

S-SMAJ*** A Series

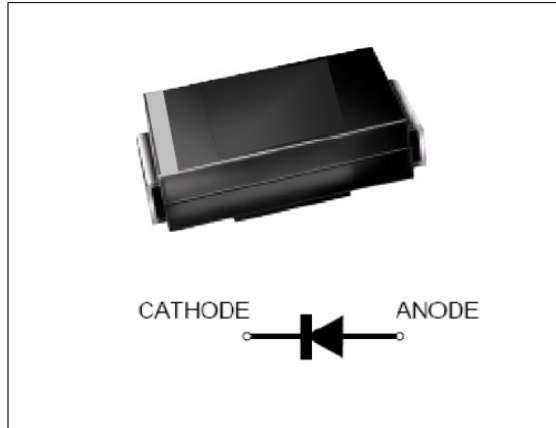
SURFACE MOUNT TRANSIENT VOLTAGE SUPPRESSOR

VOLTAGE 5.0 TO 250 Volts

400 Watt Peak Pulse Power

FEATURES

- * Plastic package has Underwriters Laboratory Flammability Classification 94V-O
- * 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
- * Repetition Rate (duty cycle): 0.01%
- * Fast response time: typically less than 1.0ps
- Terminals:** Plated leads, solderable per
- * Typical IR less than 1mA above 10V
- * High temperature soldering guaranteed: 260°C/10 seconds,
- * S- Prefix for Automotive and Other Applications Requiring Unique Site and Control Change Requirements; AEC-Q101 Qualified and PPAP Atable.



we declare that the material of product is halogen free (green epoxy compound).

MECHANICAL DATA

- Case:** JEDEC SMA molded plastic
- Terminals:** Plated leads, solderable per MIL-STD-202, Method 208
- Polarity:** Color band denoted Cathode
- Mounting Position:** Any
- Weight:** 0.066 gram

1. DEVICES FOR BIPOLAR APPLICATIONS

For Bidirectional use C or A Suffix for types S-SMAJ5.0A thru types S-SMAJ250A

Electrical characteristics apply in both directions. marking code is all type.

MAXIMUM RATINGS AND 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 at $T_A=25^\circ\text{C}$, $T_P=1\text{ms}$ (Note 1) | P_{PPM} | Minimum 400 | Watts |
| Steady State Power Dissipation at $T_L=75^\circ\text{C}$ (Note 2) | $P_{M(AV)}$ | 1.0 | Watts |
| Peak Forward Surge Current, 8.3ms Single Half Sine-Wave Superimposed on Rated Load(JEDEC Method)(Note 3) | I_{FSM} | 40 | Amps |
| Operating Temperature Range | T_J | -55 to +150 | °C |
| Storage Temperature Range | T_{STG} | -55 to +175 | °C |

NOTES:

1. Non-repetitive current pulse, per Fig. 3 and derated above $T_A=25^\circ\text{C}$ per Fig. 2.
2. Mounted on Copper Leaf area of 1.57in²(40mm²).
3. 8.3ms single half sine-wave, duty cycle= 4 pulses per minutes maximum.

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| Uni- Directional Part Number | Device marking code | Reverse Stand-off Voltage VRWM (V) | Breakdown Voltage VBR (V) Min. @IT | Breakdown Voltage VBR (V) Max. @IT | Test Current IT (mA) | Maximum Clamping Voltage @IPP VC (V) | Peak Pulse Current Ipp (A) | Reverse Leakage @VRWM IR (uA) |
|---------------------------------------|------------------------|---|---|---|-------------------------------|---|-------------------------------------|--|
| S-SMAJ5.0A | AE | 5.00 | 6.40 | 7.00 | 10.00 | 9.20 | 43.5 | 800 |
| S-SMAJ6.0A | AG | 6.00 | 6.67 | 7.37 | 10.00 | 10.30 | 38.8 | 800 |
| S-SMAJ6.5A | AK | 6.50 | 7.22 | 7.98 | 10.00 | 11.20 | 35.7 | 500 |
| S-SMAJ7.0A | AM | 7.00 | 7.78 | 8.60 | 10.00 | 12.00 | 33.3 | 200 |
| S-SMAJ7.5A | AP | 7.50 | 8.33 | 9.21 | 1.00 | 12.90 | 31.0 | 100 |
| S-SMAJ8.0A | AR | 8.00 | 8.89 | 9.83 | 1.00 | 13.60 | 29.4 | 50 |
| S-SMAJ8.5A | AT | 8.50 | 9.44 | 10.40 | 1.00 | 14.40 | 27.8 | 20 |
| S-SMAJ9.0A | AV | 9.00 | 10.00 | 11.10 | 1.00 | 15.40 | 26.0 | 10 |
| S-SMAJ10A | AX | 10.00 | 11.10 | 12.30 | 1.00 | 17.00 | 23.5 | 1 |
| S-SMAJ11A | AZ | 11.00 | 12.20 | 13.50 | 1.00 | 18.20 | 22.0 | 1 |
| S-SMAJ12A | BE | 12.00 | 13.30 | 14.70 | 1.00 | 19.90 | 20.1 | 1 |
| S-SMAJ13A | BG | 13.00 | 14.40 | 15.90 | 1.00 | 21.50 | 18.6 | 1 |
| S-SMAJ14A | BK | 14.00 | 15.60 | 17.20 | 1.00 | 23.20 | 17.2 | 1 |
| S-SMAJ15A | BM | 15.00 | 16.70 | 18.50 | 1.00 | 24.40 | 16.4 | 1 |
| S-SMAJ16A | BP | 16.00 | 17.80 | 19.70 | 1.00 | 26.00 | 15.4 | 1 |
| S-SMAJ17A | BR | 17.00 | 18.90 | 20.90 | 1.00 | 27.60 | 14.5 | 1 |
| S-SMAJ18A | BT | 18.00 | 20.00 | 22.10 | 1.00 | 29.20 | 13.7 | 1 |
| S-SMAJ20A | BV | 20.00 | 22.20 | 24.50 | 1.00 | 32.40 | 12.3 | 1 |
| S-SMAJ22A | BX | 22.00 | 24.40 | 26.90 | 1.00 | 35.50 | 11.3 | 1 |
| S-SMAJ24A | BZ | 24.00 | 26.70 | 29.50 | 1.00 | 38.90 | 10.3 | 1 |
| S-SMAJ26A | CE | 26.00 | 28.90 | 31.90 | 1.00 | 42.10 | 9.5 | 1 |
| S-SMAJ28A | CG | 28.00 | 31.10 | 34.40 | 1.00 | 45.40 | 8.8 | 1 |
| S-SMAJ30A | CK | 30.00 | 33.30 | 36.80 | 1.00 | 48.40 | 8.3 | 1 |
| S-SMAJ33A | CM | 33.00 | 36.70 | 40.60 | 1.00 | 53.30 | 7.5 | 1 |
| S-SMAJ36A | CP | 36.00 | 40.00 | 44.20 | 1.00 | 58.10 | 6.9 | 1 |
| S-SMAJ40A | CR | 40.00 | 44.40 | 49.10 | 1.00 | 64.50 | 6.2 | 1 |
| S-SMAJ43A | CT | 43.00 | 47.80 | 52.80 | 1.00 | 69.40 | 5.8 | 1 |
| S-SMAJ45A | CV | 45.00 | 50.00 | 55.30 | 1.00 | 72.70 | 5.5 | 1 |
| S-SMAJ48A | CX | 48.00 | 53.30 | 58.90 | 1.00 | 77.40 | 5.2 | 1 |
| S-SMAJ51A | CZ | 51.00 | 56.70 | 62.70 | 1.00 | 82.40 | 4.9 | 1 |
| S-SMAJ54A | RE | 54.00 | 60.00 | 66.30 | 1.00 | 87.10 | 4.6 | 1 |
| S-SMAJ58A | RG | 58.00 | 64.40 | 71.20 | 1.00 | 93.60 | 4.3 | 1 |
| S-SMAJ60A | RK | 60.00 | 66.70 | 73.70 | 1.00 | 96.80 | 4.1 | 1 |
| S-SMAJ64A | RM | 64.00 | 71.10 | 78.60 | 1.00 | 103.00 | 3.9 | 1 |
| S-SMAJ70A | RP | 70.00 | 77.80 | 86.00 | 1.00 | 113.00 | 3.5 | 1 |
| S-SMAJ75A | RR | 75.00 | 83.30 | 92.10 | 1.00 | 121.00 | 3.3 | 1 |
| S-SMAJ78A | RT | 78.00 | 86.70 | 95.80 | 1.00 | 126.00 | 3.2 | 1 |
| S-SMAJ85A | RV | 85.00 | 94.40 | 104.00 | 1.00 | 137.00 | 2.9 | 1 |
| S-SMAJ90A | RX | 90.00 | 100.00 | 111.00 | 1.00 | 146.00 | 2.7 | 1 |
| S-SMAJ100A | RZ | 100.00 | 111.00 | 123.00 | 1.00 | 162.00 | 2.5 | 1 |
| S-SMAJ110A | SE | 110.00 | 122.00 | 135.00 | 1.00 | 177.00 | 2.3 | 1 |
| S-SMAJ120A | SG | 120.00 | 133.00 | 147.00 | 1.00 | 193.00 | 2.1 | 1 |
| S-SMAJ130A | SK | 130.00 | 144.00 | 159.00 | 1.00 | 209.00 | 1.9 | 1 |
| S-SMAJ150A | SM | 150.00 | 167.00 | 185.00 | 1.00 | 243.00 | 1.6 | 1 |
| S-SMAJ160A | SP | 160.00 | 178.00 | 197.00 | 1.00 | 259.00 | 1.5 | 1 |
| S-SMAJ170A | SR | 170.00 | 189.00 | 209.00 | 1.00 | 275.00 | 1.5 | 1 |
| S-SMAJ180A | ST | 180.00 | 198.00 | 221.00 | 1.00 | 291.00 | 1.4 | 1 |
| S-SMAJ190A | SV | 190.00 | 209.00 | 233.00 | 1.00 | 307.00 | 1.3 | 1 |
| S-SMAJ200A | SX | 200.00 | 220.00 | 246.00 | 1.00 | 324.00 | 1.2 | 1 |
| S-SMAJ220A | SY | 220.00 | 246.00 | 272.00 | 1.00 | 356.00 | 1.1 | 1 |
| S-SMAJ250A | SZ | 250.00 | 279.00 | 309.00 | 1.00 | 405.00 | 1.0 | 1 |

For bidirectional type having Vrwm of 10 volts and less, the IR limit is double.
 For parts without A , the VBR is + 10%

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2. Ratings and Characteristic Curves (TA = 25°C unless otherwise noted)

Fig. 1-Peak Pulse Power Rating Curve

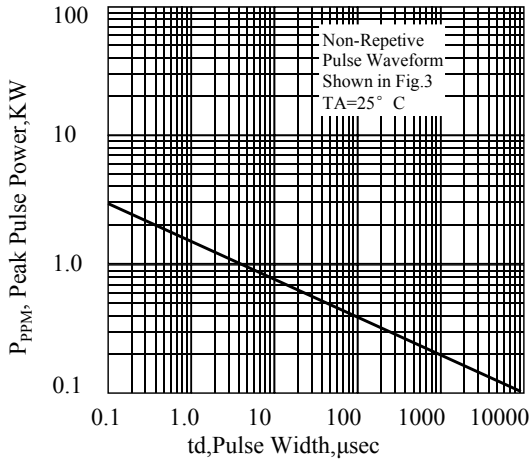


Fig. 2-Pulse Derating Curve

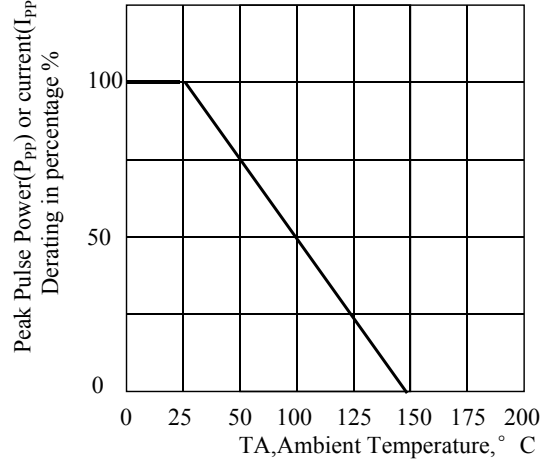


Fig. 3-Pulse Waveform

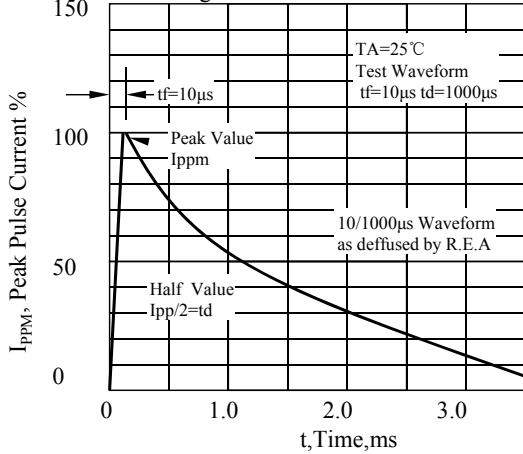


Fig. 4-Typical Junction Capacitance Unidirectional

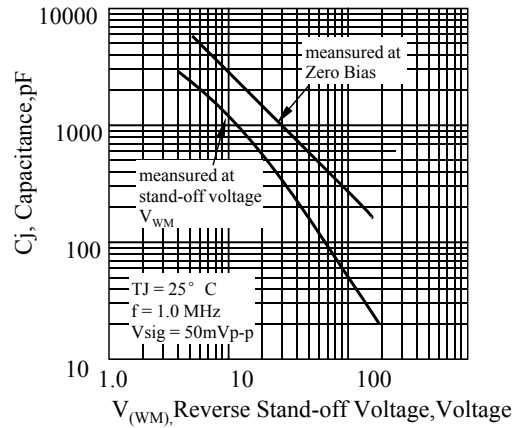


Fig. 5. - typical transient thermal impedance

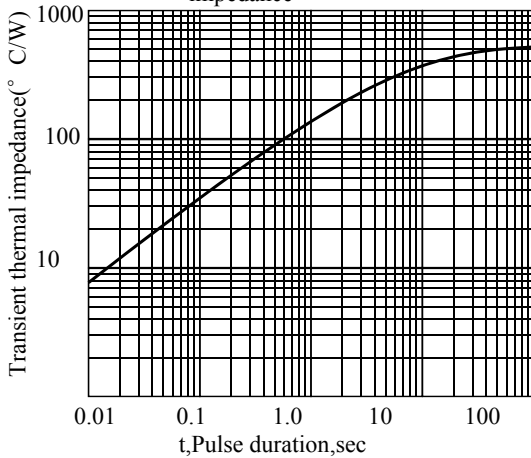
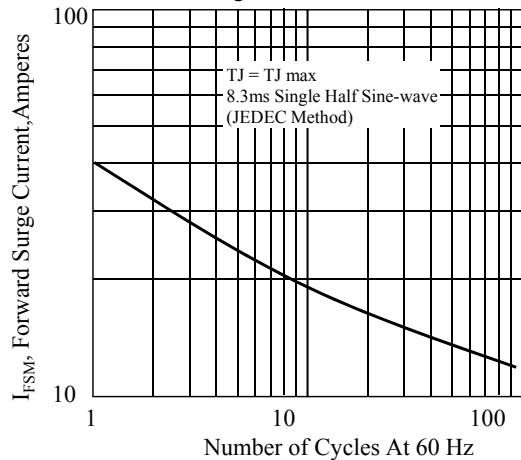


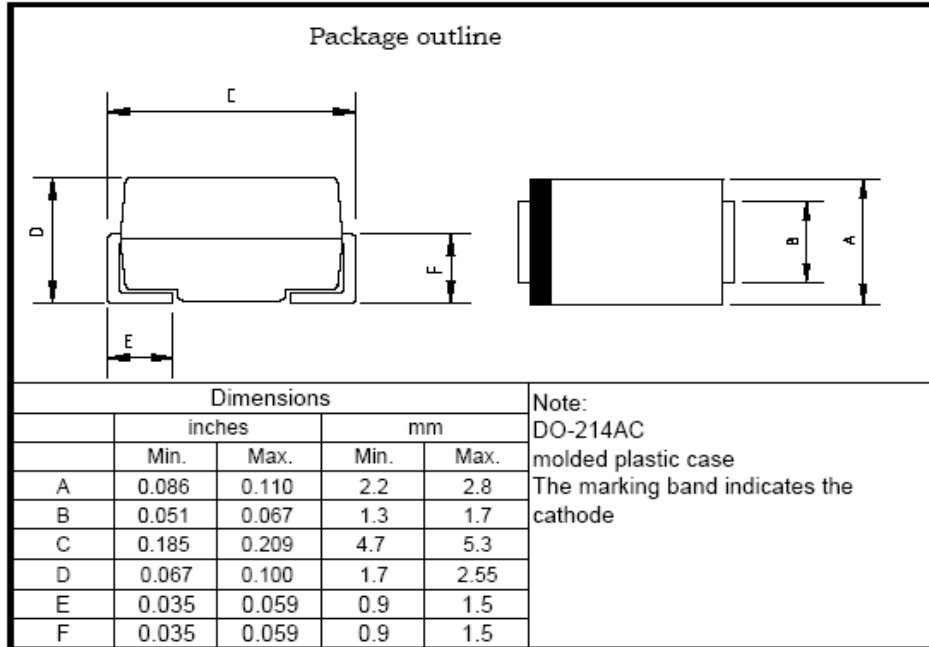
Fig. 6-Maximum Non-Repetitive Peak Forward Surge Current Unidirectional



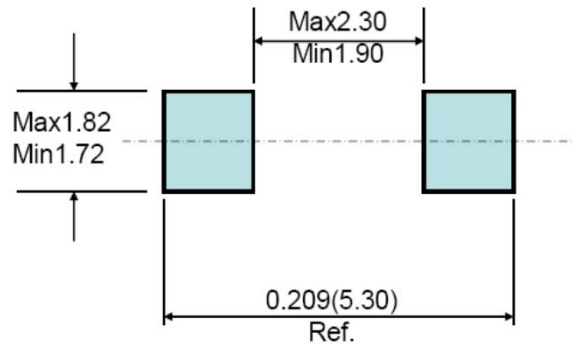
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3. dimension:

SMA



Mounting Pad Layout ---SMA



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4. Update Record

| 版次 | 更新记录 | 更新作者 | 更新日期 |
|----|------|------|------------|
| 1 | 第一版 | 谭志伟 | 2017.11.13 |

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