PROTEK DEVICES
Only One Name Means ProTek'Tion™

SM15KPA17AN - SM15KPA220CAN

15kW SURFACE MOUNT POWER TVS COMPONENT

SURFACE MOUNT

DESCRIPTION

The SM15KPAN 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 15,000 Watts of peak pulse power dissipation for an 10/1000µs waveform. Applications include AC and DC power line protection, terrestrial base station protection as well as module lightning protection.

FEATURES

- 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
- 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: 1.2 grams
- Lead-Free Silver Plating
- Solder Reflow Temperature: 240-250°C
- Flammability Rating UL 94V-0
- Marking: Logo and Marking Code

CIRCUIT DIAGRAMS

Unidirectional

Bidirectional

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	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	MINIMUM BREAKDOWN VOLTAGE		MAXIMUM LEAKAGE CURRENT	MAXIMUM CLAMPING VOLTAGE (Fig. 2)	TEMPERATURE COEFFICIENT OF $V_{(BR)}$
			MIN		@	@ 10/1000µS	
		V_{WM} VOLTS	$V_{(BR)}$ VOLTS	@I_T mA	@V_{WM} I_D µA	V_C @ I_{PP}	$qV_{(BR)}$ mV/°C
SM15KPA17AN	17A	17.0	18.9	50	5000	29.3V @ 512.0A	17
SM15KPA30AN	30A	30.0	33.3	5	15	50.7V @ 296.0A	34
SM15KPA33AN	33A	33.0	36.7	5	10	54.8V @ 274.0A	38
SM15KPA48AN	48A	48.0	53.3	5	10	77.7V @ 193.0A	56

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

ELECTRICAL CHARACTERISTICS PER LINE @ 25°C Unless Otherwise Specified

BIDIRECTIONAL PART NUMBER (Note 1)	MARKING CODE	RATED STAND-OFF VOLTAGE	MINIMUM BREAKDOWN VOLTAGE		MAXIMUM LEAKAGE CURRENT	MAXIMUM CLAMPING VOLTAGE (Fig. 2)	TEMPERATURE COEFFICIENT OF $V_{(BR)}$
			MIN		@	@ 10/1000µS	
		V_{WM} VOLTS	$V_{(BR)}$ VOLTS	@I_T mA	@V_{WM} I_D µA	V_C @ I_{PP}	$qV_{(BR)}$ mV/°C
SM15KPA30CAN	30C	30.0	33.3	5	15	50.7V @ 296.0A	34
SM15KPA43CAN	43C	43.0	47.8	5	10	69.7V @ 215.0A	50
SM15KPA54CAN	54C	54.0	60.0	5	10	87.5V @ 171.0A	63
SM15KPA58CAN	58C	58.0	64.4	5	10	94.0V @ 160.0A	68
SM15KPA78CAN	78C	78.0	86.7	5	10	126.0V @ 119.0A	93
SM15KPA220CAN	220C	220.0	245.0	5	10	356.0V @ 42.0A	269

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

TYPICAL DEVICE CHARACTERISTICS

FIGURE 1
PEAK PULSE POWER VS PULSE TIME

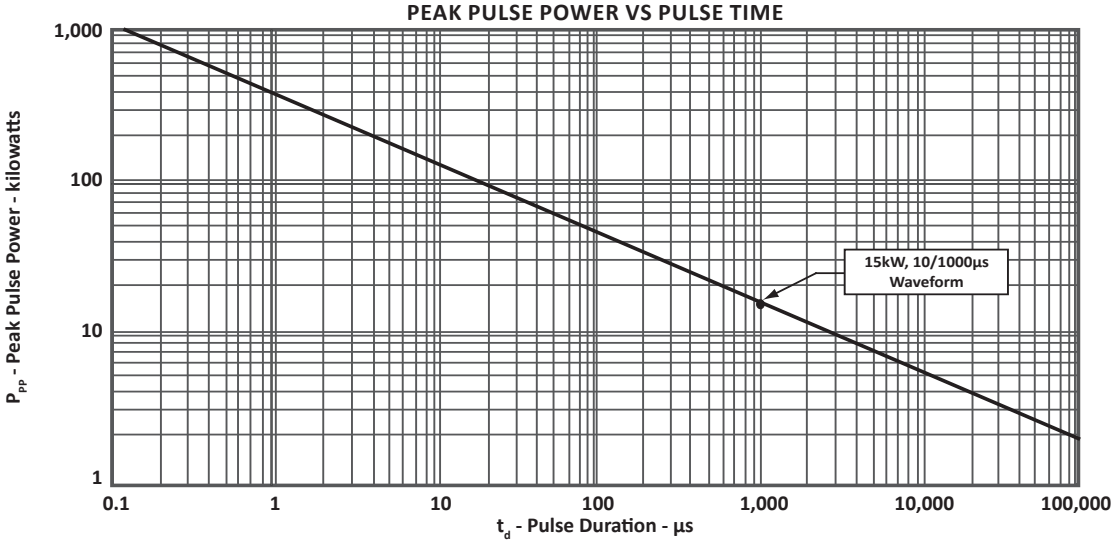


FIGURE 2
PULSE WAVEFORM

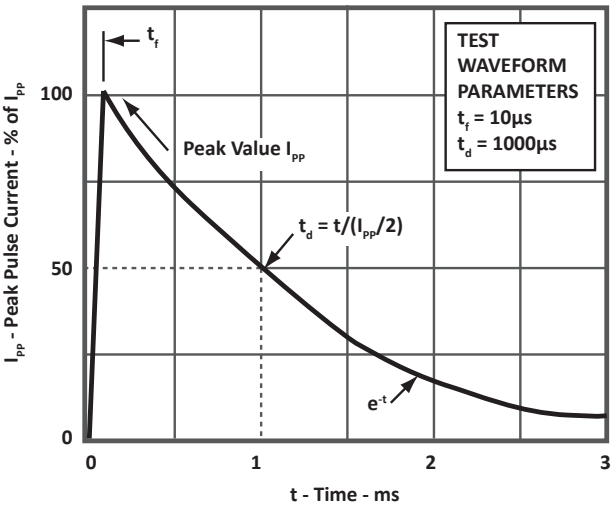
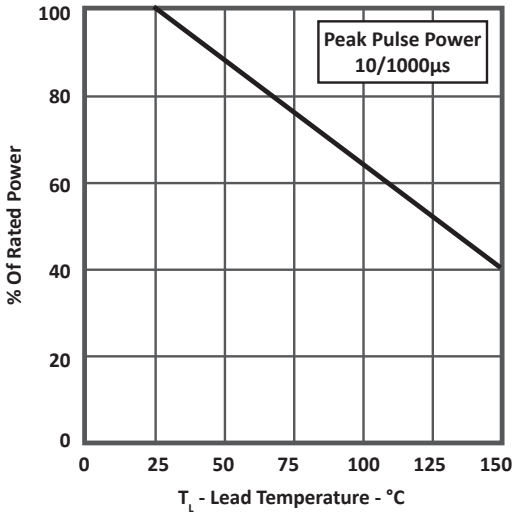
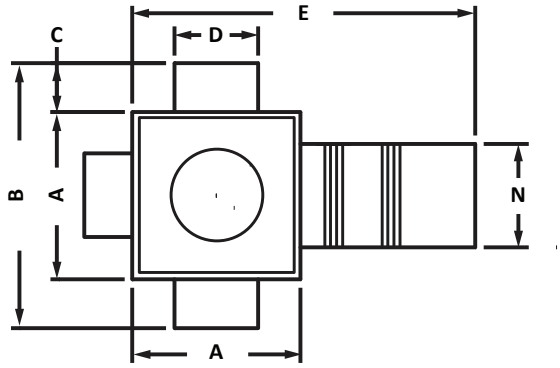


FIGURE 3
POWER DERATING CURVE

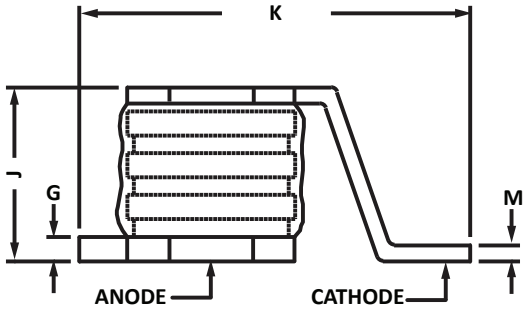


SMD-15 PACKAGE INFORMATION

PACKAGE OUTLINE DIMENSIONS				
DIM	MILLIMETERS		INCHES	
	MIN	MAX	MIN	MAX
A	5.15	5.50	0.197	0.217
B	8.10	8.25	0.319	0.325
C	1.40	1.55	0.055	0.061
D	2.45	2.65	0.096	0.104
E	10.25	11.05	0.405	0.435
G	0.70	0.80	0.026	0.034
J	5.08	5.59	0.200	0.220
K	11.75	12.62	0.463	0.497
M	0.42	0.58	0.017	0.023
N	3.15	3.45	0.124	0.136



TOP VIEW

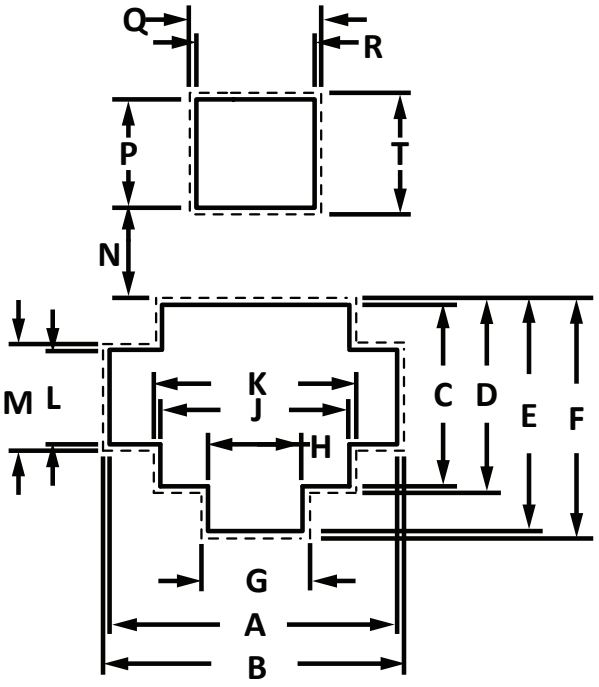


SIDE VIEW

SMD-15 PACKAGE INFORMATION

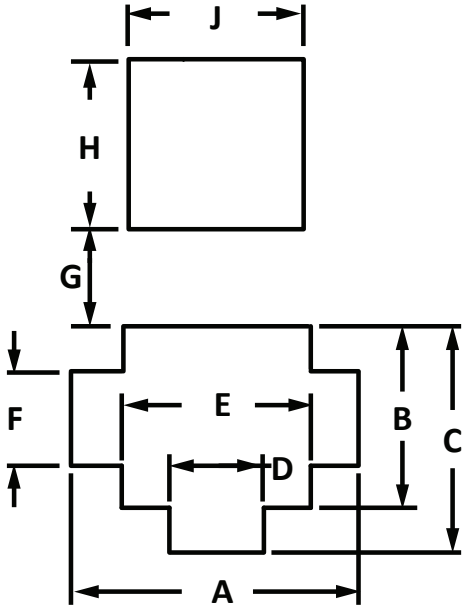
SOLDER PAD OUTLINE DIMENSIONS				
DIM	MILLIMETERS		INCHES	
	MIN	MAX	MIN	MAX
A	8.35	8.45	0.329	0.333
B	8.55	8.65	0.337	0.341
C	5.35	5.45	0.211	0.215
D	5.55	5.65	0.219	0.222
E	6.85	6.95	0.270	0.274
F	7.05	7.15	0.278	0.281
G	2.95	3.05	0.116	0.120
H	2.75	2.85	0.108	0.112
J	5.35	5.45	0.211	0.215
K	5.55	5.65	0.219	0.222
L	2.75	2.85	0.108	0.112
M	2.95	3.05	0.116	0.120
N	2.45	2.55	0.096	0.100
P	3.63	3.73	0.143	0.147
Q	3.95	4.05	0.156	0.159
R	3.55	3.65	0.140	0.144
T	4.06	4.19	0.160	0.165

Suggested Solder Pad



SOLDER PRINT OUTLINE DIMENSIONS				
DIM	MILLIMETERS		INCHES	
	MIN	MAX	MIN	MAX
A	5.75	5.85	0.226	0.23
B	4.15	4.25	0.163	0.167
C	4.95	5.05	0.195	0.199
D	1.55	1.65	0.061	0.065
E	4.15	4.25	0.163	0.167
F	1.55	1.65	0.061	0.065
G	2.65	2.75	0.104	0.108
H	4.05	4.15	0.159	0.163
J	4.05	4.15	0.159	0.163

Suggest Solder Print



COMPANY INFORMATION

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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