

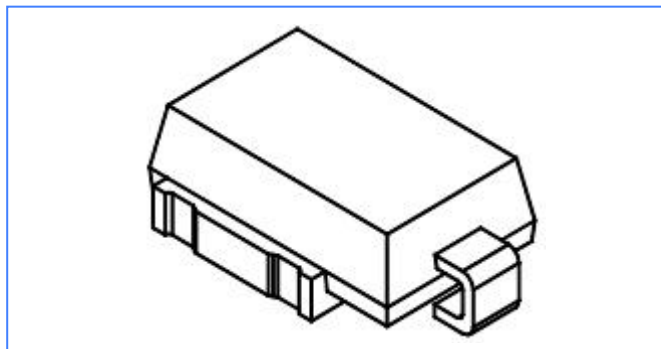
## SM8S Series

### Features

- Optimal Design of Passivation Anisotropic Rectifier Technology
- $T_J = 175^\circ\text{C}$  capability suitable for high reliability and automotive requirement
- 6600 W peak pulse power capability with a 10/1000 $\mu\text{s}$  waveform, repetitive rate (duty cycle):0.01 %
- Meet ISO 7637-2 5a/5b and ISO 16750 load dump test (varied by test condition)
- Low leakage
- Uni-directional polarity
- Low forward voltage drop
- Excellent clamping capability
- Very fast response time
- AEC-Q101 qualified
- RoHS compliant

### Mechanical Data

- Case: DO-218AB
- Epoxy: UL 94V-0 rate flame retardant
- Polarity: Heatsink is anode



DO-218AB

### Maximum Ratings (TA=25°C unless otherwise noted)

| Parameter   | Symbol        | Value          | Unit             |
|---|---------------|----------------|------------------|
| Peak power dissipation with a 10/1000 $\mu\text{s}$ waveform <sup>1</sup>       | $P_{PP}$      | 6600           | Watts            |
| Peak power dissipation with a 10/10,000 $\mu\text{s}$ waveform                  | $P_{PP}$      | 5200           | W                |
| Peak pulse current with a 10/1000 $\mu\text{s}$ waveform                        | $I_{pp}$      | See Next Table | A                |
| Power dissipation on infinite heatsink at $T_L = 25^\circ\text{C}$ <sup>1</sup> | $P_D$         | 8              | W                |
| Peak forward surge current 8.3 ms single half sine-                             | $I_{FSM}$     | 700            | A                |
| Operating junction and storage temperature range                                | $T_J T_{STG}$ | -55 to +175    | $^\circ\text{C}$ |

Note:

1. Non-repetitive current pulse per Fig.2 and derated above  $T_A = 25^\circ\text{C}$  per Fig.1

### Electrical Characteristics (TA = 25 °C unless otherwise noted)

| Part Number (Bi) | Part Number (Uni) | Reverse Stand off Voltage $V_R$ (Volts) | Breakdown Voltage $V_{BR}$ (Volts)@ $I_T$ |        | Test Current $I_T$ (mA) | Maximum Reverse Leakage $I_R@V_R$ ( $\mu\text{A}$ ) | Maximum $I_R@V_{RWM}$ $T_J=175$ ( $\mu\text{A}$ ) | Maximum Peak Pulse Current $I_{pp}$ (A) | Maximum Clamping Voltage $V_C$ @ $I_{pp}$ (V) |
|------------------|-------------------|---|---|--------|-------------------------|---|---|---|---|
|                  |                   |   | Min .V                                    | Max .V |                         |   |   |   |   |
| SM8S18CA         | SM8S18A           | 18                                      | 20.00                                     | 22.10  | 5                       | 10  | 150   | 226.0                                   | 29.2  |
| SM8S22CA         | SM8S22A           | 22                                      | 24.40                                     | 26.90  | 5                       | 10  | 150   | 186.0                                   | 35.5  |
| SM8S24CA         | SM8S24A           | 24                                      | 26.70                                     | 29.50  | 5                       | 10  | 150   | 170.0                                   | 38.9  |
| SM8S26CA         | SM8S26A           | 26                                      | 28.90                                     | 31.90  | 5                       | 10  | 150   | 157.0                                   | 42.1  |
| SM8S28CA         | SM8S28A           | 28                                      | 31.10                                     | 34.40  | 5                       | 10  | 150   | 145.0                                   | 45.4  |
| SM8S33CA         | SM8S33A           | 33                                      | 36.70                                     | 40.60  | 5                       | 10  | 150   | 124.0                                   | 53.3  |
| SM8S36CA         | SM8S36A           | 36                                      | 40.00                                     | 44.20  | 5                       | 10  | 150   | 114.0                                   | 58.1  |

Rating & Characteristic Curves

Figure 1- Pulse Derating Curve

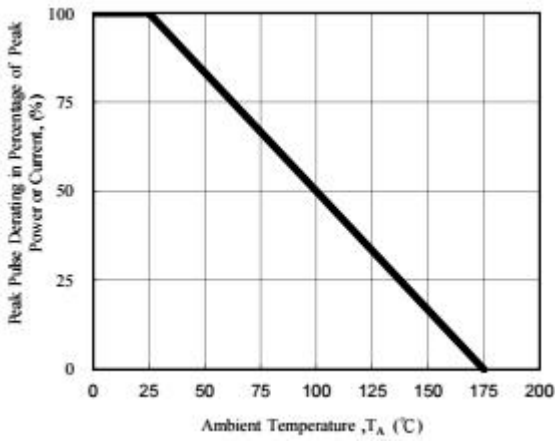


Figure 2- Pulse Waveform

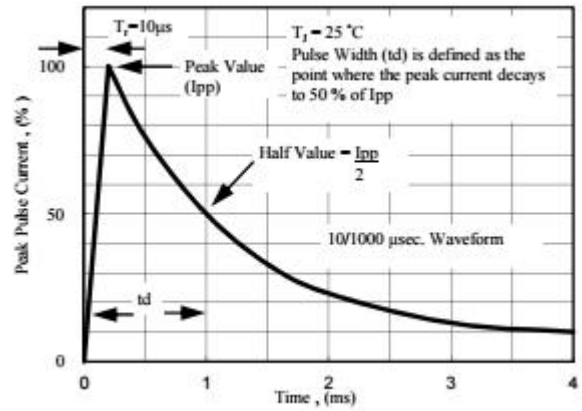


Figure 3- Steady State Power Derating Curve

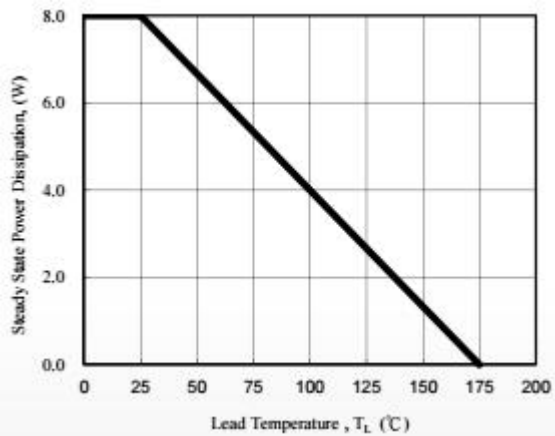
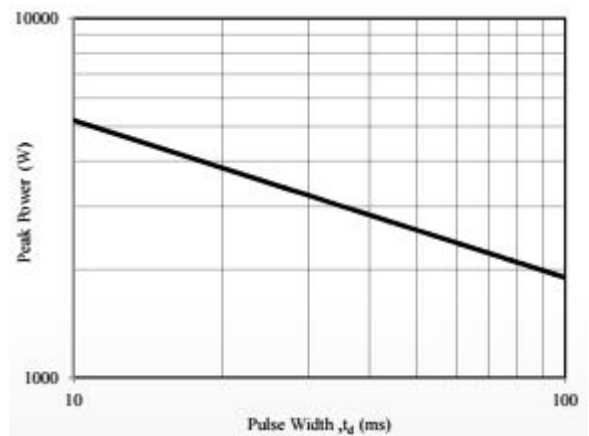
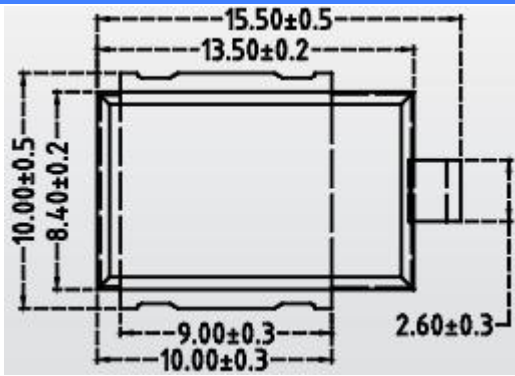


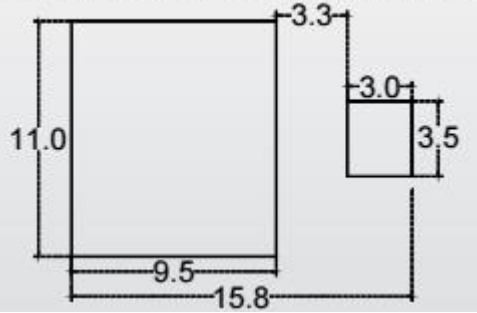
Figure 4- Peak Pulse Power Rating Curve



**PACKAGE OUTLINE DIMENSIONS in inches (millimeters)**



Recommended Mounting Pad Layout



**Disclaimer**

Specifications are subject to change without notice.  
 The device characteristics and parameters in this data sheet can and do vary in different applications and actual device performance may vary over time.  
 Users should verify actual device performance in their specific applications.

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