

Working Voltage: 10 to 85 V
Peak Pulse Power: 400 W

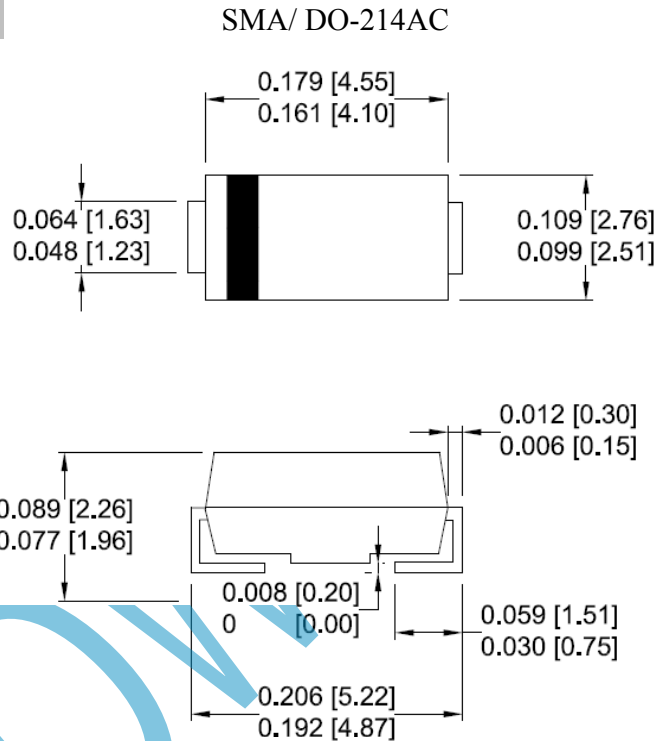
Surface Mount Transient Voltage Suppressors

Features

- Glass passivated chip
- 400 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



Dimensions: inch[mm]

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} | 400 | 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 | 1.0 | W |
| Peak forward surge current, 8.3 ms single half sine-wave unidirectional only ⁽²⁾ | I_{FSM} | 40 | A |
| Maximum instantaneous forward voltage at 25 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)

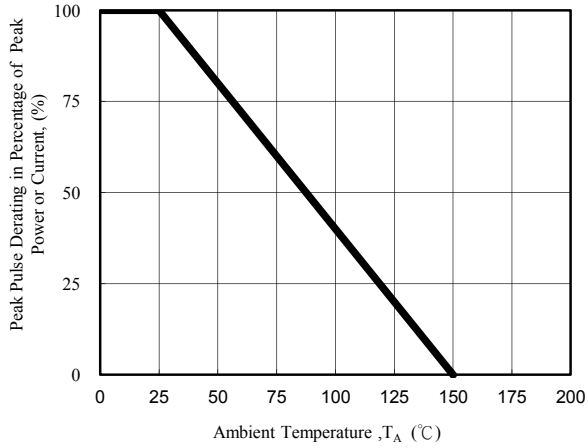


Fig. 1 - Pulse Derating Curve

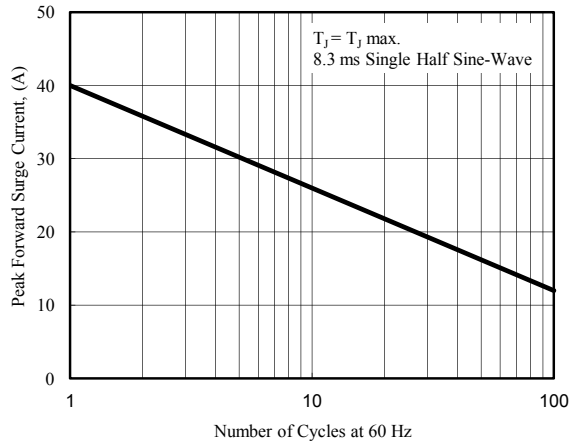


Fig. 2 - Maximum Non-Repetitive Surge Current

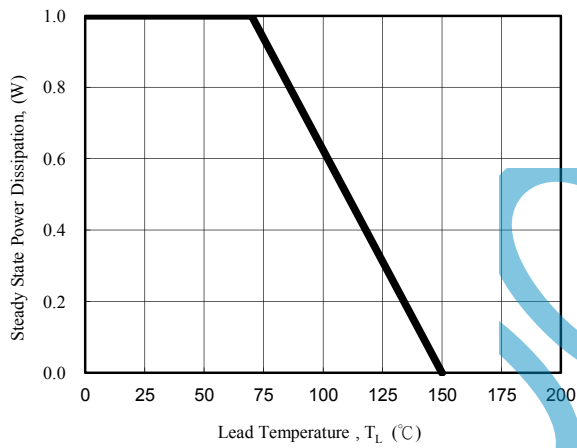


Fig. 3 - Steady State Power Derating Curve

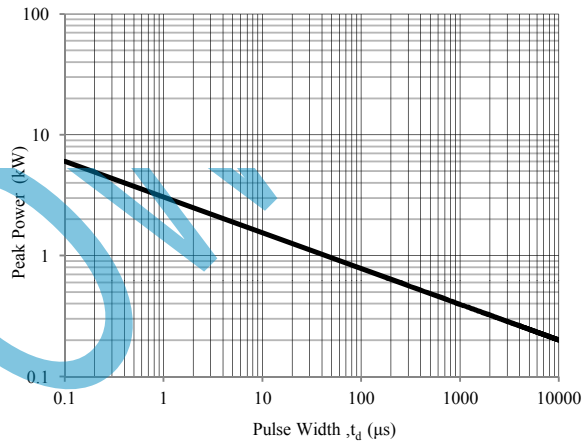


Fig. 4 - Peak Pulse Power Rating Curve

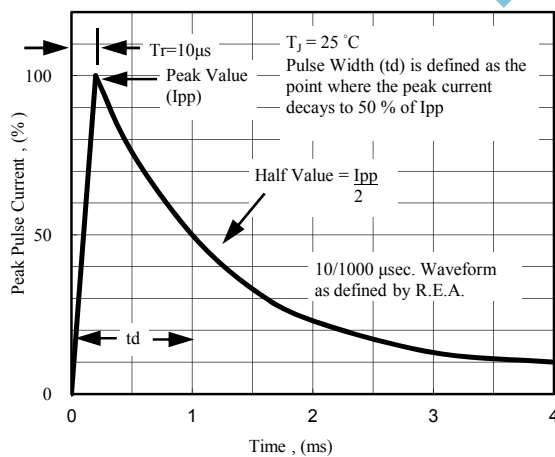


Fig. 5 - Pulse Waveform

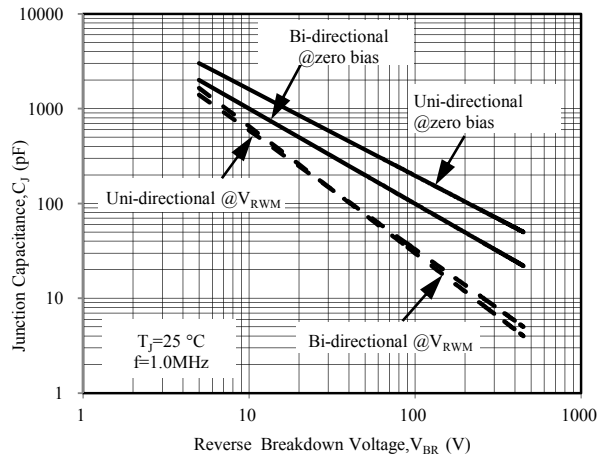


Fig. 6 - Typical Junction Capacitance

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) | | | | |
| TPSMAJ10A | TPSMAJ10CA | AXA | WXA | 11.10 | 12.30 | 1 | 5 | 10.0 | 23.53 | 17.0 |
| TPSMAJ11A | TPSMAJ11CA | AZA | WZA | 12.20 | 13.50 | 1 | 1 | 11.0 | 21.98 | 18.2 |
| TPSMAJ12A | TPSMAJ12CA | BEA | XEA | 13.30 | 14.70 | 1 | 1 | 12.0 | 20.10 | 19.9 |
| TPSMAJ13A | TPSMAJ13CA | BGA | XGA | 14.40 | 15.90 | 1 | 1 | 13.0 | 18.60 | 21.5 |
| TPSMAJ14A | TPSMAJ14CA | BKA | XKA | 15.60 | 17.20 | 1 | 1 | 14.0 | 17.24 | 23.2 |
| TPSMAJ15A | TPSMAJ15CA | BMA | XMA | 16.70 | 18.50 | 1 | 1 | 15.0 | 16.39 | 24.4 |
| TPSMAJ16A | TPSMAJ16CA | BPA | XPA | 17.80 | 19.70 | 1 | 1 | 16.0 | 15.38 | 26.0 |
| TPSMAJ17A | TPSMAJ17CA | BRA | XRA | 18.90 | 20.90 | 1 | 1 | 17.0 | 14.49 | 27.6 |
| TPSMAJ18A | TPSMAJ18CA | BTA | XTA | 20.00 | 22.10 | 1 | 1 | 18.0 | 13.70 | 29.2 |
| TPSMAJ19A | TPSMAJ19CA | BBA | XBA | 21.10 | 23.30 | 1 | 1 | 19.0 | 13.00 | 30.8 |
| TPSMAJ20A | TPSMAJ20CA | BVA | XVA | 22.20 | 24.50 | 1 | 1 | 20.0 | 12.35 | 32.4 |
| TPSMAJ22A | TPSMAJ22CA | BXA | XXA | 24.40 | 26.90 | 1 | 1 | 22.0 | 11.27 | 35.5 |
| TPSMAJ24A | TPSMAJ24CA | BZA | XZA | 26.70 | 29.50 | 1 | 1 | 24.0 | 10.28 | 38.9 |
| TPSMAJ26A | TPSMAJ26CA | CEA | YEA | 28.90 | 31.90 | 1 | 1 | 26.0 | 9.50 | 42.1 |
| TPSMAJ28A | TPSMAJ28CA | CGA | YGA | 31.10 | 34.40 | 1 | 1 | 28.0 | 8.81 | 45.4 |
| TPSMAJ30A | TPSMAJ30CA | CKA | YKA | 33.30 | 36.80 | 1 | 1 | 30.0 | 8.26 | 48.4 |
| TPSMAJ33A | TPSMAJ33CA | CMA | YMA | 36.70 | 40.60 | 1 | 1 | 33.0 | 7.50 | 53.3 |
| TPSMAJ36A | TPSMAJ36CA | CPA | YPA | 40.00 | 44.20 | 1 | 1 | 36.0 | 6.88 | 58.1 |
| TPSMAJ40A | TPSMAJ40CA | CRA | YRA | 44.40 | 49.10 | 1 | 1 | 40.0 | 6.20 | 64.5 |
| TPSMAJ43A | TPSMAJ43CA | CTA | YTA | 47.80 | 52.80 | 1 | 1 | 43.0 | 5.76 | 69.4 |
| TPSMAJ45A | TPSMAJ45CA | CVA | YVA | 50.00 | 55.30 | 1 | 1 | 45.0 | 5.50 | 72.7 |
| TPSMAJ48A | TPSMAJ48CA | CXA | YXA | 53.30 | 58.90 | 1 | 1 | 48.0 | 5.17 | 77.4 |
| TPSMAJ51A | TPSMAJ51CA | CZA | YZA | 56.70 | 62.70 | 1 | 1 | 51.0 | 4.85 | 82.4 |
| TPSMAJ54A | TPSMAJ54CA | REA | ZEA | 60.00 | 66.30 | 1 | 1 | 54.0 | 4.59 | 87.1 |
| TPSMAJ58A | TPSMAJ58CA | RG A | ZG A | 64.40 | 71.20 | 1 | 1 | 58.0 | 4.27 | 93.6 |
| TPSMAJ60A | TPSMAJ60CA | RKA | ZKA | 66.70 | 73.70 | 1 | 1 | 60.0 | 4.13 | 96.8 |
| TPSMAJ64A | TPSMAJ64CA | RMA | ZMA | 71.10 | 78.60 | 1 | 1 | 64.0 | 3.88 | 103.0 |
| TPSMAJ70A | TPSMAJ70CA | RPA | ZPA | 77.80 | 86.00 | 1 | 1 | 70.0 | 3.54 | 113.0 |
| TPSMAJ75A | TPSMAJ75CA | RRA | ZRA | 83.30 | 92.10 | 1 | 1 | 75.0 | 3.31 | 121.0 |
| TPSMAJ78A | TPSMAJ78CA | RTA | ZTA | 86.70 | 95.80 | 1 | 1 | 78.0 | 3.17 | 126.0 |
| TPSMAJ80A | TPSMAJ80CA | RBA | ZBA | 88.80 | 97.60 | 1 | 1 | 80.0 | 3.09 | 129.6 |
| TPSMAJ85A | TPSMAJ85CA | RVA | ZVA | 94.40 | 104.00 | 1 | 1 | 85.0 | 2.92 | 137.0 |

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