

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°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°C for 10 seconds at terminals
- 24mm Tape and Reel Per EIA Standard 481
- Flammability Rating UL 94V-0
- Polarity: Heatsink is Anode

CIRCUIT DIAGRAMS



UNIDIRECTIONAL



BIDIRECTIONAL

TYPICAL DEVICE CHARACTERISTICS

MAXIMUM RATINGS @ 25°C Unless Otherwise Specified			
PARAMETER	SYMBOL	VALUE	UNITS
Operating Junction Temperature	T_J	-55 to 175	°C
Storage Temperature	T_{STG}	-55 to 175	°C
Peak Pulse Power Dissipation (tp =10/1000µs)	P_{PPM}	6600	Watts
Peak Forward Surge Current, 8.3ms single half sinewave (Unidirectional Only)	I_{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	$R_{\theta JC}$	0.90	°C/W

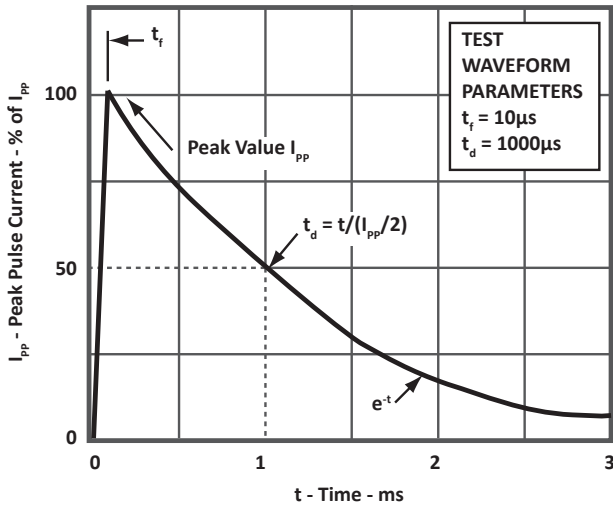
ELECTRICAL CHARACTERISTICS PER LINE @ 25°C Unless Otherwise Specified								
PART NUMBER (Note 1-3)	REVERSE STAND-OFF VOLTAGE V_{RWM} VOLTS	BREAKDOWN VOLTAGE $V_{(BR)} @ I_T$ VOLTS		TEST CURRENT @ I_T mA	MAXIMUM CLAMPING VOLTAGE (Fig. 1) @ I_P V_C VOLTS	MAXIMUM REVERSE SURGE CURRENT @ I_{PP} AMPS	MAXIMUM REVERSE LEAKAGE CURRENT @ V_{RWM} I_R µA	MAXIMUM REVERSE LEAKAGE CURRENT @ V_{RWM} 175°C I_R µA
		MIN	MAX					
SM8S10A	10.0	11.1	12.3	5.0	17.0	388	15	250
SM8S11A	11.0	12.2	13.5	5.0	18.2	363	10	150
SM8S12A	12.0	13.3	14.7	5.0	19.9	332	10	150
SM8S13A	13.0	14.4	15.9	5.0	21.5	307	10	150
SM8S14A	14.0	15.6	17.2	5.0	23.2	284	10	150
SM8S15A	15.0	16.7	18.5	5.0	24.4	270	10	150
SM8S16A	16.0	17.8	19.7	5.0	26.0	254	10	150
SM8S17A	17.0	18.9	20.9	5.0	27.6	239	10	150
SM8S18A	18.0	20.0	22.1	5.0	29.2	226	10	150
SM8S20A	20.0	22.2	24.5	5.0	32.4	204	10	150
SM8S22A	22.0	24.4	26.9	5.0	35.5	186	10	150
SM8S24A	24.0	26.7	29.5	5.0	38.9	170	10	150
SM8S26A	26.0	28.9	31.9	5.0	42.1	157	10	150
SM8S28A	28.0	31.1	34.4	5.0	45.4	145	10	150
SM8S30A	30.0	33.3	36.8	5.0	48.4	136	10	150
SM8S33A	33.0	36.7	40.6	5.0	53.3	124	10	150
SM8S36A	36.0	40.0	44.2	5.0	58.1	114	10	150
SM8S40A	40.0	44.4	49.1	5.0	64.5	102	10	150
SMS8S43A	43.0	47.8	52.8	5.0	69.4	95.1	10	150
SM8S48A	48.0	53.3	58.9	5.0	85.2	77.4	10	150

NOTES

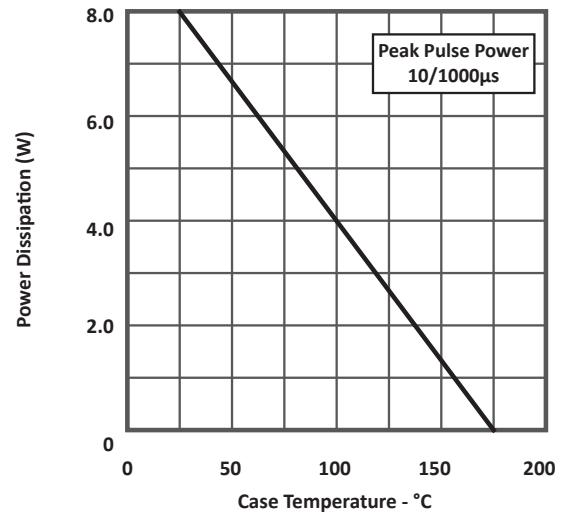
1. For all types, maximum VF = 1.8V at IF 100A, measured on 8.3ms single half-sine wave or equivalent square wave. Maximum duty cycle = 4 pulses per minute.
2. Add suffix 'C' or 'CA' after part number to specify a bidirectional device.
3. SM8S48CA is not available.

TYPICAL DEVICE CHARACTERISTICS

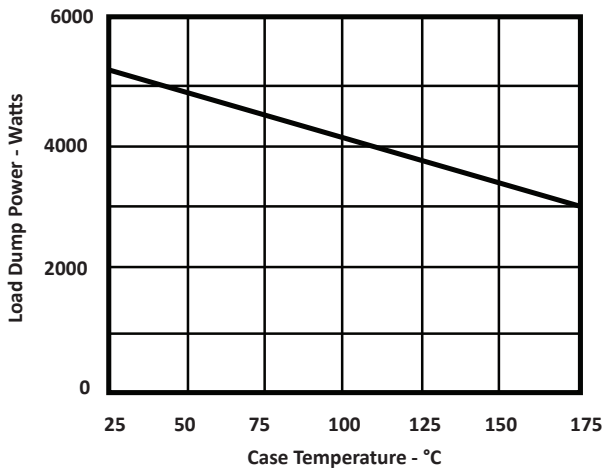
**FIGURE 1
PULSE WAVEFORM**



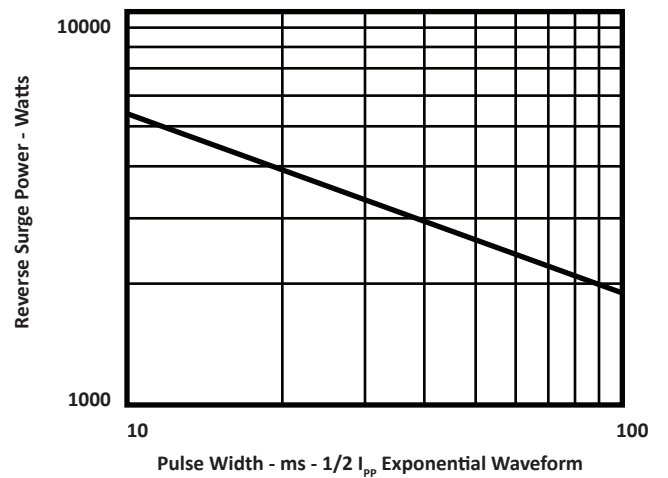
**FIGURE 2
POWER DERATING CURVE**



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



**FIGURE 4
REVERSE POWER CAPABILITY**



TYPICAL DEVICE CHARACTERISTICS

FIGURE 5
TYPICAL TRANSIENT IMPEDANCE

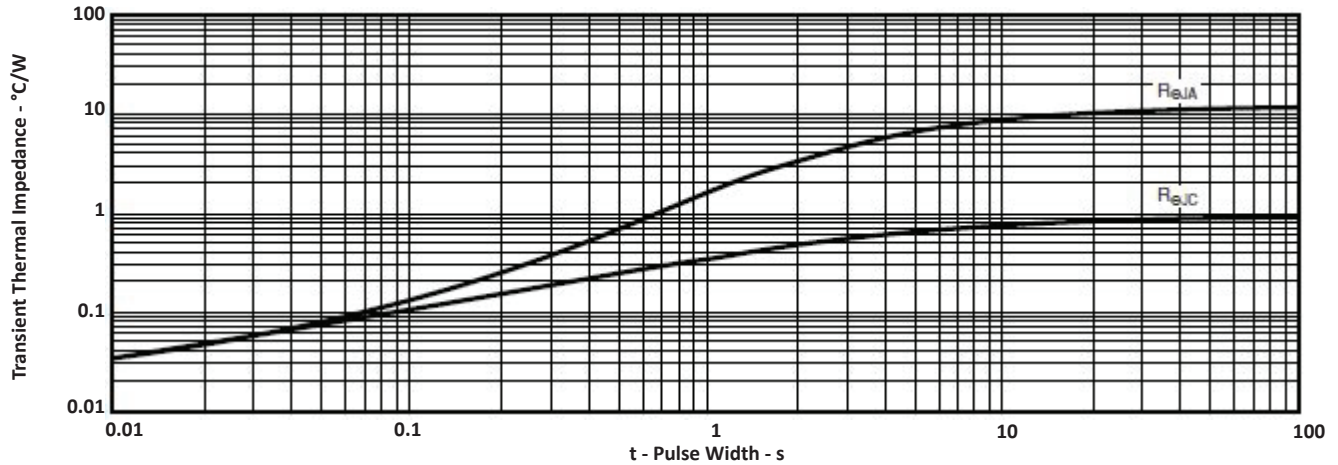
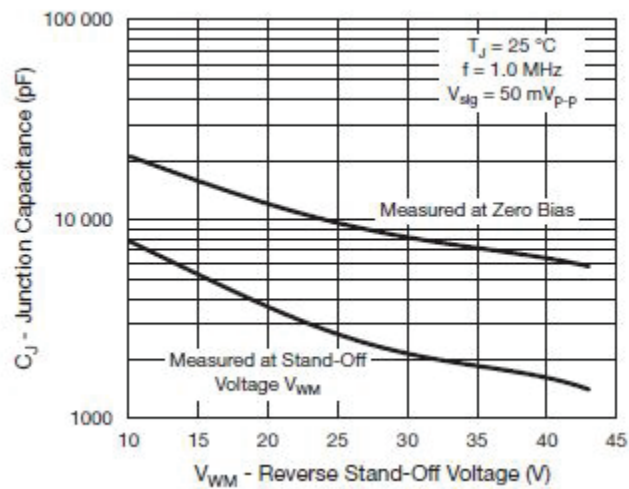


FIGURE 6
TYPICAL JUNCTION CAPACITANCE



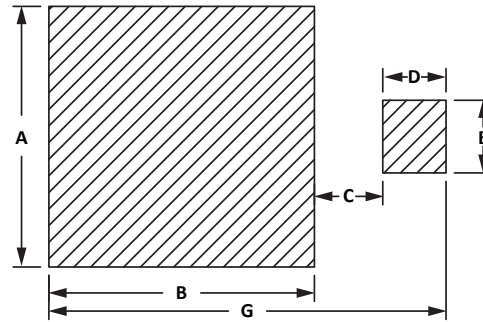
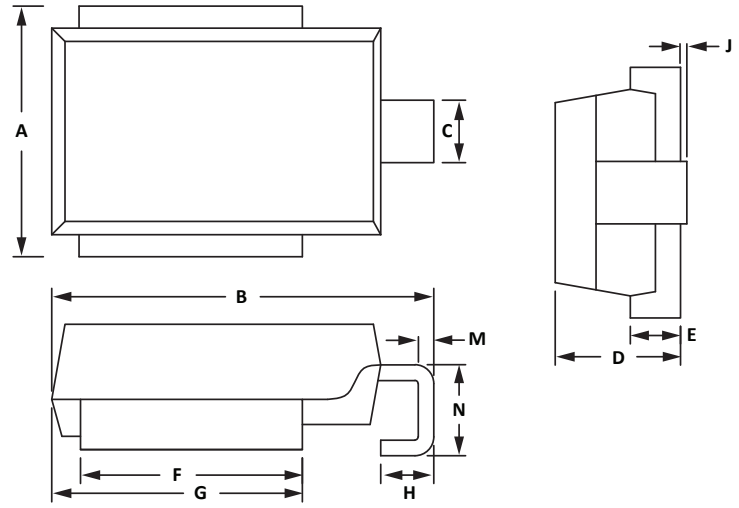
PACKAGE INFORMATION

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
J	0.00	0.06	0.00	0.010
M	0.50	0.70	0.019	0.027
N	2.50	3.50	0.098	0.138

NOTES

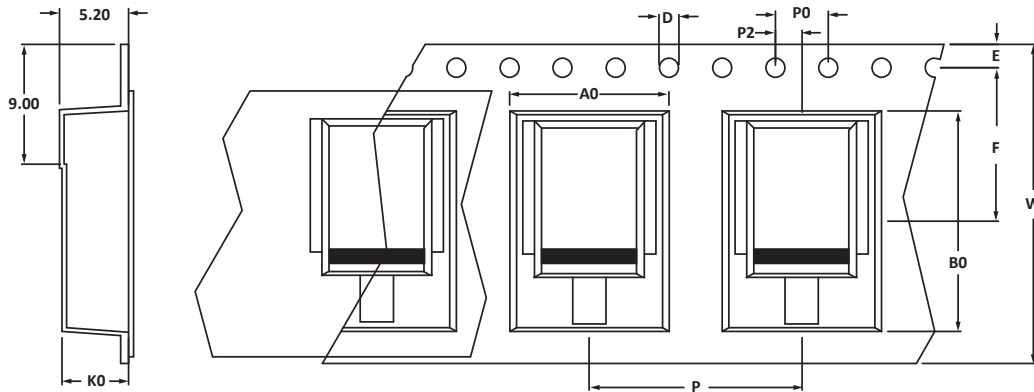
1. Dimensions are exclusive of mold flash and metal burrs.



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

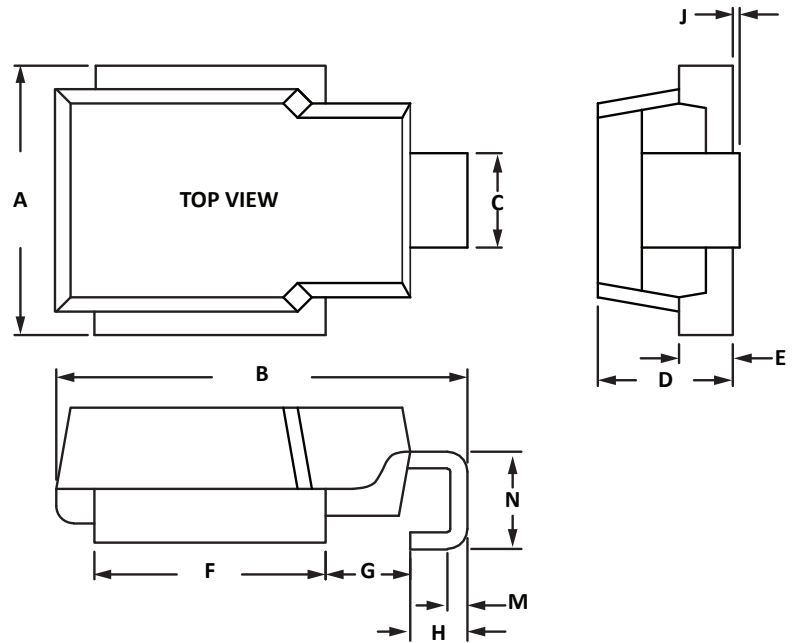
1. Dimensions are in millimeters.
2. Surface mount product is taped and reeled in accordance with EIA-481.
3. Marking on Part - part number, date code, logo and polarity band.

PACKAGE INFORMATION

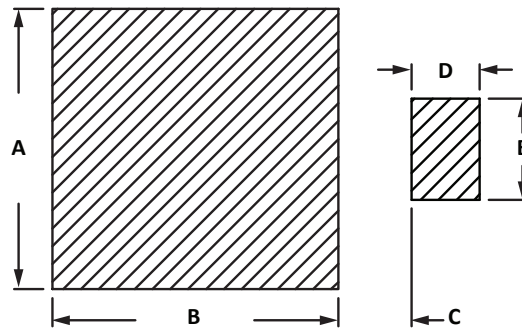
ALTERNATE PACKAGE

OUTLINE DIMENSIONS				
DIM	MILLIMETERS		INCHES	
	MIN	MAX	MIN	MAX
A	9.50	10.50	0.374	0.413
B	15.00	16.00	0.592	0.628
C	2.40	3.00	0.094	0.118
D	4.70	5.10	0.185	0.201
E	1.90	2.10	0.075	0.083
F	8.50	9.10	0.335	0.358
G	3.55	3.75	0.139	0.147
H	1.95	2.20	0.076	0.086
J	0.00	0.06	0.00	0.010
M	0.50	0.70	0.020	0.028
N	2.50	3.50	0.098	0.138

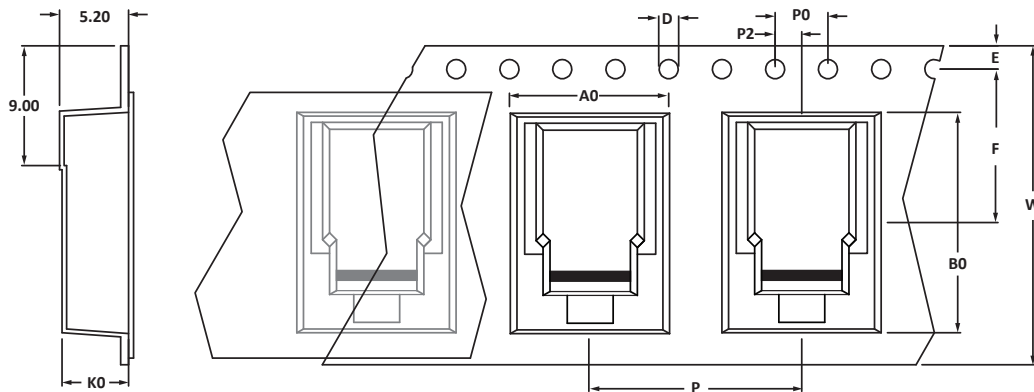
NOTES
1. Dimensions are exclusive of mold flash and metal burrs.



PAD LAYOUT				
DIM	MILLIMETERS		INCHES	
	MIN	MAX	MIN	MAX
A	10.49	10.65	0.413	0.419
B	10.69	10.85	0.421	0.427
C	2.69	2.85	0.106	0.112
D	2.49	2.65	0.098	0.104
E	3.73	3.88	0.147	0.153



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

1. Dimensions are in millimeters.
2. Surface mount product is taped and reeled in accordance with EIA-481.
3. 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	-T500	500	13"	N/A
SM8Sxx	N/A	-T750	750	13"	N/A

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

COMPANY INFORMATION

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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 an ISO 9001 certified company.

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