



The SMCJ series is designed specifically to protect sensitive electronic equipment from voltage transients induced by lightning and other transient voltage events.

#### FEATURES

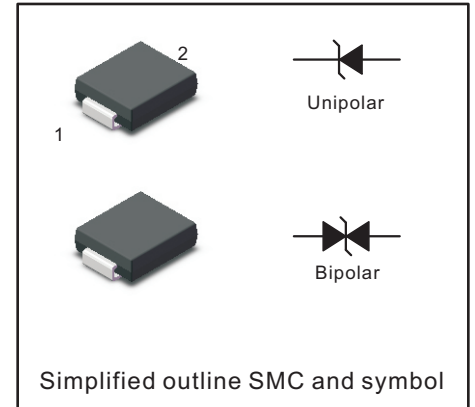
- 1500W peak pulse power capability at 10/1000 $\mu$ s waveform
- For surface mounted applications to optimize board space
- Glass passivated chip junction
- Halogen free and RoHS compliant

#### MECHANICAL DATA

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

#### PINNING

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



| Parameter                                                                                         | Symbol                             | Value          | Unit          |
|---------------------------------------------------------------------------------------------------|------------------------------------|----------------|---------------|
| Peak Pulse Power Dissipation on 10/1000 us waveform                                               | $P_{PPM}$                          | 1500           | W             |
| Peak Forward Surge Current, 8.3ms Single Half Sine-Wave Superimposed on Rated Load (JEDEC Method) | $I_{FSM}$<br>(UNI)                 | 200            | A             |
| Power dissipation on Infinite heat sink at $T_A=50^{\circ}C$                                      | $P_D$                              | 6.5            | W             |
| Maximum instantaneous forward voltage at 100 A for unidirectional only                            | $V_F$                              | 3.5            | V             |
| Peak Pulse Current on 10/1000 us waveform                                                         | $I_{PPM}$                          | See Next Table | A             |
| Typical Thermal Resistance Junction to Ambient(Note 1)                                            | $R_{\theta JA}$<br>$R_{\theta JL}$ | 75<br>15       | $^{\circ}C/W$ |
| Operating Junction Temperature and Storage Temperature Range                                      | $T_j, T_{stg}$                     | -55 ~ +150     | $^{\circ}C$   |

#### NOTES:

1. Mounted on 8 mm<sup>2</sup> (0.13mm thick) land areas.

**Characteristics at Ta = 25°C**

| Type     |           | Marking |     | Reverse<br>Stand-off<br>Voltage | Breakdown<br>Voltage             |        | Test<br>Current | Max<br>Clamping<br>Voltage       | Peak Pulse<br>Current | Maximum<br>Reverse<br>Leakage |
|----------|-----------|---------|-----|---------------------------------|----------------------------------|--------|-----------------|----------------------------------|-----------------------|-------------------------------|
|          |           |         |     | V <sub>RMW</sub>                | V <sub>BR</sub> @ I <sub>T</sub> |        | I <sub>T</sub>  | V <sub>C</sub> @ I <sub>PP</sub> | I <sub>PP</sub>       | I <sub>R</sub>                |
| 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                             |



Fig.1 Peak Pulse Power Rating Curve

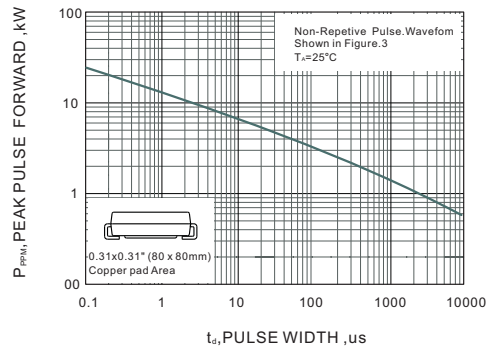


Fig.2 Pulse Waveform

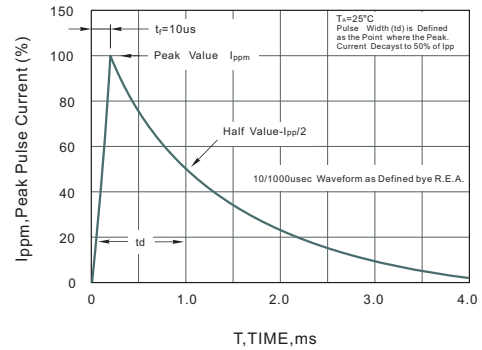


Fig.3 Forward Current Derating Curve

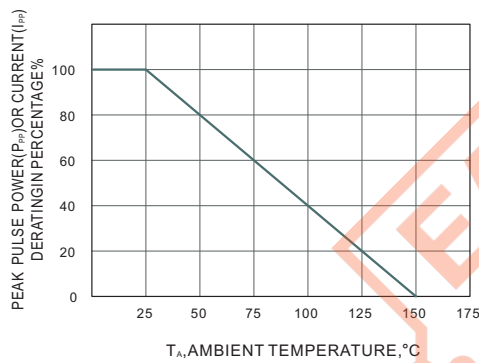


Fig.4 Typical Junction Capacitance

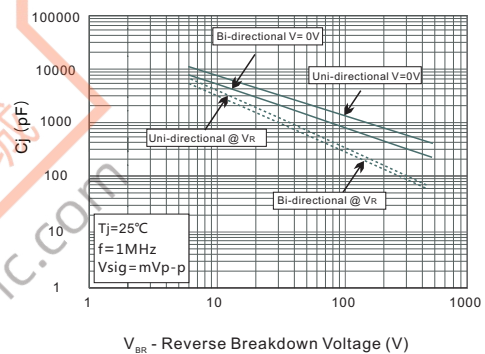
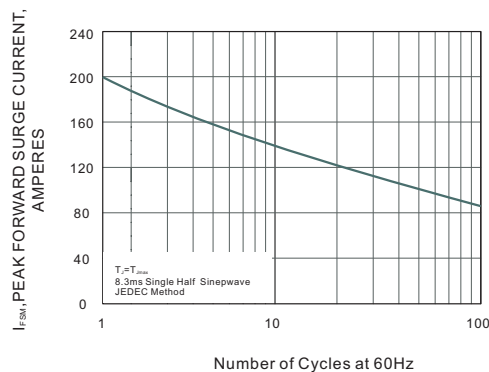


Fig.5 Maximum Non-Repetitive Peak Forward Surge Current

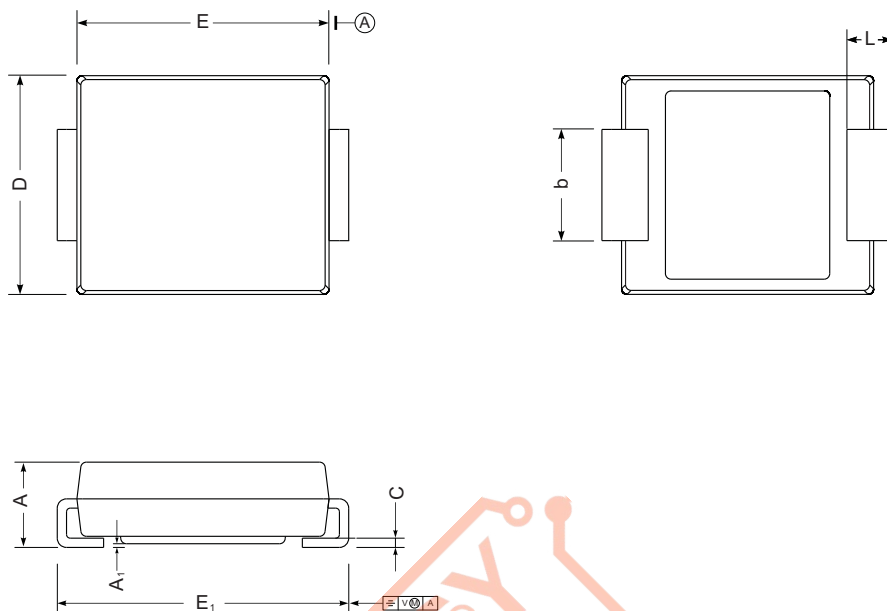




## PACKAGE OUTLINE

Plastic surface mounted package; 2 leads

SMC



SMC mechanical data

| UNIT |     | A    | E   | D   | E <sub>1</sub> | A <sub>1</sub> | C    | L   | b    |
|------|-----|------|-----|-----|----------------|----------------|------|-----|------|
| mm   | max | 2.62 | 7.0 | 6.2 | 8.0            | 0.21           | 0.31 | 1.6 | 3.25 |
|      | min | 2.00 | 6.5 | 5.6 | 7.6            | 0.05           | 0.15 | 0.9 | 2.75 |
| mil  | max | 103  | 276 | 244 | 315            | 8.3            | 12   | 63  | 128  |
|      | min | 79   | 256 | 220 | 299            | 2.0            | 5.9  | 35  | 108  |

## The recommended mounting pad size

