



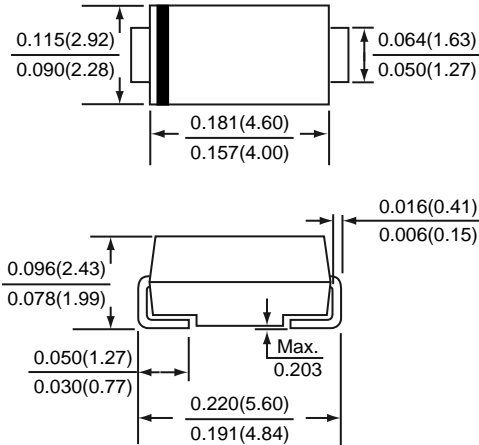
SMAJ SERIES

GLASS PASSIVATED SURFACE MOUNT TRANSIENT VOLTAGE SUPPRESSOR

Reverse Voltage - 5.0 to 440 Volts

Peak Pulse Power-400 Watts

SMA/DO-214AC



*Dimensions in inches and (millimeters)

FEATURES

- * Glass passivated chip
- * 400 W peak pulse power capability with a 10/1000 μ s waveform, repetitive rate (duty cycle) : 0.01%
- * Low leakage
- * Excellent clamping capability
- * Very fast response time

MECHANICAL DATA

Case : JEDEC DO-214AC molded plastic

Terminals : Solder plated, solderable per MIL-STD-750, Method 2026

Polarity : Color band denotes positive end (cathode) except for bidirectional types

Mounting position : Any

MAXIMUM RATINGS AND ELECTRICAL CHARACTERISTICS

*Ratings at 25 °C ambient temperature unless otherwise specified.
single phase, half wave, 60Hz resistive or inductive load.
for capacitive load, derate current by 20%*

| RATING | SYMBOL | VALUE | UNITS |
|--|-----------------------------------|----------------|-------|
| Peak power dissipation with a 10/1000 μ s waveform | P _{PPM} | 400 | Watts |
| Peak pulse current with a 10/1000 μ s waveform | I _{PPM} | See next table | Amps |
| Power dissipation on infinite heatsink at T _L = 75 | P _D | 1.0 | Watts |
| Peak forward surge current, 8.3ms single half sine-wave unidirectional only (note 1) | I _{FSM} | 40 | Amps |
| Maximum instantaneous forward voltage at 25A for unidirectional only (note 2) | V _F | 3.5 / 5.0 | Volts |
| Operating junction and storage temperature range | T _J , T _{STG} | -55 to +150 | |

NOTES : (1) Measured on 8.3ms single half sine-wave or equivalent square wave, duty cycle = 4 pulses per minute maximum.

(2) V_F = 3.5V on SMAJ5.0A thru SMAJ90A devices and V_F = 5.0V on SMAJ100A thru SMAJ440A devices.

| SMAJ PART NUMBER | | Device Marking Code | | Working Peak Reverse Voltage V_{RWM} (V) | Breakdown Voltage V_{BR} @ I_T | | | Maximum Clamping Voltage V_C (V) @ I_{PP} | Maximum Reverse Surge Current I_{PP} (A) @ $10 \times 1000 \mu s$ sinewave | Maximum Reverse Leakage I_R (μA) @ V_{RWM} |
|------------------|-----------|---------------------|----|--|------------------------------------|----------|------------|---|--|---|
| UNI- POLAR | BI-POLAR | UNI | BI | | Min. (V) | Max. (V) | I_T (mA) | | | |
| SMAJ5.0A | SMAJ5.0CA | AE | WE | 5.0 | 6.4 | 7.00 | 10 | 9.2 | 43.48 | 800 |
| SMAJ6.0A | SMAJ6.0CA | AG | WG | 6.0 | 6.7 | 7.37 | 10 | 10.3 | 38.83 | 800 |
| SMAJ6.5A | SMAJ6.5CA | AK | WK | 6.5 | 7.2 | 7.98 | 10 | 11.2 | 35.71 | 500 |
| SMAJ7.0A | SMAJ7.0CA | AM | WM | 7.0 | 7.8 | 8.60 | 10 | 12.0 | 33.33 | 200 |
| SMAJ7.5A | SMAJ7.5CA | AP | WP | 7.5 | 8.3 | 9.21 | 1 | 12.9 | 31.01 | 100 |
| SMAJ8.0A | SMAJ8.0CA | AR | WR | 8.0 | 8.9 | 9.83 | 1 | 13.6 | 29.41 | 50 |
| SMAJ8.5A | SMAJ8.5CA | AT | WT | 8.5 | 9.4 | 10.4 | 1 | 14.4 | 27.78 | 10 |
| SMAJ9.0A | SMAJ9.0CA | AV | WV | 9.0 | 10.0 | 11.1 | 1 | 15.4 | 25.97 | 5 |
| SMAJ10A | SMAJ10CA | AX | WX | 10 | 11.1 | 12.3 | 1 | 17.0 | 23.53 | 1 |
| SMAJ11A | SMAJ11CA | AZ | WZ | 11 | 12.2 | 13.5 | 1 | 18.2 | 21.98 | 1 |
| SMAJ12A | SMAJ12CA | BE | XE | 12 | 13.3 | 14.7 | 1 | 19.9 | 20.10 | 1 |
| SMAJ13A | SMAJ13CA | BG | XG | 13 | 14.4 | 15.9 | 1 | 21.5 | 18.60 | 1 |
| SMAJ14A | SMAJ14CA | BK | XK | 14 | 15.6 | 17.2 | 1 | 23.2 | 17.24 | 1 |
| SMAJ15A | SMAJ15CA | BM | XM | 15 | 16.7 | 18.5 | 1 | 24.4 | 16.39 | 1 |
| SMAJ16A | SMAJ16CA | BP | XP | 16 | 17.8 | 19.7 | 1 | 26.0 | 15.38 | 1 |
| SMAJ17A | SMAJ17CA | BR | XR | 17 | 18.9 | 20.9 | 1 | 27.6 | 14.49 | 1 |
| SMAJ18A | SMAJ18CA | BT | XT | 18 | 20.0 | 22.1 | 1 | 29.2 | 13.70 | 1 |
| SMAJ19A | SMAJ19CA | BB | XB | 19 | 21.1 | 23.3 | 1 | 30.8 | 13.00 | 1 |
| SMAJ20A | SMAJ20CA | BV | XV | 20 | 22.2 | 24.5 | 1 | 32.4 | 12.35 | 1 |
| SMAJ22A | SMAJ22CA | BX | XX | 22 | 24.4 | 26.9 | 1 | 35.5 | 11.27 | 1 |
| SMAJ24A | SMAJ24CA | BZ | XZ | 24 | 26.7 | 29.5 | 1 | 38.9 | 10.28 | 1 |
| SMAJ26A | SMAJ26CA | CE | YE | 26 | 28.9 | 31.9 | 1 | 42.1 | 9.50 | 1 |
| SMAJ28A | SMAJ28CA | CG | YG | 28 | 31.1 | 34.4 | 1 | 45.4 | 8.81 | 1 |
| SMAJ30A | SMAJ30CA | CK | YK | 30 | 33.3 | 36.8 | 1 | 48.4 | 8.26 | 1 |
| SMAJ33A | SMAJ33CA | CM | YM | 33 | 36.7 | 40.6 | 1 | 53.3 | 7.50 | 1 |
| SMAJ36A | SMAJ36CA | CP | YP | 36 | 40.0 | 44.2 | 1 | 58.1 | 6.88 | 1 |
| SMAJ40A | SMAJ40CA | CR | YR | 40 | 44.4 | 49.1 | 1 | 64.5 | 6.20 | 1 |
| SMAJ43A | SMAJ43CA | CT | YT | 43 | 47.8 | 52.8 | 1 | 69.4 | 5.76 | 1 |
| SMAJ45A | SMAJ45CA | CV | YV | 45 | 50.0 | 55.3 | 1 | 72.7 | 5.50 | 1 |
| SMAJ48A | SMAJ48CA | CX | YX | 48 | 53.3 | 58.9 | 1 | 77.4 | 5.17 | 1 |
| SMAJ51A | SMAJ51CA | CZ | YZ | 51 | 56.7 | 62.7 | 1 | 82.4 | 4.85 | 1 |
| SMAJ54A | SMAJ54CA | RE | ZE | 54 | 60.0 | 66.3 | 1 | 87.1 | 4.59 | 1 |
| SMAJ58A | SMAJ58CA | RG | ZG | 58 | 64.4 | 71.2 | 1 | 93.6 | 4.27 | 1 |
| SMAJ60A | SMAJ60CA | RK | ZK | 60 | 66.7 | 73.7 | 1 | 96.8 | 4.13 | 1 |
| SMAJ64A | SMAJ64CA | RM | ZM | 64 | 71.1 | 78.6 | 1 | 103 | 3.88 | 1 |
| SMAJ70A | SMAJ70CA | RP | ZP | 70 | 77.8 | 86.0 | 1 | 113 | 3.54 | 1 |
| SMAJ75A | SMAJ75CA | RR | ZR | 75 | 83.3 | 92.1 | 1 | 121 | 3.31 | 1 |
| SMAJ78A | SMAJ78CA | RT | ZT | 78 | 86.7 | 95.8 | 1 | 126 | 3.17 | 1 |
| SMAJ80A | SMAJ80CA | RB | ZB | 80 | 88.8 | 97.6 | 1 | 130 | 3.09 | 1 |
| SMAJ85A | SMAJ85CA | RV | ZV | 85 | 94.4 | 104 | 1 | 137 | 2.92 | 1 |
| SMAJ90A | SMAJ90CA | RX | ZX | 90 | 100 | 111 | 1 | 146 | 2.74 | 1 |
| SMAJ100A | SMAJ100CA | RZ | ZZ | 100 | 111 | 123 | 1 | 162 | 2.47 | 1 |
| SMAJ110A | SMAJ110CA | SE | VE | 110 | 122 | 135 | 1 | 177 | 2.26 | 1 |
| SMAJ120A | SMAJ120CA | SG | VG | 120 | 133 | 147 | 1 | 193 | 2.07 | 1 |
| SMAJ130A | SMAJ130CA | SK | VK | 130 | 144 | 159 | 1 | 209 | 1.91 | 1 |
| SMAJ140A | SMAJ140CA | SB | VB | 140 | 155 | 171 | 1 | 227 | 1.76 | 1 |
| SMAJ150A | SMAJ150CA | SM | VM | 150 | 167 | 185 | 1 | 243 | 1.65 | 1 |
| SMAJ160A | SMAJ160CA | SP | VP | 160 | 178 | 197 | 1 | 259 | 1.54 | 1 |
| SMAJ170A | SMAJ170CA | SR | VR | 170 | 189 | 209 | 1 | 275 | 1.45 | 1 |
| SMAJ180A | SMAJ180CA | ST | VT | 180 | 200 | 220 | 1 | 292 | 1.37 | 1 |
| SMAJ190A | SMAJ190CA | SV | VV | 190 | 211 | 232 | 1 | 308 | 1.30 | 1 |
| SMAJ200A | SMAJ200CA | SW | VW | 200 | 224 | 247 | 1 | 324 | 1.23 | 1 |
| SMAJ220A | SMAJ220CA | SX | VX | 220 | 246 | 272 | 1 | 356 | 1.12 | 1 |
| SMAJ250A | SMAJ250CA | SZ | VZ | 250 | 279 | 309 | 1 | 405 | 0.99 | 1 |
| SMAJ300A | SMAJ300CA | DE | HE | 300 | 335 | 371 | 1 | 486 | 0.82 | 1 |
| SMAJ350A | SMAJ350CA | DG | HG | 350 | 391 | 432 | 1 | 567 | 0.71 | 1 |
| SMAJ400A | SMAJ400CA | DK | HK | 400 | 447 | 494 | 1 | 648 | 0.62 | 1 |
| SMAJ440A | SMAJ440CA | DM | HM | 440 | 492 | 543 | 1 | 713 | 0.56 | 1 |

NOTE: 1. Suffix " A " denotes 5% tolerance device.
 2. Add suffix " CA " after part number to specify Bi-directional devices.
 3. For Bi-Directional devices having V_R of 10 volts and under, the I_R limit is double.

RATINGS AND CHARACTERISTIC CURVES SMAJ SERIES

FIG. 1 - PULSE DERATING CURVE

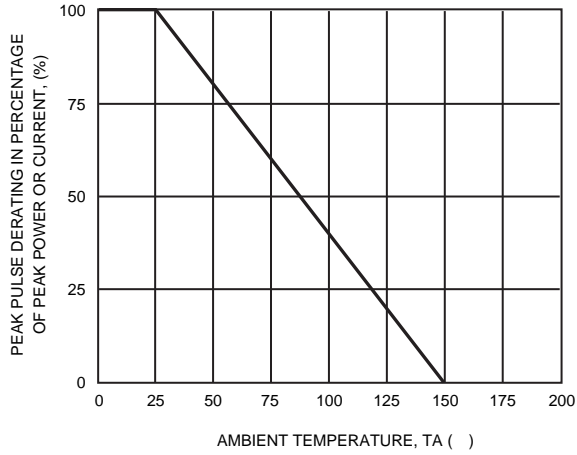


FIG. 2 - MAXIMUM NON-REPETITIVE

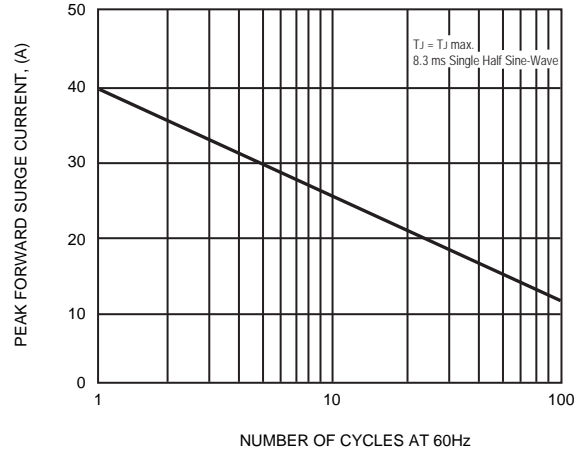


FIG. 3 - STEADY STATE POWER DERATING CURVE

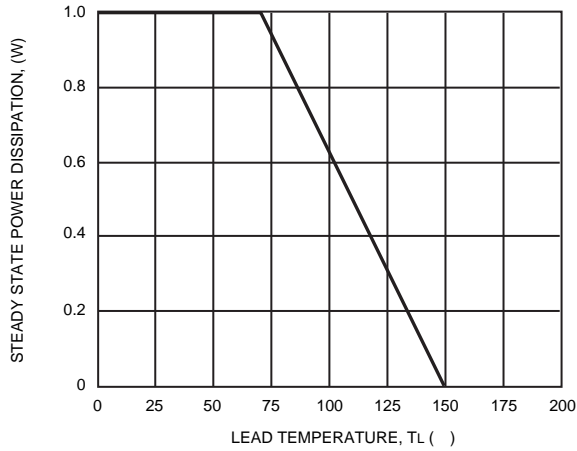


FIG. 4 - PEAK PULSE POWER RATING CURVE

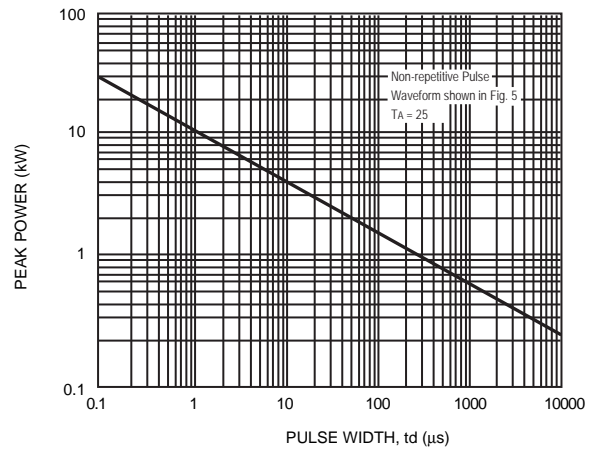


FIG. 5 - PULSE WAVEFORM

