



DESCRIPTION

The SM30KPAN Series are high-powered surface mount transient voltage suppression components designed to protect equipment and systems from the damaging effects of high voltage spikes. The surface mount package configuration provides a lower profile compared to legacy axial lead package configurations.

These devices provide 30,000 Watts of peak pulse power dissipation for an 10/1000 μ s waveform. Applications include AC and DC power line protection, terrestrial base station protection as well as module lightning protection.

FEATURES

- RTCA DO-160G COMPLIANT PRODUCT
- Compatible with IEC 61000-4-5 (Surge): 48A, 8/20 μ s - L3(Line-Ground), L4(Line-Line) & L1 (Power)
- 30,000 Watts Peak Pulse Power per Line (tp = 10/1000 μ s)
- Unidirectional and Bidirectional Configurations
- Easy Mounting to Printed Circuit Board
- Available in Multiple Voltages
- tClamping (0V to V_(BR) Min) < 100ps, Theoretical for Unidirectional and 5ns for Bidirectional
- RoHS Complaint (Exemption #7)

APPLICATIONS

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

MECHANICAL CHARACTERISTICS

- Approximate Weight: 4 grams
- Lead-Free Silver Plating
- Solder Reflow Temperature: 260-270°C
- Flammability Rating UL 94V-0
- Marking: Logo and Marking Code

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}	30,000	Watts
Forward Surge Rating	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

UNIDIRECTIONAL PART NUMBER (Notes 1 - 2)	MARKING CODE	RATED STAND-OFF VOLTAGE V_{WM} VOLTS	MINIMUM 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			
SM30KPA28AN	28A	28.0	31.3	50	20	50.0V @ 606.0A	31
SM30KPA30AN	30A	30.0	33.3	50	20	55.2V @ 543.0A	34
SM30KPA33AN	33A	33.0	36.7	50	10	58.6V @ 572.0A	39
SM30KPA36AN	36A	36.0	40.0	50	10	61.8V @ 485.0A	41
SM30KPA42AN	42A	42.0	46.9	50	10	72.0V @ 420.8A	49
SM30KPA43AN	43A	43.0	47.8	50	10	73.0V @ 410.0A	50
SM30KPA45AN	45A	45.0	50.3	5	10	77.4V @ 391.5A	53
SM30KPA48AN	48A	48.0	53.3	5	10	81.6V @ 371.3A	56
SM30KPA58AN	58A	58.0	64.4	5	10	92.4V @ 325.0A	68
SM30KPA64AN	64A	64.0	71.1	5	10	104.0V @ 294.0A	76
SM30KPA75AN	75A	75.0	83.3	5	10	119.4V @ 251.0A	89

NOTES

1. Devices shown are preferred voltages. Consult factory for additional voltages.
2. $V_L(MAX)$ = 15 Volts @ 200A, 8.3ms (1/2 Sine Wave) - unidirectional configuration only.

TYPICAL DEVICE CHARACTERISTICS

RTCA DO-160G COMPLIANT PRODUCT

ELECTRICAL CHARACTERISTICS PER LINE @ 25°C Unless Otherwise Specified

BIDIRECTIONAL PART NUMBER (Note 1)	MARKING CODE	RATED STAND-OFF VOLTAGE V_{WM} VOLTS	MINIMUM BREAKDOWN VOLTAGE		MAXIMUM LEAKAGE CURRENT @ V_{WM} I_D μA	MAXIMUM CLAMPING VOLTAGE (Fig. 2) @ 10/1000 μS V_C @ I_{PP}	TEMPERATURE COEFFICIENT OF $V_{(BR)}$ $qV_{(BR)}$ mV/°C
			MIN $V_{(BR)}$ VOLTS	@ I_T mA			
SM30KPA30CAN	30C	30.0	33.3	50	20	55.2V @ 543.0A	34
SM30KPA33CAN	33C	33.0	36.7	50	10	58.6V @ 512.0A	39
SM30KPA36CAN	36C	36.0	40.0	50	10	61.8V @ 485.0A	41
SM30KPA45CAN	45C	45.0	50.3	5	10	77.4V @ 391.0A	55
SM30KPA48CAN	48C	48.0	53.3	5	10	81.6V @ 371.3A	56
SM30KPA51CAN	51C	51.0	56.7	5	50	82.8V @ 362.0A	60
SM30KPA54CAN	54C	54.0	60.0	5	10	91.4V @ 331.5A	64
SM30KPA58CAN	58C	58.0	64.4	5	10	92.4V @ 325.0A	68
SM30KPA70CAN	70C	70.0	78.2	5	2	109.0V @ 278.0A	80
SM30KPA75CAN	75C	75.0	83.3	5	2	119.4V @ 251.0A	89
SM30KPA78CAN	78C	78.0	87.1	5	2	129.0V @ 234.9A	100
SM30KPA85CAN	85C	85.0	94.4	5	2	139.0V @ 216.0A	105
SM30KPA100CAN	100C	100.0	111.0	5	2	162.0V @ 186.0A	121
SM30KPA102CAN	102C	102.0	114.0	5	2	166.0V @ 183.0A	124
SM30KPA150CAN	150C	150.0	167.6	5	2	245.0V @ 123.7A	180
SM30KPA260CAN	260C	260.0	289.0	5	2	416.0V @ 72.0A	317
SM30KPA300CAN	300C	300.0	334.0	5	2	484.0V @ 62.0A	368
SM30KPA320CAN	320C	320.0	356.0	5	2	530.0V @ 57.0A	370

NOTES

1. Devices shown are preferred voltages. Consult factory for additional voltages.

FIGURE 1
PEAK PULSE POWER VS PULSE TIME

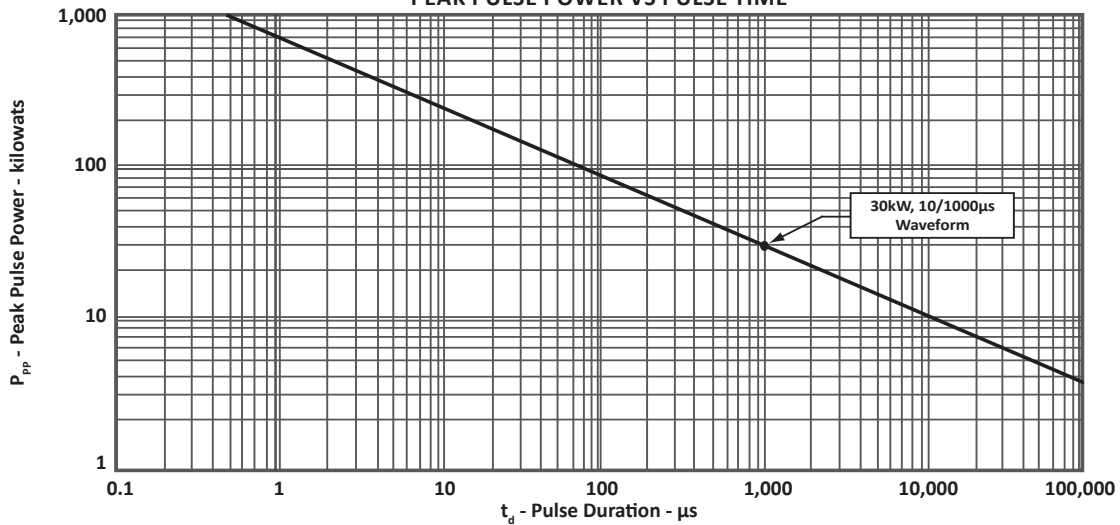


FIGURE 2
PULSE WAVEFORM

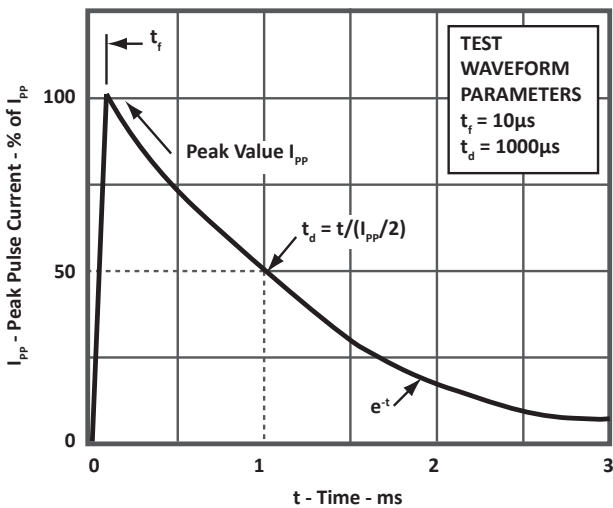
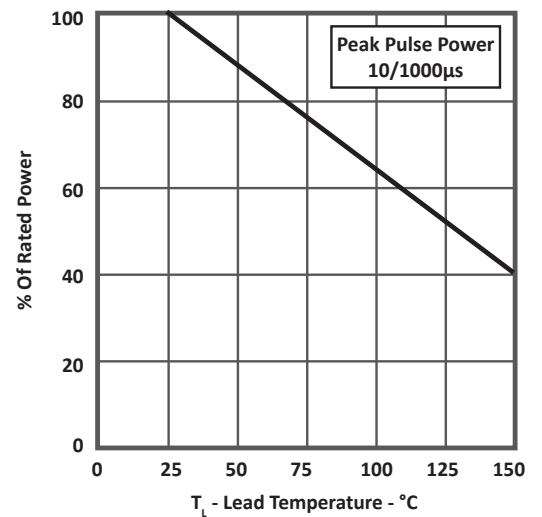


FIGURE 3
POWER DERATING CURVE

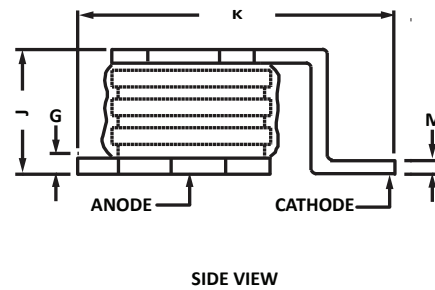
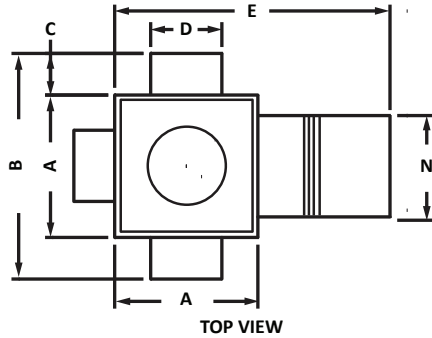


PACKAGE INFORMATION

RTCA DO-160G COMPLIANT PRODUCT

PACKAGE OUTLINE DIMENSIONS

DIM	MILLIMETERS		INCHES	
	MIN	MAX	MIN	MAX
A	7.75	8.26	0.305	0.325
B	11.40	11.50	0.449	0.453
C	1.75	1.85	0.069	0.073
D	2.55	2.79	0.100	0.110
E	13.95	14.45	0.549	0.589
G	0.46	0.56	0.018	0.022
J	4.30	5.45	0.169	0.215
K	15.50	17.02	0.610	0.670
M	0.46	0.56	0.018	0.022
N	5.81	5.97	0.229	0.235



PACKAGE INFORMATION

RTCA DO-160G COMPLIANT PRODUCT

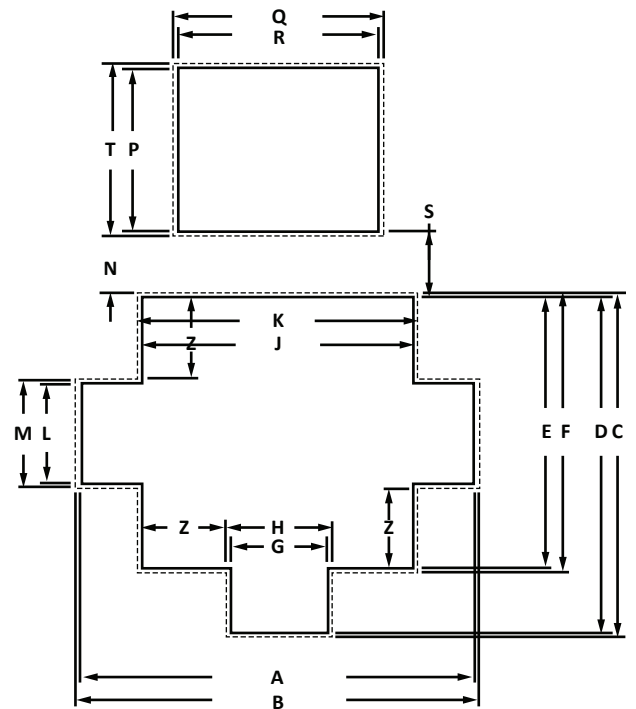
SOLDER PAD OUTLINE DIMENSIONS

DIM	MILLIMETERS		INCHES	
	MIN	MAX	MIN	MAX
A	11.75	11.85	0.462	0.467
B	11.95	12.05	0.470	0.474
C	10.05	10.15	0.396	0.400
D	10.25	10.35	0.403	0.407
E	8.15	8.25	0.321	0.325
F	8.35	8.45	0.329	0.333
G	2.95	3.05	0.116	0.120
H	3.15	3.25	0.124	0.128
J	8.15	8.25	0.321	0.325
K	8.35	8.45	0.329	0.333
L	2.95	3.05	0.116	0.120
M	3.15	3.25	0.124	0.128
N	1.85	1.95	0.073	0.077
P	5.23	5.33	0.206	0.210
Q	6.25	6.35	0.246	0.250
R	6.05	6.15	0.238	0.242
S	1.65	1.75	0.065	0.069
T	5.44	5.54	0.214	0.218
Z	2.55	2.65	0.100	0.104

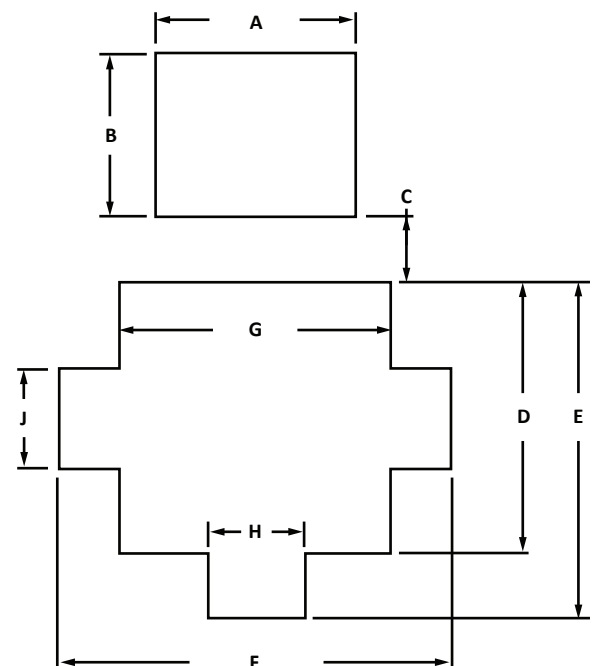
SOLDER PRINT OUTLINE DIMENSIONS

DIM	MILLIMETERS		INCHES	
	MIN	MAX	MIN	MAX
A	5.85	5.95	0.230	0.234
B	4.65	5.13	0.183	0.202
C	2.05	2.15	0.081	0.085
D	7.95	8.05	0.313	0.317
E	9.85	9.95	0.388	0.392
F	11.55	11.65	0.455	0.459
G	7.95	8.05	0.313	0.317
H	2.75	2.85	0.108	0.112
J	2.75	2.85	0.108	0.112

Suggested Solder Pad



Suggest Solder Print



COMPANY INFORMATION**RTCA DO-160G COMPLIANT PRODUCT****COMPANY PROFILE**

In business more than 20 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 high performance interface and linear products. They include analog switches; multiplexers; LED drivers; LED wafer die for ESD protection; audio control ICs; RF and related high frequency products.

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