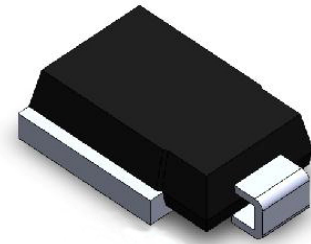


» Features

- » Excellent clamping capability
- » Low leakage current
- » Low capacitance
- » High surge capability
- » Glass passivated chip
- » Epoxy resin package
- » Will not fatigue
- » RoHS Compliant

- Meets ISO7637-2、16750-2 surge specification
- ISO 7637-2 P5a:
 - 12V System (65-87V 0.5-4Ω 40-400ms)
 - 24V System (123-174V 1-8Ω 100-350ms)



DO-218 (DO-218AB)

»Mechanical Characteristics

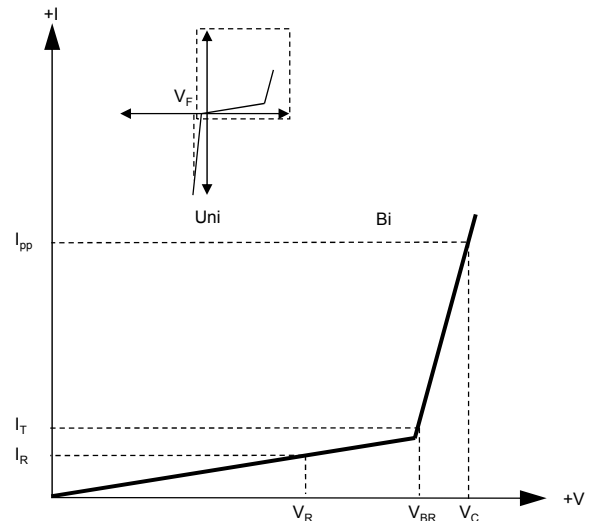
- Package: DO-218 plastic package.
- Lead Finish: Matte Tin
- Case Material: Epoxy Molding Compound.
- UL Flammability Classification Rating 94V-0
- Moisture Sensitivity: Level 1 per J-STD-020

»Applications

- Auto powers system
- Can-bus
- ABS powers
- Automotive instrument
- Car GPS

»Electrical Parameters

| Parameter | Definition |
|-----------|--|
| C_J | Junction Capacitance - typical capacitance measured with 0V or V_R bias |
| I_{PP} | Peak Pulse Current - maximum rated peak impulse current |
| V_C | Clamping Voltage - Peak voltage measured across the suppressor at a specified I_{ppm} (peak impulse current) |
| V_{BR} | Breakdown Voltage - Maximum voltage that flows through the TVS at a specified test current (I_T) |
| I_R | Leakage Current - maximum peak off-state current measured at V_R |
| V_R | Peak Off-state Voltage - maximum voltage that can be applied while maintaining off state |


»Summary of Packing Options

| Package | Packing Description | Packing Quantity | Industry Standard |
|---------|---------------------|------------------|-------------------|
| DO-218 | Tape/Reel, 13" reel | 750 | EIA-481-1 |
| | Tape/Reel, 7" reel | 150 | EIA-481-1 |

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

| Parameter | Symbol | Value | Units | Remarks |
|--|-----------------|------------|----------------------|---------|
| Peak Pulse Power Dissipation | P_{PPM} | 6600 | W | (Note1) |
| Peak Pulse Power Dissipation | P_{PPM1} | 5200 | W | (Note2) |
| Steady State Power Dissipation | P_D | 8 | W | (Note3) |
| Peak Forward Surge Current | I_{FSM} | 700 | A | (Note4) |
| Maximum Instantaneous Forward Voltage at 100A | V_{FM} | 3.5 | V | |
| Typical Thermal Resistance Junction to Case | $R_{\theta JC}$ | 0.9 | $^{\circ}\text{C/W}$ | |
| Typical Thermal Resistance Junction to Ambient | $R_{\theta JA}$ | 11 | $^{\circ}\text{C/W}$ | |
| Operating Temperature Range | T_J | -55 to 175 | $^{\circ}\text{C}$ | |
| Storage Temperature Range | T_{STG} | -55 to 175 | $^{\circ}\text{C}$ | |

Notes1: Non-repetitive current pulse , 10/1000us Waveform.

Notes2: Non-repetitive current pulse , 10/10000us Waveform.

Notes3: Infinite Heat Sink at $T_A=50^{\circ}\text{C}$.

Notes4: Measured on 8.3ms single half sine wave or equivalent square wave, duty cycle=4 per minute maximum.

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

| Part Number | Reverse Stand-off Voltage V_R (V) | Breakdown Voltage V_{BR} @ I_T (V) | | Test Current I_T (mA) | Maximum Clamping Voltage V_C @ I_{PP} (V) | Maximum Peak Pulse Current I_{PP} (A) | Maximum Reverse Leakage I_R @ V_R (μA) |
|-------------|-------------------------------------|--|------|-------------------------|---|---|---|
| | | Min | Max | | | | |
| SM8S10A | 10 | 11.1 | 12.3 | 5 | 17 | 388 | 15 |
| SM8S11A | 11 | 12.2 | 13.5 | 5 | 18.2 | 363 | 10 |
| SM8S12A | 12 | 13.3 | 14.7 | 5 | 19.9 | 332 | 10 |
| SM8S13A | 13 | 14.4 | 15.9 | 5 | 21.5 | 307 | 10 |
| SM8S14A | 14 | 15.6 | 17.2 | 5 | 23.2 | 284 | 10 |
| SM8S15A | 15 | 16.7 | 18.5 | 5 | 24.4 | 270 | 10 |
| SM8S16A | 16 | 17.8 | 19.7 | 5 | 26 | 254 | 10 |
| SM8S17A | 17 | 18.9 | 20.9 | 5 | 27.6 | 239 | 10 |
| SM8S18A | 18 | 20 | 22.1 | 5 | 29.2 | 226 | 10 |
| SM8S20A | 20 | 22.2 | 24.5 | 5 | 32.4 | 204 | 10 |
| SM8S22A | 22 | 24.4 | 26.9 | 5 | 35.5 | 186 | 10 |
| SM8S24A | 24 | 26.7 | 29.5 | 5 | 38.9 | 170 | 10 |
| SM8S26A | 26 | 28.9 | 31.9 | 5 | 42.1 | 157 | 10 |
| SM8S28A | 28 | 31.1 | 34.4 | 5 | 45.4 | 145 | 10 |
| SM8S30A | 30 | 33.3 | 36.8 | 5 | 48.4 | 136 | 10 |
| SM8S33A | 33 | 36.7 | 40.6 | 5 | 53.3 | 124 | 10 |
| SM8S36A | 36 | 40 | 44.2 | 5 | 58.1 | 114 | 10 |
| SM8S40A | 40 | 44.4 | 49.1 | 5 | 64.5 | 102 | 10 |
| SM8S43A | 43 | 47.8 | 52.8 | 5 | 69.4 | 95.1 | 10 |

»Rating And Characteristic Curves ($T_A=25^\circ\text{C}$ unless otherwise noted)

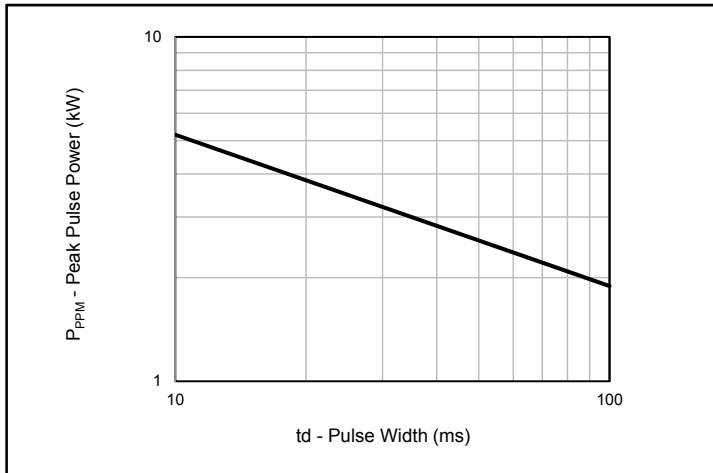


Fig.1 - Peak Pulse Power Rating

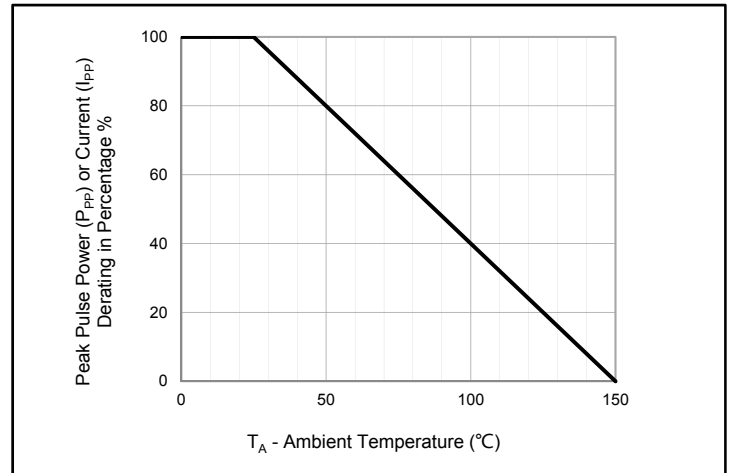


Fig.2 - Pulse Derating Curve

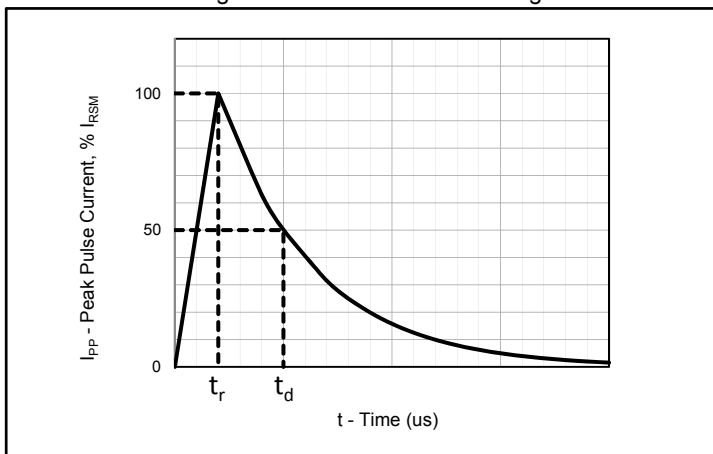


Fig.3 - Pulse Waveform

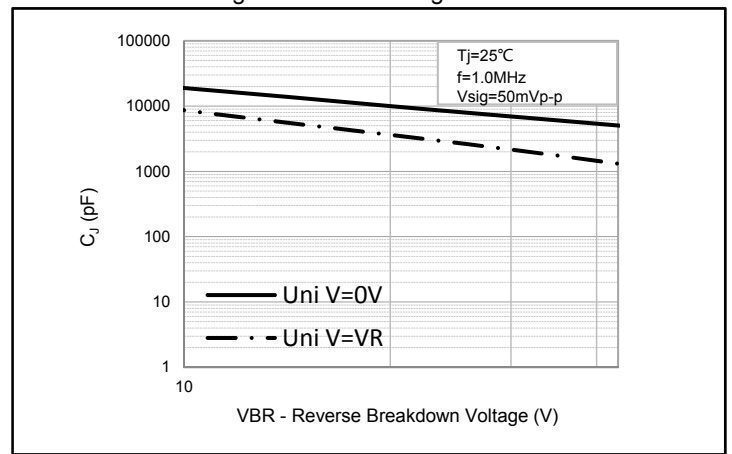


Fig.4 - Typical Junction Capacitance

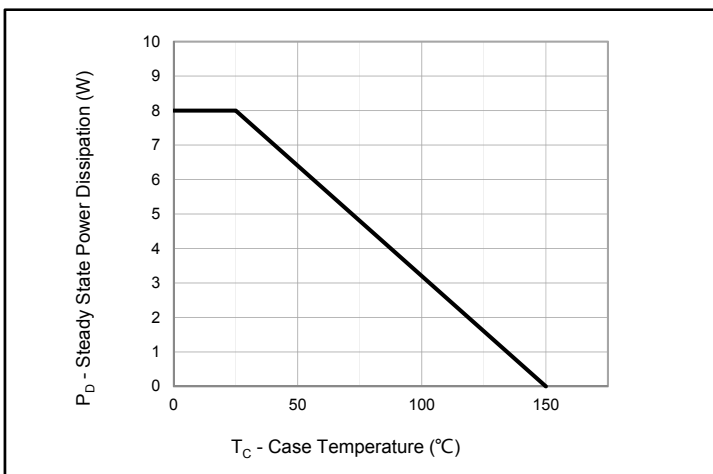


Fig.5 - Steady State Power Dissipation Derating Curve

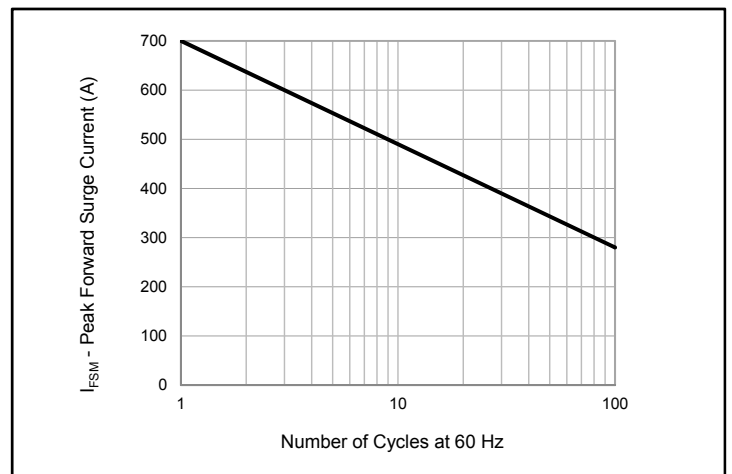
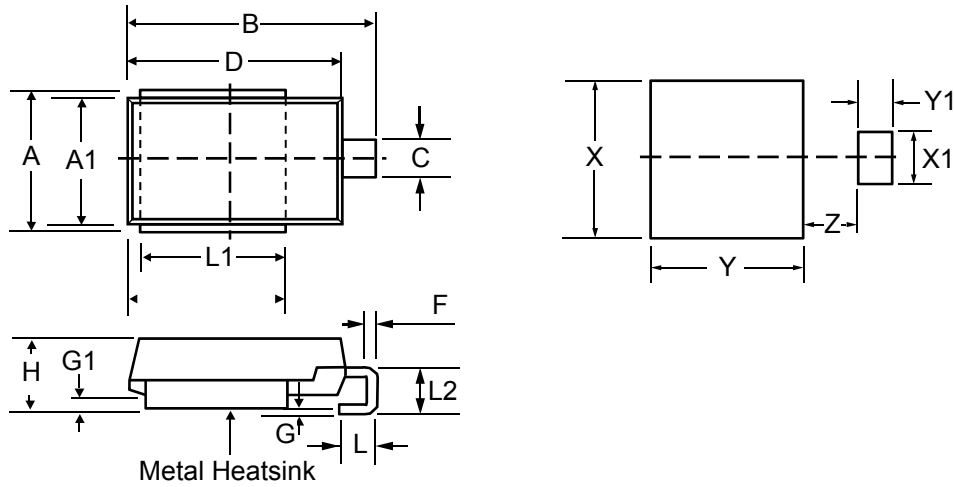


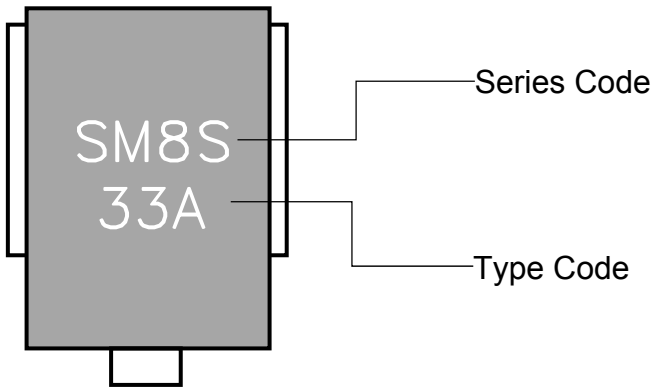
Fig.6 - Maximum Non-Repetitive Peak Forward Surge Current

»Package Dimensions

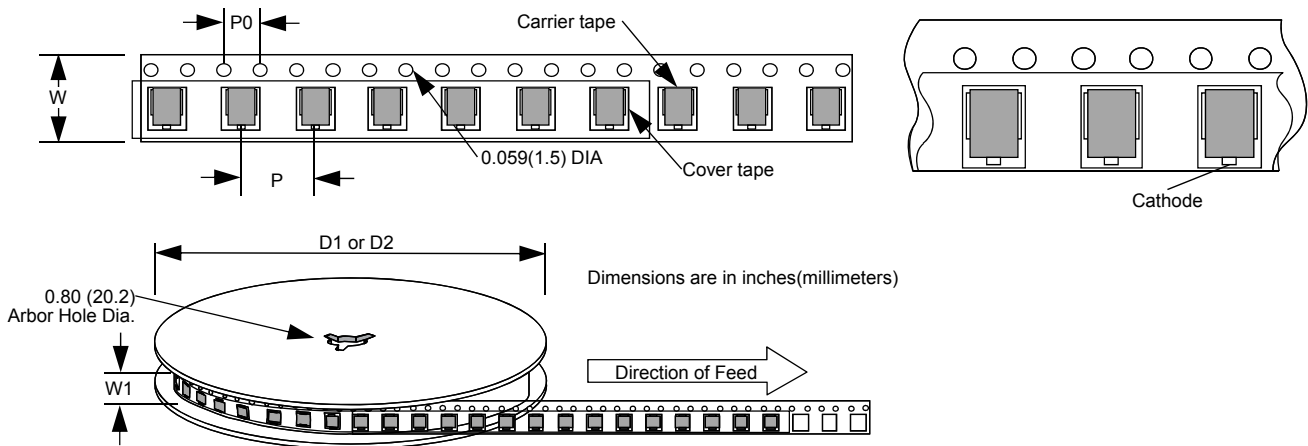


| DO-218 | | | | | | |
|-----------|--------|-------|-------|-------------|------|------|
| Dimension | Inches | | | Millimeters | | |
| | MIN | NOM | MAX | MIN | NOM | MAX |
| A | 0.374 | 0.394 | 0.413 | 9.5 | 10 | 10.5 |
| A1 | 0.327 | 0.335 | 0.343 | 8.3 | 8.5 | 8.7 |
| B | 0.591 | 0.614 | 0.63 | 15 | 15.6 | 16 |
| C | 0.094 | 0.106 | 0.118 | 2.4 | 2.7 | 3 |
| D | 0.524 | 0.531 | 0.539 | 13.3 | 13.5 | 13.7 |
| F | 0.02 | 0.024 | 0.028 | 0.5 | 0.6 | 0.7 |
| G | - | | 0.008 | - | | 0.2 |
| G1 | | 0.02 | | | 0.5 | |
| H | 0.185 | 0.191 | 0.197 | 4.7 | 4.85 | 5 |
| L | 0.059 | 0.079 | 0.098 | 1.5 | 2 | 2.5 |
| L1 | 0.343 | 0.354 | 0.366 | 8.7 | 9 | 9.3 |
| L2 | 0.098 | 0.118 | 0.138 | 2.5 | 3 | 3.5 |
| X | | 0.394 | | | 10 | |
| Y | | 0.354 | | | 9 | |
| Z | | 0.138 | | | 3.5 | |
| X1 | | 0.106 | | | 2.7 | |
| Y1 | | 0.079 | | | 2 | |

»Marking Code



»Tape and Reel Specification



| Dimension | Inches | | | Millimeters | | |
|-----------|--------|-------|-----|-------------|-------|-----|
| | MIN | NOM | MAX | MIN | NOM | MAX |
| P | | 0.63 | | | 16 | |
| P0 | | 0.157 | | | 4 | |
| W | | 0.945 | | | 24 | |
| W1 | | 0.965 | | | 24.5 | |
| D1 | | 7 | | | 177.8 | |
| D2 | | 13 | | | 330.2 | |