

Working Voltage: 11 to 170 V
Peak Pulse Power: 600 W

Surface Mount Transient Voltage Suppressors

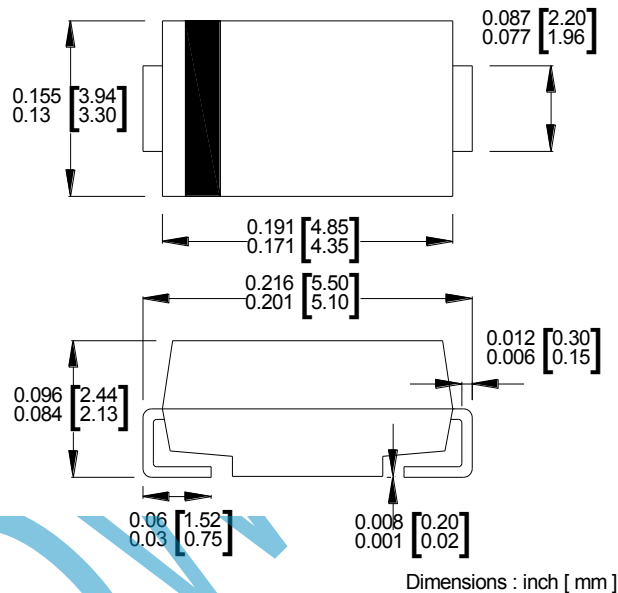
Features

- Glass passivated chip
- 600 W peak pulse power capability with a 10/1000 μ s waveform, repetitive rate (duty cycle):0.01 %
- High reliability application and automotive grade
- AEC Q101 qualified
- Low leakage
- Uni and Bidirectional unit
- Excellent clamping capability
- Very fast response time
- RoHS compliant

Mechanical Data

- Case: Molded plastic
- Epoxy: UL 94V-0 rate flame retardant
- Lead: Solderable per MIL-STD-750, method 2026
- Polarity: Color band denotes cathode end except Bipolar
- Mounting position: Any

SMB/ DO-214AA



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

| Parameter | Symbol | Value | UNIT |
|---------------------------------------------------------------------------------------------|----------------|----------------|------------------|
| Peak power dissipation with a 10/1000 μ s waveform ⁽¹⁾ | P_{PP} | 600 | W |
| Peak pulse current with a 10/1000 μ s waveform ⁽¹⁾ | I_{PP} | See Next Table | A |
| Power dissipation on infinite heatsink at $T_L = 75^\circ\text{C}$ | P_D | 5.0 | W |
| Peak forward surge current, 8.3 ms single half sine-wave unidirectional only ⁽²⁾ | I_{FSM} | 100 | A |
| Maximum instantaneous forward voltage at 50 A for unidirectional only ⁽³⁾ | V_F | 3.5/5.0 | V |
| Operating junction and storage temperature range | T_J, T_{STG} | -55 to +150 | $^\circ\text{C}$ |

Note:

(1) Non-repetitive current pulse per Fig.5 and derated above $T_A = 25^\circ\text{C}$ per Fig.1

(2) Measured on 8.3 ms single half sine-wave or equivalent square wave, duty cycle = 4 pulses per minute maximum

(3) $V_F < 3.5\text{V}$ for devices of $V_{BR} < 200\text{V}$ and $V_F < 5.0\text{V}$ for devices of $V_{BR} > 201\text{V}$

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

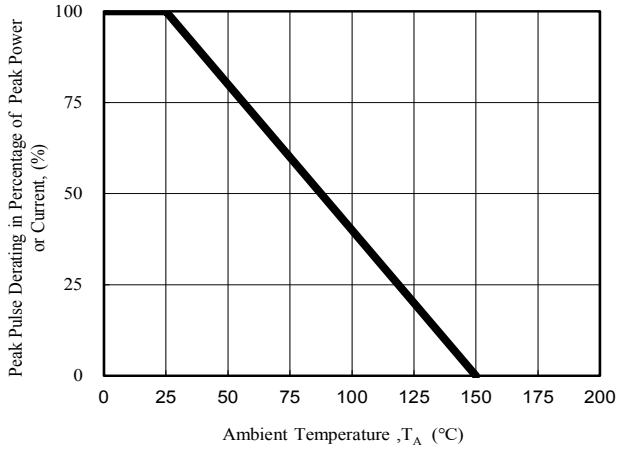


Fig. 1 - Pulse Derating Curve

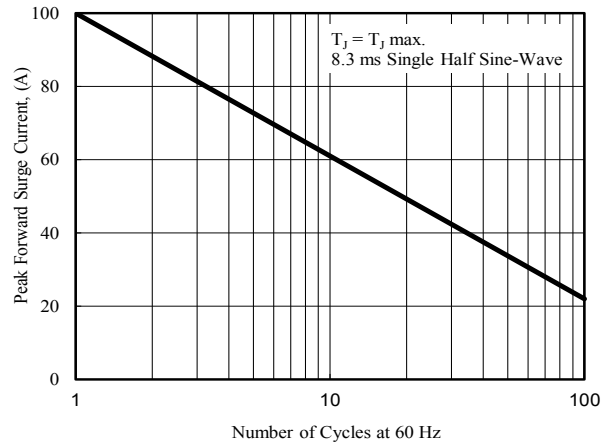


Fig. 2 - Maximum Non-Repetitive Surge Current

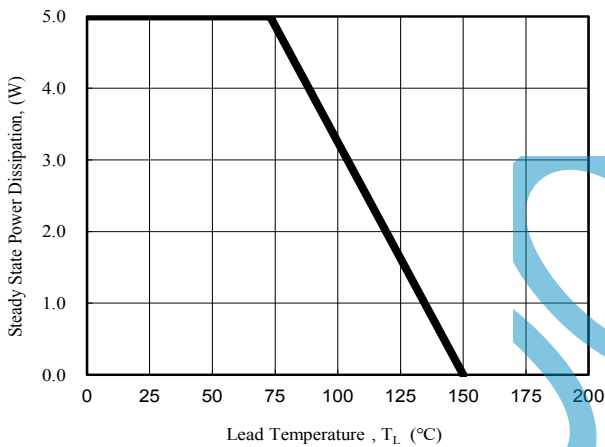


Fig. 3 - Steady State Power Derating Curve

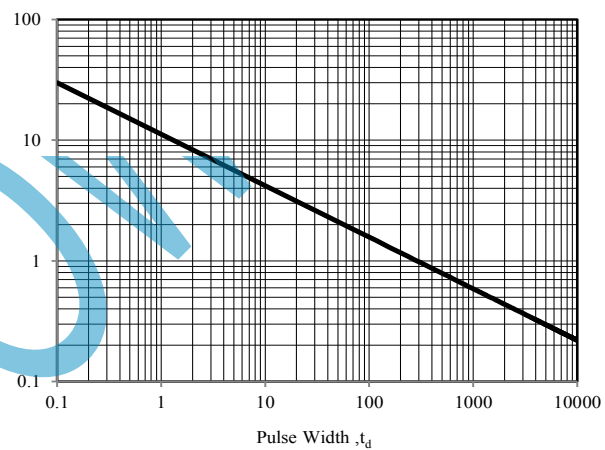


Fig. 4 - Peak Pulse Power Rating Curve

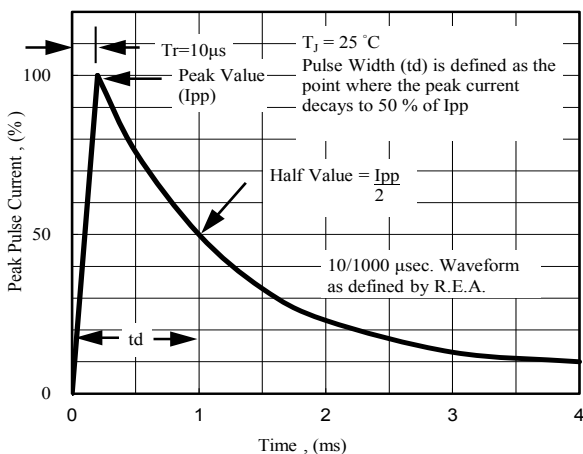


Fig. 5 - Pulse Waveform

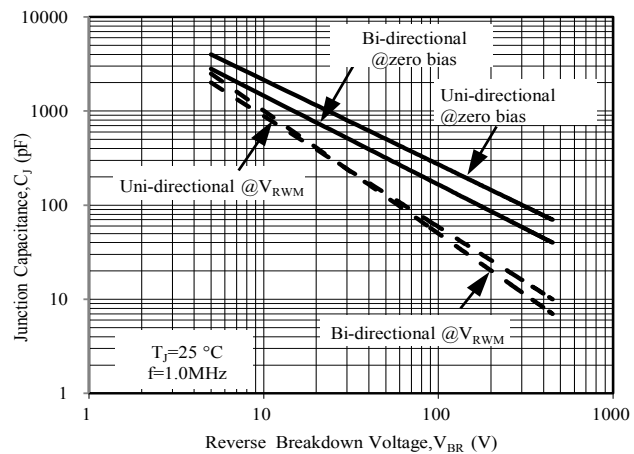


Fig. 6 - Typical Junction Capacitance

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

| Part Number (Uni) | Part Number (Bi) | Device Marking Code | | Breakdown Voltage V_{BR} @ I_T | | | Maximum Reverse Leakage I_R @ V_{RWM} (μA) | Working Peak Reverse Voltage V_{RWM} (V) | Maximum Reverse Surge Current I_{PP} (A) | Maximum Clamping Voltage V_C @ I_{PP} (V) |
|----------------------|---------------------|---------------------------|-----|------------------------------------|---------|------------|-------------------------------------------------------------------------|-----------------------------------------------------------|--------------------------------------------------------|-----------------------------------------------------------|
| | | Uni | Bi | Min (V) | Max (V) | I_T (mA) | | | | |
| TPSMBJ11A | TPSMBJ11CA | KZA | AZA | 12.20 | 13.50 | 1 | 1 | 11.0 | 32.97 | 18.2 |
| TPSMBJ12A | TPSMBJ12CA | LEA | BEA | 13.30 | 14.70 | 1 | 1 | 12.0 | 30.15 | 19.9 |
| TPSMBJ13A | TPSMBJ13CA | LGA | BGA | 14.40 | 15.90 | 1 | 1 | 13.0 | 27.91 | 21.5 |
| TPSMBJ14A | TPSMBJ14CA | LKA | BKA | 15.60 | 17.20 | 1 | 1 | 14.0 | 25.86 | 23.2 |
| TPSMBJ15A | TPSMBJ15CA | LMA | BMA | 16.70 | 18.50 | 1 | 1 | 15.0 | 24.59 | 24.4 |
| TPSMBJ16A | TPSMBJ16CA | LPA | BPA | 17.80 | 19.70 | 1 | 1 | 16.0 | 23.08 | 26.0 |
| TPSMBJ17A | TPSMBJ17CA | LRA | BRA | 18.90 | 20.90 | 1 | 1 | 17.0 | 21.74 | 27.6 |
| TPSMBJ18A | TPSMBJ18CA | LTA | BTA | 20.00 | 22.10 | 1 | 1 | 18.0 | 20.55 | 29.2 |
| TPSMBJ19A | TPSMBJ19CA | LBA | BBA | 21.10 | 23.30 | 1 | 1 | 19.0 | 19.49 | 30.8 |
| TPSMBJ20A | TPSMBJ20CA | LVA | BVA | 22.20 | 24.50 | 1 | 1 | 20.0 | 18.52 | 32.4 |
| TPSMBJ22A | TPSMBJ22CA | LXA | BXA | 24.40 | 26.90 | 1 | 1 | 22.0 | 16.90 | 35.5 |
| TPSMBJ24A | TPSMBJ24CA | LZA | BZA | 26.70 | 29.50 | 1 | 1 | 24.0 | 15.42 | 38.9 |
| TPSMBJ26A | TPSMBJ26CA | MEA | CEA | 28.90 | 31.90 | 1 | 1 | 26.0 | 14.25 | 42.1 |
| TPSMBJ28A | TPSMBJ28CA | MGA | CGA | 31.10 | 34.40 | 1 | 1 | 28.0 | 13.22 | 45.4 |
| TPSMBJ30A | TPSMBJ30CA | MKA | CKA | 33.30 | 36.80 | 1 | 1 | 30.0 | 12.40 | 48.4 |
| TPSMBJ33A | TPSMBJ33CA | MMA | CMA | 36.70 | 40.60 | 1 | 1 | 33.0 | 11.26 | 53.3 |
| TPSMBJ36A | TPSMBJ36CA | MPA | CPA | 40.00 | 44.20 | 1 | 1 | 36.0 | 10.33 | 58.1 |
| TPSMBJ40A | TPSMBJ40CA | MRA | CRA | 44.40 | 49.10 | 1 | 1 | 40.0 | 9.30 | 64.5 |
| TPSMBJ43A | TPSMBJ43CA | MTA | CTA | 47.80 | 52.80 | 1 | 1 | 43.0 | 8.65 | 69.4 |
| TPSMBJ45A | TPSMBJ45CA | MVA | CVA | 50.00 | 55.30 | 1 | 1 | 45.0 | 8.25 | 72.7 |
| TPSMBJ48A | TPSMBJ48CA | MXA | CXA | 53.30 | 58.90 | 1 | 1 | 48.0 | 7.75 | 77.4 |
| TPSMBJ51A | TPSMBJ51CA | MZA | CZA | 56.70 | 62.70 | 1 | 1 | 51.0 | 7.28 | 82.4 |
| TPSMBJ54A | TPSMBJ54CA | NEA | DEA | 60.00 | 66.30 | 1 | 1 | 54.0 | 6.89 | 87.1 |
| TPSMBJ58A | TPSMBJ58CA | NGA | DGA | 64.40 | 71.20 | 1 | 1 | 58.0 | 6.41 | 93.6 |
| TPSMBJ60A | TPSMBJ60CA | NKA | DKA | 66.70 | 73.70 | 1 | 1 | 60.0 | 6.20 | 96.8 |
| TPSMBJ64A | TPSMBJ64CA | NMA | DMA | 71.10 | 78.60 | 1 | 1 | 64.0 | 5.83 | 103.0 |
| TPSMBJ70A | TPSMBJ70CA | NPA | DPA | 77.80 | 86.00 | 1 | 1 | 70.0 | 5.31 | 113.0 |
| TPSMBJ75A | TPSMBJ75CA | NRA | DRA | 83.30 | 92.10 | 1 | 1 | 75.0 | 4.96 | 121.0 |
| TPSMBJ78A | TPSMBJ78CA | NTA | DTA | 86.70 | 95.80 | 1 | 1 | 78.0 | 4.76 | 126.0 |
| TPSMBJ85A | TPSMBJ85CA | NVA | DVA | 94.40 | 104.00 | 1 | 1 | 85.0 | 4.38 | 137.0 |
| TPSMBJ90A | TPSMBJ90CA | NXA | DXA | 100.00 | 111.00 | 1 | 1 | 90.0 | 4.11 | 146.0 |
| TPSMBJ100A | TPSMBJ100CA | NZA | DZA | 111.00 | 123.00 | 1 | 1 | 100.0 | 3.70 | 162.0 |
| TPSMBJ110A | TPSMBJ110CA | PEA | EEA | 122.00 | 135.00 | 1 | 1 | 110.0 | 3.39 | 177.0 |
| TPSMBJ120A | TPSMBJ120CA | PGA | EGA | 133.00 | 147.00 | 1 | 1 | 120.0 | 3.11 | 193.0 |
| TPSMBJ130A | TPSMBJ130CA | PKA | EKA | 144.00 | 159.00 | 1 | 1 | 130.0 | 2.87 | 209.0 |
| TPSMBJ140A | TPSMBJ140CA | PBA | EBA | 155.00 | 171.00 | 1 | 1 | 140.0 | 2.65 | 226.8 |
| TPSMBJ150A | TPSMBJ150CA | PMA | EMA | 167.00 | 185.00 | 1 | 1 | 150.0 | 2.47 | 243.0 |
| TPSMBJ160A | TPSMBJ160CA | PPA | EPA | 178.00 | 197.00 | 1 | 1 | 160.0 | 2.32 | 259.0 |
| TPSMBJ170A | TPSMBJ170CA | PRA | ERA | 189.00 | 209.00 | 1 | 1 | 170.0 | 2.18 | 275.0 |

Note:

1. Add suffix 'C' or 'CA' after part number to specify Bi-directional devices
2. For Bi-Directional devices having V_R of 10 volts and under, the I_R limit is double