

**Working Voltage: 10 to 43 V**  
**Peak Pulse Power: 3000 W**

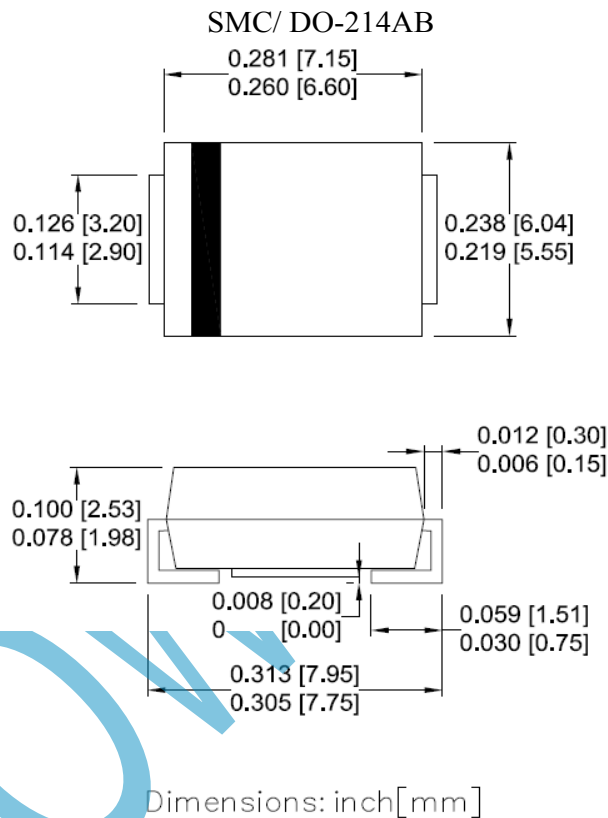
## Surface Mount Transient Voltage Suppressors

### Features

- Glass passivated chip
- 3000 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



### 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>                       | $P_{PP}$       | 3000           | 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 $T_L = 50^\circ\text{C}$                          | $P_D$          | 6.5            | W                |
| Peak forward surge current, 8.3 ms single half sine-wave unidirectional only <sup>(2)</sup> | $I_{FSM}$      | 300            | A                |
| Maximum instantaneous forward voltage at 100A 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)

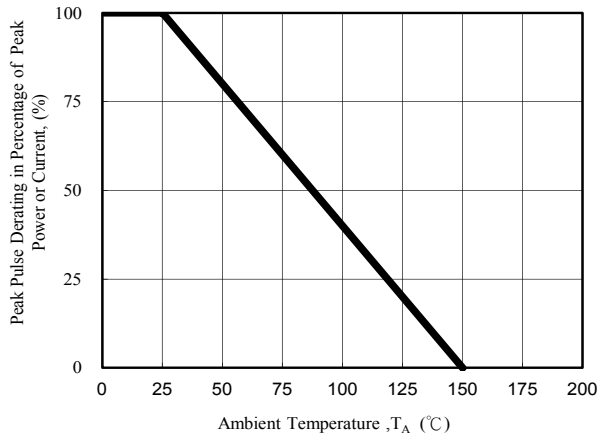


Fig. 1 - Pulse Derating Curve

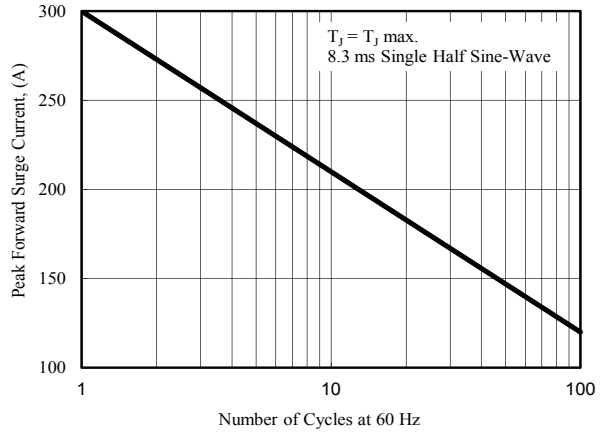


Fig. 2 - Maximum Non-Repetitive Surge Current

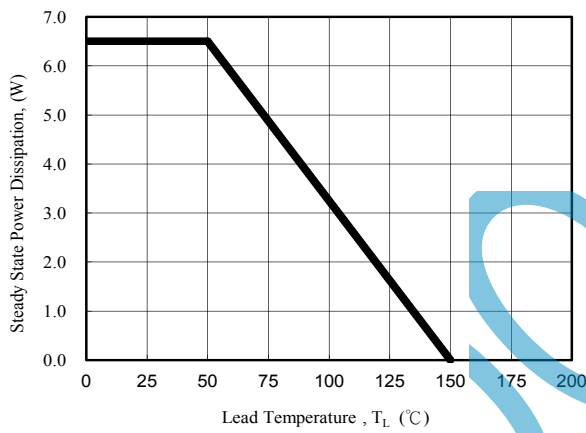


Fig. 3 - Steady State Power Derating Curve

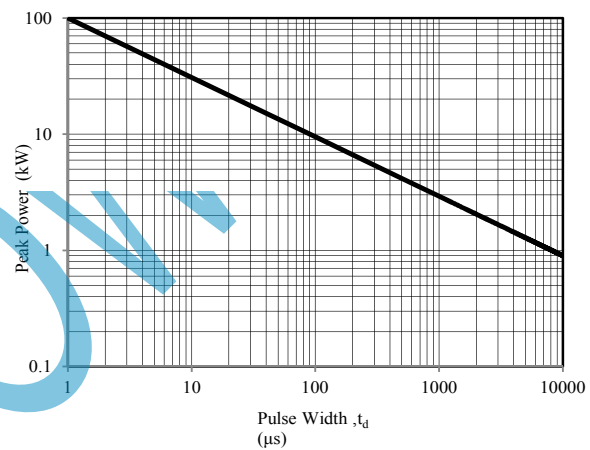


Fig. 4 - Peak Pulse Power Rating Curve

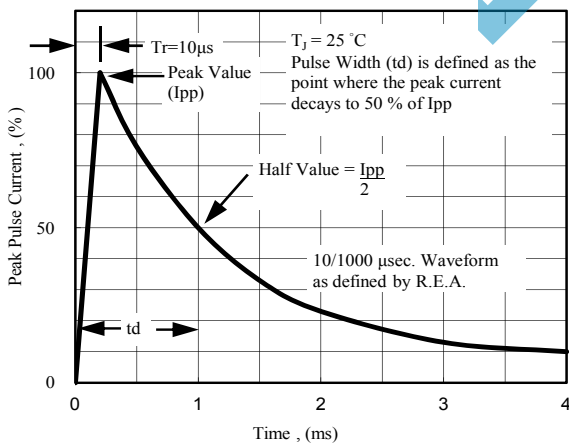


Fig. 5 - Pulse Waveform

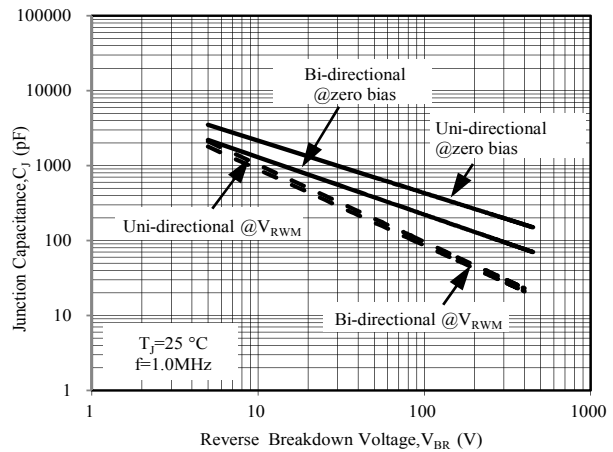


Fig. 6 - Typical Junction Capacitance

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

| Part Number<br>(Uni) | Part Number<br>(Bi) | Device<br>Marking<br>Code |      | Breakdown Voltage $V_{BR}$ @ $I_T$ |         |            | Maximum<br>Reverse<br>Leakage $I_R$<br>@ $V_{RWM}$<br>( $\mu\text{A}$ ) | Working<br>Peak Reverse<br>Voltage<br>$V_{RWM}$<br>(V) | Maximum<br>Reverse<br>Surge<br>Current $I_{PP}$<br>(A) | Maximum<br>Clamping<br>Voltage $V_C$<br>@ $I_{PP}$<br>(V) |
|----------------------|---------------------|---------------------------|------|------------------------------------|---------|------------|---|--|--|---|
|                      |                     | Uni                       | Bi   | Min (V)                            | Max (V) | $I_T$ (mA) |   |  |  |   |
| TPSMDJ10A            | TPSMDJ10CA          | PDXA                      | DDXA | 11.10                              | 12.30   | 1          | 15  | 10.0   | 176.47   | 17.0  |
| TPSMDJ11A            | TPSMDJ11CA          | PDZA                      | DDZA | 12.20                              | 13.50   | 1          | 2   | 11.0   | 164.84   | 18.2  |
| TPSMDJ12A            | TPSMDJ12CA          | PEEA                      | DEEA | 13.30                              | 14.70   | 1          | 2   | 12.0   | 150.75   | 19.9  |
| TPSMDJ13A            | TPSMDJ13CA          | PEGA                      | DEGA | 14.40                              | 15.90   | 1          | 2   | 13.0   | 139.53   | 21.5  |
| TPSMDJ14A            | TPSMDJ14CA          | PEKA                      | DEKA | 15.60                              | 17.20   | 1          | 2   | 14.0   | 129.31   | 23.2  |
| TPSMDJ15A            | TPSMDJ15CA          | PEMA                      | DEMA | 16.70                              | 18.50   | 1          | 2   | 15.0   | 122.95   | 24.4  |
| TPSMDJ16A            | TPSMDJ16CA          | PEPA                      | DEPA | 17.80                              | 19.70   | 1          | 2   | 16.0   | 115.38   | 26.0  |
| TPSMDJ17A            | TPSMDJ17CA          | PERA                      | DERA | 18.90                              | 20.90   | 1          | 2   | 17.0   | 108.70   | 27.6  |
| TPSMDJ18A            | TPSMDJ18CA          | PETA                      | DETA | 20.00                              | 22.10   | 1          | 2   | 18.0   | 102.74   | 29.2  |
| TPSMDJ19A            | TPSMDJ19CA          | PEBA                      | DEBA | 21.10                              | 23.30   | 1          | 2   | 19.0   | 97.47  | 30.8  |
| TPSMDJ20A            | TPSMDJ20CA          | PEVA                      | DEVA | 22.20                              | 24.50   | 1          | 2   | 20.0   | 92.59  | 32.4  |
| TPSMDJ22A            | TPSMDJ22CA          | PEXA                      | DEXA | 24.40                              | 26.90   | 1          | 2   | 22.0   | 84.51  | 35.5  |
| TPSMDJ24A            | TPSMDJ24CA          | PEZA                      | DEZA | 26.70                              | 29.50   | 1          | 2   | 24.0   | 77.12  | 38.9  |
| TPSMDJ26A            | TPSMDJ26CA          | PFEA                      | DFEA | 28.90                              | 31.90   | 1          | 2   | 26.0   | 71.26  | 42.1  |
| TPSMDJ28A            | TPSMDJ28CA          | PFGA                      | DFGA | 31.10                              | 34.40   | 1          | 2   | 28.0   | 66.08  | 45.4  |
| TPSMDJ30A            | TPSMDJ30CA          | PFKA                      | DFKA | 33.30                              | 36.80   | 1          | 2   | 30.0   | 61.98  | 48.4  |
| TPSMDJ33A            | TPSMDJ33CA          | PFMA                      | DFMA | 36.70                              | 40.60   | 1          | 2   | 33.0   | 56.29  | 53.3  |
| TPSMDJ36A            | TPSMDJ36CA          | PFPA                      | DFPA | 40.00                              | 44.20   | 1          | 2   | 36.0   | 51.64  | 58.1  |
| TPSMDJ40A            | TPSMDJ40CA          | PFRA                      | DFRA | 44.40                              | 49.10   | 1          | 2   | 40.0   | 46.51  | 64.5  |
| TPSMDJ43A            | TPSMDJ43CA          | PFTA                      | DFTA | 47.80                              | 52.80   | 1          | 2   | 43.0   | 43.23  | 69.4  |

**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