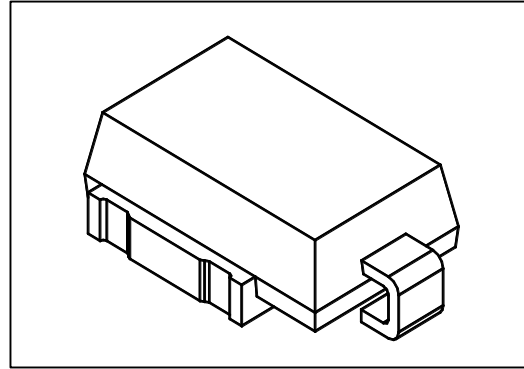


Working Voltage: 10 to 43 V
Peak Pulse Power: 3600 W

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

| Parameter | Symbol | Value | Unit |
|---|----------------|----------------|------------------|
| Peak power dissipation with a 10/1000 μs waveform ⁽¹⁾ | P_{PP} | 3600 | W |
| Peak power dissipation with a 10/10,000 μs waveform | P_{PP} | 2800 | W |
| Peak pulse current with a 10/1000 μs waveform ⁽¹⁾ | 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)

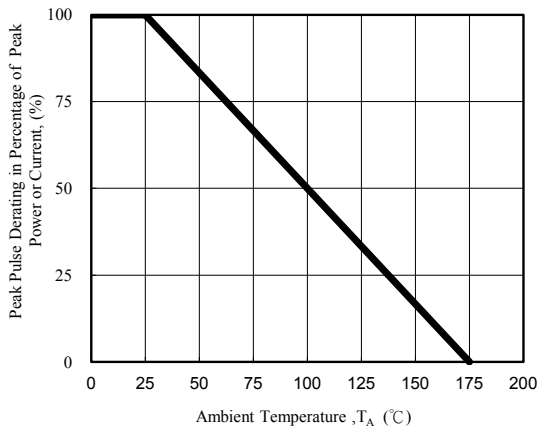


Fig. 1 - Pulse Derating Curve

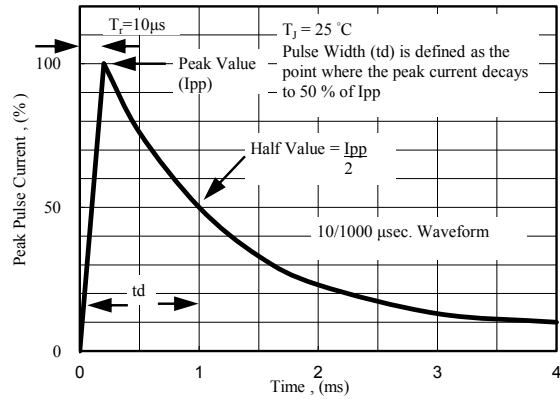


Fig. 2 - Pulse Waveform

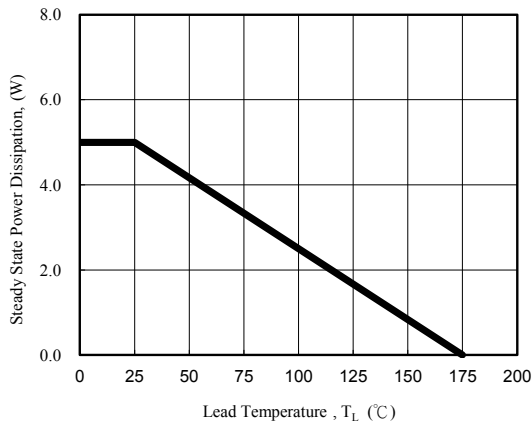


Fig. 3 - Steady State Power Derating Curve

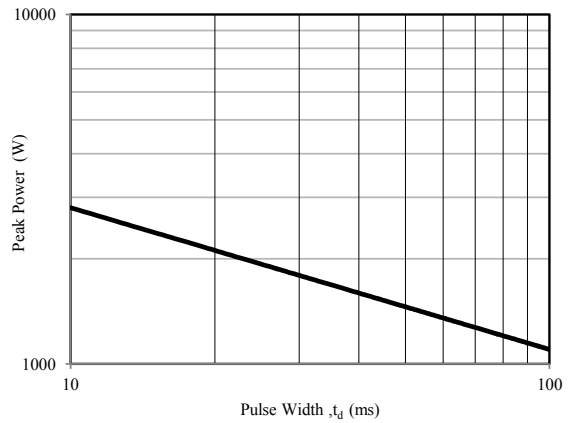
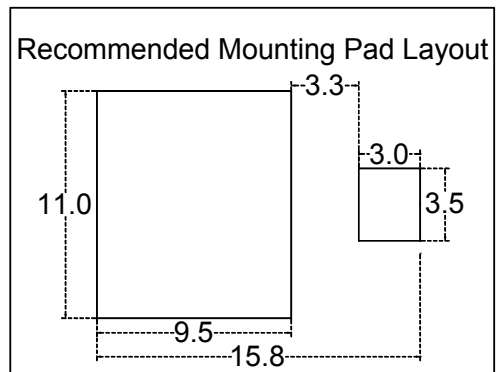
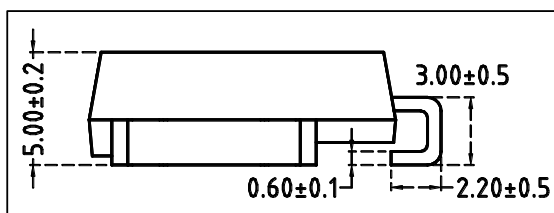
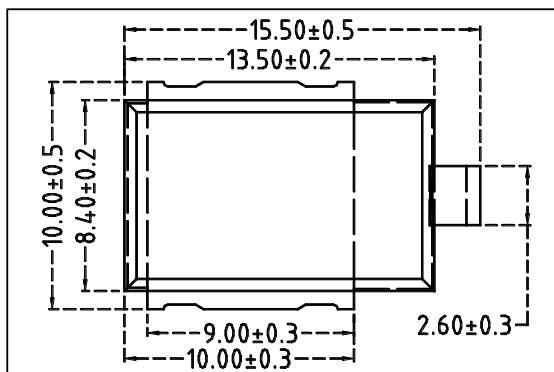


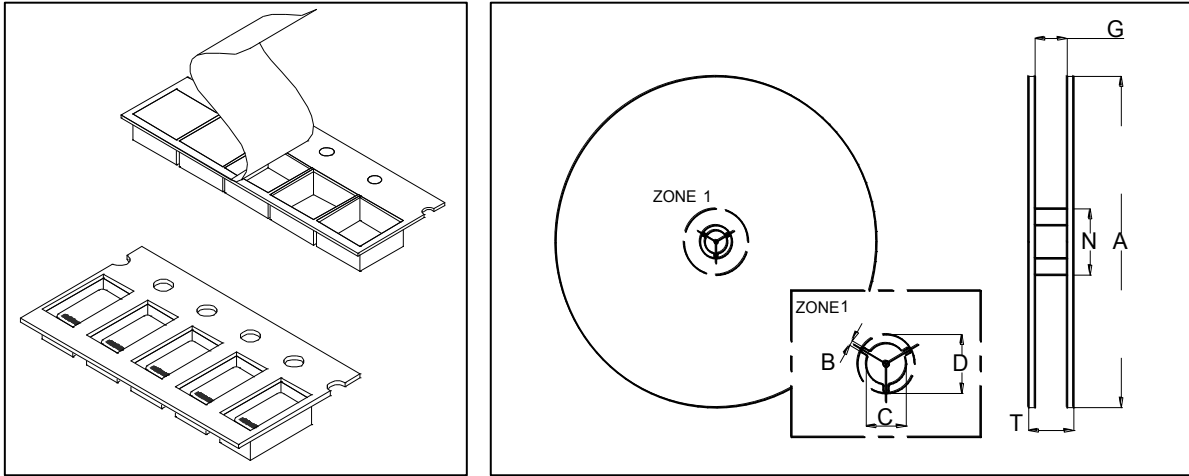
Fig. 4 - Peak Pulse Power Rating Curve

Package Outline Dimensions (millimeters)





Surface Mount Tape and Reel Packaging



Dimensions in Millimeters (inches)

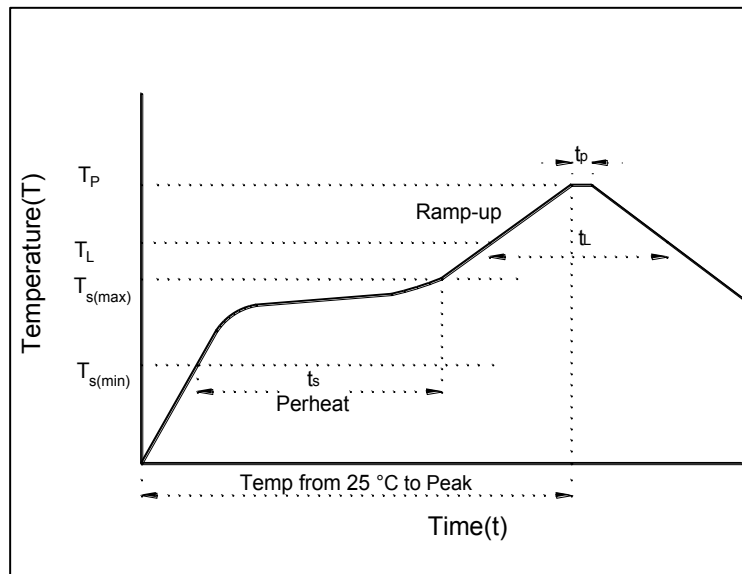
| TAPE SIZE | A MAX. | B MIN. | C | D MIN. | N MIN. | G MAX. | T MAX. |
|---------------|---|-------------|------------------------------|-----------------|-----------|--------------|-----------------|
| 24 mm (0.945) | 330 ± 2.0 (13.0 ± 0.079) 178 ± 2.0 (7.0 ± 0.079) | 1.5 (0.059) | 13.5 ± 0.50 (0.53 ± 0.02) | 20.2 (0.795) | 50 (1.97) | 26.4 (1.039) | 30.4 (1.197) |

Recommended Soldering Parameters

| IR-Reflow Condition | | | |
|--------------------------|------------------|--------|--------|
| Pre Heat | Temp. min | 150 | °C |
| | Temp. max | 200 | °C |
| | Time(min to max) | 60-180 | sec |
| Ramp up rate (150-200°C) | | <3 | °C/sec |

| | | | |
|-------------------------------|--------------------|--------|--------|
| Reflow | Liquidus Temp. | >220 | °C |
| | Peak Temp. | 245 | °C |
| | Time(Liq. to Peak) | 60-150 | sec |
| Ramp up rate (220-200°C) | | <3 | °C/sec |
| Time within actual peak temp. | | 10-30 | sec |

| | | |
|--------------------------|-----|--------|
| Ramp down Rate | <5 | °C/sec |
| Time(25°C to Peak temp.) | <6 | min |
| Do not exceed | 280 | °C |





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

| Part Number (Uni) | Breakdown Voltage V_{BR} @ I_T | | | Maximum Reverse Leakage I_R @ V_{RWM} (μA) | Maximum I_R @ V_{RWM} $T_J=175$ (μA) | Working Peak Reverse Voltage V_{RWM} (V) | Maximum Reverse Surge Current I_{PP} (A) ⁽¹⁾ | Maximum Clamping Voltage V_C @ I_{PP} (V) |
|----------------------|------------------------------------|---------|------------|--|--|---|---|--|
| | Min (V) | Max (V) | I_T (mA) | | | | | |
| SM5S10A | 11.1 | 12.3 | 5.0 | 15 | 250 | 10 | 212 | 17.0 |
| SM5S11A | 12.2 | 13.5 | 5.0 | 10 | 150 | 11 | 198 | 18.2 |
| SM5S12A | 13.3 | 14.7 | 5.0 | 10 | 150 | 12 | 181 | 19.9 |
| SM5S13A | 14.4 | 15.9 | 5.0 | 10 | 150 | 13 | 167 | 21.5 |
| SM5S14A | 15.6 | 17.2 | 5.0 | 10 | 150 | 14 | 155 | 23.2 |
| SM5S15A | 16.7 | 18.5 | 5.0 | 10 | 150 | 15 | 148 | 24.4 |
| SM5S16A | 17.8 | 19.7 | 5.0 | 10 | 150 | 16 | 138 | 26.0 |
| SM5S17A | 18.9 | 20.9 | 5.0 | 10 | 150 | 17 | 130 | 27.6 |
| SM5S18A | 20.0 | 22.1 | 5.0 | 10 | 150 | 18 | 123 | 29.2 |
| SM5S20A | 22.2 | 24.5 | 5.0 | 10 | 150 | 20 | 111 | 32.4 |
| SM5S22A | 24.4 | 26.9 | 5.0 | 10 | 150 | 22 | 101 | 35.5 |
| SM5S24A | 26.7 | 29.5 | 5.0 | 10 | 150 | 24 | 93 | 38.9 |
| SM5S26A | 28.9 | 31.9 | 5.0 | 10 | 150 | 26 | 86 | 42.1 |
| SM5S28A | 31.1 | 34.4 | 5.0 | 10 | 150 | 28 | 79 | 45.4 |
| SM5S30A | 33.3 | 36.8 | 5.0 | 10 | 150 | 30 | 74 | 48.4 |
| SM5S33A | 36.7 | 40.6 | 5.0 | 10 | 150 | 33 | 68 | 53.3 |
| SM5S36A | 40.0 | 44.2 | 5.0 | 10 | 150 | 36 | 62 | 58.1 |
| SM5S40A | 44.4 | 49.1 | 5.0 | 10 | 150 | 40 | 56 | 64.5 |
| SM5S43A | 47.8 | 52.8 | 5.0 | 10 | 150 | 43 | 52 | 69.4 |

NOTE:

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

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