

15kW SURFACE MOUNT POWER TVS COMPONENT



DESCRIPTION

The SM15KPA 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 at a reduce cost compared to legacy axial lead package configurations.

These devices provide 15,000 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

- Compatible with IEC 61000-4-5 (Surge): 48A, 8/20 μ s - L3(Line-Ground), L4(Line-Line) & L1 (Power)
- 15,000 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)

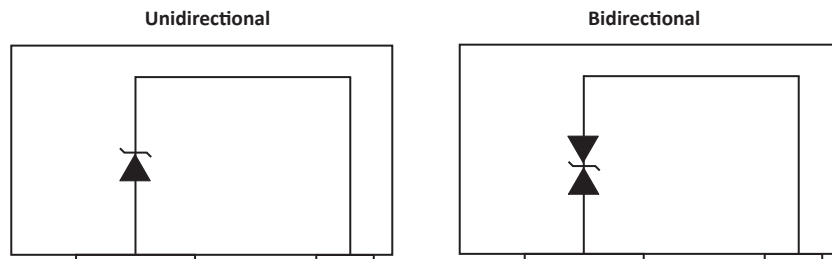
APPLICATIONS

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

MECHANICAL CHARACTERISTICS

- Black Molded Case
- Approximate Weight: 2.5 grams
- Lead-Free Silver Plating
- Solder Reflow Temperature: 240-250°C
- Flammability Rating UL 94V-0
- Marking: Logo, Marking Code and Date Code

CIRCUIT DIAGRAMS



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 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 $V_{(BR)}$ q $V_{(BR)}$ mV/°C
			MIN $V_{(BR)}$ VOLTS	@ I_T mA			
SM15KPA17A	17A	17.0	18.9	50	5000	29.3V @ 512.0A	17
SM15KPA30A	30A	30.0	33.3	5	15	50.7V @ 296.0A	34
SM15KPA33A	33A	33.0	36.7	5	10	54.8V @ 274.0A	38
SM15KPA48A	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. $V_{(MAX)}$ = 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 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 $V_{(BR)}$ q $V_{(BR)}$ mV/°C
			MIN $V_{(BR)}$ VOLTS	@ I_T mA			
SM15KPA30CA	30C	30.0	33.3	5	15	50.7V @ 296.0A	34
SM15KPA43CA	43C	43.0	47.8	5	10	69.7V @ 215.0A	50
SM15KPA54CA	54C	54.0	60.0	5	10	87.5V @ 171.0A	63
SM15KPA58CA	58C	58.0	64.4	5	10	94.0V @ 160.0A	68
SM15KPA78CA	78C	78.0	86.7	5	10	126.0V @ 119.0A	93
SM15KPA220CA	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

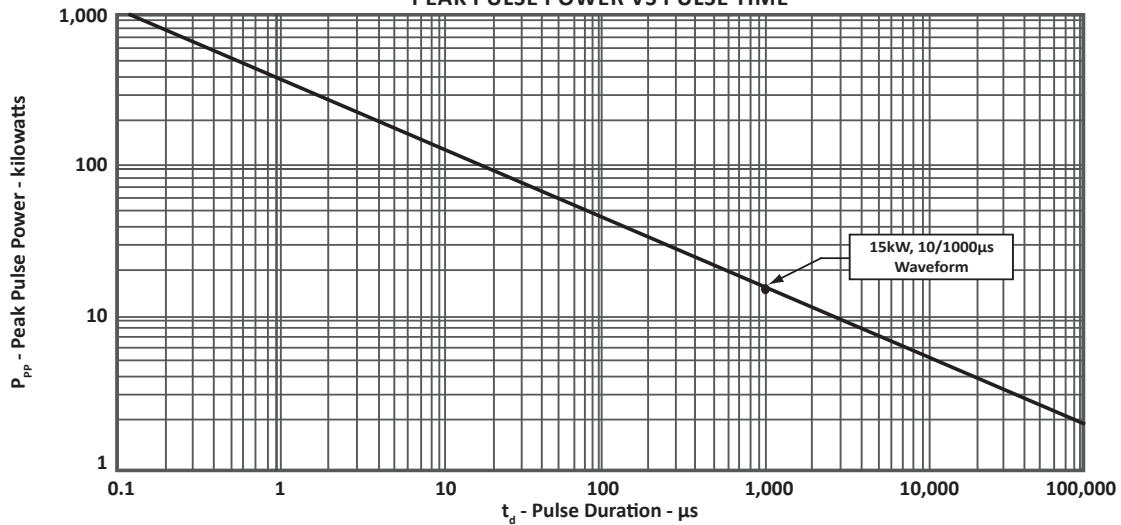


FIGURE 2
PULSE WAVEFORM

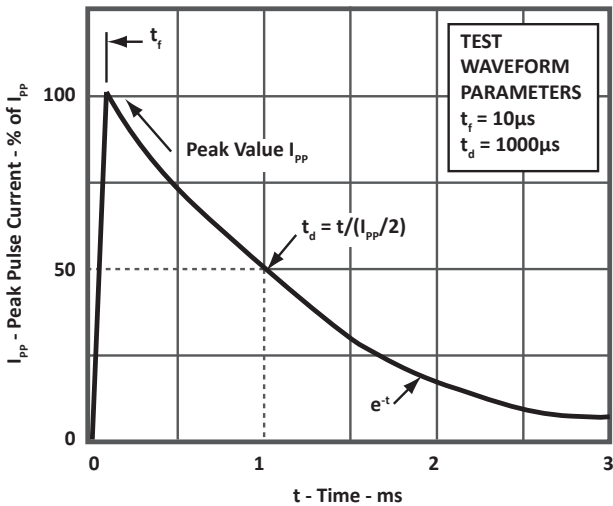
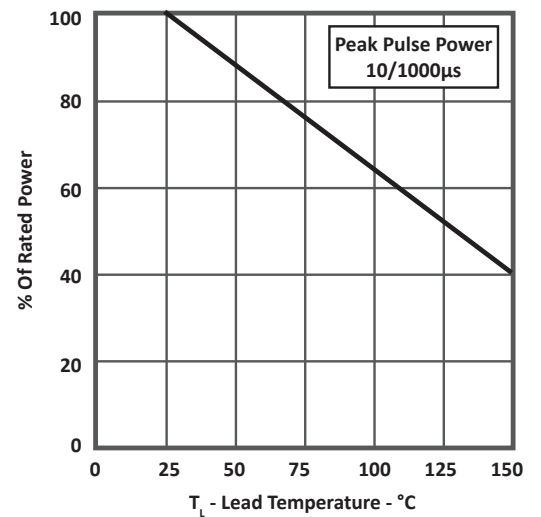


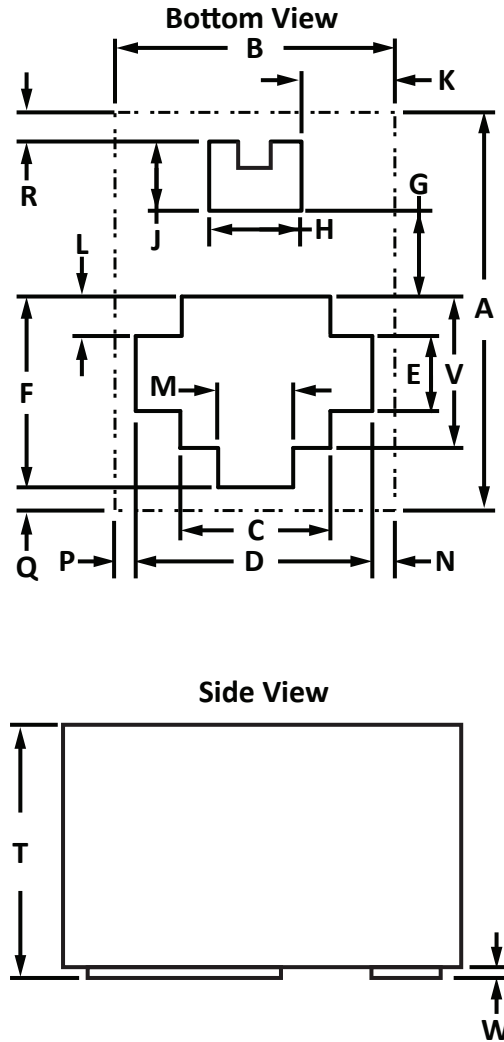
FIGURE 3
POWER DERATING CURVE



SMD-15 PACKAGE INFORMATION

PACKAGE OUTLINE DIMENSIONS

DIM	MILLIMETERS		INCHES	
	MIN	MAX	MIN	MAX
A	13.46	14.22	0.530	0.560
B	9.52	9.78	0.375	0.385
C	5.08	5.18	0.200	0.204
D	8.15	8.25	0.321	0.325
E	2.55	2.65	0.100	0.104
F	6.65	6.75	0.262	0.266
G	2.65	3.15	0.104	0.124
H	3.15	3.25	0.124	0.128
J	2.25	2.54	0.090	0.100
K	3.15	3.25	0.124	0.128
L	1.25	1.35	0.049	0.053
M	2.51	2.61	0.099	0.103
N	0.70	0.80	0.028	0.031
P	0.70	0.80	0.028	0.031
Q	0.80	1.03	0.031	0.041
R	0.80	1.03	0.031	0.041
T	8.12	9.14	0.320	0.360
W	0.25	0.50	0.010	0.020
V	5.08	5.18	0.200	0.204

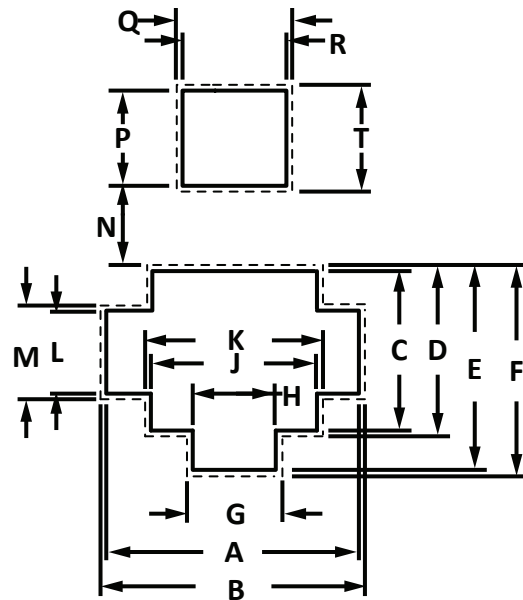


SMD-15 PACKAGE INFORMATION

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	2.75	2.85	0.108	0.112
H	2.95	3.05	0.116	0.120
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	3.25	3.35	0.128	0.132
Q	3.95	4.05	0.156	0.159
R	3.55	3.65	0.140	0.144
T	3.65	3.75	0.144	0.148

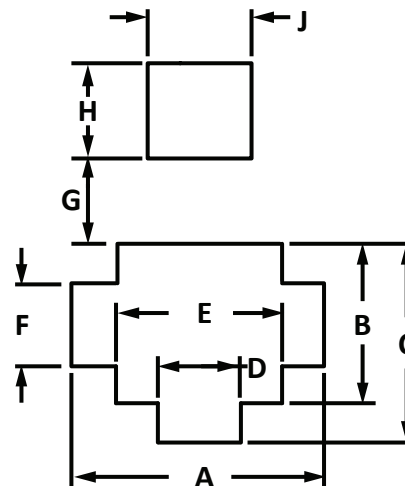
Suggested Solder Pad



SOLDER PRINT OUTLINE DIMENSIONS

DIM	MILLIMETERS		INCHES	
	MIN	MAX	MIN	MAX
A	8.35	8.45	0.329	0.333
B	5.35	5.45	0.211	0.215
C	6.85	6.95	0.270	0.274
D	2.75	2.85	0.108	0.112
E	5.35	5.45	0.211	0.215
F	2.75	2.85	0.108	0.112
G	2.45	2.55	0.096	0.100
H	3.25	3.35	0.128	0.132
J	3.55	3.65	0.140	0.144

Suggest Solder Print



COMPANY INFORMATION

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.

CONTACT US

Corporate Headquarters

2929 South Fair Lane
Tempe, Arizona 85282
USA

By Telephone

General: 602-431-8101
Sales: 602-414-5109
Customer Service: 602-414-5114

By Fax

General: 602-431-2288

By E-mail:

Sales: sales@protekdevices.com
Customer Service: service@protekdevices.com
Technical Support: support@protekdevices.com

Web

www.protekdevices.com
www.protekanalog.com

COPYRIGHT © ProTek Devices 2010 - This literature is subject to all applicable copyright laws and is not for resale in any manner.

SPECIFICATIONS: ProTek reserves the right to change the electrical and or mechanical characteristics described herein without notice.

DESIGN CHANGES: ProTek reserves the right to discontinue product lines without notice and that the final judgement concerning selection and specifications is the buyer's and that in furnishing engineering and technical assistance. ProTek assumes no responsibility with respect to the selection or specifications of such products. ProTek makes no warranty, representation or guarantee regarding the suitability of its products for any particular purpose, nor does ProTek assume any liability arising out of the application or use of any product or circuit and specifically disclaims any and all liability without limitation special, consequential or incidental damages.

LIFE SUPPORT POLICY: ProTek Devices products are not authorized for use in life support systems without written consent from the factory.