

**Working Voltage: 10 to 78 V**  
**Peak Pulse Power: 1500 W**

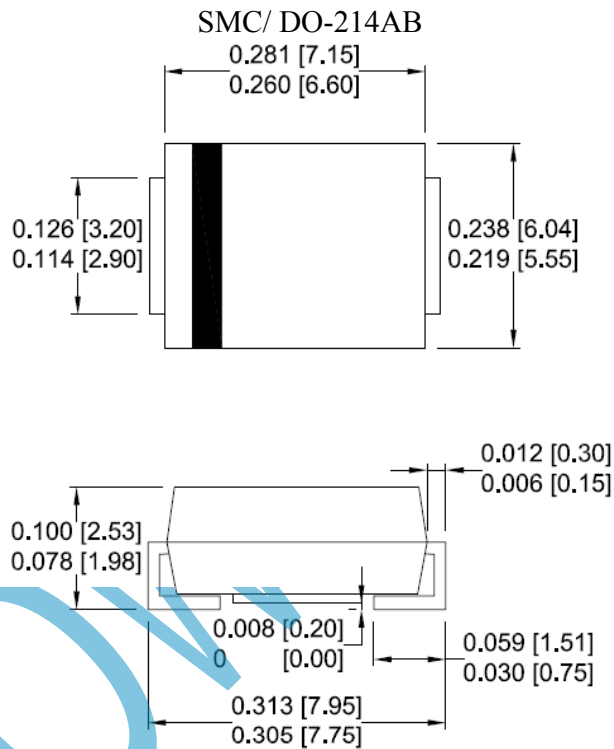
## Surface Mount Transient Voltage Suppressors

### Features

- Glass passivated chip
- 1500 W peak pulse power capability with a 10/1000  $\mu$ 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 $\mu$ s waveform <sup>(1)</sup>                       | $P_{PP}$       | 1500           | W                |
| Peak pulse current with a 10/1000 $\mu$ s waveform <sup>(1)</sup>                           | $I_{PP}$       | See Next Table | A                |
| Power dissipation on infinite heatsink at $T_L = 75^\circ\text{C}$                          | $P_D$          | 6.5            | W                |
| Peak forward surge current, 8.3 ms single half sine-wave unidirectional only <sup>(2)</sup> | $I_{FSM}$      | 200            | A                |
| Maximum instantaneous forward voltage at 100 A for unidirectional only <sup>(3)</sup>       | $V_F$          | 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)

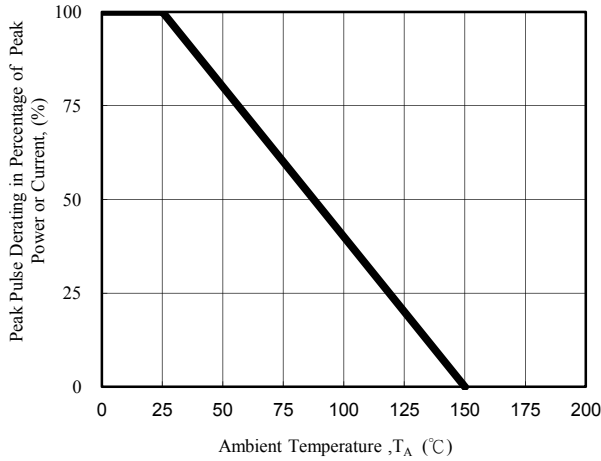


Fig. 1 - Pulse Derating Curve

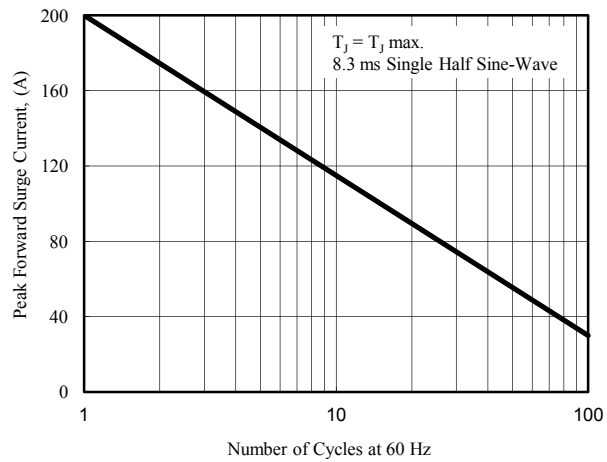


Fig. 2 - Maximum Non-Repetitive Surge Current

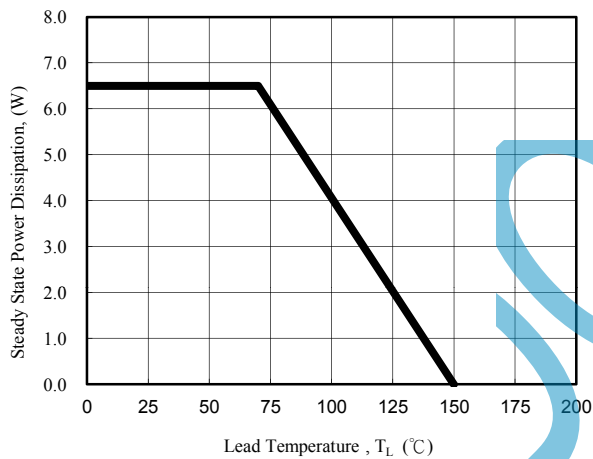


Fig. 3 - Steady State Power Derating Curve

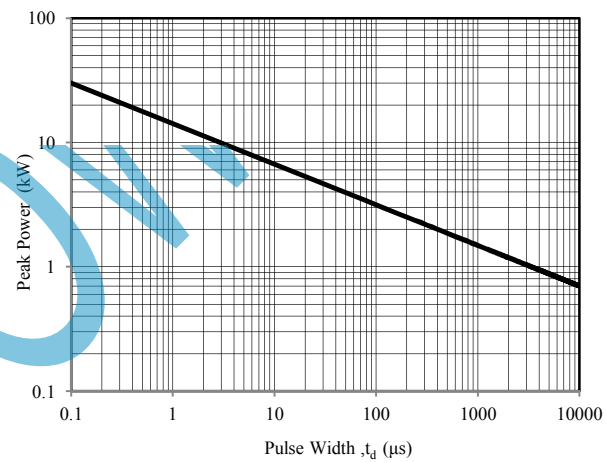


Fig. 4 - Peak Pulse Power Rating Curve

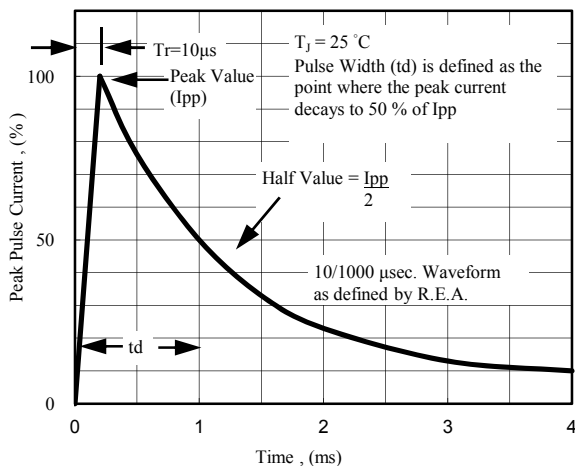


Fig. 5 - Pulse Waveform

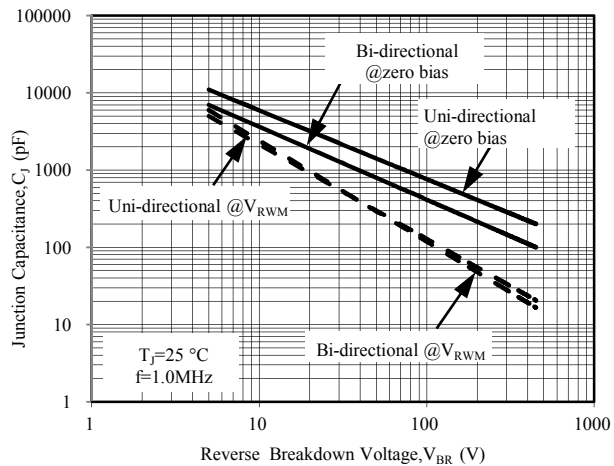


Fig. 6 - Typical Junction Capacitance

## 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 $I_R$ @ $V_{RWM}$ (uA) | 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) |  |  |  |   |
| TPSMCJ10A         | TPSMCJ10CA       | GDXA                | BDXA | 11.10                              | 12.30   | 1          | 5  | 10.0                                       | 88.24                                      | 17.0  |
| TPSMCJ11A         | TPSMCJ11CA       | GDZA                | BDZA | 12.20                              | 13.50   | 1          | 1  | 11.0                                       | 82.42                                      | 18.2  |
| TPSMCJ12A         | TPSMCJ12CA       | GEEA                | BEEA | 13.30                              | 14.70   | 1          | 1  | 12.0                                       | 75.38                                      | 19.9  |
| TPSMCJ13A         | TPSMCJ13CA       | GEGA                | BEGA | 14.40                              | 15.90   | 1          | 1  | 13.0                                       | 69.77                                      | 21.5  |
| TPSMCJ14A         | TPSMCJ14CA       | GEKA                | BEKA | 15.60                              | 17.20   | 1          | 1  | 14.0                                       | 64.66                                      | 23.2  |
| TPSMCJ15A         | TPSMCJ15CA       | GEMA                | BEMA | 16.70                              | 18.50   | 1          | 1  | 15.0                                       | 61.48                                      | 24.4  |
| TPSMCJ16A         | TPSMCJ16CA       | GEPA                | BEPA | 17.80                              | 19.70   | 1          | 1  | 16.0                                       | 57.69                                      | 26.0  |
| TPSMCJ17A         | TPSMCJ17CA       | GERA                | BERA | 18.90                              | 20.90   | 1          | 1  | 17.0                                       | 54.35                                      | 27.6  |
| TPSMCJ18A         | TPSMCJ18CA       | GETA                | BETA | 20.00                              | 22.10   | 1          | 1  | 18.0                                       | 51.37                                      | 29.2  |
| TPSMCJ19A         | TPSMCJ19CA       | GEBA                | BEBA | 21.10                              | 23.30   | 1          | 1  | 19.0                                       | 48.73                                      | 30.8  |
| TPSMCJ20A         | TPSMCJ20CA       | GEVA                | BEVA | 22.20                              | 24.50   | 1          | 1  | 20.0                                       | 46.30                                      | 32.4  |
| TPSMCJ22A         | TPSMCJ22CA       | GEXA                | BEXA | 24.40                              | 26.90   | 1          | 1  | 22.0                                       | 42.25                                      | 35.5  |
| TPSMCJ24A         | TPSMCJ24CA       | GEZA                | BEZA | 26.70                              | 29.50   | 1          | 1  | 24.0                                       | 38.56                                      | 38.9  |
| TPSMCJ26A         | TPSMCJ26CA       | GFEA                | BFEA | 28.90                              | 31.90   | 1          | 1  | 26.0                                       | 35.63                                      | 42.1  |
| TPSMCJ28A         | TPSMCJ28CA       | GFGA                | BFGA | 31.10                              | 34.40   | 1          | 1  | 28.0                                       | 33.04                                      | 45.4  |
| TPSMCJ30A         | TPSMCJ30CA       | GFGA                | BFGA | 33.30                              | 36.80   | 1          | 1  | 30.0                                       | 30.99                                      | 48.4  |
| TPSMCJ33A         | TPSMCJ33CA       | GFMA                | BFMA | 36.70                              | 40.60   | 1          | 1  | 33.0                                       | 28.14                                      | 53.3  |
| TPSMCJ36A         | TPSMCJ36CA       | GFPA                | BFPA | 40.00                              | 44.20   | 1          | 1  | 36.0                                       | 25.82                                      | 58.1  |
| TPSMCJ40A         | TPSMCJ40CA       | GFRA                | BFRA | 44.40                              | 49.10   | 1          | 1  | 40.0                                       | 23.26                                      | 64.5  |
| TPSMCJ43A         | TPSMCJ43CA       | GFTA                | BFTA | 47.80                              | 52.80   | 1          | 1  | 43.0                                       | 21.61                                      | 69.4  |
| TPSMCJ45A         | TPSMCJ45CA       | GFVA                | BFVA | 50.00                              | 55.30   | 1          | 1  | 45.0                                       | 20.63                                      | 72.7  |
| TPSMCJ48A         | TPSMCJ48CA       | GFXA                | BFXA | 53.30                              | 58.90   | 1          | 1  | 48.0                                       | 19.38                                      | 77.4  |
| TPSMCJ51A         | TPSMCJ51CA       | GFZA                | BFZA | 56.70                              | 62.70   | 1          | 1  | 51.0                                       | 18.20                                      | 82.4  |
| TPSMCJ54A         | TPSMCJ54CA       | GGEA                | BGEA | 60.00                              | 66.30   | 1          | 1  | 54.0                                       | 17.22                                      | 87.1  |
| TPSMCJ58A         | TPSMCJ58CA       | GGGA                | BGGA | 64.40                              | 71.20   | 1          | 1  | 58.0                                       | 16.03                                      | 93.6  |
| TPSMCJ60A         | TPSMCJ60CA       | GGKA                | BGKA | 66.70                              | 73.70   | 1          | 1  | 60.0                                       | 15.50                                      | 96.8  |
| TPSMCJ64A         | TPSMCJ64CA       | GGMA                | BGMA | 71.10                              | 78.60   | 1          | 1  | 64.0                                       | 14.56                                      | 103.0   |
| TPSMCJ70A         | TPSMCJ70CA       | GGPA                | BGPA | 77.80                              | 86.00   | 1          | 1  | 70.0                                       | 13.27                                      | 113.0   |
| TPSMCJ75A         | TPSMCJ75CA       | GGRA                | BGRA | 83.30                              | 92.10   | 1          | 1  | 75.0                                       | 12.40                                      | 121.0   |
| TPSMCJ78A         | TPSMCJ78CA       | GGTA                | BGTA | 86.70                              | 95.80   | 1          | 1  | 78.0                                       | 11.90                                      | 126.0   |

**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