

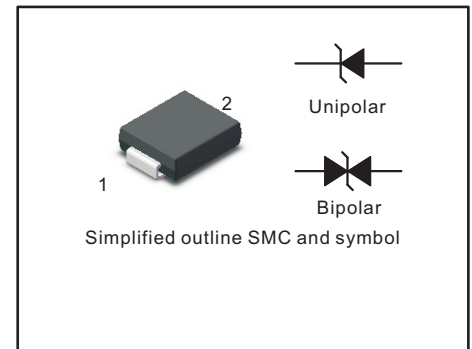


FEATURES

- 1500W peak pulse power capability at 10/1000μs waveform, repetition rate (duty cycles):0.01%
- Excellent clamping capability
- Low incremental surge resistance
- Typical IR less than 1μA when VBR min>12V
- For surface mounted applications to optimize board space
- Low profile package
- Built-in strain relief
- Typical failure mode is short from over-specified voltage or current
- Whisker test is conducted based on JEDEC JESD201A per its table 4a and 4c
- IEC-61000-4-2 ESD 30kV(Air), 30kV (Contact)
- ESD protection of data lines in accordance with IEC 61000-4-2
- EFT protection of data lines in accordance with IEC 61000-4-4
- Fast response time: typically less than 1.0ps from 0V to BV min
- Glass passivated chip junction
- High temperature to reflow soldering guaranteed: 260°C/40sec
- $VBR @ T_J = VBR @ 25^\circ C \times (1 + \alpha T \times (T_J - 25))$ (αT : Temperature Coefficient, typical value is 0.1%)
- Plastic package is flammability rated V-0 per Underwriters Laboratories
- Meet MSL level1, per J-STD-020, LF maximum peak of 260°C
- Matte tin lead-free plated
- RoHS compliant
- Pb-free E3 means 2nd level interconnect is Pb-free and the terminal finish material is tin(Sn) (IPC/JEDEC J-STD-609A.01)

PINNING

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



MECHANICAL DATA

- Case: SMC
- Terminals: Solderable per MIL-STD-750, Method 2026
- Approx. Weight: 0.22g (0.0077oz)

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

| Parameter | Symbol | Value | Unit |
|--|---------------|------------|------|
| Peak Pulse Power Dissipation at $T_A=25^\circ C$ $T_p=1mS$ (Note 1) | P_{PPM} | 1500 | W |
| Peak Forward Surge Current, 8.3ms Single Half Sine Wave Superimposed on Rated Load(JEDEC method)(Note2,3)- Unidirectional only | I_{FSM} | 200 | A |
| Maximum Instantaneous Forward Voltage at 100A for Unidirectional only (Note 4) | V_F | 3.5/5.0 | V |
| Operating Junction and Storage Temperature Range | $T_j T_{STG}$ | -55 to 150 | °C |

NOTES:

1. Non-repetitive current pulse, per Fig. 3 and derated above T_J (initial) = 25°C per Fig. 2.
2. Measured on 8.3ms single half sine wave or equivalent square wave for unidirectional device only, duty cycle=4 per minute maximum.
3. $V_F < 3.5V$ for single die parts and $V_F < 5.0V$ for stacked-die parts.
4. The PPM of stacked-die parts is 2000W and please contact littelfuse for the detail stacked-die parts.
5. For bidirectional type having VR of 10 volts and less, the IR limit is double
6. For parts without A, the VBR is ± 10% and VC is 5% higher than with A parts

Characteristics at Ta = 25°C

| Type | | Marking | | Reverse Stand-off Voltage | Breakdown Voltage | | Test Current | Max Clamping Voltage | Peak Pulse Current | Maximum Reverse Leakage |
|----------|-----------|---------|-----|---------------------------|---------------------------------|--------|--------------|----------------------|--------------------|-------------------------|
| | | | | V _{RMW} | V _{BR @ I_T} | | | | | |
| UNI | BI | UNI | BI | V | Min(V) | Max(V) | mA | V | A | µA |
| SMCJ5.0A | SMCJ5.0CA | GDE | BDE | 5 | 6.4 | 7 | 10 | 9.2 | 163 | 800 |
| SMCJ6.0A | SMCJ6.0CA | GDG | BDG | 6 | 6.67 | 7.37 | 10 | 10.3 | 145.7 | 800 |
| SMCJ6.5A | SMCJ6.5CA | GDK | BDK | 6.5 | 7.22 | 7.98 | 10 | 11.2 | 134 | 500 |
| SMCJ7.0A | SMCJ7.0CA | GDM | BDM | 7 | 7.78 | 8.6 | 10 | 12 | 125 | 200 |
| SMCJ7.5A | SMCJ7.5CA | GDP | BDP | 7.5 | 8.33 | 9.21 | 1 | 12.9 | 116.3 | 100 |
| SMCJ8.0A | SMCJ8.0CA | GDR | BDR | 8 | 8.89 | 9.83 | 1 | 13.6 | 110.3 | 50 |
| SMCJ8.5A | SMCJ8.5CA | GDT | BDT | 8.5 | 9.44 | 10.4 | 1 | 14.4 | 104.2 | 20 |
| SMCJ9.0A | SMCJ9.0CA | GDV | BDV | 9 | 10 | 11.1 | 1 | 15.4 | 97.4 | 10 |
| SMCJ10A | SMCJ10CA | GDX | BDX | 10 | 11.1 | 12.3 | 1 | 17 | 88.3 | 5 |
| SMCJ11A | SMCJ11CA | GDZ | BDZ | 11 | 12.2 | 13.5 | 1 | 18.2 | 82.5 | 1 |
| SMCJ12A | SMCJ12CA | GEE | BEE | 12 | 13.3 | 14.7 | 1 | 19.9 | 75.4 | 1 |
| SMCJ13A | SMCJ13CA | GEG | BEG | 13 | 14.4 | 15.9 | 1 | 21.5 | 69.8 | 1 |
| SMCJ14A | SMCJ14CA | GEK | BEK | 14 | 15.6 | 17.2 | 1 | 23.2 | 64.7 | 1 |
| SMCJ15A | SMCJ15CA | GEM | BEM | 15 | 16.7 | 18.5 | 1 | 24.4 | 61.5 | 1 |
| SMCJ16A | SMCJ16CA | GEP | BEP | 16 | 17.8 | 19.7 | 1 | 26 | 57.7 | 1 |
| SMCJ17A | SMCJ17CA | GER | BER | 17 | 18.9 | 20.9 | 1 | 27.6 | 54.4 | 1 |
| SMCJ18A | SMCJ18CA | GET | BET | 18 | 20 | 22.1 | 1 | 29.2 | 51.4 | 1 |
| SMCJ20A | SMCJ20CA | GEV | BEV | 20 | 22.2 | 24.5 | 1 | 32.4 | 46.3 | 1 |
| SMCJ22A | SMCJ22CA | GEX | BEX | 22 | 24.4 | 26.9 | 1 | 35.5 | 42.3 | 1 |
| SMCJ24A | SMCJ24CA | GEZ | BEZ | 24 | 26.7 | 29.5 | 1 | 38.9 | 38.6 | 1 |
| SMCJ26A | SMCJ26CA | GFE | BFE | 26 | 28.9 | 31.9 | 1 | 42.1 | 35.7 | 1 |
| SMCJ28A | SMCJ28CA | GFG | BFG | 28 | 31.1 | 34.4 | 1 | 45.4 | 33.1 | 1 |
| SMCJ30A | SMCJ30CA | GFK | BFK | 30 | 33.3 | 36.8 | 1 | 48.4 | 31 | 1 |
| SMCJ33A | SMCJ33CA | GFM | BFM | 33 | 36.7 | 40.6 | 1 | 53.3 | 28.2 | 1 |
| SMCJ36A | SMCJ36CA | GFP | BFP | 36 | 40 | 44.2 | 1 | 58.1 | 25.9 | 1 |
| SMCJ40A | SMCJ40CA | GFR | BFR | 40 | 44.4 | 49.1 | 1 | 64.5 | 23.3 | 1 |
| SMCJ43A | SMCJ43CA | GFT | BFT | 43 | 47.8 | 52.8 | 1 | 69.4 | 21.7 | 1 |
| SMCJ45A | SMCJ45CA | GFV | BFV | 45 | 50 | 55.3 | 1 | 72.7 | 20.6 | 1 |
| SMCJ48A | SMCJ48CA | GFX | BFX | 48 | 53.3 | 58.9 | 1 | 77.4 | 19.4 | 1 |
| SMCJ51A | SMCJ51CA | GFZ | BFZ | 51 | 56.7 | 62.7 | 1 | 82.4 | 18.2 | 1 |
| SMCJ54A | SMCJ54CA | GGE | BGE | 54 | 60 | 66.3 | 1 | 87.1 | 17.3 | 1 |
| SMCJ58A | SMCJ58CA | GGG | BGG | 58 | 64.4 | 71.2 | 1 | 93.6 | 16.1 | 1 |
| SMCJ60A | SMCJ60CA | GGK | BGK | 60 | 66.7 | 73.7 | 1 | 96.8 | 15.5 | 1 |
| SMCJ64A | SMCJ64CA | GGM | BGM | 64 | 71.1 | 78.6 | 1 | 103 | 14.6 | 1 |
| SMCJ70A | SMCJ70CA | GGP | BGP | 70 | 77.8 | 86 | 1 | 113 | 13.3 | 1 |
| SMCJ75A | SMCJ75CA | GGR | BGR | 75 | 83.3 | 92.1 | 1 | 121 | 12.4 | 1 |
| SMCJ78A | SMCJ78CA | GGT | BGT | 78 | 86.7 | 95.8 | 1 | 126 | 11.9 | 1 |
| SMCJ85A | SMCJ85CA | GGV | BGV | 85 | 94.4 | 104 | 1 | 137 | 11 | 1 |
| SMCJ90A | SMCJ90CA | GGX | BGX | 90 | 100 | 111 | 1 | 146 | 10.3 | 1 |
| SMCJ100A | SMCJ100CA | GGZ | BGZ | 100 | 111 | 123 | 1 | 162 | 9.3 | 1 |
| SMCJ110A | SMCJ110CA | GHE | BHE | 110 | 122 | 135 | 1 | 177 | 8.5 | 1 |
| SMCJ120A | SMCJ120CA | GHG | BHG | 120 | 133 | 147 | 1 | 193 | 7.8 | 1 |
| SMCJ130A | SMCJ130CA | GHK | BHK | 130 | 144 | 159 | 1 | 209 | 7.2 | 1 |
| SMCJ150A | SMCJ150CA | GHM | BHM | 150 | 167 | 185 | 1 | 243 | 6.2 | 1 |
| SMCJ160A | SMCJ160CA | GHP | BHP | 160 | 178 | 197 | 1 | 259 | 5.8 | 1 |
| SMCJ170A | SMCJ170CA | GHR | BHR | 170 | 189 | 209 | 1 | 275 | 5.5 | 1 |
| SMCJ180A | SMCJ180CA | GHT | BHT | 180 | 201 | 222 | 1 | 292 | 5.1 | 1 |
| SMCJ200A | SMCJ200CA | GHV | BHV | 200 | 224 | 247 | 1 | 324 | 4.6 | 1 |
| SMCJ220A | SMCJ220CA | GHX | BHX | 220 | 246 | 272 | 1 | 356 | 4.2 | 1 |
| SMCJ250A | SMCJ250CA | GHZ | BHZ | 250 | 279 | 309 | 1 | 405 | 3.7 | 1 |
| SMCJ300A | SMCJ300CA | GJE | BJE | 300 | 335 | 371 | 1 | 486 | 3.1 | 1 |
| SMCJ350A | SMCJ350CA | GJG | BJG | 350 | 391 | 432 | 1 | 567 | 2.6 | 1 |
| SMCJ400A | SMCJ400CA | GJK | BJK | 400 | 447 | 494 | 1 | 648 | 2.3 | 1 |
| SMCJ440A | SMCJ440CA | GJM | BJM | 440 | 492 | 543 | 1 | 713 | 2.1 | 1 |



Characteristic Curves ($T_A=25^\circ\text{C}$ unless otherwise noted)

Fig.1 Peak Pulse Power Rating Curve

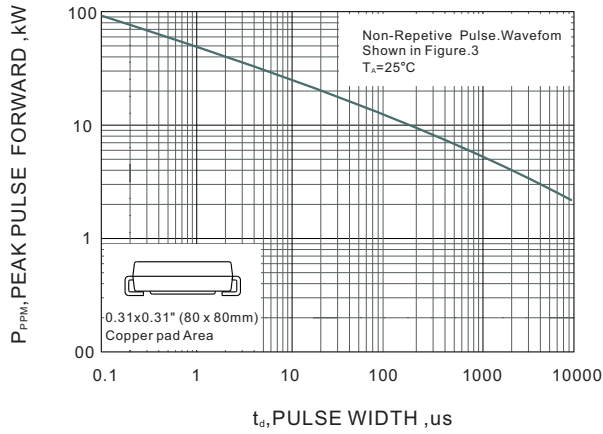


Fig.2 Pulse Waveform

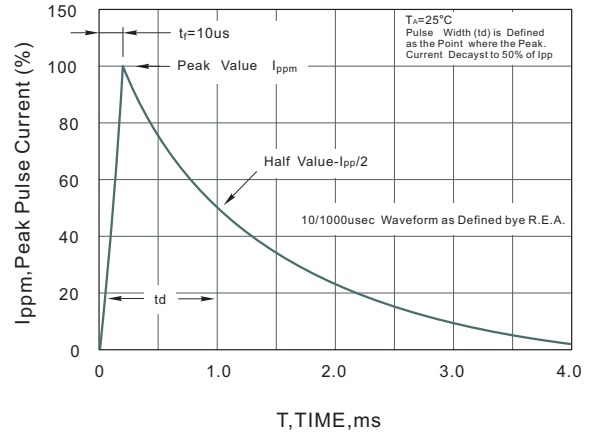


Fig.3 Forward Current Derating Curve

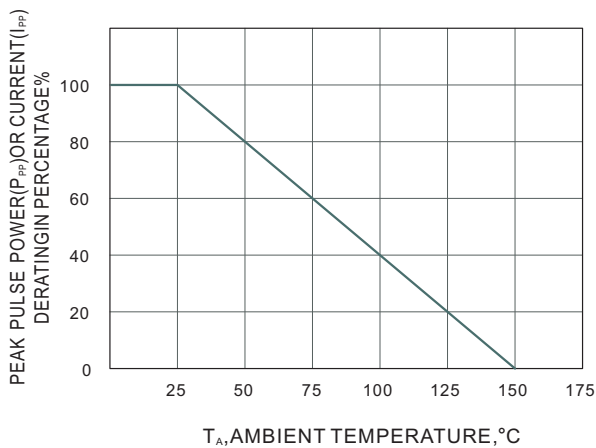


Fig.4 Typical Junction Capacitance

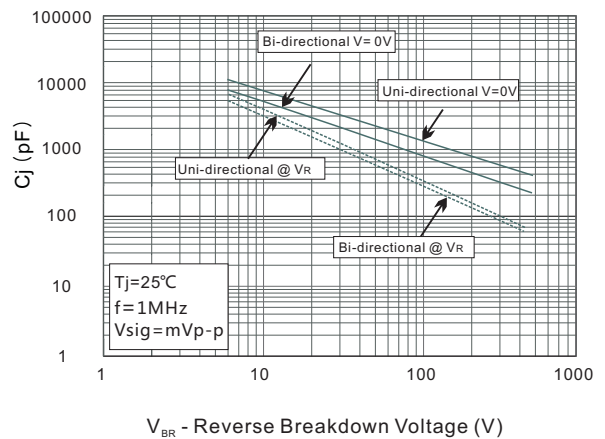
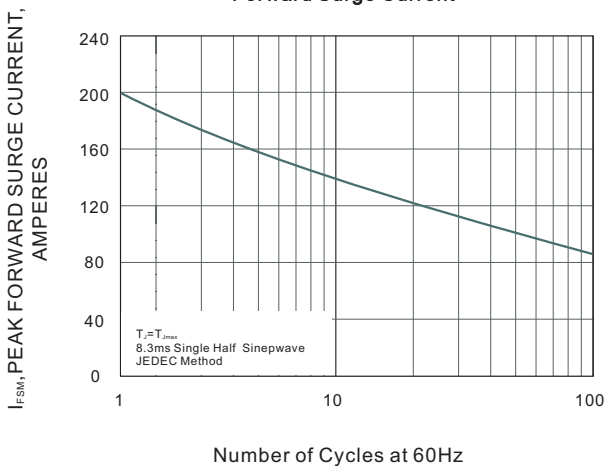


Fig.5 Maximum Non-Repetitive Peak Forward Surge Current

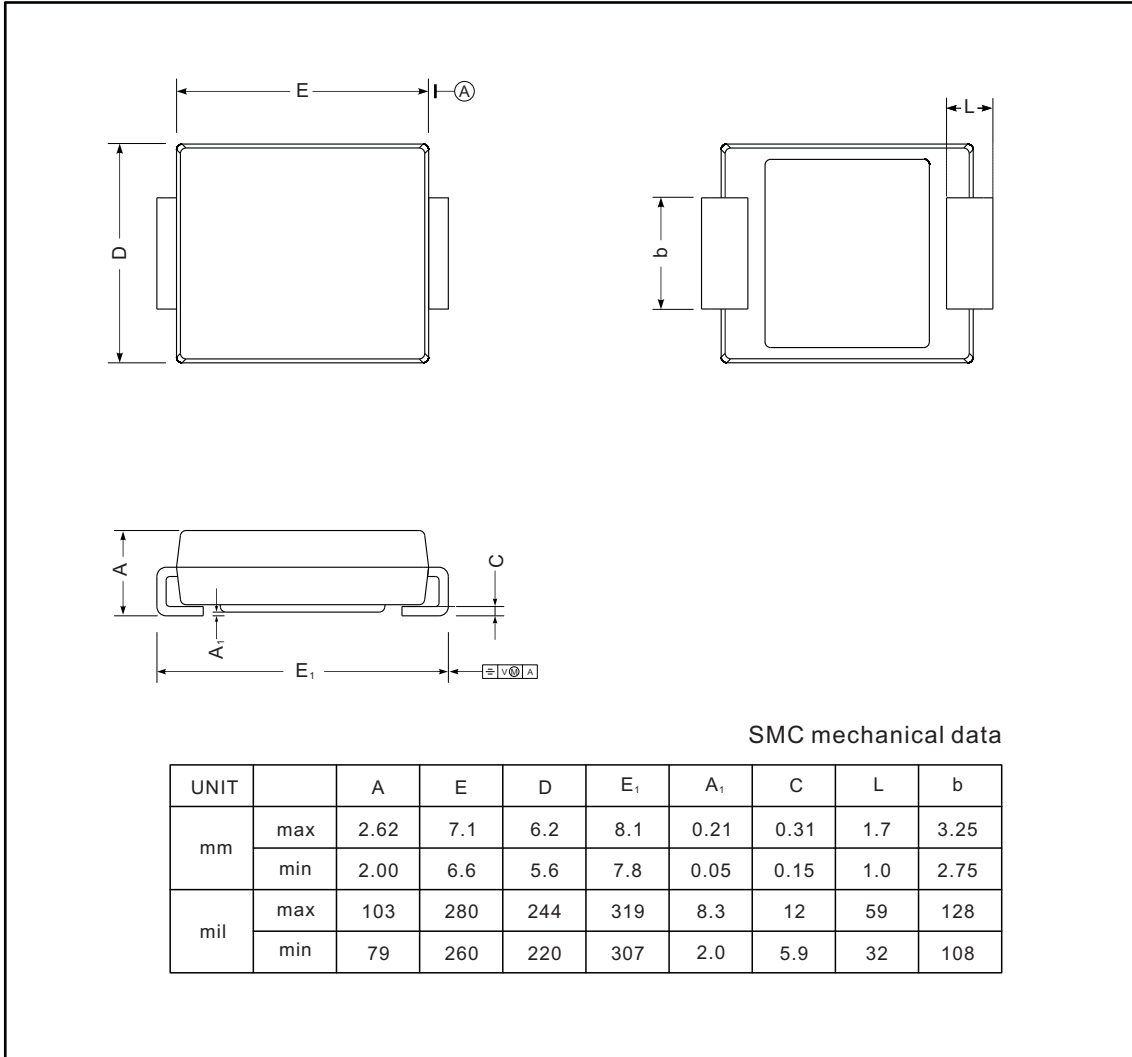




PACKAGE OUTLINE

Plastic surface mounted package; 2 leads

SMC



The recommended mounting pad size

