## HIGH POWER TVS ARRAY


DO-218AB

## APPLICATIONS

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

## FEATURES

- Junction Passivation Optimized Design Passivated Anisotropic Rectifier Technology
- $T_J$ = 175°C Capability Suitable for High Reliability and Automotive Requirements
- Unidirectional Configuration
- Low Forward Voltage Drop
- High Surge Capability
- 4600 Watts Peak Pulse Power per Line (tp = 10/1000µs)
- 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: 2.7 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

| 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) | $P_{PPM}$ | 4600 | Watts |
| Peak Pulse Power Dissipation (tp =10/10000µs) | $P_{PPM}$ | 3600 | Watts |
| Peak Forward Surge Current, 8.3ms single half sinewave | $I_{FSM}$ | 600 | Amps |
| Power Dissipation on Infinite Heaksink, $T_C$ = 25°C (Figure 2) | $P_D$ | 6.0 | Watts |
| Typical Thermal Resistance, Junction to Case | $R_{\Theta JC}$ | 0.95 | °C/W |

## TYPICAL DEVICE CHARACTERISTICS

| ELECTRICAL CHARACTERISTICS PER LINE @ 25°C Unless Otherwise Specified | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| PART NUMBER (Note 1) | REVERSE STAND-OFF VOLTAGE | BREAKDOWN VOLTAGE $V_{(BR)}$ @ $I_T$ VOLTS | | TEST CURRENT | MAXIMUM CLAMPING VOLTAGE (Fig. 1) @ $I_P$ | MAXIMUM REVERSE SURGE CURRENT | MAXIMUM REVERSE LEAKAGE CURRENT @$V_{RWM}$ | MAXIMUM REVERSE LEAKAGE CURRENT @$V_{RWM}$ 175°C |
| | $V_{RWM}$ VOLTS | MIN | MAX | @ $I_T$ mA | $V_C$ VOLTS | @$I_{PP}$ AMPS | $I_R$ µA | $I_R$ µA |
| SM6S14A | 14.0 | 15.6 | 17.2 | 5.0 | 23.2 | 198 | 10 | 150 |
| SM6S15A | 15.0 | 16.7 | 18.5 | 5.0 | 24.4 | 189 | 10 | 150 |
| SM6S16A | 16.0 | 17.8 | 19.7 | 5.0 | 26.0 | 177 | 10 | 150 |
| SM6S17A | 17.0 | 18.9 | 20.9 | 5.0 | 27.6 | 167 | 10 | 150 |
| SM6S18A | 18.0 | 20.0 | 22.1 | 5.0 | 29.2 | 158 | 10 | 150 |
| SM6S20A | 20.0 | 22.2 | 24.5 | 5.0 | 32.4 | 142 | 10 | 150 |
| SM6S22A | 22.0 | 24.4 | 26.9 | 5.0 | 35.5 | 130 | 10 | 150 |
| SM6S24A | 24.0 | 26.7 | 29.5 | 5.0 | 38.9 | 118 | 10 | 150 |
| SM6S26A | 26.0 | 28.9 | 31.9 | 5.0 | 42.1 | 109 | 10 | 150 |
| SM6S28A | 28.0 | 31.1 | 34.4 | 5.0 | 45.4 | 101 | 10 | 150 |
| SM6S30A | 30.0 | 33.3 | 36.8 | 5.0 | 48.4 | 95 | 10 | 150 |
| SM6S33A | 33.0 | 36.7 | 40.6 | 5.0 | 53.3 | 86 | 10 | 150 |
| SM6S36A | 36.0 | 40.0 | 44.2 | 5.0 | 58.1 | 79 | 10 | 150 |

**NOTES**
1. For all types, maximum VF = 1.9V 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**

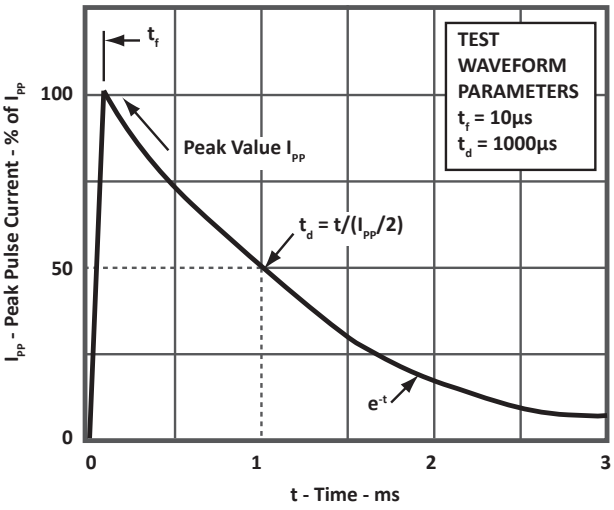



**FIGURE 2**
**PULSE DERATING CURVE**

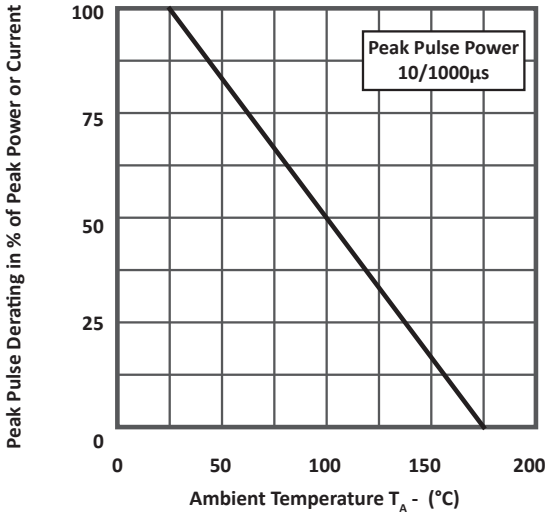



**FIGURE 3**
**STEADY STATE POWER POWER DERATING CURVE**

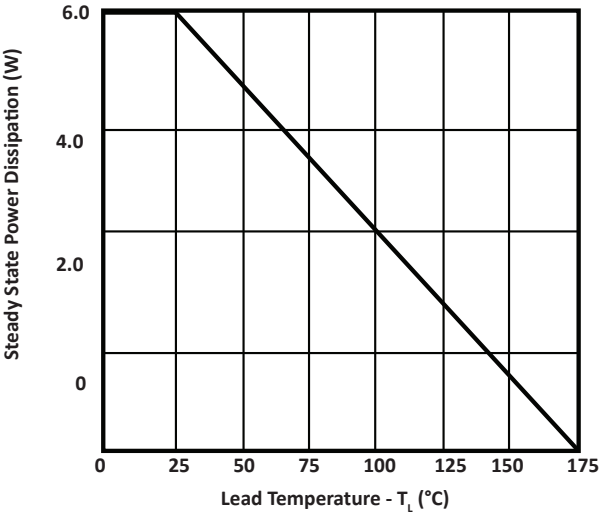
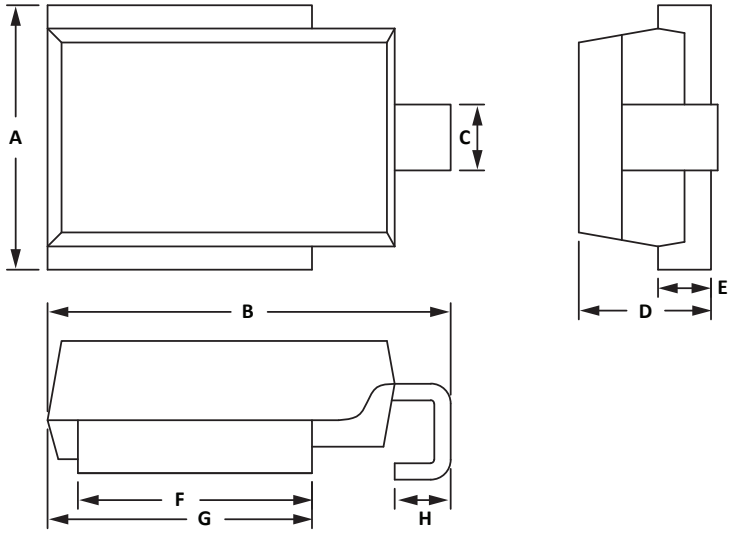



**FIGURE 4**
**PEAK PULSE POWER RATING CURVE**

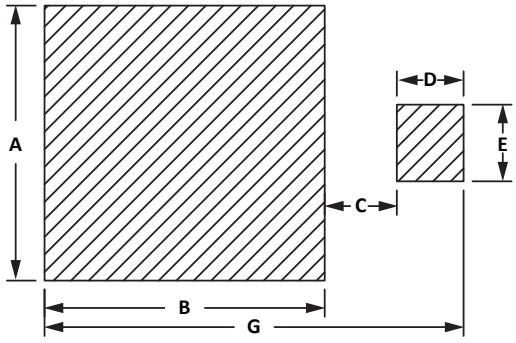
## PACKAGE INFORMATION

| 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 |

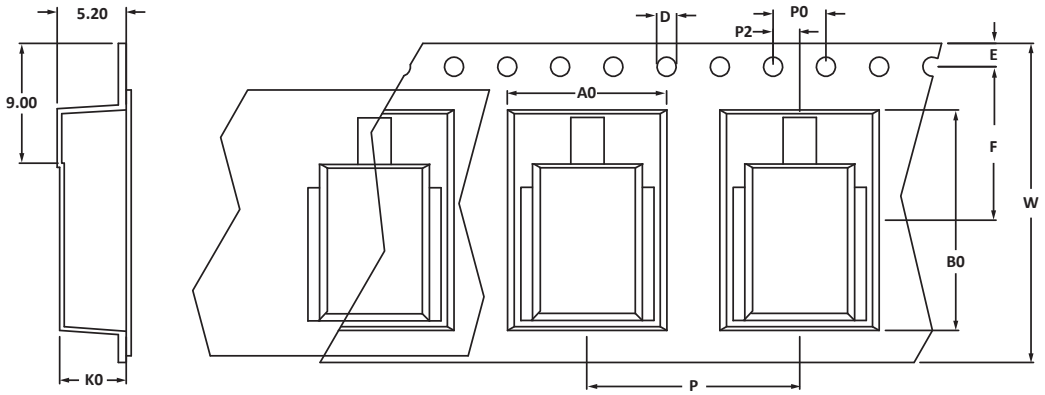
**NOTES**
1. Dimensions are exclusive of mold flash and metal burrs.




| 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**
1. Dimensions are in millimeters.
2. Surface mount product is taped and reeled in accordance with EIA-481.
3. Suffix - T13 = 13" Reel - 750 pieces per 16mm tape.
4. 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 |
| SM6Sxx | N/A | -T13 | 750 | 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 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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