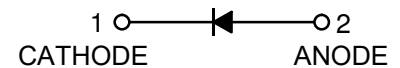
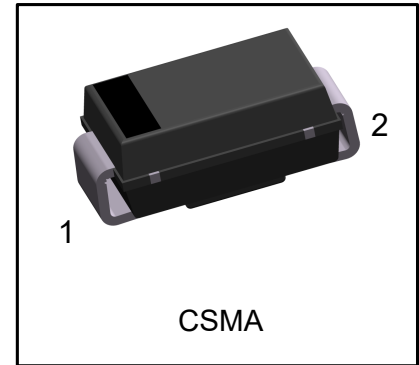


S-CSMAJ***A

Surface Mount Transient Voltage Suppressors
Voltage 5.0 to 400 Volts 400 Watt Peak Pulse Power

1. 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 from 0 Volts to V(BR) for unidirectional types
- Typical IR less than 1mA above 10V
- High temperature soldering guaranteed: 260°C/10 seconds
- We declare that the material of product complies with RoHS requirements and Halogen Free.
- S- prefix for automotive and other applications requiring unique site and control change requirements; AEC-Q101 qualified and PPAP capable.



2. MECHANICAL DATA

Case: JEDEC DO-214AC, molded plastic over glass die

Terminals: Plated axial leads, solderable per MIL-STD-750, Method 2026

Polarity: Color band denotes cathode end

Mounting Position: Any

Weight: 0.07g

3. 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%.

| PARAMETER | SYMBOL | VALUE | UNITS |
|--|-------------|-------------|-------|
| Peak Power Dissipation at $T_A=25^\circ\text{C}$, $T_P=1\text{ms}$ (Note 1) | PPPM | Minimum 400 | W |
| Steady State Power Dissipation at $T_L=75^\circ\text{C}$ (Note 2) | $P_{M(AV)}$ | 1.0 | W |
| Peak Forward Surge Current, 8.3ms Single Half Sine-Wave Superimposed on Rated Load (JECED Method) (Note 2) | I_{FSM} | 30 | A |
| Operating Junction Temperature Range | T_J | -55 to +150 | °C |
| Storage Temperature Range | T_{STG} | -55 to +150 | °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 1.57in^2 (40mm^2).
3. 8.3ms single half sine-wave, duty cycle= 4 pulses per minutes maximum.

4. ELECTRICAL CHARACTERISTICS (Ta= 25°C)

| Uni-Directional Part Number | Device Marking | 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-CSMAJ5.0A | AE | 5.00 | 6.40 | 7.00 | 10.00 | 9.20 | 43.50 | 800 |
| S-CSMAJ6.0A | AG | 6.00 | 6.67 | 7.37 | 10.00 | 10.30 | 38.80 | 800 |
| S-CSMAJ6.5A | AK | 6.50 | 7.22 | 7.98 | 10.00 | 11.20 | 35.70 | 500 |
| S-CSMAJ7.0A | AM | 7.00 | 7.78 | 8.60 | 10.00 | 12.00 | 33.30 | 200 |
| S-CSMAJ7.5A | AP | 7.50 | 8.33 | 9.21 | 1.00 | 12.90 | 31.00 | 100 |
| S-CSMAJ8.0A | AR | 8.00 | 8.89 | 9.83 | 1.00 | 13.60 | 29.40 | 50 |
| S-CSMAJ8.5A | AT | 8.50 | 9.44 | 10.40 | 1.00 | 14.40 | 27.80 | 20 |
| S-CSMAJ9.0A | AV | 9.00 | 10.00 | 11.10 | 1.00 | 15.40 | 26.00 | 10 |
| S-CSMAJ10A | AX | 10.00 | 11.10 | 12.30 | 1.00 | 17.00 | 23.50 | 1 |
| S-CSMAJ11A | AZ | 11.00 | 12.20 | 13.50 | 1.00 | 18.20 | 22.00 | 1 |
| S-CSMAJ12A | BE | 12.00 | 13.30 | 14.70 | 1.00 | 19.90 | 20.10 | 1 |
| S-CSMAJ13A | BG | 13.00 | 14.40 | 15.90 | 1.00 | 21.50 | 18.60 | 1 |
| S-CSMAJ14A | BK | 14.00 | 15.60 | 17.20 | 1.00 | 23.20 | 17.20 | 1 |
| S-CSMAJ15A | BM | 15.00 | 16.70 | 18.50 | 1.00 | 24.40 | 16.40 | 1 |
| S-CSMAJ16A | BP | 16.00 | 17.80 | 19.70 | 1.00 | 26.00 | 15.40 | 1 |
| S-CSMAJ17A | BR | 17.00 | 18.90 | 20.90 | 1.00 | 27.60 | 14.50 | 1 |
| S-CSMAJ18A | BT | 18.00 | 20.00 | 22.10 | 1.00 | 29.20 | 13.70 | 1 |
| S-CSMAJ20A | BV | 20.00 | 22.20 | 24.50 | 1.00 | 32.40 | 12.30 | 1 |
| S-CSMAJ22A | BX | 22.00 | 24.40 | 26.90 | 1.00 | 35.50 | 11.30 | 1 |
| S-CSMAJ24A | BZ | 24.00 | 26.70 | 29.50 | 1.00 | 38.90 | 10.30 | 1 |
| S-CSMAJ26A | CE | 26.00 | 28.90 | 31.90 | 1.00 | 42.10 | 9.50 | 1 |
| S-CSMAJ28A | CG | 28.00 | 31.10 | 34.40 | 1.00 | 45.40 | 8.80 | 1 |
| S-CSMAJ30A | CK | 30.00 | 33.30 | 36.80 | 1.00 | 48.40 | 8.30 | 1 |
| S-CSMAJ33A | CM | 33.00 | 36.70 | 40.60 | 1.00 | 53.30 | 7.50 | 1 |
| S-CSMAJ36A | CP | 36.00 | 40.00 | 44.20 | 1.00 | 58.10 | 6.90 | 1 |
| S-CSMAJ40A | CR | 40.00 | 44.40 | 49.10 | 1.00 | 64.50 | 6.20 | 1 |
| S-CSMAJ43A | CT | 43.00 | 47.80 | 52.80 | 1.00 | 69.40 | 5.80 | 1 |
| S-CSMAJ45A | CV | 45.00 | 50.00 | 55.30 | 1.00 | 72.70 | 5.50 | 1 |
| S-CSMAJ48A | CX | 48.00 | 53.30 | 58.90 | 1.00 | 77.40 | 5.20 | 1 |
| S-CSMAJ51A | CZ | 51.00 | 56.70 | 62.70 | 1.00 | 82.40 | 4.90 | 1 |
| S-CSMAJ54A | RE | 54.00 | 60.00 | 66.30 | 1.00 | 87.10 | 4.60 | 1 |
| S-CSMAJ58A | RG | 58.00 | 64.40 | 71.20 | 1.00 | 93.60 | 4.30 | 1 |
| S-CSMAJ60A | RK | 60.00 | 66.70 | 73.70 | 1.00 | 96.80 | 4.10 | 1 |
| S-CSMAJ64A | RM | 64.00 | 71.10 | 78.60 | 1.00 | 103.00 | 3.90 | 1 |
| S-CSMAJ70A | RP | 70.00 | 77.80 | 86.00 | 1.00 | 113.00 | 3.50 | 1 |
| S-CSMAJ75A | RR | 75.00 | 83.30 | 92.10 | 1.00 | 121.00 | 3.30 | 1 |
| S-CSMAJ78A | RT | 78.00 | 86.70 | 95.80 | 1.00 | 126.00 | 3.20 | 1 |
| S-CSMAJ85A | RV | 85.00 | 94.40 | 104.00 | 1.00 | 137.00 | 2.90 | 1 |
| S-CSMAJ90A | RX | 90.00 | 100.00 | 111.00 | 1.00 | 146.00 | 2.70 | 1 |
| S-CSMAJ100A | RZ | 100.00 | 111.00 | 123.00 | 1.00 | 162.00 | 2.50 | 1 |
| S-CSMAJ110A | SE | 110.00 | 122.00 | 135.00 | 1.00 | 177.00 | 2.30 | 1 |
| S-CSMAJ120A | SG | 120.00 | 133.00 | 147.00 | 1.00 | 193.00 | 2.10 | 1 |
| S-CSMAJ130A | SK | 130.00 | 144.00 | 159.00 | 1.00 | 209.00 | 1.90 | 1 |
| S-CSMAJ150A | SM | 150.00 | 167.00 | 185.00 | 1.00 | 243.00 | 1.60 | 1 |
| S-CSMAJ160A | SP | 160.00 | 178.00 | 197.00 | 1.00 | 259.00 | 1.50 | 1 |
| S-CSMAJ170A | SR | 170.00 | 189.00 | 209.00 | 1.00 | 275.00 | 1.50 | 1 |
| S-CSMAJ180A | ST | 180.00 | 198.00 | 221.00 | 1.00 | 291.00 | 1.40 | 1 |
| S-CSMAJ190A | SV | 190.00 | 209.00 | 233.00 | 1.00 | 307.00 | 1.30 | 1 |
| S-CSMAJ200A | SX | 200.00 | 220.00 | 246.00 | 1.00 | 324.00 | 1.30 | 1 |
| S-CSMAJ220A | SY | 220.00 | 246.00 | 272.00 | 1.00 | 356.00 | 1.20 | 1 |
| S-CSMAJ250A | SZ | 250.00 | 279.00 | 309.00 | 1.00 | 405.00 | 1.00 | 1 |
| S-CSMAJ300A | TE | 300.00 | 335.00 | 371.00 | 1.00 | 486.00 | 0.80 | 1 |
| S-CSMAJ350A | TG | 350.00 | 391.00 | 432.00 | 1.00 | 567.00 | 0.70 | 1 |
| S-CSMAJ400A | TK | 400.00 | 447.00 | 494.00 | 1.00 | 648.00 | 0.60 | 1 |

5. ELECTRICAL CHARACTERISTIC CURVES

Fig. 1-Peak Pulse Power Rating Curve

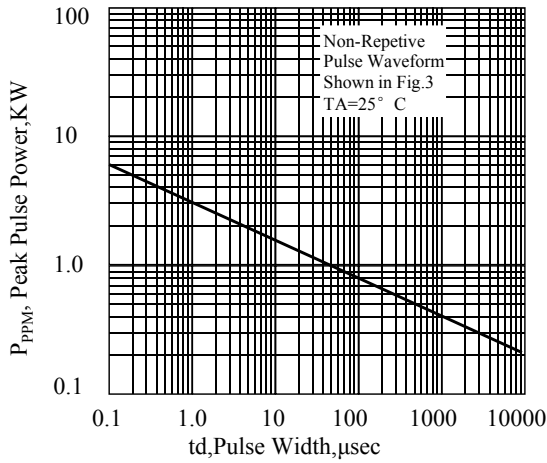


Fig. 2-Pulse Derating Curve

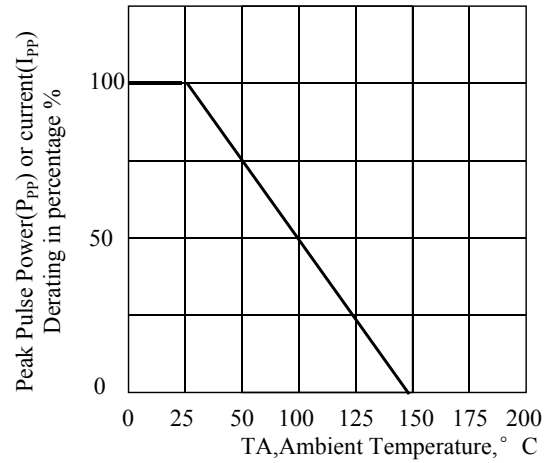


Fig. 3-Pulse Waveform

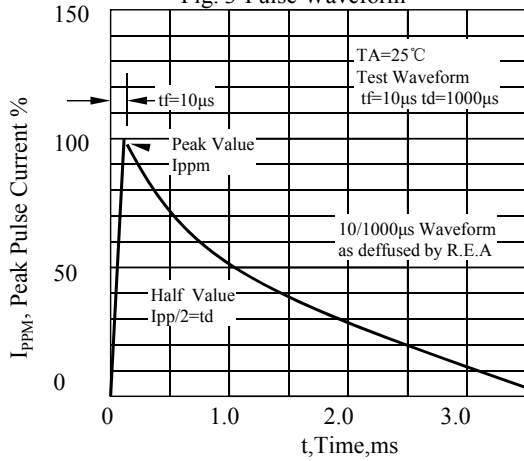


Fig. 4-Typical Junction Capacitance Unidirectional

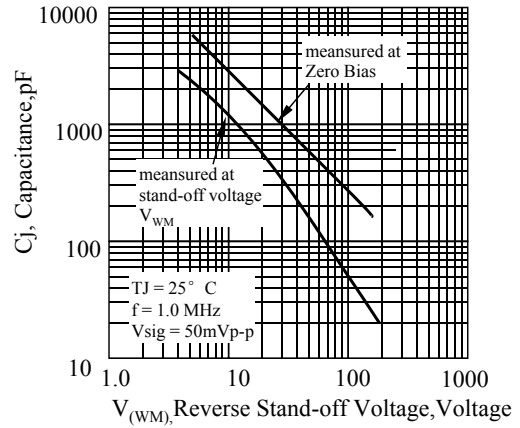


Fig 5. - typical transient thermal impedance

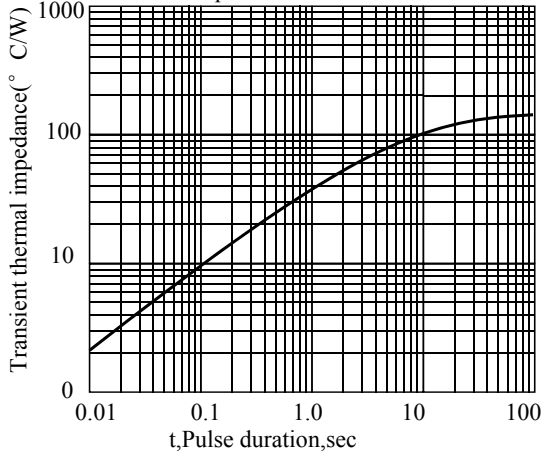
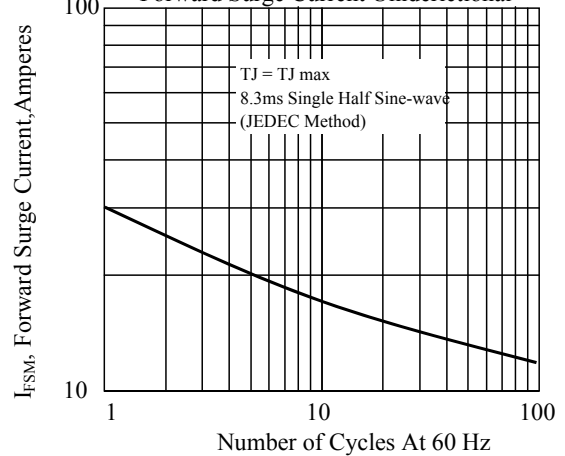
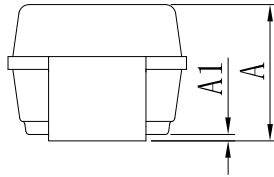
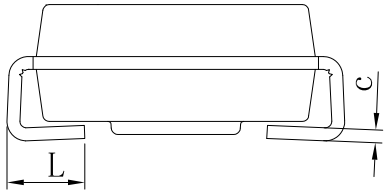


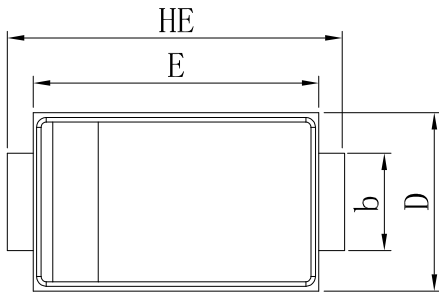
Fig. 6-Maximum Non-Repetitive Peak Forward Surge Current Unidirectional



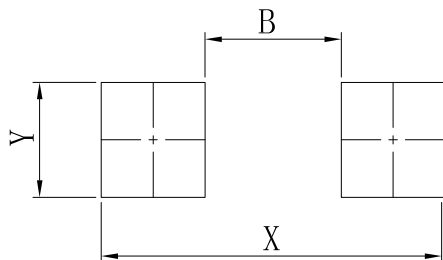
6. OUTLINE AND DIMENSIONS



| CSMA | | | |
|----------------------|------|------|------|
| DIM | MIN | TYP | MAX |
| A | 1.97 | 2.10 | 2.29 |
| A1 | 0.05 | 0.10 | 0.20 |
| b | 1.35 | 1.50 | 1.65 |
| c | 0.10 | 0.20 | 0.30 |
| D | 2.40 | 2.75 | 2.92 |
| E | 4.10 | 4.40 | 4.57 |
| HE | 4.70 | 5.27 | 5.59 |
| L | 0.76 | 1.20 | 1.52 |
| All Dimensions in mm | | | |



7. SOLDERING FOOTPRINT



| CSMA | | |
|------|---------|------|
| DIM | MIN | MAX |
| X | 5.30REF | |
| Y | 1.72 | 1.82 |
| B | 1.90 | 2.30 |

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