EVVOSEMI®

THINK CHANGE DO

ESD TVS MOS LDO Diode Sensor DC-DC

# Product Specification

| | |
|---|---|
| Domestic Part Number | SMAJ Series |
| Overseas Part Number | SMAJ Series |
| Equivalent Part Number | SMAJ Series |



**Surface mount transient voltage suppressor power 400 watts**

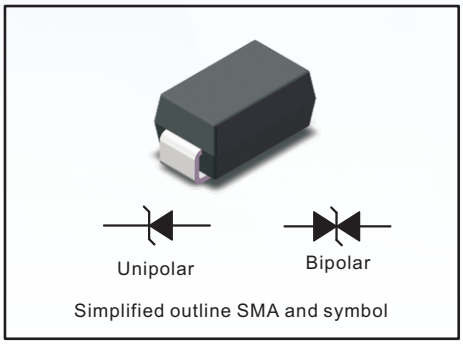
**Stand-Off Voltage : 5.0V~440V**

FEATURES

- For surface mounted applications in order to optimize board space.
- Low profile package
- Glass passivated junction
- Low inductance
- Plastic package has Underwriters Laboratory Flammability

**PINNING**

| PIN | DESCRIPTION |
|---|---|
| 1 | Cathode |
| 2 | Anode |




Simplified outline SMA and symbol

**MECHANICAL DATA**

- Case: SMA
- Terminals: Solderable per MIL-STD-750, Method 2026
- Approx. Weight: 0.055g / 0.002oz

**Maximum Ratings and Electrical characteristics**
**Ratings at 25 °C ambient temperature unless otherwise specified.**

| Parameter | Symbol | Value | Unit |
|---|---|---|---|
| Peak Pulse Power Dissipation on $T_A$=25°C (Note 1,2,4, Fig1) | $P_{PPM}$ | 400 | W |
| Peak Forward Surge Current (Note 3,Fig 4) | $I_{FSM}$ (UNI) | 60 | A |
| Peak Pulse Current on 10/1000 us waveform (Note 1, Fig 3) | $I_{PPM}$ | see Table 1 | A |
| ESD Voltage per IEC6100-4-2 Contact<br>Air | $V_{ESD1}$<br>$V_{ESD2}$ | ±30<br>±30 | kV |
| Typical Thermal Resistance Junction to Ambient(Note 2) | $R_{\theta JA}$ | 30 | °C/W |
| Operating Junction Temperature and Storage Temperature Range | $T_j$, $T_{stg}$ | -65 ~ +150 | °C |

NOTES:

1. Non-repetitive current pulse, per Fig.3 and derated above $T_A$ = 25°C per Fig. 2.
2. Mounted on 5mm$^2$ copper pads to each terminal.
3. Peak Forward Surge Current : 8.3ms single half sine-wave Superimposed on rated load (JEDEC method).
4. Peak pulse power waveform is 10/1000μS.

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**Characteristics at Ta = 25°C**

Table 1

| Type | | Reverse Stand-off Voltage | Breakdown Voltage | | Test Current | Reverse Leakage | Max. Clamp Voltage | Peak Pulse Current | Package | |
|---|---|---|---|---|---|---|---|---|---|---|
| | | | $V_{BR}$ @ $I_T$ | | | | | | SMA | |
| | | $V_{RRM}$ | Min | Max | $I_T$ | $I_R$ @ $V_{RRM}$ | $V_C$ @ $I_{PP}$ | $I_{PP}$ | Device Marking Ccode | |
| UNI | BI | V | V | V | mA | μA | V | A | UNI | BI |
| SMAJ5.0A | SMAJ5.0CA | 5 | 6.4 | 7 | 10 | 800 | 9.2 | 43.5 | AE | WE |
| SMAJ6.0A | SMAJ6.0CA | 6 | 6.67 | 7.37 | 10 | 800 | 10.3 | 38.8 | AG | WG |
| SMAJ6.5A | SMAJ6.5CA | 6.5 | 7.22 | 7.98 | 10 | 500 | 11.2 | 35.7 | AK | WK |
| SMAJ7.0A | SMAJ7.0CA | 7 | 7.78 | 8.6 | 10 | 200 | 12.0 | 33.3 | AM | WM |
| SMAJ7.5A | SMAJ7.5CA | 7.5 | 8.33 | 9.21 | 1 | 100 | 12.9 | 31.0 | AP | WP |
| SMAJ8.0A | SMAJ8.0CA | 8 | 8.89 | 9.83 | 1 | 50 | 13.6 | 29.4 | AR | WR |
| SMAJ8.5A | SMAJ8.5CA | 8.5 | 9.44 | 10.4 | 1 | 20 | 14.4 | 27.8 | AT | WT |
| SMAJ9.0A | SMAJ9.0CA | 9 | 10 | 11.1 | 1 | 10 | 15.4 | 26.0 | AV | WV |
| SMAJ10A | SMAJ10CA | 10 | 11.1 | 12.3 | 1 | 5 | 17.0 | 23.5 | AX | WX |
| SMAJ11A | SMAJ11CA | 11 | 12.2 | 13.5 | 1 | 1 | 18.2 | 22.0 | AZ | WZ |
| SMAJ12A | SMAJ12CA | 12 | 13.3 | 14.7 | 1 | 1 | 19.9 | 20.1 | BE | XE |
| SMAJ13A | SMAJ13CA | 13 | 14.4 | 15.9 | 1 | 1 | 21.5 | 18.6 | BG | XG |
| SMAJ14A | SMAJ14CA | 14 | 15.6 | 17.2 | 1 | 1 | 23.2 | 17.2 | BK | XK |
| SMAJ15A | SMAJ15CA | 15 | 16.7 | 18.5 | 1 | 1 | 24.4 | 16.4 | BM | XM |
| SMAJ16A | SMAJ16CA | 16 | 17.8 | 19.7 | 1 | 1 | 26.0 | 15.4 | BP | XP |
| SMAJ17A | SMAJ17CA | 17 | 18.9 | 20.9 | 1 | 1 | 27.6 | 14.5 | BR | XR |
| SMAJ18A | SMAJ18CA | 18 | 20 | 22.1 | 1 | 1 | 29.2 | 13.7 | BT | XT |
| SMAJ20A | SMAJ20CA | 20 | 22.2 | 24.5 | 1 | 1 | 32.4 | 12.3 | BV | XV |
| SMAJ22A | SMAJ22CA | 22 | 24.4 | 26.9 | 1 | 1 | 35.5 | 11.3 | BX | XX |
| SMAJ24A | SMAJ24CA | 24 | 26.7 | 29.5 | 1 | 1 | 38.9 | 10.3 | BZ | XZ |
| SMAJ26A | SMAJ26CA | 26 | 28.9 | 31.9 | 1 | 1 | 42.1 | 9.5 | CE | YE |
| SMAJ28A | SMAJ28CA | 28 | 31.1 | 34.4 | 1 | 1 | 45.4 | 8.8 | CG | YG |
| SMAJ30A | SMAJ30CA | 30 | 33.3 | 36.8 | 1 | 1 | 48.4 | 8.3 | CK | YK |
| SMAJ33A | SMAJ33CA | 33 | 36.7 | 40.6 | 1 | 1 | 53.3 | 7.5 | CM | YM |
| SMAJ36A | SMAJ36CA | 36 | 40 | 44.2 | 1 | 1 | 58.1 | 6.9 | CP | YP |
| SMAJ40A | SMAJ40CA | 40 | 44.4 | 49.1 | 1 | 1 | 64.5 | 6.2 | CR | YR |
| SMAJ43A | SMAJ43CA | 43 | 47.8 | 52.8 | 1 | 1 | 69.4 | 5.8 | CT | YT |
| SMAJ45A | SMAJ45CA | 45 | 50 | 55.3 | 1 | 1 | 72.7 | 5.5 | CV | YV |
| SMAJ48A | SMAJ48CA | 48 | 53.3 | 58.9 | 1 | 1 | 77.4 | 5.2 | CX | YX |
| SMAJ51A | SMAJ51CA | 51 | 56.7 | 62.7 | 1 | 1 | 82.4 | 4.9 | CZ | YZ |
| SMAJ54A | SMAJ54CA | 54 | 60 | 66.3 | 1 | 1 | 87.1 | 4.6 | RE | ZE |
| SMAJ58A | SMAJ58CA | 58 | 64.4 | 71.2 | 1 | 1 | 93.6 | 4.3 | RG | ZG |
| SMAJ60A | SMAJ60CA | 60 | 66.7 | 73.7 | 1 | 1 | 96.8 | 4.1 | RK | ZK |
| SMAJ64A | SMAJ64CA | 64 | 71.1 | 78.6 | 1 | 1 | 103.0 | 3.9 | RM | ZM |
| SMAJ70A | SMAJ70CA | 70 | 77.8 | 86 | 1 | 1 | 113.0 | 3.5 | RP | ZP |
| SMAJ75A | SMAJ75CA | 75 | 83.3 | 92.1 | 1 | 1 | 121.0 | 3.3 | RR | ZR |
| SMAJ78A | SMAJ78CA | 78 | 86.7 | 95.8 | 1 | 1 | 126.0 | 3.2 | RT | ZT |
| SMAJ85A | SMAJ85CA | 85 | 94.4 | 104 | 1 | 1 | 137.0 | 2.9 | RV | ZV |
| SMAJ90A | SMAJ90CA | 90 | 100 | 111 | 1 | 1 | 146.0 | 2.7 | RX | ZX |
| SMAJ100A | SMAJ100CA | 100 | 111 | 123 | 1 | 1 | 162.0 | 2.5 | RZ | ZZ |
| SMAJ110A | SMAJ110CA | 110 | 122 | 135 | 1 | 1 | 177.0 | 2.3 | SE | VE |
| SMAJ120A | SMAJ120CA | 120 | 133 | 147 | 1 | 1 | 193.0 | 2.1 | SG | VG |
| SMAJ130A | SMAJ130CA | 130 | 144 | 159 | 1 | 1 | 209.0 | 1.9 | SK | VK |
| SMAJ150A | SMAJ150CA | 150 | 167 | 185 | 1 | 1 | 243.0 | 1.6 | SM | VM |
| SMAJ160A | SMAJ160CA | 160 | 178 | 197 | 1 | 1 | 259.0 | 1.5 | SP | VP |
| SMAJ170A | SMAJ170CA | 170 | 189 | 209 | 1 | 1 | 275.0 | 1.5 | SR | VR |
| SMAJ180A | SMAJ180CA | 180 | 201 | 222 | 1 | 1 | 292.0 | 1.4 | ST | VT |
| SMAJ200A | SMAJ200CA | 200 | 224 | 247 | 1 | 1 | 324.0 | 1.2 | SV | VV |
| SMAJ220A | SMAJ220CA | 220 | 246 | 272 | 1 | 1 | 356.0 | 1.1 | SX | VX |
| SMAJ250A | SMAJ250CA | 250 | 279 | 309 | 1 | 1 | 405.0 | 1.0 | SZ | VZ |
| SMAJ300A | SMAJ300CA | 300 | 335 | 371 | 1 | 1 | 486.0 | 0.8 | TE | UE |
| SMAJ350A | SMAJ350CA | 350 | 391 | 432 | 1 | 1 | 567.0 | 0.7 | TG | UG |
| SMAJ400A | SMAJ400CA | 400 | 447 | 494 | 1 | 1 | 648.0 | 0.6 | TK | UK |
| SMAJ440A | SMAJ440CA | 440 | 492 | 543 | 1 | 1 | 713.0 | 0.6 | TM | UM |

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**Fig.1 Peak Pulse Power Rating Curve**

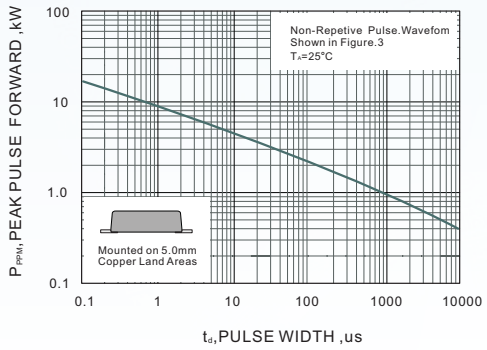



**Fig.2 Forward Current Derating Curve**

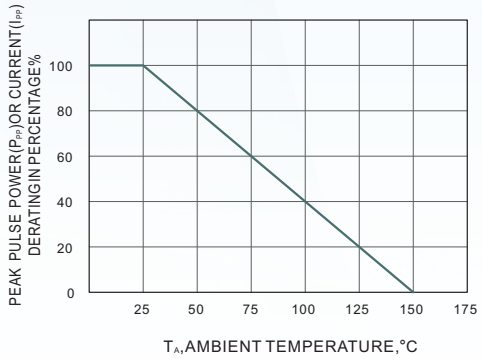



**Fig.3 Pulse Waveform**

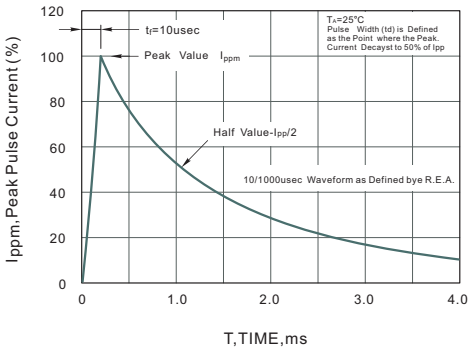
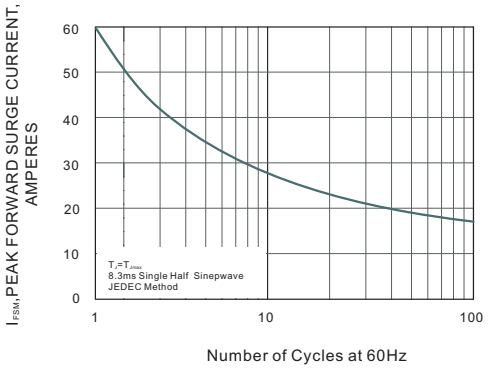


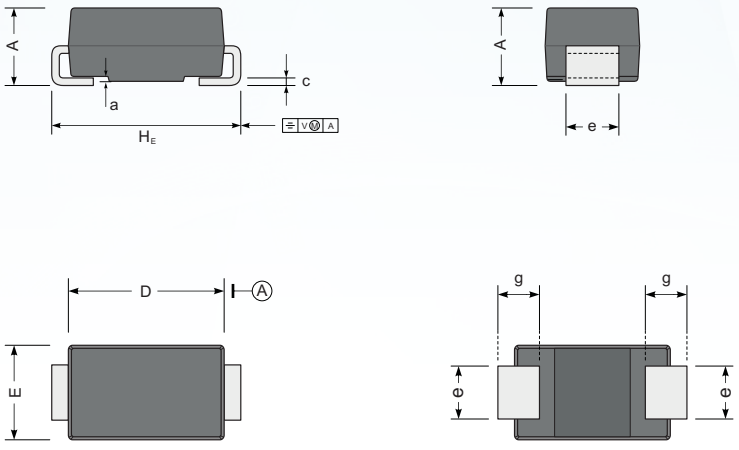

**Fig.4 Maximum Non-Repetitive Peak Forward Surge Current**



## PACKAGE OUTLINE

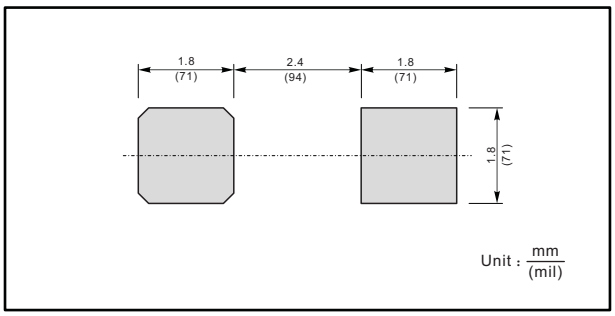
**Plastic surface mounted package; 2 leads**

**SMA**




| UNIT | | A | D | E | $H_E$ | c | e | g | a |
|---|---|---|---|---|---|---|---|---|---|
| mm | max | 2.2 | 4.5 | 2.7 | 5.2 | 0.31 | 1.6 | 1.5 | 0.3 |
| | min | 1.9 | 4.0 | 2.3 | 4.7 | 0.15 | 1.3 | 0.9 | |
| mil | max | 87 | 181 | 106 | 205 | 12 | 63 | 59 | 12 |
| | min | 75 | 157 | 91 | 185 | 6 | 51 | 35 | |

**The recommended mounting pad size**



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