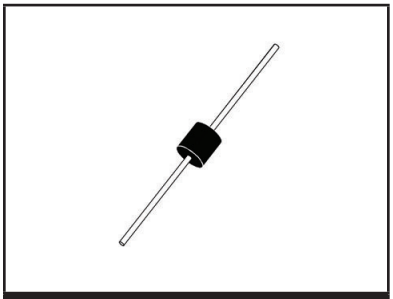
30kW POWER TVS COMPONENT

RTCA DO-160G COMPLIANT PRODUCT



AXIAL LEAD PACKAGE

DESCRIPTION

The 30KPA Series, are discrete 30,000 Watt, silicon transient voltage suppressors (TVS) designed for use in applications where large voltage transients can permanently damage voltage sensitive components and equipment.

The 30KPA series is available in a large range of voltages. Tolerances are referenced to the power supply output or operating voltage level at ±5%. This series is compatible with IEC 61000-4-5 (Surge) requirements.

FEATURES

- **RTCA DO-160G COMPLIANT PRODUCT**
- UL Registered
- Compatible with IEC 61000-4-2 (ESD): Air ±30kV, Contact ±30kV
- Compatible with IEC 61000-4-5 (Surge): 48A, 8/20µs - L3(Line-Ground), L4(Line-Line) & L1 (Power)
- 30,000 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 Voltage
- 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

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MAXIMUM RATINGS @ 25°C Unless Otherwise Specified			
PARAMETER	SYMBOL	VALUE	UNITS
Peak Pulse Power (tp = 10/1000µs) - See Figure 1	P_{PP}	30,000	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
Typical Thermal Resistance, Junction to Lead	$R_{\Theta JL}$	8.0	°C/W
Typical Thermal Resistance, Junction to Ambient	$R_{\Theta JA}$	40	°C/W

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	MAX $V_{(BR)}$ VOLTS	@I_T mA	@V_{WM} I_D µA	@ 10/1000µS V_C @ I_{PP}	$qV_{(BR)}$ mV/°C
30KPA28A	28.0	31.28	34.98	50	5000	50.0V @ 606.0A	32
30KPA30A	30.0	33.3	36.6	50	5000	55.2V @ 543.0A	34
30KPA33A	33.0	36.7	40.4	50	5000	58.6V @ 512.0A	39
30KPA36A	36.0	40.0	44.0	50	2000	61.8V @ 485.0A	41
30KPA39A	39.0	43.6	47.96	20	2000	67.2V @ 450.9A	46
30KPA43A	43.0	47.8	52.6	50	1000	73.0V @ 410.0A	50
30KPA45A	45.0	50.3	55.33	5	250	77.4V @ 391.5A	51
30KPA48A	48.0	53.3	58.6	5	250	77.4V @ 388.0A	56
30KPA51A	51.0	57.00	62.7	5	50	86.4V @ 350.7A	60
30KPA54A	54.0	60.0	66.33	5	20	91.4V @ 331.5A	64
30KPA58A	58.0	64.4	70.8	5	20	92.4V @ 325.0A	68
30KPA64A	64.0	71.1	78.2	5	10	104.0V @ 294.0A	76
30KPA70A	70.0	77.8	85.6	5	2	109.0V @ 274.0A	83
30KPA72A	72.0	80.4	88.4	5	2	114.0V @ 265.0A	85
30KPA75A	75.0	83.3	91.6	5	2	119.4V @ 251.0A	89
30KPA78A	78.0	87.10	95.8	5	2	129.0V @ 234.9A	92
30KPA85A	85.0	94.4	104.0	5	2	139.0V @ 216.0A	105
30KPA90A	90.0	100.0	110.0	5	2	147.0V @ 206.0A	109
30KPA100A	100.0	111.0	122.1	5	2	162.0V @ 186.0A	121
30KPA102A	102.0	114.0	125.29	5	2	166.0V @ 183.0A	124
30KPA110A	110.0	122.0	134.2	5	2	178.0V @ 168.0A	126
30KPA130A	130.0	144.0	158.4	5	2	209.0V @ 142.0A	157
30KPA150A	150.0	167.6	183.7	5	2	233.4V @ 129.8A	195

TYPICAL DEVICE CHARACTERISTICS

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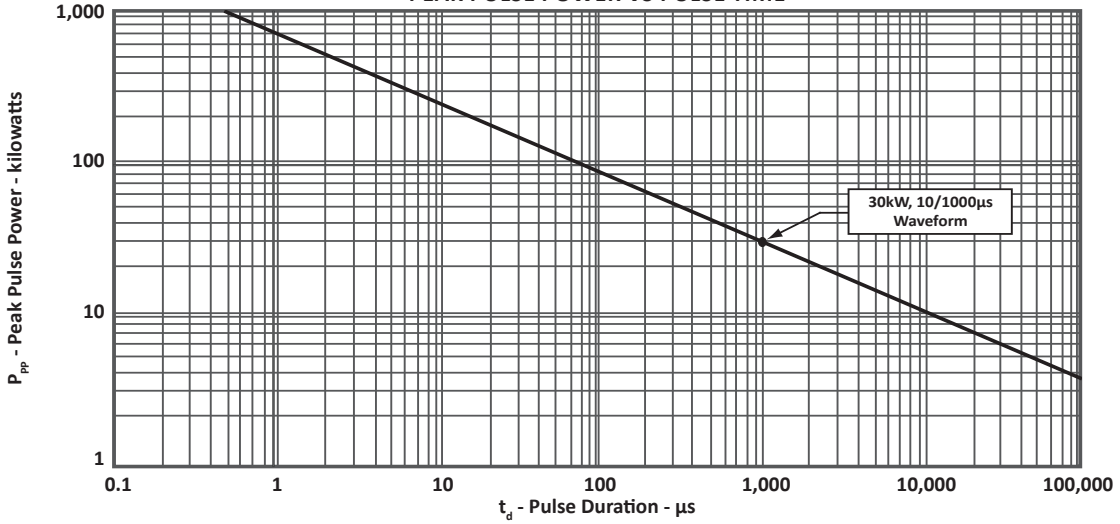
ELECTRICAL CHARACTERISTICS PER LINE @ 25°C Unless Otherwise Specified

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	MAX $V_{(BR)}$ VOLTS	@I_T mA	@V_{WM} I_D µA	@ 10/1000µS V_C @ I_{PP}	$qV_{(BR)}$ mV/°C
30KPA160A	160.0	178.0	195.8	5	2	252.6V @ 119.0A	195
30KPA170A	170.0	189.0	207.9	5	2	274.0V @ 110.0A	207
30KPA180A	180.0	200.0	220.0	5	2	291.0V @ 104.0A	230
30KPA200A	200.0	222.0	244.2	5	2	320.0V @ 94.0A	250
30KPA220A	220.0	245.0	269.5	5	2	356.0V @ 84.0A	269
30KPA250A	250.0	277.0	304.7	5	2	404.0V @ 74.0A	314
30KPA260A	260.0	289.0	317.9	5	2	416.0V @ 72.0A	317
30KPA280A	280.0	311.0	342.1	5	2	464.0V @ 65.0A	342
30KPA300A	300.0	334.0	367.4	5	2	484.0V @ 62.0A	368
30KPA320A	320.0	356.0	391.6	5	2	530.0V @ 57.0A	370
30KPA345A	345.0	380.0	418.0	5	2	560.0V @ 53.6A	375
30KPA360A	360.0	400.0	440.0	5	2	640.0V @ 55.0A	380
30KPA400A	400.0	440.0	494.0	5	2	704.0V @ 42.6A	430

NOTES

1. Part numbers shown are unidirectional devices. Add a "CA" suffix to specify bidirectional devices, such as 30KPA30**CA**.
2. V_F = 15 Volts @ 200A, 8.3ms(1/2 Sine Wave) - *Unidirectional devices only*.
3. ±5% tolerance.

FIGURE 1
PEAK PULSE POWER VS PULSE TIME



TYPICAL DEVICE CHARACTERISTICS

RTCA DO-160G COMPLIANT PRODUCT

FIGURE 2
PULSE WAVEFORM

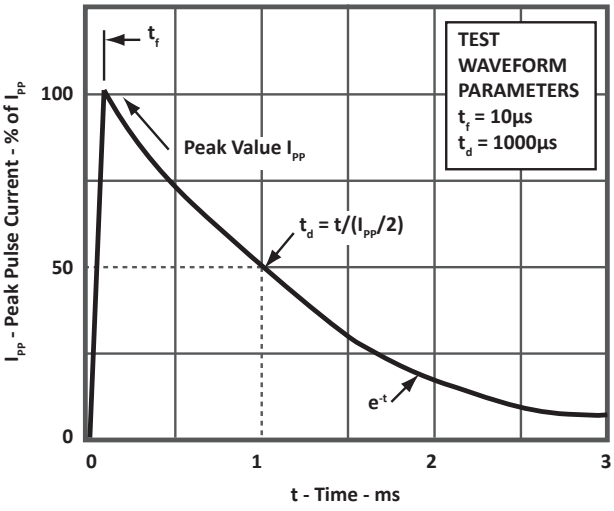


FIGURE 3
POWER DERATING CURVE

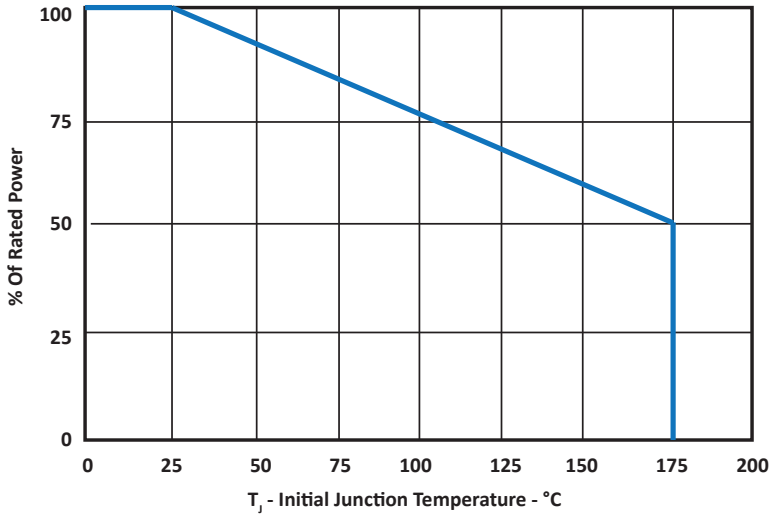
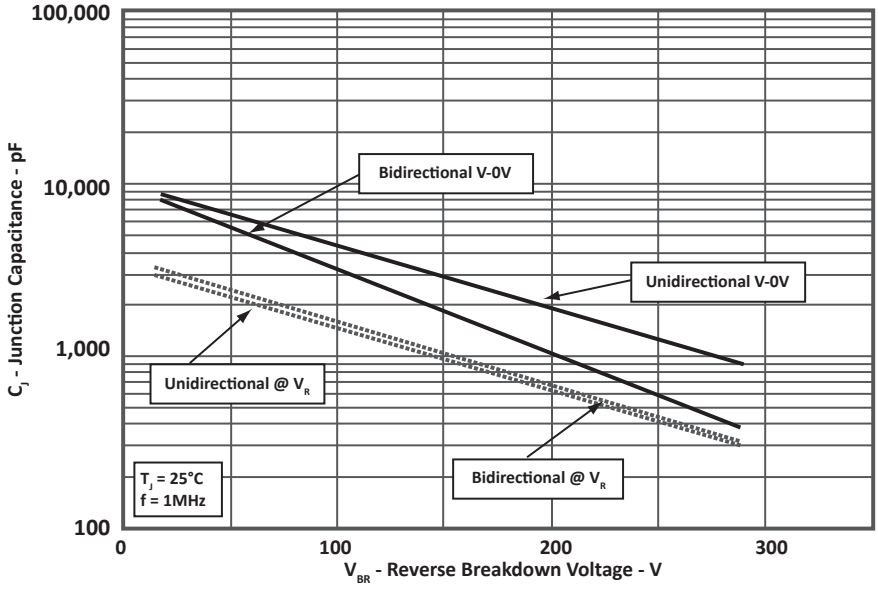
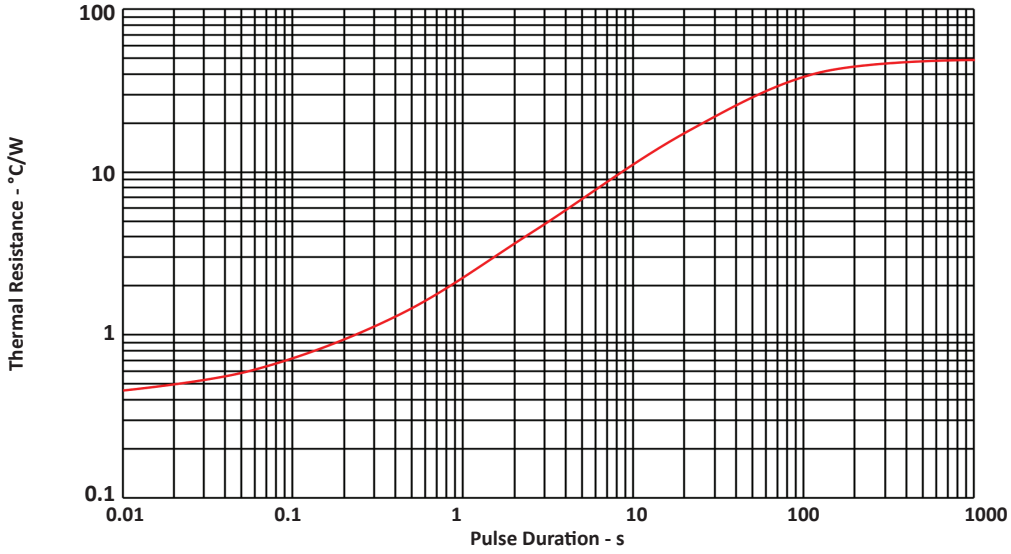


FIGURE 4
TYPICAL JUNCTION CAPACITANCE



TYPICAL DEVICE CHARACTERISTICS

FIGURE 5
TRANSIENT THERMAL RESISTANCE

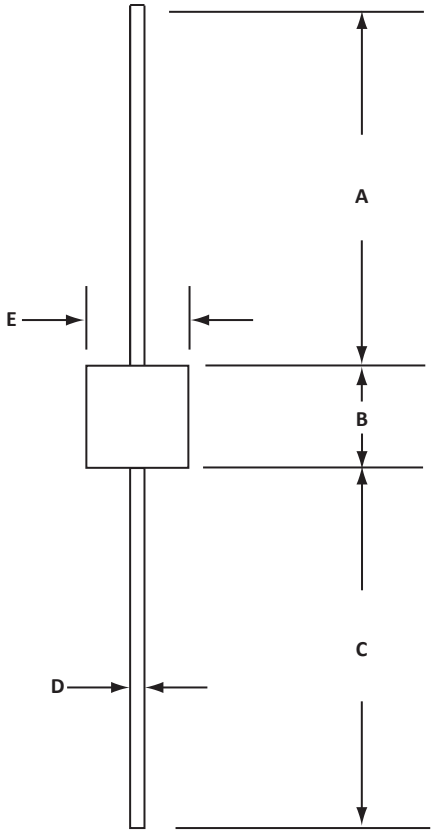


AXIAL LEAD PACKAGE INFORMATION

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
30KPAxx	-LF	n/a	n/a	n/a	n/a
30KPAxxA	-LF	n/a	n/a	n/a	n/a
30KPAxxCA	-LF	n/a	n/a	n/a	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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