



SMAJxx(C)A Series

Surface Mount Transient Voltage Suppressor Rectifiers

Reverse Voltage 5.0 ~ 550 V

400 Watt Peak Pulse Power



Features

- Glass passivated chip
- 400 W peak pulse power capability with a 10/1000 us waveform, repetitive rate (duty cycle):0.01 %
- Excellent clamping capability
- Low reverse leakage
- Very fast response time
- Lead and body according with RoHS standard

Mechanical Data

- Case: DO214AC/(SMA) Molded plastic
- Lead: Solderable per MIL-STD-750, method 2026
- Epoxy: UL 94V-0 rate flame retardant
- Polarity: Color band denotes cathode end except Bipolar
- Mounting position: Any

Maximum Ratings & Characteristics Ratings at 25°C ambient temperature unless otherwise specified.

| Parameter | Symbols | Value | Unit |
|--|-----------------------------------|----------------|------|
| Peak power dissipation with a 10/1000 us waveform ⁽¹⁾ | P _{PP} | 400 | W |
| Peak pulse current with a 10/1000 us waveform ⁽¹⁾ | I _{PP} | See Next Table | A |
| Power dissipation on infinite heatsink at TL = 75 °C | P _D | 3.0 | W |
| Peak forward surge current, 8.3 ms single half sinewave unidirectional only ⁽²⁾ | I _{FSM} | 40 | A |
| Maximum instantaneous forward voltage at 25 A for unidirectional only ⁽³⁾ | V _F | 3.5/6.5 | V |
| Operating junction and storage temperature range | T _J , T _{STG} | -55 to +150 | °C |

Note:

1)Non-repetitive current pulse per Fig.5 and derated above TA= 25 °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<3.5V for devices of VBR<200V and V_F<6.5V for devices of VBR>201V.



SMAJxx(C)A Series

| Part Number | | Device Marking Code | | Reverse Stand-off Voltage | Breakdown Voltage $V_{BR} @ I_T$ | | Test Current | Max. Clamping Voltage @ I_{PP} | Max. Peak Pulse Current | Max. Reverse Leakage @ V_{RWM} |
|-------------|-----------|---------------------|----|---------------------------|----------------------------------|---------|--------------|----------------------------------|-------------------------|----------------------------------|
| UNI-POLAR | BI-POLAR | UNI | BI | $V_{RWM}(V)$ | Min.(V) | Max.(V) | $I_T(mA)$ | $V_{C MAX.}(V)$ | $I_{PP}(A)$ | $I_R(\mu A)$ |
| SMAJ5.0A | SMAJ5.0CA | AE | WE | 5.0 | 6.40 | 7.00 | 10 | 9.2 | 43.5 | 800 |
| SMAJ6.0A | SMAJ6.0CA | AG | WG | 6.0 | 6.67 | 7.37 | 10 | 10.3 | 38.8 | 800 |
| SMAJ6.5A | SMAJ6.5CA | AK | WK | 6.5 | 7.22 | 7.98 | 10 | 11.2 | 35.7 | 500 |
| SMAJ7.0A | SMAJ7.0CA | AM | WM | 7.0 | 7.78 | 8.60 | 10 | 12.0 | 33.3 | 200 |
| SMAJ7.5A | SMAJ7.5CA | AP | WP | 7.5 | 8.33 | 9.21 | 1 | 12.9 | 31.0 | 100 |
| SMAJ8.0A | SMAJ8.0CA | AR | WR | 8.0 | 8.89 | 9.83 | 1 | 13.6 | 29.4 | 50 |
| SMAJ8.5A | SMAJ8.5CA | AT | WT | 8.5 | 9.44 | 10.40 | 1 | 14.4 | 27.8 | 20 |
| SMAJ9.0A | SMAJ9.0CA | AV | WV | 9.0 | 10.00 | 11.10 | 1 | 15.4 | 26.0 | 10 |
| SMAJ10A | SMAJ10CA | AX | WX | 10.0 | 11.10 | 12.30 | 1 | 17.0 | 23.5 | 5 |
| SMAJ11A | SMAJ11CA | AZ | WZ | 11.0 | 12.20 | 13.50 | 1 | 18.2 | 22.0 | 1 |
| SMAJ12A | SMAJ12CA | BE | XE | 12.0 | 13.30 | 14.70 | 1 | 19.9 | 20.1 | 1 |
| SMAJ13A | SMAJ13CA | BG | XG | 13.0 | 14.40 | 15.90 | 1 | 21.5 | 18.6 | 1 |
| SMAJ14A | SMAJ14CA | BK | XK | 14.0 | 15.60 | 17.20 | 1 | 23.2 | 17.2 | 1 |
| SMAJ15A | SMAJ15CA | BM | XM | 15.0 | 16.70 | 18.50 | 1 | 24.4 | 16.4 | 1 |
| SMAJ16A | SMAJ16CA | BP | XP | 16.0 | 17.80 | 19.70 | 1 | 26.0 | 15.4 | 1 |
| SMAJ17A | SMAJ17CA | BR | XR | 17.0 | 18.90 | 20.90 | 1 | 27.6 | 14.5 | 1 |
| SMAJ18A | SMAJ18CA | BT | XT | 18.0 | 20.00 | 22.10 | 1 | 29.2 | 13.7 | 1 |
| SMAJ20A | SMAJ20CA | BV | XV | 20.0 | 22.20 | 24.50 | 1 | 32.4 | 12.3 | 1 |
| SMAJ22A | SMAJ22CA | BX | XX | 22.0 | 24.40 | 26.90 | 1 | 35.5 | 11.3 | 1 |
| SMAJ24A | SMAJ24CA | BZ | XZ | 24.0 | 26.70 | 29.50 | 1 | 38.9 | 10.3 | 1 |
| SMAJ26A | SMAJ26CA | CE | YE | 26.0 | 28.90 | 31.90 | 1 | 42.1 | 9.5 | 1 |
| SMAJ28A | SMAJ28CA | CG | YG | 28.0 | 31.10 | 34.40 | 1 | 45.4 | 8.8 | 1 |
| SMAJ30A | SMAJ30CA | CK | YK | 30.0 | 33.50 | 36.80 | 1 | 48.4 | 8.3 | 1 |
| SMAJ33A | SMAJ33CA | CM | YM | 33.0 | 36.70 | 40.60 | 1 | 53.3 | 7.5 | 1 |
| SMAJ36A | SMAJ36CA | CP | YP | 36.0 | 40.00 | 44.20 | 1 | 58.1 | 6.9 | 1 |
| SMAJ40A | SMAJ40CA | CR | YR | 40.0 | 44.40 | 49.10 | 1 | 64.5 | 6.2 | 1 |
| SMAJ43A | SMAJ43CA | CT | YT | 43.0 | 47.80 | 52.80 | 1 | 69.4 | 5.8 | 1 |
| SMAJ45A | SMAJ45CA | CV | YV | 45.0 | 50.00 | 55.30 | 1 | 72.7 | 5.5 | 1 |
| SMAJ48A | SMAJ48CA | CX | YX | 48.0 | 53.30 | 58.90 | 1 | 77.4 | 5.2 | 1 |
| SMAJ51A | SMAJ51CA | CZ | YZ | 51.0 | 56.70 | 62.70 | 1 | 82.4 | 4.9 | 1 |
| SMAJ54A | SMAJ54CA | RE | ZE | 54.0 | 60.00 | 66.30 | 1 | 87.1 | 4.6 | 1 |
| SMAJ58A | SMAJ58CA | RG | ZG | 58.0 | 64.40 | 71.20 | 1 | 93.6 | 4.3 | 1 |
| SMAJ60A | SMAJ60CA | RK | ZK | 60.0 | 66.70 | 73.70 | 1 | 96.8 | 4.1 | 1 |
| SMAJ64A | SMAJ64CA | RM | ZM | 64.0 | 71.10 | 78.60 | 1 | 103.0 | 3.9 | 1 |
| SMAJ70A | SMAJ70CA | RP | ZP | 70.0 | 77.80 | 86.00 | 1 | 113.0 | 3.5 | 1 |
| SMAJ75A | SMAJ75CA | RR | ZR | 75.0 | 83.30 | 92.10 | 1 | 121.0 | 3.3 | 1 |
| SMAJ78A | SMAJ78CA | RT | ZT | 78.0 | 86.70 | 95.80 | 1 | 126.0 | 3.2 | 1 |
| SMAJ85A | SMAJ85CA | RV | ZV | 85.0 | 94.4 | 104.0 | 1 | 137.0 | 2.9 | 1 |
| SMAJ90A | SMAJ90CA | RX | ZX | 90.0 | 100.0 | 111.0 | 1 | 146.0 | 2.7 | 1 |
| SMAJ100A | SMAJ100CA | RZ | ZZ | 100.0 | 111.0 | 123.0 | 1 | 162.0 | 2.5 | 1 |
| SMAJ110A | SMAJ110CA | SE | VE | 110.0 | 122.0 | 135.0 | 1 | 177.0 | 2.3 | 1 |
| SMAJ120A | SMAJ120CA | SG | VG | 120.0 | 133.0 | 147.0 | 1 | 193.0 | 2.1 | 1 |
| SMAJ130A | SMAJ130CA | SK | VK | 130.0 | 144.0 | 159.0 | 1 | 209.0 | 1.9 | 1 |
| SMAJ150A | SMAJ150CA | SM | VM | 150.0 | 167.0 | 185.0 | 1 | 243.0 | 1.6 | 1 |
| SMAJ160A | SMAJ160CA | SP | VP | 160.0 | 178.0 | 197.0 | 1 | 259.0 | 1.5 | 1 |
| SMAJ170A | SMAJ170CA | SR | VR | 170.0 | 189.0 | 209.0 | 1 | 275.0 | 1.5 | 1 |
| SMAJ180A | SMAJ180CA | ST | VT | 180.0 | 201.0 | 222.0 | 1 | 292.0 | 1.4 | 1 |
| SMAJ190A | SMAJ190CA | SU | YU | 190.0 | 209.0 | 243.0 | 1 | 308.0 | 1.3 | 1 |
| SMAJ200A | SMAJ200CA | SV | VV | 200.0 | 224.0 | 247.0 | 1 | 324.0 | 1.2 | 1 |
| SMAJ210A | SMAJ210CA | SW | YW | 210.0 | 231.0 | 268.0 | 1 | 340.0 | 1.2 | 1 |
| SMAJ220A | SMAJ220CA | GX | VX | 220.0 | 246.0 | 272.0 | 1 | 356.0 | 1.1 | 1 |
| SMAJ250A | SMAJ250CA | SZ | VZ | 250.0 | 279.0 | 309.0 | 1 | 405.0 | 1.0 | 1 |
| SMAJ300A | SMAJ300CA | TE | UE | 300.0 | 335.0 | 371.0 | 1 | 486.0 | 0.8 | 1 |
| SMAJ350A | SMAJ350CA | TG | UG | 350.0 | 391.0 | 432.0 | 1 | 567.0 | 0.7 | 1 |
| SMAJ400A | SMAJ400CA | TK | UK | 400.0 | 447.0 | 494.0 | 1 | 648.0 | 0.6 | 1 |
| SMAJ440A | SMAJ440CA | TM | UM | 440.0 | 492.0 | 543.0 | 1 | 713.0 | 0.6 | 1 |
| SMAJ480A | SMAJ480CA | TP | UP | 480.0 | 536.0 | 593.0 | 1 | 750.0 | 0.5 | 1 |
| SMAJ520A | SMAJ520CA | TR | UR | 520.0 | 578.0 | 640.0 | 1 | 762.0 | 0.5 | 1 |
| SMAJ550A | SMAJ550CA | TT | UT | 550.0 | 615.0 | 680.0 | 1 | 860.0 | 0.4 | 1 |

Ratings and Characteristics Curves (TA=25°C unless otherwise noted)



Fig. 1 - Pulse Derating Curve

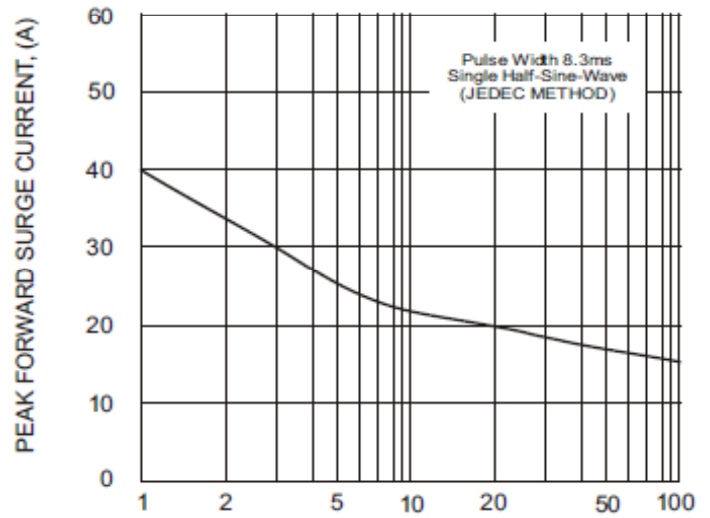


Fig. 2 - Maximum Non-Repetitive Surge Current



Fig. 3 - Steady State Power Derating Curve

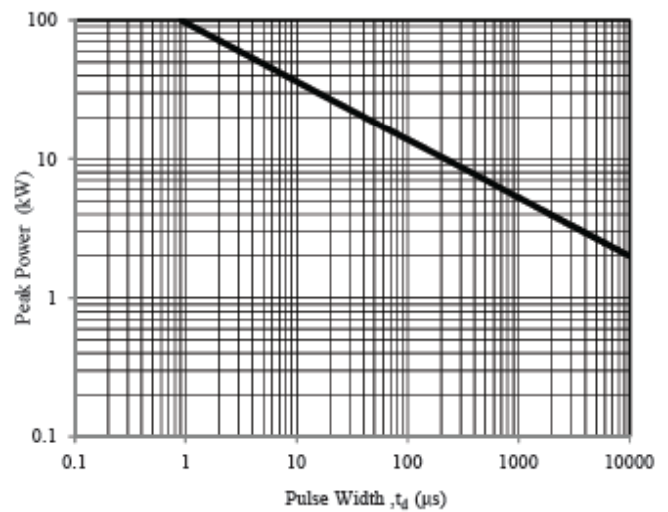


Fig. 4 - Peak Pulse Power Rating Curve



Fig. 5 - Pulse Waveform

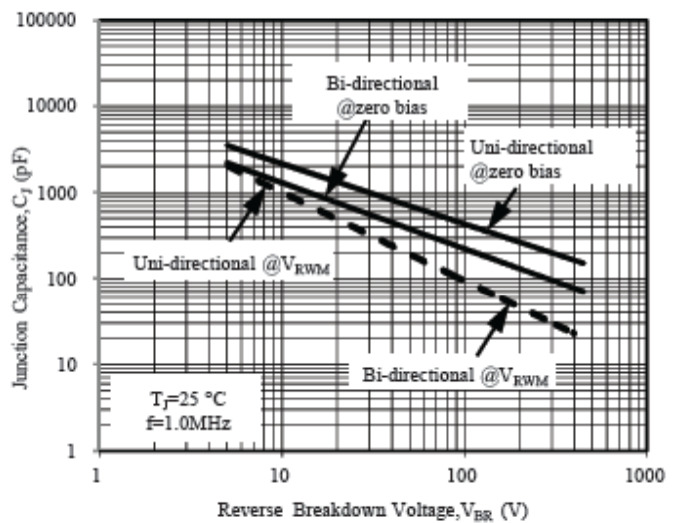


Fig. 6 - Typical Junction Capacitance

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