

TRANSIENT VOLTAGE SUPPRESSOR

FEATURE

- ✧ Plastic package.
- ✧ Glass passivated chip junction in SMA Package
- ✧ Excellent clamping capability.
- ✧ Low zener impedance.
- ✧ 400W peak pulse power capability on 10/1000µs waveform.
- ✧ Typical IR less than 1µA above 13V.
- ✧ Fast response time: typically less than 1.0ps from 0 Volts to BV min.
- ✧ High temperature soldering guaranteed: 265°C/10 seconds

MECHANICAL DATE

- ✧ Case: JEDEC SMA Molded Plastic.
- ✧ Terminals: Axial leads, solderable per MIL-STD-750, Method 2026.
- ✧ Polarity: Color band denoted cathode except bidirectional.
- ✧ Mounting Position: Any.

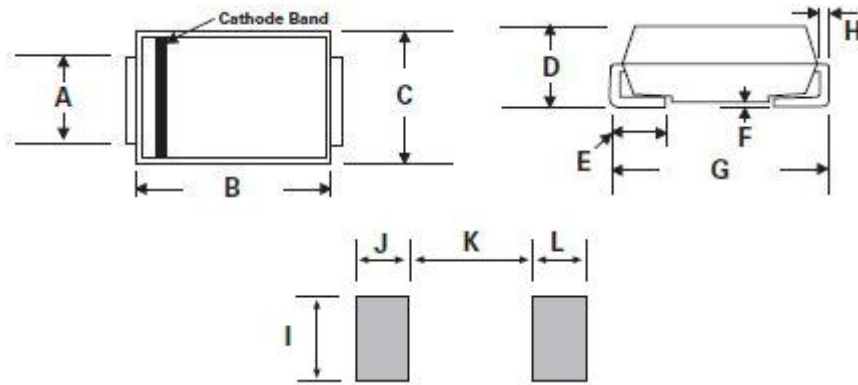
MAXIMUM RATINGS AND CHARACTERISTICS

Ratings at 25°C ambient temperature unless otherwise specified.

| | | | |
|---|----------------|-------------|-------|
| Peak Pulse Power Dissipation on 10/1000us waveform (Notel, Fig.1). | P_{PPM} | Minimum 400 | Watts |
| Peak Pulse Current of on 10/1000us waveform. (Notel, Fig.3) | I_{PPM} | See Table | Amps |
| Steady State Power Dissipation at $T_L = 75^\circ C$, Lead lengths. 375", (9.5mm) (Fig.5). | $P_{M(AV)}$ | 3.3 | Watts |
| Peak Forward Surge Current, 8.3ms Single Half Sine-Wave Superimposed on Rated Load, (JEDEC Method) (Note 2, Fig.6). | I_{FSM} | 40 | Amps |
| Operating junction and Storage Temperature Range. | T_J, T_{STG} | -55 to +150 | °C |

Notes:

1. Non-repetitive current pulse, per Fig. 3 and derated above $T_A = 25^\circ C$ per Fig. 2.
2. 8.3ms single half sine-wave, or equivalent square wave, Duty cycle = 4 pulses per minutes maximum.



| A | 1.25 | 1.65 | 0.049 | 0.065 |
|---|-------|-------|-------|-------|
| B | 3.99 | 4.5 | 0.157 | 0.177 |
| C | 2.54 | 2.79 | 0.1 | 0.11 |
| D | 1.98 | 2.29 | 0.078 | 0.09 |
| E | 0.78 | 1.52 | 0.03 | 0.06 |
| F | - | 0.203 | - | 0.008 |
| G | 4.93 | 5.28 | 0.194 | 0.208 |
| H | 0.152 | 0.305 | 0.006 | 0.012 |
| I | 1.8 | - | 0.07 | - |
| J | 2.1 | - | 0.082 | - |
| K | - | 2.3 | - | 0.09 |
| L | 2.1 | - | 0.082 | - |

ELECTRICAL CHARACTERISTICS

| Part Number | | Marking | | Reverse Stand-Off Voltage | Breakdown Voltage NIN.@IT | Breakdown Voltage VBH.@IT | Reverse Leakage @VRWM | Test Current | Peak Pulse Current | Maximum Clamping Voltage @IPP |
|-------------|-----------|---------|----|---------------------------|---------------------------|---------------------------|-----------------------|--------------|--------------------|-------------------------------|
| UNT | BI | UNT | BI | VR(V) | VBL(V) | VBH(V) | IR(uA) | IT(mA) | IPP(A) | VCH(V) |
| SMAJ5.0A | SMAJ5.0CA | AE | WE | 5.0 | 6.40 | 7.00 | 800 | 10 | 43.5 | 9.2 |
| SMAJ6.0A | SMAJ6.0CA | AG | WG | 6.0 | 6.67 | 7.37 | 800 | 10 | 38.8 | 10.3 |
| SMAJ6.5A | SMAJ6.5CA | AK | WK | 6.5 | 7.22 | 7.98 | 500 | 10 | 35.7 | 11.2 |
| SMAJ7.0A | SMAJ7.0CA | AM | WM | 7.0 | 7.78 | 8.60 | 200 | 10 | 33.3 | 12.0 |
| SMAJ7.5A | SMAJ7.5CA | AP | WP | 7.5 | 8.33 | 9.21 | 100 | 1 | 31.0 | 12.9 |
| SMAJ8.0A | SMAJ8.0CA | AR | WR | 8.0 | 8.89 | 9.83 | 50 | 1 | 29.4 | 13.6 |
| SMAJ8.5A | SMAJ8.5CA | AT | WT | 8.5 | 9.44 | 10.40 | 20 | 1 | 27.8 | 14.4 |
| SMAJ9.0A | SMAJ9.0CA | AV | WV | 9.0 | 10.00 | 11.10 | 10 | 1 | 26.0 | 15.4 |
| SMAJ10A | SMAJ10CA | AX | WX | 10 | 11.10 | 12.30 | 5 | 1 | 23.5 | 17.0 |
| SMAJ11A | SMAJ11CA | AZ | WZ | 11 | 12.20 | 13.50 | 1 | 1 | 22.0 | 18.2 |
| SMAJ12A | SMAJ12CA | BE | XE | 12 | 13.30 | 14.70 | 1 | 1 | 20.1 | 19.9 |
| SMAJ13A | SMAJ13CA | BG | XG | 13 | 14.40 | 15.90 | 1 | 1 | 18.6 | 21.5 |

| Part Number | | Marking | | Reverse Stand-Off Voltage | Breakdown Voltage NIN.@IT | Breakdown Voltage MAX.@IT | Reverse Leakage @VRWM | Test Current | Peak Pulse Current | Maximum Clamping Voltage @IPP |
|-------------|-----------|---------|----|---------------------------|---------------------------|---------------------------|-----------------------|--------------|--------------------|-------------------------------|
| UNT | BI | UNT | BI | VR(V) | VBL(V) | VBH(V) | IR(μA) | IT(mA) | IPP(A) | VCH(V) |
| SMAJ14A | SMAJ14CA | BK | XK | 14 | 15.60 | 17.20 | 1 | 1 | 17.2 | 23.2 |
| SMAJ15A | SMAJ15CA | BM | XM | 15 | 16.70 | 18.50 | 1 | 1 | 16.4 | 24.4 |
| SMAJ16A | SMAJ16CA | BP | XP | 16 | 17.80 | 19.70 | 1 | 1 | 15.4 | 26.0 |
| SMAJ17A | SMAJ17CA | BR | XR | 17 | 18.90 | 20.90 | 1 | 1 | 14.5 | 27.6 |
| SMAJ18A | SMAJ18CA | BT | XT | 18 | 20.00 | 22.10 | 1 | 1 | 13.7 | 29.2 |
| SMAJ20A | SMAJ20CA | BV | XV | 20 | 22.20 | 24.50 | 1 | 1 | 12.3 | 32.4 |
| SMAJ22A | SMAJ22CA | BX | XX | 22 | 24.40 | 26.90 | 1 | 1 | 11.3 | 35.5 |
| SMAJ24A | SMAJ24CA | BZ | XZ | 24 | 26.70 | 29.50 | 1 | 1 | 10.3 | 38.9 |
| SMAJ26A | SMAJ26CA | CE | YE | 26 | 28.90 | 31.90 | 1 | 1 | 9.5 | 42.1 |
| SMAJ28A | SMAJ28CA | CG | YG | 28 | 31.10 | 34.40 | 1 | 1 | 8.8 | 45.4 |
| SMAJ30A | SMAJ30CA | CK | YK | 30 | 33.30 | 36.80 | 1 | 1 | 8.3 | 48.4 |
| SMAJ33A | SMAJ33CA | CM | YM | 33 | 40.00 | 44.20 | 1 | 1 | 6.9 | 58.1 |
| SMAJ36A | SMAJ36CA | CP | YP | 36 | 36.70 | 40.60 | 1 | 1 | 7.5 | 53.3 |
| SMAJ40A | SMAJ40CA | CR | YR | 40 | 44.40 | 49.10 | 1 | 1 | 6.2 | 64.5 |
| SMAJ43A | SMAJ43CA | CT | YT | 43 | 47.80 | 52.80 | 1 | 1 | 5.8 | 69.4 |
| SMAJ45A | SMAJ45CA | CV | YV | 45 | 50.00 | 55.30 | 1 | 1 | 5.5 | 72.7 |
| SMAJ48A | SMAJ48CA | CX | YX | 48 | 53.30 | 58.90 | 1 | 1 | 5.2 | 77.4 |
| SMAJ51A | SMAJ51CA | CZ | YZ | 51 | 56.70 | 62.70 | 1 | 1 | 4.9 | 82.4 |
| SMAJ54A | SMAJ54CA | RE | ZE | 54 | 60.00 | 66.30 | 1 | 1 | 4.6 | 87.1 |
| SMAJ58A | SMAJ58CA | RG | ZG | 58 | 64.40 | 71.20 | 1 | 1 | 4.3 | 93.6 |
| SMAJ60A | SMAJ60CA | RK | ZK | 60 | 66.70 | 73.70 | 1 | 1 | 4.1 | 96.8 |
| SMAJ64A | SMAJ64CA | RM | ZM | 64 | 71.10 | 78.60 | 1 | 1 | 3.9 | 103 |
| SMAJ70A | SMAJ70CA | RP | ZP | 70 | 77.80 | 86.00 | 1 | 1 | 3.5 | 113 |
| SMAJ75A | SMAJ75CA | RR | ZR | 75 | 83.30 | 92.10 | 1 | 1 | 3.3 | 121 |
| SMAJ78A | SMAJ78CA | RT | ZT | 78 | 86.70 | 95.80 | 1 | 1 | 3.2 | 126 |
| SMAJ85A | SMAJ85CA | RV | ZV | 85 | 94.4 | 104.0 | 1 | 1 | 2.9 | 137 |
| SMAJ90A | SMAJ90CA | RX | ZX | 90 | 100.0 | 111.0 | 1 | 1 | 2.7 | 146 |
| SMAJ100A | SMAJ100CA | RZ | ZZ | 100 | 111.0 | 123.0 | 1 | 1 | 2.5 | 162 |
| SMAJ110A | SMAJ110CA | SE | VE | 110 | 122.0 | 135.0 | 1 | 1 | 2.3 | 177 |
| SMAJ120A | SMAJ120CA | SG | VG | 120 | 133.0 | 147.0 | 1 | 1 | 2.1 | 193 |
| SMAJ130A | SMAJ130CA | SK | VK | 130 | 144.0 | 159.0 | 1 | 1 | 1.9 | 209 |
| SMAJ150A | SMAJ150CA | SM | VM | 150 | 167.0 | 185.0 | 1 | 1 | 1.6 | 243 |
| SMAJ160A | SMAJ160CA | SP | VP | 160 | 178.0 | 197.0 | 1 | 1 | 1.5 | 259 |
| SMAJ170A | SMAJ170CA | SR | VR | 170 | 189.0 | 209.0 | 1 | 1 | 1.5 | 275 |
| SMAJ180A | SMAJ180CA | ST | VT | 180 | 201.0 | 222.0 | 1 | 1 | 1.4 | 292 |
| SMAJ190A | SMAJ190CA | SU | YU | 190 | 209.0 | 243.0 | 1 | 1 | 1.3 | 308 |
| SMAJ200A | SMAJ200CA | SW | YW | 200 | 224.0 | 247.0 | 1 | 1 | 1.2 | 324 |
| SMAJ220A | SMAJ220CA | GE | VX | 220 | 246.0 | 272.0 | 1 | 1 | 1.1 | 356 |
| SMAJ250A | SMAJ250CA | SZ | VZ | 250 | 279.0 | 309.0 | 1 | 1 | 1.0 | 405 |
| SMAJ300A | SMAJ300CA | TE | UE | 300 | 335.0 | 371.0 | 1 | 1 | 0.8 | 486 |
| SMAJ350A | SMAJ350CA | TG | UG | 350 | 391.0 | 432.0 | 1 | 1 | 0.7 | 567 |
| SMAJ400A | SMAJ400CA | TK | UK | 400 | 447.0 | 494.0 | 1 | 1 | 0.6 | 648 |
| SMAJ440A | SMAJ440CA | TM | UM | 440 | 492.0 | 543.0 | 1 | 1 | 0.6 | 713 |

Notes: For bidirectional type having VRWM of 10 volts and less, the IR limit is double.

RATINGS AND CHARACTERISTIC CURVES ($T_A=25^\circ\text{C}$ unless otherwise noted)

Figure 1 - Peak Pulse Power Rating Curve

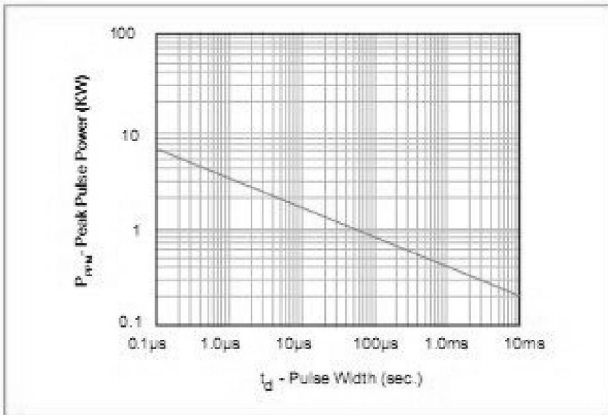


Figure 2 - Pulse Derating Curve

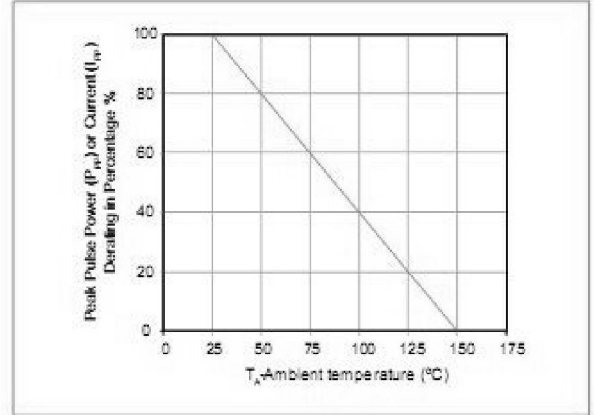


Figure 3 - Pulse Waveform

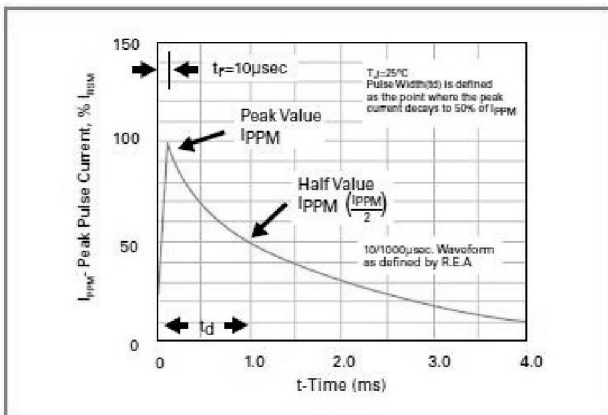


Figure 4 - Typical Junction Capacitance Uni-Directional

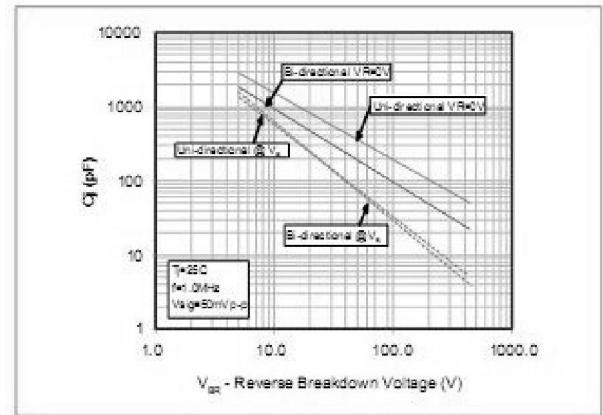


Figure 5 - Steady State Power Dissipation Derating Curve

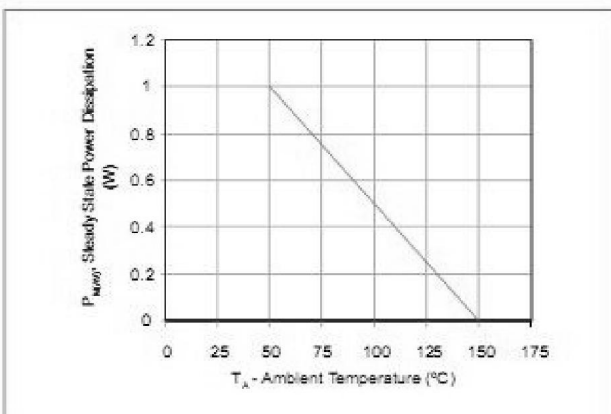
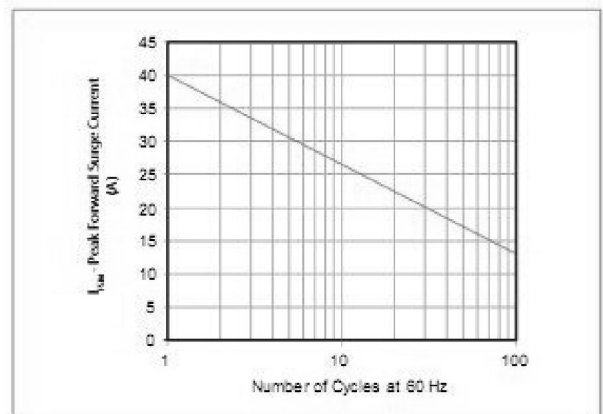


Figure 6 - Maximum Non-Repetitive Forward Surge Current Uni-Directional Only



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[P6KE13CA](#) [P6KE43CA](#) [P6KE6.8CA](#) [P6KE8.2](#) [P6SMBJ20CA](#) [JANTX1N6072A](#) [SR2835ESKG](#) [SA90CA](#)