

# SURFACE MOUNT MLCCs 10 - 200 VDC

CASE SIZE			Voltage	AVAILABLE CAPACITANCE CODE																									
JDI	Inches	(mm)		0R5	XR5	100	120	150	180	220	270	330	390	470	560	680	820	101	121	151	181	221	271	331	391	471	561	681	821
R05	0201	(0603) L .024 ±.001 W .012 ±.001 T .012 ±.001 EB .006 ±.002 (0.60 ±.03) (0.30 ±.03) (0.30 ±.03) (0.15±.05)	25V	█																									
			16V	█											█														
			10V	█											█														
			50V	█											█														
R07	0402	(1005) L .040 ±.004 W .020 ±.004 T .025 Max. EB .008 ±.004 (1.02 ±.10) (0.51 ±.10) (0.64) (0.20±.10)	50V	█											█														
			25V	█											█														
			16V	█											█														
			10V	█											█														
R14	0603	(1608) L .063 ±.008 W .032 ±.008 T .035 Max. EB .010±.005 (1.60 ±.20) (0.81 ±.20) (0.89) (.25±.13)	200V	█											█														
			100V	█											█														
			50V	█											█														
			25V	█											█														
			16V	█											█														
R15	0805	(2012) L .080 ±.010 W .050 ±.010 T .050 Max. EB .020±.010 (2.03 ±.25) (1.27 ±.25) (1.27) (0.51±.25 )	200V	█											█														
			100V	█											█														
			50V	█											█														
			25V	█											█														
			16V	█											█														
R18	1206	(3216) L .125 ±.010 W .062 ±.010 T .050 Max. EB .020 ±.010 (3.17 ±.25) (1.57 ±.25) (1.27) (0.51 ±.25)	200V	█											█														
			100V	█											█														
			50V	█											█														
			25V	█											█														
S41	1210	(3224) L .125 ±.010 W .095 ±.010 T .065 Max. EB .020 ±.010 (3.18 ±.25) (2.41 ±.25) (1.65) (0.51 ±.25)	200V												NP0														
			100V												X7R														
			50V												X5R														
			25V																										
			16V																										
S43	1812	(4532) L .175 ±.010 W .125 ±.010 T .085 Max. EB .025 ±.015 (4.45 ±.25) (3.17 ±.25) (2.16) (0.64 ±.38)	200V																										
			100V																										
			50V																										
			25V																										



## HOW TO ORDER - SURFACE MOUNT MLCC

Part number written: 100R07W104KV4E

<b>100</b>	<b>R 07</b>	<b>W</b>	<b>104</b>	<b>K</b>	<b>V</b>	<b>4</b>	<b>E</b>
<b>VOLTAGE</b>	<b>SERIES/SIZE</b>	<b>DIELECTRIC</b>	<b>CAPACITANCE</b>	<b>TOLERANCE</b>	<b>TERMINATION</b>	<b>MARKING</b>	<b>PACKING</b>
100 = 10 V DC 160 = 16 V DC 250 = 25 V DC 500 = 50 V DC 101 = 100 V DC 201 = 200 V DC	R05 = 0201 R07 = 0402 R14 = 0603 R15 = 0805 R18 = 1206 S41 = 1210 S43 = 1812	N = NP0 W = X7R X = X5R	1st two digits are significant; third digit denotes number of zeros, R = decimal.  5R6 = 5.6 pF 100 = 10 pF 102 = 1,000 pF 474 = 0.47 μF	* B = ± 0.10 pF * C = ± 0.25 pF * D = ± 0.50 pF F = ± 1 % G = ± 2 % J = ± 5 % K = ± 10 % M = ± 20 %  *Values < 10 pF only	V = Nickel Barrier with 100% Tin Plating (Matte)  T = SnPb	3 = Special 4 = Unmarked 6 = EIA Code*  *Not available on sizes ≤ 0402	E = Embossed 7" T = Punched 7" U = Embossed 13" R = Punched 13" No code = bulk  Tape specifications on page 48. Not all tape styles are available on all parts.



# SURFACE MOUNT MLCCs 10 - 200 VDC

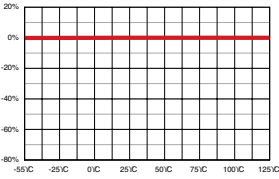
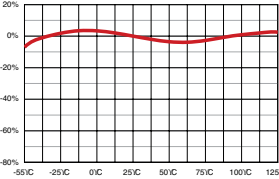
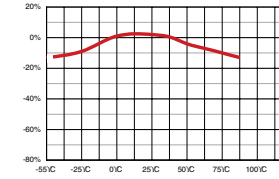
AVAILABLE CAPACITANCE CODE																								Voltage	CASE SIZE											
122	152	182	222	272	332	392	472	562	822	103	123	153	183	223	273	333	473	563	683	823	104	224	334			474	105	225	335	475	106	476	107			
																																			25V	0201 R05
																																		16V		
																																		10V		
																																			50V	0402 R07
																																		25V		
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																																			200V	0603 R14
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																																			16V	0805 R15
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																																		50V		
																																			25V	1206 R18
																																		16V		
																																		200V		
																																		100V		
																																			50V	1210 S41
																																		25V		
																																		16V		
																																		200V		
																																			100V	1812 S43
																																		50V		
																																		25V		

See Tanceram High Capacitance Series for values  $\geq 1.0\mu\text{F}$

## ELECTRICAL CHARACTERISTICS

Please refer to page 78 of the catalog or [www.johansondielectrics.com](http://www.johansondielectrics.com)

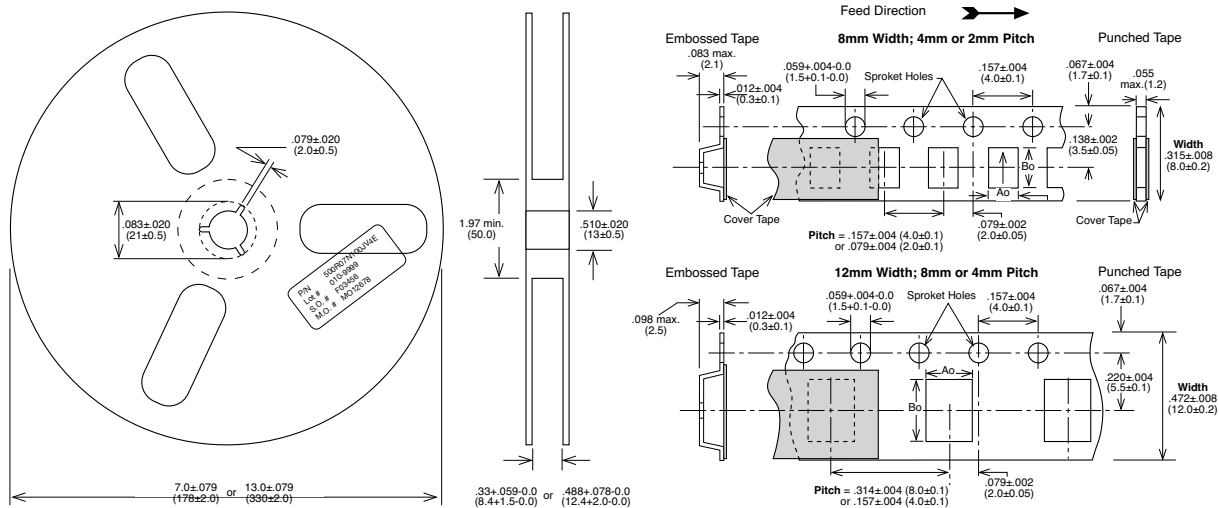
## ELECTRICAL CHARACTERISTICS

PARAMETER	NPO		X7R		X5R	
TEMPERATURE COEFFICIENT:	0± 30 ppm/°C	-55 to +125°C	± 15%	-55 to +125°C	± 15%	-55 to +85°C
						
DISSIPATION FACTOR:	.001 (0.1%) max		WVDC ≥ 50 VDC, DF = 2.5% max WVDC = 25 VDC, DF = 3.0% max WVDC = 16 VDC, DF = 3.5% max		For Vrated ≥ 50 VDC, DF = 5% max For Vrated ≤ 25 VDC: DF = 10% max	
AGING:	None		2.5% / decade hour		2.5 % / decade hour	
INSULATION RESISTANCE:	1000ΩF or 100GΩ whichever is less @ 25°C, WVDC		500ΩF or 50GΩ whichever is less @ 25°C, WVDC		100ΩF or 10GΩ whichever is less @ 25°C, WVDC	
DIELECTRIC STRENGTH:	For Vrated = 6 - 200 VDC, DWV = 2.5 X WVDC, 25°C, 50mA max. For Vrated = 201 - 499 VDC, DWV = 2.0 X WVDC, 25°C, 50mA max. For Vrated = 500 - 999 VDC, DWV = 1.5 X WVDC, 25°C, 50mA max. For Vrated = 1000+ VDC, DWV = 1.2 X WVDC, 25°C, 50mA max.				DWV = 2.5 X WVDC, 25°C, 50mA max.	
TEST PARAMETERS:	C > 100 pF; 1kHz ±50Hz; 1.0±0.2 VRMS C ≤ 100 pF 1Mhz ±50kHz; 1.0±0.2 VRMS		1kHz ±50Hz; 1.0±0.2 VRMS		1kHz ±50Hz; 0.5±0.2 VRMS	
NOTES:	Tanceram IR = 100 ΩF or 10 GΩ Tanceram DF for Vrated ≥ 50 VDC = 5% max. Tanceram DF for Vrated ≤ 25 VDC, DF = 10% max					



# CAPACITOR PACKAGING

Johanson capacitors are available taped per EIA standard 481. Tape options include 7" and 13" diameter reels. Johanson uses high quality, dust free, punched 8mm paper tape and plastic embossed 8mm tape for thicker MLCCs. Quantity per reel ranges are listed in the tables below and are dependent on chip thickness.



COMPONENT	7" DIAMETER REEL				13" DIAMETER REEL			
	REEL QTY	TAPE TYPE	WIDTH / PITCH	CODE	REEL QTY	TAPE TYPE	WIDTH / PITCH	CODE
R05 / 0201 MLCC	15000	Paper	8mm/2mm	T	N/A	N/A		N/A
R07 / 0402 MLCC	10000	Paper	8mm/2mm	T	N/A	N/A		N/A
R14 / 0603 MLCC	4000	Paper	8mm/4mm	T	10000	Paper	8mm/4mm	R
R15 / 0805 MLCC	4000 / 3000	Paper / Embossed	8mm/4mm	T / E	10000	Paper / Embossed	8mm/4mm	R / U
R18 / 1206 MLCC	4000 / 3000	Paper / Embossed	8mm/4mm	T / E	10000	Paper / Embossed	8mm/4mm	R / U
S41 / 1210 MLCC	2000 - 4000	Embossed	8mm/4mm	E	5000-10000	Embossed	8mm/4mm	U
R29 / 1808 MLCC	2000	Embossed	12mm/4mm	E	5000 - 8000	Embossed	12mm/4mm	U
R30 / 2211 MLCC	1000 - 2000	Embossed	12mm/4mm	E	2000 - 5000	Embossed	12mm/4mm	U
S43 / 1812 MLCC	500 - 1000	Embossed	12mm/8mm	E	3000 - 5000	Embossed	12mm/8mm	U
S47 / 2220 MLCC	250 - 1000	Embossed	12mm/8mm	E	2000 - 5000	Embossed	12mm/8mm	U
S49 / 1825 MLCC	250 - 1000	Embossed	12mm/8mm	E	2000 - 4000	Embossed	12mm/8mm	U
S48 / 2225 MLCC	250 - 1000	Embossed	12mm/8mm	E	2000 - 4000	Embossed	12mm/8mm	U
X07 / 0402 X2Y	4000	Paper	8mm/2mm	T	10000	Paper	8mm/2mm	R
X14 / 0603 X2Y	4000	Paper	8mm/4mm	T	10000	Paper	8mm/4mm	R
X15 / 0805 X2Y	4000	Embossed	8mm/4mm	E	10000	Embossed	8mm/4mm	U
X18 / 1206 X2Y	3000 - 4000	Embossed	8mm/4mm	E	10000	Embossed	8mm/4mm	U
X41 / 1210 X2Y	2000 - 3000	Embossed	8mm/4mm	E				
X44 / 1410 X2Y	1000 - 2000	Embossed	8mm/4mm	E				
X43 / 1812 X2Y	1000	Embossed	12mm/8mm	E				

Actual reel quantities based on part thickness and tape type. Contact sales for reel quantities of specific part numbers.

