 0.025 | 0.05 | 0.05 | 0.02 | 0.50 | 0.45 | 0.20 |
| TBC R 335 * 010 C # @ 0 ^ ++ | TBC R 335 * 010 C L @ 9 ^ ++ | 0805 | R | 3.3 | 10 | 6 | 0.5 | 5.0 | 6.3 | 8 | 16 | 12 | 0.045 | 0.09 | 0.08 | 0.03 | 0.52 | 0.47 | 0.21 |
| TBC R 475 * 010 C # @ 0 ^ ++ | TBC R 475 * 010 C L @ 9 ^ ++ | 0805 | R | 4.7 | 10 | 6 | 0.5 | 4.7 | 5.9 | 8 | 16 | 12 | 0.045 | 0.09 | 0.08 | 0.03 | 0.52 | 0.47 | 0.21 |
| TBC R 685 * 010 C # @ 0 ^ ++ | TBC R 685 * 010 C L @ 9 ^ ++ | 0805 | R | 6.8 | 10 | 6 | 0.7 | 6.8 | 8.5 | 8 | 16 | 12 | 0.045 | 0.09 | 0.08 | 0.03 | 0.52 | 0.47 | 0.21 |
| TBC R 106 * 010 C # @ 0 ^ ++ | TBC R 106 * 010 C L @ 9 ^ ++ | 0805 | R | 10 | 10 | 6 | 1.0 | 10.0 | 12.5 | 8 | 16 | 12 | 0.045 | 0.09 | 0.08 | 0.03 | 0.52 | 0.47 | 0.21 |
| TBC A 156 * 010 C # @ 0 ^ ++ | TBC A 156 * 010 C L @ 9 ^ ++ | 1206 | A | 15 | 10 | 6 | 1.5 | 15.0 | 18.8 | 10 | 20 | 15 | 0.040 | 0.08 | 0.07 | 0.03 | 0.49 | 0.44 | 0.20 |
| 16 Volt @ 85°C (10 Volt @ 125°C) | | | | | | | | | | | | | | | | | | | |
| TBC L 474 * 016 C # @ 0 ^ ++ | TBC L 474 * 016 C L @ 9 ^ ++ | 0603 | L | 0.47 | 16 | 10 | 0.5 | 5.0 | 6.3 | 6 | 12 | 9 | 0.025 | 0.05 | 0.05 | 0.02 | 0.50 | 0.45 | 0.20 |
| TBC L 684 * 016 C # @ 0 ^ ++ | TBC L 684 * 016 C L @ 9 ^ ++ | 0603 | L | 0.68 | 16 | 10 | 0.5 | 5.0 | 6.3 | 6 | 12 | 9 | 0.025 | 0.05 | 0.05 | 0.02 | 0.50 | 0.45 | 0.20 |
| TBC R 475 * 016 C # @ 0 ^ ++ | TBC R 475 * 016 C L @ 9 ^ ++ | 0805 | R | 4.7 | 16 | 6 | 0.8 | 7.5 | 9.0 | 10 | 20 | 15 | 0.045 | 0.09 | 0.08 | 0.03 | 0.52 | 0.47 | 0.21 |
| TBC A 106 * 016 C # @ 0 ^ ++ | TBC A 106 * 016 C L @ 9 ^ ++ | 1206 | A | 10 | 16 | 3 | 1.6 | 16.0 | 19.2 | 8 | 16 | 12 | 0.040 | 0.12 | 0.10 | 0.05 | 0.20 | 0.18 | 0.08 |
| 20 Volt @ 85°C (13 Volt @ 125°C) | | | | | | | | | | | | | | | | | | | |
| TBC L 474 * 020 C # @ 0 ^ ++ | TBC L 474 * 020 C L @ 9 ^ ++ | 0603 | L | 0.47 | 20 | 24 | 0.5 | 5.0 | 6.3 | 6 | 12 | 9 | 0.025 | 0.03 | 0.03 | 0.01 | 0.77 | 0.70 | 0.31 |
| TBC R 335 * 020 C # @ 0 ^ ++ | TBC R 335 * 020 C L @ 9 ^ ++ | 0805 | R | 3.3 | 20 | 6 | 0.7 | 6.6 | 8.3 | 8 | 16 | 12 | 0.045 | 0.09 | 0.08 | 0.03 | 0.52 | 0.47 | 0.21 |
| 25 Volt @ 85°C (17 Volt @ 125°C) | | | | | | | | | | | | | | | | | | | |
| TBC L 334 M 025 C # @ 0 ^ ++ | TBC L 334 M 025 C L @ 9 ^ ++ | 0603 | L | 0.33 | 25 | 30 | 0.5 | 5.0 | 6.3 | 6 | 12 | 9 | 0.025 | 0.03 | 0.03 | 0.01 | 0.87 | 0.78 | 0.35 |

All technical data relates to an ambient temperature of +25°C. Capacitance and DF are measured at 120Hz, 0.5V RMS with a maximum DC bias of 2.2 volts. DCL is measured at rated voltage after 5 minutes.

NOTE: AVX reserves the right to supply a higher voltage rating or tighter tolerance part in the same case size, to the same reliability standards.

TBC Series



HRC5000 Medical Implantable Grade



The TBC HRC5000 Medical Grade series is designed for use in medical implantable applications. These are some of the smallest surface mount tantalum capacitors available on the market which feature extremely low DC leakage limits well below typical values.

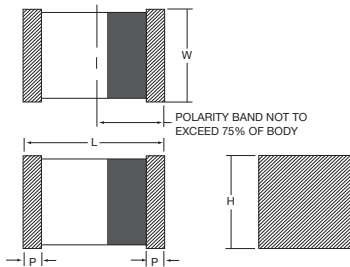


These components are manufactured and tested in the AVX Biddeford Maine factory which is ISO 13485 certified. Weibull grading and surge current testing options per MIL-PRF-55365 are available along with several plating options including tin/lead solder, 100% tin, or gold terminations.

To request a specific rating or for more information on HRC5000 testing details please contact the factory.

For moisture sensitivity levels please refer to the High Reliability Tantalum MSL section located in the back of the High Reliability Tantalum Catalog.

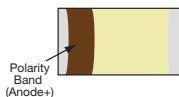
CASE DIMENSIONS: millimeters (inches)



| Case Code | EIA Code | Length (L) | Width (W) | Height (H) | Term. Width (P) min. |
|-----------|----------|--|--|--|----------------------|
| A | 1206 | 3.20±0.20 (0.126±0.008) | 1.60±0.20 (0.063±0.008) | 1.60±0.20 (0.063±0.008) | 0.15 (0.006) |
| B | 1411 | 3.60±0.20 (0.141±0.008) | 2.90±0.15 (0.114±0.006) | 1.50 max (0.06 max) | 0.15 (0.006) |
| L | 0603 | 1.60 ^{+0.25} _{-0.15} ^{+0.010} _{-0.006} (0.063) | 0.84 ^{+0.20} _{-0.10} ^{+0.008} _{-0.004} (0.033) | 0.84 ^{+0.20} _{-0.10} ^{+0.008} _{-0.004} (0.033) | 0.15 (0.006) |
| R | 0805 | 2.00 ^{+0.25} _{-0.15} ^{+0.010} _{-0.006} (0.079) | 1.35 ^{+0.20} _{-0.10} ^{+0.008} _{-0.004} (0.053) | 1.35 ^{+0.20} _{-0.10} ^{+0.008} _{-0.004} (0.053) | 0.15 (0.006) |
| S | 1207 | 3.20±0.20 (0.126±0.008) | 1.80±0.20 (0.071±0.008) | 1.50 max (0.06 max) | 0.15 (0.006) |

MARKING

A, B, L, R, S CASE



CAPACITANCE AND RATED VOLTAGE, V_R (VOLTAGE CODE) RANGE (LETTER DENOTES CASE SIZE)

| Capacitance | | Rated Voltage | | | | | |
|-------------|------|---------------|----|-----|-----------|-----|-----|
| µF | Code | 4V | 6V | 10V | 16V | 20V | 40V |
| 0.47 | 474 | | | L | | | |
| 0.68 | 684 | | | | | | |
| 1 | 105 | | | L | | R | A |
| 1.5 | 155 | | | | | | |
| 2.2 | 225 | | | L | | | |
| 3.3 | 335 | | L | R | | | |
| 4.7 | 475 | | | R | R | | |
| 6.8 | 685 | | | R | | | |
| 10 | 106 | | | R | R/A (17v) | | |
| 15 | 156 | R | | | | | |
| 22 | 226 | | | | | | |
| 33 | 336 | | | | | | |
| 47 | 476 | | S | B | | | |

TBC Series



HRC5000 Medical Implantable Grade

HOW TO ORDER

| TBC | R | 106 | * | 010 | C | □ | L | @ | 5 | ^ | ++ |
|-------------|------------------|---|---|--|---------------------------|--|--|---|---|--|---|
| Type | Case Size | Capacitance Code pF code: 1st two digits represent significant figures 3rd digit represents multiplier (number of zeros to follow) | Capacitance Tolerance J = ±5% K = ±10% M = ±20% | Voltage Code 004 = 4Vdc 006 = 6Vdc 010 = 10Vdc 016 = 16Vdc 017 = 17Vdc 020 = 20Vdc 040 = 40Vdc | ESR C = Std ESR | Packaging B = Bulk R = 7* T&R W = Waffle | Inspection Level L = Group A | Reliability Grade Weibull: B = 0.1%/1000 hrs. 90% conf. C = 0.01%/1000 hrs. 90% conf. | Qualification Level 5 = HRC5000 | Termination Finish 0 = Solder Fused 9 = Gold Plated 7 = 100% Tin | Surge Test Option 00 = None 23 = 10 Cycles, +25°C 24 = 10 Cycles, -55°C & +85°C 45 = 10 Cycles, -55°C & +85°C before Weibull |



*Contact factory for AVX HRC5000 Medical Grade SCD details.

TECHNICAL SPECIFICATIONS

Technical Data: Unless otherwise specified, all technical data relate to an ambient temperature of 25°C

| | | | | | | | | |
|------------------------------------|------------------|-----|-----|------|------|------|------|--|
| Capacitance Range: | 0.47 μF to 47 μF | | | | | | | |
| Capacitance Tolerance: | ±5%; ±10%; ±20% | | | | | | | |
| Rated Voltage (V _R) | ≤ +85°C: | 4 | 6 | 10 | 16 | 20 | 40 | |
| Category Voltage (V _C) | ≤ +125°C: | 2.7 | 4 | 6.7 | 10.7 | 13.3 | 26.7 | |
| Surge Voltage (V _S) | ≤ +85°C: | 5.3 | 8 | 13.3 | 20.8 | 26.7 | 52 | |
| Surge Voltage (V _S) | ≤ +125°C: | 3.5 | 5.3 | 8.7 | 13.9 | 17.8 | 34.7 | |
| Temperature Range: | -55°C to +125°C | | | | | | | |

TBC Series



HRC5000 Medical Implantable Grade

| RATING & PART NUMBER REFERENCE | | Parametric Specifications by Rating | | | | | | | | | Typical RMS Ripple Data by Rating | | | | | | |
|--------------------------------|------|-------------------------------------|------------------|--------------|---------|--------|--------|--------|-----------|-------|-----------------------------------|---------------------|---------------------|----------------------|---------------------|---------------------|----------------------|
| | | Cap @ 120Hz | DC Rated Voltage | ESR @ 100kHz | DCL max | | | DF max | | | Power Dissipation | 25°C Ripple Current | 85°C Ripple Current | 125°C Ripple Current | 25°C Ripple Voltage | 85°C Ripple Voltage | 125°C Ripple Voltage |
| | | | | | +25°C | +85°C | +125°C | +25°C | +85/125°C | -55°C | | | | | | | |
| AVX HRC5000 P/N | Case | µF @ 25°C | V @ +85°C | Ohms @ +25°C | (µA) | (µA) | (µA) | (%) | (%) | (%) | | | | | | | |
| TBCR156*004C□L@5^++ | R | 15 | 4 | 6 | 0.150 | 1.500 | 1.800 | 8 | 16 | 12 | 0.045 | 0.087 | 0.078 | 0.035 | 0.522 | 0.468 | 0.210 |
| TBCL335*006C□L@5^++ | L | 3.3 | 6 | 10 | 0.100 | 1.000 | 1.200 | 6 | 12 | 9 | 0.025 | 0.05 | 0.045 | 0.02 | 0.500 | 0.450 | 0.200 |
| TBCS476*006C□L@5^++ | S | 47 | 6 | 4 | 0.470 | 4.700 | 5.640 | 6 | 8 | 9 | 0.04 | 0.1 | 0.09 | 0.04 | 0.400 | 0.360 | 0.160 |
| TBCL474*010C□L@5^++ | L | 0.47 | 10 | 12 | 0.100 | 1.000 | 1.200 | 6 | 12 | 9 | 0.025 | 0.046 | 0.041 | 0.018 | 0.552 | 0.492 | 0.216 |
| TBCL105*010C□L@5^++ | L | 1 | 10 | 10 | 0.100 | 1.000 | 1.200 | 6 | 12 | 9 | 0.025 | 0.05 | 0.045 | 0.02 | 0.500 | 0.450 | 0.200 |
| TBCL225*010C□L@5^++ | L | 2.2 | 10 | 10 | 0.100 | 1.000 | 1.200 | 6 | 12 | 9 | 0.025 | 0.05 | 0.045 | 0.02 | 0.500 | 0.450 | 0.200 |
| TBCR335*010C□L@5^++ | R | 3.3 | 10 | 6 | 0.100 | 1.000 | 1.200 | 8 | 16 | 12 | 0.045 | 0.087 | 0.078 | 0.035 | 0.522 | 0.468 | 0.210 |
| TBCR475*010C□L@5^++ | R | 4.7 | 10 | 6 | 0.118 | 1.175 | 1.410 | 8 | 16 | 12 | 0.045 | 0.087 | 0.078 | 0.035 | 0.522 | 0.468 | 0.210 |
| TBCR685*010C□L@5^++ | R | 6.8 | 10 | 6 | 0.170 | 1.700 | 2.040 | 8 | 16 | 12 | 0.045 | 0.087 | 0.078 | 0.035 | 0.522 | 0.468 | 0.210 |
| TBCR106*010C□L@5^++ | R | 10 | 10 | 6 | 0.250 | 2.500 | 3.000 | 8 | 16 | 12 | 0.045 | 0.087 | 0.078 | 0.035 | 0.522 | 0.468 | 0.210 |
| TBCB476*010C□L@5^++ | B | 47 | 10 | 1 | 1.175 | 11.750 | 14.100 | 15 | 30 | 23 | 0.04 | 0.2 | 0.18 | 0.08 | 0.200 | 0.180 | 0.080 |
| TBCR475*016C□L@5^++ | R | 4.7 | 16 | 6 | 0.188 | 1.880 | 2.256 | 8 | 10 | 12 | 0.045 | 0.087 | 0.078 | 0.035 | 0.522 | 0.468 | 0.210 |
| TBCR106*016C□L@5^++ | R | 10 | 16 | 5 | 0.400 | 4.000 | 4.800 | 8 | 16 | 12 | 0.045 | 0.095 | 0.085 | 0.038 | 0.475 | 0.425 | 0.190 |
| TBCA106*017C□L@5^++ | A | 10 | 17 | 3 | 0.425 | 4.250 | 5.100 | 8 | 16 | 12 | 0.04 | 0.115 | 0.104 | 0.046 | 0.345 | 0.312 | 0.138 |
| TBCR105*020C□L@5^++ | R | 1 | 20 | 6 | 0.100 | 1.000 | 1.200 | 8 | 16 | 12 | 0.045 | 0.087 | 0.078 | 0.035 | 0.522 | 0.468 | 0.210 |
| TBCA105*040C□L@5^++ | A | 1 | 40 | 6 | 0.100 | 1.000 | 1.200 | 8 | 16 | 12 | 0.04 | 0.082 | 0.073 | 0.033 | 0.492 | 0.438 | 0.198 |

All technical data relates to an ambient temperature of +25°C. Capacitance and DF are measured at 120Hz, 0.5V RMS with a maximum DC bias of 2.2 volts. DCL is measured at rated voltage after 5 minutes.

NOTE: AVX reserves the right to supply a higher voltage rating or tighter tolerance part in the same case size, to the same reliability standards.

HRC6000 Medical Implantable Grade



The TBC HRC6000 Medical Grade series is the next generation of our internally qualified medical grade tantalum capacitors. These components are screened using our newly designed Q-Process to effectively remove components that may experience parametric shifts through customer processing or display instability through life testing.

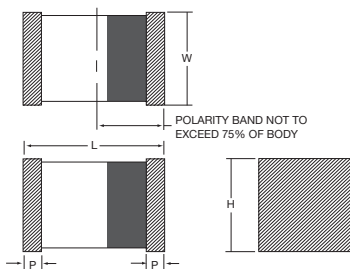


Due to the deficiencies of Weibull grading and its tendency to Burn-In potentially unstable units, this Q-Process utilizes a Product Level Designation system based on a simulated production routine performed on a sample from the population. Once that is completed a calculation is done based on the performance of the sample which can take into account the application conditions of the end customer. This system also allows for derating recommendations to be relaxed as illustrated by the section below.

These components are manufactured and tested in the AVX Biddeford Maine factory which is ISO 13485 certified. For more information on this process or to request a specific rating please contact the factory.

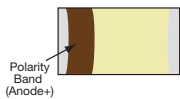
For additional information on Q-process please consult the AVX technical publication "Reaching the Highest Reliability for Tantalum Capacitors" (see the link: <http://www.avx.com/docs/techinfo/Qprocess.pdf>)

For moisture sensitivity levels please refer to the High Reliability Tantalum MSL section located in the back of the High Reliability Tantalum Catalog.



MARKING

A, B, L, R, S CASE



CASE DIMENSIONS: millimeters (inches)

| Case Code | EIA Code | Length (L) | Width (W) | Height (H) | Term. Width (P) min. |
|-----------|----------|---|---|---|----------------------|
| A | 1206 | 3.20±0.20 (0.126±0.008) | 1.60±0.20 (0.063±0.008) | 1.60±0.20 (0.063±0.008) | 0.15 (0.006) |
| B | 1411 | 3.60±0.20 (0.141±0.008) | 2.90±0.15 (0.114±0.006) | 1.50 max (0.06 max) | 0.15 (0.006) |
| L | 0603 | 1.60 ^{+0.25} _{-0.15} ^{+0.010} _{-0.006} (0.063 ^{+0.010} _{-0.006}) | 0.84 ^{+0.20} _{-0.10} ^{+0.008} _{-0.004} (0.033 ^{+0.008} _{-0.004}) | 0.84 ^{+0.20} _{-0.10} ^{+0.008} _{-0.004} (0.033 ^{+0.008} _{-0.004}) | 0.15 (0.006) |
| R | 0805 | 2.00 ^{+0.25} _{-0.15} ^{+0.010} _{-0.006} (0.079 ^{+0.010} _{-0.006}) | 1.35 ^{+0.20} _{-0.10} ^{+0.008} _{-0.004} (0.053 ^{+0.008} _{-0.004}) | 1.35 ^{+0.20} _{-0.10} ^{+0.008} _{-0.004} (0.053 ^{+0.008} _{-0.004}) | 0.15 (0.006) |
| S | 1207 | 3.20±0.20 (0.126±0.008) | 1.80±0.20 (0.071±0.008) | 1.50 max (0.06 max) | 0.15 (0.006) |

CAPACITANCE AND RATED VOLTAGE, V_R (VOLTAGE CODE) RANGE (LETTER DENOTES CASE SIZE)



| Capacitance | | Rated Voltage | | |
|-------------|------|---------------|------|-----|
| μF | Code | 4V | 6V | 10V |
| 2.2 | 225 | L | L | L |
| 3.3 | 335 | L | L | |
| 4.7 | 475 | L | L | |
| 6.8 | 685 | R | R | R |
| 10 | 106 | L, R | R | R |
| 15 | 156 | R | R | |
| 22 | 226 | R | R | |
| 33 | 336 | S | S | B |
| 47 | 476 | S | A, S | B |
| 68 | 686 | S | B | |

TBC Series



HRC6000 Medical Implantable Grade

HOW TO ORDER

| TBC | R | 106 | * | 010 | C | □ | L | Q | 6 | ^ | ++ |
|------|-----------|--|---------------------------------|---|--------------------|---|---------------------------------|--|------------------------------------|---|---------------------------|
| Type | Case Size | Capacitance Code | Capacitance Tolerance | Voltage Code | ESR C = Std ESR | Packaging B = Bulk R = 7" T&R W = Waffle | Inspection Level L = Group A | Reliability Grade Product Level Designator: Q = 0.1%/1000 Hours Minimum, 60% conf. | Qualification Level 6 = HRC6000 | Termination Finish 0 = Solder Fused 9 = Gold Plated 7 = 100% Matte Tin | Custom Option 00 = Std |
| | | pF code: 1st two digits represent significant figures 3rd digit represents multiplier (number of zeros to follow) | J = ±5% K = ±10% M = ±20% | 004 = 4Vdc 006 = 6Vdc 010 = 10Vdc | | | | | |  LEAD-FREE LEAD-FREE COMPATIBLE COMPONENT  RoHS COMPLIANT <small>For RoHS compliant products, please select correct termination style.</small> | |

*Contact factory for AVX HRC6000 Medical Grade SCD details.

TECHNICAL SPECIFICATIONS

| | | | | | |
|------------------------------------|--|-----|---|-----|--|
| Technical Data: | Unless otherwise specified, all technical data relate to an ambient temperature of +25°C | | | | |
| Capacitance Range: | 2.2 μF to 68 μF | | | | |
| Capacitance Tolerance: | ±5%; ±10%; ±20% | | | | |
| Rated Voltage (V _R) | ≤ +85°C: | 4 | 6 | 10 | |
| Category Voltage (V _C) | ≤ +125°C: | 2.7 | 4 | 6.7 | |
| Temperature Range: | -55°C to +125°C | | | | |

TBC Series

HRC6000 Medical Implantable Grade



| RATING & PART NUMBER REFERENCE | | Parametric Specifications by Rating | | | | | | | | | Typical RMS Ripple Data by Rating | | | | | | |
|--------------------------------|------|-------------------------------------|-------------------------------|------------------------------|---------|-------|--------|--------|-----------|-------|-----------------------------------|-----------------------------------|-----------------------------------|------------------------------------|-----------------------------------|-----------------------------------|------------------------------------|
| | | Cap @ 120Hz µF @ 25°C | DC Rated Voltage V @ +85°C | ESR @ 100kHz Ohms @ +25°C | DCL max | | | DF max | | | Power Dissipation W | 25°C Ripple Current A (100kHz) | 85°C Ripple Current A (100kHz) | 125°C Ripple Current A (100kHz) | 25°C Ripple Voltage V (100kHz) | 85°C Ripple Voltage V (100kHz) | 125°C Ripple Voltage V (100kHz) |
| | | | | | +25°C | +85°C | +125°C | +25°C | +85/125°C | -55°C | | | | | | | |
| | | | | | (µA) | (µA) | (µA) | (%) | (%) | (%) | | | | | | | |
| AVX HRC6000 P/N | Case | | | | | | | | | | | | | | | | |
| TBCL225*004C□LQ6^00 | L | 2.2 | 4 | 10 | 0.022 | 0.22 | 0.264 | 6 | 16 | 12 | 0.025 | 0.050 | 0.045 | 0.020 | 0.500 | 0.450 | 0.200 |
| TBCL335*004C□LQ6^00 | L | 3.3 | 4 | 10 | 0.033 | 0.33 | 0.396 | 6 | 16 | 12 | 0.025 | 0.050 | 0.045 | 0.020 | 0.500 | 0.450 | 0.200 |
| TBCL475*004C□LQ6^00 | L | 4.7 | 4 | 10 | 0.047 | 0.47 | 0.564 | 8 | 16 | 12 | 0.025 | 0.050 | 0.045 | 0.020 | 0.500 | 0.450 | 0.200 |
| TBCR685*004C□LQ6^00 | R | 6.8 | 4 | 6 | 0.068 | 0.68 | 0.816 | 8 | 16 | 12 | 0.045 | 0.087 | 0.078 | 0.035 | 0.520 | 0.468 | 0.208 |
| TBCL106*004C□LQ6^++ | L | 10 | 4 | 10 | 0.100 | 1.00 | 1.20 | 8 | 16 | 12 | 0.025 | 0.050 | 0.045 | 0.020 | 0.500 | 0.450 | 0.200 |
| TBCR106*004C□LQ6^00 | R | 10 | 4 | 6 | 0.100 | 1.00 | 1.20 | 8 | 16 | 12 | 0.045 | 0.087 | 0.078 | 0.035 | 0.520 | 0.468 | 0.208 |
| TBCR156*004C□LQ6^00 | R | 15 | 4 | 6 | 0.150 | 1.50 | 1.80 | 8 | 16 | 12 | 0.045 | 0.087 | 0.078 | 0.035 | 0.520 | 0.468 | 0.208 |
| TBCR226*004C□LQ6^00 | R | 22 | 4 | 6 | 0.220 | 2.20 | 2.64 | 8 | 16 | 12 | 0.045 | 0.087 | 0.078 | 0.035 | 0.520 | 0.468 | 0.208 |
| TBCS336*004C□LQ6^++ | S | 33 | 4 | 6 | 0.330 | 3.30 | 3.96 | 8 | 16 | 12 | 0.040 | 0.082 | 0.073 | 0.033 | 0.490 | 0.441 | 0.196 |
| TBCS476*004C□LQ6^++ | S | 47 | 4 | 4 | 0.470 | 4.70 | 5.64 | 8 | 16 | 12 | 0.040 | 0.100 | 0.090 | 0.040 | 0.400 | 0.360 | 0.160 |
| TBCS686*004C□LQ6^++ | S | 68 | 4 | 4 | 0.680 | 6.80 | 8.16 | 15 | 30 | 23 | 0.040 | 0.100 | 0.090 | 0.040 | 0.400 | 0.360 | 0.160 |
| TBCL225*006C□LQ6^00 | L | 2.2 | 6 | 10 | 0.033 | 0.33 | 0.396 | 6 | 16 | 12 | 0.025 | 0.050 | 0.045 | 0.020 | 0.500 | 0.450 | 0.200 |
| TBCL335*006C□LQ6^00 | L | 3.3 | 6 | 10 | 0.050 | 0.50 | 0.60 | 6 | 12 | 9 | 0.025 | 0.050 | 0.045 | 0.020 | 0.500 | 0.450 | 0.200 |
| TBCL475*006C□LQ6^00 | L | 4.7 | 6 | 10 | 0.071 | 0.71 | 0.852 | 8 | 16 | 12 | 0.025 | 0.050 | 0.045 | 0.020 | 0.500 | 0.450 | 0.200 |
| TBCR685*006C□LQ6^00 | R | 6.8 | 6 | 6 | 0.102 | 1.02 | 1.224 | 8 | 16 | 12 | 0.045 | 0.087 | 0.078 | 0.035 | 0.520 | 0.468 | 0.208 |
| TBCR106*006C□LQ6^00 | R | 10 | 6 | 6 | 0.150 | 1.50 | 1.80 | 8 | 16 | 12 | 0.045 | 0.087 | 0.078 | 0.035 | 0.520 | 0.468 | 0.208 |
| TBCR156*006C□LQ6^00 | R | 15 | 6 | 6 | 0.225 | 2.25 | 2.70 | 8 | 16 | 12 | 0.045 | 0.087 | 0.078 | 0.035 | 0.520 | 0.468 | 0.208 |
| TBCR226*006C□LQ6^00 | R | 22 | 6 | 5 | 0.330 | 3.30 | 3.96 | 8 | 20 | 15 | 0.045 | 0.095 | 0.085 | 0.038 | 0.474 | 0.427 | 0.190 |
| TBCS336*006C□LQ6^++ | S | 33 | 6 | 6 | 0.495 | 4.95 | 5.94 | 8 | 16 | 12 | 0.040 | 0.082 | 0.073 | 0.033 | 0.490 | 0.441 | 0.196 |
| TBCA476*006C□LQ6^++ | A | 47 | 6 | 4 | 0.705 | 7.05 | 8.46 | 15 | 30 | 23 | 0.040 | 0.100 | 0.090 | 0.040 | 0.400 | 0.360 | 0.160 |
| TBCS476*006C□LQ6^++ | S | 47 | 6 | 4 | 0.705 | 7.05 | 8.46 | 8 | 16 | 12 | 0.040 | 0.100 | 0.090 | 0.040 | 0.400 | 0.360 | 0.160 |
| TBCB686*006C□LQ6^00 | B | 68 | 6 | 1 | 1.020 | 10.20 | 12.24 | 15 | 30 | 22.5 | 0.040 | 0.200 | 0.180 | 0.080 | 0.200 | 0.180 | 0.080 |
| TBCL225*010C□LQ6^00 | L | 2.2 | 10 | 10 | 0.055 | 0.55 | 0.66 | 6 | 12 | 9 | 0.025 | 0.050 | 0.045 | 0.020 | 0.500 | 0.450 | 0.200 |
| TBCR685*010C□LQ6^00 | R | 6.8 | 10 | 6 | 0.170 | 1.70 | 2.04 | 8 | 16 | 12 | 0.045 | 0.087 | 0.078 | 0.035 | 0.520 | 0.468 | 0.208 |
| TBCR106*010C□LQ6^00 | R | 10 | 10 | 6 | 0.250 | 2.50 | 3.00 | 8 | 16 | 12 | 0.045 | 0.087 | 0.078 | 0.035 | 0.520 | 0.468 | 0.208 |
| TBCB336*010C□LQ6^00 | B | 33 | 10 | 1 | 0.825 | 8.25 | 9.90 | 15 | 30 | 22.5 | 0.040 | 0.200 | 0.180 | 0.080 | 0.200 | 0.180 | 0.080 |
| TBCB476*010C□LQ6^00 | B | 47 | 10 | 1 | 1.175 | 11.75 | 14.1 | 15 | 30 | 22.5 | 0.040 | 0.200 | 0.180 | 0.080 | 0.200 | 0.180 | 0.080 |

All technical data relates to an ambient temperature of +25°C. Capacitance and DF are measured at 120Hz, 0.5V RMS with a maximum DC bias of 2.2 volts. DCL is measured at rated voltage after 5 minutes.

NOTE: AVX reserves the right to supply a higher voltage rating or tighter tolerance part in the same case size, to the same reliability standards.

HRC6000 DERATING GUIDELINES

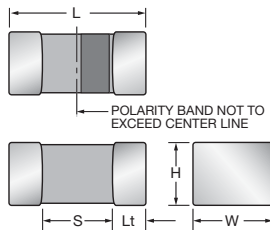
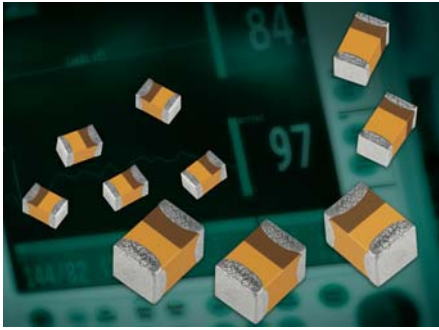
Due to our new Q-Process test procedures the need for a typical 50% derating of the capacitors rated voltage in application can be relaxed. Below is a table outlining some of the common applications where these components are utilized along with appropriate derating recommendations. When determining the appropriate capacitor voltage rating to utilize, the application voltage is determined by the maximum D.C. voltage with the addition of any A.C. ripple voltage that may be present.

| Recommended Derating | Application |
|----------------------|-------------|
| 20% | Filtering |
| 0% | Pacing |
| 0% | Hold-Up |
| 0% | Charging |

T4C – Microchip Medical Series

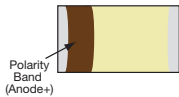


HRC4000 Implantable Non Life Support and Non Implantable Life Support



MARKING

K, L, R CASE



The AVX T4C microchip medical series is designed for use in Implantable - Non-Life support or Non-Implantable - Life support medical applications with space limits. These components are screened using our newly designed Q-Process to effectively remove components that may experience parametric shifts through customer processing or display instability through life testing.

FEATURES

- Dedicated to medical applications
- HRC4000 - Implantable, Non-Life support
- Non-Implantable, Life support
- -55 to +125°C operation temperature
- Basic reliability better than 0.1%/1000hours
- Custom DCL / ESR options on selected parts



For RoHS compliant products, please select correct termination style.

T4C Standard - Standard option DCL and ESR limits including Q-Process screening.

T4C Custom – A custom option where specific DCL and ESR parameter limits can be agreed based Q-Process statistical screening. DCL down to 0.005CV on selected codes

APPLICATIONS

- Medical, Implantable - Non-Life support and Non-Implantable - Life support

For additional information on Q-process please consult the AVX technical publication “Reaching the Highest Reliability for Tantalum Capacitors” (see the link: <http://www.avx.com/docs/techinfo/Qprocess.pdf>)

CASE DIMENSIONS: millimeters (inches)

| Code | EIA Code | EIA Metric | L+0.20 (0.008) -0.00 (0.000) | W+0.15 (0.006) -0.00 (0.000) | H+0.15 (0.006) -0.00 (0.000) | Termination Spacing(S) | Minimum Termination Length (Lt) |
|------|----------|------------|---------------------------------|---|---|------------------------|---------------------------------|
| K | 0402 | 1005-07 | 1.00 (0.039) | 0.50 +0.20 -0.00 (0.020 +0.008 -0.000) | 0.50 +0.20 -0.00 (0.020 +0.008 -0.000) | 0.40 (0.016) min | 0.10 (0.004) |
| L | 0603 | 1608-10 | 1.60 (0.063) | 0.85 (0.033) | 0.85 (0.033) | 0.55 (0.022) min | 0.15 (0.006) |
| R | 0805 | 2012-15 | 2.00 (0.079) | 1.35 (0.053) | 1.35 (0.053) | 0.70 (0.028) min | 0.15 (0.006) |

CAPACITANCE AND RATED VOLTAGE RANGE (LETTER DENOTES CASE SIZE)

| Capacitance | | Rated Voltage DC (V _R) to 85°C (Voltage Code) | | | |
|-------------|------|---|----------|---------------------|---------|
| µF | Code | 4V (G) | 6.3V (J) | 10V (A) | 16V (C) |
| 0.33 | 334 | | | | |
| 0.47 | 474 | | | K | |
| 1.0 | 105 | K | K | L | L |
| 2.2 | 225 | | | L | |
| 3.3 | 335 | | | | |
| 4.7 | 475 | K | | | |
| 10 | 106 | | | L ^(M) ,R | |
| 15 | 156 | | | | |
| 22 | 226 | | R | | |

Available Ratings ^(M tolerance only)

Engineering samples - please contact manufacturer

*Codes under development - subject to change.

Please contact the factory for codes not listed in the table.

Note: Voltage ratings are minimum values. AVX reserves the right to supply higher ratings in the same case size, to the same reliability standards with customer written approval.



T4C – Microchip Medical Series



HRC4000 Implantable Non Life Support and Non Implantable Life Support

HOW TO ORDER

| | | | | | | | | | | | |
|------------|-----------|---|-----------------------|--|---------------------------|--|--------------------|-------------------------|---------------------|---|------------------------------|
| T4C | K | 105 | * | 006 | C | □ | L | Q | 4 | ^ | 00 |
| Type | Case Size | Capacitance Code | Capacitance Tolerance | Voltage Code | Standard or Low ESR Range | Packaging | Inspection Level | Reliability Grade | Qualification Level | Termination Finish | Suffix |
| | | pF code: 1st two digits represent significant figures 3rd digit represents multiplier (number of zeros to follow) | M = ±20% K = ±10% | 004 = 4Vdc 006 = 6.3Vdc 010 = 10Vdc 016 = 16Vdc | C = Std ESR | R, P = 7" Reel X, Q = 4 1/4" Reel B = Bulk | L = Lab Inspection | Q = Q-Process Screening | 4 = HRC4000 | 7 = 100% Tin 9 = Gold Plated H = SnPb Non RoHS H, 9 = (Contact Manufacturer) | 00 = Standard XX = Custom |

TECHNICAL SPECIFICATIONS

| | | | | | |
|------------------------------------|--|-----|-----|-----|----|
| Technical Data: | All technical data relate to an ambient temperature of +25°C | | | | |
| Capacitance Range: | 0.47 µF to 10 µF (for extended range under development, contact manufacturer) | | | | |
| Capacitance Tolerance: | ±10%; ±20% | | | | |
| Leakage Current DCL: | 0.01CV or 0.3µA whichever is the greater | | | | |
| Rated Voltage (V _R) | ≤ +85°C: | 4 | 6.3 | 10 | 16 |
| Category Voltage (V _C) | ≤ +125°C: | 2.7 | 4 | 6.7 | 10 |
| Surge Voltage (V _S) | ≤ +85°C: | 5.2 | 8 | 13 | 20 |
| Surge Voltage (V _S) | ≤ +125°C: | 3.2 | 5 | 8 | 13 |
| Temperature Range: | -55°C to +125°C | | | | |
| Reliability: | 0.1% per 1000 hours at 25°C, V _R with 0.1Ω/V series impedance, 90% confidence level | | | | |

RATINGS & PART NUMBER REFERENCE

| AVX Part No. | Case Size | Capacitance (µF) | Rated Voltage (V) | Rated Temperature (°C) | Category Voltage (V) | Category Temperature (°C) | DCL Max. (µA) | DF Max. (%) | ESR Max. @ 100kHz (Ω) | MSL | 100kHz RMS Current (mA) | | |
|------------------------|-----------|------------------|-------------------|------------------------|----------------------|---------------------------|---------------|-------------|-----------------------|-----|-------------------------|------|-------|
| | | | | | | | | | | | 25°C | 85°C | 125°C |
| 4 Volt @ 85°C | | | | | | | | | | | | | |
| T4CK105*004C□□LQ4^00 | K | 1 | 4 | 85 | 2.7 | 125 | 0.3 | 6 | 15 | 3 | 32 | 28 | 13 |
| T4CK475*004C□□LQ4^00 | K | 4.7 | 4 | 85 | 2.7 | 125 | 0.3 | 20 | 15 | 3 | 32 | 28 | 13 |
| 6.3 Volt @ 85°C | | | | | | | | | | | | | |
| T4CK105*006C□□LQ4^00 | K | 1 | 6.3 | 85 | 4 | 125 | 0.3 | 6 | 15 | 3 | 32 | 28 | 13 |
| T4CR226*006C□□LQ4^00 | R | 22 | 6.3 | 85 | 4 | 125 | 1.4 | 10 | 5 | 3 | 95 | 85 | 38 |
| 10 Volt @ 85°C | | | | | | | | | | | | | |
| T4CK474*010C□□LQ4^00 | K | 0.47 | 10 | 85 | 6.7 | 125 | 0.3 | 6 | 15 | 3 | 32 | 28 | 13 |
| T4CL105*010C□□LQ4^00 | L | 1 | 10 | 85 | 6.7 | 125 | 0.3 | 6 | 7.5 | 3 | 58 | 52 | 23 |
| T4CL225*010C□□LQ4^00 | L | 2.2 | 10 | 85 | 6.7 | 125 | 0.3 | 6 | 7.5 | 3 | 58 | 52 | 23 |
| T4CL106M010C□□LQ4^00 | L | 10 | 10 | 85 | 6.7 | 125 | 1 | 20 | 7.5 | 3 | 58 | 52 | 23 |
| T4CR106*010C□□LQ4^00 | R | 10 | 10 | 85 | 6.7 | 125 | 1 | 8 | 5 | 3 | 95 | 85 | 38 |
| 16 Volt @ 85°C | | | | | | | | | | | | | |
| T4CL105*016C□□LQ4^00 | L | 1 | 16 | 85 | 10 | 125 | 0.3 | 6 | 7.5 | 3 | 58 | 52 | 23 |

Moisture Sensitivity Level (MSL) is defined according to J-STD-020.

All technical data relates to an ambient temperature of +25°C. Capacitance and DF are measured at 120Hz, 0.5V RMS with a maximum DC bias of 2.2 volts.

DCL is measured at rated voltage after 5 minutes.

The EIA & CECC standards for low ESR Solid Tantalum Capacitors allow an ESR movement to 1.25 times catalogue limit post mounting.

T4C – Microchip Medical Series



HRC4000 Implantable Non Life Support and Non Implantable Life Support

QUALIFICATION TABLE

| TEST | T4C HRC4000 (Temperature range -55°C to +125°C) | | | | | | | | | | |
|------------------------------|--|---------------|---------------|--------------------|------------------------------|------------|-----------|------------|------------|------------|------------|
| | Condition | | | Characteristics | | | | | | | |
| Endurance | Determine after application of rated voltage for 2000 +48/-0 hours at 85±2°C and then leaving 1-2 hours at room temperature. Also determine of 125°C temperature, category voltage for 2000 +48/-0 hours and then leaving 1-2 hours at room temperature. Power supply impedance to be ≤0.1Ω/V. | | | Visual examination | no visible damage | | | | | | |
| | | | | DCL | 1.25 x initial limit | | | | | | |
| | | | | ΔC/C | within ±10% of initial value | | | | | | |
| | | | | DF | initial limit | | | | | | |
| | | | | ESR | 1.25 x initial limit | | | | | | |
| Storage Life | 125°C, 0V, 2000h | | | Visual examination | no visible damage | | | | | | |
| | | | | DCL | 1.25 x initial limit | | | | | | |
| | | | | ΔC/C | within ±10% of initial value | | | | | | |
| | | | | DF | initial limit | | | | | | |
| | | | | ESR | 1.25 x initial limit | | | | | | |
| Temperature Stability | Step | Temperature°C | Duration(min) | | +20°C | -55°C | +20°C | +85°C | +125°C | +20°C | |
| | 1 | +20±2 | 15 | DCL | IL* | n/a | IL* | 10 x IL* | 12.5 x IL* | IL* | |
| | 2 | -55+0/-3 | 15 | | ΔC/C | n/a | +0/-10% | ±5% | +10/-0% | +12/-0% | ±5% |
| | 3 | +20±2 | 15 | DF | | IL* | 1.5 x IL* | IL* | 1.5 x IL* | 2 x IL* | IL* |
| | 4 | +85+3/-0 | 15 | | ESR | 1.25 x IL* | 2.5 x IL* | 1.25 x IL* | 1.25 x IL* | 1.25 x IL* | 1.25 x IL* |
| | 5 | +125+3/-0 | 15 | | | | | | | | |
| | 6 | +20±2 | 15 | | | | | | | | |
| Surge Voltage | Test temperature: 85°C±3/0°C Test voltage: Rated voltage at 85°C Surge voltage: 1.3x rated voltage at 85°C Series protection resistance 1000±100Ω Discharge resistance: 1000Ω Number of cycles: 1000x Cycle duration: 6 min; 30 sec charge, 5 min 30 sec discharge | | | Visual examination | no visible damage | | | | | | |
| | | | | DCL | initial limit | | | | | | |
| | | | | ΔC/C | within ±5% of initial value | | | | | | |
| | | | | DF | initial limit | | | | | | |
| | | | | ESR | 1.25 x initial limit | | | | | | |

*Initial Limit

LOT ACCEPTANCE TESTING

| TEST | T4C HRC4000 (Temperature range -55°C to +125°C) | | |
|----------------------------|---|--------------------|-----------------------------|
| | Condition | Characteristics | |
| Lot Acceptance Test | 25 Pieces from each lot • Read and Record Initial Electricals • Bake Out @ 125°C for 2 Hours • Mount using AVX recommended profile • Read and Record Post Mounting Electricals • Life Test: 6 hours, 2/3 R.V., 125°C • Read and Record Post Electricals | DCL | initial limit |
| | | ΔC/C | within ±5% of initial value |
| | | DF | initial limit |
| | | ESR | 1.25 x initial limit |
| | | 0 Failures Allowed | |

TCB Series



COTS-Plus Polymer Capacitor

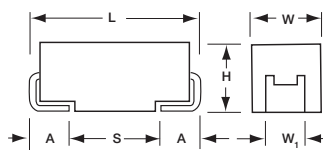


The TCB series is a COTS-Plus version of the professional grade TCR polymer series. Each batch of these components receives additional reliability level verification through life testing to 0.1%/1000 hours with a 90% confidence level.

Polymer capacitors utilize a conductive polymer electrode system which reduces the potential for an ignition failure mode and lowers the effective ESR. These units are also designed to withstand

biased humidity testing at 85°C/85% R.H. for 120 hours and are rated for operation up to 105°C.

For moisture sensitivity levels please refer to the High Reliability Tantalum MSL section located in the back of the High Reliability Tantalum Catalog. For additional information, or to request a specific rating, please contact the factory.



For additional information on Q-process please consult the AVX technical publication "Reaching the Highest Reliability for Tantalum Capacitors" (see the link: <http://www.avx.com/docs/techinfo/Qprocess.pdf>)

CASE DIMENSIONS: millimeters (inches)

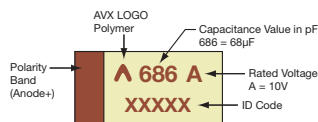
| Code | EIA Code | EIA Metric | L±0.20 (0.008) | W+0.20 (0.008) -0.10 (0.004) | H+0.20 (0.008) -0.10 (0.004) | W ₁ ±0.20 (0.008) | A+0.30 (0.012) -0.20 (0.008) | S Min. |
|------|----------|------------|----------------|---------------------------------|---------------------------------|------------------------------|---------------------------------|--------------|
| B | 1210 | 3528-21 | 3.50 (0.138) | 2.80 (0.110) | 1.90 (0.075) | 2.20 (0.087) | 0.80 (0.031) | 1.40 (0.055) |
| C | 2312 | 6032-28 | 6.00 (0.236) | 3.20 (0.126) | 2.60 (0.102) | 2.20 (0.087) | 1.30 (0.051) | 2.90 (0.114) |
| D | 2917 | 7343-31 | 7.30 (0.287) | 4.30 (0.169) | 2.90 (0.114) | 2.40 (0.094) | 1.30 (0.051) | 4.40 (0.173) |
| E | 2917 | 7343-43 | 7.30 (0.287) | 4.30 (0.169) | 4.10 (0.162) | 2.40 (0.094) | 1.30 (0.051) | 4.40 (0.173) |

W₁ dimension applies to the termination width for A dimensional area only.

Under development

MARKING

B, C, D, E CASE



CAPACITANCE AND RATED VOLTAGE, V_R (VOLTAGE CODE) RANGE (LETTER DENOTES CASE SIZE)

| Capacitance | | Rated Voltage | | | | | | |
|-------------|------|---------------|---------|--------|---------|---------|--------------------|--------------------|
| µF | Code | 10V | 16V | 20V | 25V | 35V | 50V | 63V |
| 0.47 | 474 | | | | | | | B(400)* B(300)* |
| 0.68 | 684 | | | | | | B(400)* B(300)* | |
| 1.0 | 105 | | | | | | | |
| 1.5 | 155 | | | | | B(250)* | | |
| 2.2 | 255 | | | | | B(250)* | | C(200)* |
| 3.3 | 335 | | | | | B(250)* | C(200)* | C(200)* |
| 4.7 | 475 | | | | | C(200)* | D(150)* | |
| 6.8 | 685 | | | | | C(200)* | | |
| 10 | 106 | | | | B(200)* | C(200)* | D(120)* | |
| 15 | 156 | | B(300)* | | | | | |
| 22 | 226 | B(300)* | B(200)* | | D(100)* | | | |
| 33 | 336 | B(200)* | | | D(100)* | | | |
| 47 | 476 | | D(70) | D(70)* | | | | |
| 68 | 686 | D(70) | | | | | | |
| 100 | 107 | D(70)* | | | | | | |

Available Ratings (ESR ratings in mOhms in brackets)

*Codes under development – subject to change

Note: Voltage ratings are minimum values. AVX reserves the right to supply higher voltage ratings in the same case size to the same reliability standards



TCB Series



COTS-Plus Polymer Capacitor

HOW TO ORDER

AVX PART NUMBER:

| TCB | D | 686 | M | 010 | C | □ | L | Q | 0 | ^ | ++ |
|--|-----------|---|-----------------------|---|-------------|---------------------------|---------------------|---------------------------------|---------------------|---------------------------|--|
| Type | Case Size | Capacitance Code | Capacitance Tolerance | Voltage Code | ESR | Packaging | Inspection Level | Reliability Grade | Qualification Level | Termination Finish | DCL Option |
| | | pF code: 1st two digits represent significant figures 3rd digit represents multiplier (number of zeros to follow) | M = ±20% | 010 = 10Vdc 016 = 16Vdc 020 = 20Vdc 025 = 25Vdc 035 = 35Vdc 050 = 50Vdc 063 = 63Vdc | C = Std ESR | R = 7" T&R S = 13" T&R | L = Lab Conformance | Q = 0.1%/1000 hrs. 90% conf. | 0 = N/A | 0 = Sn/Pb 7 = 100% Tin | OJ = 0.1CV OG = 0.05CV *Selected Codes |
|   <p>For RoHS compliant products, please select correct termination style.</p> | | | | | | | | | | | |

TECHNICAL SPECIFICATIONS

| | | | | | | | | | |
|---------------------------------|--|----|----|----|----|----|----|----|--|
| Technical Data: | All technical data relate to an ambient temperature of +25°C | | | | | | | | |
| Capacitance Range: | 47 µF to 68 µF (for extended range under development, contact manufacturer) | | | | | | | | |
| Capacitance Tolerance: | ±20% | | | | | | | | |
| Leakage Current DCL: | (J) 0.1CV, (G) 0.05CV on selected codes | | | | | | | | |
| Rate Voltage (V _R) | ≤ +105°C: | 10 | 16 | 20 | 25 | 35 | 50 | 63 | |
| Surge Voltage (V _S) | ≤ +85°C: | 13 | 21 | 26 | 33 | 46 | 65 | 82 | |
| Surge Voltage (V _S) | ≤ +105°C: | 10 | 16 | 20 | 25 | 35 | 50 | 63 | |
| Temperature Range: | -55°C to +105°C | | | | | | | | |
| Batch Reliability | 0.1% per 1000 hours at 25°C, V _R with 0.1Ω/V series impedance, 90% confidence level | | | | | | | | |

NOTE: Conductive Polymer Capacitors are designed to operate within the limits of the environmental conditions specified for each series. If operated continuously at their maximum temperature and / or humidity limit, or beyond these limits, capacitors may exhibit a parametric shift in capacitance and increases in ESR. These changes may occur earlier if the specified environmental conditions are exceeded. Similarly, their normal operational time period will be significantly extended if their general duty cycle includes operation below maximum temperature within humidity controlled environments. Careful attention should be paid to maximum temperature with associated high humidity environments as well as voltage derating, ripple current and current surges. Please reference the AVX Conductive Polymer Capacitor Guidelines for more information or contact factory for application assistance.



TCB Series



COTS-Plus Polymer Capacitor

| RATING & PART NUMBER REFERENCE | | Parametric Specifications by Rating | | | | | | | Typical RMS Ripple Data by Rating | | | | | | |
|--------------------------------|---|-------------------------------------|--------------------------------|-------------------------------|---------------|---------------|----------------|---------------------|-----------------------------------|--|---------------------------------------|--|--|---------------------------------------|--|
| | | Capacitance @ 120Hz µF @ 25°C | DC Rated Voltage V @ +105°C | ESR @ 100kHz mOhms @ +25°C | DCL max | | | DF Max +25°C (%) | Power Dissipation W | 25-45°C Ripple Current mA (100kHz) | 85°C Ripple Current mA (100kHz) | 105°C Ripple Current mA (100kHz) | 25-45°C Ripple Voltage mV (100kHz) | 85°C Ripple Voltage mV (100kHz) | 105°C Ripple Voltage mV (100kHz) |
| | | | | | +25°C (µA) | +85°C (µA) | +105°C (µA) | | | | | | | | |
| TCBD686M010CEQLQ0^0J | D | 68 | 10 | 70 | 68 | 680 | 816 | 6 | 0.225 | 1800 | 1300 | 800 | 125 | 91 | 56 |
| TCBD476M016CEQLQ0^0J | D | 47 | 16 | 70 | 75 | 750 | 900 | 6 | 0.225 | 1800 | 1300 | 800 | 125 | 91 | 56 |

All technical data relates to an ambient temperature of +25C. Capacitance and DF are measured at 120Hz, 0.5V RMS with a maximum DC bias of 2.2 volts. DCL is measured at rated voltage after 5 minutes.

ESR is allowed to increase by up to 1.25 times the catalog limit post mounting.

NOTE: AVX reserves the right to supply a higher voltage rating or tighter tolerance part in the same case size, to the same reliability standards.

TCB Series



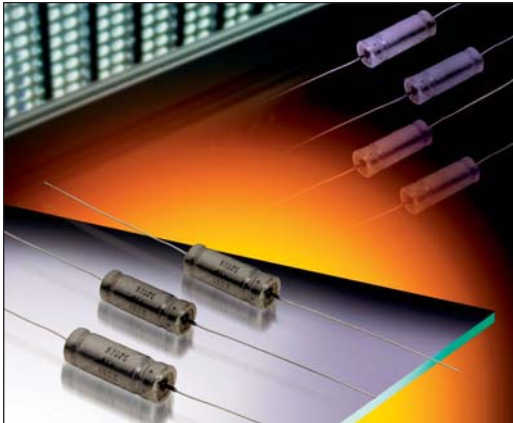
COTS-Plus Polymer Capacitor

QUALIFICATION TABLE

| TEST | TCB series (Temperature range -55°C to +105°C) | | | | | | | | | | |
|------------------------------|---|---------------|---------------|--------------------|----------------------------------|-----------|-------|-----------|------------|-------|--|
| | Condition | | | Characteristics | | | | | | | |
| Endurance | Determine after application of rated voltage for 2000 +48/-0 hours at 85±2°C and then leaving 1-2 hours at room temperature. Also determine after application of 105°C temperature, rated voltage for 2000 +48/-0 hours and then leaving 1-2 hours at room temperature. Power supply impedance to be ≤0.1Ω/V. | | | Visual examination | no visible damage | | | | | | |
| | | | | DCL | 1.25 x initial limit | | | | | | |
| | | | | ΔC/C | within +20/-30% of initial value | | | | | | |
| | | | | DF | 1.5 x initial limit | | | | | | |
| | | | | ESR | 2 x initial limit | | | | | | |
| Storage Life | 105°C, 0V, 2000h | | | Visual examination | no visible damage | | | | | | |
| | | | | DCL | 1.25 x initial limit | | | | | | |
| | | | | ΔC/C | within ±20% of initial value | | | | | | |
| | | | | DF | 1.5 x initial limit | | | | | | |
| | | | | ESR | 2 x initial limit | | | | | | |
| Humidity | Determine after storage without applied voltage at 65±2°C and 95±2% relative humidity for 500 hours and then recovery 1-2 hours at room temperature. | | | Visual examination | no visible damage | | | | | | |
| | | | | DCL | 3 x initial limit | | | | | | |
| | | | | ΔC/C | within +30/-20% of initial value | | | | | | |
| | | | | DF | 1.5 x initial limit | | | | | | |
| | | | | ESR | 2 x initial limit | | | | | | |
| Biased Humidity | Determine after leaving for 120 hours at 85±2°C, 85% relative humidity and rated voltage and then recovery 1-2 hours at room temperature. | | | Visual examination | no visible damage | | | | | | |
| | | | | DCL | 3 x initial limit | | | | | | |
| | | | | ΔC/C | within +30/-20% of initial value | | | | | | |
| | | | | DF | 1.5 x initial limit | | | | | | |
| | | | | ESR | 2 x initial limit | | | | | | |
| Temperature Stability | Step | Temperature°C | Duration(min) | | | | | | | | |
| | 1 | +20±2 | 15 | | | | | | | | |
| | 2 | -55+0/-3 | 15 | DCL | +20°C | -55°C | +20°C | +85°C | +105°C | +20°C | |
| | 3 | +20±2 | 15 | | IL* | n/a | IL* | 10 x IL* | 12.5 x IL* | IL* | |
| | 4 | +85+3/-0 | 15 | ΔC/C | n/a | +0/-20% | ±5% | +20/-0% | +30/-0% | ±5% | |
| | 5 | +105+3/-0 | 15 | DF | | | | | | | |
| | 6 | +20±2 | 15 | | IL* | 1.5 x IL* | IL* | 1.5 x IL* | 2 x IL* | IL* | |
| Surge Voltage | Test temperature: 105°C+3/0°C Test voltage: Rated voltage at 105°C Surge voltage: 1.3 x rated voltage at 105°C Series protection resistance 1000±100Ω Discharge resistance: 1000Ω Number of cycles: 1000x Cycle duration: 6 min; 30 sec charge, 5 min 30 sec discharge | | | Visual examination | no visible damage | | | | | | |
| | | | | DCL | initial limit | | | | | | |
| | | | | ΔC/C | within +20/-30% of initial value | | | | | | |
| | | | | DF | 1.25 x initial limit | | | | | | |

*Initial Limit

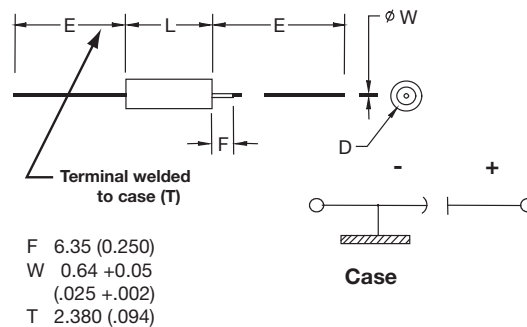
Wet Electrolytic Tantalum Capacitor



The DSCC 93026 series is an axial leaded wet electrolytic tantalum capacitor and represents a new level of high CV (capacitance/voltage) previously unavailable in this technology. These components incorporate a novel, very high capacitance cathode system that allows for higher CV designs, well beyond values specified in the MIL-PRF-39006 drawing.

This design includes a welded tantalum can and header assembly that provides a hermetic seal to withstand harsh shock and vibration requirements of 39006. Wet tantalums do not require the same derating as solid tantalums. AVX recommends derating components by only 20% in order to enhance reliability.

OUTLINE DIMENSIONS



CASE DIMENSIONS: millimeters (inches)

| DSCC Case Size | AVX Case Size | L | D | | E |
|----------------|---------------|--------------------------------|---------------------------|------------------------|---------------|
| | | | Without Insulating Sleeve | With Insulating Sleeve | |
| | | +0.79 (0.031) -0.41 (0.016) | ±0.41 (0.016) | Max | ±6.35 (0.250) |
| T1 | A | 11.51 (0.453) | 4.78 (0.188) | 5.56 (0.219) | 38.10 (1.500) |
| T2 | B | 16.28 (0.641) | 7.14 (0.281) | 7.92 (0.312) | 57.15 (2.250) |
| T3 | D | 19.46 (0.766) | 9.52 (0.375) | 10.31 (0.406) | 57.15 (2.250) |
| T4 | E | 26.97 (1.062) | 9.52 (0.375) | 10.31 (0.406) | 57.15 (2.250) |

VOLTAGE RATINGS (Operating Temperature -55°C to 125°C)

| Voltage (DC) | | | | | | | | |
|-----------------------|-------|------|------|------|----|------|-----|-----|
| Rated Voltage: (Ur) | 85°C | 25 | 30 | 50 | 60 | 75 | 100 | 125 |
| Derated Voltage: (Uc) | 125°C | 15 | 20 | 30 | 40 | 50 | 65 | 85 |
| Surge Voltage: (Us) | 85°C | 28.8 | 34.5 | 57.5 | 69 | 86.3 | 115 | 144 |

DSCC 93026



Wet Electrolytic Tantalum Capacitor

HOW TO ORDER DSCC 93026 PART NUMBER:

93026

Drawing
Number

-XX

Dash
Number
See Rating
Tables

*

Capacitance
Tolerance
K = $\pm 10\%$
M = $\pm 20\%$

□

Insulation Sleeve
U = Without Sleeve
S = With Sleeve

Not RoHS Compliant

RIPPLE CURRENT MULTIPLIERS vs. Frequency, temperature and applied voltage^{1/2/}

| Frequency of Applied Ripple Current | | 120Hz | | | | 800Hz | | | | 1kHz | | | |
|-------------------------------------|---------|-------|------|------|------|-------|------|------|------|------|------|------|------|
| Ambient Still Air Temperature (°C) | | ≤55 | 85 | 105 | 125 | ≤55 | 85 | 105 | 125 | ≤55 | 85 | 105 | 125 |
| % of | 100% | 0.60 | 0.39 | – | – | 0.71 | 0.43 | – | – | 0.72 | 0.45 | – | – |
| 85°C | 90% | 0.60 | 0.46 | – | – | 0.71 | 0.55 | – | – | 0.72 | 0.55 | – | – |
| Rated | 80% | 0.60 | 0.52 | 0.35 | – | 0.71 | 0.62 | 0.42 | – | 0.72 | 0.62 | 0.42 | – |
| Peak | 70% | 0.60 | 0.58 | 0.44 | – | 0.71 | 0.69 | 0.52 | – | 0.72 | 0.70 | 0.52 | – |
| Voltage | 66-2/3% | 0.60 | 0.60 | 0.46 | 0.27 | 0.71 | 0.71 | 0.55 | 0.32 | 0.72 | 0.72 | 0.55 | 0.32 |

| Frequency of Applied Ripple Current | | 10kHz | | | | 40kHz | | | | 100kHz | | | |
|-------------------------------------|---------|-------|------|------|------|-------|------|------|------|--------|------|------|------|
| Ambient Still Air Temperature (°C) | | ≤55 | 85 | 105 | 125 | ≤55 | 85 | 105 | 125 | ≤55 | 85 | 105 | 125 |
| % of | 100% | 0.88 | 0.55 | – | – | 1.00 | 0.63 | – | – | 1.10 | 0.69 | – | – |
| 85°C | 90% | 0.88 | 0.67 | – | – | 1.00 | 0.77 | – | – | 1.10 | 0.85 | – | – |
| Rated | 80% | 0.88 | 0.76 | 0.52 | – | 1.00 | 0.87 | 0.59 | – | 1.10 | 0.96 | 0.65 | – |
| Peak | 70% | 0.88 | 0.85 | 0.64 | – | 1.00 | 0.97 | 0.73 | – | 1.10 | 1.07 | 0.80 | – |
| Voltage | 66-2/3% | 0.88 | 0.88 | 0.68 | 0.40 | 1.00 | 1.00 | 0.77 | 0.45 | 1.10 | 1.10 | 0.85 | 0.50 |

1/ At 125°C the rated voltage of the capacitors decreases to 66 2/3 of the 85°C rated voltage.

2/ The peak of the applied ac ripple voltage plus the applied dc voltage must not exceed the dc voltage rating of the capacitors.

Wet Electrolytic Tantalum Capacitor

RATINGS & PART NUMBER REFERENCE

| DSCC Part Number | Cap (µF) 25°C at 120Hz | DC Rated Voltage (V) at 85°C | ESR max (ohms) at 120Hz | DC Leakage max (µA) | | Impedance max (Ohms) -55°C at 120Hz | Maximum Capacitance Change (%) | | | AC Ripple (mA rms) 85°C at 40kHz | Case Size | |
|--|------------------------------|---------------------------------|----------------------------|---------------------|-------------------|--|--------------------------------|-------|--------|-------------------------------------|-----------|------|
| | | | | +25°C | +85°C & +125°C | | -55°C | +85°C | +125°C | | AVX | DSCC |
| 25 VDC at 85°C 15 VDC at 125°C | | | | | | | | | | | | |
| 93026-29*□ | 120 | 25 | 1.3 | 1 | 5 | 25 | -42 | 8 | 12 | 1250 | A | T1 |
| 93026-30*□ | 560 | 25 | 0.83 | 2 | 10 | 12 | -65 | 10 | 15 | 2100 | B | T2 |
| 93026-31*□ | 1200 | 25 | 0.65 | 5 | 20 | 7 | -70 | 12 | 18 | 2600 | D | T3 |
| 93026-32*□ | 1800 | 25 | 0.5 | 6 | 25 | 7 | -75 | 12 | 20 | 3100 | E | T4 |
| 93026-64*□ | 2200 | 25 | 0.5 | 10 | 80 | 10 | -90 | 30 | 50 | 3200 | E | T4 |
| 30 VDC at 85°C 20 VDC at 125°C | | | | | | | | | | | | |
| 93026-33*□ | 100 | 30 | 1.3 | 1 | 5 | 25 | -38 | 8 | 12 | 1200 | A | T1 |
| 93026-34*□ | 470 | 30 | 0.85 | 2 | 10 | 15 | -65 | 10 | 18 | 1800 | B | T2 |
| 93026-35*□ | 1000 | 30 | 0.7 | 7 | 25 | 7 | -70 | 10 | 18 | 2500 | D | T3 |
| 93026-36*□ | 1500 | 30 | 0.6 | 12 | 35 | 6 | -72 | 10 | 20 | 3000 | E | T4 |
| 50 VDC at 85°C 30 VDC at 125°C | | | | | | | | | | | | |
| 93026-37*□ | 68 | 50 | 1.5 | 1 | 5 | 35 | -25 | 8 | 15 | 1050 | A | T1 |
| 93026-38*□ | 220 | 50 | 0.9 | 2 | 10 | 17.5 | -50 | 8 | 15 | 1800 | B | T2 |
| 93026-39*□ | 470 | 50 | 0.75 | 3 | 25 | 10 | -50 | 8 | 15 | 2100 | D | T3 |
| 93026-40*□ | 680 | 50 | 0.7 | 5 | 40 | 8 | -58 | 10 | 20 | 2750 | E | T4 |
| 60 VDC at 85°C 40 VDC at 125°C | | | | | | | | | | | | |
| 93026-41*□ | 47 | 60 | 2 | 1 | 5 | 44 | -25 | 8 | 12 | 1050 | A | T1 |
| 93026-42*□ | 150 | 60 | 1.1 | 2 | 10 | 20 | -40 | 8 | 15 | 1650 | B | T2 |
| 93026-43*□ | 390 | 60 | 0.9 | 3 | 25 | 15 | -60 | 8 | 15 | 2100 | D | T3 |
| 93026-44*□ | 560 | 60 | 0.8 | 5 | 40 | 10 | -58 | 8 | 15 | 2750 | E | T4 |
| 93026-65*□ | 1000 | 60 | 1 | 12 | 90 | 20 | -90 | 30 | 50 | 3200 | E | T4 |
| 75 VDC at 85°C 50 VDC at 125°C | | | | | | | | | | | | |
| 93026-45*□ | 33 | 75 | 2.5 | 1 | 5 | 66 | -25 | 5 | 9 | 1050 | A | T1 |
| 93026-46*□ | 110 | 75 | 1.3 | 2 | 10 | 24 | -35 | 6 | 10 | 1650 | B | T2 |
| 93026-47*□ | 330 | 75 | 1 | 3 | 30 | 12 | -45 | 6 | 10 | 2100 | D | T3 |
| 93026-48*□ | 470 | 75 | 0.9 | 5 | 50 | 12 | -55 | 6 | 10 | 2750 | E | T4 |
| 100 VDC at 85°C 65 VDC at 125°C | | | | | | | | | | | | |
| 93026-49*□ | 15 | 100 | 3.5 | 1 | 5 | 125 | -18 | 3 | 10 | 1050 | A | T1 |
| 93026-50*□ | 68 | 100 | 2.1 | 2 | 10 | 37 | -30 | 4 | 12 | 1650 | B | T2 |
| 93026-51*□ | 150 | 100 | 1.6 | 3 | 25 | 22 | -35 | 6 | 12 | 2100 | D | T3 |
| 93026-52*□ | 220 | 100 | 1.2 | 5 | 50 | 15 | -40 | 6 | 12 | 2750 | E | T4 |
| 125 VDC at 85°C 85 VDC at 125°C | | | | | | | | | | | | |
| 93026-53*□ | 10 | 125 | 5.5 | 1 | 5 | 175 | -15 | 3 | 10 | 1050 | A | T1 |
| 93026-54*□ | 47 | 125 | 2.3 | 2 | 10 | 47 | -25 | 5 | 12 | 1650 | B | T2 |
| 93026-55*□ | 100 | 125 | 1.8 | 3 | 25 | 35 | -35 | 5 | 12 | 2100 | D | T3 |
| 93026-56*□ | 150 | 125 | 1.6 | 5 | 50 | 20 | -35 | 6 | 12 | 2750 | E | T4 |

All technical data relates to an ambient temperature of +25°C. Capacitance and DF are measured at 120Hz, 0.5RMS with DC bias of 2.2V. DCL is measured at rated voltage after 5 minutes.

NOTE: AVX reserves the rights to supply higher voltage rating in the same case size, to the same reliability standards.

COTS-Plus Wet Electrolytic Tantalum Capacitor

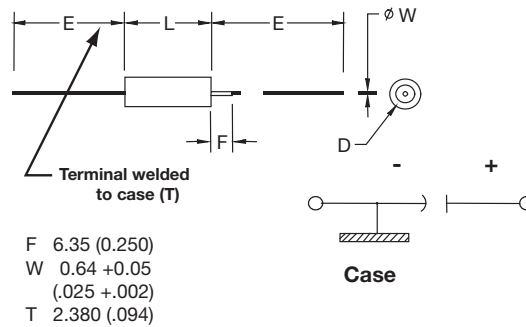


The TWA series is an axial leaded wet electrolytic tantalum capacitor with a unique cathode system that promotes very high CV (Capacitance/Voltage) per cc in traditional MIL-PRF-39006 case sizes.

The series also utilizes a welded tantalum can and header assembly to provide a hermetic seal and subsequent long operating lifetime.

The construction is similar to DSCC 93026 with capability of meeting harsh shock and vibration conditions.

OUTLINE DIMENSIONS



CASE DIMENSIONS: millimeters (inches)

| DSCC Case Size | AVX Case Size | L +0.79 (0.031) -0.41 (0.016) | D | | E ±6.35 (0.250) |
|----------------|---------------|-------------------------------------|--|-------------------------------|--------------------|
| | | | Without Insulating Sleeve ±0.41 (0.016) | With Insulating Sleeve Max | |
| T1 | A | 11.51 (0.453) | 4.78 (0.188) | 5.56 (0.219) | 38.10 (1.500) |
| T2 | B | 16.28 (0.641) | 7.14 (0.281) | 7.92 (0.312) | 57.15 (2.250) |
| T3 | D | 19.46 (0.766) | 9.52 (0.375) | 10.31 (0.406) | 57.15 (2.250) |
| T4 | E | 26.97 (1.062) | 9.52 (0.375) | 10.31 (0.406) | 57.15 (2.250) |

VOLTAGE RATINGS (Operating Temperature -55°C to 125°C)

| Voltage (DC) | | | | | | | | | |
|------------------------------------|-------|------|------|------|------|----|------|-----|-----|
| Rated Voltage: (V _R) | 85°C | 15 | 25 | 30 | 50 | 60 | 75 | 100 | 125 |
| Derated Voltage: (V _C) | 125°C | 10 | 15 | 20 | 30 | 40 | 50 | 65 | 85 |
| Surge Voltage: (V _S) | 85°C | 17.3 | 28.8 | 34.5 | 57.5 | 69 | 86.3 | 115 | 144 |

TWA Series





COTS-Plus Wet Electrolytic Tantalum Capacitor

HOW TO ORDER

AVX PART NUMBER:

| | | | | | | | | | | | |
|------------|-----------|--|-----------------------|--------------|---------------------------------------|---------------|--|-------------|---------------------|----------------------------------|---|
| TWA | E | 407 | * | 100 | □ | B | S | Z | 0 | ^ | 00 |
| Type | Case Size | Capacitance Code | Capacitance Tolerance | Voltage Code | Insulation Sleeve | Packaging | Qualification | Reliability | Qualification Level | Termination Finish | Custom Test Options |
| | | pF code: 1st two digits represent significant figures 3rd digit represents multiplier (number of zeros to follow) | K = ±10% M = ±20% | | C = Without Sleeve S = With Sleeve | B = Tray Pack | E = Extended range S = COTS+ L = Group A | Z = Non-ER | 0 = N/A | 0 = Sn/Pb 60/40 7 = Matte tin | 00 = Standard 01 = Random vibration* |

LEAD-FREE
LEAD-FREE COMPATIBLE COMPONENT
RoHS COMPLIANT
For RoHS compliant products, please select correct termination style.

* Please contact the factory for additional details and availability.

RIPPLE CURRENT MULTIPLIERS vs. Frequency, temperature and applied voltage^{1/2/}

| Frequency of Applied Ripple Current | | 120Hz | | | | 800Hz | | | | 1kHz | | | |
|-------------------------------------|------|-------|------|------|------|-------|------|------|------|------|------|------|-----|
| | | ≤55 | 85 | 105 | 125 | ≤55 | 85 | 105 | 125 | ≤55 | 85 | 105 | 125 |
| % of 85°C Rated Peak Voltage | 100% | 0.60 | 0.39 | – | – | 0.71 | 0.43 | – | – | 0.72 | 0.45 | – | – |
| | 90% | 0.60 | 0.46 | – | – | 0.71 | 0.55 | – | – | 0.72 | 0.55 | – | – |
| 80% | 80% | 0.60 | 0.52 | 0.35 | – | 0.71 | 0.62 | 0.42 | – | 0.72 | 0.62 | 0.42 | – |
| | 70% | 0.60 | 0.58 | 0.44 | – | 0.71 | 0.69 | 0.52 | – | 0.72 | 0.70 | 0.52 | – |
| 66-2/3% | 0.60 | 0.60 | 0.46 | 0.27 | 0.71 | 0.71 | 0.55 | 0.32 | 0.72 | 0.72 | 0.55 | 0.32 | |

| Frequency of Applied Ripple Current | | 10kHz | | | | 40kHz | | | | 100kHz | | | |
|-------------------------------------|------|-------|------|------|------|-------|------|------|------|--------|------|------|-----|
| | | ≤55 | 85 | 105 | 125 | ≤55 | 85 | 105 | 125 | ≤55 | 85 | 105 | 125 |
| % of 85°C Rated Peak Voltage | 100% | 0.88 | 0.55 | – | – | 1.00 | 0.63 | – | – | 1.10 | 0.69 | – | – |
| | 90% | 0.88 | 0.67 | – | – | 1.00 | 0.77 | – | – | 1.10 | 0.85 | – | – |
| 80% | 80% | 0.88 | 0.76 | 0.52 | – | 1.00 | 0.87 | 0.59 | – | 1.10 | 0.96 | 0.65 | – |
| | 70% | 0.88 | 0.85 | 0.64 | – | 1.00 | 0.97 | 0.73 | – | 1.10 | 1.07 | 0.80 | – |
| 66-2/3% | 0.88 | 0.88 | 0.68 | 0.40 | 1.00 | 1.00 | 0.77 | 0.45 | 1.10 | 1.10 | 0.85 | 0.50 | |

1/ At 125°C the rated voltage of the capacitors decreases to 66 2/3 of the 85°C rated voltage.

2/ The peak of the applied ac ripple voltage plus the applied dc voltage must not exceed the dc voltage rating of the capacitors.

COTS-Plus Wet Electrolytic Tantalum Capacitor

CAPACITANCE AND RATED VOLTAGE, V_R (VOLTAGE CODE) RANGE (LETTER DENOTES CASE SIZE)

| Capacitance | | Rated Voltage DC (V_R) to 85°C | | | | | | | |
|---------------|------|------------------------------------|------|------|------------------|------------------|------|------------------|------|
| μF | Code | 15V | 25V | 30V | 50V | 60V | 75V | 100V | 125V |
| 10 | 106 | | | | A* | | | | A |
| 15 | 156 | | | | | | | A | |
| 22 | 226 | | A* | | | A* | A* | | |
| 33 | 336 | | | | | | A | | |
| 47 | 476 | | | | A*,B | A | | | B |
| 68 | 686 | | A | | A | | | B | |
| 100 | 107 | | | A | | B | B | | D |
| 110 | 117 | | | | | | B | | |
| 120 | 127 | | A | | A*,B | | | | D |
| 150 | 157 | | | | B | B | D* | D | E |
| 220 | 227 | | | B | B | D* | D*,E | D,E | E |
| 270 | 277 | | B | | | | | | |
| 330 | 337 | | B | D* | D*,E | E* | D,E | E | |
| 390 | 397 | D | | | | D | | | |
| 400 | 407 | | | | | | | E | |
| 470 | 477 | | | B,D* | D,E | | E | E ^(M) | |
| 560 | 567 | | B,D* | D* | | E | | | |
| 680 | 687 | | D*,E | D,E | E | E | E | | |
| 750 | 757 | | D,E | D,E | E | E | E | E | |
| 1000 | 108 | | D,E | D,E | D,E | E | E | | |
| 1200 | 128 | | D | | E | | | | |
| 1500 | 158 | | E | E | | | | | |
| 1800 | 188 | | E | | | | | | |
| 2200 | 228 | | E | | | E ^(M) | | | |
| 3000 | 308 | | | | E ^(M) | | | | |
| 4700 | 478 | | E | | | | | | |
| 5600 | 568 | | E* | | | | | | |

Available Ratings ^(M tolerance only)

Engineering samples - please contact manufacturer

*Codes under development

COTS-Plus Wet Electrolytic Tantalum Capacitor

RATINGS & PART NUMBER REFERENCE

| AVX Part Number | Cap (µF) 25°C at 120Hz | DC Rated Votage (V) at 85°C | ESR Max (ohms) at 120Hz | DC Leakage max (µA) | | Impedance max (Ohms) -55°C at 120Hz | Maximum Capacitance Change (%) | | | AC Ripple (mA rms) 85°C at 40kHz | Case Size | |
|---------------------------------------|------------------------------|-----------------------------------|-------------------------------|---------------------|-----------------|---|-----------------------------------|-------|--------|--|-----------|------|
| | | | | +25°C | +85 & +125°C | | -55°C | +85°C | +125°C | | AVX | DSCC |
| 15 VDC at 85°C 10 VDC at 125°C | | | | | | | | | | | | |
| TWAD397*015□BSZ0^00 | 390 | 15 | 1.7 | 7 | 28 | 48 | -70 | 25 | 25 | 1396 | D | T3 |
| 25 VDC at 85°C 15 VDC at 125°C | | | | | | | | | | | | |
| TWAA686*025□BEZ0^00 | 68 | 25 | 2.5 | 0.6 | 3 | 45 | -40 | 12 | 15 | 850 | A | T1 |
| TWAA127*025□BSZ0000 | 120 | 25 | 1.3 | 1 | 5 | 25 | -42 | 8 | 12 | 1250 | A | T1 |
| TWAA127*025□BEZ0^00* | 120 | 25 | 2.3 | 2 | 10 | 35 | -42 | 20 | 25 | 1250 | A | T1 |
| TWAB277*025□BEZ0^00 | 270 | 25 | 0.9 | 4 | 20 | 17.5 | -50 | 8 | 15 | 1800 | B | T2 |
| TWAB337*025□BEZ0^00 | 330 | 25 | 1.3 | 2 | 20 | 25 | -60 | 10 | 15 | 1550 | B | T2 |
| TWAB567*025□BSZ0^00 | 560 | 25 | 0.83 | 2 | 10 | 12 | -65 | 10 | 15 | 2100 | B | T2 |
| TWAE687*025□BEZ0^00 | 680 | 25 | 0.75 | 3 | 12 | 12 | -50 | 8 | 15 | 2100 | E | T4 |
| TWAD757*025□BEZ0^00 | 750 | 25 | 1 | 3 | 25 | 15 | -50 | 8 | 15 | 2000 | D | T3 |
| TWAE757*025□BEZ0^00 | 750 | 25 | 0.75 | 3.5 | 16 | 9 | -55 | 10 | 18 | 2200 | E | T4 |
| TWAD108*025□BEZ0^00 | 1000 | 25 | 1 | 4 | 30 | 15 | -50 | 8 | 15 | 2300 | D | T3 |
| TWAE108*025□BEZ0^00 | 1000 | 25 | 0.7 | 4 | 20 | 9 | -55 | 10 | 18 | 2400 | E | T4 |
| TWAD128*025□BSZ0000 | 1200 | 25 | 0.65 | 5 | 20 | 7 | -70 | 12 | 18 | 2600 | D | T3 |
| TWAD128*025□BEZ0^00* | 1200 | 25 | 1.4 | 7 | 35 | 12 | -85 | 40 | 50 | 2600 | D | T3 |
| TWAE158*025□BEZ0^00 | 1500 | 25 | 0.5 | 6 | 24 | 7 | -65 | 15 | 20 | 2850 | E | T4 |
| TWAE188*025□BSZ0000 | 1800 | 25 | 0.5 | 6 | 25 | 7 | -75 | 12 | 20 | 3100 | E | T4 |
| TWAE228*025□BSZ0000 | 2200 | 25 | 0.5 | 10 | 80 | 10 | -90 | 30 | 50 | 3200 | E | T4 |
| TWAE478*025□BSZ0^00 | 4700 | 25 | 0.5 | 30 | 180 | 5 | -90 | 60 | 80 | 4250 | E | T4 |
| TWAE478*025□BEZ0^00* | 4700 | 25 | 0.5 | 30 | 180 | 5 | -90 | 60 | 80 | 4250 | E | T4 |
| 30 VDC at 85°C 20 VDC at 125°C | | | | | | | | | | | | |
| TWAA107*030□BSZ0000 | 100 | 30 | 1.3 | 1 | 5 | 25 | -38 | 8 | 12 | 1200 | A | T1 |
| TWAA107*030□BEZ0^00* | 100 | 30 | 2.3 | 2 | 10 | 35 | -38 | 20 | 25 | 1200 | A | T1 |
| TWAB227*030□BEZ0^00 | 220 | 30 | 2 | 1.9 | 10 | 40 | -40 | 8 | 15 | 1200 | B | T2 |
| TWAB477*030□BSZ0^00 | 470 | 30 | 0.85 | 2 | 10 | 15 | -65 | 10 | 18 | 1800 | B | T2 |
| TWAD687*030□BEZ0^00 | 680 | 30 | 1 | 3.3 | 25 | 15 | -50 | 8 | 15 | 1900 | D | T3 |
| TWAE687*030□BEZ0^00 | 680 | 30 | 0.8 | 4.5 | 18 | 10 | -60 | 8 | 15 | 2100 | E | T4 |
| TWAD757*030□BEZ0^00 | 750 | 30 | 1 | 3.6 | 30 | 15 | -50 | 8 | 15 | 2000 | D | T3 |
| TWAE757*030□BEZ0^00 | 750 | 30 | 0.8 | 5 | 20 | 10 | -65 | 10 | 18 | 2200 | E | T4 |
| TWAD108*030□BSZ0000 | 1000 | 30 | 0.7 | 7 | 25 | 7 | -70 | 10 | 18 | 2500 | D | T3 |
| TWAD108*030□BEZ0^00* | 1000 | 30 | 1.4 | 10 | 50 | 12 | -85 | 40 | 50 | 2500 | D | T3 |
| TWAE108*030□BEZ0^00 | 1000 | 30 | 0.7 | 5 | 20 | 7 | -70 | 10 | 18 | 2500 | E | T4 |
| TWAE158*030□BSZ0000 | 1500 | 30 | 0.6 | 12 | 35 | 6 | -72 | 10 | 20 | 3000 | E | T4 |
| 50 VDC at 85°C 30 VDC at 125°C | | | | | | | | | | | | |
| TWAB476*050□BSZ0^00 | 47 | 50 | 3 | 0.8 | 8 | 70 | -28 | 13 | 15 | 1155 | B | T2 |
| TWAA686*050□BSZ0000 | 68 | 50 | 1.5 | 1 | 5 | 35 | -25 | 8 | 15 | 1050 | A | T1 |
| TWAA686*050□BEZ0^00* | 68 | 50 | 2.5 | 2 | 10 | 45 | -25 | 20 | 25 | 1050 | A | T1 |
| TWAB127*050□BEZ0^00 | 120 | 50 | 2 | 2 | 10 | 40 | -45 | 8 | 15 | 1200 | B | T2 |
| TWAB157*050□BEZ0^00 | 150 | 50 | 2 | 2 | 10 | 25 | -50 | 8 | 15 | 1400 | B | T2 |
| TWAB227*050□BSZ0000 | 220 | 50 | 0.9 | 2 | 10 | 17.5 | -50 | 8 | 15 | 1800 | B | T2 |
| TWAB227*050□BEZ0^00* | 220 | 50 | 0.9 | 4 | 20 | 17.5 | -50 | 8 | 15 | 1800 | B | T2 |
| TWAE337*050□BEZ0^00 | 330 | 50 | 0.8 | 2.5 | 25 | 15 | -50 | 8 | 15 | 1900 | E | T4 |
| TWAD477*050□BSZ0000 | 470 | 50 | 0.75 | 3 | 25 | 10 | -50 | 8 | 15 | 2100 | D | T3 |
| TWAD477*050□BEZ0^00* | 470 | 50 | 1 | 3 | 25 | 11 | -50 | 8 | 15 | 2100 | D | T3 |
| TWAE477*050□BEZ0^00 | 470 | 50 | 0.75 | 3 | 30 | 10 | -50 | 8 | 15 | 2200 | E | T4 |
| TWAE687*050□BSZ0000 | 680 | 50 | 0.7 | 5 | 40 | 8 | -58 | 10 | 20 | 2750 | E | T4 |
| TWAE687*050□BEZ0^00* | 680 | 50 | 0.7 | 5 | 40 | 8 | -58 | 10 | 20 | 2750 | E | T4 |
| TWAE757*050□BEZ0^00 | 750 | 50 | 0.6 | 12 | 60 | 8 | -50 | 15 | 20 | 2800 | E | T4 |
| TWAD108*050□BEZ0^00 | 1000 | 50 | 1.5 | 20 | 125 | 12 | -90 | 100 | 140 | 2500 | D | T3 |
| TWAE108*050□BSZ0^00 | 1000 | 50 | 1.0 | 12 | 90 | 20 | -90 | 30 | 50 | 3200 | E | T4 |
| TWAE108*050□BEZ0^00* | 1000 | 50 | 0.7 | 11 | 110 | 20 | -70 | 30 | 40 | 3200 | E | T4 |
| TWAE128*050□BSZ0^00 | 1200 | 50 | 1.0 | 12 | 90 | 20 | -90 | 30 | 50 | 3200 | E | T4 |
| TWAE308M050□BSZ0^00 | 3000 | 50 | 0.3 | 30 | 150 | 3.5 | -80 | 60 | 85 | 3100 | E | T4 |
| TWAE308M050□BEZ0^00* | 3000 | 50 | 0.3 | 30 | 150 | 3.5 | -80 | 60 | 85 | 3100 | E | T4 |
| 60 VDC at 85°C 40 VDC at 125°C | | | | | | | | | | | | |
| TWAA476*060□BSZ0000 | 47 | 60 | 2 | 1 | 5 | 44 | -25 | 8 | 12 | 1050 | A | T1 |
| TWAA476*060□BEZ0^00* | 47 | 60 | 2 | 2 | 10 | 55 | -25 | 15 | 25 | 1050 | A | T1 |
| TWAB107*060□BEZ0^00 | 100 | 60 | 2.5 | 1.7 | 10 | 40 | -40 | 8 | 15 | 1100 | B | T2 |
| TWAB157*060□BSZ0000 | 150 | 60 | 1.1 | 2 | 10 | 20 | -40 | 8 | 15 | 1650 | B | T2 |
| TWAD397*060□BSZ0000 | 390 | 60 | 0.9 | 3 | 25 | 15 | -60 | 8 | 15 | 2100 | D | T3 |
| TWAD397*060□BEZ0^00* | 390 | 60 | 0.9 | 3 | 25 | 15 | -60 | 8 | 15 | 2100 | D | T3 |
| TWAE567*060□BSZ0000 | 560 | 60 | 0.8 | 5 | 40 | 10 | -58 | 8 | 15 | 2750 | E | T4 |
| TWAE567*060□BEZ0^00* | 560 | 60 | 0.8 | 5 | 40 | 10 | -58 | 8 | 15 | 2750 | E | T4 |
| TWAE687*060□BEZ0^00 | 680 | 60 | 0.6 | 13 | 65 | 8 | -50 | 15 | 20 | 2800 | E | T4 |

COTS-Plus Wet Electrolytic Tantalum Capacitor

RATINGS & PART NUMBER REFERENCE

| AVX Part Number | Cap (µF) 25°C at 120Hz | DC Rated Voltage (V) at 85°C | ESR Max (ohms) at 120Hz | DC Leakage max (µA) | | Impedance max (Ohms) -55°C at 120Hz | Maximum Capacitance Change (%) | | | AC Ripple (mA rms) 85°C at 40kHz | Case Size | |
|--|------------------------------|------------------------------------|-------------------------------|---------------------|-----------------|---|-----------------------------------|-------|--------|--|-----------|------|
| | | | | +25°C | +85 & +125°C | | -55°C | +85°C | +125°C | | AVX | DSCC |
| 75 VDC at 85°C 50 VDC at 125°C | | | | | | | | | | | | |
| TWAE757*060□BEZ0^00 | 750 | 60 | 0.6 | 15 | 75 | 8 | -50 | 15 | 20 | 2800 | E | T4 |
| TWAE108*060□BSZ0000 | 1000 | 60 | 1 | 12 | 90 | 20 | -90 | 30 | 50 | 3200 | E | T4 |
| TWAE108*060□BEZ0^00* | 1000 | 60 | 0.5 | 20 | 60 | 4.5 | -70 | 30 | 60 | 3200 | E | T4 |
| TWAE228M060□BEZ0^00 | 2200 | 60 | 0.5 | 40 | 120 | 3.0 | -80 | 60 | 80 | 3000 | E | T4 |
| TWAA336*075□BSZ0000 | 33 | 75 | 2.5 | 1 | 5 | 66 | -25 | 5 | 9 | 1050 | A | T1 |
| TWAA336*075□BEZ0^00* | 33 | 75 | 2.5 | 2 | 10 | 70 | -25 | 15 | 25 | 1050 | A | T1 |
| TWAB107*075□BEZ0^00 | 100 | 75 | 2.5 | 2 | 10 | 40 | -35 | 6 | 10 | 1400 | B | T2 |
| TWAB117*075□BSZ0000 | 110 | 75 | 1.3 | 2 | 10 | 24 | -35 | 6 | 10 | 1650 | B | T2 |
| TWAE227*075□BEZ0^00 | 220 | 75 | 1.1 | 2.5 | 30 | 20 | -50 | 6 | 10 | 1800 | E | T4 |
| TWAD337*075□BSZ0000 | 330 | 75 | 1 | 3 | 30 | 12 | -45 | 6 | 10 | 2100 | D | T3 |
| TWAD337*075□BEZ0^00* | 330 | 75 | 1.2 | 3 | 30 | 15 | -60 | 10 | 20 | 2100 | D | T3 |
| TWAE337*075□BEZ0^00 | 330 | 75 | 1 | 3 | 40 | 12 | -50 | 6 | 10 | 2200 | E | T4 |
| TWAE477*075□BSZ0000 | 470 | 75 | 0.9 | 5 | 50 | 12 | -55 | 6 | 10 | 2750 | E | T4 |
| TWAE477*075□BEZ0^00* | 470 | 75 | 0.9 | 5 | 50 | 12 | -55 | 6 | 10 | 2750 | E | T4 |
| TWAE687*075□BEZ0^00 | 680 | 75 | 0.9 | 11 | 110 | 10 | -70 | 30 | 40 | 2750 | E | T4 |
| TWAE757*075□BEZ0^00 | 750 | 75 | 0.7 | 12 | 120 | 10 | -70 | 30 | 40 | 3800 | E | T4 |
| TWAE108*075□BEZ0^00 | 1000 | 75 | 0.5 | 30 | 90 | 4.5 | -70 | 30 | 60 | 3500 | E | T4 |
| 100 VDC at 85°C 65 VDC at 125°C | | | | | | | | | | | | |
| TWAA156*100=BSZ0000 | 15 | 100 | 3.5 | 1 | 5 | 125 | -18 | 3 | 10 | 1050 | A | T1 |
| TWAB686*100=BSZ0000 | 68 | 100 | 2.1 | 2 | 10 | 37 | -30 | 4 | 12 | 1650 | B | T2 |
| TWAB686*100=BEZ0^00* | 68 | 100 | 2.5 | 2 | 10 | 37 | -30 | 4 | 12 | 1650 | B | T2 |
| TWAD157*100=BSZ0000 | 150 | 100 | 1.6 | 3 | 25 | 22 | -35 | 6 | 12 | 2100 | D | T3 |
| TWAD157*100=BEZ0^00* | 150 | 100 | 1.6 | 3 | 25 | 22 | -35 | 6 | 12 | 2100 | D | T3 |
| TWAD227*100=BEZ0^00 | 220 | 100 | 1.4 | 5 | 25 | 18 | -50 | 10 | 15 | 2500 | D | T3 |
| TWAE227*100=BSZ0000 | 220 | 100 | 1.2 | 5 | 50 | 15 | -40 | 6 | 12 | 2750 | E | T4 |
| TWAE227*100=BEZ0^00* | 220 | 100 | 1.2 | 5 | 50 | 15 | -40 | 6 | 12 | 2750 | E | T4 |
| TWAE337*100=BSZ0^00 | 330 | 100 | 0.8 | 6 | 60 | 10 | -45 | 7 | 20 | 3600 | E | T4 |
| TWAE337*100=BEZ0^00* | 330 | 100 | 0.8 | 6 | 60 | 10 | -45 | 7 | 20 | 3600 | E | T4 |
| TWAE407*100=BSZ0^00 | 400 | 100 | 0.8 | 10 | 150 | 10 | -50 | 10 | 35 | 4100 | E | T4 |
| TWAE407*100=BEZ0^00* | 400 | 100 | 0.8 | 10 | 150 | 10 | -50 | 10 | 35 | 4100 | E | T4 |
| TWAE477M100=BEZ0^00 | 470 | 100 | 0.7 | 25 | 250 | 10 | -50 | 10 | 35 | 4100 | E | T4 |
| TWAE757*100=BEZ0^00 | 750 | 100 | 0.6 | 30 | 150 | 5 | -60 | 30 | 80 | 6700 | E | T4 |
| 125 VDC at 85°C 85 VDC at 125°C | | | | | | | | | | | | |
| TWAA106*125□BSZ0000 | 10 | 125 | 5.5 | 1 | 5 | 175 | -15 | 3 | 10 | 1050 | A | T1 |
| TWAB476*125□BSZ0000 | 47 | 125 | 2.3 | 2 | 10 | 47 | -25 | 5 | 12 | 1650 | B | T2 |
| TWAB476*125□BEZ0^00* | 47 | 125 | 2.3 | 2 | 10 | 47 | -25 | 5 | 12 | 1650 | B | T2 |
| TWAD107*125□BSZ0000 | 100 | 125 | 1.8 | 3 | 25 | 35 | -35 | 5 | 12 | 2100 | D | T3 |
| TWAD107*125□BEZ0^00* | 100 | 125 | 1.8 | 3 | 25 | 35 | -35 | 5 | 12 | 2100 | D | T3 |
| TWAD127*125□BEZ0^00 | 120 | 125 | 1.8 | 3 | 25 | 35 | -35 | 5 | 12 | 2100 | D | T3 |
| TWAE157*125□BSZ0000 | 150 | 125 | 1.6 | 5 | 50 | 20 | -35 | 6 | 12 | 2750 | E | T4 |
| TWAE157*125□BEZ0^00* | 150 | 125 | 1.6 | 5 | 50 | 20 | -35 | 6 | 16 | 2750 | E | T4 |
| TWAE227*125□BEZ0^00 | 220 | 125 | 1.4 | 10 | 50 | 12 | -40 | 8 | 15 | 3600 | E | T4 |

All technical data relates to an ambient temperature of +25°C. Capacitance and DF are measured at 120Hz, 0.5RMS with DC bias of 2.2V. DCL is measured at rated voltage after 5 minutes.

NOTE: AVX reserves the rights to supply higher voltage rating in the same case size, to the same reliability standards.

*Not recommended for new designs, for new design use part number with Inspection level "S" – COTS-Plus

$$DF = 2\pi fC \times (ESR)$$

$$2\pi = 6.28$$

$$f = 120\text{Hz}$$

C = Actual measured capacitance

ESR = Actual measured ESR

TWA-Y 200°C Series



Wet Electrolytic Tantalum Capacitor



The TWA-Y series represents a high temperature version of conventional wet electrolytic tantalum capacitors that are designed for use at 200°C. High capacitance cathode system allows high level of CV (Capacitance/Voltage) in standard case sizes.

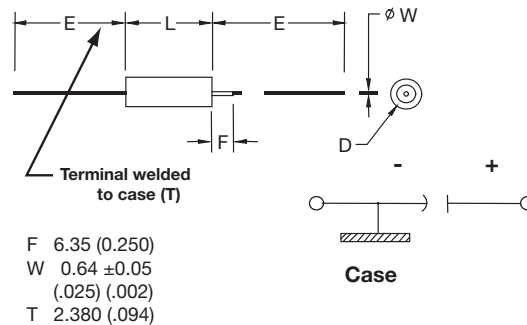
Selected values of the TWA-Y are capable of up to 2000 hours of operation at extreme temperatures with the applicable derated voltage.

Mechanical testing being conducted in accordance to MIL-STD- 202, High Frequency vibration - method 204, test condition "D" Mechanical Shock Test - method 213, test condition "I".

This design includes a welded tantalum can and header assembly that provides a hermetic seal to withstand also harsh shock and vibration requirements.

Contact the factory for additional options for customized component design.

OUTLINE DIMENSIONS



CASE DIMENSIONS: millimeters (inches)

| DSCC Case Size | AVX Case Size | L +0.79 (0.031) -0.41 (0.016) | D | | E ±6.35 (0.250) |
|----------------|---------------|-------------------------------------|--|-------------------------------|--------------------|
| | | | Without Insulating Sleeve ±0.41 (0.016) | With Insulating Sleeve Max | |
| T1 | A | 11.51 (0.453) | 4.78 (0.188) | 5.56 (0.219) | 38.10 (1.500) |
| T2 | B | 16.28 (0.641) | 7.14 (0.281) | 7.92 (0.312) | 57.15 (2.250) |
| T3 | D | 19.46 (0.766) | 9.52 (0.375) | 10.31 (0.406) | 57.15 (2.250) |
| T4 | E | 26.97 (1.062) | 9.52 (0.375) | 10.31 (0.406) | 57.15 (2.250) |

VOLTAGE RATINGS (Operating Temperature -55°C to 200°C)

| Voltage (DC) | | | | | | | | | |
|---|-------|----|----|----|----|----|----|-----|-----|
| Rated Voltage: (V _R) | 85°C | 15 | 25 | 30 | 50 | 60 | 75 | 100 | 125 |
| Derated Voltage: (V _D) | 125°C | 10 | 15 | 20 | 30 | 40 | 50 | 65 | 85 |
| High Temperature Voltage: (V _T) | 200°C | 9 | 12 | 18 | 30 | 36 | 45 | 60 | 75 |

TWA-Y 200°C Series





Wet Electrolytic Tantalum Capacitor

HOW TO ORDER

AVX PART NUMBER:

| | | | | | | | | | | | |
|------------|-----------|--|---|--------------|--|----------------------------|-----------------------------------|---------------------------|--------------------------------|--|--------------------------------------|
| TWA | E | 757 | * | 075 | □ | B | Y | Z | 0 | ^ | 00 |
| Type | Case Size | Capacitance Code pF code: 1st two digits represent significant figures 3rd digit represents multiplier (number of zeros to follow) | Capacitance Tolerance K = ±10% M = ±20% | Voltage Code | Insulation Sleeve C = Without Sleeve S = With Sleeve | Packaging B = Tray Pack | Inspection Level Y = High Temp | Reliability Z = Non-ER | Qualification Level 0 = N/A | Termination Finish 0 = Sn/Pb 60/40 7 = Matte tin | Custom Test Options 00 = Standard |

For RoHS compliant products, please select correct termination style.

RIPPLE CURRENT MULTIPLIERS vs. Frequency, temperature and applied voltage^{1/2/}

| Frequency of Applied Ripple Current | | 120Hz | | | | 800Hz | | | | 1kHz | | | | |
|-------------------------------------|------|---------|------|------|------|-------|------|------|------|------|------|------|------|------|
| | | ≤55 | 85 | 105 | 125 | ≤55 | 85 | 105 | 125 | ≤55 | 85 | 105 | 125 | |
| Ambient Still Air Temperature (°C) | % of | 100% | 0.60 | 0.39 | – | – | 0.71 | 0.43 | – | – | 0.72 | 0.45 | – | – |
| | 85°C | 90% | 0.60 | 0.46 | – | – | 0.71 | 0.55 | – | – | 0.72 | 0.55 | – | – |
| Rated Peak | 80% | 0.60 | 0.52 | 0.35 | – | 0.71 | 0.62 | 0.42 | – | 0.72 | 0.62 | 0.42 | – | |
| | 70% | 0.60 | 0.58 | 0.44 | – | 0.71 | 0.69 | 0.52 | – | 0.72 | 0.70 | 0.52 | – | |
| Voltage | | 66-2/3% | 0.60 | 0.60 | 0.46 | 0.27 | 0.71 | 0.71 | 0.55 | 0.32 | 0.72 | 0.72 | 0.55 | 0.32 |

| Frequency of Applied Ripple Current | | 10kHz | | | | 40kHz | | | | 100kHz | | | | |
|-------------------------------------|------|---------|------|------|------|-------|------|------|------|--------|------|------|------|------|
| | | ≤55 | 85 | 105 | 125 | ≤55 | 85 | 105 | 125 | ≤55 | 85 | 105 | 125 | |
| Ambient Still Air Temperature (°C) | % of | 100% | 0.88 | 0.55 | – | – | 1.00 | 0.63 | – | – | 1.10 | 0.69 | – | – |
| | 85°C | 90% | 0.88 | 0.67 | – | – | 1.00 | 0.77 | – | – | 1.10 | 0.85 | – | – |
| Rated Peak | 80% | 0.88 | 0.76 | 0.52 | – | 1.00 | 0.87 | 0.59 | – | 1.10 | 0.96 | 0.65 | – | |
| | 70% | 0.88 | 0.85 | 0.64 | – | 1.00 | 0.97 | 0.73 | – | 1.10 | 1.07 | 0.80 | – | |
| Voltage | | 66-2/3% | 0.88 | 0.88 | 0.68 | 0.40 | 1.00 | 1.00 | 0.77 | 0.45 | 1.10 | 1.10 | 0.85 | 0.50 |

1/ At 125°C the rated voltage of the capacitors decreases to 66 2/3 of the 85°C rated voltage.

2/ The peak of the applied ac ripple voltage plus the applied dc voltage must not exceed the dc voltage rating of the capacitors.



TWA-Y 200°C Series



Wet Electrolytic Tantalum Capacitor

CAPACITANCE AND RATED VOLTAGE, V_R (VOLTAGE CODE) RANGE (LETTER DENOTES CASE SIZE)

| Capacitance | | Rated Voltage DC (V _R) to 85°C | | | | | | | |
|-------------|------|--|------------------|-----|-----|-----|-----|------------------|------|
| μF | Code | 15V | 25V | 30V | 50V | 60V | 75V | 100V | 125V |
| 10 | 106 | | | | A | | | | |
| 15 | 156 | | | A | | | | | |
| 22 | 226 | | A | | | A | A | | |
| 27 | 276 | | | | | A | | | |
| 33 | 336 | A | | | A | | A | | |
| 47 | 476 | | | | B | A | | | B |
| 50 | 506 | | | | | B | | | |
| 56 | 566 | | A | A | | | B | | |
| 60 | 606 | | | | B | | | | |
| 68 | 686 | | A | | A | B | | B | |
| 82 | 826 | | | | B | | B | | D |
| 100 | 107 | | B | A,B | | B | | | D |
| 120 | 127 | | A,B | | B | | | | |
| 150 | 157 | | | B | | | | D | E |
| 180 | 187 | | | | | | D | | |
| 220 | 227 | | | B | B | D | E | E | E |
| 270 | 277 | | B | | D | E | | | |
| 300 | 307 | | | D | | | | | |
| 330 | 337 | | | | E | | | E | |
| 390 | 397 | D | | D | | | | | |
| 400 | 407 | | | | | | | E | |
| 470 | 477 | | | B | | | E | E ^(M) | |
| 560 | 567 | | B,E | E | | | | E* | |
| 680 | 687 | | | | | | E | | |
| 750 | 757 | | | | | | E | E | |
| 1000 | 108 | | | D | E | E | E | | |
| 1200 | 128 | | D | | | | | | |
| 3000 | 308 | | E ^(M) | | | | | | |

Available Ratings ^(M tolerance only)

Engineering samples - please contact manufacturer

*Codes under development

RATINGS & PART NUMBER REFERENCE

| AVX Part Number | Cap (μF) 25°C at 120Hz | DC Rated Voltage (V) at 85°C | ESR Max (ohms) at 120Hz | DC Leakage max (μA) | | Impedance max (Ohms) -55°C at 120Hz | Maximum Capacitance Change (%) | | | AC Ripple (mA rms) 85°C at 40kHz | Case Size | | Lifetime at 200°C (hrs.) |
|---|------------------------------|------------------------------------|-------------------------------|---------------------|-----------------|---|-----------------------------------|-------|--------|--|-----------|------|-----------------------------|
| | | | | +25°C | +85 & +125°C | | -55°C | +85°C | +125°C | | AVX | DSCC | |
| 15 VDC at 85°C 10 VDC at 125°C 9 VDC at 200°C | | | | | | | | | | | | | |
| TWAA336*015□BYZ0^00 | 33 | 15 | 4 | 1 | 2 | 90 | -28 | 14 | 16 | 820 | A | T1 | 2000 |
| TWAD397*015□BYZ0^00 | 390 | 15 | 1.7 | 7 | 28 | 48 | -70 | 25 | 25 | 1396 | D | T3 | 1000 |
| 25 VDC at 85°C 15 VDC at 125°C 12 VDC at 200°C | | | | | | | | | | | | | |
| TWAA226*025□BYZ0^00 | 22 | 25 | 4 | 1 | 2 | 140 | -20 | 10.5 | 12 | 825 | A | T1 | 2000 |
| TWAA566*025□BYZ0^00 | 56 | 25 | 4 | 1 | 2 | 140 | -20 | 10.5 | 12 | 825 | A | T1 | 500 |
| TWAA686*025□BYZ0^00 | 68 | 25 | 4 | 1 | 2 | 140 | -20 | 10.5 | 12 | 825 | A | T1 | 500 |
| TWAB107*025□BYZ0^00 | 100 | 25 | 2.5 | 1 | 10 | 60 | -35 | 13 | 15 | - | B | T2 | 2000 |
| TWAA127*025□BYZ0^00 | 120 | 25 | 2.3 | 2 | 10 | 35 | -42 | 20 | 25 | 1250 | A | T1 | 500 |
| TWAB127*025□BYZ0^00 | 120 | 25 | 2.3 | 2 | 10 | 60 | -32 | 13 | 15 | - | B | T2 | 500 |
| TWAB277*025□BYZ0^00 | 270 | 25 | 0.9 | 4 | 20 | 17.5 | -50 | 8 | 15 | 1800 | B | T2 | 1000 |
| TWAB567*025□BYZ0^00 | 560 | 25 | 1.0 | 2 | 10 | 12 | -65 | 10 | 15 | 2100 | B | T2 | 1000 |
| TWAE567*025□BYZ0^00 | 560 | 25 | 1.3 | 9 | 36 | 25 | -65 | 25 | 30 | - | E | T4 | 2000 |
| TWAD128*025□BYZ0^00 | 1200 | 25 | 1.4 | 7 | 35 | 12 | -85 | 40 | 50 | 2600 | D | T3 | 500 |
| TWAE308M025□BYZ0^00 | 3000 | 25 | 0.5 | 15 | 30 | 3.5 | -80 | 60 | 85 | 3100 | E | T4 | 500 |
| 30 VDC at 85°C 20 VDC at 125°C 18 VDC at 200°C | | | | | | | | | | | | | |
| TWAA156*030□BYZ0^00 | 15 | 30 | 4.4 | 1 | 2 | 200 | -20 | 10.5 | 16 | - | A | T1 | 2000 |
| TWAA566*030□BYZ0^00 | 56 | 30 | 5.2 | 2 | 9 | 200 | -48 | 12 | 15 | - | A | T1 | 2000 |
| TWAA107*030□BYZ0^00 | 100 | 30 | 2.3 | 2 | 10 | 35 | -38 | 20 | 25 | 1200 | A | T1 | 500 |
| TWAB107*030□BYZ0^00 | 100 | 30 | 2.3 | 2 | 12 | 60 | -30 | 10.5 | 12 | - | B | T2 | 500 |
| TWAB157*030□BYZ0^00 | 150 | 30 | 2.5 | 2 | 18 | 40 | -48 | 13 | 15 | 1100 | B | T2 | 2000 |
| TWAB227*030□BYZ0^00 | 220 | 30 | 0.9 | 4 | 20 | 17.5 | -50 | 8 | 15 | 1800 | B | T2 | 1000 |
| TWAD307*030□BYZ0^00 | 300 | 30 | 1.8 | 8 | 32 | 25 | -51 | 20 | 25 | - | D | T3 | 2000 |
| TWAD397*030□BYZ0^00 | 390 | 30 | 1.8 | 6 | 18 | 25 | -65 | 18 | 25 | - | D | T3 | 2000 |



TWA-Y 200°C Series



Wet Electrolytic Tantalum Capacitor

RATINGS & PART NUMBER REFERENCE

| AVX Part Number | Cap (µF) 25°C at 120Hz | DC Rated Voltage (V) at 85°C | ESR Max (ohms) at 120Hz | DC Leakage max (µA) | | Impedance max (Ohms) -55°C at 120Hz | Maximum Capacitance Change (%) | | | AC Ripple (mA rms) 85°C at 40kHz | Case Size | | Lifetime at 200°C (hrs.) |
|--|------------------------------|------------------------------------|-------------------------------|---------------------|-----------------|---|-----------------------------------|-------|--------|--|-----------|------|-----------------------------|
| | | | | +25°C | +85 & +125°C | | -55°C | +85°C | +125°C | | AVX | DSCC | |
| TWAB477*030□BYZ0^00 | 470 | 30 | 1.0 | 2 | 10 | 15 | -65 | 10 | 18 | 1800 | B | T2 | 1000 |
| TWAE567*030□BYZ0^00 | 560 | 30 | 1.3 | 9 | 36 | 25 | -65 | 25 | 30 | - | E | T4 | 2000 |
| TWAD108*030□BYZ0^00 | 1000 | 30 | 1.4 | 10 | 50 | 12 | -85 | 40 | 50 | 2500 | D | T3 | 500 |
| 50 VDC at 85°C 30 VDC at 125°C 30 VDC at 200°C | | | | | | | | | | | | | |
| TWAA106*050□BYZ0^00 | 10 | 50 | 5.3 | 1 | 2 | 250 | -24 | 8 | 9 | 715 | A | T1 | 2000 |
| TWAA336*050□BYZ0^00 | 33 | 50 | 5 | 2 | 9 | 200 | -39 | 10 | 12 | - | A | T1 | 2000 |
| TWAB476*050□BYZ0^00 | 47 | 50 | 3 | 0.8 | 8 | 70 | -28 | 13 | 15 | 1155 | B | T2 | 500 |
| TWAB606*050□BYZ0^00 | 60 | 50 | 2.6 | 2 | 12 | 60 | -30 | 10.5 | 12 | - | B | T2 | 500 |
| TWAA686*050□BYZ0^00 | 68 | 50 | 2.5 | 2 | 10 | 45 | -25 | 20 | 25 | 1050 | A | T1 | 1000 |
| TWAB826*050□BYZ0^00 | 82 | 50 | 2.4 | 2 | 16 | 60 | -32 | 13 | 15 | - | B | T2 | 500 |
| TWAB127*050□BYZ0^00 | 120 | 50 | 2.5 | 4 | 24 | 40 | -42 | 12 | 15 | - | B | T2 | 2000 |
| TWAD227*050□BYZ0^00 | 220 | 50 | 0.9 | 4 | 20 | 17.5 | -50 | 8 | 15 | 1800 | B | T2 | 1000 |
| TWAD277*050□BYZ0^00 | 270 | 50 | 1.8 | 8 | 32 | 25 | -51 | 20 | 25 | - | D | T3 | 2000 |
| TWAE337*050□BYZ0^00 | 330 | 50 | 1.5 | 9 | 36 | 25 | -46 | 25 | 30 | 1900 | E | T4 | 2000 |
| TWAE108*050□BYZ0^00 | 1000 | 50 | 0.7 | 11 | 110 | 20 | -70 | 30 | 40 | 3200 | E | T4 | 500 |
| 60 VDC at 85°C 40 VDC at 125°C 36 VDC at 200°C | | | | | | | | | | | | | |
| TWAA226*060□BYZ0^00 | 22 | 60 | 5 | 3 | 12 | 200 | -34 | 10 | 12 | 500 | A | T1 | 2000 |
| TWAA276*060□BYZ0^00 | 27 | 60 | 5 | 3 | 12 | 200 | -34 | 10 | 12 | - | A | T1 | 2000 |
| TWAA476*060□BYZ0^00 | 47 | 60 | 2 | 2 | 10 | 55 | -25 | 15 | 25 | 1050 | A | T1 | 500 |
| TWAB506*060□BYZ0^00 | 50 | 60 | 2.6 | 2 | 12 | 60 | -30 | 10.5 | 12 | - | B | T2 | 500 |
| TWAB686*060□BYZ0^00 | 68 | 60 | 2.5 | 2 | 16 | 60 | -32 | 10.5 | 12 | - | B | T2 | 500 |
| TWAB107*060□BYZ0^00 | 100 | 60 | 2.5 | 1.7 | 10 | 40 | -40 | 8 | 15 | 1100 | B | T2 | 2000 |
| TWAD227*060□BYZ0^00 | 220 | 60 | 1.8 | 8 | 32 | 25 | -45 | 16 | 20 | - | D | T3 | 2000 |
| TWAE277*060□BYZ0^00 | 270 | 60 | 1.3 | 9 | 36 | 25 | -45 | 20 | 25 | - | E | T4 | 2000 |
| TWAE108*060□BYZ0^00 | 1000 | 60 | 0.5 | 20 | 60 | 4.5 | -70 | 30 | 60 | 3200 | E | T4 | 1000 |
| 75 VDC at 85°C 50 VDC at 125°C 45 VDC at 200°C | | | | | | | | | | | | | |
| TWAA226*075□BYZ0^00 | 22 | 75 | 5.1 | 3 | 12 | 157 | -19 | 10 | 12 | 600 | A | T1 | 2000 |
| TWAA336*075□BYZ0^00 | 33 | 75 | 2.5 | 2 | 10 | 70 | -25 | 15 | 25 | 1050 | A | T1 | 1000 |
| TWAB566*075□BYZ0^00 | 56 | 75 | 2.6 | 2 | 17 | 60 | -30 | 10.5 | 15 | - | B | T2 | 500 |
| TWAB826*075□BYZ0^00 | 82 | 75 | 2.5 | 4 | 24 | 37 | -30 | 12 | 15 | - | B | T2 | 500 |
| TWAD187*075□BYZ0^00 | 180 | 75 | 2.2 | 9 | 36 | 25 | -40 | 16 | 20 | - | D | T3 | 2000 |
| TWAE227*075□BYZ0^00 | 220 | 75 | 1.2 | 5 | 50 | 20 | -40 | 8 | 15 | 1800 | E | T4 | 2000 |
| TWAE477*075□BYZ0^00 | 470 | 75 | 0.9 | 10 | 125 | 10 | -50 | 10 | 35 | 2750 | E | T4 | 1000 |
| TWAE687*075□BYZ0^00 | 680 | 75 | 0.9 | 11 | 110 | 10 | -70 | 30 | 40 | 2750 | E | T4 | 500 |
| TWAE757*075□BYZ0^00 | 750 | 75 | 0.7 | 12 | 120 | 10 | -70 | 30 | 40 | 3800 | E | T4 | 500 |
| TWAE108*075□BYZ0^00 | 1000 | 75 | 0.5 | 30 | 90 | 4.5 | -70 | 30 | 60 | 3500 | E | T4 | 1000 |
| 100 VDC at 85°C 65 VDC at 125°C 60 VDC at 200°C | | | | | | | | | | | | | |
| TWAB686*100□BYZ0^00 | 68 | 100 | 2.5 | 2 | 10 | 37 | -30 | 4 | 12 | 1650 | B | T2 | 500 |
| TWAD157*100□BYZ0^00 | 150 | 100 | 1.6 | 3 | 25 | 22 | -35 | 6 | 12 | 2100 | D | T3 | 2000 |
| TWAE227*100□BYZ0^00 | 220 | 100 | 1.2 | 5 | 50 | 15 | -40 | 6 | 12 | 2750 | E | T4 | 2000 |
| TWAE337*100□BYZ0^00 | 330 | 100 | 0.8 | 6 | 60 | 10 | -45 | 7 | 20 | 3600 | E | T4 | 2000 |
| TWAE407*100□BYZ0^00 | 400 | 100 | 0.8 | 10 | 150 | 10 | -50 | 10 | 35 | 4100 | E | T4 | 2000 |
| TWAE477M100□BYZ0^00 | 470 | 100 | 0.7 | 25 | 250 | 10 | -50 | 10 | 35 | 4100 | E | T4 | 2000 |
| TWAE757*100□BYZ0^00 | 750 | 100 | 0.6 | 30 | 150 | 5 | -60 | 30 | 80 | 6700 | E | T4 | 500 |
| 125 VDC at 85°C 85 VDC at 125°C 75 VDC at 200°C | | | | | | | | | | | | | |
| TWAB476*125□BYZ0^00 | 47 | 125 | 2.3 | 2 | 10 | 47 | -25 | 5 | 12 | 1650 | B | T2 | 1000 |
| TWAD826*125□BYZ0^00 | 82 | 125 | 2.8 | 12 | 48 | 50 | -30 | 15 | 17 | - | D | T3 | 2000 |
| TWAD107*125□BYZ0^00 | 100 | 125 | 1.8 | 3 | 25 | 35 | -35 | 5 | 12 | 2100 | D | T3 | 2000 |
| TWAE157*125□BYZ0^00 | 150 | 125 | 1.6 | 5 | 50 | 20 | -35 | 6 | 16 | 2750 | E | T4 | 2000 |
| TWAE227*125□BYZ0^00 | 220 | 125 | 1.4 | 10 | 50 | 12 | -40 | 8 | 15 | 3600 | E | T4 | 2000 |

All technical data relates to an ambient temperature of +25°C. Capacitance and DF are measured at 120Hz, 0.5RMS with DC bias of 2.2V. DCL is measured at rated voltage after 5 minutes.

NOTE: AVX reserves the rights to supply higher voltage rating in the same case size, to the same reliability standards.

$$DF = 2\pi f C \times (ESR)$$

$$2\pi = 6.28$$

$$f = 120\text{Hz}$$

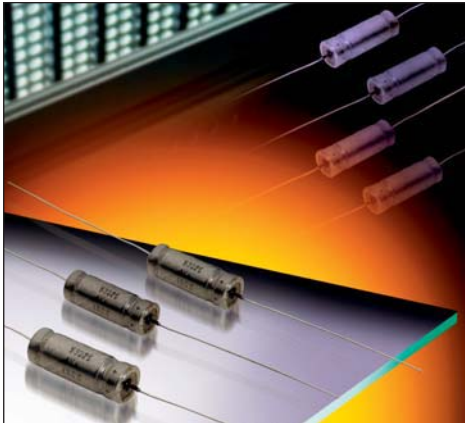
C = Actual measured capacitance

ESR = Actual measured ESR

TWS Electrolytic Tantalum Capacitor



DSCC 13017



Operating Temperature -55°C to 125°C

The TWS series, built to the requirements of DSCC 13017, represents a family of axial leaded wet tantalum capacitors that encompasses the high capacitance values of DSCC 93026 with additional mechanical stability for increased vibration capability.

Vibration Capabilities:

Vibration: MIL-PRF-39006, MIL-STD-202, Method 204, Test Condition E, 50 g

Random Vibration: MIL-PRF-39006, MIL-STD-202, Method 214, Test condition II-G, 27.78 g

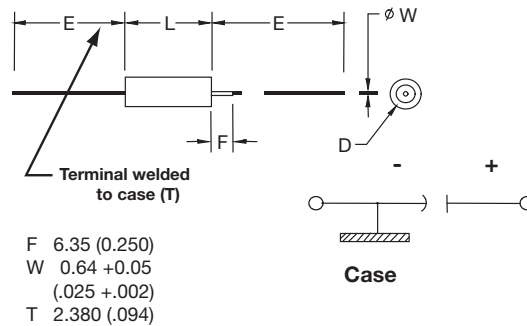
Shock: MIL-PRF-39006, MIL-STD-202, Method 213, Condition D, 500 g

Components built to DSCC 13017 also see enhanced thermal shock testing with an increase from the standard 30 cycles to 300 cycles.

In addition, this family includes reverse voltage testing in accordance with MIL-PRF-39006, with a maximum dc potential of -3 V.

Customized capacitance and voltage packages are possible and welcomed. Contact the factory about design possibilities beyond those contained in this datasheet.

OUTLINE DIMENSIONS



CASE DIMENSIONS: millimeters (inches)

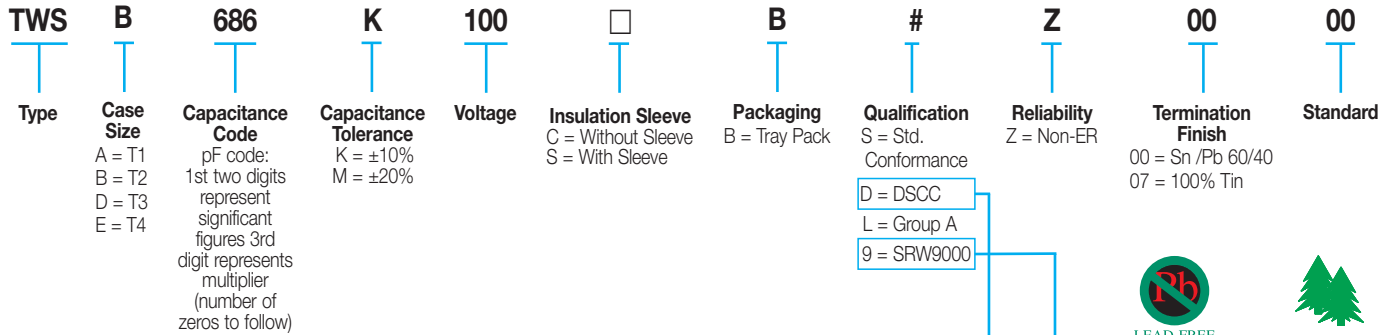
| DSCC Case Size | AVX Case Size | L | D | D | E |
|----------------|---------------|--------------------------------|--|-------------------------------|---------------|
| | | +0.79 (0.031) -0.41 (0.016) | Without Insulating Sleeve ±0.41 (0.016) | With Insulating Sleeve Max | ±6.35 (0.250) |
| T1 | A | 11.51 (0.453) | 4.78 (0.188) | 5.56 (0.219) | 38.10 (1.500) |
| T2 | B | 16.28 (0.641) | 7.14 (0.281) | 7.92 (0.312) | 57.15 (2.250) |
| T3 | D | 19.46 (0.766) | 9.52 (0.375) | 10.31 (0.406) | 57.15 (2.250) |
| T4 | E | 26.97 (1.062) | 9.52 (0.375) | 10.31 (0.406) | 57.15 (2.250) |

TWS Electrolytic Tantalum Capacitor

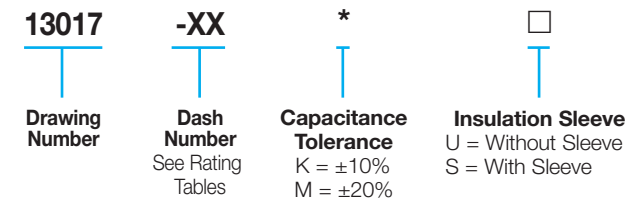


DSCC 13017

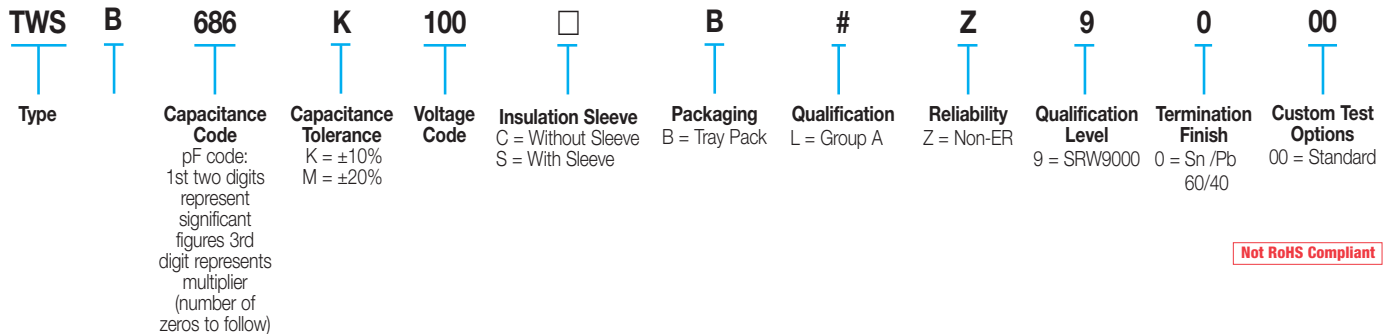
HOW TO ORDER AVX PART NUMBER:



DSCC PART IDENTIFICATION NUMBER (PIN):



SPACE LEVEL OPTIONS TO SRW9000*:



For RoHS compliant products, please select correct termination style.

Not RoHS Compliant

*Check with factory for availability and testing details.

RIPPLE CURRENT MULTIPLIERS vs. Frequency, temperature and applied voltage^{1/2/}

| Frequency of Applied Ripple Current | 120Hz | | | | 800Hz | | | | 1kHz | | | | |
|-------------------------------------|---------|------|------|------|-------|------|------|------|------|------|------|------|------|
| | ≤55 | 85 | 105 | 125 | ≤55 | 85 | 105 | 125 | ≤55 | 85 | 105 | 125 | |
| Ambient Still Air Temperature (°C) | ≤55 | 85 | 105 | 125 | ≤55 | 85 | 105 | 125 | ≤55 | 85 | 105 | 125 | |
| % of Rated Peak Voltage | 100% | 0.60 | 0.39 | - | - | 0.71 | 0.43 | - | - | 0.72 | 0.45 | - | - |
| 85°C | 90% | 0.60 | 0.46 | - | - | 0.71 | 0.55 | - | - | 0.72 | 0.55 | - | - |
| Rated | 80% | 0.60 | 0.52 | 0.35 | - | 0.71 | 0.62 | 0.42 | - | 0.72 | 0.62 | 0.42 | - |
| Peak | 70% | 0.60 | 0.58 | 0.44 | - | 0.71 | 0.69 | 0.52 | - | 0.72 | 0.70 | 0.52 | - |
| Voltage | 66-2/3% | 0.60 | 0.60 | 0.46 | 0.27 | 0.71 | 0.71 | 0.55 | 0.32 | 0.72 | 0.72 | 0.55 | 0.32 |

| Frequency of Applied Ripple Current | 10kHz | | | | 40kHz | | | | 100kHz | | | | |
|-------------------------------------|---------|------|------|------|-------|------|------|------|--------|------|------|------|------|
| | ≤55 | 85 | 105 | 125 | ≤55 | 85 | 105 | 125 | ≤55 | 85 | 105 | 125 | |
| Ambient Still Air Temperature (°C) | ≤55 | 85 | 105 | 125 | ≤55 | 85 | 105 | 125 | ≤55 | 85 | 105 | 125 | |
| % of Rated Peak Voltage | 100% | 0.88 | 0.55 | - | - | 1.00 | 0.63 | - | - | 1.10 | 0.69 | - | - |
| 85°C | 90% | 0.88 | 0.67 | - | - | 1.00 | 0.77 | - | - | 1.10 | 0.85 | - | - |
| Rated | 80% | 0.88 | 0.76 | 0.52 | - | 1.00 | 0.87 | 0.59 | - | 1.10 | 0.96 | 0.65 | - |
| Peak | 70% | 0.88 | 0.85 | 0.64 | - | 1.00 | 0.97 | 0.73 | - | 1.10 | 1.07 | 0.80 | - |
| Voltage | 66-2/3% | 0.88 | 0.88 | 0.68 | 0.40 | 1.00 | 1.00 | 0.77 | 0.45 | 1.10 | 1.10 | 0.85 | 0.50 |

1/ At 125°C the rated voltage of the capacitors decreases to 66 2/3 of the 85°C rated voltage.

2/ The peak of the applied ac ripple voltage plus the applied dc voltage must not exceed the dc voltage rating of the capacitors.



TWS Electrolytic Tantalum Capacitor



DSCC 13017

RATINGS & PART NUMBER REFERENCE

| AVX Part Number | DSCC Part Number | Cap (µF) 25°C at 120Hz | DC Rated Voltage (V) at 85°C | ESR max (ohms) at 120Hz | DC Leakage max (µA) | | Impedance max (Ohms) -55°C at 120Hz | Maximum Capacitance Change (%) | | | AC Ripple (mA rms) 85°C at 40kHz | Case Size | |
|--|------------------|------------------------|------------------------------|-------------------------|---------------------|----------------|-------------------------------------|--------------------------------|-------|--------|----------------------------------|-----------|------|
| | | | | | +25°C | +85°C & +125°C | | -55°C | +85°C | +125°C | | AVX | DSCC |
| 25 VDC at 85°C 15 VDC at 125°C | | | | | | | | | | | | | |
| TWSB567*025□B#Z0000 | 13017-02*□ | 560 | 25 | 0.83 | 2 | 10 | 12 | -65 | 14 | 18 | 2000 | B | T2 |
| TWSD128*025□B#Z0000 | 13017-03*□ | 1200 | 25 | 0.65 | 5 | 20 | 7 | -70 | 15 | 20 | 2400 | D | T3 |
| TWSE188*025□B#Z0000 | 13017-04*□ | 1800 | 25 | 0.5 | 6 | 25 | 7 | -72 | 15 | 20 | 3000 | E | T4 |
| 30 VDC at 85°C 20 VDC at 125°C | | | | | | | | | | | | | |
| TWSB477*030□B#Z0000 | 13017-06*□ | 470 | 30 | 0.85 | 2 | 10 | 15 | -65 | 14 | 18 | 1800 | B | T2 |
| TWSD108*030□B#Z0000 | 13017-07*□ | 1000 | 30 | 0.7 | 7 | 25 | 7 | -70 | 15 | 25 | 2200 | D | T3 |
| TWSE158*030□B#Z0000 | 13017-08*□ | 1500 | 30 | 0.6 | 12 | 35 | 6 | -72 | 15 | 25 | 2900 | E | T4 |
| 50 VDC at 85°C 30 VDC at 125°C | | | | | | | | | | | | | |
| TWSB227*050□B#Z0000 | 13017-10*□ | 220 | 50 | 0.9 | 2 | 10 | 17.5 | -50 | 8 | 15 | 1800 | B | T2 |
| TWSE687*050□B#Z0000 | 13017-12*□ | 680 | 50 | 0.7 | 5 | 40 | 8 | -58 | 10 | 20 | 2700 | E | T4 |
| 60V VDC at 85°C 40 VDC at 125°C | | | | | | | | | | | | | |
| TWSB157*060□B#Z0000 | 13017-14*□ | 150 | 60 | 1.1 | 2 | 10 | 20 | -40 | 8 | 15 | 1800 | B | T2 |
| TWSE567*060□B#Z0000 | 13017-16*□ | 560 | 60 | 0.8 | 5 | 40 | 10 | -58 | 8 | 15 | 2700 | E | T4 |
| 75V VDC at 85°C 50 VDC at 125°C | | | | | | | | | | | | | |
| TWSA336*075□B#Z0000 | 13017-17*□ | 33 | 75 | 2.5 | 1 | 5 | 66 | -25 | 5 | 9 | 1050 | A | T1 |
| TWSB117*075□B#Z0000 | 13017-18*□ | 110 | 75 | 1.3 | 2 | 10 | 24 | -35 | 6 | 10 | 1650 | B | T2 |
| TWSE477*075□B#Z0000 | 13017-20*□ | 470 | 75 | 0.9 | 5 | 50 | 12 | -50 | 6 | 10 | 2700 | E | T4 |
| 100 VDC at 85°C 65 VDC at 125°C | | | | | | | | | | | | | |
| TWSA156*100□B#Z0000 | 13017-21*□ | 15 | 100 | 3.5 | 1 | 5 | 125 | -18 | 3 | 10 | 1050 | A | T1 |
| TWSB686*100□B#Z0000 | 13017-22*□ | 68 | 100 | 2.1 | 2 | 10 | 37 | -30 | 4 | 12 | 1650 | B | T2 |
| TWSE227*100□B#Z0000 | 13017-24*□ | 220 | 100 | 1.2 | 5 | 50 | 15 | -40 | 6 | 12 | 2700 | E | T4 |

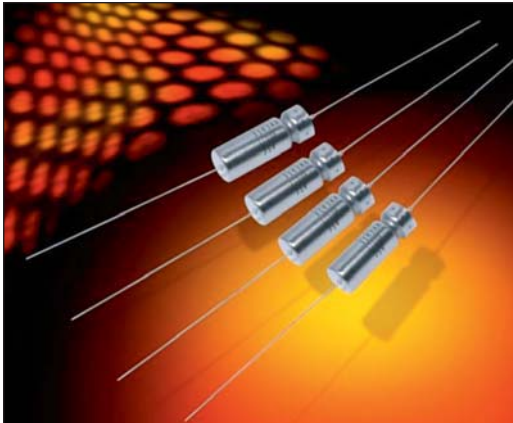
All technical data relates to an ambient temperature of +25°C. Capacitance and DF are measured at 120Hz, 0.5RMS with DC bias of 2.2V. DCL is measured at rated voltage after 5 minutes.

NOTE: AVX reserves the rights to supply higher voltage rating in the same case size, to the same reliability standards.

MIL-PRF-39006 Series



Military Conventional Wet Tantalum



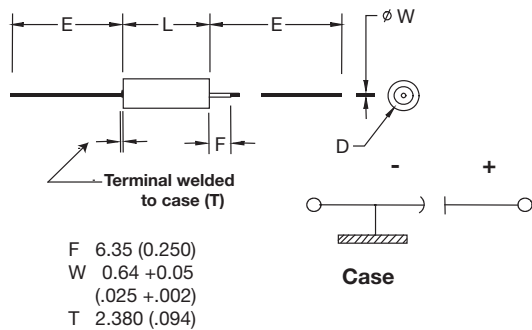
This data sheet contains the MIL-PRF-39006 ratings for which AVX is a qualified approved supplier. This will be continually updated as the qualification expands. For COTS-Plus equivalent ratings please refer to the TWC data sheet located on the website.

This design is an axial leaded tubular case. It includes a welded tantalum can and header assembly that provides a hermetic seal to withstand harsh environments. The 1000 hour failure rates of 1%, 0.1% and 0.01% correspond to "M", "P", and "R" respectively. For details on testing conditions please refer to MIL-PRF-39006.

Currently qualified M39006 ratings include T2-T4 case sizes:

| | M Level Reliability Dashes | P Level Reliability Dashes | R Level Reliability Dashes |
|-----------|-------------------------------|-------------------------------|-------------------------------|
| M39006/22 | 6V-100V | 6V-100V | 6V-100V |
| M39006/25 | 6V-100V | 6V-100V | 6V-100V |
| M39006/30 | 6V-100V | 6V-100V | 6V-100V |
| M39006/31 | 6V-100V | 6V-100V | 6V-100V |

OUTLINE DIMENSIONS



CASE DIMENSIONS: millimeters (inches)

| DSCC Case Size | AVX Case Size | L | D | | E |
|----------------------|---------------------|--------------------------------|-----------------------------|-----------------------|---------------|
| | | | Basic Case ±0.41 (0.016) | Insulated Case Max | |
| T1 | A | +0.79 (0.031) -0.41 (0.016) | 4.78 (0.188) | 5.56 (0.219) | ±6.35 (0.250) |
| T2 | B | 16.28 (0.641) | 7.14 (0.281) | 7.92 (0.312) | 57.15 (2.250) |
| T3 | D | 19.46 (0.766) | 9.52 (0.375) | 10.31 (0.406) | 57.15 (2.250) |
| T4 | E | 26.97 (1.062) | 9.52 (0.375) | 10.31 (0.406) | 57.15 (2.250) |

VOLTAGE RATINGS (Operating Temperature -55°C to 125°C)

| Voltage (DC) | | | | | | | | | | | | |
|----------------------------|-------|-----|-----|------|------|------|------|------|----|------|-----|-----|
| Rated Voltage: (V_r) | 85°C | 6 | 8 | 10 | 15 | 25 | 30 | 50 | 60 | 75 | 100 | 125 |
| Derated Voltage: (V_d) | 125°C | 4 | 5 | 6 | 10 | 15 | 20 | 30 | 40 | 50 | 65 | 85 |
| Surge Voltage: (V_s) | 85°C | 6.9 | 9.2 | 11.5 | 17.3 | 28.8 | 34.5 | 57.5 | 69 | 86.3 | 115 | 144 |

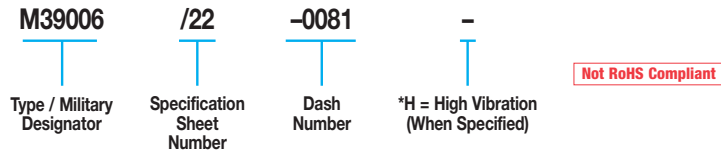


MIL-PRF-39006 Series



Military Conventional Wet Tantalum

HOW TO ORDER MILITARY M39006 PART NUMBER:



*High vibration qualified parts are currently under development. Please contact the factory for additional details and availability.

RIPPLE CURRENT MULTIPLIERS vs. Frequency, temperature and applied voltage^{1/2/3/}

| Frequency of Applied Ripple Current | | 120Hz | | | | 800Hz | | | | 1kHz | | | |
|-------------------------------------|---------|-------|------|------|------|-------|------|------|------|------|------|------|------|
| | | ≤55 | 85 | 105 | 125 | ≤55 | 85 | 105 | 125 | ≤55 | 85 | 105 | 125 |
| Ambient Still Air Temperature (°C) | | | | | | | | | | | | | |
| % of | 100% | 0.60 | 0.39 | – | – | 0.71 | 0.43 | – | – | 0.72 | 0.45 | – | – |
| 85°C | 90% | 0.60 | 0.46 | – | – | 0.71 | 0.55 | – | – | 0.72 | 0.55 | – | – |
| Rated | 80% | 0.60 | 0.52 | 0.35 | – | 0.71 | 0.62 | 0.42 | – | 0.72 | 0.62 | 0.42 | – |
| Peak | 70% | 0.60 | 0.58 | 0.44 | – | 0.71 | 0.69 | 0.52 | – | 0.72 | 0.70 | 0.52 | – |
| Voltage | 66-2/3% | 0.60 | 0.60 | 0.46 | 0.27 | 0.71 | 0.71 | 0.55 | 0.32 | 0.72 | 0.72 | 0.55 | 0.32 |

| Frequency of Applied Ripple Current | | 10kHz | | | | 40kHz | | | | 100kHz | | | |
|-------------------------------------|---------|-------|------|------|------|-------|------|------|------|--------|------|------|------|
| | | ≤55 | 85 | 105 | 125 | ≤55 | 85 | 105 | 125 | ≤55 | 85 | 105 | 125 |
| Ambient Still Air Temperature (°C) | | | | | | | | | | | | | |
| % of | 100% | 0.88 | 0.55 | – | – | 1.00 | 0.63 | – | – | 1.10 | 0.69 | – | – |
| 85°C | 90% | 0.88 | 0.67 | – | – | 1.00 | 0.77 | – | – | 1.10 | 0.85 | – | – |
| Rated | 80% | 0.88 | 0.76 | 0.52 | – | 1.00 | 0.87 | 0.59 | – | 1.10 | 0.96 | 0.65 | – |
| Peak | 70% | 0.88 | 0.85 | 0.64 | – | 1.00 | 0.97 | 0.73 | – | 1.10 | 1.07 | 0.80 | – |
| Voltage | 66-2/3% | 0.88 | 0.88 | 0.68 | 0.40 | 1.00 | 1.00 | 0.77 | 0.45 | 1.10 | 1.10 | 0.85 | 0.50 |

1/ At 125°C the rated voltage of the capacitors decreases to 66 2/3 of the 85°C rated voltage.

2/ The peak of the applied ac ripple voltage plus the applied dc voltage must not exceed the dc voltage rating of the capacitors.

3/ The ripple current listed in the parametric tables represents a rating calculated by using a maximum internal temperature rise (ΔT) at 50°C at 40 kHz at 85°C ambient temperature, with a maximum peak rated voltage of 66.67 percent of the 85°C peak voltage rating.



MIL-PRF-39006 Series



Military Conventional Wet Tantalum

M39006 /22 RATINGS AND DASH NUMBER REFERENCE

| M39006/22 Dashes | | | Tolerance ± (%) | Cap (µF) 25°C at 120Hz | DC Rated Voltage (V) at 85°C | DC Leakage (µA) | | DF max (%) | ESR max (Ohms) at 120Hz | Impedance max (Ohms) -55°C at 120Hz | Maximum Capacitance Change (%) | | | AC Ripple (mA rms) 85°C at 40kHz | Case Size |
|------------------|---------|---------|-----------------|------------------------|------------------------------|-----------------|----------------|------------|-------------------------|-------------------------------------|--------------------------------|-------|--------|----------------------------------|-----------|
| M Level | P Level | R Level | | | | +25°C | +85°C & +125°C | | | | -55°C | +85°C | +125°C | | |
| -0007 | -0227 | -0447 | 20 | 140 | 6 | 1 | 3 | 21 | 1.99 | 40 | -40 | 14 | 16 | 1200 | T2 |
| -0008 | -0228 | -0448 | 10 | | | | | | | | | | | | |
| -0009 | -0229 | -0449 | 5 | | | | | | | | | | | | |
| -0010 | -0230 | -0450 | 20 | 270 | 6 | 1 | 6.5 | 45 | 2.21 | 25 | -44 | 17.5 | 20 | 1375 | T2 |
| -0011 | -0231 | -0451 | 10 | | | | | | | | | | | | |
| -0012 | -0232 | -0452 | 5 | | | | | | | | | | | | |
| -0013 | -0233 | -0453 | 20 | 330 | 6 | 2 | 7.9 | 36 | 1.45 | 20 | -44 | 14 | 16 | 1800 | T3 |
| -0014 | -0234 | -0454 | 10 | | | | | | | | | | | | |
| -0015 | -0235 | -0455 | 5 | | | | | | | | | | | | |
| -0016 | -0236 | -0456 | 20 | 560 | 6 | 2 | 13 | 55 | 1.3 | 25 | -64 | 17.5 | 20 | 1900 | T3 |
| -0017 | -0237 | -0457 | 10 | | | | | | | | | | | | |
| -0018 | -0238 | -0458 | 5 | | | | | | | | | | | | |
| -0019 | -0239 | -0459 | 20 | 1200 | 6 | 3 | 14 | 90 | 1 | 20 | -80 | 25 | 25 | 2265 | T4 |
| -0020 | -0240 | -0460 | 10 | | | | | | | | | | | | |
| -0021 | -0241 | -0461 | 5 | | | | | | | | | | | | |
| -0022 | -0242 | -0462 | 20 | 120 | 8 | 1 | 2 | 20 | 2.21 | 50 | -44 | 17.5 | 20 | 1220 | T2 |
| -0023 | -0243 | -0463 | 10 | | | | | | | | | | | | |
| -0024 | -0244 | -0464 | 5 | | | | | | | | | | | | |
| -0025 | -0245 | -0465 | 20 | 220 | 8 | 1 | 7 | 37 | 2.23 | 30 | -44 | 17.5 | 20 | 1370 | T2 |
| -0026 | -0246 | -0466 | 10 | | | | | | | | | | | | |
| -0027 | -0247 | -0467 | 5 | | | | | | | | | | | | |
| -0028 | -0248 | -0468 | 20 | 290 | 8 | 2 | 6 | 34 | 1.56 | 25 | -64 | 17.5 | 20 | 1770 | T3 |
| -0029 | -0249 | -0469 | 10 | | | | | | | | | | | | |
| -0030 | -0250 | -0470 | 5 | | | | | | | | | | | | |
| -0031 | -0251 | -0471 | 20 | 430 | 8 | 2 | 14 | 46 | 1.42 | 25 | -64 | 17.5 | 20 | 1825 | T3 |
| -0032 | -0252 | -0472 | 10 | | | | | | | | | | | | |
| -0033 | -0253 | -0473 | 5 | | | | | | | | | | | | |
| -0034 | -0254 | -0474 | 20 | 850 | 8 | 4 | 16 | 60 | 0.94 | 22 | -80 | 25 | 25 | 2330 | T4 |
| -0035 | -0255 | -0475 | 10 | | | | | | | | | | | | |
| -0036 | -0256 | -0476 | 5 | | | | | | | | | | | | |
| -0037 | -0257 | -0477 | 20 | 100 | 10 | 1 | 4 | 15 | 1.99 | 60 | -36 | 14 | 16 | 1200 | T2 |
| -0038 | -0258 | -0478 | 10 | | | | | | | | | | | | |
| -0039 | -0259 | -0479 | 5 | | | | | | | | | | | | |
| -0040 | -0260 | -0480 | 20 | 180 | 10 | 1 | 7 | 30 | 2.21 | 40 | -36 | 14 | 16 | 1.365 | T2 |
| -0041 | -0261 | -0481 | 10 | | | | | | | | | | | | |
| -0042 | -0262 | -0482 | 5 | | | | | | | | | | | | |
| -0043 | -0263 | -0483 | 20 | 250 | 10 | 2 | 10 | 30 | 1.59 | 30 | -40 | 14 | 16 | 1720 | T3 |
| -0044 | -0264 | -0484 | 10 | | | | | | | | | | | | |
| -0045 | -0265 | -0485 | 5 | | | | | | | | | | | | |
| -0046 | -0266 | -0486 | 20 | 390 | 10 | 2 | 16 | 44 | 1.5 | 25 | -64 | 17.5 | 20 | 1800 | T3 |
| -0047 | -0267 | -0487 | 10 | | | | | | | | | | | | |
| -0048 | -0268 | -0488 | 5 | | | | | | | | | | | | |
| -0049 | -0269 | -0489 | 20 | 750 | 10 | 4 | 16 | 50 | 0.88 | 23 | -80 | 25 | 25 | 2360 | T4 |
| -0050 | -0270 | -0490 | 10 | | | | | | | | | | | | |
| -0051 | -0271 | -0491 | 5 | | | | | | | | | | | | |
| -0052 | -0272 | -0492 | 20 | 70 | 15 | 1 | 4 | 13 | 2.46 | 75 | -28 | 14 | 16 | 1150 | T2 |
| -0053 | -0273 | -0493 | 10 | | | | | | | | | | | | |
| -0054 | -0274 | -0494 | 5 | | | | | | | | | | | | |
| -0055 | -0275 | -0495 | 20 | 120 | 15 | 1 | 7 | 18 | 1.99 | 50 | -28 | 17.5 | 20 | 1450 | T2 |
| -0056 | -0276 | -0496 | 10 | | | | | | | | | | | | |
| -0057 | -0277 | -0497 | 5 | | | | | | | | | | | | |
| -0058 | -0278 | -0498 | 20 | 170 | 15 | 2 | 10 | 25 | 1.95 | 35 | -32 | 14 | 16 | 1480 | T3 |
| -0059 | -0279 | -0499 | 10 | | | | | | | | | | | | |
| -0060 | -0280 | -0500 | 5 | | | | | | | | | | | | |
| -0061 | -0281 | -0501 | 20 | 270 | 15 | 2 | 16 | 32 | 1.57 | 30 | -56 | 17.5 | 20 | 1740 | T3 |
| -0062 | -0282 | -0502 | 10 | | | | | | | | | | | | |
| -0063 | -0283 | -0503 | 5 | | | | | | | | | | | | |
| -0064 | -0284 | -0504 | 20 | 540 | 15 | 6 | 24 | 40 | 0.98 | 23 | -80 | 25 | 25 | 2330 | T4 |
| -0065 | -0285 | -0505 | 10 | | | | | | | | | | | | |
| -0066 | -0286 | -0506 | 5 | | | | | | | | | | | | |
| -0067 | -0287 | -0507 | 20 | 50 | 25 | 1 | 2 | 11 | 2.92 | 70 | -28 | 13 | 15 | 1130 | T2 |
| -0068 | -0288 | -0508 | 10 | | | | | | | | | | | | |
| -0069 | -0289 | -0509 | 5 | | | | | | | | | | | | |
| -0070 | -0290 | -0510 | 20 | 100 | 25 | 1 | 10 | 15 | 1.99 | 50 | -28 | 13 | 15 | 1435 | T2 |
| -0071 | -0291 | -0511 | 10 | | | | | | | | | | | | |
| -0072 | -0292 | -0512 | 5 | | | | | | | | | | | | |
| -0073 | -0293 | -0513 | 20 | 120 | 25 | 2 | 6 | 21 | 2.32 | 38 | -32 | 13 | 15 | 1450 | T3 |
| -0074 | -0294 | -0514 | 10 | | | | | | | | | | | | |
| -0075 | -0295 | -0515 | 5 | | | | | | | | | | | | |
| -0076 | -0296 | -0516 | 20 | 180 | 25 | 2 | 18 | 26 | 1.92 | 32 | -48 | 13 | 15 | 1525 | T3 |
| -0077 | -0297 | -0517 | 10 | | | | | | | | | | | | |
| -0078 | -0298 | -0518 | 5 | | | | | | | | | | | | |
| -0079 | -0299 | -0519 | 20 | | | | | | | | | | | | |
| -0080 | -0300 | -0520 | 10 | | | | | | | | | | | | |
| -0081 | -0301 | -0521 | 5 | | | | | | | | | | | | |
| -0082 | -0302 | -0522 | 20 | | | | | | | | | | | | |
| -0083 | -0303 | -0523 | 10 | | | | | | | | | | | | |
| -0084 | -0304 | -0524 | 5 | | | | | | | | | | | | |
| -0085 | -0305 | -0525 | 20 | | | | | | | | | | | | |
| -0086 | -0306 | -0526 | 10 | | | | | | | | | | | | |
| -0087 | -0307 | -0527 | 5 | | | | | | | | | | | | |
| -0088 | -0308 | -0528 | 20 | | | | | | | | | | | | |
| -0089 | -0309 | -0529 | 10 | | | | | | | | | | | | |
| -0090 | -0310 | -0530 | 5 | | | | | | | | | | | | |
| -0091 | -0311 | -0531 | 20 | | | | | | | | | | | | |
| -0092 | -0312 | -0532 | 10 | | | | | | | | | | | | |
| -0093 | -0313 | -0533 | 5 | | | | | | | | | | | | |
| -0094 | -0314 | -0534 | 20 | | | | | | | | | | | | |
| -0095 | -0315 | -0535 | 10 | | | | | | | | | | | | |
| -0096 | -0316 | -0536 | 5 | | | | | | | | | | | | |
| -0097 | -0317 | -0537 | 20 | | | | | | | | | | | | |
| -0098 | -0318 | -0538 | 10 | | | | | | | | | | | | |
| -0099 | -0319 | -0539 | 5 | | | | | | | | | | | | |

All technical data relates to an ambient temperature of +25°C. Capacitance and DF are measured at 120Hz, 0.5RMS with DC bias of 2.2V. DCL is measured at rated voltage after 5 minutes.



MIL-PRF-39006 Series



Military Conventional Wet Tantalum

| M39006/22 Dashes | | | Tolerance ± (%) | Cap (µF) 25°C at 120Hz | DC Rated Voltage (V) at 85°C | DC Leakage (µA) | | DF max (%) | ESR max (Ohms) at 120Hz | Impedance max (Ohms) -55°C at 120Hz | Maximum Capacitance Change (%) | | | AC Ripple (mA rms) 85°C at 40kHz | Case Size |
|------------------|---------|---------|-----------------|------------------------|------------------------------|-----------------|----------------|------------|-------------------------|-------------------------------------|--------------------------------|-------|--------|----------------------------------|-----------|
| M Level | P Level | R Level | | | | +25°C | +85°C & +125°C | | | | -55°C | +85°C | +125°C | | |
| -0099 | -0319 | -0539 | 20 | 350 | 25 | 7 | 28 | 35 | 1.33 | 24 | -70 | 25 | 25 | 1970 | T4 |
| -0100 | -0320 | -0540 | 10 | | | | | | | | | | | | |
| -0107 | -0327 | -0547 | 20 | 40 | 30 | 1 | 5 | 10 | 3.32 | 65 | -24 | 10.5 | 12 | 1120 | T2 |
| -0108 | -0328 | -0548 | 10 | | | | | | | | | | | | |
| -0109 | -0329 | -0549 | 5 | | | | | | | | | | | | |
| -0110 | -0330 | -0550 | 20 | 68 | 30 | 1 | 8 | 13 | 2.54 | 60 | -24 | 13 | 15 | 1285 | T2 |
| -0111 | -0331 | -0551 | 10 | | | | | | | | | | | | |
| -0112 | -0332 | -0552 | 5 | | | | | | | | | | | | |
| -0113 | -0333 | -0553 | 20 | 100 | 30 | 2 | 12 | 17 | 2.26 | 40 | -28 | 10.5 | 12 | 1450 | T3 |
| -0114 | -0334 | -0554 | 10 | | | | | | | | | | | | |
| -0115 | -0335 | -0555 | 5 | | | | | | | | | | | | |
| -0116 | -0336 | -0556 | 20 | 150 | 30 | 2 | 18 | 23 | 2.03 | 35 | -48 | 13 | 15 | 1525 | T3 |
| -0117 | -0337 | -0557 | 10 | | | | | | | | | | | | |
| -0118 | -0338 | -0558 | 5 | | | | | | | | | | | | |
| -0119 | -0339 | -0559 | 20 | 300 | 30 | 8 | 32 | 31 | 1.37 | 25 | -60 | 25 | 25 | 1950 | T4 |
| -0120 | -0340 | -0560 | 10 | | | | | | | | | | | | |
| -0127 | -0347 | -0567 | 20 | | | | | | | | | | | | |
| -0128 | -0348 | -0568 | 10 | | | | | | | | | | | | |
| -0129 | -0349 | -0569 | 5 | | | | | | | | | | | | |
| -0130 | -0350 | -0570 | 20 | 47 | 50 | 1 | 9 | 11 | 3.11 | 70 | -28 | 13 | 15 | 1155 | T2 |
| -0131 | -0351 | -0571 | 10 | | | | | | | | | | | | |
| -0132 | -0352 | -0572 | 5 | | | | | | | | | | | | |
| -0133 | -0353 | -0573 | 20 | 60 | 50 | 2 | 12 | 12 | 2.65 | 45 | -16 | 10.5 | 12 | 1335 | T3 |
| -0134 | -0354 | -0574 | 10 | | | | | | | | | | | | |
| -0135 | -0355 | -0575 | 5 | | | | | | | | | | | | |
| -0136 | -0356 | -0576 | 20 | 82 | 50 | 2 | 16 | 15 | 2.43 | 45 | -32 | 13 | 15 | 1400 | T3 |
| -0137 | -0357 | -0577 | 10 | | | | | | | | | | | | |
| -0138 | -0358 | -0578 | 5 | | | | | | | | | | | | |
| -0139 | -0359 | -0579 | 20 | 160 | 50 | 8 | 32 | 17 | 1.41 | 27 | -50 | 25 | 25 | 1900 | T4 |
| -0140 | -0360 | -0580 | 10 | | | | | | | | | | | | |
| -0147 | -0367 | -0587 | 20 | | | | | | | | | | | | |
| -0148 | -0368 | -0588 | 10 | | | | | | | | | | | | |
| -0149 | -0369 | -0589 | 5 | | | | | | | | | | | | |
| -0150 | -0370 | -0590 | 20 | 39 | 60 | 1 | 9 | 10 | 3.4 | 90 | -28 | 10.5 | 12 | 1110 | T2 |
| -0151 | -0371 | -0591 | 10 | | | | | | | | | | | | |
| -0152 | -0372 | -0592 | 5 | | | | | | | | | | | | |
| -0153 | -0373 | -0593 | 20 | 50 | 60 | 2 | 12 | 10 | 2.65 | 50 | -16 | 10.5 | 12 | 1330 | T3 |
| -0154 | -0374 | -0594 | 10 | | | | | | | | | | | | |
| -0155 | -0375 | -0595 | 5 | | | | | | | | | | | | |
| -0156 | -0376 | -0596 | 20 | 68 | 60 | 2 | 16 | 13 | 2.54 | 50 | -32 | 10.5 | 12 | 1365 | T3 |
| -0157 | -0377 | -0597 | 10 | | | | | | | | | | | | |
| -0158 | -0378 | -0598 | 5 | | | | | | | | | | | | |
| -0159 | -0379 | -0599 | 20 | 140 | 60 | 8 | 32 | 16 | 1.52 | 28 | -40 | 20 | 20 | 1850 | T4 |
| -0160 | -0380 | -0600 | 10 | | | | | | | | | | | | |
| -0167 | -0387 | -0607 | 20 | | | | | | | | | | | | |
| -0168 | -0388 | -0608 | 10 | | | | | | | | | | | | |
| -0169 | -0389 | -0609 | 5 | | | | | | | | | | | | |
| -0170 | -0390 | -0610 | 20 | 33 | 75 | 1 | 10 | 10 | 4.02 | 90 | -24 | 10.5 | 15 | 1000 | T2 |
| -0171 | -0391 | -0611 | 10 | | | | | | | | | | | | |
| -0172 | -0392 | -0612 | 5 | | | | | | | | | | | | |
| -0173 | -0393 | -0613 | 20 | 40 | 75 | 2 | 12 | 9 | 2.99 | 60 | -16 | 10.5 | 12 | 1250 | T3 |
| -0174 | -0394 | -0614 | 10 | | | | | | | | | | | | |
| -0175 | -0395 | -0615 | 5 | | | | | | | | | | | | |
| -0176 | -0396 | -0616 | 20 | 56 | 75 | 2 | 17 | 11 | 2.61 | 60 | -28 | 10.5 | 15 | 1335 | T3 |
| -0177 | -0397 | -0617 | 10 | | | | | | | | | | | | |
| -0178 | -0398 | -0618 | 5 | | | | | | | | | | | | |
| -0179 | -0399 | -0619 | 20 | 110 | 75 | 9 | 36 | 12 | 1.45 | 29 | -35 | 20 | 20 | 1850 | T4 |
| -0180 | -0400 | -0620 | 10 | | | | | | | | | | | | |
| -0187 | -0407 | -0627 | 20 | | | | | | | | | | | | |
| -0188 | -0408 | -0628 | 10 | | | | | | | | | | | | |
| -0189 | -0409 | -0629 | 5 | | | | | | | | | | | | |
| -0190 | -0410 | -0630 | 20 | 22 | 100 | 1 | 9 | 7.5 | 4.52 | 100 | -16 | 8 | 8 | 965 | T2 |
| -0191 | -0411 | -0631 | 10 | | | | | | | | | | | | |
| -0192 | -0412 | -0632 | 5 | | | | | | | | | | | | |
| -0193 | -0413 | -0633 | 20 | 30 | 100 | 2 | 12 | 7 | 3.1 | 80 | -16 | 8 | 8 | 1240 | T3 |
| -0194 | -0414 | -0634 | 10 | | | | | | | | | | | | |
| -0195 | -0415 | -0635 | 5 | | | | | | | | | | | | |
| -0196 | -0416 | -0636 | 20 | 43 | 100 | 2 | 17 | 8.5 | 2.62 | 70 | -20 | 8 | 8 | 1335 | T3 |
| -0197 | -0417 | -0637 | 10 | | | | | | | | | | | | |
| -0198 | -0418 | -0638 | 5 | | | | | | | | | | | | |
| -0199 | -0419 | -0639 | 20 | 86 | 100 | 9 | 36 | 10 | 1.54 | 30 | -25 | 15 | 15 | 1800 | T4 |
| -0200 | -0420 | -0640 | 10 | | | | | | | | | | | | |

All technical data relates to an ambient temperature of +25°C. Capacitance and DF are measured at 120Hz, 0.5RMS with DC bias of 2.2V. DCL is measured at rated voltage after 5 minutes.



MIL-PRF-39006 Series



Military Conventional Wet Tantalum

M39006/25 RATINGS AND DASH NUMBER REFERENCE

| M39006/25 Dashes | | | Tolerance ± (%) | Cap (µF) 25°C at 120Hz | DC Rated Voltage (V) at 85°C | DC Leakage (µA) | | DF max (%) | ESR max (Ohms) at 120Hz | Impedance max (Ohms) -55°C at 120Hz | Maximum Capacitance Change (%) | | | AC Ripple (mA rms) 85°C at 40kHz | Case Size |
|------------------|---------|---------|-----------------|------------------------|------------------------------|-----------------|----------------|------------|-------------------------|-------------------------------------|--------------------------------|-------|--------|----------------------------------|-----------|
| M Level | P Level | R Level | | | | +25°C | +85°C & +125°C | | | | -55°C | +85°C | +125°C | | |
| -0003 | -0091 | -0179 | 20 | 820 | 6 | 3 | 14 | 155 | 2.51 | 18 | -88 | 16 | 20 | 1500 | T2 |
| -0004 | -0092 | -0180 | 10 | | | | | | | | | | | | |
| -0005 | -0093 | -0181 | 20 | 1500 | 6 | 5 | 20 | 172 | 1.52 | 18 | -90 | 20 | 25 | 1900 | T3 |
| -0006 | -0094 | -0182 | 10 | | | | | | | | | | | | |
| -0007 | -0095 | -0183 | 20 | 2200 | 6 | 6 | 24 | 170 | 1.03 | 13 | -90 | 25 | 30 | 2300 | T4 |
| -0008 | -0096 | -0184 | 10 | | | | | | | | | | | | |
| -0011 | -0099 | -0187 | 20 | 680 | 8 | 3 | 14 | 130 | 2.54 | 22 | -83 | 16 | 20 | 1500 | T2 |
| -0012 | -0100 | -0188 | 10 | | | | | | | | | | | | |
| -0013 | -0101 | -0189 | 20 | 1500 | 8 | 5 | 20 | 170 | 1.5 | 18 | -90 | 20 | 25 | 1900 | T3 |
| -0014 | -0102 | -0190 | 10 | | | | | | | | | | | | |
| -0015 | -0103 | -0191 | 20 | 1800 | 8 | 7 | 25 | 138 | 1.02 | 14 | -90 | 25 | 30 | 2300 | T4 |
| -0016 | -0104 | -0192 | 10 | | | | | | | | | | | | |
| -0019 | -0107 | -0195 | 20 | 560 | 10 | 3 | 16 | 106 | 2.51 | 27 | -77 | 16 | 20 | 1450 | T2 |
| -0020 | -0108 | -0196 | 10 | | | | | | | | | | | | |
| -0021 | -0109 | -0197 | 20 | 1200 | 10 | 5 | 20 | 137 | 1.51 | 18 | -88 | 20 | 25 | 1850 | T3 |
| -0022 | -0110 | -0198 | 10 | | | | | | | | | | | | |
| -0023 | -0111 | -0199 | 20 | 1500 | 10 | 7 | 25 | 114 | 1.01 | 15 | -88 | 25 | 30 | 2300 | T4 |
| -0024 | -0112 | -0200 | 10 | | | | | | | | | | | | |
| -0027 | -0115 | -0203 | 20 | 390 | 15 | 3 | 16 | 74 | 2.52 | 31 | -66 | 16 | 20 | 1450 | T2 |
| -0028 | -0116 | -0204 | 10 | | | | | | | | | | | | |
| -0029 | -0117 | -0205 | 20 | 820 | 15 | 6 | 24 | 111 | 1.8 | 22 | -77 | 20 | 25 | 1800 | T3 |
| -0030 | -0118 | -0206 | 10 | | | | | | | | | | | | |
| -0031 | -0119 | -0207 | 20 | 1000 | 15 | 8 | 32 | 92 | 1.22 | 17 | -77 | 25 | 30 | 2300 | T4 |
| -0032 | -0120 | -0208 | 10 | | | | | | | | | | | | |
| -0035 | -0123 | -0211 | 20 | 270 | 25 | 3 | 16 | 55 | 2.7 | 33 | -62 | 13 | 16 | 1400 | T2 |
| -0036 | -0124 | -0212 | 10 | | | | | | | | | | | | |
| -0037 | -0125 | -0213 | 20 | 560 | 25 | 7 | 28 | 76 | 1.8 | 24 | -72 | 20 | 25 | 1750 | T3 |
| -0038 | -0126 | -0214 | 10 | | | | | | | | | | | | |
| -0039 | -0127 | -0215 | 20 | 680 | 25 | 8 | 32 | 63 | 1.23 | 19 | -72 | 25 | 30 | 2100 | T4 |
| -0040 | -0128 | -0216 | 10 | | | | | | | | | | | | |
| -0043 | -0131 | -0219 | 20 | 220 | 30 | 3 | 16 | 42 | 2.53 | 36 | -60 | 13 | 16 | 1200 | T2 |
| -0044 | -0132 | -0220 | 10 | | | | | | | | | | | | |
| -0045 | -0133 | -0221 | 20 | 470 | 30 | 8 | 32 | 64 | 1.81 | 25 | -65 | 20 | 25 | 1500 | T3 |
| -0046 | -0134 | -0222 | 10 | | | | | | | | | | | | |
| -0047 | -0135 | -0223 | 20 | 560 | 30 | 9 | 36 | 55 | 1.3 | 20 | -65 | 25 | 30 | 2000 | T4 |
| -0048 | -0136 | -0224 | 10 | | | | | | | | | | | | |
| -0051 | -0139 | -0227 | 20 | 120 | 50 | 4 | 24 | 22.5 | 2.49 | 49 | -42 | 12 | 15 | 1200 | T2 |
| -0052 | -0140 | -0228 | 10 | | | | | | | | | | | | |
| -0053 | -0141 | -0229 | 20 | 270 | 50 | 8 | 32 | 37 | 1.82 | 29 | -46 | 20 | 25 | 1450 | T3 |
| -0054 | -0142 | -0230 | 10 | | | | | | | | | | | | |
| -0055 | -0143 | -0231 | 20 | 330 | 50 | 9 | 36 | 38 | 1.53 | 22 | -46 | 25 | 30 | 1900 | T4 |
| -0056 | -0144 | -0232 | 10 | | | | | | | | | | | | |
| -0059 | -0147 | -0235 | 20 | 100 | 60 | 4 | 20 | 19 | 2.52 | 54 | -36 | 12 | 15 | 1100 | T2 |
| -0060 | -0148 | -0236 | 10 | | | | | | | | | | | | |
| -0061 | -0149 | -0237 | 20 | 220 | 60 | 8 | 32 | 30 | 1.81 | 29 | -40 | 16 | 20 | 1400 | T3 |
| -0062 | -0150 | -0238 | 10 | | | | | | | | | | | | |
| -0063 | -0151 | -0239 | 20 | 270 | 60 | 9 | 36 | 27 | 1.33 | 23 | -45 | 20 | 25 | 1850 | T4 |
| -0064 | -0152 | -0240 | 10 | | | | | | | | | | | | |
| -0067 | -0155 | -0243 | 20 | 82 | 75 | 4 | 24 | 15.2 | 2.46 | 63 | -30 | 12 | 15 | 1000 | T2 |
| -0068 | -0156 | -0244 | 10 | | | | | | | | | | | | |
| -0069 | -0157 | -0245 | 20 | 180 | 75 | 9 | 36 | 24.4 | 2.23 | 30 | -35 | 16 | 20 | 1300 | T3 |
| -0070 | -0158 | -0246 | 10 | | | | | | | | | | | | |
| -0071 | -0159 | -0247 | 20 | 220 | 75 | 10 | 40 | 37 | 1.8 | 24 | -40 | 20 | 25 | 1800 | T4 |
| -0072 | -0160 | -0248 | 10 | | | | | | | | | | | | |
| -0075 | -0163 | -0251 | 20 | 39 | 100 | 5 | 24 | 10.4 | 3.54 | 80 | -20 | 12 | 15 | 1300 | T2 |
| -0076 | -0164 | -0252 | 10 | | | | | | | | | | | | |
| -0077 | -0165 | -0253 | 20 | 68 | 100 | 10 | 40 | 11.3 | 2.21 | 40 | -30 | 14 | 16 | 1600 | T3 |
| -0078 | -0166 | -0254 | 10 | | | | | | | | | | | | |
| -0079 | -0167 | -0255 | 20 | 120 | 100 | 12 | 48 | 25 | 2.76 | 30 | -35 | 15 | 17 | 2000 | T4 |
| -0080 | -0168 | -0256 | 10 | | | | | | | | | | | | |

All technical data relates to an ambient temperature of +25°C. Capacitance and DF are measured at 120Hz, 0.5RMS with DC bias of 2.2V. DCL is measured at rated voltage after 5 minutes.

MIL-PRF-39006 Series



Military Conventional Wet Tantalum

M39006 /30 RATINGS AND DASH NUMBER REFERENCE

| M39006/30 Dashes | | | Tolerance ± (%) | Cap (µF) 25°C at 120Hz | DC Rated Voltage (V) at 85°C | DC Leakage (µA) | | DF max (%) | ESR max (Ohms) at 120Hz | Impedance max (Ohms) -55°C at 120Hz | Maximum Capacitance Change (%) | | | AC Ripple (mA rms) 85°C at 40kHz | Case Size |
|------------------|---------|---------|-----------------|------------------------|------------------------------|-----------------|----------------|------------|-------------------------|-------------------------------------|--------------------------------|-------|--------|----------------------------------|-----------|
| M Level | P Level | R Level | | | | +25°C | +85°C & +125°C | | | | -55°C | +85°C | +125°C | | |
| -0007 | -0227 | -0447 | 20 | 140 | 6 | 1 | 3 | 10.5 | 0.99 | 40 | -40 | 14 | 16 | 1200 | T2 |
| -0008 | -0228 | -0448 | 10 | | | | | | | | | | | | |
| -0009 | -0229 | -0449 | 5 | | | | | | | | | | | | |
| -0010 | -0230 | -0450 | 20 | 270 | 6 | 1 | 6.5 | 22.5 | 1.11 | 25 | -44 | 17.5 | 20 | 1375 | T2 |
| -0011 | -0231 | -0451 | 10 | | | | | | | | | | | | |
| -0012 | -0232 | -0452 | 5 | | | | | | | | | | | | |
| -0013 | -0233 | -0453 | 20 | 330 | 6 | 2 | 7.9 | 18 | 0.73 | 20 | -44 | 14 | 16 | 1800 | T3 |
| -0014 | -0234 | -0454 | 10 | | | | | | | | | | | | |
| -0015 | -0235 | -0455 | 5 | | | | | | | | | | | | |
| -0016 | -0236 | -0456 | 20 | 560 | 6 | 2 | 13 | 27.5 | 0.65 | 25 | -64 | 17.5 | 20 | 1900 | T3 |
| -0017 | -0237 | -0457 | 10 | | | | | | | | | | | | |
| -0018 | -0238 | -0458 | 5 | | | | | | | | | | | | |
| -0019 | -0239 | -0459 | 20 | 1200 | 6 | 3 | 14 | 45 | 0.5 | 20 | -80 | 25 | 25 | 2265 | T4 |
| -0020 | -0240 | -0460 | 10 | | | | | | | | | | | | |
| -0027 | -0247 | -0467 | 20 | | | | | | | | | | | | |
| -0028 | -0248 | -0468 | 10 | 120 | 8 | 1 | 2 | 10 | 1.11 | 50 | -44 | 17.5 | 20 | 1220 | T2 |
| -0029 | -0249 | -0469 | 5 | | | | | | | | | | | | |
| -0030 | -0250 | -0470 | 20 | | | | | | | | | | | | |
| -0031 | -0251 | -0471 | 10 | 220 | 8 | 1 | 7 | 18.5 | 1.12 | 30 | -44 | 17.5 | 20 | 1370 | T2 |
| -0032 | -0252 | -0472 | 5 | | | | | | | | | | | | |
| -0033 | -0253 | -0473 | 20 | | | | | | | | | | | | |
| -0034 | -0254 | -0474 | 10 | 290 | 8 | 2 | 6 | 17 | 0.78 | 25 | -64 | 17.5 | 20 | 1770 | T3 |
| -0035 | -0255 | -0475 | 5 | | | | | | | | | | | | |
| -0036 | -0256 | -0476 | 20 | | | | | | | | | | | | |
| -0037 | -0257 | -0477 | 10 | 430 | 8 | 2 | 14 | 23 | 0.71 | 25 | -64 | 17.5 | 20 | 1825 | T3 |
| -0038 | -0258 | -0478 | 5 | | | | | | | | | | | | |
| -0039 | -0259 | -0479 | 20 | | | | | | | | | | | | |
| -0040 | -0260 | -0480 | 10 | 850 | 8 | 4 | 16 | 30 | 0.47 | 22 | -80 | 25 | 25 | 2330 | T4 |
| -0047 | -0267 | -0487 | 20 | | | | | | | | | | | | |
| -0048 | -0268 | -0488 | 10 | | | | | | | | | | | | |
| -0049 | -0269 | -0489 | 5 | 100 | 10 | 1 | 4 | 7.5 | 0.99 | 60 | -36 | 14 | 16 | 1200 | T2 |
| -0050 | -0270 | -0490 | 20 | | | | | | | | | | | | |
| -0051 | -0271 | -0491 | 10 | | | | | | | | | | | | |
| -0052 | -0272 | -0492 | 5 | 180 | 10 | 1 | 7 | 15 | 1.11 | 40 | -36 | 14 | 16 | 1.365 | T2 |
| -0053 | -0273 | -0493 | 20 | | | | | | | | | | | | |
| -0054 | -0274 | -0494 | 10 | | | | | | | | | | | | |
| -0055 | -0275 | -0495 | 5 | 250 | 10 | 2 | 10 | 15 | 0.8 | 30 | -40 | 14 | 16 | 1720 | T3 |
| -0056 | -0276 | -0496 | 20 | | | | | | | | | | | | |
| -0057 | -0277 | -0497 | 10 | | | | | | | | | | | | |
| -0058 | -0278 | -0498 | 5 | 390 | 10 | 2 | 16 | 22 | 0.75 | 25 | -64 | 17.5 | 20 | 1800 | T3 |
| -0059 | -0279 | -0499 | 20 | | | | | | | | | | | | |
| -0060 | -0280 | -0500 | 10 | | | | | | | | | | | | |
| -0067 | -0287 | -0507 | 20 | 750 | 10 | 4 | 16 | 25 | 0.44 | 23 | -80 | 25 | 25 | 2360 | T4 |
| -0068 | -0288 | -0508 | 10 | | | | | | | | | | | | |
| -0069 | -0289 | -0509 | 5 | | | | | | | | | | | | |
| -0070 | -0290 | -0510 | 20 | 70 | 15 | 1 | 4 | 6.5 | 1.23 | 75 | -28 | 14 | 16 | 1150 | T2 |
| -0071 | -0291 | -0511 | 10 | | | | | | | | | | | | |
| -0072 | -0292 | -0512 | 5 | | | | | | | | | | | | |
| -0073 | -0293 | -0513 | 20 | 120 | 15 | 1 | 7 | 9 | 0.99 | 50 | -28 | 17.5 | 20 | 1450 | T2 |
| -0074 | -0294 | -0514 | 10 | | | | | | | | | | | | |
| -0075 | -0295 | -0515 | 5 | | | | | | | | | | | | |
| -0076 | -0296 | -0516 | 20 | 170 | 15 | 2 | 10 | 12.5 | 0.98 | 35 | -32 | 14 | 16 | 1480 | T3 |
| -0077 | -0297 | -0517 | 10 | | | | | | | | | | | | |
| -0078 | -0298 | -0518 | 5 | | | | | | | | | | | | |
| -0079 | -0299 | -0519 | 20 | 270 | 15 | 2 | 16 | 16 | 0.79 | 30 | -56 | 17.5 | 20 | 1740 | T3 |
| -0080 | -0300 | -0520 | 10 | | | | | | | | | | | | |
| -0087 | -0307 | -0527 | 20 | | | | | | | | | | | | |
| -0088 | -0308 | -0528 | 10 | 540 | 15 | 6 | 24 | 20 | 0.49 | 23 | -80 | 25 | 25 | 2330 | T4 |
| -0089 | -0309 | -0529 | 5 | | | | | | | | | | | | |
| -0090 | -0310 | -0530 | 20 | | | | | | | | | | | | |
| -0091 | -0311 | -0531 | 10 | 50 | 25 | 1 | 2 | 5.5 | 1.46 | 70 | -28 | 13 | 15 | 1130 | T2 |
| -0092 | -0312 | -0532 | 5 | | | | | | | | | | | | |
| -0093 | -0313 | -0533 | 20 | | | | | | | | | | | | |
| -0094 | -0314 | -0534 | 10 | 100 | 25 | 1 | 10 | 7.5 | 0.99 | 50 | -28 | 13 | 15 | 1435 | T2 |
| -0095 | -0315 | -0535 | 5 | | | | | | | | | | | | |
| -0096 | -0316 | -0536 | 20 | | | | | | | | | | | | |
| -0097 | -0317 | -0537 | 10 | 120 | 25 | 2 | 6 | 10.5 | 1.16 | 38 | -32 | 13 | 15 | 1450 | T3 |
| -0098 | -0318 | -0538 | 5 | | | | | | | | | | | | |
| -0099 | -0319 | -0539 | 20 | | | | | | | | | | | | |
| -0099 | -0317 | -0537 | 10 | 180 | 25 | 2 | 18 | 13 | 0.96 | 32 | -48 | 13 | 15 | 1525 | T3 |
| -0098 | -0318 | -0538 | 5 | | | | | | | | | | | | |

All technical data relates to an ambient temperature of +25°C. Capacitance and DF are measured at 120Hz, 0.5RMS with DC bias of 2.2V. DCL is measured at rated voltage after 5 minutes.



MIL-PRF-39006 Series



Military Conventional Wet Tantalum

| M39006/30 Dashes | | | Tolerance ± (%) | Cap (µF) 25°C at 120Hz | DC Rated Voltage (V) at 85°C | DC Leakage (µA) | | DF max (%) | ESR max (Ohms) at 120Hz | Impedance max (Ohms) -55°C at 120Hz | Maximum Capacitance Change (%) | | | AC Ripple (mA rms) 85°C at 40kHz | Case Size |
|------------------|---------|---------|-----------------|------------------------|------------------------------|-----------------|----------------|------------|-------------------------|-------------------------------------|--------------------------------|-------|--------|----------------------------------|-----------|
| M Level | P Level | R Level | | | | +25°C | +85°C & +125°C | | | | -55°C | +85°C | +125°C | | |
| -0099 | -0319 | -0539 | 20 | 350 | 25 | 7 | 28 | 17.5 | 0.67 | 24 | -70 | 25 | 25 | 1970 | T4 |
| -0100 | -0320 | -0540 | 10 | | | | | | | | | | | | |
| -0107 | -0327 | -0547 | 20 | 40 | 30 | 1 | 5 | 5 | 1.66 | 65 | -24 | 10.5 | 12 | 1120 | T2 |
| -0108 | -0328 | -0548 | 10 | | | | | | | | | | | | |
| -0109 | -0329 | -0549 | 5 | | | | | | | | | | | | |
| -0110 | -0330 | -0550 | 20 | 68 | 30 | 1 | 8 | 6.5 | 1.27 | 60 | -24 | 13 | 15 | 1285 | T2 |
| -0111 | -0331 | -0551 | 10 | | | | | | | | | | | | |
| -0112 | -0332 | -0552 | 5 | | | | | | | | | | | | |
| -0113 | -0333 | -0553 | 20 | 100 | 30 | 2 | 12 | 8.5 | 1.13 | 40 | -28 | 10.5 | 12 | 1450 | T3 |
| -0114 | -0334 | -0554 | 10 | | | | | | | | | | | | |
| -0115 | -0335 | -0555 | 5 | | | | | | | | | | | | |
| -0116 | -0336 | -0556 | 20 | 150 | 30 | 2 | 18 | 11.5 | 1.02 | 35 | -48 | 13 | 15 | 1525 | T3 |
| -0117 | -0337 | -0557 | 10 | | | | | | | | | | | | |
| -0118 | -0338 | -0558 | 5 | | | | | | | | | | | | |
| -0119 | -0339 | -0559 | 20 | 300 | 30 | 8 | 32 | 15.5 | 0.69 | 25 | -60 | 25 | 25 | 1950 | T4 |
| -0120 | -0340 | -0560 | 10 | | | | | | | | | | | | |
| -0127 | -0347 | -0567 | 20 | | | | | | | | | | | | |
| -0128 | -0348 | -0568 | 10 | | | | | | | | | | | | |
| -0129 | -0349 | -0569 | 5 | | | | | | | | | | | | |
| -0130 | -0350 | -0570 | 20 | 47 | 50 | 1 | 9 | 5.5 | 1.56 | 70 | -28 | 13 | 15 | 1155 | T2 |
| -0131 | -0351 | -0571 | 10 | | | | | | | | | | | | |
| -0132 | -0352 | -0572 | 5 | | | | | | | | | | | | |
| -0133 | -0353 | -0573 | 20 | 60 | 50 | 2 | 12 | 6 | 1.33 | 45 | -16 | 10.5 | 12 | 1335 | T3 |
| -0134 | -0354 | -0574 | 10 | | | | | | | | | | | | |
| -0135 | -0355 | -0575 | 5 | | | | | | | | | | | | |
| -0136 | -0356 | -0576 | 20 | 82 | 50 | 2 | 16 | 7.5 | 1.22 | 45 | -32 | 13 | 15 | 1400 | T3 |
| -0137 | -0357 | -0577 | 10 | | | | | | | | | | | | |
| -0138 | -0358 | -0578 | 5 | | | | | | | | | | | | |
| -0139 | -0359 | -0579 | 20 | 160 | 50 | 8 | 32 | 8.5 | 0.71 | 27 | -50 | 25 | 25 | 1900 | T4 |
| -0140 | -0360 | -0580 | 10 | | | | | | | | | | | | |
| -0147 | -0367 | -0587 | 20 | | | | | | | | | | | | |
| -0148 | -0368 | -0588 | 10 | | | | | | | | | | | | |
| -0149 | -0369 | -0589 | 5 | | | | | | | | | | | | |
| -0150 | -0370 | -0590 | 20 | 39 | 60 | 1 | 9 | 5 | 1.7 | 90 | -28 | 10.5 | 12 | 1110 | T2 |
| -0151 | -0371 | -0591 | 10 | | | | | | | | | | | | |
| -0152 | -0372 | -0592 | 5 | | | | | | | | | | | | |
| -0153 | -0373 | -0593 | 20 | 50 | 60 | 2 | 12 | 5 | 1.33 | 50 | -16 | 10.5 | 12 | 1330 | T3 |
| -0154 | -0374 | -0594 | 10 | | | | | | | | | | | | |
| -0155 | -0375 | -0595 | 5 | | | | | | | | | | | | |
| -0156 | -0376 | -0596 | 20 | 68 | 60 | 2 | 16 | 6.5 | 1.27 | 50 | -32 | 10.5 | 12 | 1365 | T3 |
| -0157 | -0377 | -0597 | 10 | | | | | | | | | | | | |
| -0158 | -0378 | -0598 | 5 | | | | | | | | | | | | |
| -0159 | -0379 | -0599 | 20 | 140 | 60 | 8 | 32 | 8 | 0.76 | 28 | -40 | 20 | 20 | 1850 | T4 |
| -0160 | -0380 | -0600 | 10 | | | | | | | | | | | | |
| -0167 | -0387 | -0607 | 20 | | | | | | | | | | | | |
| -0168 | -0388 | -0608 | 10 | | | | | | | | | | | | |
| -0169 | -0389 | -0609 | 5 | | | | | | | | | | | | |
| -0170 | -0390 | -0610 | 20 | 33 | 75 | 1 | 10 | 5 | 2.01 | 90 | -24 | 10.5 | 15 | 1000 | T2 |
| -0171 | -0391 | -0611 | 10 | | | | | | | | | | | | |
| -0172 | -0392 | -0612 | 5 | | | | | | | | | | | | |
| -0173 | -0393 | -0613 | 20 | 40 | 75 | 2 | 12 | 4.5 | 1.5 | 60 | -16 | 10.5 | 12 | 1250 | T3 |
| -0174 | -0394 | -0614 | 10 | | | | | | | | | | | | |
| -0175 | -0395 | -0615 | 5 | | | | | | | | | | | | |
| -0176 | -0396 | -0616 | 20 | 56 | 75 | 2 | 17 | 5.5 | 1.31 | 60 | -28 | 10.5 | 15 | 1335 | T3 |
| -0177 | -0397 | -0617 | 10 | | | | | | | | | | | | |
| -0178 | -0398 | -0618 | 5 | | | | | | | | | | | | |
| -0179 | -0399 | -0619 | 20 | 110 | 75 | 9 | 36 | 6 | 0.73 | 29 | -35 | 20 | 20 | 1850 | T4 |
| -0180 | -0400 | -0620 | 10 | | | | | | | | | | | | |
| -0187 | -0407 | -0627 | 20 | | | | | | | | | | | | |
| -0188 | -0408 | -0628 | 10 | | | | | | | | | | | | |
| -0189 | -0409 | -0629 | 5 | | | | | | | | | | | | |
| -0190 | -0410 | -0630 | 20 | 22 | 100 | 1 | 9 | 3.75 | 2.26 | 100 | -16 | 8 | 8 | 965 | T2 |
| -0191 | -0411 | -0631 | 10 | | | | | | | | | | | | |
| -0192 | -0412 | -0632 | 5 | | | | | | | | | | | | |
| -0193 | -0413 | -0633 | 20 | 30 | 100 | 2 | 12 | 3.5 | 1.55 | 80 | -16 | 8 | 8 | 1240 | T3 |
| -0194 | -0414 | -0634 | 10 | | | | | | | | | | | | |
| -0195 | -0415 | -0635 | 5 | | | | | | | | | | | | |
| -0196 | -0416 | -0636 | 20 | 43 | 100 | 2 | 17 | 4.25 | 1.31 | 70 | -20 | 8 | 8 | 1335 | T3 |
| -0197 | -0417 | -0637 | 10 | | | | | | | | | | | | |
| -0198 | -0418 | -0638 | 5 | | | | | | | | | | | | |
| -0199 | -0419 | -0639 | 20 | 86 | 100 | 9 | 36 | 5 | 0.77 | 30 | -25 | 15 | 15 | 1800 | T4 |
| -0200 | -0420 | -0640 | 10 | | | | | | | | | | | | |

All technical data relates to an ambient temperature of +25°C. Capacitance and DF are measured at 120Hz, 0.5RMS with DC bias of 2.2V. DCL is measured at rated voltage after 5 minutes.



MIL-PRF-39006 Series



Military Conventional Wet Tantalum

M39006 /31 RATINGS AND DASH NUMBER REFERENCE

| M39006/31 Dashes | | | Tolerance ± (%) | Cap (µF) 25°C at 120Hz | DC Rated Voltage (V) at 85°C | DC Leakage (µA) | | DF max (%) | ESR max (Ohms) at 120Hz | Impedance max (Ohms) -55°C at 120Hz | Maximum Capacitance Change (%) | | | AC Ripple (mA rms) 85°C at 40kHz | Case Size |
|------------------|---------|---------|-----------------|------------------------|------------------------------|-----------------|----------------|------------|-------------------------|-------------------------------------|--------------------------------|-------|--------|----------------------------------|-----------|
| M Level | P Level | R Level | | | | +25°C | +85°C & +125°C | | | | -55°C | +85°C | +125°C | | |
| -0003 | -0091 | -0179 | 20 | 820 | 6 | 3 | 14 | 77.5 | 1.26 | 18 | -88 | 16 | 20 | 1500 | T2 |
| -0004 | -0092 | -0180 | 10 | | | | | | | | | | | | |
| -0005 | -0093 | -0181 | 20 | 1500 | 6 | 5 | 20 | 86 | 0.76 | 18 | -90 | 20 | 25 | 1900 | T3 |
| -0006 | -0094 | -0182 | 10 | | | | | | | | | | | | |
| -0007 | -0095 | -0183 | 20 | 2200 | 6 | 6 | 24 | 85 | 0.52 | 13 | -90 | 25 | 30 | 2300 | T4 |
| -0008 | -0096 | -0184 | 10 | | | | | | | | | | | | |
| -0011 | -0099 | -0187 | 20 | 680 | 8 | 3 | 14 | 65 | 1.27 | 22 | -83 | 16 | 20 | 1500 | T2 |
| -0012 | -0100 | -0188 | 10 | | | | | | | | | | | | |
| -0013 | -0101 | -0189 | 20 | 1500 | 8 | 5 | 20 | 85 | 0.75 | 18 | -90 | 20 | 25 | 1900 | T3 |
| -0014 | -0102 | -0190 | 10 | | | | | | | | | | | | |
| -0015 | -0103 | -0191 | 20 | 1800 | 8 | 7 | 25 | 69 | 0.51 | 14 | -90 | 25 | 30 | 2300 | T4 |
| -0016 | -0104 | -0192 | 10 | | | | | | | | | | | | |
| -0019 | -0107 | -0195 | 20 | 560 | 10 | 3 | 16 | 53 | 1.26 | 27 | -77 | 16 | 20 | 1450 | T2 |
| -0020 | -0108 | -0196 | 10 | | | | | | | | | | | | |
| -0021 | -0109 | -0197 | 20 | 1200 | 10 | 5 | 20 | 68.5 | 0.76 | 18 | -88 | 20 | 25 | 1850 | T3 |
| -0022 | -0110 | -0198 | 10 | | | | | | | | | | | | |
| -0023 | -0111 | -0199 | 20 | 1500 | 10 | 7 | 25 | 57 | 0.51 | 15 | -88 | 25 | 30 | 2300 | T4 |
| -0024 | -0112 | -0200 | 10 | | | | | | | | | | | | |
| -0027 | -0115 | -0203 | 20 | 390 | 15 | 3 | 16 | 37 | 1.26 | 31 | -66 | 16 | 20 | 1450 | T2 |
| -0028 | -0116 | -0204 | 10 | | | | | | | | | | | | |
| -0029 | -0117 | -0205 | 20 | 820 | 15 | 6 | 24 | 55.5 | 0.9 | 22 | -77 | 20 | 25 | 1800 | T3 |
| -0030 | -0118 | -0206 | 10 | | | | | | | | | | | | |
| -0031 | -0119 | -0207 | 20 | 1000 | 15 | 8 | 32 | 46 | 0.61 | 17 | -77 | 25 | 30 | 2300 | T4 |
| -0032 | -0120 | -0208 | 10 | | | | | | | | | | | | |
| -0035 | -0123 | -0211 | 20 | 270 | 25 | 3 | 16 | 27.5 | 1.35 | 33 | -62 | 13 | 16 | 1400 | T2 |
| -0036 | -0124 | -0212 | 10 | | | | | | | | | | | | |
| -0037 | -0125 | -0213 | 20 | 560 | 25 | 7 | 28 | 38 | 0.9 | 24 | -72 | 20 | 25 | 1750 | T3 |
| -0038 | -0126 | -0214 | 10 | | | | | | | | | | | | |
| -0039 | -0127 | -0215 | 20 | 680 | 25 | 8 | 32 | 31.5 | 0.62 | 19 | -72 | 25 | 30 | 2100 | T4 |
| -0040 | -0128 | -0216 | 10 | | | | | | | | | | | | |
| -0043 | -0131 | -0219 | 20 | 220 | 30 | 3 | 16 | 21 | 1.27 | 36 | -60 | 13 | 16 | 1200 | T2 |
| -0044 | -0132 | -0220 | 10 | | | | | | | | | | | | |
| -0045 | -0133 | -0221 | 20 | 470 | 30 | 8 | 32 | 32 | 0.91 | 25 | -65 | 20 | 25 | 1500 | T3 |
| -0046 | -0134 | -0222 | 10 | | | | | | | | | | | | |
| -0047 | -0135 | -0223 | 20 | 560 | 30 | 9 | 36 | 27.5 | 0.65 | 20 | -65 | 25 | 30 | 2000 | T4 |
| -0048 | -0136 | -0224 | 10 | | | | | | | | | | | | |
| -0051 | -0139 | -0227 | 20 | 120 | 50 | 4 | 24 | 11.3 | 1.25 | 49 | -42 | 12 | 15 | 1200 | T2 |
| -0052 | -0140 | -0228 | 10 | | | | | | | | | | | | |
| -0053 | -0141 | -0229 | 20 | 270 | 50 | 8 | 32 | 18.5 | 0.91 | 29 | -46 | 20 | 25 | 1450 | T3 |
| -0054 | -0142 | -0230 | 10 | | | | | | | | | | | | |
| -0055 | -0143 | -0231 | 20 | 330 | 50 | 9 | 36 | 19 | 0.77 | 22 | -46 | 25 | 30 | 1900 | T4 |
| -0056 | -0144 | -0232 | 10 | | | | | | | | | | | | |
| -0059 | -0147 | -0235 | 20 | 100 | 60 | 4 | 20 | 9.5 | 1.26 | 54 | -36 | 12 | 15 | 1100 | T2 |
| -0060 | -0148 | -0236 | 10 | | | | | | | | | | | | |
| -0061 | -0149 | -0237 | 20 | 220 | 60 | 8 | 32 | 15 | 0.91 | 29 | -40 | 16 | 20 | 1400 | T3 |
| -0062 | -0150 | -0238 | 10 | | | | | | | | | | | | |
| -0063 | -0151 | -0239 | 20 | 270 | 60 | 9 | 36 | 13.5 | 0.67 | 23 | -45 | 20 | 25 | 1850 | T4 |
| -0064 | -0152 | -0240 | 10 | | | | | | | | | | | | |
| -0067 | -0155 | -0243 | 20 | 82 | 75 | 4 | 24 | 7.6 | 1.23 | 63 | -30 | 12 | 15 | 1000 | T2 |
| -0068 | -0156 | -0244 | 10 | | | | | | | | | | | | |
| -0069 | -0157 | -0245 | 20 | 180 | 75 | 9 | 36 | 12.2 | 0.9 | 30 | -35 | 16 | 20 | 1300 | T3 |
| -0070 | -0158 | -0246 | 10 | | | | | | | | | | | | |
| -0071 | -0159 | -0247 | 20 | 220 | 75 | 10 | 40 | 18.5 | 1.12 | 24 | -40 | 20 | 25 | 1800 | T4 |
| -0072 | -0160 | -0248 | 10 | | | | | | | | | | | | |
| -0075 | -0163 | -0251 | 20 | 39 | 100 | 5 | 24 | 5.2 | 1.77 | 80 | -20 | 12 | 15 | 1300 | T2 |
| -0076 | -0164 | -0252 | 10 | | | | | | | | | | | | |
| -0077 | -0165 | -0253 | 20 | 68 | 100 | 10 | 40 | 5.65 | 1.11 | 40 | -30 | 14 | 16 | 1600 | T3 |
| -0078 | -0166 | -0254 | 10 | | | | | | | | | | | | |
| -0079 | -0167 | -0255 | 20 | 120 | 100 | 12 | 48 | 12.5 | 1.38 | 30 | -35 | 15 | 17 | 2000 | T4 |
| -0080 | -0168 | -0256 | 10 | | | | | | | | | | | | |

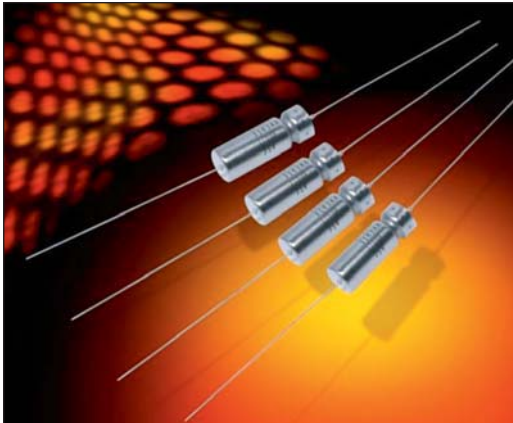
All technical data relates to an ambient temperature of +25°C. Capacitance and DF are measured at 120Hz, 0.5RMS with DC bias of 2.2V. DCL is measured at rated voltage after 5 minutes.



TWC Series



COTS-Plus Conventional Wet Tantalum

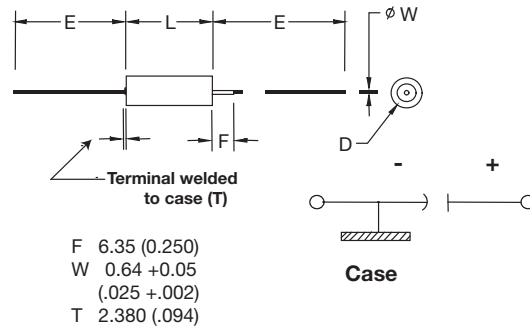


The TWC series represents a COTS-Plus version of conventional wet electrolytic tantalum capacitors. This data sheet incorporates all ratings available in MIL-PRF-39006 /22 /25 /30 and /31. Contact the factory about cap and voltage design possibilities beyond those contained in this datasheet.

This design includes a welded tantalum can and header assembly that provides a hermetic seal to withstand harsh environments and includes selected Group A testing from MIL-PRF-39006.

For military qualified versions please refer to the MIL-PRF-39006 datasheet located on the AVX website.

OUTLINE DIMENSIONS



CASE DIMENSIONS: millimeters (inches)

| DSCC Case Size | AVX Case Size | L | D | | E |
|----------------|---------------|--------------------------------|---------------|--------------------|---------------|
| | | | Basic Case | Insulated Case Max | |
| | | +0.79 (0.031) -0.41 (0.016) | ±0.41 (0.016) | | ±6.35 (0.250) |
| T1 | A | 11.51 (0.453) | 4.78 (0.188) | 5.56 (0.219) | 38.10 (1.500) |
| T2 | B | 16.28 (0.641) | 7.14 (0.281) | 7.92 (0.312) | 57.15 (2.250) |
| T3 | D | 19.46 (0.766) | 9.52 (0.375) | 10.31 (0.406) | 57.15 (2.250) |
| T4 | E | 26.97 (1.062) | 9.52 (0.375) | 10.31 (0.406) | 57.15 (2.250) |

VOLTAGE RATINGS (Operating Temperature -55°C to 125°C)

| Voltage (DC) | | | | | | | | | | | | |
|------------------------------------|-------|-----|-----|------|------|------|------|------|----|------|-----|-----|
| Rated Voltage: (V _r) | 85°C | 6 | 8 | 10 | 15 | 25 | 30 | 50 | 60 | 75 | 100 | 125 |
| Derated Voltage: (V _d) | 125°C | 4 | 5 | 6 | 10 | 15 | 20 | 30 | 40 | 50 | 65 | 85 |
| Surge Voltage: (V _s) | 85°C | 6.9 | 9.2 | 11.5 | 17.3 | 28.8 | 34.5 | 57.5 | 69 | 86.3 | 115 | 144 |

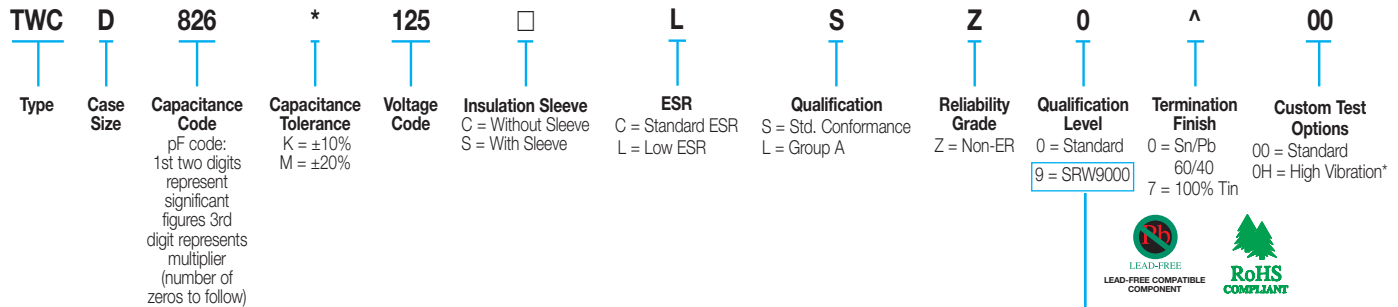
TWC Series



COTS-Plus Conventional Wet Tantalum

HOW TO ORDER

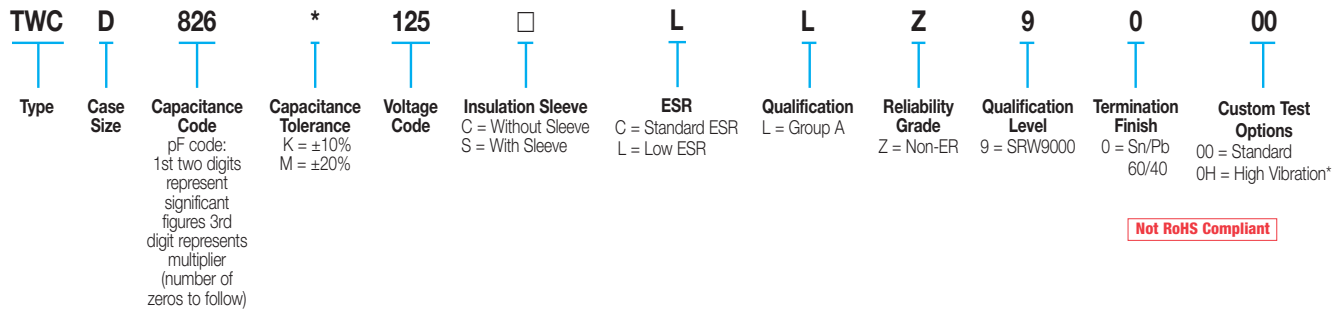
AVX PART NUMBER:



*High vibration qualified parts are currently under development. Please contact the factory for additional details and availability.



SPACE LEVEL OPTIONS TO SRW9000*:



Not RoHS Compliant

*Check with factory for availability and testing details.

RIPPLE CURRENT MULTIPLIERS vs. Frequency, temperature and applied voltage^{1/2/}

| Frequency of Applied Ripple Current | Ambient Still Air Temperature (°C) | 120Hz | | | | 800Hz | | | | 1kHz | | | |
|-------------------------------------|------------------------------------|-------|------|------|------|-------|------|------|------|------|------|------|------|
| | | ≤55 | 85 | 105 | 125 | ≤55 | 85 | 105 | 125 | ≤55 | 85 | 105 | 125 |
| % of Rated Peak Voltage | 100% | 0.60 | 0.39 | – | – | 0.71 | 0.43 | – | – | 0.72 | 0.45 | – | – |
| | 90% | 0.60 | 0.46 | – | – | 0.71 | 0.55 | – | – | 0.72 | 0.55 | – | – |
| | 80% | 0.60 | 0.52 | 0.35 | – | 0.71 | 0.62 | 0.42 | – | 0.72 | 0.62 | 0.42 | – |
| | 70% | 0.60 | 0.58 | 0.44 | – | 0.71 | 0.69 | 0.52 | – | 0.72 | 0.70 | 0.52 | – |
| | 66-2/3% | 0.60 | 0.60 | 0.46 | 0.27 | 0.71 | 0.71 | 0.55 | 0.32 | 0.72 | 0.72 | 0.55 | 0.32 |

| Frequency of Applied Ripple Current | Ambient Still Air Temperature (°C) | 10kHz | | | | 40kHz | | | | 100kHz | | | |
|-------------------------------------|------------------------------------|-------|------|------|------|-------|------|------|------|--------|------|------|------|
| | | ≤55 | 85 | 105 | 125 | ≤55 | 85 | 105 | 125 | ≤55 | 85 | 105 | 125 |
| % of Rated Peak Voltage | 100% | 0.88 | 0.55 | – | – | 1.00 | 0.63 | – | – | 1.10 | 0.69 | – | – |
| | 90% | 0.88 | 0.67 | – | – | 1.00 | 0.77 | – | – | 1.10 | 0.85 | – | – |
| | 80% | 0.88 | 0.76 | 0.52 | – | 1.00 | 0.87 | 0.59 | – | 1.10 | 0.96 | 0.65 | – |
| | 70% | 0.88 | 0.85 | 0.64 | – | 1.00 | 0.97 | 0.73 | – | 1.10 | 1.07 | 0.80 | – |
| | 66-2/3% | 0.88 | 0.88 | 0.68 | 0.40 | 1.00 | 1.00 | 0.77 | 0.45 | 1.10 | 1.10 | 0.85 | 0.50 |

1/ At 125°C the rated voltage of the capacitors decreases to 66 2/3 of the 85°C rated voltage.

2/ The peak of the applied ac ripple voltage plus the applied dc voltage must not exceed the dc voltage rating of the capacitors.

STANDARD RATINGS & PART NUMBER REFERENCE

| AVX Part Number | Cap (µF) 25°C at 120Hz | DC Rated Voltage (V) at 85°C | DC Leakage (µA) | | DF (Max) | ESR Max (Ohms) at 120Hz | Impedance max (Ohms) -55°C at 120Hz | Maximum Capacitance Change (%) | | | AC Ripple (mA rms) 85°C at 40kHz | Case Size | |
|---------------------|------------------------------|------------------------------------|-----------------|-------------------|-------------|-------------------------------|---|-----------------------------------|-------|--------|--|-----------|-----|
| | | | +25°C | +85°C & +125°C | | | | -55°C | +85°C | +125°C | | Standard | AVX |
| TWCA306*006□CSZ0*00 | 30 | 6 | 1 | 2 | 9 | 3.98 | 100 | -40 | 10.5 | 12 | 820 | T1 | A |
| TWCA306*006□LSZ0*00 | | | | | 4.5 | 1.99 | | | | | | | |
| TWCA686*006□CSZ0*00 | 68 | 6 | 1 | 2 | 15 | 3.16 | 60 | -40 | 14 | 16 | 960 | T1 | A |
| TWCA686*006□LSZ0*00 | | | | | 7.5 | 1.58 | | | | | | | |
| TWCB147*006□CSZ0*00 | 140 | 6 | 1 | 3 | 21 | 1.99 | 40 | -40 | 14 | 16 | 1,200 | T2 | B |
| TWCB147*006□LSZ0*00 | | | | | 10.5 | 0.99 | | | | | | | |
| TWCB277*006□CSZ0*00 | 270 | 6 | 1 | 6.5 | 45 | 2.21 | 25 | -44 | 17.5 | 20 | 1,375 | T2 | B |
| TWCB277*006□LSZ0*00 | | | | | 22.5 | 1.11 | | | | | | | |
| TWCD337*006□CSZ0*00 | 330 | 6 | 2 | 7.9 | 36 | 1.45 | 20 | -44 | 14 | 16 | 1,800 | T3 | D |
| TWCD337*006□LSZ0*00 | | | | | 18 | 0.73 | | | | | | | |
| TWCD567*006□CSZ0*00 | 560 | 6 | 2 | 13 | 55 | 1.3 | 25 | -64 | 17.5 | 20 | 1,900 | T3 | D |
| TWCD567*006□LSZ0*00 | | | | | 27.5 | 0.65 | | | | | | | |
| TWCE128*006□CSZ0*00 | 1,200 | 6 | 3 | 14 | 90 | 1 | 20 | -80 | 25 | 25 | 2,265 | T4 | E |
| TWCE128*006□LSZ0*00 | | | | | 45 | 0.5 | | | | | | | |
| TWCA256*008□CSZ0*00 | 25 | 8 | 1 | 2 | 7.5 | 3.98 | 100 | -40 | 10.5 | 12 | 820 | T1 | A |
| TWCA256*008□LSZ0*00 | | | | | 3.75 | 1.99 | | | | | | | |
| TWCA566*008□CSZ0*00 | 56 | 8 | 1 | 2 | 14 | 3.32 | 59 | -40 | 14 | 16 | 900 | T1 | A |
| TWCA566*008□LSZ0*00 | | | | | 7 | 1.66 | | | | | | | |
| TWCB127*008□CSZ0*00 | 120 | 8 | 1 | 2 | 20 | 2.21 | 50 | -44 | 17.5 | 20 | 1,220 | T2 | B |
| TWCB127*008□LSZ0*00 | | | | | 10 | 1.11 | | | | | | | |
| TWCB227*008□CSZ0*00 | 220 | 8 | 1 | 7 | 37 | 2.23 | 30 | -44 | 17.5 | 20 | 1,370 | T2 | B |
| TWCB227*008□LSZ0*00 | | | | | 18.5 | 1.12 | | | | | | | |
| TWCD297*008□CSZ0*00 | 290 | 8 | 2 | 6 | 34 | 1.56 | 25 | -64 | 17.5 | 20 | 1,770 | T3 | D |
| TWCD297*008□LSZ0*00 | | | | | 17 | 0.78 | | | | | | | |
| TWCD437*008□CSZ0*00 | 430 | 8 | 2 | 14 | 46 | 1.42 | 25 | -64 | 17.5 | 20 | 1,825 | T3 | D |
| TWCD437*008□LSZ0*00 | | | | | 23 | 0.71 | | | | | | | |
| TWCE857*008□CSZ0*00 | 850 | 8 | 4 | 16 | 60 | 0.94 | 22 | -80 | 25 | 25 | 2,330 | T4 | E |
| TWCE857*008□LSZ0*00 | | | | | 30 | 0.47 | | | | | | | |
| TWCA206*010□CSZ0*00 | 20 | 10 | 1 | 2 | 6 | 3.98 | 175 | -32 | 10.5 | 12 | 820 | T1 | A |
| TWCA206*010□LSZ0*00 | | | | | 3 | 1.99 | | | | | | | |
| TWCA476*010□CSZ0*00 | 47 | 10 | 1 | 2 | 13 | 3.67 | 100 | -36 | 14 | 16 | 855 | T1 | A |
| TWCA476*010□LSZ0*00 | | | | | 6.5 | 1.84 | | | | | | | |
| TWCB107*010□CSZ0*00 | 100 | 10 | 1 | 4 | 15 | 1.99 | 60 | -36 | 14 | 16 | 1,200 | T2 | B |
| TWCB107*010□LSZ0*00 | | | | | 7.5 | 0.99 | | | | | | | |
| TWCB187*010□CSZ0*00 | 180 | 10 | 1 | 7 | 30 | 2.21 | 40 | -36 | 14 | 16 | 1,365 | T2 | B |
| TWCB187*010□LSZ0*00 | | | | | 15 | 1.11 | | | | | | | |
| TWCD257*010□CSZ0*00 | 250 | 10 | 2 | 10 | 30 | 1.59 | 30 | -40 | 14 | 16 | 1,720 | T3 | D |
| TWCD257*010□LSZ0*00 | | | | | 15 | 0.8 | | | | | | | |
| TWCD397*010□CSZ0*00 | 390 | 10 | 2 | 16 | 44 | 1.5 | 25 | -64 | 17.5 | 20 | 1,800 | T3 | D |
| TWCD397*010□LSZ0*00 | | | | | 22 | 0.75 | | | | | | | |
| TWCE757*010□CSZ0*00 | 750 | 10 | 4 | 16 | 50 | 0.88 | 23 | -80 | 25 | 25 | 2,360 | T4 | E |
| TWCE757*010□LSZ0*00 | | | | | 25 | 0.44 | | | | | | | |
| TWCA156*015□CSZ0*00 | 15 | 15 | 1 | 2 | 5 | 4.42 | 155 | -24 | 10.5 | 12 | 780 | T1 | A |
| TWCA156*015□LSZ0*00 | | | | | 2.5 | 2.21 | | | | | | | |
| TWCA336*015□CSZ0*00 | 33 | 15 | 1 | 2 | 10 | 4.02 | 90 | -28 | 14 | 16 | 820 | T1 | A |
| TWCA336*015□LSZ0*00 | | | | | 5 | 2.01 | | | | | | | |
| TWCB706*015□CSZ0*00 | 70 | 15 | 1 | 4 | 13 | 2.46 | 75 | -28 | 14 | 16 | 1,150 | T2 | B |
| TWCB706*015□LSZ0*00 | | | | | 6.5 | 1.23 | | | | | | | |
| TWCB127*015□CSZ0*00 | 120 | 15 | 1 | 7 | 18 | 1.99 | 50 | -28 | 17.5 | 20 | 1,450 | T2 | B |
| TWCB127*015□LSZ0*00 | | | | | 9 | 0.99 | | | | | | | |
| TWCD177*015□CSZ0*00 | 170 | 15 | 2 | 10 | 25 | 1.95 | 35 | -32 | 14 | 16 | 1,480 | T3 | D |
| TWCD177*015□LSZ0*00 | | | | | 12.5 | 0.98 | | | | | | | |
| TWCD277*015□CSZ0*00 | 270 | 15 | 2 | 16 | 32 | 1.57 | 30 | -56 | 17.5 | 20 | 1,740 | T3 | D |
| TWCD277*015□LSZ0*00 | | | | | 16 | 0.79 | | | | | | | |
| TWCE547*015□CSZ0*00 | 540 | 15 | 6 | 24 | 40 | 0.98 | 23 | -80 | 25 | 25 | 2,330 | T4 | E |
| TWCE547*015□LSZ0*00 | | | | | 20 | 0.49 | | | | | | | |
| TWCA106*025□CSZ0*00 | 10 | 25 | 1 | 2 | 4 | 5.31 | 220 | -16 | 8 | 9 | 715 | T1 | A |
| TWCA106*025□LSZ0*00 | | | | | 2 | 2.66 | | | | | | | |
| TWCA226*025□CSZ0*00 | 22 | 25 | 1 | 2 | 6.6 | 3.98 | 140 | -20 | 10.5 | 12 | 825 | T1 | A |
| TWCA226*025□LSZ0*00 | | | | | 3.3 | 1.99 | | | | | | | |
| TWCB506*025□CSZ0*00 | 50 | 25 | 1 | 2 | 11 | 2.92 | 70 | -28 | 13 | 15 | 1,130 | T2 | B |
| TWCB506*025□LSZ0*00 | | | | | 5.5 | 1.46 | | | | | | | |

All technical data relates to an ambient temperature of +25°C. Capacitance and DF are measured at 120Hz, 0.5RMS with DC bias of 2.2V. DCL is measured at rated voltage after 5 minutes.

NOTE: AVX reserves the rights to supply higher voltage rating in the same case size, to the same reliability standards.

TWC Series



COTS-Plus Conventional Wet Tantalum

STANDARD RATINGS & PART NUMBER REFERENCE

| AVX Part Number | Cap (µF) 25°C at 120Hz | DC Rated Voltage (V) at 85°C | DC Leakage (µA) | | DF (Max) | ESR Max (Ohms) at 120Hz | Impedance max (Ohms) -55°C at 120Hz | Maximum Capacitance Change (%) | | | AC Ripple (mA rms) 85°C at 40kHz | Case Size | |
|---------------------|------------------------------|------------------------------------|-----------------|-------------------|-------------|-------------------------------|---|-----------------------------------|-------|--------|--|-----------|-----|
| | | | +25°C | +85°C & +125°C | | | | -55°C | +85°C | +125°C | | Standard | AVX |
| TWCB107*025□CSZ0^00 | 100 | 25 | 1 | 10 | 15 | 1.99 | 50 | -28 | 13 | 15 | 1,435 | T2 | B |
| TWCB107*025□LSZ0^00 | | | | | 7.5 | 0.99 | | | | | | | |
| TWCD127*025□CSZ0^00 | 120 | 25 | 2 | 6 | 21 | 2.32 | 38 | -32 | 13 | 15 | 1,450 | T3 | D |
| TWCD127*025□LSZ0^00 | | | | | 10.5 | 1.16 | | | | | | | |
| TWCD187*025□CSZ0^00 | 180 | 25 | 2 | 18 | 26 | 1.92 | 32 | -48 | 13 | 15 | 1,525 | T3 | D |
| TWCD187*025□LSZ0^00 | | | | | 13 | 0.96 | | | | | | | |
| TWCE357*025□CSZ0^00 | 350 | 25 | 7 | 28 | 35 | 1.33 | 24 | -70 | 25 | 25 | 1,970 | T4 | E |
| TWCE357*025□LSZ0^00 | | | | | 17.5 | 0.67 | | | | | | | |
| TWCA805*030□CSZ0^00 | 8 | 30 | 1 | 2 | 4 | 6.64 | 275 | -16 | 8 | 12 | 640 | T1 | A |
| TWCA805*030□LSZ0^00 | | | | | 2 | 3.32 | | | | | | | |
| TWCA156*030□CSZ0^00 | 15 | 30 | 1 | 2 | 5 | 4.42 | 175 | -20 | 10.5 | 12 | 780 | T1 | A |
| TWCA156*030□LSZ0^00 | | | | | 2.5 | 2.21 | | | | | | | |
| TWCB406*030□CSZ0^00 | 40 | 30 | 1 | 5 | 10 | 3.32 | 65 | -24 | 10.5 | 12 | 1,120 | T2 | B |
| TWCB406*030□LSZ0^00 | | | | | 5 | 1.66 | | | | | | | |
| TWCB686*030□CSZ0^00 | 68 | 30 | 1 | 8 | 13 | 2.54 | 60 | -24 | 13 | 15 | 1,285 | T2 | B |
| TWCB686*030□LSZ0^00 | | | | | 6.5 | 1.27 | | | | | | | |
| TWCD107*030□CSZ0^00 | 100 | 30 | 2 | 12 | 17 | 2.26 | 40 | -28 | 10.5 | 12 | 1,450 | T3 | D |
| TWCD107*030□LSZ0^00 | | | | | 8.5 | 1.13 | | | | | | | |
| TWCD157*030□CSZ0^00 | 150 | 30 | 2 | 18 | 23 | 2.03 | 35 | -48 | 13 | 15 | 1,525 | T3 | D |
| TWCD157*030□LSZ0^00 | | | | | 11.5 | 1.02 | | | | | | | |
| TWCE307*030□CSZ0^00 | 300 | 30 | 8 | 32 | 31 | 1.37 | 25 | -60 | 25 | 25 | 1,950 | T4 | E |
| TWCE307*030□LSZ0^00 | | | | | 15.5 | 0.69 | | | | | | | |
| TWCA505*050□CSZ0^00 | 5 | 50 | 1 | 2 | 3 | 7.96 | 400 | -16 | 5 | 6 | 580 | T1 | A |
| TWCA505*050□LSZ0^00 | | | | | 1.5 | 3.98 | | | | | | | |
| TWCA106*050□CSZ0^00 | 10 | 50 | 1 | 2 | 4 | 5.31 | 250 | -24 | 8 | 9 | 715 | T1 | A |
| TWCA106*050□LSZ0^00 | | | | | 2 | 2.66 | | | | | | | |
| TWCB256*050□CSZ0^00 | 25 | 50 | 1 | 5 | 8 | 4.25 | 95 | -20 | 10.5 | 12 | 1,005 | T2 | B |
| TWCB256*050□LSZ0^00 | | | | | 4 | 2.13 | | | | | | | |
| TWCB476*050□CSZ0^00 | 47 | 50 | 1 | 9 | 11 | 3.11 | 70 | -28 | 13 | 15 | 1,155 | T2 | B |
| TWCB476*050□LSZ0^00 | | | | | 5.5 | 1.56 | | | | | | | |
| TWCD606*050□CSZ0^00 | 60 | 50 | 2 | 12 | 12 | 2.65 | 45 | -16 | 10.5 | 12 | 1,335 | T3 | D |
| TWCD606*050□LSZ0^00 | | | | | 6 | 1.33 | | | | | | | |
| TWCD826*050□CSZ0^00 | 82 | 50 | 2 | 16 | 15 | 2.43 | 45 | -32 | 13 | 15 | 1,400 | T3 | D |
| TWCD826*050□LSZ0^00 | | | | | 7.5 | 1.22 | | | | | | | |
| TWCE167*050□CSZ0^00 | 160 | 50 | 8 | 32 | 17 | 1.41 | 27 | -50 | 25 | 25 | 1,900 | T4 | E |
| TWCE167*050□LSZ0^00 | | | | | 8.5 | 0.71 | | | | | | | |
| TWCA405*060□CSZ0^00 | 4 | 60 | 1 | 2 | 2.8 | 9.29 | 550 | -16 | 5 | 6 | 525 | T1 | A |
| TWCA405*060□LSZ0^00 | | | | | 1.4 | 4.65 | | | | | | | |
| TWCA825*060□CSZ0^00 | 8.2 | 60 | 1 | 2 | 4 | 6.47 | 275 | -24 | 8 | 9 | 625 | T1 | A |
| TWCA825*060□LSZ0^00 | | | | | 2 | 3.24 | | | | | | | |
| TWCB206*060□CSZ0^00 | 20 | 60 | 1 | 5 | 7 | 4.64 | 105 | -16 | 10.5 | 12 | 930 | T2 | B |
| TWCB206*060□LSZ0^00 | | | | | 3.5 | 2.32 | | | | | | | |
| TWCB396*060□CSZ0^00 | 39 | 60 | 1 | 9 | 10 | 3.4 | 90 | -28 | 10.5 | 12 | 1,110 | T2 | B |
| TWCB396*060□LSZ0^00 | | | | | 5 | 1.7 | | | | | | | |
| TWCD506*060□CSZ0^00 | 50 | 60 | 2 | 12 | 10 | 2.65 | 50 | -16 | 10.5 | 12 | 1,330 | T3 | D |
| TWCD506*060□LSZ0^00 | | | | | 5 | 1.33 | | | | | | | |
| TWCD686*060□CSZ0^00 | 68 | 60 | 2 | 16 | 13 | 2.54 | 50 | -32 | 10.5 | 12 | 1,365 | T3 | D |
| TWCD686*060□LSZ0^00 | | | | | 7 | 1.27 | | | | | | | |
| TWCE147*060□CSZ0^00 | 140 | 60 | 8 | 32 | 16 | 1.52 | 28 | -40 | 20 | 20 | 1,850 | T4 | E |
| TWCE147*060□LSZ0^00 | | | | | 8 | 0.76 | | | | | | | |
| TWCA355*075□CSZ0^00 | 3.5 | 75 | 1 | 2 | 2.5 | 9.48 | 650 | -16 | 5 | 6 | 525 | T1 | A |
| TWCA355*075□LSZ0^00 | | | | | 1.25 | 4.74 | | | | | | | |
| TWCA685*075□CSZ0^00 | 6.8 | 75 | 1 | 2 | 3.5 | 6.83 | 300 | -20 | 8 | 9 | 610 | T1 | A |
| TWCA685*075□LSZ0^00 | | | | | 1.75 | 3.42 | | | | | | | |
| TWCB156*075□CSZ0^00 | 15 | 75 | 1 | 5 | 6 | 5.31 | 150 | -16 | 8 | 9 | 890 | T2 | B |
| TWCB156*075□LSZ0^00 | | | | | 3 | 2.66 | | | | | | | |
| TWCB336*075□CSZ0^00 | 33 | 75 | 1 | 10 | 10 | 4.02 | 90 | -24 | 10.5 | 15 | 1,000 | T2 | B |
| TWCB336*075□LSZ0^00 | | | | | 5 | 2.01 | | | | | | | |
| TWCD406*075□CSZ0^00 | 40 | 75 | 2 | 12 | 9 | 2.99 | 60 | -16 | 10.5 | 12 | 1,250 | T3 | D |
| TWCD406*075□LSZ0^00 | | | | | 4.5 | 1.5 | | | | | | | |
| TWCD566*075□CSZ0^00 | 56 | 75 | 2 | 17 | 11 | 2.61 | 60 | -28 | 10.5 | 15 | 1,335 | T3 | D |
| TWCD566*075□LSZ0^00 | | | | | 5.5 | 1.31 | | | | | | | |

All technical data relates to an ambient temperature of +25°C. Capacitance and DF are measured at 120Hz, 0.5RMS with DC bias of 2.2V. DCL is measured at rated voltage after 5 minutes.

NOTE: AVX reserves the rights to supply higher voltage rating in the same case size, to the same reliability standards.

STANDARD RATINGS & PART NUMBER REFERENCE

| AVX Part Number | Cap (µF) 25°C at 120Hz | DC Rated Voltage (V) at 85°C | DC Leakage (µA) | | DF (Max) | ESR Max (Ohms) at 120Hz | Impedance max (Ohms) -55°C at 120Hz | Maximum Capacitance Change (%) | | | AC Ripple (mA rms) 85°C at 40kHz | Case Size | |
|---------------------|------------------------------|------------------------------------|-----------------|-------------------|-------------|-------------------------------|---|-----------------------------------|-------|--------|--|-----------|-----|
| | | | +25°C | +85°C & +125°C | | | | -55°C | +85°C | +125°C | | Standard | AVX |
| TWCE117*075□CSZ0^00 | 110 | 75 | 9 | 36 | 12 | 1.45 | 29 | -35 | 20 | 20 | 1,850 | T4 | E |
| TWCE117*075□LSZ0^00 | | | | | 6 | 0.73 | | | | | | | |
| TWCA255*100□CSZ0^00 | 2.5 | 100 | 1 | 2 | 2 | 10.62 | 950 | -16 | 7 | 8 | 505 | T1 | A |
| TWCA255*100□LSZ0^00 | | | | | 1 | 5.31 | | | | | | | |
| TWCA475*100□CSZ0^00 | 4.7 | 100 | 1 | 2 | 3 | 8.47 | 500 | -16 | 7 | 8 | 565 | T1 | A |
| TWCA475*100□LSZ0^00 | | | | | 1.5 | 4.24 | | | | | | | |
| TWCB116*100□CSZ0^00 | 11 | 100 | 1 | 4 | 5 | 6.03 | 200 | -16 | 8 | 8 | 835 | T2 | B |
| TWCB116*100□LSZ0^00 | | | | | 2.5 | 3.02 | | | | | | | |
| TWCB226*100□CSZ0^00 | 22 | 100 | 1 | 9 | 7.5 | 4.52 | 100 | -16 | 8 | 8 | 965 | T2 | B |
| TWCB226*100□LSZ0^00 | | | | | 3.75 | 2.26 | | | | | | | |
| TWCD306*100□CSZ0^00 | 30 | 100 | 2 | 12 | 7 | 3.1 | 80 | -16 | 8 | 8 | 1,240 | T3 | D |
| TWCD306*100□LSZ0^00 | | | | | 3.5 | 1.56 | | | | | | | |
| TWCD436*100□CSZ0^00 | 43 | 100 | 2 | 17 | 8.5 | 2.62 | 70 | -20 | 8 | 8 | 1,335 | T3 | D |
| TWCD436*100□LSZ0^00 | | | | | 4.25 | 1.31 | | | | | | | |
| TWCE866*100□CSZ0^00 | 86 | 100 | 9 | 36 | 10 | 1.54 | 30 | -25 | 15 | 15 | 1,800 | T4 | E |
| TWCE866*100□LSZ0^00 | | | | | 5 | 0.77 | | | | | | | |
| TWCA175*125□CSZ0^00 | 1.7 | 125 | 1 | 2 | 2 | 15.61 | 1,250 | -16 | 7 | 8 | 415 | T1 | A |
| TWCA175*125□LSZ0^00 | | | | | 1 | 7.81 | | | | | | | |
| TWCA365*125□CSZ0^00 | 3.6 | 125 | 1 | 2 | 2.7 | 9.95 | 600 | -16 | 7 | 8 | 520 | T1 | A |
| TWCA365*125□LSZ0^00 | | | | | 1.35 | 4.98 | | | | | | | |
| TWCB905*125□CSZ0^00 | 9 | 125 | 1 | 5 | 5 | 7.37 | 240 | -16 | 7 | 8 | 755 | T2 | B |
| TWCB905*125□LSZ0^00 | | | | | 2.5 | 3.69 | | | | | | | |
| TWCB146*125□CSZ0^00 | 14 | 125 | 1 | 7 | 6 | 5.69 | 167 | -16 | 7 | 8 | 860 | T2 | B |
| TWCB146*125□LSZ0^00 | | | | | 3 | 2.85 | | | | | | | |
| TWCD186*125□CSZ0^00 | 18 | 125 | 2 | 9 | 5 | 3.69 | 129 | -16 | 7 | 8 | 1,130 | T3 | D |
| TWCD186*125□LSZ0^00 | | | | | 2.5 | 1.85 | | | | | | | |
| TWCD256*125□CSZ0^00 | 25 | 125 | 2 | 13 | 6 | 3.18 | 93 | -16 | 7 | 8 | 1,200 | T3 | D |
| TWCD256*125□LSZ0^00 | | | | | 3 | 1.59 | | | | | | | |
| TWCE566*125□CSZ0^00 | 56 | 125 | 10 | 40 | 6.5 | 1.54 | 32 | -25 | 15 | 15 | 1,800 | T4 | E |
| TWCE566*125□LSZ0^00 | | | | | 3.25 | 0.77 | | | | | | | |

All technical data relates to an ambient temperature of +25°C. Capacitance and DF are measured at 120Hz, 0.5RMS with DC bias of 2.2V. DCL is measured at rated voltage after 5 minutes.

NOTE: AVX reserves the rights to supply higher voltage rating in the same case size, to the same reliability standards.

TWC Series



COTS-Plus Conventional Wet Tantalum

EXTENDED RATINGS & PART NUMBER REFERENCE

| AVX Part Number | Cap (µF) 25°C at 120Hz | DC Rated Voltage (V) at 85°C | DC Leakage (µA) | | DF (Max) | ESR Max (Ohms) at 120Hz | Impedance max (Ohms) -55°C at 120Hz | Maximum Capacitance Change (%) | | | AC Ripple (mA rms) 85°C at 40kHz | Case Size | |
|---------------------|------------------------------|------------------------------------|-----------------|-------------------|-------------|-------------------------------|---|-----------------------------------|-------|--------|--|-----------|-----|
| | | | +25°C | +85°C & +125°C | | | | -55°C | +85°C | +125°C | | Standard | AVX |
| TWCA227*006□CSZ0*00 | 220 | 6 | 2 | 9 | 50 | 3.02 | 36 | -64 | 13 | 16 | 1,000 | T1 | A |
| TWCA227*006□LSZ0*00 | | | | | 25 | 1.51 | | | | | | | |
| TWCB827*006□CSZ0*00 | 820 | 6 | 3 | 14 | 155 | 2.51 | 18 | -88 | 16 | 20 | 1,500 | T2 | B |
| TWCB827*006□LSZ0*00 | | | | | 77.5 | 1.26 | | | | | | | |
| TWCD158*006□CSZ0*00 | 1,500 | 6 | 5 | 20 | 172 | 1.52 | 18 | -90 | 20 | 25 | 1,900 | T3 | D |
| TWCD158*006□LSZ0*00 | | | | | 86 | 0.76 | | | | | | | |
| TWCE228*006□CSZ0*00 | 2,200 | 6 | 6 | 24 | 170 | 1.03 | 13 | -90 | 25 | 30 | 2,300 | T4 | E |
| TWCE228*006□LSZ0*00 | | | | | 85 | 0.52 | | | | | | | |
| TWCA187*008□CSZ0*00 | 180 | 8 | 2 | 9 | 41 | 3.02 | 45 | -60 | 13 | 16 | 1,000 | T1 | A |
| TWCA187*008□LSZ0*00 | | | | | 20.5 | 1.51 | | | | | | | |
| TWCB687*008□CSZ0*00 | 680 | 8 | 3 | 14 | 130 | 2.54 | 22 | -83 | 16 | 20 | 1,500 | T2 | B |
| TWCB687*008□LSZ0*00 | | | | | 65 | 1.27 | | | | | | | |
| TWCD158*008□CSZ0*00 | 1,500 | 8 | 5 | 20 | 170 | 1.5 | 18 | -90 | 20 | 25 | 1,900 | T3 | D |
| TWCD158*008□LSZ0*00 | | | | | 85 | 0.75 | | | | | | | |
| TWCE188*008□CSZ0*00 | 1,800 | 8 | 7 | 25 | 138 | 1.02 | 14 | -90 | 25 | 30 | 2,300 | T4 | E |
| TWCE188*008□LSZ0*00 | | | | | 69 | 0.51 | | | | | | | |
| TWCA157*010□CSZ0*00 | 150 | 10 | 2 | 9 | 34 | 3.01 | 54 | -55 | 13 | 16 | 900 | T1 | A |
| TWCA157*010□LSZ0*00 | | | | | 17 | 1.51 | | | | | | | |
| TWCB567*010□CSZ0*00 | 560 | 10 | 3 | 16 | 106 | 2.51 | 27 | -77 | 16 | 20 | 1,450 | T2 | B |
| TWCB567*010□LSZ0*00 | | | | | 53 | 1.26 | | | | | | | |
| TWCD128*010□CSZ0*00 | 1,200 | 10 | 5 | 20 | 137 | 1.51 | 18 | -88 | 20 | 25 | 1,850 | T3 | D |
| TWCD128*010□LSZ0*00 | | | | | 68.5 | 0.76 | | | | | | | |
| TWCE158*010□CSZ0*00 | 1,500 | 10 | 7 | 25 | 114 | 1.01 | 15 | -88 | 25 | 30 | 2,300 | T4 | E |
| TWCE158*010□LSZ0*00 | | | | | 57 | 0.51 | | | | | | | |
| TWCA107*015□CSZ0*00 | 100 | 15 | 2 | 9 | 30 | 3.98 | 72 | -44 | 13 | 16 | 900 | T1 | A |
| TWCA107*015□LSZ0*00 | | | | | 15 | 1.99 | | | | | | | |
| TWCB397*015□CSZ0*00 | 390 | 15 | 3 | 16 | 74 | 2.52 | 31 | -66 | 16 | 20 | 1,450 | T2 | B |
| TWCB397*015□LSZ0*00 | | | | | 37 | 1.26 | | | | | | | |
| TWCD827*015□CSZ0*00 | 820 | 15 | 6 | 24 | 111 | 1.8 | 22 | -77 | 20 | 25 | 1,800 | T3 | D |
| TWCD827*015□LSZ0*00 | | | | | 55.5 | 0.9 | | | | | | | |
| TWCE108*015□CSZ0*00 | 1,000 | 15 | 8 | 32 | 92 | 1.22 | 17 | -77 | 25 | 30 | 2,300 | T4 | E |
| TWCE108*015□LSZ0*00 | | | | | 46 | 0.61 | | | | | | | |
| TWCA686*025□CSZ0*00 | 68 | 25 | 2 | 9 | 22 | 4.29 | 90 | -40 | 12 | 15 | 850 | T1 | A |
| TWCA686*025□LSZ0*00 | | | | | 11 | 2.15 | | | | | | | |
| TWCB277*025□CSZ0*00 | 270 | 25 | 3 | 16 | 55 | 2.7 | 33 | -62 | 13 | 16 | 1,400 | T2 | B |
| TWCB277*025□LSZ0*00 | | | | | 27.5 | 1.35 | | | | | | | |
| TWCD567*025□CSZ0*00 | 560 | 25 | 7 | 28 | 76 | 1.8 | 24 | -72 | 20 | 25 | 1,750 | T3 | D |
| TWCD567*025□LSZ0*00 | | | | | 38 | 0.9 | | | | | | | |
| TWCE687*025□CSZ0*00 | 680 | 25 | 8 | 32 | 63 | 1.23 | 19 | -72 | 25 | 30 | 2,100 | T4 | E |
| TWCE687*025□LSZ0*00 | | | | | 31.5 | 0.62 | | | | | | | |
| TWCA566*030□CSZ0*00 | 56 | 30 | 2 | 9 | 22 | 5.21 | 100 | -38 | 12 | 15 | 800 | T1 | A |
| TWCA566*030□LSZ0*00 | | | | | 11 | 2.61 | | | | | | | |
| TWCB227*030□CSZ0*00 | 220 | 30 | 3 | 16 | 42 | 2.53 | 36 | -60 | 13 | 16 | 1,200 | T2 | B |
| TWCB227*030□LSZ0*00 | | | | | 21 | 1.27 | | | | | | | |
| TWCD477*030□CSZ0*00 | 470 | 30 | 8 | 32 | 64 | 1.81 | 25 | -65 | 20 | 25 | 1,500 | T3 | D |
| TWCD477*030□LSZ0*00 | | | | | 32 | 0.91 | | | | | | | |
| TWCE567*030□CSZ0*00 | 560 | 30 | 9 | 36 | 55 | 1.3 | 20 | -65 | 25 | 30 | 2,000 | T4 | E |
| TWCE567*030□LSZ0*00 | | | | | 27.5 | 0.65 | | | | | | | |
| TWCA336*050□CSZ0*00 | 33 | 50 | 2 | 9 | 12.3 | 4.95 | 135 | -29 | 10 | 12 | 700 | T1 | A |
| TWCA336*050□LSZ0*00 | | | | | 6.15 | 2.48 | | | | | | | |
| TWCB127*050□CSZ0*00 | 120 | 50 | 4 | 24 | 22.5 | 2.49 | 49 | -42 | 12 | 15 | 1,200 | T2 | B |
| TWCB127*050□LSZ0*00 | | | | | 11.3 | 1.25 | | | | | | | |
| TWCD277*050□CSZ0*00 | 270 | 50 | 8 | 32 | 37 | 1.82 | 29 | -46 | 20 | 25 | 1,450 | T3 | D |
| TWCD277*050□LSZ0*00 | | | | | 18.5 | 0.91 | | | | | | | |
| TWCE337*050□CSZ0*00 | 330 | 50 | 9 | 36 | 38 | 1.53 | 22 | -46 | 25 | 30 | 1,900 | T4 | E |
| TWCE337*050□LSZ0*00 | | | | | 19 | 0.77 | | | | | | | |
| TWCA276*060□CSZ0*00 | 27 | 60 | 3 | 12 | 10.2 | 5.01 | 144 | -24 | 10 | 12 | 700 | T1 | A |
| TWCA276*060□LSZ0*00 | | | | | 5.1 | 2.51 | | | | | | | |
| TWCB107*060□CSZ0*00 | 100 | 60 | 4 | 20 | 19 | 2.52 | 54 | -36 | 12 | 15 | 1,100 | T2 | B |
| TWCB107*060□LSZ0*00 | | | | | 9.5 | 1.26 | | | | | | | |
| TWCD227*060□CSZ0*00 | 220 | 60 | 8 | 32 | 30 | 1.81 | 29 | -40 | 16 | 20 | 1,400 | T3 | D |
| TWCD227*060□LSZ0*00 | | | | | 15 | 0.91 | | | | | | | |

All technical data relates to an ambient temperature of +25°C. Capacitance and DF are measured at 120Hz, 0.5RMS with DC bias of 2.2V. DCL is measured at rated voltage after 5 minutes.

NOTE: AVX reserves the rights to supply higher voltage rating in the same case size, to the same reliability standards.

EXTENDED RATINGS & PART NUMBER REFERENCE

| AVX Part Number | Cap (µF) 25°C at 120Hz | DC Rated Voltage (V) at 85°C | DC Leakage (µA) | | DF (Max) | ESR Max (Ohms) at 120Hz | Impedance max (Ohms) -55°C at 120Hz | Maximum Capacitance Change (%) | | | AC Ripple (mA rms) 85°C at 40kHz | Case Size | |
|---------------------|------------------------------|------------------------------------|-----------------|-------------------|-------------|-------------------------------|---|-----------------------------------|-------|--------|--|-----------|-----|
| | | | +25°C | +85°C & +125°C | | | | -55°C | +85°C | +125°C | | Standard | AVX |
| TWCE277*060□CSZ0^00 | 270 | 60 | 9 | 36 | 27 | 1.33 | 23 | -45 | 20 | 25 | 1,850 | T4 | E |
| TWCE277*060□LSZ0^00 | | | | | 13.5 | 0.67 | | | | | | | |
| TWCA226*075□CSZ0^00 | 22 | 75 | 3 | 12 | 8.5 | 5.13 | 157 | -19 | 10 | 12 | 600 | T1 | A |
| TWCA226*075□LSZ0^00 | | | | | 4.25 | 2.57 | | | | | | | |
| TWCB826*075□CSZ0^00 | 82 | 75 | 4 | 24 | 15.2 | 2.46 | 63 | -30 | 12 | 15 | 1,000 | T2 | B |
| TWCB826*075□LSZ0^00 | | | | | 7.6 | 1.23 | | | | | | | |
| TWCD187*075□CSZ0^00 | 180 | 75 | 9 | 36 | 24.4 | 2.23 | 30 | -35 | 16 | 20 | 1,300 | T3 | D |
| TWCD187*075□LSZ0^00 | | | | | 12.2 | 0.9 | | | | | | | |
| TWCE227*075□CSZ0^00 | 220 | 75 | 10 | 40 | 37 | 1.8 | 24 | -40 | 20 | 25 | 1,800 | T4 | E |
| TWCE227*075□LSZ0^00 | | | | | 18.5 | 1.12 | | | | | | | |
| TWCA106*100□CSZ0^00 | 10 | 100 | 3 | 12 | 4.5 | 5.97 | 200 | -17 | 10 | 12 | 800 | T1 | A |
| TWCA106*100□LSZ0^00 | | | | | 2.25 | 2.99 | | | | | | | |
| TWCB396*100□CSZ0^00 | 39 | 100 | 5 | 24 | 10.4 | 3.54 | 80 | -20 | 12 | 15 | 1,300 | T2 | B |
| TWCB396*100□LSZ0^00 | | | | | 5.2 | 1.77 | | | | | | | |
| TWCD686*100□CSZ0^00 | 68 | 100 | 10 | 40 | 11.3 | 2.21 | 40 | -30 | 14 | 16 | 1,600 | T3 | D |
| TWCD686*100□LSZ0^00 | | | | | 5.65 | 1.11 | | | | | | | |
| TWCE127*100□CSZ0^00 | 120 | 100 | 12 | 48 | 25 | 2.76 | 30 | -35 | 15 | 17 | 2,000 | T4 | E |
| TWCE127*100□LSZ0^00 | | | | | 12.5 | 1.38 | | | | | | | |
| TWCA685*125□CSZ0^00 | 6.8 | 125 | 3 | 12 | 6 | 11.71 | 300 | -14 | 10 | 12 | 700 | T1 | A |
| TWCA685*125□LSZ0^00 | | | | | 3 | 5.86 | | | | | | | |
| TWCB276*125□CSZ0^00 | 27 | 125 | 5 | 24 | 7.2 | 3.54 | 90 | -18 | 12 | 15 | 1,200 | T2 | B |
| TWCB276*125□LSZ0^00 | | | | | 3.6 | 1.77 | | | | | | | |
| TWCD476*125□CSZ0^00 | 47 | 125 | 10 | 40 | 7.9 | 2.23 | 50 | -26 | 14 | 16 | 1,500 | T3 | D |
| TWCD476*125□LSZ0^00 | | | | | 3.95 | 1.12 | | | | | | | |
| TWCE826*125□CSZ0^00 | 82 | 125 | 12 | 48 | 17.4 | 2.82 | 32 | -30 | 15 | 17 | 1,900 | T4 | E |
| TWCE826*125□LSZ0^00 | | | | | 8.7 | 1.41 | | | | | | | |

All technical data relates to an ambient temperature of +25°C. Capacitance and DF are measured at 120Hz, 0.5RMS with DC bias of 2.2V. DCL is measured at rated voltage after 5 minutes.

NOTE: AVX reserves the rights to supply higher voltage rating in the same case size, to the same reliability standards.

TESTING

All TWC COTS-Plus product is tested using MIL-PRF-39006 test procedures.

Lot Conformance Testing*

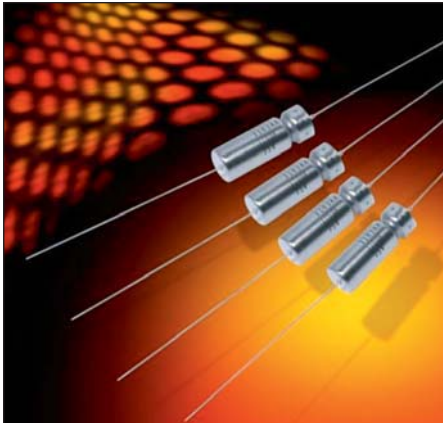
| Inspection | Sampling Procedure |
|--|--------------------|
| Constant Voltage Conditioning DC Leakage Capacitance Dissipation Factor Seal, Condition A or D | 100% Inspection |
| Visual Examination Material Marking Workmanship | 13 Samples |

*Additional testing and inspection is available, please contact the factory for details.

TWC-Y High Temperature Series



COTS-Plus 200°C Wet Tantalum



The TWC-Y high temperature series represents a COTS-Plus version of conventional wet electrolytic tantalum capacitors that are designed for use at 200°C. The components listed are now capable of 500 hours of operation at extreme temperature with the applicable derated voltage.

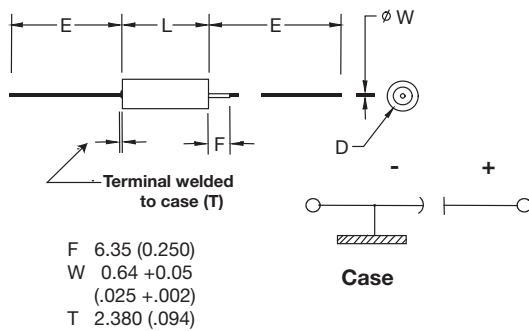
This design includes a welded tantalum can and header assembly that provides a hermetic seal to withstand harsh environments.

This is a new product line so please contact the factory for availability and additional details.

CASE DIMENSIONS: millimeters (inches)

| Standard Case Size | AVX Case Size | L +0.79 (0.031) -0.41 (0.016) | D Basic Case ±0.41 (0.016) | D Insulated Case Max | E ±6.35 (0.250) |
|--------------------|---------------|-------------------------------------|----------------------------------|----------------------------|--------------------|
| T1 | A | 11.51 (0.453) | 4.78 (0.188) | 5.56 (0.219) | 38.10 (1.500) |
| T2 | B | 16.28 (0.641) | 7.14 (0.281) | 7.92 (0.312) | 57.15 (2.250) |
| T3 | D | 19.46 (0.766) | 9.52 (0.375) | 10.31 (0.406) | 57.15 (2.250) |
| T4 | E | 26.97 (1.062) | 9.52 (0.375) | 10.31 (0.406) | 57.15 (2.250) |

OUTLINE DIMENSIONS



200°C LIFE TEST:

These components are capable of 500 hours of operation at 200°C with the applicable 60% derated voltage. Following the life test components which are stabilized at 25°C ± 5°C shall exhibit:

Leakage less than 200% the original requirement or ± 10µA (whichever is greater)

ESR not greater than 200% the original requirement

Capacitance increase less than 10% or decrease less than 20% the initial measurement

HOW TO ORDER

AVX PART NUMBER:

| | | | | | | | | | | |
|------------|-----------|--|---|--------------|--|-------------------------|---------------------------------|---------------------------|---|--------------------------------------|
| TWC | B | 476 | * | 050 | □ | C | Y | Z | ^ | 00 |
| Type | Case Size | Capacitance Code pF code: 1st two digits represent significant figures 3rd digit represents multiplier (number of zeros to follow) | Capacitance Tolerance M = ±20% K = ±10% | Voltage Code | Insulation Sleeve C = Without Sleeve S = With Sleeve | ESR C = Standard ESR | Qualification Y = High Temp. | Reliability Z = Non-ER | Termination Finish 00 = Sn/Pb 60/40 07 = 100% Tin | Custom Test Options 00 = Standard |

LEAD-FREE
LEAD-FREE COMPATIBLE
COMPONENT

RoHS
COMPLIANT

For RoHS compliant products, please select correct termination style.

TECHNICAL SPECIFICATIONS

Technical Data: Unless otherwise specified, all technical data relate to an ambient temperature of +25°C

Capacitance Tolerance: ±10%; ±20%

| Rated Voltage (V _R) | ≤ 85°C: | 6 | 8 | 10 | 15 | 25 | 30 | 50 | 60 | 75 | 100 | 125 |
|---|-----------------|------------|------------|----------|----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|
| Category Voltage (V _C) | ≤ 125°C: | 4 | 5 | 7 | 10 | 15 | 20 | 30 | 40 | 50 | 65 | 85 |
| High Temp, Voltage (V_T) | ≤ 200°C: | 3.6 | 4.8 | 6 | 9 | 12 | 18 | 30 | 36 | 45 | 60 | 75 |
| Surge Voltage (V _S) | ≤ 85°C: | 6.9 | 9.2 | 11.5 | 17.3 | 28.8 | 34.5 | 57.5 | 69 | 86.3 | 115 | 144 |

Temperature Range: -55°C to +200°C



TWC-Y High Temperature Series



COTS-Plus 200°C Wet Tantalum

STANDARD RATINGS & PART NUMBER REFERENCE

| AVX Part Number | Cap (µF) +25°C at 120Hz | DC Rated Voltage (V) at +85°C | DC Leakage (µA) | | DF (max) | ESR Max (Ohms) at 120Hz | Maximum Capacitance Change (%) | | | Case Size | |
|--|-------------------------------|-------------------------------------|-----------------|-------------------|-------------|-------------------------------|-----------------------------------|-------|--------|-----------|-----|
| | | | +25°C | +85°C & +125°C | | | -55°C | +85°C | +125°C | Standard | AVX |
| 6 VDC at 85°C 4 VDC at 125°C 3.6 VDC at 200°C | | | | | | | | | | | |
| TWCB147*006□CYZ0^00 | 140 | 6 | 1 | 3 | 21 | 1.99 | -40 | 14 | 16 | T2 | B |
| TWCD337*006□CYZ0^00 | 330 | 6 | 2 | 7.9 | 36 | 1.45 | -44 | 14 | 16 | T3 | D |
| TWCD567*006□CYZ0^00 | 560 | 6 | 2 | 13 | 55 | 1.30 | -64 | 17.5 | 20 | T3 | D |
| 8 VDC at 85°C 5 VDC at 125°C 4.8 VDC at 200°C | | | | | | | | | | | |
| TWCB127*008□CYZ0^00 | 120 | 8 | 1 | 2 | 20 | 2.21 | -44 | 17.5 | 20 | T2 | B |
| TWCD297*008□CYZ0^00 | 290 | 8 | 2 | 6 | 34 | 1.56 | -64 | 17.5 | 20 | T3 | D |
| TWCD437*008□CYZ0^00 | 430 | 8 | 2 | 14 | 46 | 1.42 | -64 | 17.5 | 20 | T3 | D |
| 10 VDC at 85°C 7 VDC at 125°C 6 VDC at 200°C | | | | | | | | | | | |
| TWCB107*010□CYZ0^00 | 100 | 10 | 1 | 4 | 15 | 1.99 | -36 | 14 | 16 | T2 | B |
| TWCD257*010□CYZ0^00 | 250 | 10 | 2 | 10 | 30 | 1.59 | -40 | 14 | 16 | T3 | D |
| TWCD397*010□CYZ0^00 | 390 | 10 | 2 | 16 | 44 | 1.50 | -64 | 17.5 | 20 | T3 | D |
| 15 VDC at 85°C 10 VDC at 125°C 9 VDC at 200°C | | | | | | | | | | | |
| TWCB706*015□CYZ0^00 | 70 | 15 | 1 | 4 | 13 | 2.46 | -28 | 14 | 16 | T2 | B |
| TWCD177*015□CYZ0^00 | 170 | 15 | 2 | 10 | 25 | 1.95 | -32 | 14 | 16 | T3 | D |
| TWCD277*015□CYZ0^00 | 270 | 15 | 2 | 16 | 32 | 1.57 | -56 | 17.6 | 20 | T3 | D |
| 25 VDC at 85°C 15 VDC at 125°C 15 VDC at 200°C | | | | | | | | | | | |
| TWCA226*025□CYZ0^00 | 22 | 25 | 1 | 2 | 6.6 | 3.98 | -20 | 10.5 | 12 | T1 | A |
| TWCA686*025□CYZ0^00 | 68 | 25 | 2 | 9 | 22 | 4.29 | -50 | 12 | 15 | T1 | A |
| TWCB107*025□CYZ0^00 | 100 | 25 | 1 | 10 | 15 | 1.99 | -28 | 13 | 15 | T2 | B |
| TWCD127*025□CYZ0^00 | 120 | 25 | 2 | 6 | 21 | 2.32 | -32 | 13 | 15 | T3 | D |
| TWCD187*025□CYZ0^00 | 180 | 25 | 2 | 18 | 26 | 1.92 | -48 | 13 | 15 | T3 | D |
| TWCB277*025□CYZ0^00 | 270 | 25 | 3 | 16 | 55 | 2.70 | -62 | 13 | 16 | T2 | B |
| TWCD567*025□CYZ0^00 | 560 | 25 | 7 | 28 | 76 | 1.80 | -77 | 20 | 25 | T3 | D |
| 30 VDC at 85°C 20 VDC at 125°C 18 VDC at 200°C | | | | | | | | | | | |
| TWCA156*030□CYZ0^00 | 15 | 30 | 1 | 2 | 5 | 4.42 | -20 | 10.5 | 12 | T1 | A |
| TWCA566*030□CYZ0^00 | 56 | 30 | 2 | 9 | 22 | 5.21 | -48 | 12 | 15 | T1 | A |
| TWCB686*030□CYZ0^00 | 68 | 30 | 1 | 8 | 13 | 2.54 | -24 | 13 | 15 | T2 | B |
| TWCD107*030□CYZ0^00 | 100 | 30 | 2 | 12 | 17 | 2.26 | -28 | 10.5 | 12 | T3 | D |
| TWCD157*030□CYZ0^00 | 150 | 30 | 2 | 18 | 23 | 2.03 | -48 | 13 | 15 | T3 | D |
| TWCB227*030□CYZ0^00 | 220 | 30 | 3 | 16 | 42 | 2.53 | -60 | 13 | 16 | T2 | B |
| TWCE307*030□CYZ0^00 | 300 | 30 | 8 | 32 | 31 | 1.37 | -60 | 25 | 25 | T4 | E |
| TWCD397*030□CYZ0^00 | 390 | 30 | 6 | 18 | 53 | 1.80 | -65 | 18 | 25 | T3 | D |
| TWCD477*030□CYZ0^00 | 470 | 30 | 8 | 32 | 64 | 1.81 | -70 | 20 | 25 | T3 | D |
| TWCE567*030□CYZ0^00 | 560 | 30 | 9 | 36 | 55 | 1.30 | -65 | 25 | 30 | T4 | E |
| 50 VDC at 85°C 30 VDC at 125°C 30 VDC at 200°C | | | | | | | | | | | |
| TWCA106*050□CYZ0^00 | 10 | 50 | 1 | 2 | 4 | 5.31 | -24 | 8 | 9 | T1 | A |
| TWCA336*050□CYZ0^00 | 33 | 50 | 2 | 9 | 12.3 | 4.95 | -39 | 10 | 12 | T1 | A |
| TWCB476*050□CYZ0^00 | 47 | 50 | 1 | 9 | 11 | 3.11 | -28 | 13 | 15 | T2 | B |
| TWCD606*050□CYZ0^00 | 60 | 50 | 2 | 12 | 12 | 2.65 | -16 | 10.5 | 12 | T3 | D |
| TWCD826*050□CYZ0^00 | 82 | 50 | 2 | 16 | 15 | 2.43 | -32 | 13 | 15 | T3 | D |
| TWCB127*050□CYZ0^00 | 120 | 50 | 4 | 24 | 22.5 | 2.49 | -42 | 12 | 15 | T2 | B |
| TWCE167*050□CYZ0^00 | 160 | 50 | 8 | 32 | 17 | 1.41 | -50 | 25 | 25 | T4 | E |
| TWCD277*050□CYZ0^00 | 270 | 50 | 8 | 32 | 37 | 1.82 | -51 | 20 | 25 | T3 | D |
| TWCE337*050□CYZ0^00 | 330 | 50 | 9 | 36 | 38 | 1.53 | -46 | 25 | 30 | T4 | E |
| 60V VDC at 85°C 40 VDC at 125°C 36 VDC at 200°C | | | | | | | | | | | |
| TWCA825*060□CYZ0^00 | 8.2 | 60 | 1 | 2 | 4 | 6.47 | -24 | 8 | 9 | T1 | A |
| TWCA276*060□CYZ0^00 | 27 | 60 | 3 | 12 | 10.2 | 5.01 | -34 | 10 | 12 | T1 | A |
| TWCD506*060□CYZ0^00 | 50 | 60 | 2 | 12 | 10 | 2.65 | -16 | 10.5 | 12 | T3 | D |
| TWCD686*060□CYZ0^00 | 68 | 60 | 2 | 16 | 13 | 2.54 | -32 | 10.5 | 12 | T3 | D |
| TWCB107*060□CYZ0^00 | 100 | 60 | 4 | 20 | 19 | 2.52 | .36 | 12 | 15 | T2 | B |
| TWCE147*060□CYZ0^00 | 140 | 60 | 8 | 32 | 16 | 1.52 | -40 | 20 | 20 | T4 | E |
| TWCD227*060□CYZ0^00 | 220 | 60 | 8 | 32 | 30 | 1.81 | -45 | 16 | 20 | T3 | D |
| TWCE277*060□CYZ0^00 | 270 | 60 | 9 | 36 | 27 | 1.33 | -45 | 20 | 25 | T4 | E |
| 75V VDC at 85°C 50 VDC at 125°C 45 VDC at 200°C | | | | | | | | | | | |
| TWCA685*075□CYZ0^00 | 6.8 | 75 | 1 | 2 | 3.5 | 6.83 | -20 | 8 | 9 | T1 | A |
| TWCA226*075□CYZ0^00 | 22 | 75 | 3 | 12 | 8.5 | 5.13 | -29 | 10 | 12 | T1 | A |
| TWCD566*075□CYZ0^00 | 56 | 75 | 2 | 17 | 11 | 2.61 | -28 | 10.5 | 15 | T3 | D |
| TWCB826*075□CYZ0^00 | 82 | 75 | 4 | 24 | 15.2 | 2.46 | -30 | 12 | 15 | T2 | B |
| TWCE117*075□CYZ0^00 | 110 | 75 | 9 | 36 | 12 | 1.45 | -35 | 20 | 20 | T4 | E |
| TWCD187*075□CYZ0^00 | 180 | 75 | 9 | 36 | 24.4 | 2.23 | -40 | 16 | 20 | T3 | D |
| TWCE227*075□CYZ0^00 | 220 | 75 | 10 | 40 | 37 | 1.80 | -40 | 20 | 25 | T4 | E |
| 100 VDC at 85°C 65 VDC at 125°C 60 VDC at 200°C | | | | | | | | | | | |
| TWCB226*100□CYZ0^00 | 22 | 100 | 1 | 9 | 7.5 | 4.52 | -16 | 8 | 8 | T2 | B |
| TWCE127*100□CYZ0^00 | 120 | 100 | 12 | 48 | 25 | 2.76 | -35 | 15 | 17 | T4 | E |
| 125 VDC at 85°C 85 VDC at 125°C 75 VDC at 200°C | | | | | | | | | | | |
| TWCB276*125□CYZ0^00 | 27 | 125 | 5 | 24 | 7.2 | 3.54 | -18 | 12 | 15 | T2 | B |
| TWCE826*125□CYZ0^00 | 82 | 125 | 12 | 48 | 17.4 | 2.82 | -30 | 15 | 17 | T4 | E |

All technical data relates to an ambient temperature of +25°C. Capacitance and DF are measured at 120Hz, 0.5RMS with DC bias of 2.2V. DCL is measured at rated voltage after 5 minutes.
 Note: AVX reserves the right to supply higher voltage rating in the same case size to the same reliability standards.



TWD High Temp Max Cap (HTMC) Series

Wet Tantalum Super Capacitor



The TWD series is an axial leaded wet electrolytic tantalum capacitor designed for DC (hold-up) and low frequency pulse applications.

Utilizing high CV Tantalum powders the HTMC series achieves extreme high capacitance values that are similar to the Super capacitor range. The HTMC offers extended temperature range up to 125°C and extended life up to 10000 hrs.

Components are suitable for automatic mounting and soldering.

Well-established wet tantalum design is suitable for applications with hi-reliability requirements. Contact the factory about design possibilities beyond those contained in this datasheet.

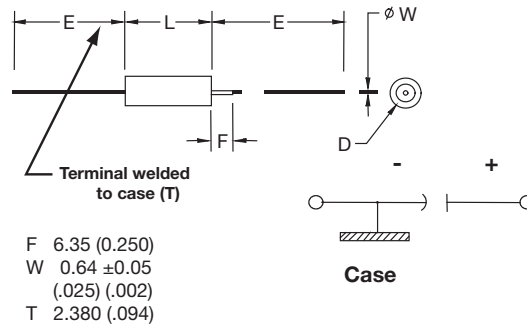
FEATURES

- Super high capacitance
- -55 to 125°C operation temperature
- Hermetic packaging
- Endurance up to 10 000 hrs. on selected codes
- High electrical and mechanical stability

APPLICATIONS

- Special industrial
- Avionics
- Military

OUTLINE DIMENSIONS



CASE DIMENSIONS: millimeters (inches)

| DSCC Case Size | AVX Case Size | L | D | D | E |
|----------------|---------------|--------------------------------|--|-------------------------------|---------------|
| | | +0.79 (0.031) -0.41 (0.016) | Without Insulating Sleeve ±0.41 (0.016) | With Insulating Sleeve Max | ±6.35 (0.250) |
| T4 | E | 26.97 (1.062) | 9.52 (0.375) | 10.31 (0.406) | 57.15 (2.250) |

CAPACITANCE AND RATED VOLTAGE, V_R (VOLTAGE CODE) RANGE (LETTER DENOTES CASE SIZE)

| DC Capacitance | | Rated Voltage DC (V _R) to 85°C | | |
|----------------|------|--|------|-----|
| mF | Code | 2.5V | 6.3V | 10V |
| 25 | 253 | | | E |
| 50 | 503 | | E | |
| 150 | 154 | E* | | |

Available Ratings

Engineering samples - please contact manufacturer

*Codes under development

TWD High Temp Max Cap (HTMC) Series



Wet Tantalum Super Capacitor

HOW TO ORDER

AVX PART NUMBER:

| | | | | | | | | | | | |
|------------|-----------|--|---|---|--|----------------------------|-----------------------------|---------------------------|--------------------------------|--|--------------------------------------|
| TWD | E | 503 | * | 006 | □ | B | 0 | Z | 0 | ^ | 00 |
| Type | Case Size | Capacitance Code µF code: 1st two digits represent significant figures 3rd digit represents multiplier (number of zeros to follow) | Capacitance Tolerance K = ±10% M = ±20% | Voltage Code 002 = 2.5Vdc 006 = 6.3Vdc 010 = 10Vdc | Insulation Sleeve C = Without Sleeve S = With Sleeve | Packaging B = Tray Pack | Inspection Level 0 = N/A | Reliability Z = Non-ER | Qualification Level 0 = N/A | Termination Finish 0 = Sn/Pb 60/40 7 = Matte tin | Custom Test Options 00 = Standard |



For RoHS compliant products, please select correct termination style.

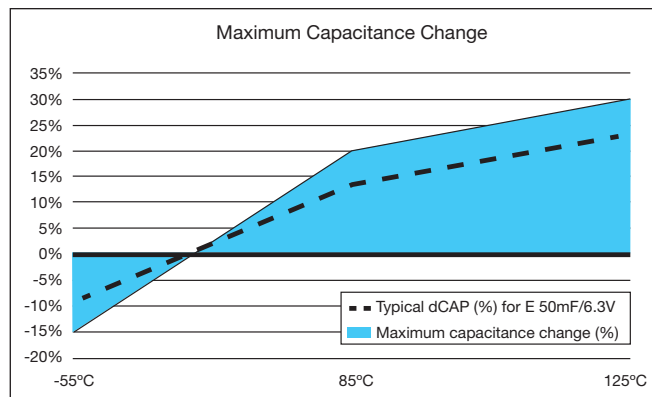
TECHNICAL SPECIFICATIONS

| | | | | | |
|------------------------------------|---|--------------------------------|-----|------|--|
| Technical Data: | All technical data relate to an ambient temperature of +25°C | | | | |
| Capacitance Range: | 25mF to 50mF (for extended range under development, contact manufacturer) | | | | |
| Capacitance Tolerance: | ±10%; ±20% | | | | |
| Rated Voltage (V _R) | ≤ 85°C: | 2.5 | 6.3 | 10 | |
| Category Voltage (V _C) | ≤ 125°C: | n/a | 4.2 | 6.6 | |
| Surge Voltage (V _S) | ≤ 85°C: | 2.5 | 7.2 | 11.5 | |
| Temperature Range: | -55°C to +85°C | -55°C to +125°C | | | |
| Endurance: | 2000h at +85°C/V _R | 10000h at +85°C/V _R | | | |
| Reliability: | 1% per 1000 hours at 85°C, V _R with 0.1Ω/Vseries impedance, 60% confidence level | | | | |
| Termination Finish: | Sn Plating, SnPb Plating 60/40 | | | | |

RATINGS & PART NUMBER REFERENCE

| AVX Part Number | Cap (mF) ^{2/} at 25°C | Rated Voltage (V) | Rated Temperature (°C) | Category Voltage (V) | Category Temperature (°C) | DC Leakage Max (µA) ^{1/} | | | Maximum Capacitance Change (%) | | | ESR Max (mOhms) at 1kHz | Case Size | | Lifetime at 85°C (hrs.) | |
|------------------------|--------------------------------|-------------------|------------------------|----------------------|---------------------------|-----------------------------------|-------|--------|--------------------------------|-------|--------|-------------------------|-----------|------|-------------------------|--|
| | | | | | | +25°C | +85°C | +125°C | -55°C | +85°C | +125°C | | AVX | DSCC | | |
| 6.3 VDC at 85°C | | | | | | | | | | | | | | | | |
| TWDE503*006□B0Z0^00 | 50 | 6.3 | 85 | 4.16 | 125 | 20 | 60 | 60 | -15 | +20 | +30 | 400 | E | T4 | 10000 | |
| 10 VDC at 85°C | | | | | | | | | | | | | | | | |
| TWDE253*010□B0Z0^00 | 25 | 10 | 85 | 6.6 | 125 | 20 | 60 | 60 | -15 | +20 | +30 | 400 | E | T4 | 10000 | |

- 1/ DCL is measured at rated or category voltage after 20 minutes.
- 2/ DC capacitance is measured by discharging initially fully charged capacitor down to 0.37U_r through 1kOhm.

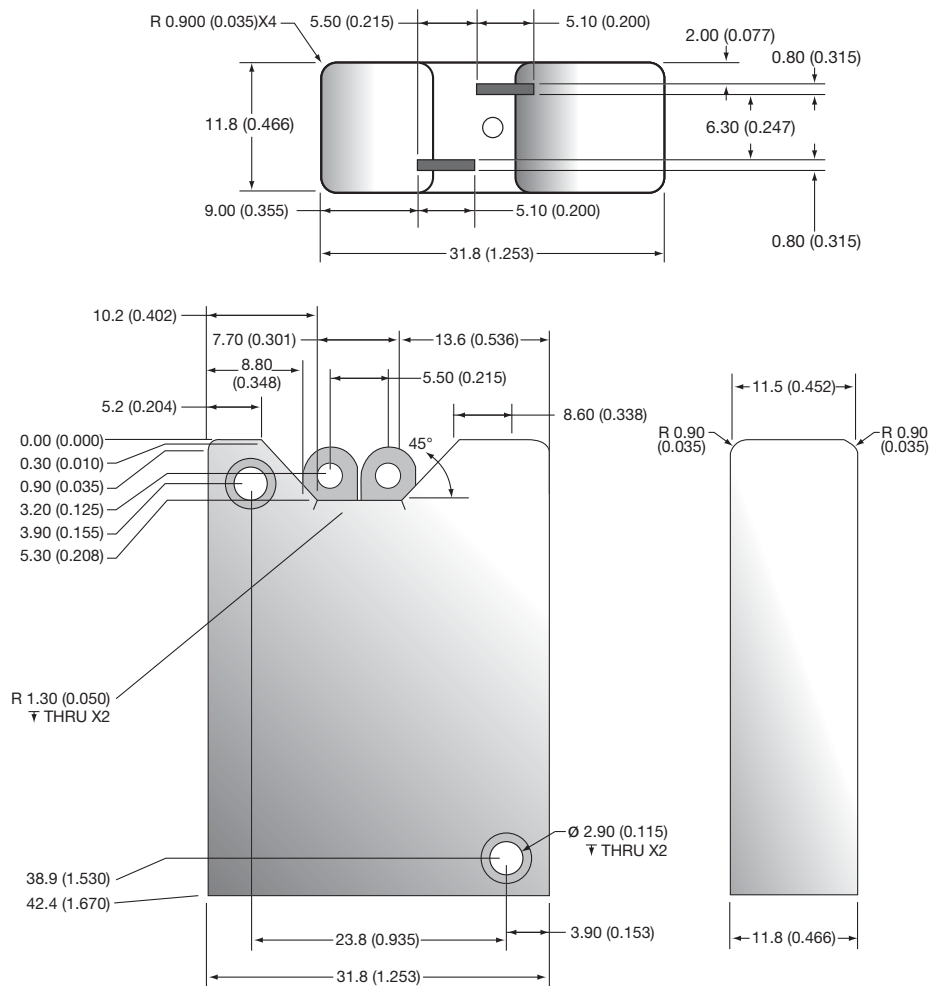




AVX modular packaged
93026 style capacitors.

Capacitance Range: 200µF to 6600µF
Voltage Range: 25 to 125V
Temperature Range: -55°C to 125°C
Tolerance Range: 10%, 20%

DIMENSIONS: millimeters (inches)



VOLTAGE RATINGS (Operating Temperature -55°C to 125°C)

| Voltage (DC) | | 25 | 30 | 50 | 60 | 75 | 100 | 125 |
|-----------------------|-------|------|------|------|----|------|-----|-----|
| Rated Voltage: (Ur) | 85°C | 25 | 30 | 50 | 60 | 75 | 100 | 125 |
| Derated Voltage: (Uc) | 125°C | 15 | 20 | 30 | 40 | 50 | 65 | 85 |
| Surge Voltage: (Us) | 85°C | 28.8 | 34.5 | 57.5 | 69 | 86.3 | 115 | 144 |

HOW TO ORDER

AVX PART NUMBER:

| | | | | | | | | | | | |
|-----------|-----------|--|---|------------|----------|-----------------------|--------------------------------|---------------------------------------|-----------------------------------|--|-------------------------------|
| TW | 2E | 227 | * | 050 | C | B | @ | Z | 0 | S | ++ |
| Type | Case Size | Capacitance Code pF code: 1st two digits represent significant figures 3rd digit represents multiplier (number of zeros to follow) | Capacitance Tolerance K = ±10% M = ±20% | Voltage | C = N/A | Packaging B = Bulk | Qualification S = COTS-PLus | Established Reliability Z = Non-ER | Reliability Grade 0 = Standard | Termination Finish S = Silver Plating | Special Code 00 = Standard |

Not RoHS Compliant

SnPb termination option is not RoHS compliant.

RIPPLE CURRENT MULTIPLIERS vs. Frequency, temperature and applied voltage^{1/2/}

| Frequency of Applied Ripple Current | 120Hz | | | | 800Hz | | | | 1kHz | | | |
|-------------------------------------|-------|------|------|------|-------|------|------|------|------|------|------|------|
| | ≤55 | 85 | 105 | 125 | ≤55 | 85 | 105 | 125 | ≤55 | 85 | 105 | 125 |
| % of 100% | 0.60 | 0.39 | - | - | 0.71 | 0.43 | - | - | 0.72 | 0.45 | - | - |
| 85°C 90% | 0.60 | 0.46 | - | - | 0.71 | 0.55 | - | - | 0.72 | 0.55 | - | - |
| Rated 80% | 0.60 | 0.52 | 0.35 | - | 0.71 | 0.62 | 0.42 | - | 0.72 | 0.62 | 0.42 | - |
| Peak 70% | 0.60 | 0.58 | 0.44 | - | 0.71 | 0.69 | 0.52 | - | 0.72 | 0.70 | 0.52 | - |
| Voltage 66-2/3% | 0.60 | 0.60 | 0.46 | 0.27 | 0.71 | 0.71 | 0.55 | 0.32 | 0.72 | 0.72 | 0.55 | 0.32 |

| Frequency of Applied Ripple Current | 10kHz | | | | 40kHz | | | | 100kHz | | | |
|-------------------------------------|-------|------|------|------|-------|------|------|------|--------|------|------|------|
| | ≤55 | 85 | 105 | 125 | ≤55 | 85 | 105 | 125 | ≤55 | 85 | 105 | 125 |
| % of 100% | 0.88 | 0.55 | - | - | 1.00 | 0.63 | - | - | 1.10 | 0.69 | - | - |
| 85°C 90% | 0.88 | 0.67 | - | - | 1.00 | 0.77 | - | - | 1.10 | 0.85 | - | - |
| Rated 80% | 0.88 | 0.76 | 0.52 | - | 1.00 | 0.87 | 0.59 | - | 1.10 | 0.96 | 0.65 | - |
| Peak 70% | 0.88 | 0.85 | 0.64 | - | 1.00 | 0.97 | 0.73 | - | 1.10 | 1.07 | 0.80 | - |
| Voltage 66-2/3% | 0.88 | 0.88 | 0.68 | 0.40 | 1.00 | 1.00 | 0.77 | 0.45 | 1.10 | 1.10 | 0.85 | 0.50 |

1/ At 125°C the rated voltage of the capacitors decreases to 66 2/3 of the 85°C rated voltage.

2/ The peak of the applied ac ripple voltage plus the applied dc voltage must not exceed the dc voltage rating of the capacitors.

RATINGS & PART NUMBER REFERENCE

| AVX Part Number | Cap (uF) | DC Rated Voltage (V) | ESR Max (ohms) | DC Leakage Max (uA) | | Max Impedance (Ohms) | Maximum Capacitance Change* (%) | | | Max AC Ripple* (mA rms) |
|--|---------------|----------------------|----------------|---------------------|----------------|----------------------|---------------------------------|-------|--------|-------------------------|
| | 25°C at 120Hz | 85°C | 120Hz | +25°C | +85 and +125°C | -55°C at 120 Hz | -55°C | +85°C | +125°C | 85°C at 40kHz |
| 25 VDC at 85°C 15 VDC at 125°C | | | | | | | | | | |
| TW2D248*025CB@Z0S++ | 2400 | 25 | 0.33 | 10 | 40 | 3.50 | -70 | 12 | 18 | 5200 |
| TW3D368*025CB@Z0S++ | 3600 | 25 | 0.22 | 15 | 60 | 2.33 | -70 | 12 | 18 | 7800 |
| TW2E368*025CB@Z0S++ | 3600 | 25 | 0.25 | 12 | 50 | 3.50 | -75 | 12 | 20 | 6200 |
| TW2E448*025CB@Z0S++ | 4400 | 25 | 0.25 | 20 | 160 | 5.00 | -90 | 30 | 50 | 6400 |
| TW3E548*025CB@Z0S++ | 5400 | 25 | 0.17 | 18 | 75 | 2.33 | -75 | 12 | 20 | 9300 |
| TW3E668*025CB@Z0S++ | 6600 | 25 | 0.17 | 30 | 240 | 3.33 | -90 | 30 | 50 | 9600 |
| 30 VDC at 85°C 20 VDC at 125°C | | | | | | | | | | |
| TW2D208*030CB@Z0S++ | 2000 | 30 | 0.35 | 14 | 50 | 3.50 | -70 | 10 | 18 | 5000 |
| TW3D308*030CB@Z0S++ | 3000 | 30 | 0.23 | 21 | 75 | 2.33 | -70 | 10 | 18 | 7500 |
| TW2E308*030CB@Z0S++ | 3000 | 30 | 0.30 | 24 | 70 | 3.00 | -72 | 10 | 20 | 6000 |
| TW3E458*030CB@Z0S++ | 4500 | 30 | 0.20 | 36 | 105 | 2.00 | -72 | 10 | 20 | 9000 |
| 50 VDC at 85°C 30 VDC at 125°C | | | | | | | | | | |
| TW2D947*050CB@Z0S++ | 940 | 50 | 0.38 | 6 | 50 | 5.00 | -50 | 8 | 15 | 4200 |
| TW2E148*050CB@Z0S++ | 1360 | 50 | 0.35 | 10 | 80 | 4.00 | -58 | 10 | 20 | 5500 |
| TW3D148*050CB@Z0S++ | 1410 | 50 | 0.25 | 9 | 75 | 3.33 | -50 | 8 | 15 | 6300 |
| TW3E208*050CB@Z0S++ | 2040 | 50 | 0.23 | 15 | 120 | 2.67 | -58 | 10 | 20 | 8250 |
| TW2E308*050CB@Z0S++ | 3000 | 50 | 0.50 | 38 | 200 | 7.50 | -90 | 25 | 35 | 6000 |
| TW3E458*050CB@Z0S++ | 4500 | 50 | 0.33 | 57 | 300 | 5.00 | -90 | 25 | 35 | 9000 |
| TW3E908*050CB@Z0S++ | 9000 | 50 | 0.33 | 150 | 450 | 1.20 | -80 | 60 | 85 | 9300 |
| 60 VDC at 85°C 40 VDC at 125°C | | | | | | | | | | |
| TW2D787*060CB@Z0S++ | 780 | 60 | 0.45 | 6 | 50 | 7.50 | -60 | 8 | 15 | 4200 |
| TW2E118*060CB@Z0S++ | 1120 | 60 | 0.40 | 10 | 80 | 5.00 | -58 | 8 | 15 | 5500 |
| TW3D128*060CB@Z0S++ | 1170 | 60 | 0.30 | 9 | 75 | 5.00 | -60 | 8 | 15 | 6300 |
| TW3E178*060CB@Z0S++ | 1680 | 60 | 0.27 | 15 | 120 | 3.33 | -58 | 8 | 15 | 8250 |
| TW2E208*060CB@Z0S++ | 2000 | 60 | 0.50 | 24 | 180 | 10.00 | -90 | 30 | 50 | 6400 |
| TW3E308*060CB@Z0S++ | 3000 | 60 | 0.33 | 36 | 270 | 6.67 | -90 | 30 | 50 | 9600 |
| 75 VDC at 85°C 50 VDC at 125°C | | | | | | | | | | |
| TW2D667*075CB@Z0S++ | 660 | 75 | 0.50 | 6 | 60 | 6.00 | -45 | 6 | 10 | 4200 |
| TW2E947*075CB@Z0S++ | 940 | 75 | 0.45 | 10 | 100 | 6.00 | -55 | 6 | 10 | 5500 |
| TW3D997*075CB@Z0S++ | 990 | 75 | 0.33 | 9 | 90 | 4.00 | -45 | 6 | 10 | 6300 |
| TW3E148*075CB@Z0S++ | 1410 | 75 | 0.30 | 15 | 150 | 4.00 | -55 | 6 | 10 | 8250 |
| 100 VDC at 85°C 65 VDC at 125°C | | | | | | | | | | |
| TW2D307*100CB@Z0S++ | 300 | 100 | 0.80 | 6 | 50 | 11.00 | -35 | 6 | 12 | 4200 |
| TW2E447*100CB@Z0S++ | 440 | 100 | 0.60 | 10 | 100 | 7.50 | -40 | 6 | 12 | 5500 |
| TW3D457*100CB@Z0S++ | 450 | 100 | 0.53 | 9 | 75 | 7.33 | -35 | 6 | 12 | 6300 |
| TW3E667*100CB@Z0S++ | 660 | 100 | 0.40 | 15 | 150 | 5.00 | -40 | 6 | 12 | 8250 |
| 125 VDC at 85°C 85 VDC at 125°C | | | | | | | | | | |
| TW2D207*125CB@Z0S++ | 200 | 125 | 0.90 | 6 | 50 | 17.50 | -35 | 5 | 12 | 4200 |
| TW3D307*125CB@Z0S++ | 300 | 125 | 0.60 | 9 | 75 | 11.67 | -35 | 5 | 12 | 6300 |
| TW2E307*125CB@Z0S++ | 300 | 125 | 0.80 | 10 | 100 | 10.00 | -35 | 6 | 12 | 5500 |
| TW3E457*125CB@Z0S++ | 450 | 125 | 0.53 | 15 | 150 | 6.67 | -35 | 6 | 12 | 8250 |

*For reference only, contact factory for more details

TAJ ESCC Tantalum Capacitors



SMD Solid Tantalum Chip Capacitors



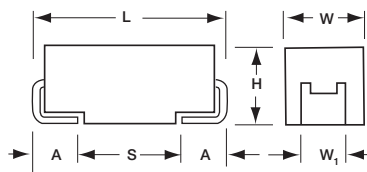
Capacitors, Fixed, Leadless Surface Mount, Chip, Solid electrolyte Tantalum for use in ESCC space programs, according to ESCC Generic Specification 3012 and associated Detail Specification 3012/001 as recommended by the Space Components Coordination Group (ranges in table below).



CASE DIMENSIONS: millimeters (inches)

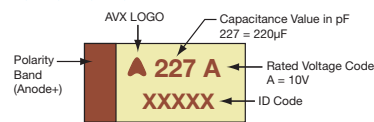
| Code | EIA Code | Variant | L±0.20 (0.008) | W+0.20 (0.008) -0.10 (0.004) | H+0.20 (0.008) -0.10 (0.004) | W ₁ ±0.20 (0.008) | A+0.30 (0.012) -0.20 (0.008) | S Min. |
|------|----------|---------|----------------|------------------------------|------------------------------|------------------------------|------------------------------|--------------|
| A | 3216-18 | 01 | 3.20 (0.126) | 1.60 (0.063) | 1.60 (0.063) | 1.20 (0.047) | 0.80 (0.031) | 1.10 (0.043) |
| B | 3528-21 | 02 | 3.50 (0.138) | 2.80 (0.110) | 1.90 (0.075) | 2.20 (0.087) | 0.80 (0.031) | 1.40 (0.055) |
| C | 6032-28 | 13 | 6.00 (0.236) | 3.20 (0.126) | 2.60 (0.102) | 2.20 (0.087) | 1.30 (0.051) | 2.90 (0.114) |
| D | 7343-31 | 14 | 7.30 (0.287) | 4.30 (0.169) | 2.90 (0.114) | 2.40 (0.094) | 1.30 (0.051) | 4.40 (0.173) |
| E | 7343-43 | 17 | 7.30 (0.287) | 4.30 (0.169) | 4.10 (0.162) | 2.40 (0.094) | 1.30 (0.051) | 4.40 (0.173) |

W₁ dimension applies to the termination width for A dimensional area only.



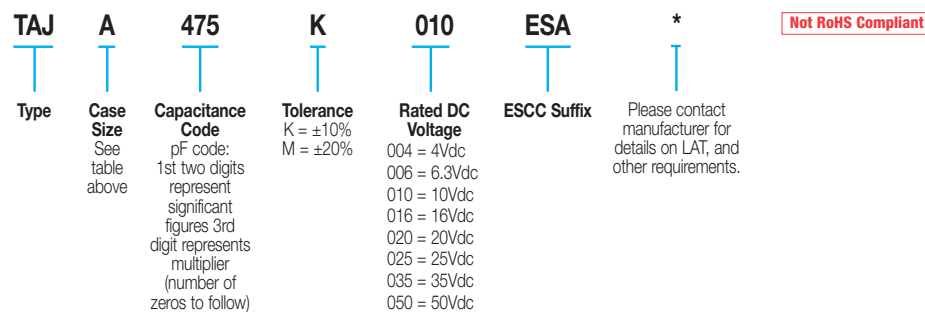
MARKING

A, B, C, D, E CASE

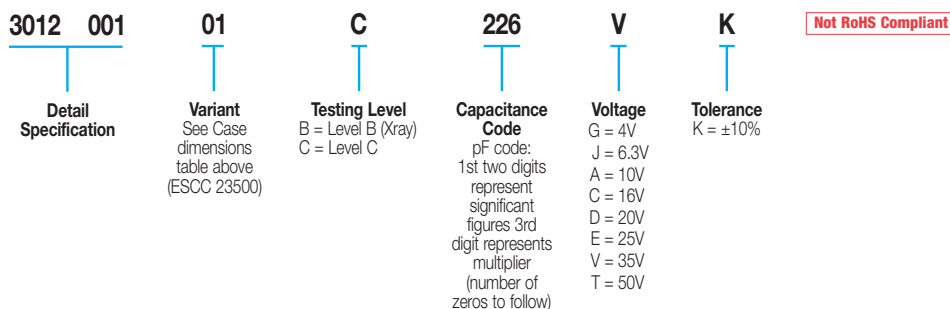


HOW TO ORDER

AVX PART NUMBER:



ESCC PART NUMBER – MANDATORY FOR ORDERING:



TAJ ESCC Tantalum Capacitors



SMD Solid Tantalum Chip Capacitors

CAPACITANCE AND RATED VOLTAGE, V_R (VOLTAGE CODE) RANGE (LETTER DENOTES CASE SIZE)

| Capacitance | | Rated Voltage DC (V_R) at 85°C | | | | | | | |
|---------------|------|------------------------------------|----------|---------|---------|---------|---------|---------|---------|
| μF | Code | 4V (G) | 6.3V (J) | 10V (A) | 16V (C) | 20V (D) | 25V (E) | 35V (V) | 50V (T) |
| 0.10 | 104 | | | | | | | A | A |
| 0.15 | 154 | | | | | | | A | B |
| 0.22 | 224 | | | | | | | A | B |
| 0.33 | 334 | | | | | | | A | B |
| 0.47 | 474 | | | | | | A | A/B | C |
| 0.68 | 684 | | | | | A | A | A/B | C |
| 1.0 | 105 | | | | A | A | A | B | C |
| 1.5 | 155 | | | A | A | A | B | B/C | D |
| 2.2 | 225 | | A | A | A/B | B | B | B/C | D |
| 3.3 | 335 | A | A | A | A/B | B | B/C | C | D |
| 4.7 | 475 | A | A | A/B | B | B/C | C | C/D | D |
| 6.8 | 685 | A | A/B | B | B/C | C | C/D | D | |
| 10 | 106 | A/B | B | B/C | C | C | C/D | D | |
| 15 | 156 | B | B/C | C | C | C/D | D | D | |
| 22 | 226 | B/C | C | C | C/D | D | D | E | |
| 33 | 336 | C | C | C/D | D | D | E | | |
| 47 | 476 | C/D | C/D | D | D | E | | | |
| 68 | 686 | C/D | D | D | D | E | | | |
| 100 | 107 | D | D | D | E | | | | |
| 150 | 157 | D | D | E | | | | | |
| 220 | 227 | E | E | E | | | | | |

LAT TESTING

AVX can perform the following Lot Acceptance Test according to ESCC

- LAT 3 Qty. 10 pcs. - 4 pieces of which are “destructive samples”, the remaining 6 pieces may be for part of the Order Qty. OR be additional to the order Qty.
- LAT 2 Qty. 26 pcs. - including the 10 pieces of LAT3. The additional 16 pieces are “destructive samples”.
- LAT 1 Qty. 34 pcs. - including the 26 pieces of LAT2. The additional 8 pieces are all “destructive samples”.

OPTION

Packaging: Tape and reel available on request – Contact marketing.

TES Low ESR – QPL ESCC



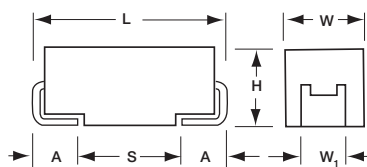
Low ESR Tantalum Chip Capacitor



- QPL ESCC approved series
- Manufactured in EU, ESA qualified plant, according to ESCC 3012
- Detailed specification 3012/004
- Low ESR designed parts, multianode D and E case included
- Robust against higher thermo-mechanical stresses during assembly process
- CV range 1.0 - 470uF/6.3 - 50V
- Improved reliability design



For additional information on Q-process please consult the AVX technical publication "Reaching the Highest Reliability for Tantalum Capacitors" (see the link: <http://www.avx.com/docs/techinfo/Qprocess.pdf>)



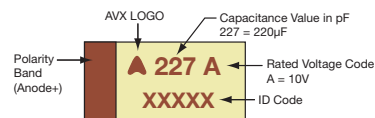
CASE DIMENSIONS: millimeters (inches)

| Code | EIA Code | Variant | L±0.20 (0.008) | W+0.20 (0.008) -0.10 (0.004) | H+0.20 (0.008) -0.10 (0.004) | W ₁ ±0.20 (0.008) | A+0.30 (0.012) -0.20 (0.008) | S Min. |
|------|----------|---------|----------------|------------------------------|------------------------------|------------------------------|------------------------------|--------------|
| A | 3216-18 | 01 | 3.20 (0.126) | 1.60 (0.063) | 1.60 (0.063) | 1.20 (0.047) | 0.80 (0.031) | 1.10 (0.043) |
| B | 3528-21 | 02 | 3.50 (0.138) | 2.80 (0.110) | 1.90 (0.075) | 2.20 (0.087) | 0.80 (0.031) | 1.40 (0.055) |
| C | 6032-28 | 03 | 6.00 (0.236) | 3.20 (0.126) | 2.60 (0.102) | 2.20 (0.087) | 1.30 (0.051) | 2.90 (0.114) |
| D | 7343-31 | 04 | 7.30 (0.287) | 4.30 (0.169) | 2.90 (0.114) | 2.40 (0.094) | 1.30 (0.051) | 4.40 (0.173) |
| E | 7343-43 | 05 | 7.30 (0.287) | 4.30 (0.169) | 4.10 (0.162) | 2.40 (0.094) | 1.30 (0.051) | 4.40 (0.173) |

W₁ dimension applies to the termination width for A dimensional area only.

MARKING

A, B, C, D, E CASE



CAPACITANCE AND RATED VOLTAGE, V_R (VOLTAGE CODE) RANGE (LETTER DENOTES CASE SIZE)

| Capacitance | | Rated Voltage DC (V _R) at 85°C | | | | | | | |
|-------------|------|--|---------|---------|----------------|---------|----------------|-------------------|-------------------|
| µF | Code | 6.3V (J) | 10V (A) | 12V (B) | 16V (C) | 20V (D) | 25V (E) | 35V (V) | 50V (T) |
| 1.0 | 105 | | | | | | A(3000) | | B(2000) |
| 1.5 | 155 | | | | | | | | |
| 2.2 | 225 | | | | | | | | |
| 3.3 | 335 | | | | | | | | |
| 4.7 | 475 | | | | A(2000) | A(2500) | B(1000) | B(1000) C(600) | C(1000) D(200) |
| 6.8 | 685 | | | | | | | | |
| 10 | 106 | | A(1800) | | | B(1000) | C(600) | D(120) | |
| 15 | 156 | | | | | | | | |
| 22 | 226 | A(900) | | | B(600) | C(400) | | D(100) | |
| 33 | 336 | | B(650) | | | C(300) | D(65) E(65) | E(65) | |
| 47 | 476 | B(500) | | | C(350) | D(55) | | | |
| 68 | 686 | | | | | | | | |
| 100 | 107 | | C(200) | | D(55) E(40) | E(45) | | | |
| 150 | 157 | C(300) | D(45) | | | | | | |
| 220 | 227 | | D(35) | E(35) | | | | | |
| 330 | 337 | D(35) | E(35) | | | | | | |
| 470 | 477 | E(30) | | | | | | | |

Available Ratings: ESR limits quoted in brackets (mOhms)

Engineering samples - please contact manufacturer

*Codes under development - subject to change.

TES Low ESR – QPL ESCC



Low ESR Tantalum Chip Capacitor

HOW TO ORDER

AVX PART NUMBER:

| | | | | | | | | | | |
|-------------|-------------------------------------|--|--|--|---|---|---|---|-----------------------------------|---------------------------|
| TES | E | 477 | K | 006 | | U | 0 | @ | ^ | Not RoHS Compliant |
| Type | Case Size See table above | Capacitance Code pF code: 1st two digits represent significant figures 3rd digit represents multiplier (number of zeros to follow) | Tolerance K = ±10% M = ±20% | Voltage Code 006 = 6.3Vdc 010 = 10Vdc 012 = 12Vdc 016 = 16Vdc 020 = 20Vdc 025 = 25Vdc 035 = 35Vdc 050 = 50Vdc | Packaging SnPb Termination X = 4" E = Bulk H = 7" | ESR Level C = Standard L = Mirror Multianode U = Multianode | LAT 0 = N/A 1 = LAT1 2 = LAT2 3 = LAT3 | Screening Level B = Level B (Xray) C = Level C Z = non-ER (not for flight parts) | FCSI 0 = N/A 1 = YES | |

ESCC PART NUMBER – MANDATORY FOR ORDERING:

| | | | | | | | | |
|-----------------------------|--|---|--|--|---|------------------|-------------|---------------------------|
| 3012 | 004 | 01 | B | 477 | K | E | 0030 | Not RoHS Compliant |
| Detail Specification | Variant 01 02 03 04 05 | Testing Level B = Level B (Xray) C = Level C | Capacitance Code pF code: 1st two digits represent significant figures 3rd digit represents multiplier (number of zeros to follow) | Tolerance K = ±10% M = ±20% | Voltage J = 6.3V A = 10V B = 12V C = 16V D = 20V E = 25V V = 35V T = 50V | ESR in mΩ | | |

LAT TESTING

AVX can perform the following Lot Acceptance Test according to ESCC

- LAT 3 Qty. 10 pcs. - 4 pieces of which are “destructive samples”, the remaining 6 pieces may be for part of the Order Qty. OR be additional to the order Qty.
- LAT 2 Qty. 26 pcs. - including the 10 pieces of LAT3. The additional 16 pieces are “destructive samples”.
- LAT 1 Qty. 34 pcs. - including the 26 pieces of LAT2. The additional 8 pieces are all “destructive samples”.

OPTION

Packaging: Tape and reel available on request – Contact marketing.

TES Low ESR – QPL ESCC



Low ESR Tantalum Chip Capacitor

RATINGS & PART NUMBER REFERENCE

| ESCC Part Number | AVX Part Number | Case Size | Cap (µF) | Rated Voltage (V) | DCL Max. (µA) | DF Max. (%) | ESR Max. @100kHz (mΩ) | 100kHz RMS Current (A) | | | 100kHz RMS Voltage (V) | | |
|---|---------------------------|-----------|----------|-------------------|---------------|-------------|-----------------------|------------------------|------|-------|------------------------|------|-------|
| | | | | | | | | 25°C | 85°C | 125°C | 25°C | 85°C | 125°C |
| 6.3 Volt @ 85°C (4 Volt @ 125°C) | | | | | | | | | | | | | |
| 301200401#226*J0900 | TES A 226 * 006 □ C 0 @ ^ | A | 22 | 6.3 | 1.32 | 6 | 900 | 289 | 260 | 115 | 260 | 234 | 104 |
| 301200402#476*J0500 | TES B 476 * 006 □ C 0 @ ^ | B | 47 | 6.3 | 2.82 | 6 | 500 | 412 | 371 | 165 | 206 | 186 | 82 |
| 301200403#157*J0300 | TES C 157 * 006 □ C 0 @ ^ | C | 150 | 6.3 | 9 | 6 | 300 | 606 | 545 | 242 | 182 | 163 | 73 |
| 301200404#337*J0035 | TES D 337 * 006 □ L 0 @ ^ | D | 330 | 6.3 | 19.8 | 8 | 35 | 2699 | 2429 | 1080 | 94 | 85 | 38 |
| 301200405#477*J0030 | TES E 477 * 006 □ U 0 @ ^ | E | 470 | 6.3 | 28.2 | 6 | 30 | 3000 | 2700 | 1200 | 90 | 81 | 36 |
| 10 Volt @ 85°C (7 Volt @ 125°C) | | | | | | | | | | | | | |
| 301200401#106*A1800 | TES A 106 * 010 □ C 0 @ ^ | A | 10 | 10 | 1 | 6 | 1800 | 204 | 184 | 82 | 367 | 331 | 147 |
| 301200402#336*A0650 | TES B 336 * 010 □ C 0 @ ^ | B | 33 | 10 | 3.3 | 6 | 650 | 362 | 325 | 145 | 235 | 212 | 94 |
| 301200403#107*A0200 | TES C 107 * 010 □ C 0 @ ^ | C | 100 | 10 | 10 | 6 | 200 | 742 | 667 | 297 | 148 | 133 | 59 |
| 301200404#157*A0045 | TES D 157 * 010 □ L 0 @ ^ | D | 150 | 10 | 15 | 6 | 45 | 2380 | 2142 | 952 | 107 | 96 | 43 |
| 301200404#227*A0035 | TES D 227 * 010 □ L 0 @ ^ | D | 220 | 10 | 22 | 6 | 35 | 2699 | 2429 | 1080 | 94 | 85 | 38 |
| 301200405#337*A0035 | TES E 337 * 010 □ U 0 @ ^ | E | 330 | 10 | 33 | 6 | 35 | 2777 | 2500 | 1111 | 97 | 87 | 39 |
| 12 Volt @ 85°C (8 Volt @ 125°C) | | | | | | | | | | | | | |
| 301200405#227*B0035 | TES E 227 * 012 □ U 0 @ ^ | E | 220 | 12 | 26.4 | 6 | 35 | 2777 | 2500 | 1111 | 97 | 87 | 39 |
| 16 Volt @ 85°C (10 Volt @ 125°C) | | | | | | | | | | | | | |
| 301200401#475*C2000 | TES A 475 * 016 □ C 0 @ ^ | A | 4.7 | 16 | 0.75 | 6 | 2000 | 194 | 174 | 77 | 387 | 349 | 155 |
| 301200402#226*C0600 | TES B 226 * 016 □ C 0 @ ^ | B | 22 | 16 | 3.52 | 6 | 600 | 376 | 339 | 151 | 226 | 203 | 90 |
| 301200403#476*C0350 | TES C 476 * 016 □ C 0 @ ^ | C | 47 | 16 | 7.52 | 6 | 350 | 561 | 505 | 224 | 196 | 177 | 78 |
| 301200404#107*C0055 | TES D 107 * 016 □ L 0 @ ^ | D | 100 | 16 | 16 | 6 | 55 | 2153 | 1938 | 861 | 118 | 107 | 47 |
| 301200405#157*C0040 | TES E 157 * 016 □ U 0 @ ^ | E | 150 | 16 | 24 | 6 | 40 | 2598 | 2338 | 1039 | 104 | 94 | 42 |
| 20 Volt @ 85°C (13 Volt @ 125°C) | | | | | | | | | | | | | |
| 301200401#335*D2500 | TES A 335 * 020 □ C 0 @ ^ | A | 3.3 | 20 | 0.66 | 6 | 2500 | 173 | 156 | 69 | 433 | 390 | 173 |
| 301200402#106*D1000 | TES B 106 * 020 □ C 0 @ ^ | B | 10 | 20 | 2 | 6 | 1000 | 292 | 262 | 117 | 292 | 262 | 117 |
| 301200403#226*D0400 | TES C 226 * 020 □ C 0 @ ^ | C | 22 | 20 | 4.4 | 6 | 400 | 524 | 472 | 210 | 210 | 189 | 84 |
| 301200403#336*D0300 | TES C 336 * 020 □ C 0 @ ^ | C | 33 | 20 | 6.6 | 6 | 300 | 606 | 545 | 242 | 182 | 163 | 73 |
| 301200404#476*D0055 | TES D 476 * 020 □ L 0 @ ^ | D | 47 | 20 | 9.4 | 6 | 55 | 2153 | 1938 | 861 | 118 | 107 | 47 |
| 301200405#107*D0045 | TES E 107 * 020 □ U 0 @ ^ | E | 100 | 20 | 20 | 6 | 45 | 2449 | 2205 | 980 | 110 | 99 | 44 |
| 25 Volt @ 85°C (17 Volt @ 125°C) | | | | | | | | | | | | | |
| 301200401#105*E3000 | TES A 105 * 025 □ C 0 @ ^ | A | 1.0 | 25 | 0.25 | 6 | 3000 | 158 | 142 | 63 | 474 | 427 | 190 |
| 301200402#475*E1000 | TES B 475 * 025 □ C 0 @ ^ | B | 4.7 | 25 | 1.18 | 6 | 1000 | 292 | 262 | 117 | 292 | 262 | 117 |
| 301200403#106*E0600 | TES C 106 * 025 □ C 0 @ ^ | C | 10 | 25 | 2.5 | 6 | 600 | 428 | 385 | 171 | 257 | 231 | 103 |
| 301200404#336*E0065 | TES D 336 * 025 □ L 0 @ ^ | D | 33 | 25 | 8.25 | 6 | 65 | 1981 | 1783 | 792 | 129 | 116 | 51 |
| 301200405#476*E0065 | TES E 476 * 025 □ U 0 @ ^ | E | 47 | 25 | 11.8 | 6 | 65 | 2038 | 1834 | 815 | 132 | 119 | 53 |
| 35 Volt @ 85°C (23 Volt @ 125°C) | | | | | | | | | | | | | |
| 301200402#335*V1000 | TES B 335 * 035 □ C 0 @ ^ | B | 3.3 | 35 | 1.16 | 6 | 1000 | 292 | 262 | 117 | 292 | 262 | 117 |
| 301200403#475*V0600 | TES C 475 * 035 □ C 0 @ ^ | C | 4.7 | 35 | 1.65 | 6 | 600 | 428 | 385 | 171 | 257 | 231 | 103 |
| 301200404#106*V0120 | TES D 106 * 035 □ L 0 @ ^ | D | 10 | 35 | 3.5 | 6 | 120 | 1458 | 1312 | 583 | 175 | 157 | 70 |
| 301200404#226*V0100 | TES D 226 * 035 □ L 0 @ ^ | D | 22 | 35 | 7.7 | 6 | 100 | 1597 | 1437 | 639 | 160 | 144 | 64 |
| 301200405#336*V0065 | TES E 336 * 035 □ U 0 @ ^ | E | 33 | 35 | 11.6 | 6 | 65 | 2038 | 1834 | 815 | 132 | 119 | 53 |
| 50 Volt @ 85°C (33 Volt @ 125°C) | | | | | | | | | | | | | |
| 301200402#105*T2000 | TES B 105 * 050 □ C 0 @ ^ | B | 1.0 | 50 | 0.5 | 6 | 2000 | 206 | 186 | 82 | 412 | 271 | 165 |
| 301200403#335*T1000 | TES C 335 * 050 □ C 0 @ ^ | C | 3.3 | 50 | 1.65 | 6 | 1000 | 332 | 298 | 133 | 332 | 298 | 133 |
| 301200404#475*T0200 | TES D 475 * 050 □ L 0 @ ^ | D | 4.7 | 50 | 2.35 | 6 | 200 | 1129 | 1016 | 452 | 226 | 203 | 90 |

The parts are supplied in dry pack with Moisture Sensitivity Level (MSL) level 3 - defined according to J-STD-020.

All technical data relates to an ambient temperature of +25°C. Capacitance and DF are measured at 120Hz, 0.5V RMS with a maximum DC bias of 2.2 volts. DCL is measured at rated voltage after 5 minutes.

NOTE: AVX reserves the right to supply a higher voltage rating or tighter tolerance part in the same case size, to the same reliability standards.

TAJ CECC Tantalum Capacitors



SMD Solid Tantalum Chip Capacitors



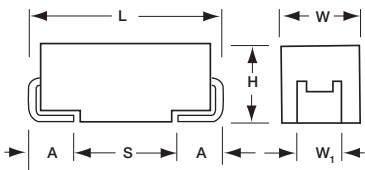
Capacitors, Fixed, Leadless Surface Mount, Chip, Solid electrolyte Tantalum for use in avionics and industrial applications, tested to CECC Specification 30801-005 and 30801-011 (CTC4).



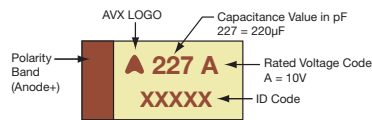
CASE DIMENSIONS: millimeters (inches)

| Code | EIA Code | Variant | L±0.20 (0.008) | W+0.20 (0.008) -0.10 (0.004) | H+0.20 (0.008) -0.10 (0.004) | W ₁ ±0.20 (0.008) | A+0.30 (0.012) -0.20 (0.008) | S Min. |
|------|----------|---------|----------------|---------------------------------|---------------------------------|------------------------------|---------------------------------|--------------|
| A | 3216-18 | 01&11 | 3.20 (0.126) | 1.60 (0.063) | 1.60 (0.063) | 1.20 (0.047) | 0.80 (0.031) | 1.10 (0.043) |
| B | 3528-21 | 02&12 | 3.50 (0.138) | 2.80 (0.110) | 1.90 (0.075) | 2.20 (0.087) | 0.80 (0.031) | 1.40 (0.055) |
| C | 6032-28 | 03&13 | 6.00 (0.236) | 3.20 (0.126) | 2.60 (0.102) | 2.20 (0.087) | 1.30 (0.051) | 2.90 (0.114) |
| D | 7343-31 | 04&14 | 7.30 (0.287) | 4.30 (0.169) | 2.90 (0.114) | 2.40 (0.094) | 1.30 (0.051) | 4.40 (0.173) |

W₁ dimension applies to the termination width for A dimensional area only.



MARKING A, B, C, D CASE



CAPACITANCE AND RATED VOLTAGE, V_R (VOLTAGE CODE) RANGE (LETTER DENOTES CASE SIZE)

BS CECC30801-005

| Capacitance | | Rated Voltage DC (V _R) at 85°C | | | | | | |
|-------------|------|--|---------|---------|---------|---------|---------|---------|
| µF | Code | 6.3V (J) | 10V (A) | 16V (C) | 20V (D) | 25V (E) | 35V (V) | 50V (T) |
| 0.10 | 104 | | | | | | A | A |
| 0.15 | 154 | | | | | | A | A/B |
| 0.22 | 224 | | | | | | A | A/B |
| 0.33 | 334 | | | | | | A | B |
| 0.47 | 474 | | | | | A | A/B | C |
| 0.68 | 684 | | | | A | A | A/B | C |
| 1.0 | 105 | | | A | A | A | B | C |
| 1.5 | 155 | | A | A | A | A/B | B/C | D |
| 2.2 | 225 | A | A | A/B | B | B | B/C | D |
| 3.3 | 335 | A | A | A/B | B | B/C | C/D | D |
| 4.7 | 475 | A | A/B | B/C | B/C | C | C/D | D |
| 6.8 | 685 | A/B | B | B/C | C/D | C/D | D | D |
| 10 | 106 | A/B | B/C | B/C/D | C | C/D | D | |
| 15 | 156 | B/C | B/C/D | C | C/D | D | D | |
| 22 | 226 | B/C/D | C | C/D | D | D | | |
| 33 | 336 | C | C/D | D | D | | | |
| 47 | 476 | C/D | D | D | | | | |
| 68 | 686 | C/D | D | D | | | | |
| 100 | 107 | D | D | | | | | |

BS CECC30801-011 (CTC4)

| Capacitance | | Rated Voltage DC (V _R) at 85°C | | | | | | |
|-------------|------|--|---------|---------|---------|---------|---------|---------|
| µF | Code | 6.3V (J) | 10V (A) | 16V (C) | 20V (D) | 25V (E) | 35V (V) | 50V (T) |
| 0.10 | 104 | | | | | | A | A |
| 0.15 | 154 | | | | | | A | B |
| 0.22 | 224 | | | | | | A | B |
| 0.33 | 334 | | | | | | A | B |
| 0.47 | 474 | | | | | A | B | C |
| 0.68 | 684 | | | | A | | B | C |
| 1.0 | 105 | | | A | | | B | C |
| 1.5 | 155 | | A | | | B | C | D |
| 2.2 | 225 | A | | | B | | C | D |
| 3.3 | 335 | | | B | | | C | D |
| 4.7 | 475 | | B | | | C | D | D |
| 6.8 | 685 | B | | | C | | D | |
| 10 | 106 | | | C | | D | D | |
| 15 | 156 | | C | | D | D | | |
| 22 | 226 | C | | D | D | | | |
| 33 | 336 | | D | D | | | | |
| 47 | 476 | D | D | | | | | |
| 68 | 686 | D | | | | | | |

NOTE: Voltage ratings are minimum values. AVX reserves the rights to supply higher voltage rating in the same case size, to the same reliability standards.



TAJ CECC Tantalum Capacitors



SMD Solid Tantalum Chip Capacitors

HOW TO ORDER

| | | | | | | |
|-------------|-------------------------------------|---|--|---|--|--|
| TAJ | A | 475 | K | 010 | R | FJ |
| | | | | | | |
| Type | Case Size See table above | Capacitance Code pF code: 1st two digits represent significant figures 3rd digit represents multiplier (number of zeros to follow) | Tolerance K = ±10% M = ±20% | Rated DC Voltage 006 = 6.3Vdc 010 = 10Vdc 016 = 16Vdc 020 = 20Vdc 025 = 25Vdc 035 = 35Vdc 050 = 50Vdc | Termination Finish R = 7" T/R 100% Tin S = 13" T/R 100% Tin A = Gold Plating 7" Reel B = Gold Plating 13" Reel H = Tin Lead 7" Reel K = Tin Lead 13" Reel | Suffix FJ = CECC 30801-011(CTC4) Y = CECC 30801-005 |



TECHNICAL SPECIFICATIONS

| | | | | | | | | | |
|------------------------------------|--|-----|----|----|----|----|----|----|--|
| Technical Data: | All technical data relate to an ambient temperature of +25°C | | | | | | | | |
| Capacitance Range: | 0.10 µF to 100 µF | | | | | | | | |
| Capacitance Tolerance: | ±10%; ±20% | | | | | | | | |
| Rated Voltage DC (V _R) | ≤ +85°C: | 6.3 | 10 | 16 | 20 | 25 | 35 | 50 | |
| Category Voltage (V _C) | ≤ +125°C: | 4 | 7 | 10 | 13 | 17 | 23 | 33 | |
| Surge Voltage (V _S) | ≤ +85°C: | 8 | 13 | 20 | 26 | 32 | 46 | 65 | |
| Surge Voltage (V _S) | ≤ +125°C: | 5 | 8 | 13 | 16 | 20 | 28 | 40 | |
| Temperature Range: | -55°C to +125°C | | | | | | | | |
| Reliability: | 1% per 1000 hours at 85°C, V _R with 0.1Ω/V series Impedance, 60% confidence level | | | | | | | | |

TCH Low ESR Hermetic Series



SMD Low ESR Conductive Polymer Capacitors in Hermetic package



FEATURES

- Aerospace & Hi-Rel applications
- Low ESR conductive polymer electrode
- Endurance up to 10 000 hrs. on selected codes
- Ceramic case hermetic packaging
- Stability under humidity and ambient atmosphere exposure
- Large case sizes including CTC-21D provide high capacitance values
- Developed with ESA to suit aerospace applications
- Ongoing ESA qualification
- Manufacturing and screening utilizing AVX patented Q-Process to effectively remove components that may experience excessive parametric shifts or instability in operation life



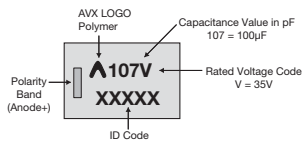
Elektra Award 2015

APPLICATIONS

- Aerospace
- Defence
- Power supplies
- Pulse power

MARKING

9 CASE

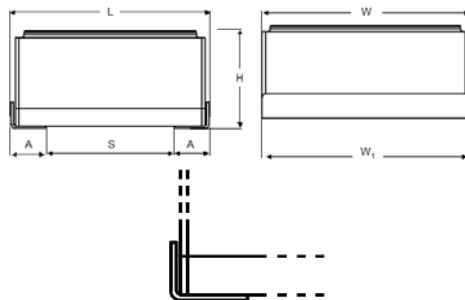


For additional information on Q-process please consult the AVX technical publication "Reaching the Highest Reliability for Tantalum Capacitors" (see the link: <http://www.avx.com/docs/techinfo/Qprocess.pdf>)

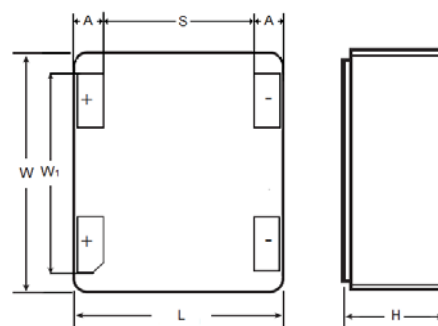
CASE DIMENSIONS: millimeters (inches)

| Code | Type | L | W | H Max. | W ₁ | A | S Min. |
|-------------|------------------|---------------------------------|---------------------------------|-----------------|---------------------------------|--------------------------------|-----------------|
| 9 (CTC-21D) | J-lead (L-shape) | 11.50 ± 0.50 (0.453 ± 0.020) | 12.50 ± 0.50 (0.492 ± 0.020) | 6.15 (0.242) | 12.50 ± 0.50 (0.492 ± 0.020) | 1.90 ± 0.50 (0.075 ± 0.020) | 7.00 (0.276) |
| 9 (CTC-21D) | Undertab | 11.00 ± 0.20 (0.433 ± 0.008) | 12.50 ± 0.20 (0.492 ± 0.008) | 5.95 (0.234) | 10.50 ± 0.20 (0.413 ± 0.008) | 1.50 ± 0.20 (0.059 ± 0.008) | 7.80 (0.307) |

'J' Lead Termination (L-shape)



Undertab Termination



TCH Low ESR Hermetic Series



SMD Low ESR Conductive Polymer Capacitors in Hermetic package

CAPACITANCE AND VOLTAGE RANGE (CASE CODE BEFORE THE BRACKETS)

| Capacitance | | Rated Voltage DC (V _R) at 85°C | | | | | | | | |
|-------------|------|--|--------|--------|--------|-------|--------|---------|---------|---------|
| μF | Code | 10V | 16V | 20V | 25V | 35V | 50V | 63V | 75V | 100V |
| 15 | 156 | | | | | | | | | 9(150)* |
| 22 | 226 | | | | | | | | 9(120)* | 9(150) |
| 33 | 336 | | | | | | | 9(100)* | 9(120) | |
| 47 | 476 | | | | | | 9(70) | 9(100)* | | |
| 68 | 686 | | | | | | 9(70)* | | | |
| 100 | 107 | | | | 9(50)* | 9(55) | | | | |
| 150 | 157 | | | 9(45)* | 9(50) | 9(55) | | | | |
| 220 | 227 | 9(40)* | 9(40) | 9(45)* | 9(50)* | | | | | |
| 330 | 337 | 9(40) | 9(40)* | 9(45)* | | | | | | |
| 470 | 477 | 9(40)* | 9(40)* | | | | | | | |
| 680 | 687 | 9(40)* | 9(40)* | | | | | | | |

Available Ratings, (ESR ratings in mOhms in brackets)

Engineering samples - please contact manufacturer

*Codes under development – upon request, please contact manufacturer

HOW TO ORDER

AVX PART NUMBER

| | | | | | | | |
|------------|------------------------------|--|-----------------------|--|-------------------------------------|-------------|--|
| TCH | 9 | 687 | M | 016 | W | 0040 | U |
| Type | Case Size See table above | Capacitance Code pF code: 1st two digits represent significant figures 3rd digit represents multiplier (number of zeros to follow) | Tolerance M = ±20% | Rated DC Voltage 010 = 10Vdc 050 = 50Vdc 016 = 16Vdc 063 = 63Vdc 020 = 20Vdc 075 = 75Vdc 025 = 25Vdc 100 = 100Vdc 035 = 35Vdc | Packaging W = Waffle B = Bulk | ESR in mΩ | Termination J = 'J' lead L-shape (Gold) L = 'J' lead L-shape (Sn/Pb) U = Undertab |



TECHNICAL SPECIFICATIONS

| | | | | | | | | | | | |
|------------------------------------|---|----|----|------|----|------|----|----|----|-----|--|
| Technical Data: | All technical data relate to an ambient temperature of +25°C | | | | | | | | | | |
| Capacitance Range: | 22 μF to 330 μF (for extended range under development, contact manufacturer) | | | | | | | | | | |
| Capacitance Tolerance: | ±20% | | | | | | | | | | |
| Leakage Current DCL: | 0.1CV | | | | | | | | | | |
| Rated Voltage (V _R) | ≤ +85°C: | 10 | 16 | 20 | 25 | 35 | 50 | 63 | 75 | 100 | |
| Category Voltage (V _C) | ≤ +125°C: | 7 | 11 | 13.5 | 17 | 23.5 | 33 | 42 | 50 | 66 | |
| Temperature Range: | -55°C to +125°C | | | | | | | | | | |
| Reliability: | 1% per 1000 hours at 85°C, V _r with 0.1Ω/Vseries impedance, 60% confidence level | | | | | | | | | | |
| Termination Finish: | Gold Plating (Undertab), Gold Plating (J-lead), Sn/Pb Plating (J-lead) | | | | | | | | | | |

TCH Low ESR Hermetic Series



SMD Low ESR Conductive Polymer Capacitors in Hermetic package

RATINGS & PART NUMBER REFERENCE

| AVX Part No. | Case Size | Capacitance (μF) | Rated Voltage (V) | Rated Temperature (°C) | Category Voltage (V) | Category Temperature (°C) | DCL Max. (μA) | DF Max. (%) | ESR Max. @ 100kHz (mΩ) | MSL | 100kHz RMS Current (A) | | |
|------------------------|-----------|------------------|-------------------|------------------------|----------------------|---------------------------|---------------|-------------|------------------------|-----|------------------------|------|-------|
| | | | | | | | | | | | 25°C | 85°C | 125°C |
| 10 Volt @ 85°C | | | | | | | | | | | | | |
| TCH9337M010W0040# | 9 | 330 | 10 | 85 | 7 | 125 | 330 | 8 | 40 | 1 | 3.16 | 2.84 | 1.26 |
| 16 Volt @ 85°C | | | | | | | | | | | | | |
| TCH9227M016W0040# | 9 | 220 | 16 | 85 | 10 | 125 | 352 | 8 | 40 | 1 | 3.16 | 2.84 | 1.26 |
| 25 Volt @ 85°C | | | | | | | | | | | | | |
| TCH9157M025W0050# | 9 | 150 | 25 | 85 | 17 | 125 | 375 | 8 | 50 | 1 | 2.83 | 2.55 | 1.13 |
| 35 Volt @ 85°C | | | | | | | | | | | | | |
| TCH9107M035W0055# | 9 | 100 | 35 | 85 | 23 | 125 | 350 | 8 | 55 | 1 | 2.69 | 2.42 | 1.08 |
| TCH9157M035W0055# | 9 | 150 | 35 | 85 | 23 | 125 | 525 | 8 | 55 | 1 | 2.69 | 2.42 | 1.08 |
| 50 Volt @ 85°C | | | | | | | | | | | | | |
| TCH9476M050W0070# | 9 | 47 | 50 | 85 | 33 | 125 | 235 | 8 | 70 | 1 | 2.39 | 2.15 | 0.96 |
| 75 Volt @ 85°C | | | | | | | | | | | | | |
| TCH9336M075W0120# | 9 | 33 | 75 | 85 | 50 | 125 | 248 | 8 | 120 | 1 | 1.82 | 1.64 | 0.73 |
| 100 Volt @ 85°C | | | | | | | | | | | | | |
| TCH9226M100W0150# | 9 | 22 | 100 | 85 | 66 | 125 | 220 | 8 | 150 | 1 | 1.63 | 1.47 | 0.65 |

All technical data relates to an ambient temperature of +25°C. Capacitance and DF are measured at 120Hz, 0.5RMS with a maximum DC bias of 2.2V. DCL is measured at rated voltage after 5 minutes.

Moisture Sensitivity Level (MSL) is defined according to J-STD-020.

TCH Low ESR Hermetic Series



SMD Low ESR Conductive Polymer Capacitors in Hermetic package

QUALIFICATION TABLE

| TEST | TCH low ESR hermetic series (Temperature range -55°C to +125°C) | | | | | | | | | |
|------------------------------|--|---------------|----------------|--------------------|------------------------------|------------|------------|-----------|------------|------------|
| | Condition | | | Characteristics | | | | | | |
| Endurance | Determine after application of rated voltage for 2000 (10000) +48/0 hours at 85±2°C and then leaving min. 2 hours at room temperature. Also determine of 125°C temperature, category voltage for 2000 +48/-0 hours and then leaving min. 2 hours at room temperature. Power supply impedance to be < 3Ω. | | | Visual examination | no visible damage | | | | | |
| | | | | DCL | 1.25 x initial limit | | | | | |
| | | | | ΔC/C | within ±20% of initial value | | | | | |
| | | | | DF | 1.5 x initial limit | | | | | |
| | | | | ESR | 2 x initial limit | | | | | |
| Storage Life | 125°C, 0V, 2000h | | | Visual examination | no visible damage | | | | | |
| | | | | DCL | 2 x initial limit | | | | | |
| | | | | ΔC/C | within ±20% of initial value | | | | | |
| | | | | DF | 1.5 x initial limit | | | | | |
| | | | | ESR | 2 x initial limit | | | | | |
| Humidity | Determine after storage without applied voltage at 40±2°C and 90±2% relative humidity for 56 days and then recovery min. 2 hours at room temperature. | | | Visual examination | no visible damage | | | | | |
| | | | | DCL | 1.25 x initial limit | | | | | |
| | | | | ΔC/C | within ±10% of initial value | | | | | |
| | | | | DF | initial limit | | | | | |
| | | | | ESR | 1.25 x initial limit | | | | | |
| Temperature Stability | Step | Temperature°C | Duration (min) | | | | | | | |
| | 1 | +22 | 15 | | | | | | | |
| | 2 | -55 | 15 | DCL | IL* | n/a | IL* | 10 x IL* | 12.5 x IL* | IL* |
| | 3 | +22 | 15 | ΔC/C | n/a | +0/-20% | ±5% | +20/-0% | +30/-0% | ±5% |
| | 4 | +85 | 15 | DF | IL* | 1.5 x IL* | IL* | 1.5 x IL* | 2 x IL* | IL* |
| | 5 | +125 | 15 | ESR | 1.25 x IL* | 1.25 x IL* | 1.25 x IL* | 1.5 x IL* | 1.5 x IL* | 1.25 x IL* |
| | 6 | +22 | 15 | | | | | | | |
| Surge Voltage | Test temperature: 85°C±3/0°C Surge voltage: 1.3 x rated voltage Series protection resistance: 33Ω Discharge resistance: 33Ω Number of cycles: 1000x Cycle duration: 6 min; 30 sec charge, 5 min 30 sec discharge | | | Visual examination | no visible damage | | | | | |
| | | | | DCL | initial limit | | | | | |
| | | | | ΔC/C | within ±20% of initial value | | | | | |
| | | | | DF | initial limit | | | | | |
| | | | | ESR | 1.25 x initial limit | | | | | |

*Initial Limit

THH 230°C Hermetic Series



SMD 230°C High Temperature Tantalum Capacitor in Hermetic Package



FEATURES

- High temperature applications
- Operational condition 230°C / 0.5U_R / 1000hrs or 200°C / 0.5U_R / 10.000hrs
- Ceramic case hermetic packaging
- Large case sizes including CTC-21D provide high capacitance values
- Manufacturing and screening utilizing AVX patented Q-Process to effectively remove components that may experience excessive parametric shifts or instability in operation life



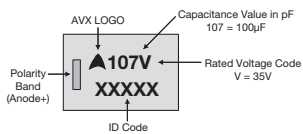
APPLICATIONS

- Oil drilling
- Extreme temperature applications

For additional information on Q-process please consult the AVX technical publication "Reaching the Highest Reliability for Tantalum Capacitors" (see the link: <http://www.avx.com/docs/techinfo/Qprocess.pdf>)

MARKING

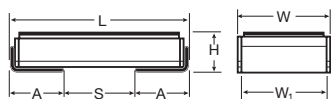
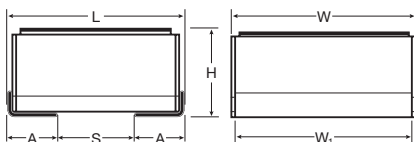
9, I CASE



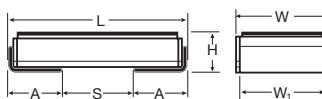
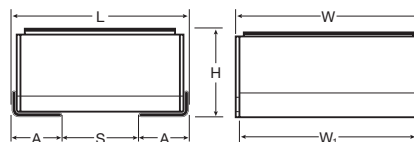
CASE DIMENSIONS: millimeters (inches)

| Code | Type | L±0.50 (0.020) | W±0.50 (0.020) | H Max. | W ₁ ±0.50 (0.020) | A±0.50 (0.020) | S Min. |
|-------------|---------------------|---------------------------------|---------------------------------|-----------------|---------------------------------|--------------------------------|-----------------|
| 9 (CTC-21D) | J-lead (L-shape) | 11.50 (0.453) | 12.50 (0.492) | 6.15 (0.242) | 12.50 (0.492) | 1.90 (0.075) | 7.00 (0.276) |
| 9 (CTC-21D) | J-lead (flex) | 12.10 (0.476) | 12.50 (0.492) | 6.50 (0.256) | 12.00 (0.472) | 2.00 (0.079) | 7.20 (0.283) |
| 9 (CTC-21D) | Undertab | 11.00 ± 0.20 (0.433 ± 0.008) | 12.50 ± 0.20 (0.492 ± 0.008) | 5.95 (0.234) | 10.50 ± 0.20 (0.413 ± 0.008) | 1.50 ± 0.20 (0.059 ± 0.008) | 7.80 (0.307) |
| I | J-lead (L-shape) | 11.50 (0.453) | 6.00 (0.236) | 2.70 (0.106) | 6.00 (0.236) | 3.50 (0.138) | 4.00 (0.157) |
| I | J-lead (flex) | 11.90 (0.469) | 6.00 (0.236) | 3.00 (0.118) | 5.50 (0.217) | 3.60 (0.142) | 4.20 (0.165) |
| I | Undertab | 11.00 ± 0.20 (0.433 ± 0.008) | 6.00 ± 0.20 (0.236 ± 0.008) | 2.50 (0.098) | 4.00 ± 0.20 (0.157 ± 0.008) | 3.20 ± 0.20 (0.126 ± 0.008) | 4.40 (0.173) |

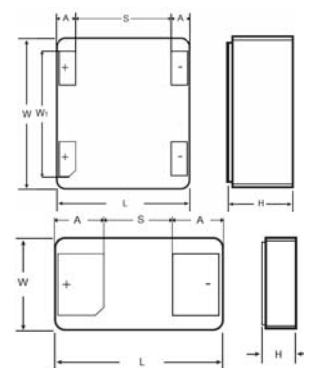
'J' Lead Termination (flex)



'J' Lead Termination (L-shape)



Undertab Termination



THH 230°C Hermetic Series



SMD 230°C High Temperature Tantalum Capacitor in Hermetic Package

CAPACITANCE AND VOLTAGE RANGE (CODE DENOTES THE CASE SIZE)

| Capacitance | | Rated Voltage DC (V _R) at 175°C | | | | | |
|-------------|------|---|---------|---------|---------|---------|---------|
| μF | Code | 16V (C) | 20V (D) | 25V (E) | 35V (V) | 50V (T) | 63V (J) |
| 3.3 | 335 | | | | | I* | I* |
| 4.7 | 475 | | | | | I* | I* |
| 6.8 | 685 | | | | I | I | |
| 10 | 106 | | | | I | | |
| 15 | 156 | | I* | I* | I* | | |
| 22 | 226 | I | I* | I* | I* | | |
| 33 | 336 | I* | I* | I* | | | 9* |
| 47 | 476 | I | I* | | | 9* | 9 |
| 68 | 686 | | | | | 9* | |
| 100 | 107 | | | 9* | 9 | | |
| 150 | 157 | | 9* | 9* | 9* | | |
| 220 | 227 | 9* | 9* | | | | |
| 330 | 337 | 9* | | | | | |

Available Ratings

Engineering samples - please contact manufacturer

*Codes under development – upon request, please contact manufacturer

HOW TO ORDER

AVX PART NUMBER

| | | | | | | | |
|------------|------------------------------|---|-----------------------|--|-------------------------------------|-------------|--|
| THH | 9 | 107 | M | 035 | W | 0250 | J |
| Type | Case Size See table above | Capacitance Code pF code: 1st two digits represent significant figures 3rd digit represents multiplier (number of zeros to follow) | Tolerance M = ±20% | Rated DC Voltage 016 = 16Vdc 020 = 20Vdc 025 = 25Vdc 035 = 35Vdc 050 = 50Vdc 063 = 63Vdc | Packaging W = Waffle B = Bulk | ESR in mΩ | Termination J = 'J' lead (L-shape) W = 'J' lead (flex) U = Undertab |



TECHNICAL SPECIFICATIONS

| | | | | | | | | |
|------------------------------------|--|----|----|----|----|----|----|--|
| Technical Data: | All technical data relate to an ambient temperature of +25°C | | | | | | | |
| Capacitance Range: | 6.8 μF to 100 μF (for extended range under development, contact manufacturer) | | | | | | | |
| Capacitance Tolerance: | ±20% | | | | | | | |
| Leakage Current DCL: | 0.01CV | | | | | | | |
| Rated Voltage (V _R) | ≤ +85°C: | 16 | 20 | 25 | 35 | 50 | 63 | |
| Category Voltage (V _C) | ≤ +230°C: | 8 | 10 | 12 | 17 | 25 | 31 | |
| Temperature Range: | -55°C to +230°C | | | | | | | |
| Reliability: | 1% per 1000 hours at 85°C, Vr with 0.1Ω/V series impedance, 60% confidence level | | | | | | | |
| Termination Finish: | Gold Plating (Undertab), Gold Plating (J-lead L shape), Nickel Plating (J-lead flex) | | | | | | | |

THH 230°C Hermetic Series



SMD 230°C High Temperature Tantalum Capacitor in Hermetic Package

RATINGS & PART NUMBER REFERENCE

| AVX Part No. | Case Size | Capacitance (μF) | Rated Voltage (V) | Rated Temperature (°C) | Category Voltage (V) | DCL Max. (μA) | DF Max. (%) | ESR Max. @ 100kHz (mΩ) | MSL | 100kHz RMS Current (A) | | |
|-----------------------|-----------|------------------|-------------------|------------------------|----------------------|---------------|-------------|------------------------|-----|------------------------|------|-------|
| | | | | | | | | | | 25°C | 85°C | 230°C |
| 16 Volt @ 85°C | | | | | | | | | | | | |
| THHI226M016W0500# | I | 22 | 16 | 175 | 8 | 3.6 | 8 | 500 | 1 | 0.81 | 0.73 | 0.73 |
| THHI476M016W0500# | I | 47 | 16 | 175 | 8 | 7.5 | 8 | 500 | 1 | 0.81 | 0.73 | 0.73 |
| 35 Volt @ 85°C | | | | | | | | | | | | |
| THHI685M035W0500# | I | 6.8 | 35 | 175 | 17 | 2.4 | 8 | 500 | 1 | 0.81 | 0.73 | 0.73 |
| THHI106M035W0500# | I | 10 | 35 | 175 | 17 | 3.5 | 8 | 500 | 1 | 0.81 | 0.73 | 0.73 |
| THH9107M035W0250# | 9 | 100 | 35 | 175 | 17 | 35 | 8 | 250 | 1 | 1.26 | 1.13 | 1.13 |
| 50 Volt @ 85°C | | | | | | | | | | | | |
| THHI685M050W0500# | I | 6.8 | 50 | 175 | 25 | 3.4 | 8 | 500 | 1 | 0.81 | 0.73 | 0.73 |
| 63 Volt @ 85°C | | | | | | | | | | | | |
| THH9476M063W0250# | 9 | 47 | 63 | 175 | 31 | 29.6 | 8 | 250 | 1 | 1.26 | 1.13 | 1.13 |

All technical data relates to an ambient temperature of +25°C. Capacitance and DF are measured at 120Hz, 0.5V RMS with a maximum DC bias of 2.2 volts.

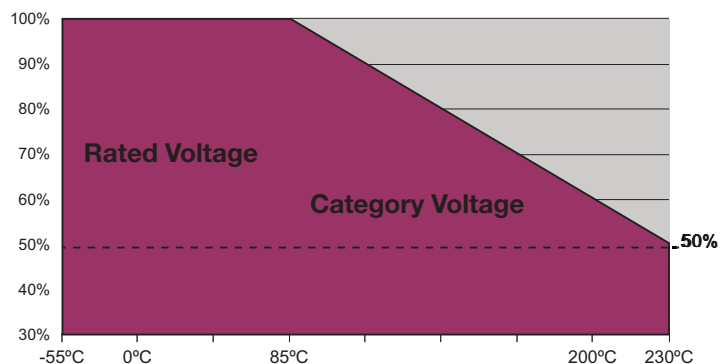
DCL is measured at rated voltage after 5 minutes.

ESR change post 1000hrs allowed up to 3 times catalog limit.

Moisture Sensitivity Level (MSL) is defined according to J-STD-020.

TEMPERATURE VOLTAGE DERATING

THH 230°C Voltage vs Temperature Rating for 1000 hrs service life



THH 230°C Hermetic Series



SMD 230°C High Temperature Tantalum Capacitor in Hermetic Package

QUALIFICATION TABLE

| TEST | THH 230°C hermetic series (Temperature range -55°C to +230°C) | | | | | | | | | | | | | |
|-----------------------|--|---------------|----------------|--------------------|------------------------------|------------|------------|------------|------------|------------|------------|------------|------------|--|
| | Condition | | | Characteristics | | | | | | | | | | |
| Endurance | Determine after application of 230°C temperature, category voltage for 1000+48/-0 hours and then leaving min. 2 hours at room temperature. Power supply impedance to be <3Ω. | | | Visual examination | no visible damage | | | | | | | | | |
| | | | | DCL | 1.25 x initial limit | | | | | | | | | |
| | | | | ΔC/C | within ±20% of initial value | | | | | | | | | |
| | | | | DF | 1.5 x initial limit | | | | | | | | | |
| | | | | ESR | 3 x initial limit | | | | | | | | | |
| Endurance | Determine after application of 0.5U _R for 10000+48/-0 hours at 200°C temperature and then leaving min. 2 hours at room temperature. Power supply impedance to be <3Ω. | | | Visual examination | no visible damage | | | | | | | | | |
| | | | | DCL | 1.25 x initial limit | | | | | | | | | |
| | | | | ΔC/C | within ±20% of initial value | | | | | | | | | |
| | | | | DF | 1.5 x initial limit | | | | | | | | | |
| | | | | ESR | 3 x initial limit | | | | | | | | | |
| Storage Life | 230°C, 0V, 1000h + 48/-0 hours | | | Visual examination | no visible damage | | | | | | | | | |
| | | | | DCL | initial limit | | | | | | | | | |
| | | | | ΔC/C | within ±5% of initial value | | | | | | | | | |
| | | | | DF | initial limit | | | | | | | | | |
| | | | | ESR | 1.25 x initial limit | | | | | | | | | |
| Biased Humidity | Determine after leaving for 1000 hours at 85±2°C, 85% relative humidity and rated voltage and then recovery min. 2 hours at room temperature. | | | Visual examination | no visible damage | | | | | | | | | |
| | | | | DCL | initial limit | | | | | | | | | |
| | | | | ΔC/C | within ±10% of initial value | | | | | | | | | |
| | | | | DF | initial limit | | | | | | | | | |
| | | | | ESR | 1.25 x initial limit | | | | | | | | | |
| Temperature Stability | Step | Temperature°C | Duration (min) | | +20°C | -55°C | +22°C | +85°C | +125°C | +175°C | +200°C | +230°C | +22°C | |
| | 1 | +22 | 15 | | | | | | | | | | | |
| | 2 | -55 | 15 | DCL | IL* | n/a | IL* | 10 x IL* | 12.5 x IL* | n/a | n/a | n/a | IL* | |
| | 3 | +22 | 15 | | | | | | | | | | | |
| | 4 | +85 | 15 | ΔC/C | n/a | +0/-20% | ±5% | +20/-0% | +30/-0% | +30/-0% | +30/-0% | +30/-0% | ±5% | |
| | 5 | +125 | 15 | | | | | | | | | | | |
| | 6 | +175 | 15 | DF | IL* | 1.5 x IL* | IL* | 1.5 x IL* | 2 x IL* | 2 x IL* | 2 x IL* | 2 x IL* | IL* | |
| | 7 | +200 | 15 | | | | | | | | | | | |
| | 8 | +230 | 15 | | | | | | | | | | | |
| | 9 | +22 | 15 | ESR | 1.25 x IL* | 1.25 x IL* | 1.25 x IL* | 1.25 x IL* | 1.25 x IL* | 1.25 x IL* | 1.25 x IL* | 1.25 x IL* | 1.25 x IL* | |
| Surge Voltage | Test temperature: 85°C±3/0°C Surge voltage: 1.3 x rated voltage Series protection resistance: 33Ω Discharge resistance: 33Ω Number of cycles: 1000x Cycle duration: 5 min; 30 sec charge, 5 min 30 sec discharge | | | Visual examination | no visible damage | | | | | | | | | |
| | | | | DCL | initial limit | | | | | | | | | |
| | | | | ΔC/C | within ±20% of initial value | | | | | | | | | |
| | | | | DF | initial limit | | | | | | | | | |
| | | | | ESR | 1.25 x initial limit | | | | | | | | | |

*Initial Limit

High Reliability Tantalum MSL



Storage, Bake out, and Handing Recommendations

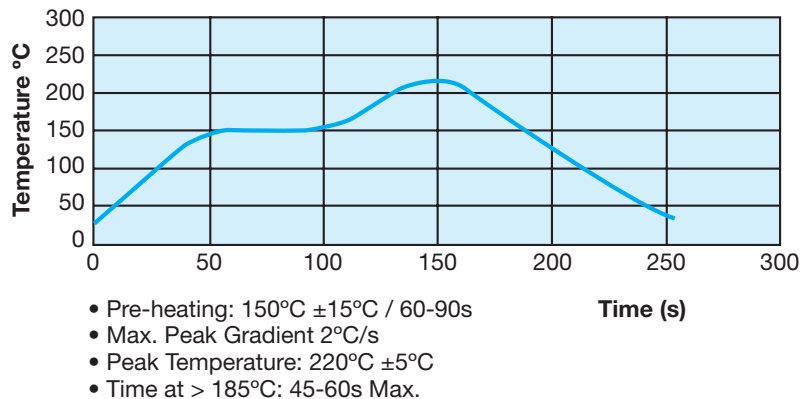
AVX Biddeford ships all COTS+, military, space level, and *medical grade surface mount tantalum capacitors in moisture resistant bags as a part of best practice. This includes CWR, TAZ, TBJ, TBC, T4C, TBM, and TCP product. This has improved our service to customers by alleviating the potential for long term exposure to high humidity conditions during shipping and storage.

Biddeford product that is considered to be MSL 3 includes TBMs, TCPs, TCBs, T4Js, TBJ V, U and E case, and TAZ H, V and X case sizes. The remainder of our tantalum capacitors are rated MSL 1 for moisture (per J-STD-020D). AVX MSL 1 Tantalum capacitors are unaffected by storage for 2 years at the following conditions: a temperature between -10°C and +35°C, maximum of 85% RH, and atmospheric pressure between 860 mbar and 1060mbar. Exposure to humidity in excess of the above conditions can occur during shipping or

storage; this may affect the leakage current of resin protected capacitors and possibly result in damaging the capacitors during reflow.

If high exposure occurs, MSL 1 product can be dried by baking at temperatures between 85°C for 16 hours to 125°C for 4 hours. Product packaged in tape and reel requires special handling as the tape and reels cannot withstand these temperatures. Extended bake out at 55°C with less than 10% humidity for 48-hours can be performed for product in tape and reel packaging. MSL 3 product should be baked out for 168 hours at 40°C.

The reflow profile below is recommended to ensure parametric integrity of the capacitors is maintained. An improper combination of temperature and time can lead to damage in the dielectric of the component and this profile minimizes that risk.



*For implantable medical applications please contact the factory for further recommendations.

TAZ Cots+, CWR09, CWR19, CWR29, TAZ HRC5000 and TAZ HRC6000 Series



Tape & Reel Packaging

Solid Tantalum Chip TAZ Tape and reel packaging for automatic component placement.

Please enter required Suffix on order. Bulk packaging is standard.

TAZ TAPING SUFFIX TABLE

| Case Size reference | Tape width mm | P mm | 180mm (7") reel | | 330mm (13") reel | |
|---------------------|---------------|------|-----------------|------|------------------|------|
| | | | Suffix | Qty. | Suffix | Qty. |
| A | 8 | 4 | R | 2500 | S | 9000 |
| R | 8 | 4 | R | 2500 | S | - |
| B | 12 | 4 | R | 2500 | S | 9000 |
| C | 12 | 4 | R | 2500 | S | 9000 |
| D | 12 | 4 | R | 2500 | S | 8000 |
| E | 12 | 4 | R | 2500 | S | 8000 |
| F | 12 | 8 | R | 1000 | S | 3000 |
| G | 12 | 8 | R | 500 | S | 2500 |
| H | 12 | 8 | R | 500 | S | 2500 |
| X | 12 | 8 | R | 500 | S | 2000 |

| Total Tape Thickness – K max | |
|------------------------------|--------------------------|
| TAZ | |
| Case size reference | Millimeters (Inches) DIM |
| A | 2.0 (0.079) |
| R | 2.0 (0.079) |
| B | 4.0 (0.157) |
| D | 4.0 (0.157) |
| E | 4.0 (0.157) |
| F | 4.0 (0.157) |
| G | 4.0 (0.157) |
| H | 4.0 (0.157) |
| X | 4.0 (0.157) |

| Code | 8mm Tape | | 12mm Tape | |
|----------------|----------------------|------------------------------------|----------------------|------------------------------------|
| P* | 4±0.1 or 8±0.1 | (0.157±0.004) (0.315±0.004) | 4±0.1 or 8±0.1 | (0.157±0.004) (0.315±0.004) |
| G | 0.75 min | (0.03 min) | 0.75 min | (0.03 min) |
| F | 3.5±0.04 | (0.138±0.002) | 5.5±0.05 | (0.22±0.002) |
| E | 1.75±0.1 | (0.069±0.004) | 1.75±0.1 | (0.069±0.004) |
| W | 8±0.3 | (0.315±0.012) | 12±0.3 | (0.472±0.012) |
| P ₂ | 2±0.05 | (0.079±0.002) | 2±0.05 | (0.079±0.002) |
| P ₀ | 4±0.1 | (0.157±0.004) | 4±0.1 | (0.157±0.004) |
| D | 1.5±0.1 -0 | (0.059±0.004) (-0) | 1.5±0.1 -0 | (0.059±0.004) (-0) |
| D ₁ | 1.0 min | (0.039 min) | 1.5 min | (0.059 min) |

*See taping suffix tables for actual P dimension (component pitch).

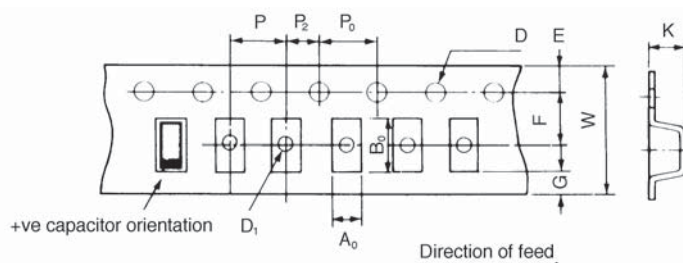
TAPE SPECIFICATION

Tape dimensions comply to EIA RS 481 A

Dimensions A₀ and B₀ of the pocket and the tape thickness, K, are dependent on the component size.

Tape materials do not affect component solderability during storage.

Carrier Tape Thickness <0.4mm



TAJ ESCC, TAJ CECC, TBJ CWR11, TBJ COTS+, T4J, TBM, TCB, TES, TBC CWR15, TBC COTS+, TBC HRC5000, TBC HRC6000 and T4C Series

Tape & Reel Packaging



Tape and reel packaging for automatic component placement. Please enter required Suffix on order. Bulk packaging is not available.

TAPE SPECIFICATION

Tape dimensions comply to EIA 481-1 Dimensions A₀ and B₀ of the pocket and the tape thickness, K, are dependent on the component size. Tape materials do not affect component solderability during storage. Carrier Tape Thickness <0.4mm.

TAPING TABLE TAJ ESCC, TAJ CECC, TBJ CWR11, TBJ COTS+, T4J, TBM, TES AND TCB SERIES

| Case Size | Tape width mm | P mm | 180mm (7") reel Qty. | 330mm (13") reel Qty. |
|-----------|---------------|------|----------------------|-----------------------|
| A | 8 | 4 | 2,000 | 8,000 |
| B | 8 | 4 | 2,000 | 8,000 |
| C | 12 | 8 | 500 | 3,000 |
| D | 12 | 8 | 500 | 2,500 |
| E | 12 | 8 | 400 | 1,500 |
| U | 16 | 8 | 400 | - |
| V | 12 | 8 | 400 | 1,500 |

TAPING SUFFIX TABLE TBC CWR15, COTS+, TBC HRC5000, TBC HRC6000 AND T4C SERIES

| Case Size | Tape width mm | P mm | 100mm (4") reel | | 180mm (7") reel | |
|-----------|---------------|------|-----------------|-------|-----------------|--------|
| | | | Designator | Qty. | Designator | Qty. |
| A | 12 | 4 | | | R | 2,000 |
| B | 12 | 8 | | | R | 1,000 |
| K | 8 | 2 | Q | 1,000 | P | 10,000 |
| L | 8 | 4 | X | 500 | R | 3,500 |
| R | 8 | 4 | X | 500 | R | 2,500 |
| S | 12 | 4 | | | R | 2,000 |

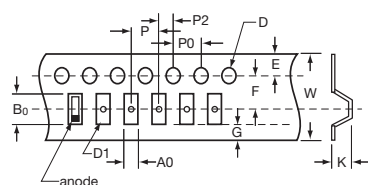
PLASTIC TAPE DIMENSIONS TAJ ESCC, TAJ CECC, TBJ CWR11, TBJ COTS+, T4J, TBM, TES AND TCB SERIES

| Case | A0±0.10 | B0±0.10 | K±0.10 | W±0.30 | E±0.10 | F±0.05 | G min. | P±0.10 | P2±0.05 | P0±0.10 | D ^{+0.20} _{-0.00} | D1 ^{+0.25} _{-0.00} |
|------|---------|---------|--------|--------|--------|--------|--------|--------|---------|---------|-------------------------------------|--------------------------------------|
| A | 1.83 | 3.57 | 1.87 | 8.00 | 1.75 | 3.50 | 0.75 | 4.00 | 2.00 | 4.00 | 1.50 | 1.00 |
| B | 3.15 | 3.77 | 2.22 | 8.00 | 1.75 | 3.50 | 0.75 | 4.00 | 2.00 | 4.00 | 1.50 | 1.00 |
| C | 3.45 | 6.40 | 2.92 | 12.00 | 1.75 | 5.50 | 0.75 | 8.00 | 2.00 | 4.00 | 1.50 | 1.50 |
| D | 4.48 | 7.62 | 3.22 | 12.00 | 1.75 | 5.50 | 0.75 | 8.00 | 2.00 | 4.00 | 1.50 | 1.50 |
| E | 4.50 | 7.50 | 4.50 | 12.00 | 1.75 | 5.50 | 0.75 | 8.00 | 2.00 | 4.00 | 1.50 | 1.50 |
| U | 6.19 | 7.66 | 4.72 | 16.00 | 1.75 | 7.50 | 0.75 | 8.00 | 2.00 | 4.00 | 1.50 | 1.50 |
| V | 6.43 | 7.44 | 3.84 | 12.00 | 1.75 | 5.50 | 0.75 | 8.00 | 2.00 | 4.00 | 1.50 | 1.50 |

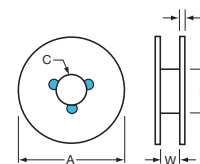
PLASTIC TAPE DIMENSIONS TBC CWR15, COTS+, TBC HRC5000, TBC HRC6000 AND T4C SERIES

| Case | A0±0.10 | B0±0.10 | K±0.10 | W±0.30 | E±0.10 | F±0.05 | G min. | P±0.10 | P2±0.05 | P0±0.10 | D±0.05 |
|------|---------|---------|--------|--------|--------|--------|--------|--------|---------|---------|--------|
| A | 1.91 | 3.53 | 1.93 | 12.00 | 1.75 | 5.50 | 0.75 | 4.00 | 2.00 | 4.00 | 1.55 |
| B | 3.30 | 4.17 | 2.03 | 12.00 | 1.75 | 5.50 | 0.75 | 8.00 | 2.00 | 4.00 | 1.55 |
| K | 0.75 | 1.26 | 0.67 | 8.00 | 1.75 | 3.50 | 0.75 | 2.00 | 2.00 | 4.00 | 1.55 |
| L | 1.05 | 1.90 | 1.17 | 8.00 | 1.75 | 3.50 | 0.75 | 4.00 | 2.00 | 4.00 | 1.55 |
| R | 1.65 | 2.45 | 1.68 | 8.00 | 1.75 | 3.50 | 0.75 | 4.00 | 2.00 | 4.00 | 1.55 |
| S | 1.91 | 3.53 | 1.93 | 12.00 | 1.75 | 5.50 | 0.75 | 4.00 | 2.00 | 4.00 | 1.55 |

REEL DIMENSIONS



| Reel Size | Tape | A | B | C | W | t |
|---------------|------|----------|--------|-----------|-------------|-----------|
| 180mm (7") | 12mm | 178±2.00 | 50 min | 13.0±0.50 | 12.4+1.5/-0 | 1.50±0.50 |
| 180mm (7") | 8mm | 178±2.00 | 50 min | 13.0±0.50 | 8.4+1.5/-0 | 1.50±0.50 |
| 330mm (13") | 12mm | 328±2.00 | 50 min | 13.0±0.50 | 12.4+1.5/-0 | 1.50±0.50 |
| 330mm (13") | 8mm | 328±2.00 | 50 min | 13.0±0.50 | 8.4+1.5/-0 | 1.50±0.50 |
| 108mm (4.25") | 8mm | 108±2.00 | | 13.0±0.50 | 8.4+1.5/-0 | 1.50±0.50 |



COVER TAPE NOMINAL DIMENSIONS

Thickness: 75µm
 Width of tape: 5.5mm (8mm tape)
 9.5mm (12mm tape)

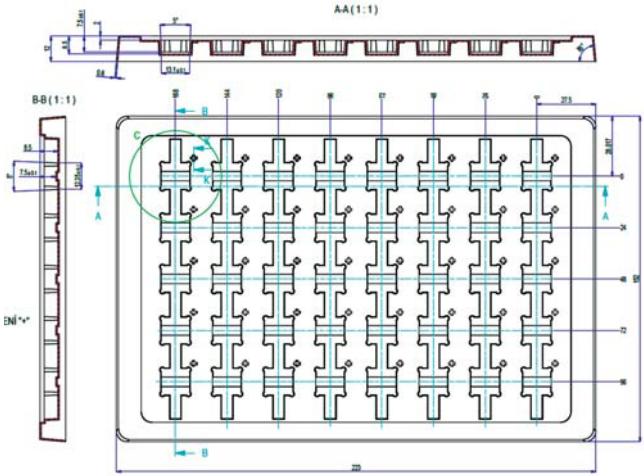
TCH and THH

Packaging



TCH AND THH PACKAGING SPECIFICATION

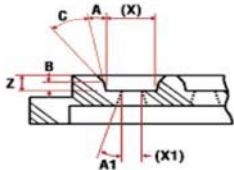
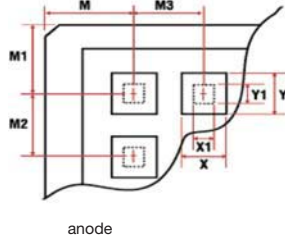
The dimensions of the tray see in the figure below. Tolerance of dimensions are ± 0.1 mm. Both case size "9" and "I" have 40 pcs per tray.



OVERALL CHIP TRAY SIZE

| Size | Height | Flatness |
|----------------------|--|----------|
| 50.80mm \pm 0.10mm | 3.96mm ^{+0.05mm} / _{-0.08mm} | 0.10mm |

PLASTIC CHIP TRAY



E Case

Tantalum Wet Electrolytic Capacitor



Technical Summary and Application Guidelines

INTRODUCTION

The structure of a Tantalum Wet Electrolytic Capacitor consists of four main elements: a primary electrode (anode), dielectric, a secondary electrode system (cathode) and a wet (liquid) electrolyte. The first, positive electrode (the anode) is a very high surface area structure made of pure tantalum metal. As with anodes prepared for surface mount devices, they are made by pressing and sintering pure tantalum powder together with an embedded tantalum wire (for later electrical contact) into, in this case, a cylindrical pellet of extremely high internal surface area capable of achieving high Capacitance at a given rated voltage. Next, the dielectric, a highly resistive insulating layer, is formed. The dielectric material is a thin film of tantalum pentoxide (Ta_2O_5) created by electrolytic oxidation of the anode surface, a process which grows the film over all of the internal surface area of the anode. The second electrode (cathode) is an extremely high surface area material actually applied to the inside surface of the pure tantalum can that provides the external housing for the device. The cathode system in wet capacitors provides good mechanical robustness and excellent contact with the liquid electrolyte, which is the functional connection between anode and cathode. All are contained within the can which is hermetically sealed, with an external anode lead connected to the embedded anode wire, and an external cathode lead connected to the can.

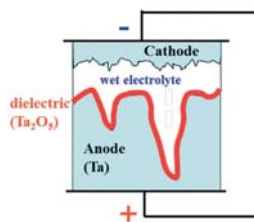


Figure 1 a. Basic Tantalum Wet Electrolytic Capacitor System

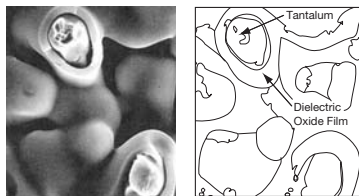


Figure 1 b. Typical Formed anode pellet structure

Wet tantalum capacitors have been utilized for many years in high energy storage applications where volumetric efficiency and high reliability are essential requirements. The first wet tantalum capacitors were developed in the middle of 20th century and comprised a tantalum anode surrounded by an electrolyte inside a silver case with an epoxy end seal.

This design was problematic in that it could be prone to leakage of the electrolyte through the epoxy seal. It also had a limited ability to withstand any reverse voltage. The silver case material was later replaced by pure tantalum, which provided more stable performance characteristics over a wide range of applications.

The use of a tantalum case made it easier to construct a tantalum glass-to-metal end-seal that could be laser-welded to the tantalum can, thus making a fully hermetic capacitor. This construction addressed the risk of fluid leakage from the part and improved overall reliability.

The original design also included the use of a porous, high surface area tantalum sleeve inside the case which acted as the cathode system. The design with tantalum sleeve was adopted by MIL-PRF-39006 and remains the qualified standard tantalum wet capacitors (**AVX TWC series family**).

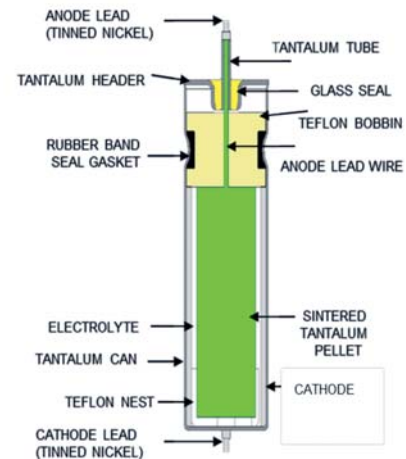


Figure 2. Typical Wet Tantalum Capacitor Construction

Because the bulk of the capacitance attainable is strongly dependent on the area of the cathode, alternative cathode systems, directly coated onto the interior of the tantalum can, were developed, such as used by **AVX TWA series family**. This system not only increases the overall area of the cathode, but also increases the internal volume available for the anode, thus significantly increasing the potential capacitance/voltage ratings available in each case size. The disadvantage of the alternative cathode system is a limited reverse voltage capability.

The key benefits of wet tantalum electrolyte systems are:

- Large case sizes capable of offering high Capacitance values at high operating voltages.
- Wide operational temperature ranges -55 to 125°C, with special designs up to 200°C
- Wide working voltage range up to 125V
- High volumetric efficiency.

Disadvantages compared to solid tantalum series are:

- Lower electrolyte conductivity resulting in higher ESR.
- Reduced capacitance and increased ESR at low temperatures.
- Risk of hydrogen generation.
- Higher material and manufacturing cost.

Compared to solid tantalum technologies e.g. (MnO_2 or polymer electrolyte), wet tantalum capacitors exhibit a higher surge current capability with a higher breakdown voltage (BDV) close to their dielectric formation voltage. This results in capacitors that require less voltage derating.

Their lower electrolyte conductivity results in a greater capacitance drop with frequency, suiting wet tantalum electrolytic capacitors ideally to high reliability bulk capacitance applications.

SECTION 1 ELECTRICAL CHARACTERISTICS AND EXPLANATION OF TERMS

1.1 CAPACITANCE

1.1.1 Rated Capacitance

Capacitance is measured at 120Hz and 25°C with 2.0V DC bias applied. A small reduction in capacitance level (<2%) may be observed at rated voltage.

1.1.2 Capacitance Tolerance

This is the permissible variation of the actual value of the capacitance from the rated value. For additional reading, please consult the AVX technical publication “Capacitance Tolerances for Solid Tantalum Capacitors”.

1.1.3 Temperature dependence of capacitance.

The capacitance of a tantalum capacitor varies with temperature. This variation itself is dependent to a small extent on the case size and rating as shown in Figure 1.1.3; capacitance limits for individual ratings at -55°C, +85°C and +125°C are given in the data sheet.

1.1.4 Frequency dependence of capacitance.

Capacitance levels decrease with increasing frequency. Figure 1.1.4a across shows the typical capacitance versus frequency behavior of a TWC series (conventional tantalum sleeve) design. Figure 1.1.4b illustrates typical capacitance characteristics versus frequency for several different ratings of the TWA series (wet system with alternative cathode).

Typical Range of Capacitance Change over Temperature

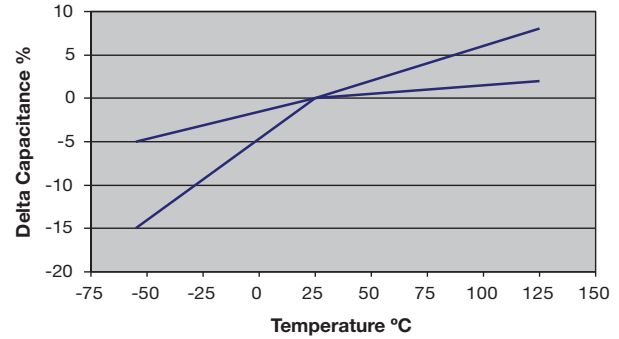


Figure 1.1.3: Typical Capacitance Change Limits vs. Temperature

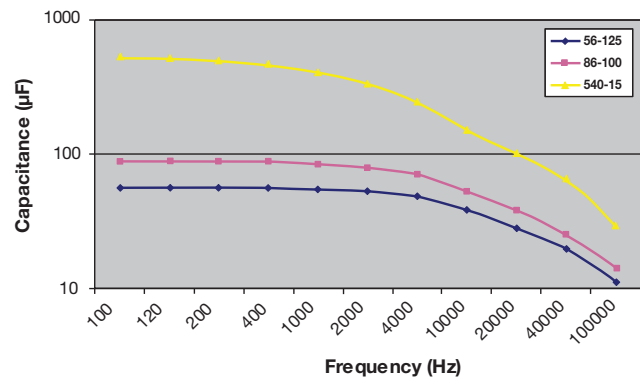


Figure 1.1.4 a: TWC Typical Capacitance vs. Frequency

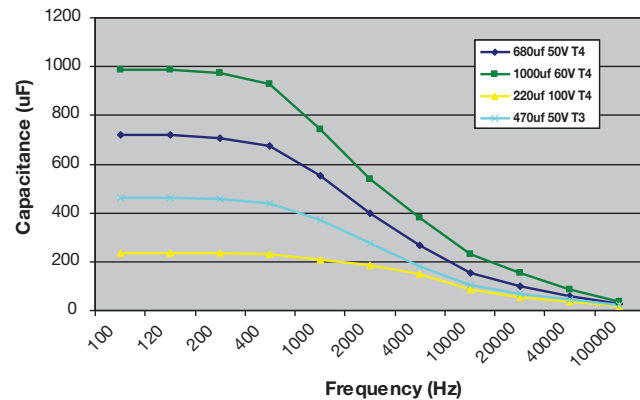


Figure 1.1.4 b: TWA Typical Capacitance vs. Frequency

1.2 VOLTAGE

1.2.1 Rated DC Voltage (V_R)

This is the maximum continuous DC voltage that the part may be subjected to at temperatures from -55°C to +85°C.

1.2.2 Category voltage (V_C).

This is the maximum voltage that may be applied continuously to a capacitor over its temperature range. It is equal to the rated voltage V_R from -55°C to +85°C, beyond which it is subject to a linear derating, to 2/3

V_R at 125°C See Figure 1.2.1 below for voltage derating with temperature.

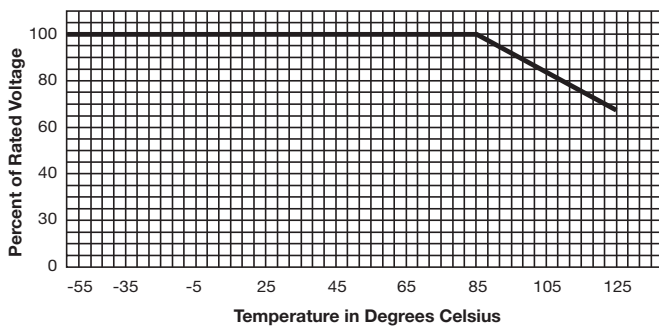


Figure 1.2.1 Voltage Derating over Temperature

The maximum working voltage for temperatures between 85°C and 125°C can also be found from the following formula:

$$V_{max} = \left(1 - \frac{(T - 85)}{125}\right) \times V_R$$

where T is the required operating temperature.

1.2.3 Surge voltage (V_S).

This is the highest voltage that may be applied to a capacitor for short periods of time in circuits with minimum series resistance of 33Ω. This includes the peak AC ripple voltage in addition to the DC bias voltage.

Table 1.2.3 below illustrates the maximum allowable surge voltage for each voltage rating.

| Voltage | |
|------------------------|------------------------|
| Rated (85°C) (85°C) | Surge (85°C) (85°C) |
| 6 | 6.9 |
| 8 | 9.2 |
| 10 | 11.5 |
| 15 | 17.3 |
| 25 | 28.8 |
| 30 | 34.5 |
| 50 | 57.5 |
| 60 | 69.0 |
| 75 | 86.3 |
| 100 | 115.0 |
| 125 | 144.0 |

Table 1.2.3 85°C Surge Voltage ratings

TWC Series Family Surge Test:

Typical surge voltage testing consists of 1000 cycles of an applied 30 second surge voltage followed by a 5.5 minute discharge period. Voltage application is made through a resistance of (1,000 ±100) ohms in series with the capacitor. Each surge voltage cycle is performed in such a manner that the capacitor is discharged through a 1 kΩ resistor at the end of 30 seconds of applied voltage. Upon completing the test, the capacitors are allowed to stabilize at room temperature and measured to the following limits:

1. Capacitance shall be within the initial 25°C tolerance
2. DC leakage shall not exceed the initial 25°C limit
3. DF shall not exceed the initial 25°C limit
4. Capacitors shall be visually examined for mechanical damage and leakage of electrolyte.

TWA Series Family Surge Test:

The surge voltage may be applied up to 10 times in an hour for periods of up to 30 seconds at a time. The surge voltage must not be used as the design parameter for circuits in which, in the normal course of operation, the capacitor is periodically charged and discharged to.

1.2.4 High Temperature Voltage (V_T)

High temperature capacitor series (designed for operation above 125°C) can be operated at 60% of their rated DC voltage (V_R) at 200°C for a period specified in their individual data sheets.

1.2.5 Reverse voltage and Non-Polar operation.

Tantalum wet capacitors are inherently polar devices with the positive terminal identified on the body of the component. It is advisable to avoid the application of reverse voltage at all times. However, they do have the capability to withstand some reverse voltage as follows:

TWC Series Family Reverse Voltage Operation

TWC series allow limited reverse voltage levels of up to 3V for a maximum of 125 Hours. Capacitors evaluated to these conditions have met the following requirements:

1. DCL shall not exceed 125% of the initial value specified.
2. Capacitance shall remain within the initial tolerance (5%, 10%, 20%).
3. DF shall not exceed the initial limit specified.

TWA Series Family Reverse Voltage Operation

Continuous application of reverse voltage without normal polarization may result in an increase in leakage current.

Reverse voltage ratings are designed to cover exceptional conditions where small level excursions into incorrect polarity may occur. The values quoted do not apply to continuous reverse operation.

Technical Summary and Application Guidelines

Any peak reverse voltage applied to the capacitor must meet the following criteria:

- The peak reverse voltage must be less than or equal to 1.5 volts and the product of the peak current times the duration of the reverse transient must be less than or equal to 0.05 ampere-second.
- The repetition rate of the reverse voltage surges must be less than 10 Hz.

Non-Polar Operation

Under conditions where the continuous application of a reverse voltage could occur, two similar capacitors should be used in a back-to-back configuration with the negative terminations having a common connection. This combination will give a total capacitance of approximately one half of the nominal capacitance of each capacitor. Under conditions of isolated pulses or during the first few cycles, the capacitance may approach the full nominal value.

1.2.6 Superimposed A.C. Voltage (Vrms) - Ripple Voltage.

This is the maximum rms alternating voltage, superimposed on a DC voltage, that may be applied to a capacitor.

The sum of the DC voltage and peak value of the superimposed ac voltage must not exceed the category voltage, V_C .

1.3 IMPEDANCE, (Z) AND EQUIVALENT SERIES RESISTANCE (ESR)

1.3.1 Impedance, Z.

This is the ratio of voltage to current at a specified frequency. The impedance is measured at -55°C and 120Hz.

1.3.2 Equivalent Series Resistance, ESR.

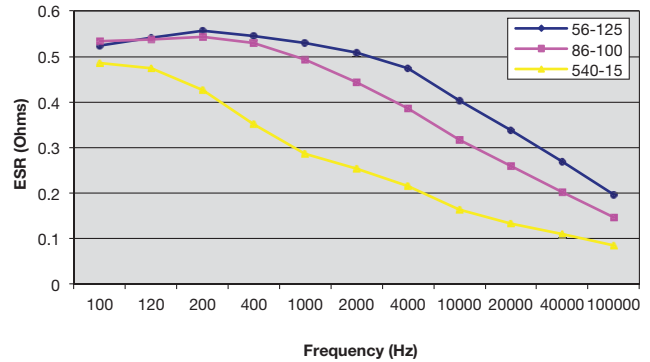
The ESR of a wet tantalum behaves much the same as a solid tantalum capacitor. It will decrease as frequency increases and generally resonance is achieved above 100 kHz. ESR is measured at 120Hz and 25°C with 2.0V DC bias applied. The ESR is frequency dependent and can be found by using the relationship:

$$ESR = \tan \delta / 2\pi fC$$

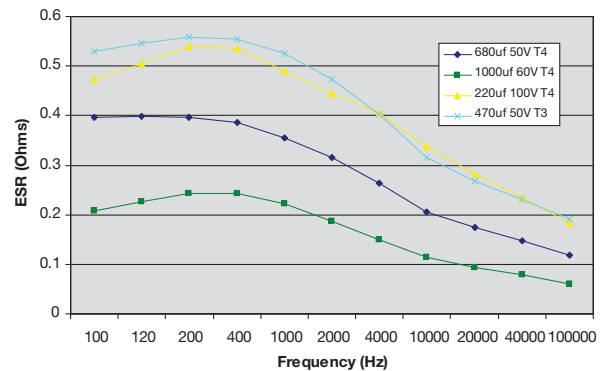
Where f is the frequency in Hz, and C is the capacitance in farads. ESR is one of the contributing factors to impedance, and at high frequencies (10kHz and above) it becomes the dominant factor.

1.3.3 Frequency dependence of ESR.

ESR and Impedance both reduce with increasing frequency. At lower frequencies the values diverge as the extra contributions to impedance (due to the reactance of the capacitor) become more significant. In the range (1–10) kHz the values of impedance and ESR are almost identical, while at higher frequencies (and beyond the resonant point of the capacitor) impedance again increases due to the inductance of the capacitor.



Graph 1.3.3.a TWC Frequency Dependence of ESR



Graph 1.3.3. b TWA Frequency Dependence of ESR

1.3.5 Temperature dependence of Impedance, Z and ESR.

ESR and impedance vary with temperature, with the most significant changes occurring at low temperature. ESR and Impedance can increase by a factor of 20 to 30 times at the lower limit of -55°C; low temperature impedance limits for each rating are given in the individual data sheets.

At High temperatures ESR levels reduce slightly. ESR is typically halved at +85°C and is reduced to almost a third at +125°C.

1.4 D.C. LEAKAGE CURRENT

1.4.1 Leakage current, DCL.

The leakage current is dependent on the voltage applied, the time over which the voltage is applied and the component temperature. It is measured at +25°C with rated voltage applied. A protective resistance of 1000Ω is connected in series with the capacitor in the measuring circuit. Three to five minutes after application of the rated voltage the leakage current must not exceed the maximum values indicated in the individual data sheet.

Leakage limits are specified for 25°C and 85°C with rated voltage applied, and for 125°C with category (2/3 rated) voltage applied.

Wet tantalum technology is characterized by extremely low leakage current, typically less than 0.0002CV (about 50 times lower than solid tantalum technology).

1.4.2 Temperature Dependence of Leakage current.

Leakage current increases with increasing temperature. In general, there will be a 10 to 12 times increase at 85°C and 125°C respectively. DCL limits for individual ratings at -55°C, +85°C and +125°C are given in the data sheet.

1.4.3 Voltage dependence of the leakage current.

When operated at applied voltages less than the rated voltage, leakage current will be greatly reduced.

When operated at applied voltages less than the rated voltage, reliability in any given application will be increased.

1.5 A.C. OPERATION, POWER DISSIPATION AND RIPPLE CURRENT

1.5.1 A.C. Operation.

In an A.C. application heat is generated within the capacitor primarily by the a.c. component of the signal (which will depend upon the signal form, amplitude and frequency), and secondarily by the DC leakage (for most practical purposes this, second factor is insignificant). The actual power dissipated in the capacitor can be calculated using the formula:

$$P = I^2R$$

rearranged to:

$$I = \text{SQRT}(P/R) \dots\dots(\text{Eq. 1})$$

Where: I = rms ripple current, amperes
 R = equivalent series resistance, ohms
 U = rms ripple voltage, volts
 P = power dissipated, watts
 Z = impedance, ohms, at the frequency under consideration.

The maximum a.c. ripple voltage (U_{max}) is calculated from Ohms' law:

$$U_{\text{max}} = IR \dots\dots(\text{Eq. 2})$$

Where P is the maximum specified permissible power dissipation.

However care must be taken to ensure that:

1. The DC working voltage of the capacitor must not be exceeded by the sum of the positive peak of the applied a.c. voltage and the DC bias voltage.
2. The sum of the applied DC bias voltage and the negative a.c. voltage peak must not exceed the reverse voltage specification limit.

1.5.2 Power Dissipation

Power dissipation is a measure of the power required to heat the capacitor to a certain temperature above ambient. Power dissipation is a function of case size and This is used in the above equations to calculate ripple current limits.

1.5.3 Ripple Current.

Ripple current is referenced at 40kHz at 2/3 rated voltage at 85°C and multipliers for applied voltages of different percentages of rated voltage, and for different frequencies, have been calculated over the temperature range from -55°C to 125°C. These are shown in table 1.5.3.

The reference point (40kHz at 2/3 rated voltage at 85°C) is highlighted in yellow in the table.

| Frequency of applied ripple current | 120 Hz | | | | 800 Hz | | | | 1 kHz | | | | |
|-------------------------------------|--------|-----|------|------|--------|------|------|------|-------|------|------|------|---|
| | ≤ 55 | 85 | 105 | 125 | ≤ 55 | 85 | 105 | 125 | ≤ 55 | 85 | 105 | 125 | |
| Ambient still air temperature (°C) | | | | | | | | | | | | | |
| % of 85°C rated peak voltage | 100% | 0.6 | 0.39 | – | – | 0.71 | 0.43 | – | – | 0.72 | 0.45 | – | – |
| | 90% | 0.6 | 0.46 | – | – | 0.71 | 0.55 | – | – | 0.72 | 0.55 | – | – |
| | 80% | 0.6 | 0.52 | 0.35 | – | 0.71 | 0.62 | 0.42 | – | 0.72 | 0.62 | 0.42 | – |
| | 70% | 0.6 | 0.58 | 0.44 | – | 0.71 | 0.69 | 0.52 | – | 0.72 | 0.7 | 0.52 | – |
| 66-2/3% | 0.6 | 0.6 | 0.46 | 0.27 | 0.71 | 0.71 | 0.55 | 0.32 | 0.72 | 0.72 | 0.55 | 0.32 | |

| Frequency of applied ripple current | 10 kHz | | | | 40 kHz | | | | 100 kHz | | | | |
|-------------------------------------|--------|------|------|------|--------|----|------|------|---------|-----|------|------|---|
| | ≤ 55 | 85 | 105 | 125 | ≤ 55 | 85 | 105 | 125 | ≤ 55 | 85 | 105 | 125 | |
| Ambient still air temperature (°C) | | | | | | | | | | | | | |
| % of 85°C rated peak voltage | 100% | 0.88 | 0.55 | – | – | 1 | 0.63 | – | – | 1.1 | 0.69 | – | – |
| | 90% | 0.88 | 0.67 | – | – | 1 | 0.77 | – | – | 1.1 | 0.85 | – | – |
| | 80% | 0.88 | 0.76 | 0.52 | – | 1 | 0.87 | 0.59 | – | 1.1 | 0.96 | 0.65 | – |
| | 70% | 0.88 | 0.85 | 0.64 | – | 1 | 0.97 | 0.73 | – | 1.1 | 1.07 | 0.8 | – |
| 66-2/3% | 0.88 | 0.88 | 0.68 | 0.4 | 1 | 1 | 0.77 | 0.45 | 1.1 | 1.1 | 0.85 | 0.5 | |

Fig. 1.5.3 Ripple current multipliers vs. Frequency, temperature and applied voltage

1.6 SOLDERING CONDITIONS AND BOARD ATTACHMENT

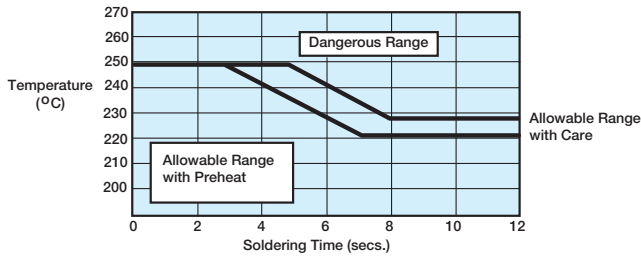
1.6.1 Wave Soldering.

AVX leaded tantalum capacitors are designed for printed circuit board (pcb) attachment via a wave soldering operation. The soldering temperature and time should be the minimum required for a good connection. After insertion into the pcb, the exposed leads can be passed through wave solder, a suitable temperature/time combination being 230°C – 250°C for 3-5 seconds. Figure 1.7.1 illustrates the allowable range of peak temperature versus time for wave soldering.

Tantalum Wet Electrolytic Capacitor

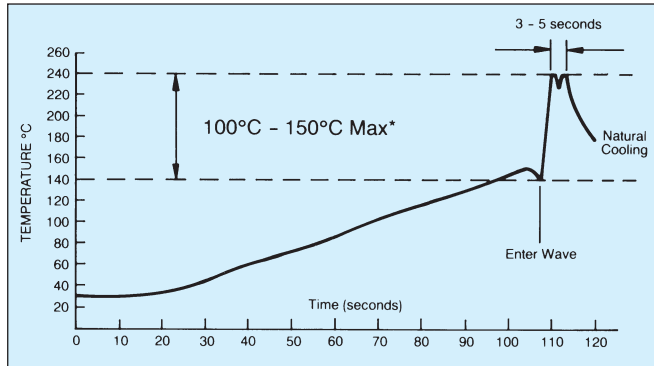


Technical Summary and Application Guidelines



Graph 1.6.1. Allowable range of peak temp./time combinations for wave soldering

As small parametric shifts may be noted immediately after wave solder, components should be allowed to stabilize at room temperature prior to electrical testing. After soldering, the assembly should be allowed to cool naturally. In the event that assisted cooling is used, the rate of change in temperature should not exceed that used in reflow. A recommended wave solder profile is shown below:



Graph 1.6.2. Recommended Wave Solder Profile

| Temperature Factor π_T | | Capacitance Factor π_C | | Voltage Stress Factor π_V | | Quality Factor π_Q | |
|----------------------------|---------|----------------------------|-----------|-------------------------------|---------|------------------------|---------|
| T (°C) | π_T | Cap (µF) | * π_C | Voltage Stress | π_V | Quality | π_Q |
| 20 | 0.91 | 1 | 1.00 | 0.1 | 1 | D | 0.001 |
| 30 | 1.1 | 4 | 1.38 | 0.2 | 1 | C | 0.01 |
| 40 | 1.3 | 10 | 1.70 | 0.3 | 1 | S, B | 0.03 |
| 50 | 1.6 | 15 | 1.86 | 0.4 | 1 | R | 0.1 |
| 60 | 1.8 | 33 | 2.23 | 0.5 | 1 | P | 0.3 |
| 70 | 2.2 | 68 | 2.64 | 0.6 | 2 | M | 1 |
| 80 | 2.5 | 100 | 2.88 | 0.7 | 15 | L | 1.5 |
| 90 | 2.8 | 220 | 3.46 | 0.8 | 130 | COTS-Plus | 3 |
| 100 | 3.2 | 470 | 4.12 | 0.9 | 990 | Commercial | 10 |
| 110 | 3.7 | 680 | 4.48 | 1 | 5900 | | |
| 120 | 4.1 | 1200 | 5.11 | | | | |
| 130 | 4.6 | 2200 | 5.87 | | | | |

* $\pi_C = C/0.23$

| Environmental Factor π_E | | | Series Resistance Factor π_{SR} | |
|-------------------------------|----------------|---------|-------------------------------------|------------|
| Environmental | π_E Symbol | π_E | Circuit Resistance (Ohms/Volt) | π_{SR} |
| Ground, Benign | G_B | 1 | > 0.8 | 0.66 |
| Ground, Fixed | G_F | 10 | > 0.6 to 0.8 | 1 |
| Ground, Mobile | G_M | 20 | > 0.4 to 0.6 | 1.3 |
| Naval, Sheltered | N_S | 7 | > 0.2 to 0.4 | 2 |
| Naval, Unsheltered | N_U | 15 | > 0.1 to 0.2 | 2.7 |
| Airborne, Inhabited Cargo | A_{IC} | 12 | 0 to 0.1 | 3.3 |
| Airborne, Inhabited Fighter | A_{IF} | 15 | | |
| Airborne, Uninhabited Cargo | A_{UC} | 25 | | |
| Airborne, Uninhabited Fighter | A_{UF} | 30 | | |
| Airborne, Rotary Winged | A_{RW} | 40 | | |
| Space, Flight | S_F | 0.5 | | |
| Missile, Flight | M_F | 20 | | |
| Missile, Launch | M_L | 50 | | |
| Cannon, Launch | C_L | 570 | | |

More information for the definitions of the application environments can be seen in MIL-HDBK-217.

1.7 RELIABILITY CALCULATION

The predicted reliability of a wet tantalum capacitor in an application can be calculated using the equation defined in MIL-HDBK-217 as seen below:

$$\lambda_P = \lambda_b \times \pi_T \times \pi_C \times \pi_V \times \pi_{SR} \times \pi_Q \times \pi_E$$

Failures/10⁶ Hours

where:

λ_P = part failure rate

λ_b = base failure rate

π = factors that modify the base failure rate

For wet tantalum capacitors the base failure rate (λ_b) is:

$$\lambda_b = 0.0004$$

The π factors should be determined from the tables that follow which outline the values for each variable as they pertain to individual components and the applications in which they are utilized.

Example Calculation: A 100 VDC 220µF COTS-Plus wet tantalum is being used in a fixed ground environment at 50°C with 60V applied and a series resistance of 0.2 Ohms/Volt.

$$\pi_T = 1.6 \quad \pi_C = 3.46$$

$$\pi_V = 2 \quad \pi_{SR} = 2$$

$$\pi_Q = 3 \quad \pi_E = 10$$

$$\lambda_P = 0.0004 \times 1.6 \times 3.46 \times 2 \times 2 \times 3 \times 10 = 0.26$$

Failures/10⁶ Hours

AMERICAS

AVX Greenville, SC
Tel: 864-967-2150

EUROPE

AVX Limited, England
Tel: +44-1252-770000

AVX S.A.S., France
Tel: +33-1-69-18-46-00

AVX GmbH, Germany
Tel: +49-0811-95949-0

AVX SRL, Italy
Tel: +39-02-614-571

AVX Czech Republic
Tel: +420-57-57-57-521

AVX/ELCO UK
Tel: +44-1638-675000

ELCO Europe GmbH
Tel: +49-2741-299-0

AVX S.A., Spain
Tel: +34-91-63-97-197

AVX Benelux
Tel: +31-187-489-337

ASIA-PACIFIC

AVX/Kyocera (S) Pte Ltd.,
Singapore
Tel: +65-6286-7555

AVX/Kyocera, Asia, Ltd.,
Hong Kong
Tel: +852-2363-3303

AVX/Kyocera Yuhan Hoesa,
South Korea
Tel: +82-2785-6504

AVX/Kyocera HK Ltd.,
Taiwan
Tel: +886-2-2656-0258

AVX/Kyocera (M) Sdn Bhd,
Malaysia
Tel: +60-4228-1190

AVX/Kyocera International
Trading Co. Ltd.,
Shanghai
Tel: +86-21-3255 1933

AVX/Kyocera Asia Ltd.,
Shenzen
Tel: +86-755-3336-0615

AVX/Kyocera International
Trading Co. Ltd.,
Beijing
Tel: +86-10-6588-3528

AVX/Kyocera India
Liaison Office
Tel: +91-80-6450-0715

ASIA-KED

(KYOCERA Electronic Devices)

KED Hong Kong Ltd.
Tel: +852-2305-1080/1223

KED Hong Kong Ltd.
Shenzen
Tel: +86-755-3398-9600

KED Company Ltd.
Shanghai
Tel: +86-21-3255-1833

KED Hong Kong Ltd.
Beijing
Tel: +86-10-5869-4655

KED Taiwan Ltd.
Tel: +886-2-2950-0268

KED Korea Yuhan Hoesa,
South Korea
Tel: +82-2-783-3604/6126

KED (S) Pte Ltd.
Singapore
Tel: +65-6509-0328

Kyocera Corporation
Japan
Tel: +81-75-604-3449

Contact:

