



Features

- For surface mounted applications in order to optimize board space
- Low profile package
- Built-in strain relief
- Glass passivated junction
- Low inductance
- Excellent clamping capability
- 400W peak pulse power capability at 10/1000µs waveform,
- Repetition rate (duty cycle): 0.01%
- Fast response time
- Typical IR less than 1µA above 10V
- High Temperature soldering: 260C/10 seconds at terminals
- Plastic package has underwriters laboratory flammability 94V-0

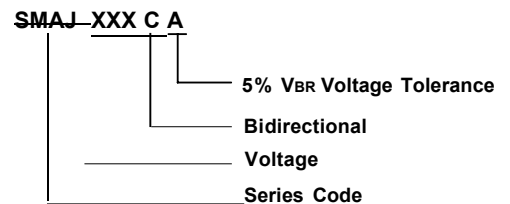


SMA

Mechanical Data

- Case : JEDEC DO-214AC/SMA molded plastic body
- Terminals : Solderable per MIL-STD-750, Method 2026
- Polarity : Polarity symbol marking on body
- Mounting Position : Any
- Weight : 0.07 grams
- Marking : Date Code and Marking Code See Page 3

Part Number Code



Applications

- I/O interface
- AC/DC power supply
- Low frequency signal transmission line (RS232, RS485, etc.)

MAXIMUM RATINGS AND CHARACTERISTICS

| MAXIMUM RATINGS AND CHARACTERISTICS | | | |
|---|-----------------|-------------|------|
| Ratings at 25 C ambient temperature unless otherwise specified. | | | |
| Peak pulse power dissipation at 10 / 1000 hs waveform (Note1, Note2, Fig . 1) | P_{PPM} | Minimum 400 | W |
| Peak pulse current of at 10 / 1000 hs waveform (Note 1 , Fig . 3) | I_{PPM} | See Table | A |
| Steady state power dissipation at $T_A = 50 C$ (Fig . 5) | $P_{M(AV)}$ | 3.3 | W |
| Peak forward surge current, 8 . 3 ms single half sine- wave superimposed on rated load, (JEDEC Method) (Note3 , Fig . 6) | I_{FSM} | 40 | A |
| Operating junction and Storage Temperature Range . | T_J , T_{STG} | -65 to +150 | C |
| Typical thermal resistance junction to lead | $R_{\theta JL}$ | 30 | C/ W |
| Typical thermal resistance junction to ambient | $R_{\theta JA}$ | 120 | C/ W |

- Notes: 1 . Non- repetitive current pulse, per Fig . 3 and derated above $T_A = 25 C$ per Fig . 2 .
 2 . Mounted on 5 . 0 mm×5 . 0 mm (0 . 03 mm thick) copper pads to each terminal .
 3 . 8 . 3 ms single half sine- wave, or equivalent square wave, duty cycle= 4 pulses per minutes maximum .



Electrical Characteristics (T_A=25°C)

| Part Number | | Device Marking Code | | Reverse Stand- Off Voltage | Breakdown Voltage @I _T | Test Current | Maximum Clamping Voltage @I _{PP} | Peak Pulse Current | Reverse Leakage @V _{RWM} |
|----------------|---------------|---------------------|----|----------------------------|-----------------------------------|---------------------|---|---------------------|-----------------------------------|
| Unidirectional | Bidirectional | UNI | BI | V _{RWM} (V) | V _{BR} (V) | I _T (mA) | V _C (V) | I _{PP} (A) | I _R (μA) |
| 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 | X | 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 | 33.30~36.80 | 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 |



| Part Number | | Device Marking Code | | Reverse Stand- Off Voltage | Breakdown Voltage @I _r | Test Current | Maximum Clamping Voltage @I _{PP} | Peak Pulse Current | Reverse Leakage @V _{RWM} |
|----------------|---------------|---------------------|----|----------------------------|-----------------------------------|---------------------|---|---------------------|-----------------------------------|
| Unidirectional | Bidirectional | UNI | BI | V _{RWM} (V) | V _{BR} (V) | I _T (mA) | V _C (V) | I _{PP} (A) | I _R (μA) |
| 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 | 94.40~104.00 | 1 | 137.0 | 2.9 | 1 |
| SMAJ90A | SMAJ90CA | RX | ZX | 90.0 | 100.00~111.00 | 1 | 146.0 | 2.7 | 1 |
| SMAJ100A | SMAJ100CA | RZ | ZZ | 100.0 | 111.00~123.00 | 1 | 162.0 | 2.5 | 1 |
| SMAJ110A | SMAJ110CA | SE | VE | 110.0 | 122.00~135.00 | 1 | 177.0 | 2.3 | 1 |
| SMAJ120A | SMAJ120CA | SG | VG | 120.0 | 133.00~147.00 | 1 | 193.0 | 2.1 | 1 |
| SMAJ130A | SMAJ130CA | SK | VK | 130.0 | 144.00~159.00 | 1 | 209.0 | 1.9 | 1 |
| SMAJ150A | SMAJ150CA | SM | VM | 150.0 | 167.00~185.00 | 1 | 243.0 | 1.6 | 1 |
| SMAJ160A | SMAJ160CA | SP | VP | 160.0 | 178.00~197.00 | 1 | 259.0 | 1.5 | 1 |
| SMAJ170A | SMAJ170CA | SR | VR | 170.0 | 189.00~209.00 | 1 | 275.0 | 1.5 | 1 |
| SMAJ180A | SMAJ180CA | ST | VT | 180.0 | 201.00~222.00 | 1 | 292.0 | 1.4 | 1 |
| SMAJ190A | SMAJ190CA | SU | YU | 190.0 | 211.00~233.00 | 1 | 308.0 | 1.3 | 1 |
| SMAJ200A | SMAJ200CA | SV | VV | 200.0 | 224.00~247.00 | 1 | 324.0 | 1.2 | 1 |
| SMAJ210A | SMAJ210CA | SW | YW | 210.0 | 237.00~263.00 | 1 | 340.0 | 1.2 | 1 |
| SMAJ220A | SMAJ220CA | GE | VX | 220.0 | 246.00~272.00 | 1 | 356.0 | 1.1 | 1 |
| SMAJ250A | SMAJ250CA | SZ | VZ | 250.0 | 279.00~309.00 | 1 | 405.0 | 1.0 | 1 |
| SMAJ300A | SMAJ300CA | TE | UE | 300.0 | 335.00~371.00 | 1 | 486.0 | 0.8 | 1 |
| SMAJ350A | SMAJ350CA | TG | UG | 350.0 | 391.00~432.00 | 1 | 567.0 | 0.7 | 1 |
| SMAJ400A | SMAJ400CA | TK | UK | 400.0 | 447.00~494.00 | 1 | 648.0 | 0.6 | 1 |
| SMAJ440A | SMAJ440CA | TM | UM | 440.0 | 492.00~543.00 | 1 | 713.0 | 0.6 | 1 |



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

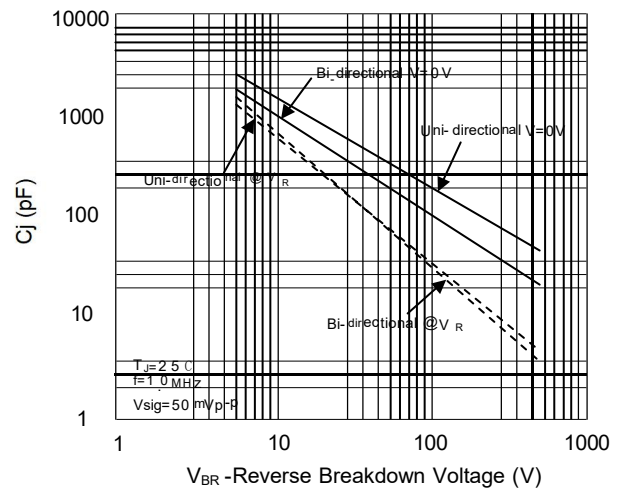
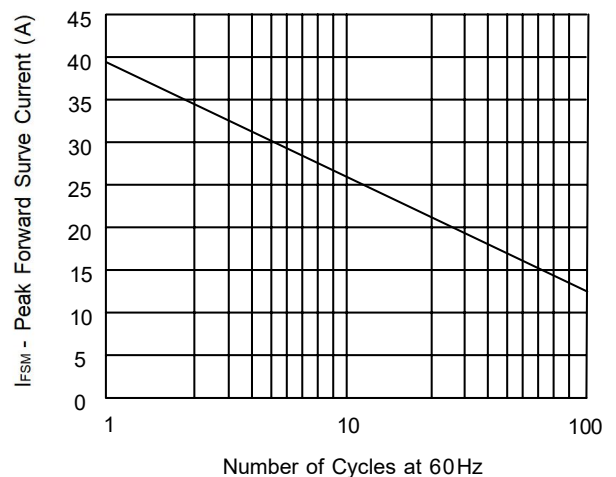


Figure 5. Steady State Power Dissipation Derating Curve



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





SMA Package Outline Dimensions



Dimensions in inches and (millimeters)



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