

## HIGH POWER TVS ARRAY

### APPLICATIONS

- Digital Audio Tuner for Automotive
- Automotive Entertainment Systems
- Automotive Navigation Systems

### FEATURES

- Junction Passivation Optimized Design Passivated Anisotropic Rectifier Technology
- $T_j = 175^\circ\text{C}$  Capability Suitable for High Reliability and Automotive Requirements
- Unidirectional Configuration
- Low Forward Voltage Drop
- High Surge Capability
- 6600 Watts Peak Pulse Power per Line ( $t_p = 10/1000\mu\text{s}$ )
- Meets ISO7637-2 Surge Specification (Varied by Test Condition)
- Meets MSL Level 1, Per J-STD-020, LF Maximum Peak of  $245^\circ\text{C}$
- Available in Multiple Voltages
- RoHS Compliant
- REACH Compliant



### MECHANICAL CHARACTERISTICS

- Case: DO-218AB Package
- Terminals: Matte Tin Plated Leads, Solderable Per J-STD-002 and JESD 22-B102
- Approximate Weight: 2.58 grams
- Solder Reflow Temperature -  $260^\circ\text{C}$  for 10 seconds at terminals
- 24mm Tape and Reel Per EIA Standard 481
- Flammability Rating UL 94V-0
- Polarity: Heatsink is Anode

#### MAXIMUM RATINGS @ $25^\circ\text{C}$ Unless Otherwise Specified

PARAMETER	SYMBOL	VALUE	UNITS
Operating Junction Temperature	$T_j$	-55 to 175	$^\circ\text{C}$
Storage Temperature	$T_{\text{STG}}$	-55 to 175	$^\circ\text{C}$
Peak Pulse Power Dissipation ( $t_p = 10/1000\mu\text{s}$ )	$P_{\text{PPM}}$	6600	Watts
Peak Forward Surge Current, 8.3ms single half sinewave	$I_{\text{FSM}}$	700	Amps
Power Dissipation on Infinite Heaksink, $T_c = 25^\circ\text{C}$ (Figure 2)	$P_D$	8.0	Watts
Typical Thermal Resistance, Junction to Case	$R_{\text{OJC}}$	0.90	$^\circ\text{C/W}$

## TYPICAL DEVICE CHARACTERISTICS

## ELECTRICAL CHARACTERISTICS PER LINE @ 25°C Unless Otherwise Specified

PART NUMBER (Note 1)	REVERSE STAND-OFF VOLTAGE  $V_{RWM}$ VOLTS	BREAKDOWN VOLTAGE  $V_{(BR)}$ @ $I_T$ VOLTS		TEST CURRENT  @ $I_T$ mA	MAXIMUM CLAMPING VOLTAGE (Fig. 1) @ $I_P$ $V_C$ VOLTS	MAXIMUM REVERSE SURGE CURRENT  @ $I_{PP}$ AMPS	MAXIMUM REVERSE LEAKAGE CURRENT @ $V_{RWM}$ $I_R$ $\mu A$	MAXIMUM REVERSE LEAKAGE CURRENT @ $V_{RWM}$ 175°C $I_R$ $\mu A$
		MIN	MAX					
SM8S10	10.0	11.1	13.6	5.0	18.8	351	15	250
SM8S10A	10.0	11.1	12.3	5.0	17.0	388	15	250
SM8S11	11.0	12.2	14.9	5.0	20.1	328	10	150
SM8S11A	11.0	12.2	13.5	5.0	18.2	363	10	150
SM8S12	12.0	13.3	16.3	5.0	22.0	300	10	150
SM8S12A	12.0	13.3	14.7	5.0	19.9	332	10	150
SM8S13	13.0	14.4	17.6	5.0	23.8	277	10	150
SM8S13A	13.0	14.4	15.9	5.0	21.5	307	10	150
SM8S14	14.0	15.6	19.1	5.0	25.8	256	10	150
SM8S14A	14.0	15.6	17.2	5.0	23.2	284	10	150
SM8S15	15.0	16.7	20.4	5.0	26.9	245	10	150
SM8S15A	15.0	16.7	18.5	5.0	24.4	270	10	150
SM8S16	16.0	17.8	21.8	5.0	28.8	229	10	150
SM8S16A	16.0	17.8	19.7	5.0	26.0	254	10	150
SM8S17	17.0	18.9	23.1	5.0	30.5	216	10	150
SM8S17A	17.0	18.9	20.9	5.0	27.6	239	10	150
SM8S18	18.0	20.0	24.4	5.0	32.2	205	10	150
SM8S18A	18.0	20.0	22.1	5.0	29.2	226	10	150
SM8S20	20.0	22.2	27.1	5.0	35.8	184	10	150
SM8S20A	20.0	22.2	24.5	5.0	32.4	204	10	150
SM8S22	22.0	24.4	29.8	5.0	39.4	168	10	150
SM8S22A	22.0	24.4	26.9	5.0	35.5	186	10	150
SM8S24	24.0	26.7	32.6	5.0	43.0	153	10	150
SM8S24A	24.0	26.7	29.5	5.0	38.9	170	10	150
SM8S26	26.0	28.9	35.3	5.0	46.6	142	10	150
SM8S26A	26.0	28.9	31.9	5.0	42.1	157	10	150
SM8S28	28.0	31.1	38.0	5.0	50.1	132	10	150
SM8S28A	28.0	31.1	34.4	5.0	45.4	145	10	150
SM8S30	30.0	33.3	40.7	5.0	53.5	123	10	150
SM8S30A	30.0	33.3	36.8	5.0	48.4	136	10	150

## TYPICAL DEVICE CHARACTERISTICS

## ELECTRICAL CHARACTERISTICS PER LINE @ 25°C Unless Otherwise Specified

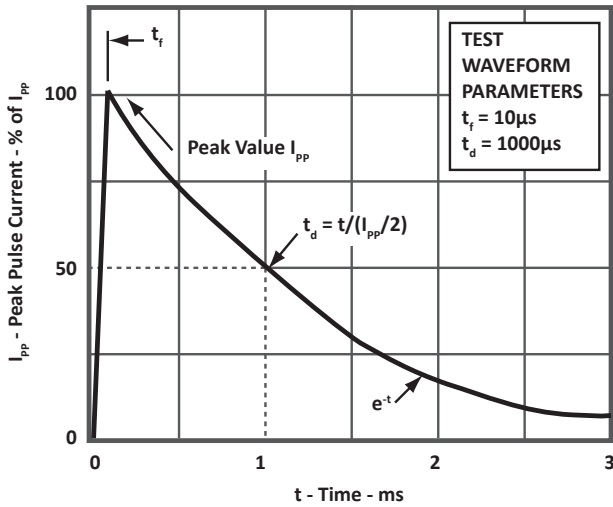
PART NUMBER (Note 1)	REVERSE STAND-OFF VOLTAGE  $V_{RWM}$ VOLTS	BREAKDOWN VOLTAGE  $V_{(BR)} @ I_T$ VOLTS		TEST CURRENT  @ $I_T$ mA	MAXIMUM CLAMPING VOLTAGE (Fig. 1) @ $I_p$ $V_c$ VOLTS	MAXIMUM REVERSE SURGE CURRENT  @ $I_{PP}$ AMPS	MAXIMUM REVERSE LEAKAGE CURRENT @ $V_{RWM}$ $I_R$ $\mu A$	MAXIMUM REVERSE LEAKAGE CURRENT @ $V_{RWM}$ 175°C $I_R$ $\mu A$
		MIN	MAX					
SM8S33	33.0	36.7	44.9	5.0	59.0	112	10	150
SM8S33A	33.0	36.7	40.6	5.0	53.3	124	10	150
SM8S36	36.0	40.0	48.9	5.0	64.3	103	10	150
SM8S36A	36.0	40.0	44.2	5.0	58.1	114	10	150
SM8S40	40.0	44.4	54.3	5.0	71.4	92.4	10	150
SM8S40A	40.0	44.4	49.1	5.0	64.5	102	10	150
SMS8S43	43.0	47.8	58.4	5.0	76.7	86	10	150
SMS8S43A	43.0	47.8	52.8	5.0	69.4	95.1	10	150

## NOTES

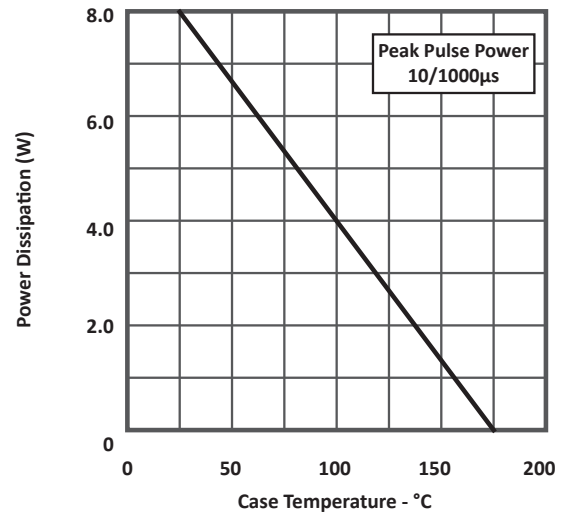
1. For all types, maximum VF = 1.8V at IF 100A, measured on 8.3ms single half-sine wave or equivalent square wave. Maximum duty cycle = 4 pulses per minute.

**TYPICAL DEVICE CHARACTERISTICS**

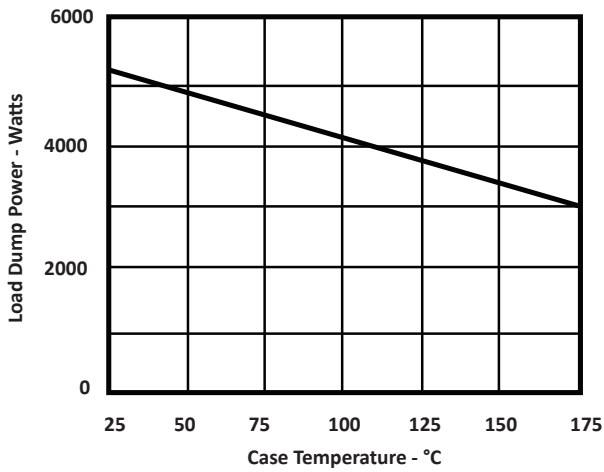
**FIGURE 1  
PULSE WAVEFORM**



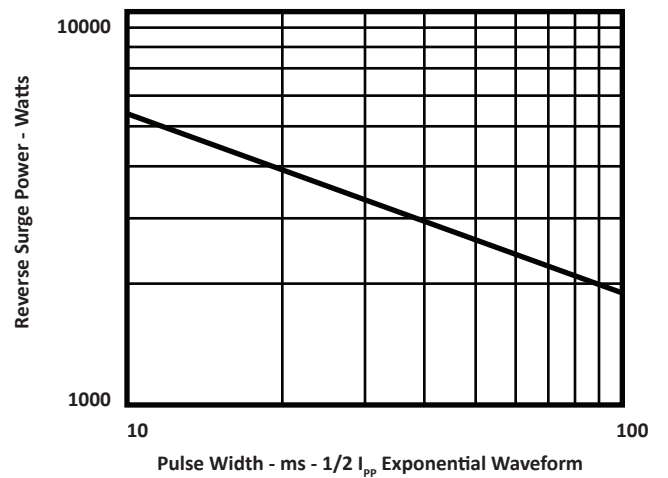
**FIGURE 2  
POWER DERATING CURVE**



**FIGURE 3  
LOAD DUMP POWER CHARACTERISTICS  
(10ms Exponential Waveform)**



**FIGURE 4  
REVERSE POWER CAPABILITY**



## TYPICAL DEVICE CHARACTERISTICS

FIGURE 5  
TYPICAL TRANSIENT IMPEDANCE

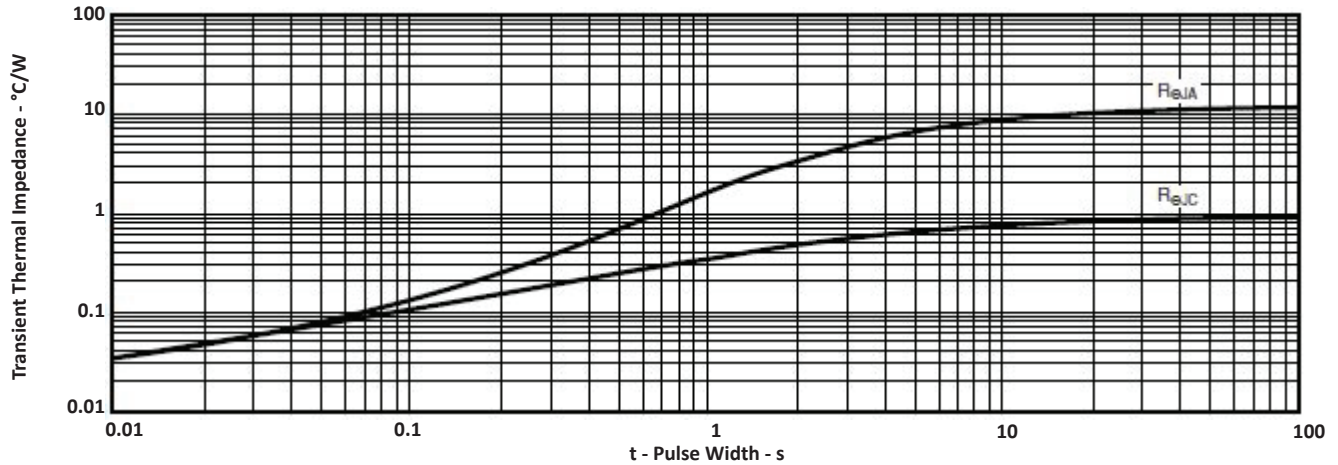
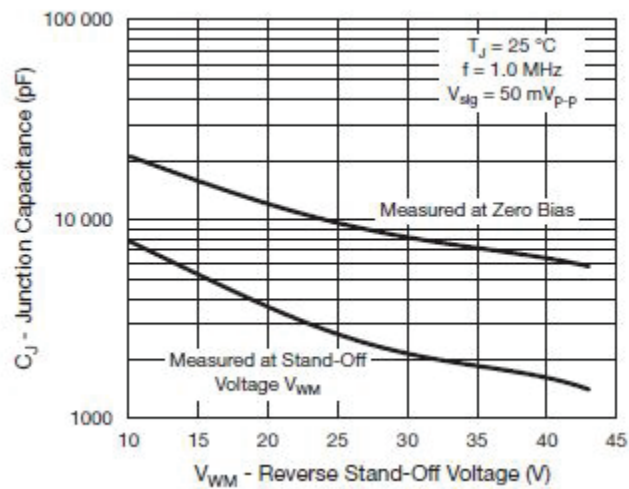


FIGURE 6  
TYPICAL JUNCTION CAPACITANCE



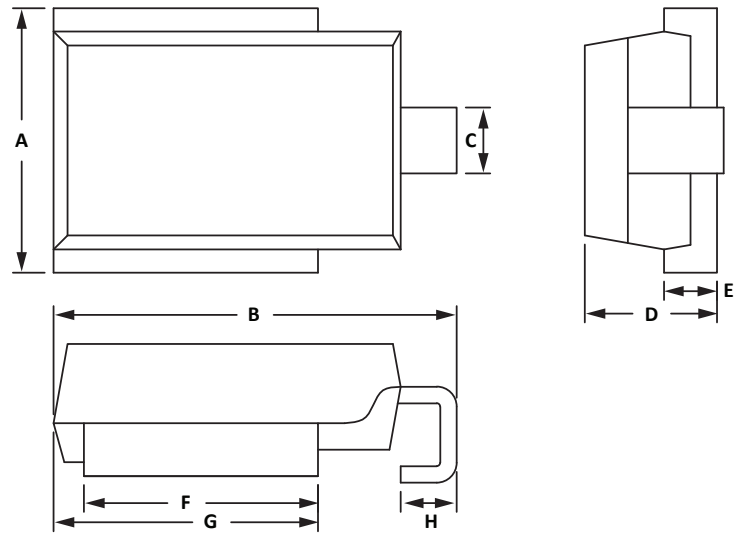
## PACKAGE INFORMATION

## OUTLINE DIMENSIONS

DIM	MILLIMETERS		INCHES	
	MIN	MAX	MIN	MAX
A	9.50	10.50	0.374	0.413
B	15.00	16.00	0.591	0.630
C	2.30	2.90	0.090	0.114
D	4.80	5.20	0.189	0.205
E	1.95	2.11	0.077	0.083
F	8.70	9.30	0.342	0.366
G	9.70	10.30	0.382	0.405
H	1.70	2.70	0.067	0.106

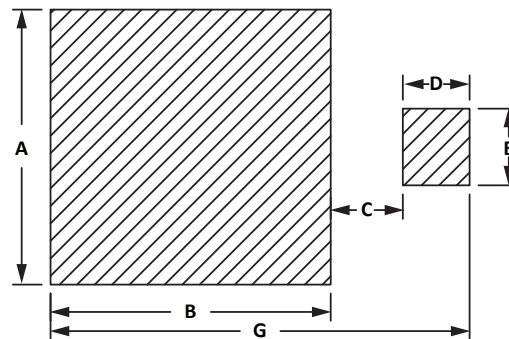
## NOTES

1. Dimensions are exclusive of mold flash and metal burrs.

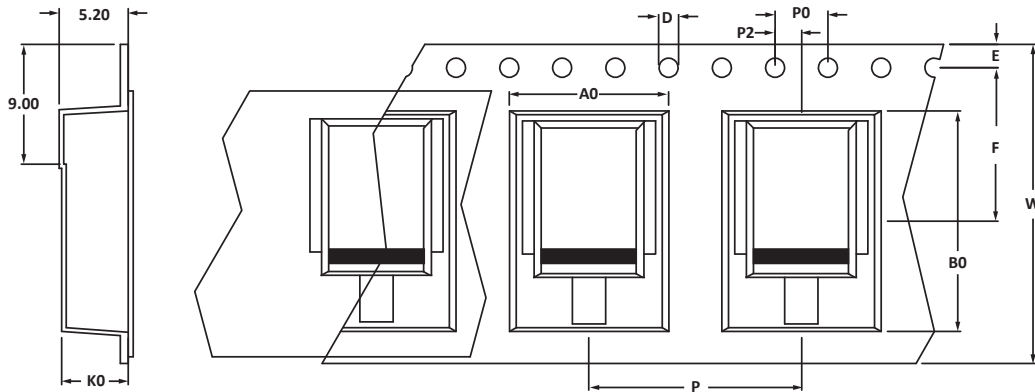


## PAD LAYOUT DIMENSIONS

DIM	MILLIMETERS	INCHES
	NOM	NOM
A	11.0	0.433
B	9.5	0.374
C	3.3	0.130
D	3.0	0.118
E	3.5	0.137
G	15.8	0.662



## TAPE AND REEL



## SPECIFICATIONS

REEL DIA.	TAPE WIDTH	A0	B0	K0	D	E	F	W	P0	P2	P
330mm (13")	24mm	12.00 ± 0.10	16.60 ± 0.10	5.00 ± 0.10	1.50 ± 0.10	1.75 ± 0.10	11.55 ± 0.05	24.00 ± 0.30	4.00 ± 0.12	2.00 ± 0.10	16.00 ± 0.10

## NOTES

- Dimensions are in millimeters.
- Surface mount product is taped and reeled in accordance with EIA-481.
- Suffix - T13 = 13" Reel - 500 pieces per 16mm tape.
- Marking on Part - part number, date code, logo and polarity band.

## ORDERING INFORMATION

BASE PART NUMBER	LEADFREE SUFFIX	TAPE SUFFIX	QTY/REEL	REEL SIZE	TUBE QTY
SM8Sxx	N/A	-T13	500	13"	N/A

This device is only available in a Lead-Free configuration.

## 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 LED wafer die for ESD protection and related high frequency products.

### CONTACT US

#### Corporate Headquarters

2929 South Fair Lane  
Tempe, Arizona 85282  
USA

#### By Telephone

General: 602-431-8101  
Sales: & Marketing: 602-414-5109  
Customer Service: 602-414-5114  
Product Technical Support: 602-414-5107

#### By Fax

General: 602-431-2288

#### By E-mail:

Asia Sales: [asiasales@protekdevices.com](mailto:asiasales@protekdevices.com)  
Europe Sales: [europesales@protekdevices.com](mailto:europesales@protekdevices.com)  
U.S. Sales: [ussales@protekdevices.com](mailto:ussales@protekdevices.com)  
Distributor Sales: [distysales@protekdevices.com](mailto:distysales@protekdevices.com)  
Customer Service: [service@protekdevices.com](mailto:service@protekdevices.com)  
Technical Support: [support@protekdevices.com](mailto:support@protekdevices.com)

#### ProTek Devices (Asia Pacific) Pte. Ltd.

8 Ubi Road 2, #06-19  
Zervex  
Singapore - 408538  
Tel: +65-67488312  
Fax: +65-67488313

#### Web

[www.protekdevices.com](http://www.protekdevices.com)

COPYRIGHT © ProTek Devices 2014 - 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.