



New Product

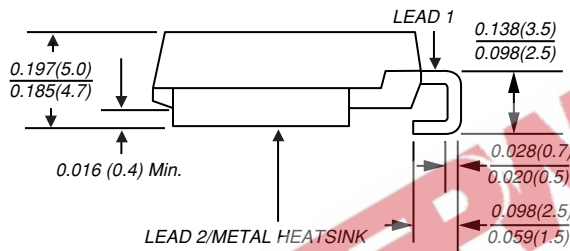
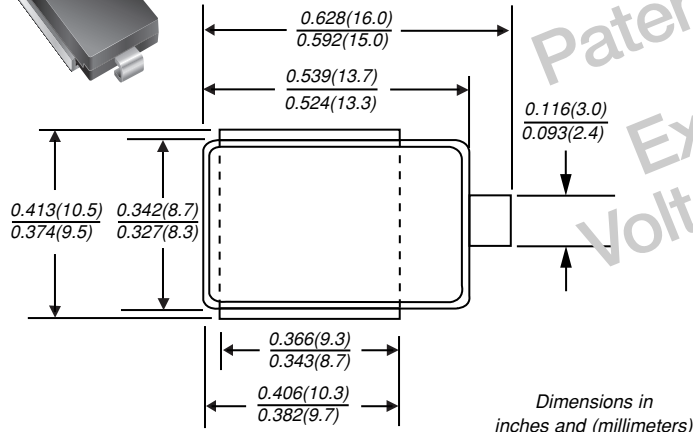
SM8S Series

Vishay Semiconductors
formerly General Semiconductor

Surface Mount Automotive Transient Voltage Suppressors

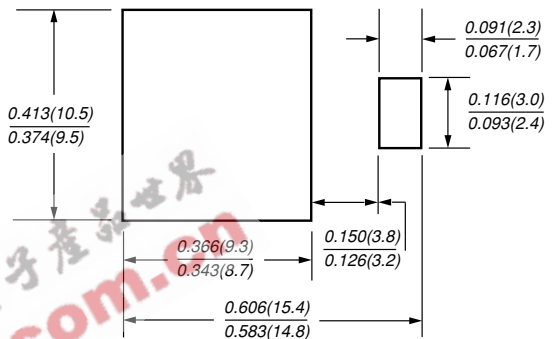


DO-218AB



Stand-off Voltage 10 to 43V
Peak Pulse Power 6600W (10/1000 μ s)
5200W (10/10,000 μ s)

Mounting Pad Layout



*Patent #'s:
4,980,315
5,166,769
5,278,095

Features

- Ideally suited for load dump protection
- Plastic package has Underwriters Laboratory Flammability Classification 94V-0
- High temperature stability due to unique oxide passivation and patented PAR[®] construction
- Integrally molded heatsink provides a very low thermal resistance for maximum heat dissipation
- Low leakage current at T_J = 175°C
- High temperature soldering guaranteed: 260°C for 10 seconds at terminals
- Meets ISO7637-2 surge spec.
- Low forward voltage drop

Mechanical Data

- Case:** Molded plastic body, surface mount with heatsink integrally mounted in the encapsulation
- Terminals:** Plated, solderable per MIL-STD-750, Method 2026
- Polarity:** Heatsink is anode
- Mounting Position:** Any
- Weight:** 0.091 oz., 2.58 g
- Packaging codes/options:**
2D/750 per 13" Reel (16mm Tape),
anode towards sprocket hole, 4.5K/box
2E/750 per 13" Reel (16mm Tape),
cathode towards sprocket hole, 4.5K/box

Maximum Ratings and Thermal Characteristics (T_C = 25°C unless otherwise noted)

| Parameter | Symbol | Value | Unit |
|--|-----------------------------------|--------------|------|
| Peak pulse power dissipation with 10/1000 μ s waveform 10/10,000 μ s waveform | PPPM | 6600 5200 | W |
| Steady state power dissipation | P _D | 8.0 | W |
| Peak pulse current with a 10/1000 μ s waveform ⁽¹⁾ | I _{PPM} | See Table 1 | A |
| Peak forward surge current, 8.3ms single half sine-wave | I _{FSM} | 700 | A |
| Typical thermal resistance junction to case | R _{θJC} | 0.90 | °C/W |
| Operating junction and storage temperature range | T _J , T _{STG} | -55 to +175 | °C |

Notes: (1) Non-repetitive current pulse derated above T_A=25°C

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Electrical Characteristics (T_C = 25°C unless otherwise noted)

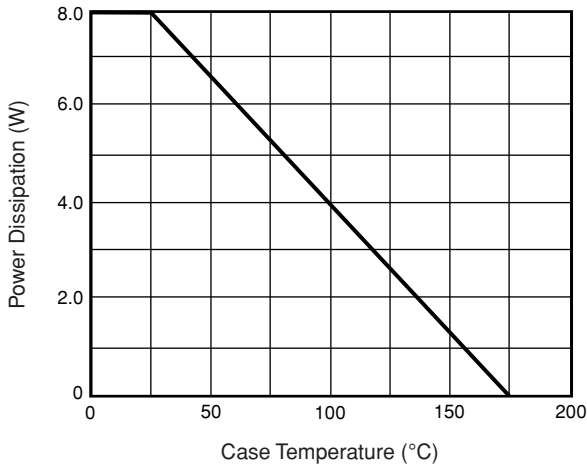
| Device Type | Breakdown Voltage V _(BR) (V) | | Test Current I _T (mA) | Stand-off Voltage V _{WM} (V) | Maximum Reverse Leakage at V _{WM} I _D (μA) | Maximum Reverse Leakage at V _{WM} T _C = 175°C I _D (μA) | Max. Peak Pulse Current at 10/1000μs Waveform (A) | Maximum Clamping Voltage at I _{PPM} V _C (V) |
|-------------|---|------|--|--|---|--|--|--|
| | Min. | Max. | | | | | | |
| SM8S10 | 11.1 | 13.6 | 5.0 | 10 | 15 | 250 | 351 | 18.8 |
| SM8S10A | 11.1 | 12.3 | 5.0 | 10 | 15 | 250 | 388 | 17.0 |
| SM8S11 | 12.2 | 14.9 | 5.0 | 11 | 10 | 150 | 328 | 20.1 |
| SM8S11A | 12.2 | 13.5 | 5.0 | 11 | 10 | 150 | 363 | 18.2 |
| SM8S12 | 13.3 | 16.3 | 5.0 | 12 | 10 | 150 | 300 | 22.0 |
| SM8S12A | 13.3 | 14.7 | 5.0 | 12 | 10 | 150 | 332 | 19.9 |
| SM8S13 | 14.4 | 17.6 | 5.0 | 13 | 10 | 150 | 277 | 23.8 |
| SM8S13A | 14.4 | 15.9 | 5.0 | 13 | 10 | 150 | 307 | 21.5 |
| SM8S14 | 15.6 | 19.1 | 5.0 | 14 | 10 | 150 | 256 | 25.8 |
| SM8S14A | 15.6 | 17.2 | 5.0 | 14 | 10 | 150 | 284 | 23.2 |
| SM8S15 | 16.7 | 20.4 | 5.0 | 15 | 10 | 150 | 245 | 26.9 |
| SM8S15A | 16.7 | 18.5 | 5.0 | 15 | 10 | 150 | 270 | 24.4 |
| SM8S16 | 17.8 | 21.8 | 5.0 | 16 | 10 | 150 | 229 | 28.8 |
| SM8S16A | 17.8 | 19.7 | 5.0 | 16 | 10 | 150 | 254 | 26.0 |
| SM8S17 | 18.9 | 23.1 | 5.0 | 17 | 10 | 150 | 216 | 30.5 |
| SM8S17A | 18.9 | 20.9 | 5.0 | 17 | 10 | 150 | 239 | 27.6 |
| SM8S18 | 20.0 | 24.4 | 5.0 | 18 | 10 | 150 | 205 | 32.2 |
| SM8S18A | 20.0 | 22.1 | 5.0 | 18 | 10 | 150 | 226 | 29.2 |
| SM8S20 | 22.2 | 27.1 | 5.0 | 20 | 10 | 150 | 184 | 35.8 |
| SM8S20A | 22.2 | 24.5 | 5.0 | 20 | 10 | 150 | 204 | 32.4 |
| SM8S22 | 24.4 | 29.8 | 5.0 | 22 | 10 | 150 | 168 | 39.4 |
| SM8S22A | 24.4 | 26.9 | 5.0 | 22 | 10 | 150 | 186 | 35.5 |
| SM8S24 | 26.7 | 32.6 | 5.0 | 24 | 10 | 150 | 153 | 43.0 |
| SM8S24A | 26.7 | 29.5 | 5.0 | 24 | 10 | 150 | 170 | 38.9 |
| SM8S26 | 28.9 | 35.3 | 5.0 | 26 | 10 | 150 | 142 | 46.6 |
| SM8S26A | 28.9 | 31.9 | 5.0 | 26 | 10 | 150 | 157 | 42.1 |
| SM8S28 | 31.1 | 38.0 | 5.0 | 28 | 10 | 150 | 132 | 50.1 |
| SM8S28A | 31.1 | 34.4 | 5.0 | 28 | 10 | 150 | 145 | 45.4 |
| SM8S30 | 33.3 | 40.7 | 5.0 | 30 | 10 | 150 | 123 | 53.5 |
| SM8S30A | 33.3 | 36.8 | 5.0 | 30 | 10 | 150 | 136 | 48.4 |
| SM8S33 | 36.7 | 44.9 | 5.0 | 33 | 10 | 150 | 112 | 59.0 |
| SM8S33A | 36.7 | 40.6 | 5.0 | 33 | 10 | 150 | 124 | 53.3 |
| SM8S36 | 40.0 | 48.9 | 5.0 | 36 | 10 | 150 | 103 | 64.3 |
| SM8S36A | 40.0 | 44.2 | 5.0 | 36 | 10 | 150 | 114 | 58.1 |
| SM8S40 | 44.4 | 54.3 | 5.0 | 40 | 10 | 150 | 92.4 | 71.4 |
| SM8S40A | 44.4 | 49.1 | 5.0 | 40 | 10 | 150 | 102 | 64.5 |
| SM8S43 | 47.8 | 58.4 | 5.0 | 43 | 10 | 150 | 86.0 | 76.7 |
| SM8S43A | 47.8 | 52.8 | 5.0 | 43 | 10 | 150 | 95.1 | 69.4 |

Note: For all types maximum V_F = 1.8V at I_F = 100A measured on 8.3ms single half sine-wave or equivalent square wave, duty cycle = 4 pulses per minute maximum

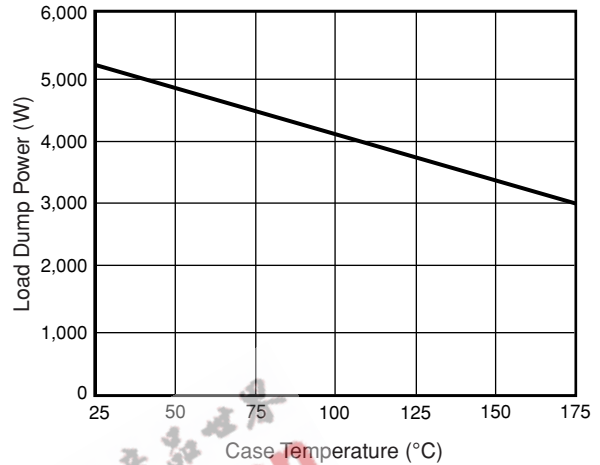


Ratings and Characteristic Curves ($T_A = 25^\circ\text{C}$ unless otherwise noted)

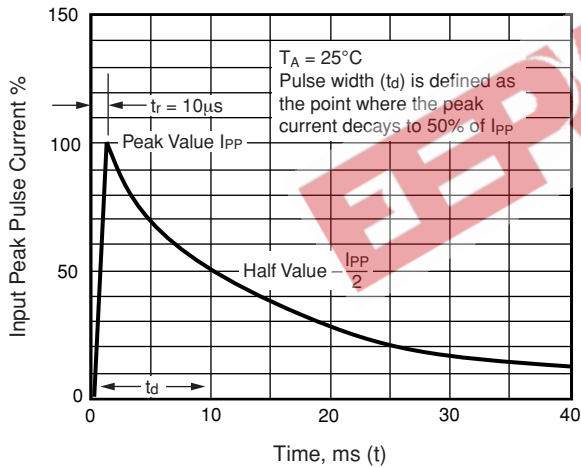
Power Derating Curve



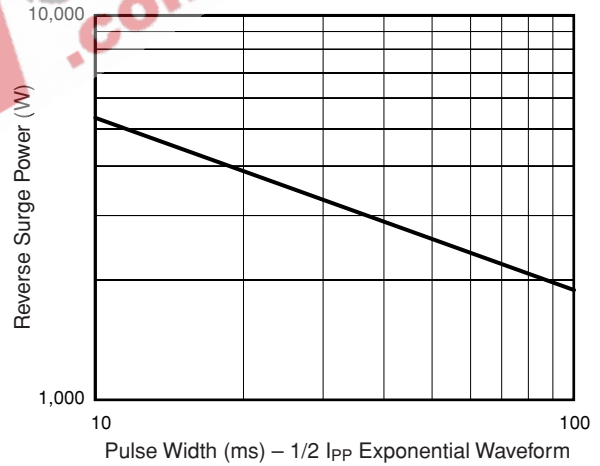
Load Dump Power Characteristics (10ms Exponential Waveform)



Pulse Waveform



Reverse Power Capability



Typical Transient Thermal Impedance

