

TRANSIENT VOLTAGE SUPPRESSOR

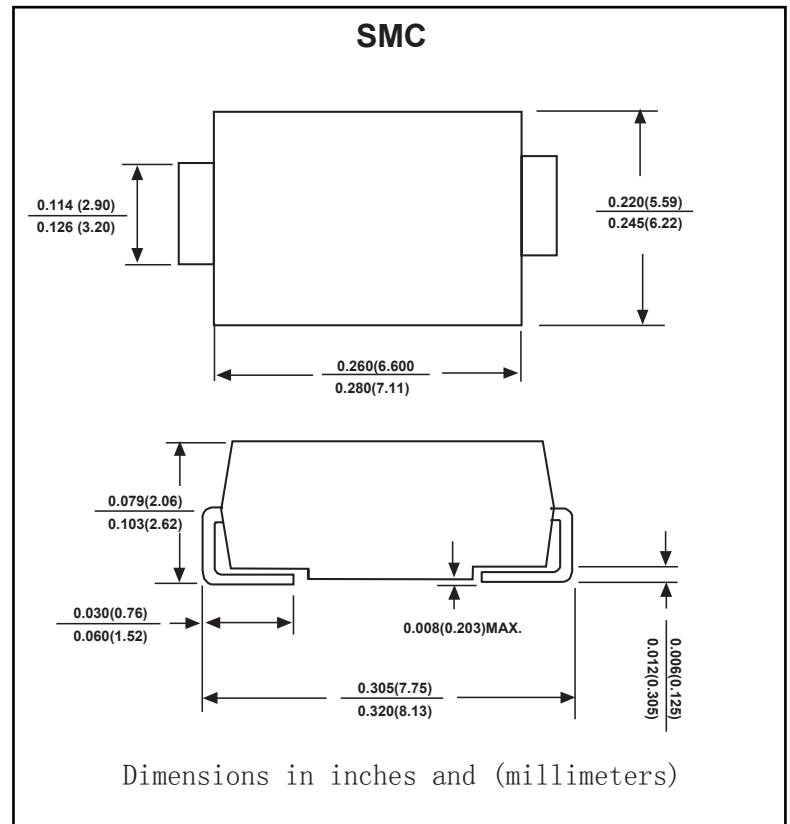
BREAKDOWN VOLTAGE: 5.0 --- 170 V
PEAK PULSE POWER: 3000 W

FEATURES

- 3000W peak pulse capability @ 10 x 1000us waveform, repetition rate (duty cycle): 0.01%
- Optimized for LAN protection applications
- Low incremental surge resistance
- excellent clamping capability
- Fast response time: typically less than 1ps from 0 Volts to V(BR) for uni-directional and 5.0ns for bi-directional types
- High temperature soldering guaranteed: 250° C/10 seconds at terminals

MECHANICAL DATA

- Case style: SMC plastic molded
- Polarity: color band denotes positive end(cathode) except for bidirectional
- Mounting position: any



DEVICES FOR BIDIRECTIONAL APPLICATIONS

For bi-directional use C or CA suffix for types SMDJ 5.0 thru types SMDJ NT0 (e.g. SMDJ5.0CA, SMDJ440CA). Electrical characteristics apply in both directions.

MAXIMUM RATINGS AND CHARACTERISTICS

@ 25°C Ambient Temperature (unless otherwise noted)

| Parameter | Symbol | Value | Units |
|--|-----------------|------------|--------------------|
| Peak Power Dissipation (Note 1.) @ $T_L = 25^\circ\text{C}$, Pulse Width = 1 ms | PPK | 3000 | W |
| Forward Surge Current (Note 2.) @ $T_A = 25^\circ\text{C}$ | IFSM | 200 | A |
| Power Dissipation On Infinite Heatsink, @ $T_A = 50^\circ\text{C}$ | PM(AV) | 5.0 | W |
| Thermal Resistance Junction To Ambient Air (Note 3.) | $R_{\theta JA}$ | 75 | $^\circ\text{C/W}$ |
| Thermal Resistance Junction To Leads | $R_{\theta JL}$ | 15 | $^\circ\text{C/W}$ |
| Storage Temperature Range | T_{STG} | -55 to 150 | $^\circ\text{C}$ |
| Operating Junction Temperature Range | T_J | -55 to 150 | $^\circ\text{C}$ |

1) 10 X 1000 us, non-repetitive

2) 1/2 sine wave (or equivalent square wave), PW = 8.3 ms, duty cycle = 4 pulses per minute maximum 3) Mounted on minimum recommended pad layout



RATINGS AND CHARACTERISTIC CURVES

Electrical Specification (T_A=25°C unless otherwise specified)

| Part Number | Part Number | Device Marking Code | | Reverse Stand off Voltage VR (Volts) | Breakdown Voltage VBR (Volts) @ IT | | Test Current IT (mA) | Maximum Clamping Voltage VC @ IPP (Volts) | Maximum Peak Pulse Current IPP (A) | Maximum Reverse Leakage IR @ VR (μA) |
|-------------|--------------|---------------------|-----|--------------------------------------|------------------------------------|------|----------------------|---|------------------------------------|--------------------------------------|
| | | UNI | BI | | MIN | MAX | | | | |
| 3.0SMDJ5.0A | 3.0SMDJ5.0CA | HDE | IDE | 5 | 6.4 | 7.07 | 10 | 9.2 | 326.1 | 500 |
| 3.0SMDJ6.0A | 3.0SMDJ6.0CA | HDG | IDG | 6 | 6.67 | 7.37 | 10 | 10.3 | 291.3 | 500 |
| 3.0SMDJ6.5A | 3.0SMDJ6.5CA | HDK | IDK | 6.5 | 7.22 | 7.98 | 10 | 11.2 | 267.9 | 300 |
| 3.0SMDJ7.0A | 3.0SMDJ7.0CA | HDM | IDM | 7 | 7.78 | 8.6 | 10 | 12 | 250.0 | 200 |
| 3.0SMDJ7.5A | 3.0SMDJ7.5CA | HDP | IDP | 7.5 | 8.33 | 9.21 | 1 | 12.9 | 232.6 | 100 |
| 3.0SMDJ8.0A | 3.0SMDJ8.0CA | HDR | IDR | 8 | 8.89 | 9.83 | 1 | 13.6 | 220.6 | 50 |
| 3.0SMDJ8.5A | 3.0SMDJ8.5CA | HDT | IDT | 8.5 | 9.44 | 10.4 | 1 | 14.4 | 208.3 | 30 |
| 3.0SMDJ9.0A | 3.0SMDJ9.0CA | HDV | IDV | 9 | 10 | 11.1 | 1 | 15.4 | 194.8 | 30 |
| 3.0SMDJ10A | 3.0SMDJ10CA | HDX | IDX | 10 | 11.1 | 12.3 | 1 | 17 | 176.5 | 5 |
| 3.0SMDJ11A | 3.0SMDJ11CA | HDZ | IDZ | 11 | 12.2 | 13.5 | 1 | 18.2 | 164.8 | 1 |
| 3.0SMDJ12A | 3.0SMDJ12CA | HEE | IEE | 12 | 13.3 | 14.7 | 1 | 19.9 | 150.8 | 1 |
| 3.0SMDJ13A | 3.0SMDJ13CA | HEG | IEG | 13 | 14.4 | 15.9 | 1 | 21.5 | 139.5 | 1 |
| 3.0SMDJ14A | 3.0SMDJ14CA | HEK | IEK | 14 | 15.6 | 17.2 | 1 | 23.2 | 129.3 | 1 |
| 3.0SMDJ15A | 3.0SMDJ15CA | HEM | IEM | 15 | 16.7 | 18.5 | 1 | 24.4 | 123.0 | 1 |
| 3.0SMDJ16A | 3.0SMDJ16CA | HEP | IEP | 16 | 17.8 | 19.7 | 1 | 26 | 115.4 | 1 |
| 3.0SMDJ17A | 3.0SMDJ17CA | HER | IER | 17 | 18.9 | 20.9 | 1 | 27.6 | 108.7 | 1 |
| 3.0SMDJ18A | 3.0SMDJ18CA | HET | IET | 18 | 20 | 22.1 | 1 | 29.2 | 102.7 | 1 |
| 3.0SMDJ20A | 3.0SMDJ20CA | HEV | IEV | 20 | 22.2 | 24.5 | 1 | 32.4 | 92.6 | 1 |
| 3.0SMDJ22A | 3.0SMDJ22CA | HEX | IEX | 22 | 24.4 | 26.9 | 1 | 35.5 | 84.5 | 1 |
| 3.0SMDJ24A | 3.0SMDJ24CA | HEZ | IEZ | 24 | 26.7 | 29.5 | 1 | 38.9 | 77.1 | 1 |
| 3.0SMDJ26A | 3.0SMDJ26CA | HFE | IFE | 26 | 28.9 | 31.9 | 1 | 42.1 | 71.3 | 1 |
| 3.0SMDJ28A | 3.0SMDJ28CA | HFG | IFG | 28 | 31.1 | 34.4 | 1 | 45.4 | 66.1 | 1 |
| 3.0SMDJ30A | 3.0SMDJ30CA | HFK | IFK | 30 | 33.3 | 36.8 | 1 | 48.4 | 62.0 | 1 |
| 3.0SMDJ33A | 3.0SMDJ33CA | HFM | IFM | 33 | 36.7 | 40.6 | 1 | 53.3 | 56.3 | 1 |
| 3.0SMDJ36A | 3.0SMDJ36CA | HFP | IFP | 36 | 40 | 44.2 | 1 | 58.1 | 51.6 | 1 |
| 3.0SMDJ40A | 3.0SMDJ40CA | HFR | IFR | 40 | 44.4 | 49.1 | 1 | 64.5 | 46.5 | 1 |
| 3.0SMDJ43A | 3.0SMDJ43CA | HFT | IFT | 43 | 47.8 | 52.8 | 1 | 69.4 | 43.2 | 1 |
| 3.0SMDJ45A | 3.0SMDJ45CA | HFV | IFV | 45 | 50 | 55.3 | 1 | 72.7 | 41.3 | 1 |
| 3.0SMDJ48A | 3.0SMDJ48CA | HFX | IFX | 48 | 53.3 | 58.9 | 1 | 77.4 | 38.8 | 1 |
| 3.0SMDJ51A | 3.0SMDJ51CA | HFZ | IFZ | 51 | 56.7 | 62.7 | 1 | 82.4 | 36.4 | 1 |
| 3.0SMDJ54A | 3.0SMDJ54CA | HGE | IGE | 54 | 60 | 66.3 | 1 | 87.1 | 34.4 | 1 |
| 3.0SMDJ58A | 3.0SMDJ58CA | HGG | IGG | 58 | 64.4 | 71.2 | 1 | 93.6 | 32.1 | 1 |
| 3.0SMDJ60A | 3.0SMDJ60CA | HGK | IGK | 60 | 66.7 | 73.7 | 1 | 96.8 | 31.0 | 1 |
| 3.0SMDJ64A | 3.0SMDJ64CA | HGM | IGM | 64 | 71.1 | 78.6 | 1 | 103 | 29.1 | 1 |

RATINGS AND CHARACTERISTIC CURVES

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

| Part Number | Part Number | Device Marking Code | | Reverse Stand off Voltage VR (Volts) | Breakdown Voltage VBR (Volts) @ IT | | Test Current IT (mA) | Maximum Clamping Voltage VC @ IPP (Volts) | Maximum Peak Pulse Current IPP (A) | Maximum Reverse Leakage IR @ VR (μA) |
|-------------|--------------|---------------------|-----|--------------------------------------|------------------------------------|------|----------------------|---|------------------------------------|---|
| | | UNI | BI | | MIN | MAX | | | | |
| 3.0SMDJ70A | 3.0SMDJ70CA | HGP | IGP | 70 | 77.8 | 86 | 1 | 113 | 26.5 | 1 |
| 3.0SMDJ75A | 3.0SMDJ75CA | HGR | IGR | 75 | 83.3 | 92.1 | 1 | 121 | 24.8 | 1 |
| 3.0SMDJ78A | 3.0SMDJ78CA | HGT | IGT | 78 | 86.7 | 95.8 | 1 | 126 | 23.8 | 1 |
| 3.0SMDJ85A | 3.0SMDJ85CA | HGV | IGV | 85 | 94.4 | 104 | 1 | 137 | 21.9 | 1 |
| 3.0SMDJ90A | 3.0SMDJ90CA | HGX | IGX | 90 | 100 | 111 | 1 | 146 | 20.5 | 1 |
| 3.0SMDJ100A | 3.0SMDJ100CA | HGZ | IGZ | 100 | 111 | 123 | 1 | 162 | 18.5 | 1 |
| 3.0SMDJ110A | 3.0SMDJ110CA | HHE | IHE | 110 | 122 | 135 | 1 | 177 | 16.9 | 1 |
| 3.0SMDJ120A | 3.0SMDJ120CA | HHG | IHG | 120 | 133 | 147 | 1 | 193 | 15.5 | 1 |
| 3.0SMDJ130A | 3.0SMDJ130CA | HHK | IHK | 130 | 144 | 159 | 1 | 209 | 14.4 | 1 |
| 3.0SMDJ150A | 3.0SMDJ150CA | HHM | IHM | 150 | 167 | 185 | 1 | 243 | 12.3 | 1 |
| 3.0SMDJ160A | 3.0SMDJ160CA | HHP | IHP | 160 | 178 | 197 | 1 | 259 | 11.6 | 1 |
| 3.0SMDJ170A | 3.0SMDJ170CA | HHR | IHR | 170 | 189 | 209 | 1 | 275 | 10.9 | 1 |

※For Bi-directional type having VRWM of 10 Volts and less, the IR limit is double

1. A transient suppressor is normally selected according to the working peak reverse voltage (VRWM), which should be equal to or greater than the DC or continuous peak operating voltage level.
2. VBR measured at pulse test current IT at an ambient temperature of 25°C .
3. Surge current waveform per Figure 1 and derate per Figure 3.

Typical Characteristics

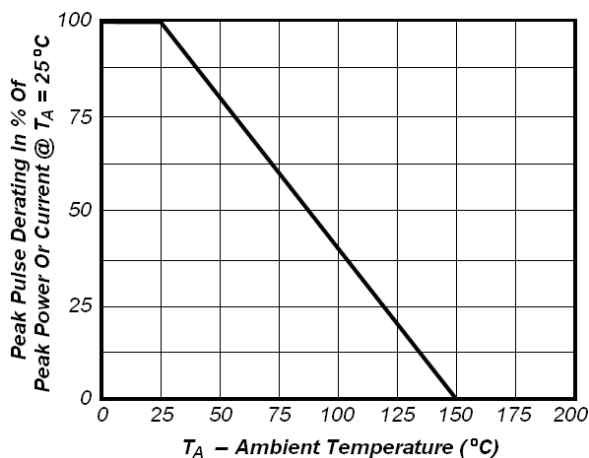


Fig1. Pulse Dearing Curve

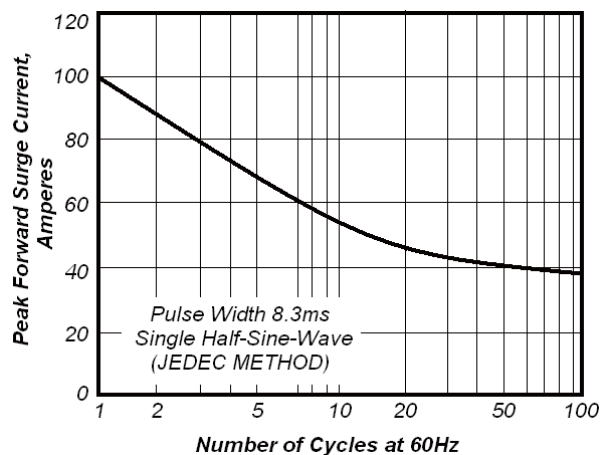


Fig2. Maximum Non-Repetitive Peak Forward Surge Current

RATINGS AND CHARACTERISTIC CURVES

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

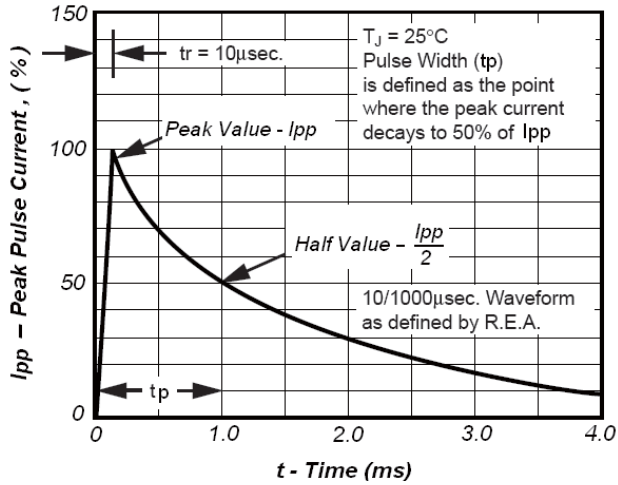


Fig3. Pulse Waveform

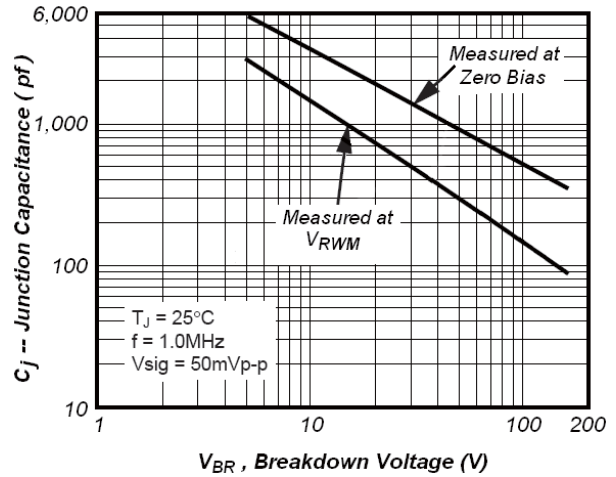


Fig4. Typical Junction Capacitance

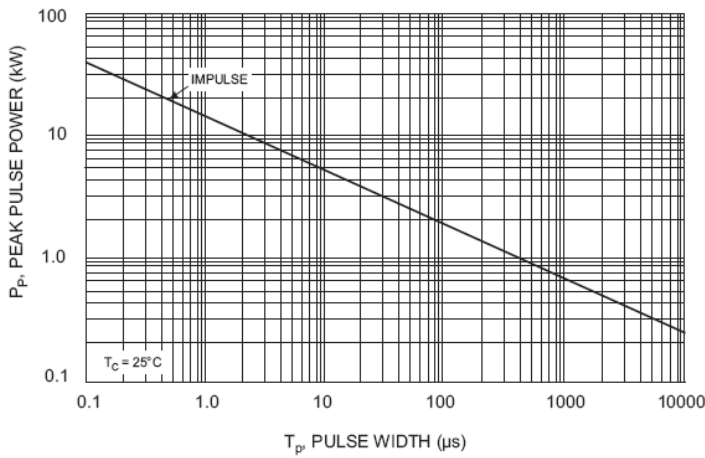


Fig5. Peak Pulse Power Rating curve

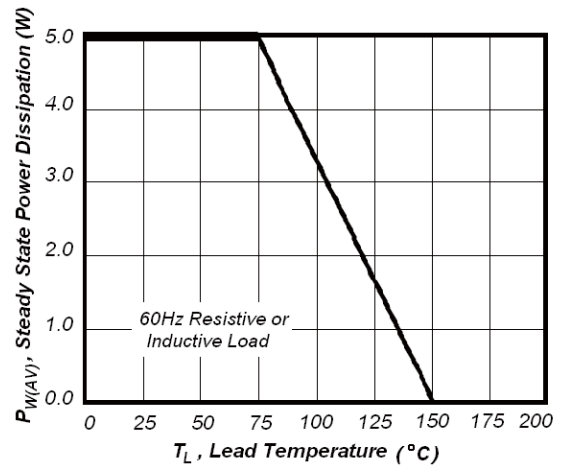


Fig6. Steady State Power Derating Curve