



The SMC 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   | $P_{PPM}$                          | 600            | W                           |
| Peak Forward Surge Current, 8.3ms Single Half Sine-Wave Superimposed on Rated Load (JEDEC Method) | $I_{FSM}$<br>(UNI)                 | 100            | A                           |
| 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       | $^{\circ}\text{C}/\text{W}$ |
| Operating Junction Temperature and Storage Temperature Range                                      | $T_j, T_{stg}$                     | -55 ~ +150     | $^{\circ}\text{C}$          |

#### NOTES:

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

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 <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-L | SMCJ5.0CA-L | GDE     | BDE | 5                         | 6.4                              | 7      | 10             | 9.2                              | 65.3               | 800                     |
| SMCJ6.0A-L | SMCJ6.0CA-L | GDG     | BDG | 6                         | 6.67                             | 7.37   | 10             | 10.3                             | 58.3               | 800                     |
| SMCJ6.5A-L | SMCJ6.5CA-L | GDK     | BDK | 6.5                       | 7.22                             | 7.98   | 10             | 11.2                             | 53.6               | 500                     |
| SMCJ7.0A-L | SMCJ7.0CA-L | GDM     | BDM | 7                         | 7.78                             | 8.6    | 10             | 12                               | 50.0               | 200                     |
| SMCJ7.5A-L | SMCJ7.5CA-L | GDP     | BDP | 7.5                       | 8.33                             | 9.21   | 1              | 12.9                             | 46.6               | 100                     |
| SMCJ8.0A-L | SMCJ8.0CA-L | GDR     | BDR | 8                         | 8.89                             | 9.83   | 1              | 13.6                             | 44.2               | 50                      |
| SMCJ8.5A-L | SMCJ8.5CA-L | GDT     | BDT | 8.5                       | 9.44                             | 10.4   | 1              | 14.4                             | 41.7               | 20                      |
| SMCJ9.0A-L | SMCJ9.0CA-L | GDV     | BDV | 9                         | 10                               | 11.1   | 1              | 15.4                             | 39.0               | 10                      |
| SMCJ10A-L  | SMCJ10CA-L  | GDX     | BDX | 10                        | 11.1                             | 12.3   | 1              | 17                               | 35.3               | 5                       |
| SMCJ11A-L  | SMCJ11CA-L  | GDZ     | BDZ | 11                        | 12.2                             | 13.5   | 1              | 18.2                             | 33.0               | 1                       |
| SMCJ12A-L  | SMCJ12CA-L  | GEE     | BEE | 12                        | 13.3                             | 14.7   | 1              | 19.9                             | 30.2               | 1                       |
| SMCJ13A-L  | SMCJ13CA-L  | GEG     | BEG | 13                        | 14.4                             | 15.9   | 1              | 21.5                             | 28.0               | 1                       |
| SMCJ14A-L  | SMCJ14CA-L  | GEK     | BEK | 14                        | 15.6                             | 17.2   | 1              | 23.2                             | 25.9               | 1                       |
| SMCJ15A-L  | SMCJ15CA-L  | GEM     | BEM | 15                        | 16.7                             | 18.5   | 1              | 24.4                             | 24.6               | 1                       |
| SMCJ16A-L  | SMCJ16CA-L  | GEP     | BEP | 16                        | 17.8                             | 19.7   | 1              | 26                               | 23.1               | 1                       |
| SMCJ17A-L  | SMCJ17CA-L  | GER     | BER | 17                        | 18.9                             | 20.9   | 1              | 27.6                             | 21.8               | 1                       |
| SMCJ18A-L  | SMCJ18CA-L  | GET     | BET | 18                        | 20                               | 22.1   | 1              | 29.2                             | 20.6               | 1                       |
| SMCJ20A-L  | SMCJ20CA-L  | GEV     | BEV | 20                        | 22.2                             | 24.5   | 1              | 32.4                             | 18.6               | 1                       |
| SMCJ22A-L  | SMCJ22CA-L  | GEX     | BEX | 22                        | 24.4                             | 26.9   | 1              | 35.5                             | 16.9               | 1                       |
| SMCJ24A-L  | SMCJ24CA-L  | GEZ     | BEZ | 24                        | 26.7                             | 29.5   | 1              | 38.9                             | 15.5               | 1                       |
| SMCJ26A-L  | SMCJ26CA-L  | GFE     | BFE | 26                        | 28.9                             | 31.9   | 1              | 42.1                             | 14.3               | 1                       |
| SMCJ28A-L  | SMCJ28CA-L  | GFG     | BFG | 28                        | 31.1                             | 34.4   | 1              | 45.4                             | 13.3               | 1                       |
| SMCJ30A-L  | SMCJ30CA-L  | GFK     | BFK | 30                        | 33.3                             | 36.8   | 1              | 48.4                             | 12.4               | 1                       |
| SMCJ33A-L  | SMCJ33CA-L  | GFM     | BFM | 33                        | 36.7                             | 40.6   | 1              | 53.3                             | 11.3               | 1                       |
| SMCJ36A-L  | SMCJ36CA-L  | GFP     | BFP | 36                        | 40                               | 44.2   | 1              | 58.1                             | 10.4               | 1                       |
| SMCJ40A-L  | SMCJ40CA-L  | GFR     | BFR | 40                        | 44.4                             | 49.1   | 1              | 64.5                             | 9.3                | 1                       |
| SMCJ43A-L  | SMCJ43CA-L  | GFT     | BFT | 43                        | 47.8                             | 52.8   | 1              | 69.4                             | 8.7                | 1                       |
| SMCJ45A-L  | SMCJ45CA-L  | GFV     | BFV | 45                        | 50                               | 55.3   | 1              | 72.7                             | 8.3                | 1                       |
| SMCJ48A-L  | SMCJ48CA-L  | GFX     | BFX | 48                        | 53.3                             | 58.9   | 1              | 77.4                             | 7.8                | 1                       |
| SMCJ51A-L  | SMCJ51CA-L  | GFZ     | BFZ | 51                        | 56.7                             | 62.7   | 1              | 82.4                             | 7.3                | 1                       |
| SMCJ54A-L  | SMCJ54CA-L  | GGE     | BGE | 54                        | 60                               | 66.3   | 1              | 87.1                             | 6.9                | 1                       |
| SMCJ58A-L  | SMCJ58CA-L  | GGG     | BGG | 58                        | 64.4                             | 71.2   | 1              | 93.6                             | 6.5                | 1                       |
| SMCJ60A-L  | SMCJ60CA-L  | GGK     | BGK | 60                        | 66.7                             | 73.7   | 1              | 96.8                             | 6.2                | 1                       |
| SMCJ64A-L  | SMCJ64CA-L  | GGM     | BGM | 64                        | 71.1                             | 78.6   | 1              | 103                              | 5.9                | 1                       |
| SMCJ70A-L  | SMCJ70CA-L  | GGP     | BGP | 70                        | 77.8                             | 86     | 1              | 113                              | 5.3                | 1                       |
| SMCJ75A-L  | SMCJ75CA-L  | GGR     | BGR | 75                        | 83.3                             | 92.1   | 1              | 121                              | 5.0                | 1                       |
| SMCJ78A-L  | SMCJ78CA-L  | GGT     | BGT | 78                        | 86.7                             | 95.8   | 1              | 126                              | 4.8                | 1                       |
| SMCJ85A-L  | SMCJ85CA-L  | GGV     | BGV | 85                        | 94.4                             | 104    | 1              | 137                              | 4.4                | 1                       |
| SMCJ90A-L  | SMCJ90CA-L  | GGX     | BGX | 90                        | 100                              | 111    | 1              | 146                              | 4.1                | 1                       |
| SMCJ100A-L | SMCJ100CA-L | GGZ     | BGZ | 100                       | 111                              | 123    | 1              | 162                              | 3.7                | 1                       |
| SMCJ110A-L | SMCJ110CA-L | GHE     | BHE | 110                       | 122                              | 135    | 1              | 177                              | 3.4                | 1                       |
| SMCJ120A-L | SMCJ120CA-L | GHG     | BHG | 120                       | 133                              | 147    | 1              | 193                              | 3.1                | 1                       |
| SMCJ130A-L | SMCJ130CA-L | GHK     | BHK | 130                       | 144                              | 159    | 1              | 209                              | 2.9                | 1                       |
| SMCJ150A-L | SMCJ150CA-L | GHM     | BHM | 150                       | 167                              | 185    | 1              | 243                              | 2.5                | 1                       |
| SMCJ160A-L | SMCJ160CA-L | GHP     | BHP | 160                       | 178                              | 197    | 1              | 259                              | 2.3                | 1                       |
| SMCJ170A-L | SMCJ170CA-L | GHR     | BHR | 170                       | 189                              | 209    | 1              | 275                              | 2.2                | 1                       |
| SMCJ180A-L | SMCJ180CA-L | GHT     | BHT | 180                       | 201                              | 222    | 1              | 292                              | 2.1                | 1                       |
| SMCJ200A-L | SMCJ200CA-L | GHV     | BHV | 200                       | 224                              | 247    | 1              | 324                              | 1.9                | 1                       |
| SMCJ220A-L | SMCJ220CA-L | GHX     | BHX | 220                       | 246                              | 272    | 1              | 356                              | 1.7                | 1                       |
| SMCJ250A-L | SMCJ250CA-L | GHZ     | BHZ | 250                       | 279                              | 309    | 1              | 405                              | 1.5                | 1                       |
| SMCJ300A-L | SMCJ300CA-L | GJE     | BJE | 300                       | 335                              | 371    | 1              | 486                              | 1.3                | 1                       |
| SMCJ350A-L | SMCJ350CA-L | GJG     | BJG | 350                       | 391                              | 432    | 1              | 567                              | 1.1                | 1                       |
| SMCJ400A-L | SMCJ400CA-L | GJK     | BJK | 400                       | 447                              | 494    | 1              | 648                              | 0.9                | 1                       |
| SMCJ440A-L | SMCJ440CA-L | GJM     | BJM | 440                       | 492                              | 543    | 1              | 713                              | 0.9                | 1                       |



Fig.1 Peak Pulse Power Rating Curve



Fig.2 Pulse Waveform



Fig.3 Forward Current Derating Curve



Fig.4 Typical Junction Capacitance

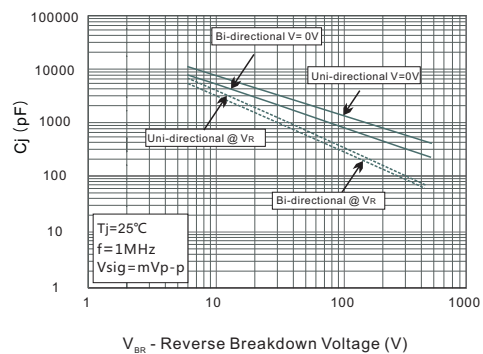


Fig.5 Maximum Non-Repetitive Peak Forward Surge Current





**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**



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