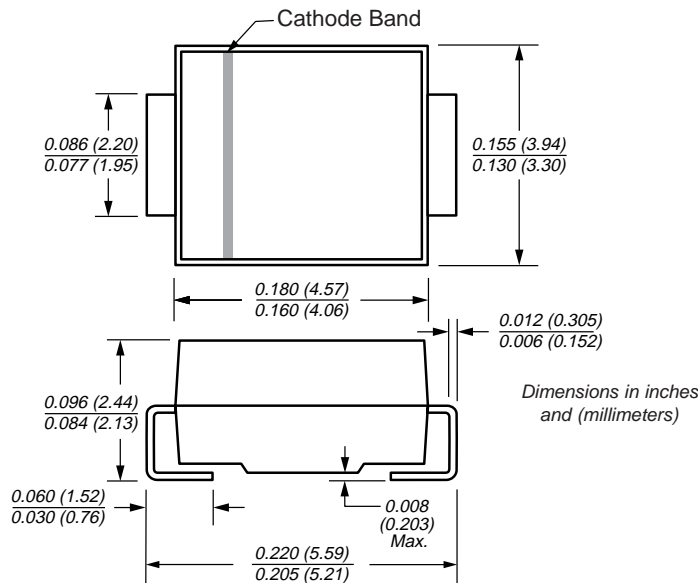




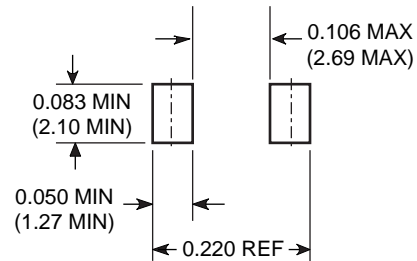
Surface Mount TRANSZORB[®] Transient Voltage Suppressors

DO-214AA (SMBJ)

Breakdown Voltage 6.8 to 220V
Peak Pulse Power 600W



Mounting Pad Layout



Mechanical Data

Case: JEDEC DO-214AA (SMB) molded plastic over passivated junction

Terminals: Solder plated, solderable per MIL-STD-750, Method 2026

Polarity: For uni-directional types the band denotes the cathode, which is positive with respect to the anode under normal TVS operation

Standard Packaging: 12mm tape (EIA STD RS-481)

Weight: 0.003 ounces, 0.093 grams

Packaging Codes – Options (Antistatic):

51 – 2K per Bulk box, 20K/carton

52 – 750 per 7" plastic Reel (12mm tape), 15K/carton

5B – 3.2K per 13" plastic Reel (12mm tape), 32K/carton

Features

- Low profile package with built-in strain relief for surface mounted applications
- Glass passivated junction
- Low inductance
- Excellent clamping capability
- Repetition rate (duty cycle): 0.01%
- Fast response time: theoretically (with no parasitic inductance) less than 1ps from 0 Volts to V_{BR} for unidirectional and 5ns for bidirectional types
- High temperature soldering: 250°C/10 seconds at terminals
- Plastic package has Underwriters Laboratory Flammability Classification 94V-0

Maximum Ratings & Thermal Characteristics

Ratings at 25°C ambient temperature unless otherwise specified.

| Parameter | Symbol | Value | Unit |
|---|-----------------------------------|----------------|------|
| Peak pulse power dissipation on 10/1000µs waveform ⁽¹⁾⁽²⁾ (Fig. 1) | P _{PPM} | Minimum 600 | W |
| Peak pulse current with a 10/1000µs waveform ⁽¹⁾ | I _{PPM} | See Next Table | A |
| Power dissipation on infinite heatsink, T _A = 50°C | P _{M(AV)} | 5.0 | W |
| Peak forward surge current 10ms single half sine-wave uni-directional only ⁽²⁾ | I _{FSM} | 100 | A |
| Thermal resistance junction to ambient air ⁽³⁾ | R _{θJA} | 100 | °C/W |
| Thermal resistance junction to leads | R _{θJL} | 20 | °C/W |
| Operating junction and storage temperature range | T _J , T _{STG} | -65 to +150 | °C |

Notes: (1) Non-repetitive current pulse, per Fig.3 and derated above T_A = 25°C per Fig. 2

(2) Mounted on 0.2 x 0.2" (5.0 x 5.0mm) copper pads to each terminal

(3) Mounted on minimum recommended pad layout

SM6T Series

Vishay Semiconductors
formerly General Semiconductor



Electrical Characteristics Ratings at 25°C ambient temperature unless otherwise specified.

| Type ⁽¹⁾ | Device Marking Code | | Breakdown Voltage V_{BR} @ I_T ⁽²⁾ | | Test Current (mA) | Standoff Voltage V_{RM} (V) | Leakage Current ⁽³⁾ I_{RM} @ V_{RM} (μ A) | Clamping Voltage V_c @ I_{PP} 10/1000 μ s | | Clamping Voltage V_c @ I_{PP} 8/20 μ s | | α_T Max $0^{-4}/^{\circ}C$ |
|---------------------|---------------------|-----|---|------|-------------------|-------------------------------|---|---|------|--|------|-----------------------------------|
| | UNI | BI | Min | Max | | | | (V) | (A) | (V) | (A) | |
| SM6T6V8A | KE7 | KE7 | 6.45 | 7.14 | 10 | 5.80 | 1000 | 10.5 | 57.0 | 13.4 | 298 | 5.7 |
| SM6T7V5A | KK7 | AK7 | 7.13 | 7.88 | 10 | 6.40 | 500 | 11.3 | 53.0 | 14.5 | 276 | 6.1 |
| SM6T10A | KT7 | AT7 | 9.50 | 10.5 | 1.0 | 8.55 | 10.0 | 14.5 | 41.0 | 18.6 | 215 | 7.3 |
| SM6T12A | KX7 | AX7 | 11.4 | 12.6 | 1.0 | 10.2 | 5.0 | 16.7 | 36.0 | 21.7 | 184 | 7.8 |
| SM6T15A | LG7 | LG7 | 14.3 | 15.8 | 1.0 | 12.8 | 1.0 | 21.2 | 28.0 | 27.2 | 147 | 8.4 |
| SM6T18A | LM7 | BM7 | 17.1 | 18.9 | 1.0 | 15.3 | 1.0 | 25.2 | 24.0 | 32.5 | 123 | 8.8 |
| SM6T22A | LT7 | BT7 | 20.9 | 23.1 | 1.0 | 18.8 | 1.0 | 30.6 | 20.0 | 39.3 | 102 | 9.2 |
| SM6T24A | LV7 | LV7 | 22.8 | 25.2 | 1.0 | 20.5 | 1.0 | 33.2 | 18.0 | 42.8 | 93 | 9.4 |
| SM6T27A | LX7 | BX7 | 25.7 | 28.4 | 1.0 | 23.1 | 1.0 | 37.5 | 16.0 | 48.3 | 83 | 9.6 |
| SM6T30A | ME7 | CE7 | 28.5 | 31.5 | 1.0 | 25.6 | 1.0 | 41.5 | 14.5 | 53.5 | 75 | 9.7 |
| SM6T33A | MG7 | MG7 | 31.4 | 34.7 | 1.0 | 28.2 | 1.0 | 45.7 | 13.1 | 59.0 | 68 | 9.8 |
| SM6T36A | MK7 | CK7 | 34.2 | 37.8 | 1.0 | 30.8 | 1.0 | 49.9 | 12.0 | 64.3 | 62 | 9.9 |
| SM6T39A | MM7 | CM7 | 37.1 | 41.0 | 1.0 | 33.3 | 1.0 | 53.9 | 11.1 | 69.7 | 57 | 10.0 |
| SM6T68A | NG7 | NG7 | 64.6 | 71.4 | 1.0 | 58.1 | 1.0 | 92.0 | 6.50 | 121 | 33 | 10.4 |
| SM6T100A | NV7 | NV7 | 95.0 | 105 | 1.0 | 85.5 | 1.0 | 137 | 4.40 | 178 | 22.5 | 10.6 |
| SM6T150A | PK7 | PK7 | 143 | 158 | 1.0 | 128 | 1.0 | 207 | 2.90 | 265 | 15 | 10.8 |
| SM6T200A | PR7 | PR7 | 190 | 210 | 1.0 | 171 | 1.0 | 274 | 2.20 | 353 | 11.3 | 10.8 |
| SM6T220A | PR8 | PR8 | 209 | 231 | 1.0 | 188 | 1.0 | 328 | 2.00 | 388 | 10.3 | 10.8 |

- Notes: (1) For bi-directional devices add suffix "CA".
 (2) V_{BR} measured after I_T applied for 300 μ s square wave pulse.
 (3) For bipolar devices with $V_R=10$ Volts or under, the I_T limit is doubled.

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

Fig. 1 – Peak Pulse Power Rating Curve

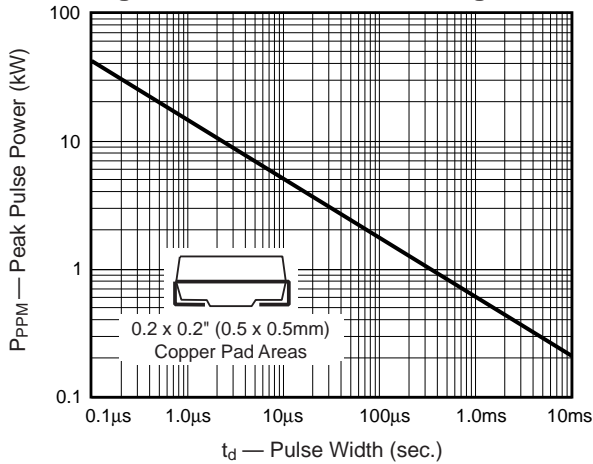


Fig. 2 – Pulse Derating Curve

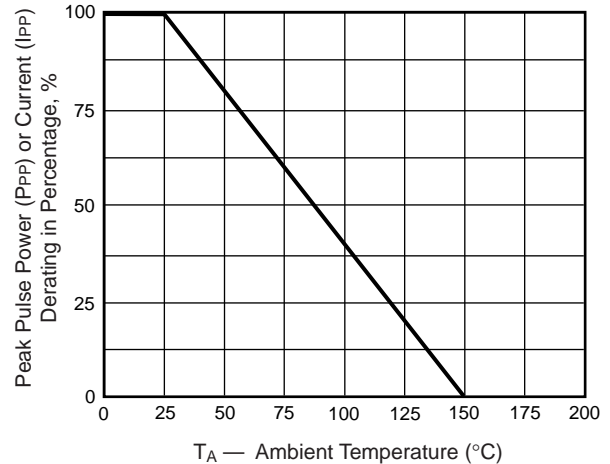


Fig. 3 – Pulse Waveform

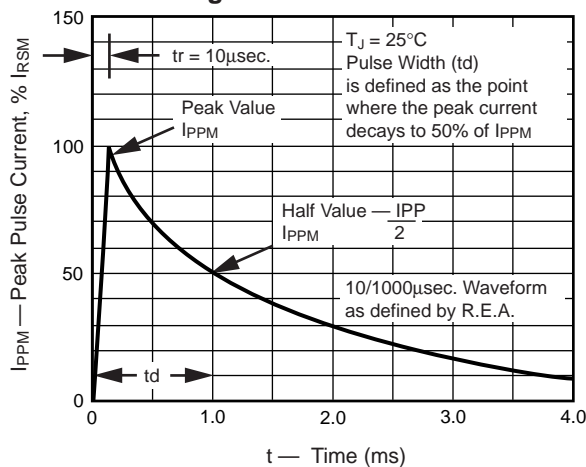


Fig. 4 – Typical Junction Capacitance

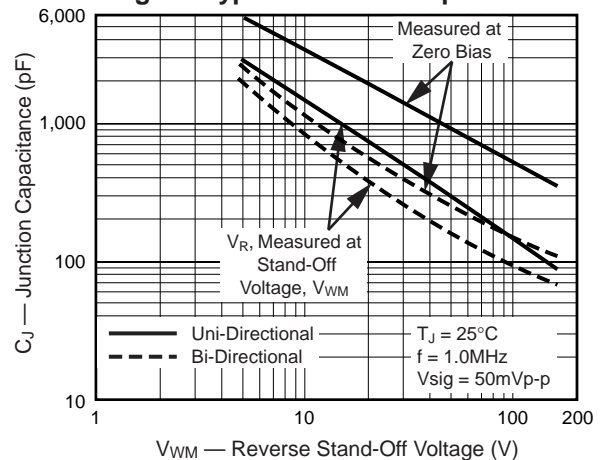


Fig. 5 – Typical Transient Thermal Impedance

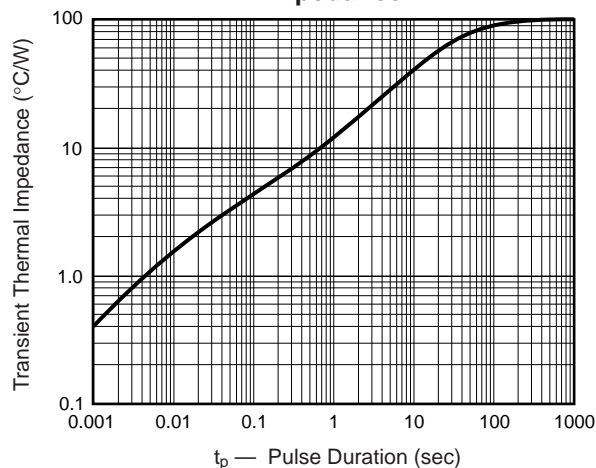


Fig. 6 – Maximum Non-Repetitive Peak Forward Surge Current

