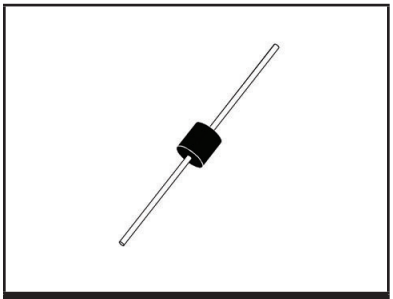
PROTEK DEVICES
Only One Name Means ProTek'Tion™

15KPA17A - 15KPA280A

15kW POWER TVS COMPONENT

RTCA DO-160G COMPLIANT PRODUCT



AXIAL LEAD PACKAGE

DESCRIPTION

The 15KPA 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 15KPA 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 compatiable with IEC 61000-4-5 (Surge) requirements.

FEATURES

- **RTCA DO-160G COMPLIANT PRODUCT**
- Compatible with IEC 61000-4-2 (ESD): Air ±30kV, Contact ±30kV
- UL File Recognition #E208219
- Compatible with IEC 61000-4-5 (Surge): 48A, 8/20µs - L3(Line-Ground), L4(Line-Line) & L1 (Power)
- 15,000 Watts Peak Pulse Power per Line (tp = 10/1000µs)
- Unidirectional and Bidirectional Configurations
- Easy Mounting to Printed Circuit Board
- tClamping (0V to V_{BR} Min.) < 1 x 10^{-12} seconds theoretical
- Available in Multiple Voltages Ranging From 17V to 280V
- RoHS Complaint (Exemption #7)

APPLICATIONS

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

MECHANICAL CHARACTERISTICS

- Molded Case
- Approximate Weight: 5 grams
- Lead-Free Pure-Tin Plating (Annealed)
- Solder Reflow Temperature:
  Pure-Tin - Sn, 100: 260-270°C
- Flammability Rating UL 94V-0

CIRCUIT DIAGRAMS

UNIDIRECTIONAL

BIDIRECTIONAL

TYPICAL DEVICE CHARACTERISTICS

RTCA DO-160G COMPLIANT PRODUCT

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	8.0	Watts
Storage Temperature	T_{STG}	-55 to 175	°C
Operating Temperature	T_L	-55 to 175	°C

ELECTRICAL CHARACTERISTICS PER LINE @ 25°C Unless Otherwise Specified						
PART NUMBER (Notes 1 - 2)	RATED STAND-OFF VOLTAGE	BREAKDOWN VOLTAGE		MAXIMUM LEAKAGE CURRENT	MAXIMUM CLAMPING VOLTAGE (Fig. 2)	TEMPERATURE COEFFICIENT OF $V_{(BR)}$
	V_{WM} VOLTS	MIN $V_{(BR)}$ VOLTS	@I_T mA	@V_{WM} I_D µA	@ 10/1000µS V_C @ I_{PP}	$qV_{(BR)}$ mV/°C
15KPA17	17.0	18.9	50	5000	32.3V @ 464.0A	19
15KPA17A	17.0	18.9	50	5000	29.3V @ 512.0A	17
15KPA18	18.0	20.0	50	5000	34.2V @ 439.0A	20
15KPA18A	18.0	20.0	50	5000	30.9V @ 485.0A	18
15KPA20	20.0	22.2	20	1500	37.9V @ 396.0A	24
15KPA20A	20.0	22.2	20	1500	34.3V @ 437.0A	21
15KPA22	22.0	24.4	10	500	41.1V @ 365.0A	27
15KPA22A	22.0	24.4	10	500	37.1V @ 404.0A	24
15KPA24	24.0	26.7	5	150	45.0V @ 333.0A	30
15KPA24A	24.0	26.7	5	150	40.7V @ 369.0A	27
15KPA26	26.0	28.9	5	50	48.7V @ 308.0A	32
15KPA26A	26.0	28.9	5	50	44.0V @ 341.0A	29
15KPA28	28.0	31.1	5	25	52.4V @ 286.0A	35
15KPA28A	28.0	31.1	5	25	47.5V @ 316.0A	31
15KPA30	30.0	33.3	5	15	56.2V @ 267.0A	27
15KPA30A	30.0	33.3	5	15	50.7V @ 296.0A	34
15KPA33	33.0	36.7	5	10	60.6V @ 248.0A	42
15KPA33A	33.0	36.7	5	10	54.8V @ 274.0A	38
15KPA36	36.0	40.0	5	10	66.0V @ 227.0A	46
15KPA36A	36.0	40.0	5	10	59.7V @ 251.0A	41
15KPA40	40.0	44.4	5	10	72.8V @ 206.0A	51
15KPA40A	40.0	44.4	5	10	65.8V @ 228.0A	46
15KPA43	43.0	47.8	5	10	77.1V @ 195.0A	55
15KPA43A	43.0	47.8	5	10	69.7V @ 215.0A	50
15KPA45	45.0	50.0	5	10	80.7V @ 186.0A	57
15KPA45A	45.0	50.0	5	10	73.0V @ 205.0A	52

TYPICAL DEVICE CHARACTERISTICS

RTCA DO-160G COMPLIANT PRODUCT

ELECTRICAL CHARACTERISTICS PER LINE @ 25°C Unless Otherwise Specified

PART NUMBER (Notes 1 - 2)	RATED STAND-OFF VOLTAGE	BREAKDOWN VOLTAGE		MAXIMUM LEAKAGE CURRENT	MAXIMUM CLAMPING VOLTAGE (Fig. 2)	TEMPERATURE COEFFICIENT OF $V_{(BR)}$
	V_{WM} VOLTS	MIN $V_{(BR)}$ VOLTS	@I_T mA	@V_{WM} I_D µA	@ 10/1000µS V_C @ I_{PP}	$qV_{(BR)}$ mV/°C
15KPA48	48.0	53.3	5	10	85.9V @ 175.0A	62
15KPA48A	48.0	53.3	5	10	77.7V @ 193.0A	56
15KPA51	51.0	56.7	5	10	91.5V @ 164.0A	66
15KPA51A	51.0	56.7	5	10	82.8V @ 181.0A	60
15KPA54	54.0	60.0	5	10	96.8V @ 155.0A	70
15KPA54A	54.0	60.0	5	10	87.5V @ 171.0A	63
15KPA58	58.0	64.4	5	10	104.0V @ 144.0A	76
15KPA58A	58.0	64.4	5	10	94.0V @ 160.0A	68
15KPA60	60.0	66.7	5	10	107.0V @ 140.0A	78
15KPA60A	60.0	66.7	5	10	97.3V @ 154.0A	71
15KPA64	64.0	71.1	5	10	115.0V @ 130.0A	84
15KPA64A	64.0	71.1	5	10	104.0V @ 144.0A	76
15KPA70	70.0	77.8	5	10	126.0V @ 119.0A	92
15KPA70A	70.0	77.8	5	10	114.0V @ 132.0A	83
15KPA75	75.0	83.3	5	10	135.0V @ 111.0A	100
15KPA75A	75.0	83.3	5	10	122.0V @ 123.0A	89
15KPA78	78.0	86.7	5	10	140.0V @ 107.0A	104
15KPA78A	78.0	86.7	5	10	126.0V @ 119.0A	93
15KPA85	85.0	94.4	5	10	152.0V @ 99.0A	113
15KPA85A	85.0	94.4	5	10	137.0V @ 109.0A	102
15KPA90	90.0	100.0	5	10	160.0V @ 94.0A	120
15KPA90A	90.0	100.0	5	10	146.0V @ 103.0A	109
15KPA100	100.0	111.0	5	10	179.0V @ 84.0A	134
15KPA100A	100.0	111.0	5	10	162.0V @ 93.0A	121
15KPA110	110.0	122.0	5	10	196.0V @ 77.0A	147
15KPA110A	110.0	122.0	5	10	178.0V @ 84.0A	133
15KPA120	120.0	133.0	5	10	214.0V @ 70.0A	161
15KPA120A	120.0	133.0	5	10	193.0V @ 78.0A	145
15KPA130	130.0	144.0	5	10	231.0V @ 65.0A	174
15KPA130A	130.0	144.0	5	10	209.0V @ 72.0A	157
15KPA150	150.0	167.0	5	10	268.0V @ 56.0A	202
15KPA150A	150.0	167.0	5	10	243.0V @ 62.0A	183
15KPA160	160.0	178.0	5	10	287.0V @ 52.0A	216
15KPA160A	160.0	178.0	5	10	259.0V @ 58.0A	195

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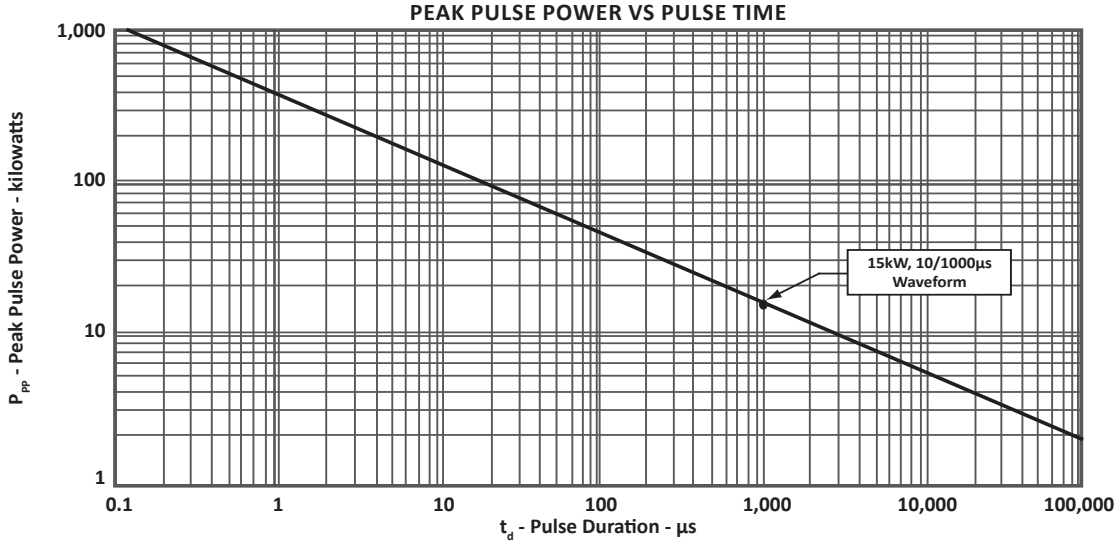
PART NUMBER (Notes 1 - 2)	RATED STAND-OFF VOLTAGE	BREAKDOWN VOLTAGE		MAXIMUM LEAKAGE CURRENT	MAXIMUM CLAMPING VOLTAGE (Fig. 2)	TEMPERATURE COEFFICIENT OF $V_{(BR)}$
	V_{WM} VOLTS	MIN $V_{(BR)}$ VOLTS	@I_T mA	@V_{WM} I_D µA	@ 10/1000µS V_C @ I_{PP}	$qV_{(BR)}$ mV/°C
15KPA170	170.0	189.0	5	10	304.0V @ 49.0A	229
15KPA170A	170.0	189.0	5	10	275.0V @ 55.0A	207
15KPA180	180.0	200.0	5	10	321.0V @ 47.0A	242
15KPA180A	180.0	200.0	5	10	291.0V @ 52.0A	219
15KPA200	200.0	222.0	5	10	356.0V @ 42.0A	269
15KPA200A	200.0	222.0	5	10	322.0V @ 47.0A	243
15KPA220	220.0	245.0	5	10	393.0V @ 38.0A	297
15KPA220A	220.0	245.0	5	10	356.0V @ 42.0A	269
15KPA240	240.0	267.0	5	10	428.0V @ 35.0A	324
15KPA240A	240.0	267.0	5	10	388.0V @ 39.0A	293
15KPA260	260.0	289.0	5	10	464.0V @ 32.0A	352
15KPA260A	260.0	289.0	5	10	419.0V @ 36.0A	317
15KPA280	280.0	311.0	5	10	500.0V @ 30.0A	378
15KPA280A	280.0	311.0	5	10	452.0V @ 33.0A	342

NOTES

1. Part numbers shown are unidirectional devices. Add a "CA" suffix to specify bidirectional devices, such as 15KPA20**CA**.
2. V_F = 7.5 Volts @ 200A, 8.3ms(1/2 Sine Wave) - *Unidirectional devices only*.

FIGURE 1
PEAK PULSE POWER VS PULSE TIME



TYPICAL DEVICE CHARACTERISTICS

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FIGURE 2
PULSE WAVEFORM

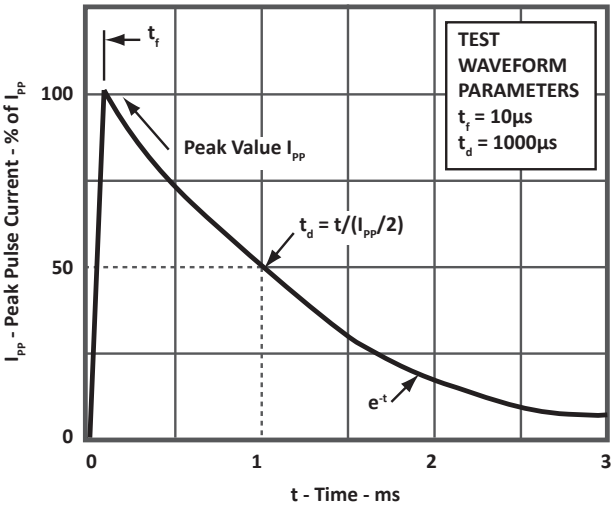


FIGURE 3
POWER DERATING CURVE

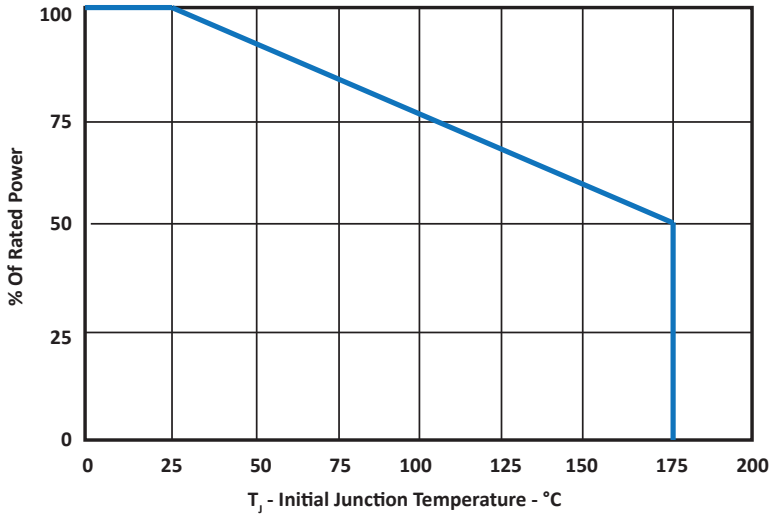
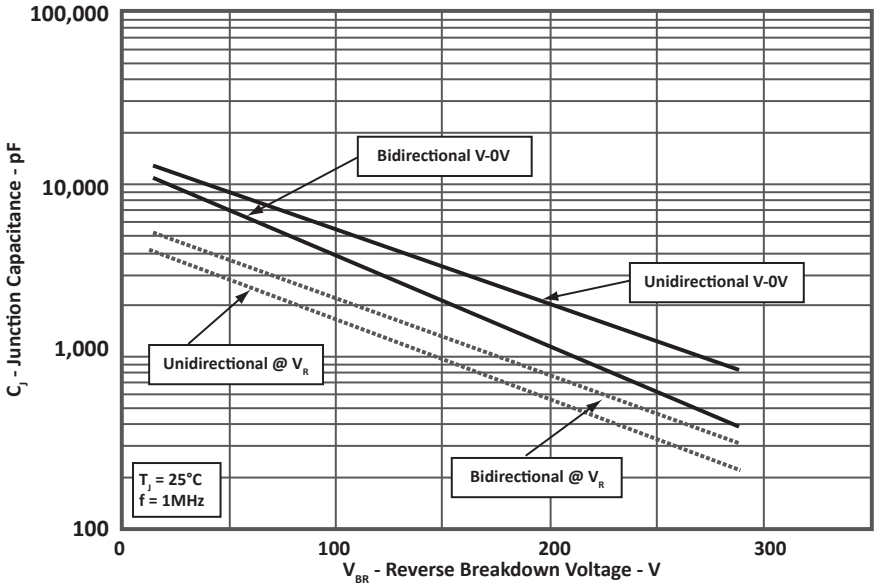


FIGURE 4
TYPICAL JUNCTION CAPACITANCE

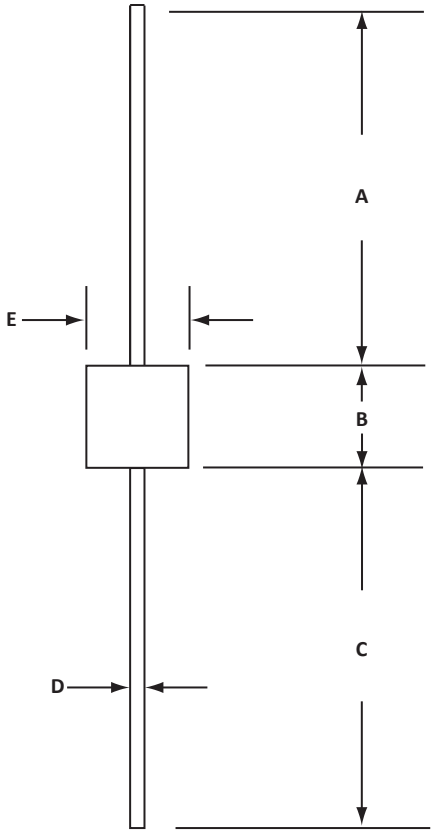


AXIAL LEAD PACKAGE INFORMATION

RTCA DO-160G COMPLIANT PRODUCT

OUTLINE DIMENSIONS				
DIM	MILLIMETERS		INCHES	
	MIN	MAX	MIN	MAX
A	24.5	-	1.00	-
B	8.60	9.10	0.34	0.36
C	24.5	-	1.00	-
D	1.20 DIA.	1.30 DIA.	0.048 DIA.	0.052 DIA.
E	8.60	9.10	0.34	0.36

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
15KPAxx	-LF	n/a	n/a	n/a	n/a
15KPAxxA	-LF	n/a	n/a	n/a	n/a
15KPAxxCA	-LF	n/a	n/a	n/a	n/a
15KPAxx	-LF	-T13	800	13"	n/a
15KPAxxA	-LF	-T13	800	13"	n/a
15KPAxxCA	-LF	-T13	800	13"	n/a

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

MARKING DIAGRAM

COMPANY INFORMATION

RTCA DO-160G COMPLIANT PRODUCT

COMPANY PROFILE

In business more than 25 years, ProTek Devices™ is a privately held semiconductor company. The company offers a product line of overvoltage protection and overcurrent protection components. These include transient voltage suppressor array (TVS arrays) avalanche breakdown diode, steering diode TVS array and electronics SMD chip fuses. These components deliver circuit protection in electronic systems from numerous overvoltage and overcurrent events. They include lightning; electrostatic discharge (ESD); nuclear electromagnetic pulses (NEMP); inductive switching; and electromagnetic interference (EMI) / radio frequency interference (RFI). ProTek Devices also offers LED wafer die for ESD protection and related high frequency products. ProTek Devices is ISO 9001:2015 certified.

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