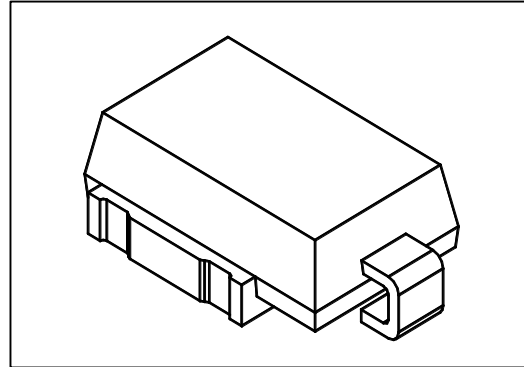


**Working Voltage: 10 to 43 V**  
**Peak Pulse Power: 3600 W**

## Surface Mount Transient Voltage Suppressors

### Features

- Optimized glass passivated chip
- $T_J = 175\text{ }^{\circ}\text{C}$  capability suitable for high reliability and automotive requirement
- 3600 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)
- AEC-Q101 qualified
- Low leakage current
- Low forward voltage drop
- Uni-directional polarity
- Excellent clamping capability
- Very fast response time
- RoHS compliant



DO-218AB

### Mechanical Data

- Case: DO-218AB
- Molding compound: UL94V-0 flammability
- Polarity: Heatsink is anode

### Maximum Ratings( $T_A=25^{\circ}\text{C}$ unless otherwise noted)

| Parameter                                                                    | Symbol         | Value          | Unit               |
|------------------------------------------------------------------------------|----------------|----------------|--------------------|
| Peak power dissipation with a 10/1000 $\mu\text{s}$ waveform <sup>(1)</sup>  | $P_{PP}$       | 3600           | W                  |
| Peak power dissipation with a 10/10,000 $\mu\text{s}$ waveform               | $P_{PP}$       | 2800           | W                  |
| Peak pulse current with a 10/1000 $\mu\text{s}$ waveform <sup>(1)</sup>      | $I_{PP}$       | See Next Table | A                  |
| Power dissipation on infinite heatsink at $T_L = 25\text{ }^{\circ}\text{C}$ | $P_D$          | 5.0            | W                  |
| Peak forward surge current 8.3 ms single half sine-wave                      | $I_{FSM}$      | 500            | 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  $T_A = 25\text{ }^{\circ}\text{C}$  per Fig.1

**Ratings and Characteristics Curves ( $T_A=25^\circ\text{C}$  unless otherwise noted)**

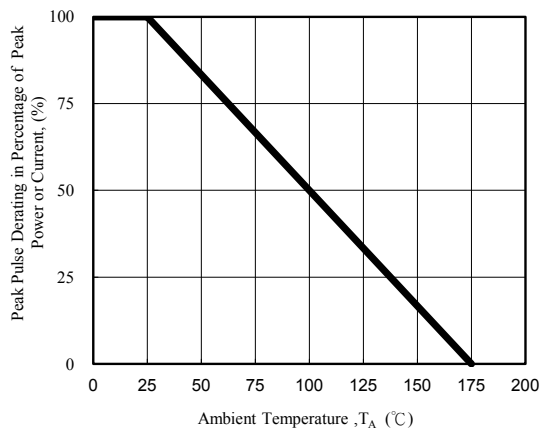


Fig. 1 - Pulse Derating Curve

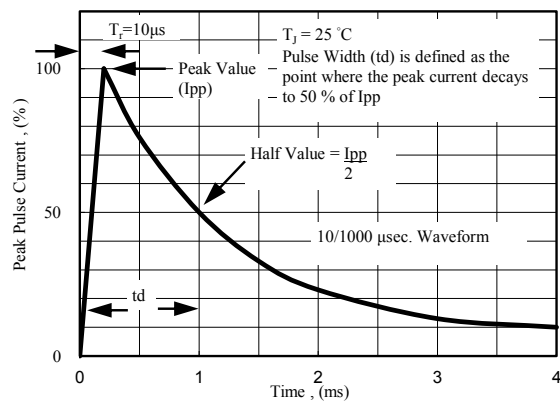


Fig. 2 - Pulse Waveform

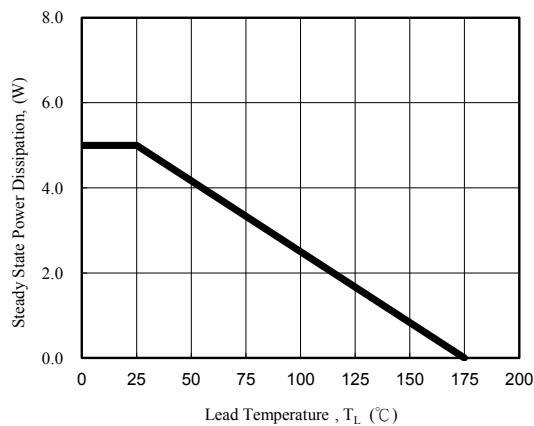


Fig. 3 - Steady State Power Derating Curve

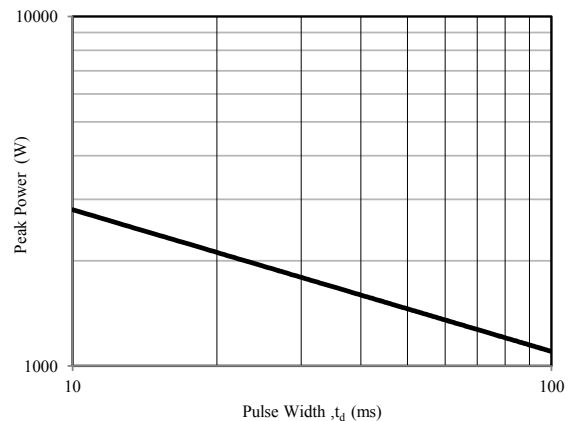
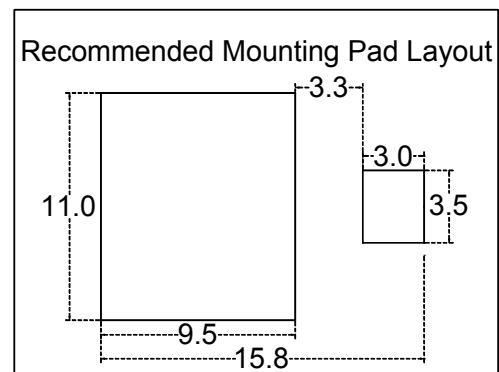
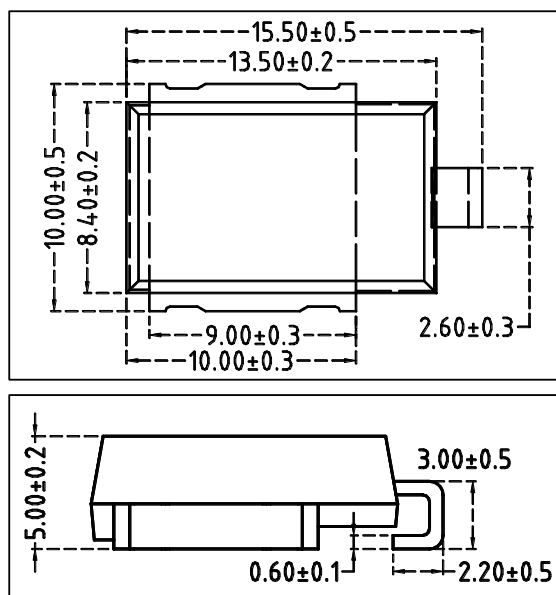


Fig. 4 - Peak Pulse Power Rating Curve

**Package Outline Dimensions (millimeters)**



## Electrical Characteristics( $T_A=25^{\circ}\text{C}$ unless otherwise noted)

| Part Number<br>(Uni) | Breakdown Voltage $V_{BR}$ @ $I_T$ |         |            | Maximum<br>Reverse<br>Leakage $I_R$<br>@ $V_{RWM}$ (uA) | Maximum<br>$I_R$ @ $V_{RWM}$<br>$T_J=175$<br>(uA) | Working<br>Peak Reverse<br>Voltage $V_{RWM}$<br>(V) | Maximum<br>Reverse<br>Surge<br>Current $I_{PP}$<br>(A) <sup>(1)</sup> | Maximum<br>Clamping<br>Voltage<br>$V_C$ @ $I_{PP}$ (V) |
|----------------------|------------------------------------|---------|------------|---------------------------------------------------------|---------------------------------------------------|-----------------------------------------------------|-----------------------------------------------------------------------|--------------------------------------------------------|
|                      | Min (V)                            | Max (V) | $I_T$ (mA) |                                                         |                                                   |                                                     |                                                                       |                                                        |
| SM5Z10A              | 11.1                               | 12.3    | 5.0        | 15                                                      | 250                                               | 10                                                  | 212                                                                   | 17.0                                                   |
| SM5Z11A              | 12.2                               | 13.5    | 5.0        | 10                                                      | 150                                               | 11                                                  | 198                                                                   | 18.2                                                   |
| SM5Z12A              | 13.3                               | 14.7    | 5.0        | 10                                                      | 150                                               | 12                                                  | 181                                                                   | 19.9                                                   |
| SM5Z13A              | 14.4                               | 15.9    | 5.0        | 10                                                      | 150                                               | 13                                                  | 167                                                                   | 21.5                                                   |
| SM5Z14A              | 15.6                               | 17.2    | 5.0        | 10                                                      | 150                                               | 14                                                  | 155                                                                   | 23.2                                                   |
| SM5Z15A              | 16.7                               | 18.5    | 5.0        | 10                                                      | 150                                               | 15                                                  | 148                                                                   | 24.4                                                   |
| SM5Z16A              | 17.8                               | 19.7    | 5.0        | 10                                                      | 150                                               | 16                                                  | 138                                                                   | 26.0                                                   |
| SM5Z17A              | 18.9                               | 20.9    | 5.0        | 10                                                      | 150                                               | 17                                                  | 130                                                                   | 27.6                                                   |
| SM5Z18A              | 20.0                               | 22.1    | 5.0        | 10                                                      | 150                                               | 18                                                  | 123                                                                   | 29.2                                                   |
| SM5Z20A              | 22.2                               | 24.5    | 5.0        | 10                                                      | 150                                               | 20                                                  | 111                                                                   | 32.4                                                   |
| SM5Z22A              | 24.4                               | 26.9    | 5.0        | 10                                                      | 150                                               | 22                                                  | 101                                                                   | 35.5                                                   |
| SM5Z24A              | 26.7                               | 29.5    | 5.0        | 10                                                      | 150                                               | 24                                                  | 93                                                                    | 38.9                                                   |
| SM5Z26A              | 28.9                               | 31.9    | 5.0        | 10                                                      | 150                                               | 26                                                  | 86                                                                    | 42.1                                                   |
| SM5Z28A              | 31.1                               | 34.4    | 5.0        | 10                                                      | 150                                               | 28                                                  | 79                                                                    | 45.4                                                   |
| SM5Z30A              | 33.3                               | 36.8    | 5.0        | 10                                                      | 150                                               | 30                                                  | 74                                                                    | 48.4                                                   |
| SM5Z33A              | 36.7                               | 40.6    | 5.0        | 10                                                      | 150                                               | 33                                                  | 68                                                                    | 53.3                                                   |
| SM5Z36A              | 40.0                               | 44.2    | 5.0        | 10                                                      | 150                                               | 36                                                  | 62                                                                    | 58.1                                                   |
| SM5Z40A              | 44.4                               | 49.1    | 5.0        | 10                                                      | 150                                               | 40                                                  | 56                                                                    | 64.5                                                   |
| SM5Z43A              | 47.8                               | 52.8    | 5.0        | 10                                                      | 150                                               | 43                                                  | 52                                                                    | 69.4                                                   |

### NOTE:

1. Surge current waveform is defined at 10/1000uS waveform

2. For all types maximum VF = 2.0 V at IF = 100 A measured on 8.3 ms single half sine-wave or equivalent square wave, duty cycle = 4 pulses per minute maximum