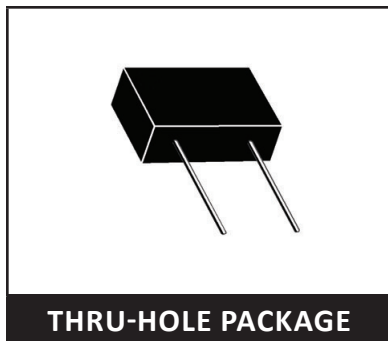


## 15kW POWER TVS COMPONENT



### DESCRIPTION

The 15KP Series, are discrete 15,000 Watt, silicon transient voltage suppressors (TVS) designed for use in applications where large voltage transients can permanently damage voltage sensitive components and equipment.

The 15KP series is available in voltages ranging from 17V to 280V with 5 percent and 10 percent tolerances. Both tolerances are referenced to the power supply output or operating voltage level. This series is compatible with IEC 61000-4-5 (Surge) requirements.

### FEATURES

- Compatible with IEC 61000-4-5 (Surge): 48A, 8/20 $\mu$ s - L3(Line-Ground), L4(Line-Line) & L1 (Power)
- 15,000 Watts Peak Pulse Power per Line (tp = 10/1000 $\mu$ s)
- Unidirectional and Bidirectional Configurations
- Easy Mounting to Printed Circuit Board
- Available in Multiple Voltages Ranging From 17V to 280V
- RoHS Compliant

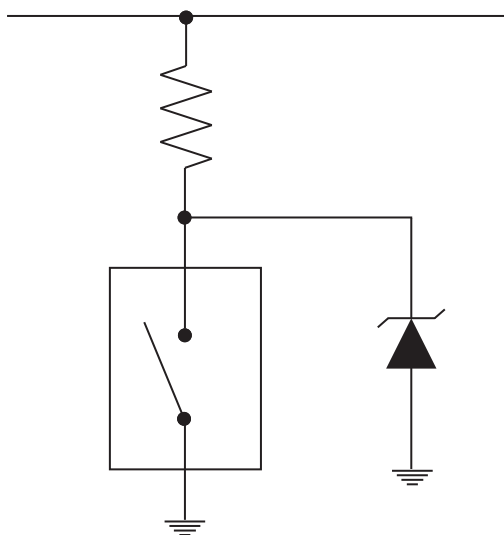
### APPLICATIONS

- Relay Drives
- Motor (Start/Stop) Back EMF Protection
- Module Lightning Protection
- Secondary Lightning Protection for AC/DC

### MECHANICAL CHARACTERISTICS

- Molded Case
- Approximate Weight: 13 grams
- Lead-Free Pure-Tin Plating (Annealed)
- Solder Reflow Temperature:  
Pure-Tin - Sn, 100: 260-270°C
- Flammability Rating UL 94V-0

### APPLICATION



**TYPICAL DEVICE CHARACTERISTICS**
**MAXIMUM RATINGS @ 25°C Unless Otherwise Specified**

PARAMETER	SYMBOL	VALUE	UNITS
Peak Pulse Power (tp = 10/1000µs) - See Figure 1	$P_{PP}$	15,000	Watts
Forward Surge Rating - 1/120 seconds - See Note 2	$I_F$	200	Amps
Steady State Power Dissipation	$P_P$	1.0	Watts
Storage Temperature	$T_{STG}$	-55 to 150	°C
Operating Temperature	$T_L$	-55 to 150	°C

**ELECTRICAL CHARACTERISTICS PER LINE @ 25°C Unless Otherwise Specified**

PART NUMBER (Notes 1 - 2)	RATED STAND-OFF VOLTAGE  $V_{WM}$ VOLTS	BREAKDOWN VOLTAGE		MAXIMUM LEAKAGE CURRENT  @ $V_{WM}$ $I_D$ µA	MAXIMUM CLAMPING VOLTAGE (Fig. 2)  @ 10/1000µS $V_C$ @ $I_{PP}$	TEMPERATURE COEFFICIENT OF $V_{(BR)}$  $qV_{(BR)}$ mV/°C
		MIN $V_{(BR)}$ VOLTS	@ $I_T$ mA			
15KP17	17.0	18.9	50	5000	32.3V @ 464.0A	19
15KP17A	17.0	18.9	50	5000	29.3V @ 512.0A	17
15KP18	18.0	20.0	50	5000	34.2V @ 439.0A	20
15KP18A	18.0	20.0	50	5000	30.9V @ 485.0A	18
15KP20	20.0	22.2	20	1500	37.9V @ 396.0A	24
15KP20A	20.0	22.2	20	1500	34.3V @ 437.0A	21
15KP22	22.0	24.4	10	500	41.1V @ 365.0A	27
15KP22A	22.0	24.4	10	500	37.1V @ 404.0A	24
15KP24	24.0	26.7	5	150	45.0V @ 333.0A	30
15KP24A	24.0	26.7	5	150	40.7V @ 369.0A	27
15KP26	26.0	28.9	5	50	48.7V @ 308.0A	32
15KP26A	26.0	28.9	5	50	44.0V @ 341.0A	29
15KP28	28.0	31.1	5	25	52.4V @ 286.0A	35
15KP28A	28.0	31.1	5	25	47.5V @ 316.0A	31
15KP30	30.0	33.3	5	15	56.2V @ 267.0A	27
15KP30A	30.0	33.3	5	15	50.7V @ 296.0A	34
15KP33	33.0	36.7	5	10	60.6V @ 248.0A	42
15KP33A	33.0	36.7	5	10	54.8V @ 274.0A	38
15KP36	36.0	40.0	5	10	66.0V @ 227.0A	46
15KP36A	36.0	40.0	5	10	59.7V @ 251.0A	41
15KP40	40.0	44.4	5	10	72.8V @ 206.0A	51
15KP40A	40.0	44.4	5	10	65.8V @ 228.0A	46
15KP43	43.0	47.8	5	10	77.1V @ 195.0A	55
15KP43A	43.0	47.8	5	10	69.7V @ 215.0A	50
15KP45	45.0	50.0	5	10	80.7V @ 186.0A	57
15KP45A	45.0	50.0	5	10	73.0V @ 205.0A	52

## TYPICAL DEVICE CHARACTERISTICS

ELECTRICAL CHARACTERISTICS PER LINE @ 25°C Unless Otherwise Specified						
PART NUMBER (Notes 1 - 2)	RATED STAND-OFF VOLTAGE  $V_{WM}$ VOLTS	BREAKDOWN VOLTAGE		MAXIMUM LEAKAGE CURRENT  @ $V_{WM}$ $I_D$ $\mu A$	MAXIMUM CLAMPING VOLTAGE (Fig. 2)  @ 10/1000 $\mu S$ $V_C$ @ $I_{PP}$	TEMPERATURE COEFFICIENT OF $V_{(BR)}$  $qV_{(BR)}$ mV/°C
		MIN $V_{(BR)}$ VOLTS	@ $I_T$ mA			
15KP48	48.0	53.3	5	10	85.9V @ 175.0A	62
15KP48A	48.0	53.3	5	10	77.7V @ 193.0A	56
15KP51	51.0	56.7	5	10	91.5V @ 164.0A	66
15KP51A	51.0	56.7	5	10	82.8V @ 181.0A	60
15KP54	54.0	60.0	5	10	96.8V @ 155.0A	70
15KP54A	54.0	60.0	5	10	87.5V @ 171.0A	63
15KP58	58.0	64.4	5	10	104.0V @ 144.0A	76
15KP58A	58.0	64.4	5	10	94.0V @ 160.0A	68
15KP60	60.0	66.7	5	10	107.0V @ 140.0A	78
15KP60A	60.0	66.7	5	10	97.3V @ 154.0A	71
15KP64	64.0	71.1	5	10	115.0V @ 130.0A	84
15KP64A	64.0	71.1	5	10	104.0V @ 144.0A	76
15KP70	70.0	77.8	5	10	126.0V @ 119.0A	92
15KP70A	70.0	77.8	5	10	114.0V @ 132.0A	83
15KP75	75.0	83.3	5	10	135.0V @ 111.0A	100
15KP75A	75.0	83.3	5	10	122.0V @ 123.0A	89
15KP78	78.0	86.7	5	10	140.0V @ 107.0A	104
15KP78A	78.0	86.7	5	10	126.0V @ 119.0A	93
15KP85	85.0	94.4	5	10	152.0V @ 99.0A	113
15KP85A	85.0	94.4	5	10	137.0V @ 109.0A	102
15KP90	90.0	100.0	5	10	160.0V @ 94.0A	120
15KP90A	90.0	100.0	5	10	146.0V @ 103.0A	109
15KP100	100.0	111.0	5	10	179.0V @ 84.0A	134
15KP100A	100.0	111.0	5	10	162.0V @ 93.0A	121
15KP110	110.0	122.0	5	10	196.0V @ 77.0A	147
15KP110A	110.0	122.0	5	10	178.0V @ 84.0A	133
15KP120	120.0	133.0	5	10	214.0V @ 70.0A	161
15KP120A	120.0	133.0	5	10	193.0V @ 78.0A	145
15KP130	130.0	144.0	5	10	231.0V @ 65.0A	174
15KP130A	130.0	144.0	5	10	209.0V @ 72.0A	157
15KP150	150.0	167.0	5	10	268.0V @ 56.0A	202
15KP150A	150.0	167.0	5	10	243.0V @ 62.0A	183
15KP160	160.0	178.0	5	10	287.0V @ 52.0A	216
15KP160A	160.0	178.0	5	10	259.0V @ 58.0A	195

## TYPICAL DEVICE CHARACTERISTICS

## ELECTRICAL CHARACTERISTICS PER LINE @ 25°C Unless Otherwise Specified

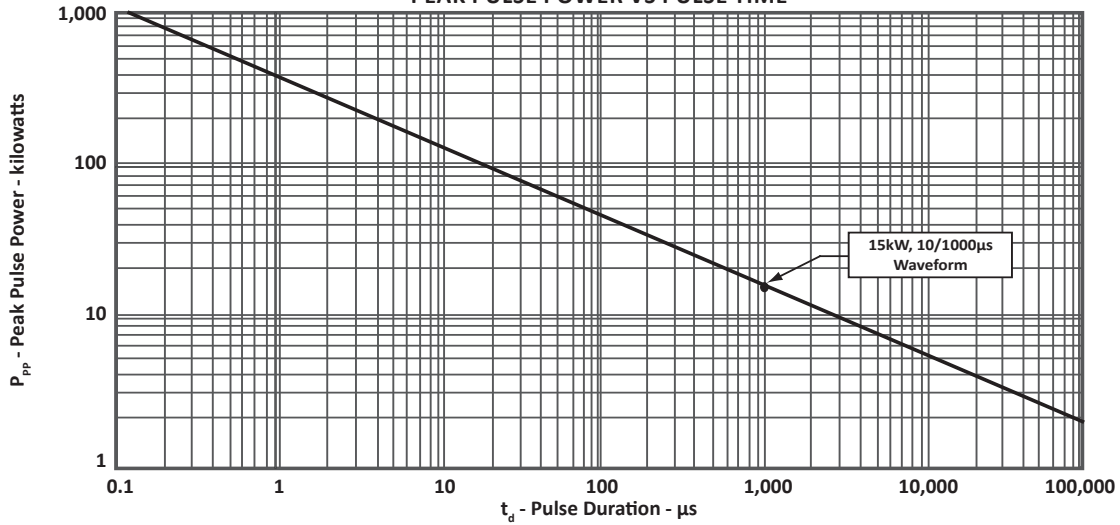
PART NUMBER (Notes 1 - 2)	RATED STAND-OFF VOLTAGE  $V_{WM}$ VOLTS	BREAKDOWN VOLTAGE		MAXIMUM LEAKAGE CURRENT  @ $V_{WM}$ $I_D$ $\mu A$	MAXIMUM CLAMPING VOLTAGE (Fig. 2)  @ 10/1000 $\mu S$ $V_C$ @ $I_{PP}$	TEMPERATURE COEFFICIENT OF $V_{(BR)}$  $qV_{(BR)}$ $mV/^{\circ}C$
		MIN $V_{(BR)}$ VOLTS	@ $I_T$ mA			
15KP170	170.0	189.0	5	10	304.0V @ 49.0A	229
15KP170A	170.0	189.0	5	10	275.0V @ 55.0A	207
15KP180	180.0	200.0	5	10	321.0V @ 47.0A	242
15KP180A	180.0	200.0	5	10	291.0V @ 52.0A	219
15KP200	200.0	222.0	5	10	356.0V @ 42.0A	269
15KP200A	200.0	222.0	5	10	322.0V @ 47.0A	243
15KP220	220.0	245.0	5	10	393.0V @ 38.0A	297
15KP220A	220.0	245.0	5	10	356.0V @ 42.0A	269
15KP240	240.0	267.0	5	10	428.0V @ 35.0A	324
15KP240A	240.0	267.0	5	10	388.0V @ 39.0A	293
15KP260	260.0	289.0	5	10	464.0V @ 32.0A	352
15KP260A	260.0	289.0	5	10	419.0V @ 36.0A	317
15KP280	280.0	311.0	5	10	500.0V @ 30.0A	378
15KP280A	280.0	311.0	5	10	452.0V @ 33.0A	342

## NOTES

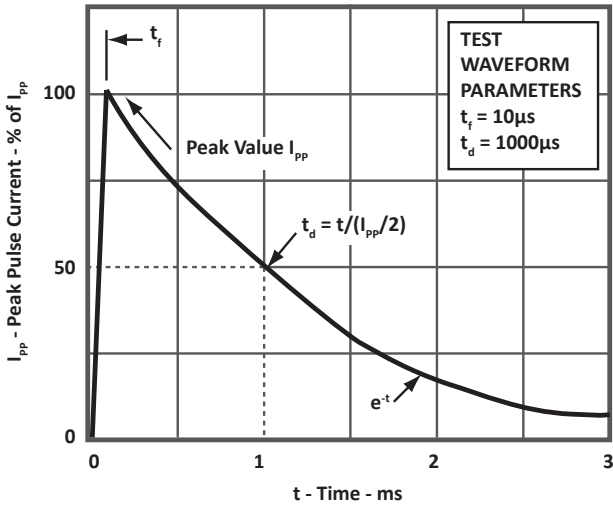
- Part numbers shown are unidirectional devices. Add a "CA" suffix to specify bidirectional devices, such as 15KP20CA.
- $V_f = 7.5$  Volts @ 200A, 8.3ms(1/2 Sine Wave) - Unidirectional devices only.

TYPICAL DEVICE CHARACTERISTICS

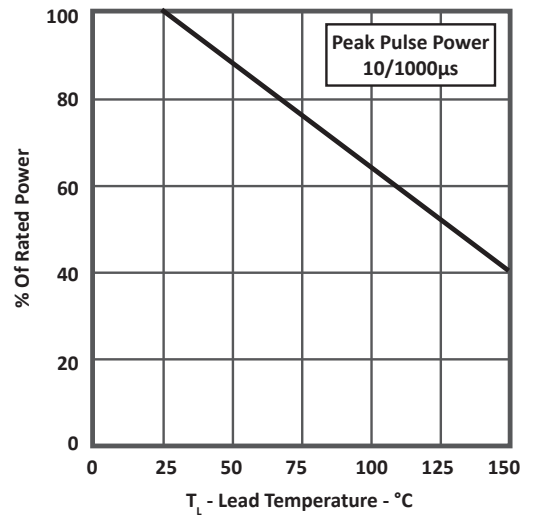
**FIGURE 1**  
PEAK PULSE POWER VS PULSE TIME



**FIGURE 2**  
PULSE WAVEFORM



**FIGURE 3**  
POWER DERATING CURVE

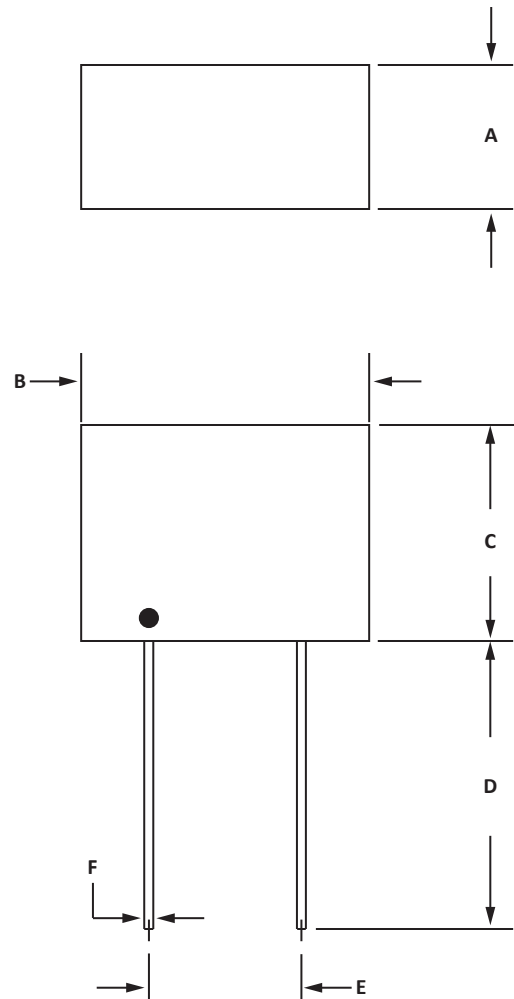


**THRU-HOLE PACKAGE INFORMATION**
**OUTLINE DIMENSIONS**

DIM	MILLIMETERS		INCHES	
	MIN	MAX	MIN	MAX
A	9.18	11.22	0.36	0.44
B	24.38	26.42	0.96	1.04
C	15.75	17.27	0.62	0.68
D	16.51	-	0.65	-
E	14.74	15.75	0.58	0.62
F	1.19	1.35	0.047	0.053

**NOTES**

1. Dimensions are exclusive of mold flash and metal burrs.


**ORDERING INFORMATION**

BASE PART NUMBER (xx = Voltage)	LEADFREE SUFFIX	TAPE SUFFIX	QTY/REEL	REEL SIZE	TUBE QTY
15KPxx	-LF	n/a	n/a	n/a	n/a
15KPxxA	-LF	n/a	n/a	n/a	n/a
15KPxxCA	-LF	n/a	n/a	n/a	n/a

**NOTES**

1. Marking on Part - logo, part number, date code and positive terminal marked with dot (unidirectional only).

Package outline per document number 06027.R2 9/09.

## COMPANY INFORMATION

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### COMPANY PROFILE

ProTek Devices, based in Tempe, Arizona USA, is a manufacturer of Transient Voltage Suppression (TVS) products designed specifically for the protection of electronic systems from the effects of lightning, Electrostatic Discharge (ESD), Nuclear Electromagnetic Pulse (NEMP), inductive switching and EMI/RFI. With over 25 years of engineering and manufacturing experience, ProTek designs TVS devices that provide application specific protection solutions for all electronic equipment/systems.

ProTek Devices Analog Products Division, also manufactures analog interface, control, RF and power management products.

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