

PINNING

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

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 μ 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)

| 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} (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) | $R_{\theta JA}$ $R_{\theta JL}$ | 75 15 | $^{\circ}C/W$ |
| Operating Junction Temperature and Storage Temperature Range | T_j, T_{stg} | -55 ~ +150 | $^{\circ}C$ |

NOTES:

1. Mounted on 8 mm² (0.13mm thick) land areas.



SMCJ5.0 THRU SMCJ440CA

Stand-off Voltage - 5.0 to 440 Volts Peak Pulse Power: 1500 Watts

Electrical Characteristics (TA=25°C)

| Part Number | | Device Marking Code | | Reverse Stand-Off Voltage | Breakdown Voltage @I _T | Test Current | Maximum Clamping Voltage @I _{PP} | Peak Pulse Current | Reverse Leakage @V _{RWM} |
|----------------|---------------|---------------------|-----|---------------------------|-----------------------------------|---------------------|---|---------------------|-----------------------------------|
| Unidirectional | Bidirectional | UNI | BI | V _{RWM} (V) | V _{BR} (V) | I _T (mA) | V _C (V) | I _{PP} (A) | I _R (μA) |
| SMCJ5.0A | SMCJ5.0CA | GDE | BDE | 5.0 | 6.40~7.00 | 10 | 9.2 | 163.0 | 800 |
| SMCJ6.0A | SMCJ6.0CA | GDG | BDG | 6.0 | 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 | 134.0 | 500 |
| SMCJ7.0A | SMCJ7.0CA | GDM | BDM | 7.0 | 7.78~8.60 | 10 | 12.0 | 125.0 | 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 | 8.0 | 8.89~9.83 | 1 | 13.6 | 110.3 | 50 |
| SMCJ8.5A | SMCJ8.5CA | GDT | BDT | 8.5 | 9.44~10.40 | 1 | 14.4 | 104.2 | 20 |
| SMCJ9.0A | SMCJ9.0CA | GDV | BDV | 9.0 | 10.00~11.10 | 1 | 15.4 | 97.4 | 10 |
| SMCJ10A | SMCJ10CA | GDX | BDX | 10.0 | 11.10~12.30 | 1 | 17.0 | 88.3 | 5 |
| SMCJ11A | SMCJ11CA | GDZ | BDZ | 11.0 | 12.20~13.50 | 1 | 18.2 | 82.5 | 1 |
| SMCJ12A | SMCJ12CA | GEE | BEE | 12.0 | 13.30~14.70 | 1 | 19.9 | 75.4 | 1 |
| SMCJ13A | SMCJ13CA | GEG | BEG | 13.0 | 14.40~15.90 | 1 | 21.5 | 69.8 | 1 |
| SMCJ14A | SMCJ14CA | GEK | BEK | 14.0 | 15.60~17.20 | 1 | 23.2 | 64.7 | 1 |
| SMCJ15A | SMCJ15CA | GEM | BEM | 15.0 | 16.70~18.50 | 1 | 24.4 | 61.5 | 1 |
| SMCJ16A | SMCJ16CA | GEP | BEP | 16.0 | 17.80~19.70 | 1 | 26.0 | 57.7 | 1 |
| SMCJ17A | SMCJ17CA | GER | BER | 17.0 | 18.90~20.90 | 1 | 27.6 | 54.4 | 1 |
| SMCJ18A | SMCJ18CA | GET | BET | 18.0 | 20.00~22.10 | 1 | 29.2 | 51.4 | 1 |
| SMCJ20A | SMCJ20CA | GEV | BEV | 20.0 | 22.20~24.50 | 1 | 32.4 | 46.3 | 1 |
| SMCJ22A | SMCJ22CA | GEX | BEX | 22.0 | 24.40~26.90 | 1 | 35.5 | 42.3 | 1 |
| SMCJ24A | SMCJ24CA | GEZ | BEZ | 24.0 | 26.70~29.50 | 1 | 38.9 | 38.6 | 1 |
| SMCJ26A | SMCJ26CA | GFE | BFE | 26.0 | 28.90~31.90 | 1 | 42.1 | 35.7 | 1 |
| SMCJ28A | SMCJ28CA | GFG | BFG | 28.0 | 31.10~34.40 | 1 | 45.4 | 33.1 | 1 |
| SMCJ30A | SMCJ30CA | GFK | BFK | 30.0 | 33.30~36.80 | 1 | 48.4 | 31.0 | 1 |
| SMCJ33A | SMCJ33CA | GFM | BFM | 33.0 | 36.70~40.60 | 1 | 53.3 | 28.2 | 1 |
| SMCJ36A | SMCJ36CA | GFP | BFP | 36.0 | 40.00~44.20 | 1 | 58.1 | 25.9 | 1 |
| SMCJ40A | SMCJ40CA | GFR | BFR | 40.0 | 44.40~49.10 | 1 | 64.5 | 23.3 | 1 |
| SMCJ43A | SMCJ43CA | GFT | BFT | 43.0 | 47.80~52.80 | 1 | 69.4 | 21.7 | 1 |
| SMCJ45A | SMCJ45CA | GFV | BFV | 45.0 | 50.00~55.30 | 1 | 72.7 | 20.6 | 1 |
| SMCJ48A | SMCJ48CA | GFX | BFX | 48.0 | 53.30~58.90 | 1 | 77.4 | 19.4 | 1 |
| SMCJ51A | SMCJ51CA | GFZ | BFZ | 51.0 | 56.70~62.70 | 1 | 82.4 | 18.2 | 1 |
| SMCJ54A | SMCJ54CA | GGE | BGE | 54.0 | 60.00~66.30 | 1 | 87.1 | 17.3 | 1 |
| SMCJ58A | SMCJ58CA | GGG | BGG | 58.0 | 64.40~71.20 | 1 | 93.6 | 16.1 | 1 |
| SMCJ60A | SMCJ60CA | GGK | BGK | 60.0 | 66.70~73.70 | 1 | 96.8 | 15.5 | 1 |
| SMCJ64A | SMCJ64CA | GGM | BGM | 64.0 | 71.10~78.60 | 1 | 103.0 | 14.6 | 1 |
| SMCJ70A | SMCJ70CA | GGP | BGP | 70.0 | 77.80~86.00 | 1 | 113.0 | 13.3 | 1 |
| SMCJ75A | SMCJ75CA | GGR | BGR | 75.0 | 83.30~92.10 | 1 | 121.0 | 12.4 | 1 |
| SMCJ78A | SMCJ78CA | GGT | BGT | 78.0 | 86.70~95.80 | 1 | 126.0 | 11.9 | 1 |
| SMCJ85A | SMCJ85CA | GGV | BGV | 85.0 | 94.40~104.00 | 1 | 137.0 | 11.0 | 1 |
| SMCJ90A | SMCJ90CA | GGX | BGX | 90.0 | 100.00~111.00 | 1 | 146.0 | 10.3 | 1 |
| SMCJ100A | SMCJ100CA | GGZ | BGZ | 100.0 | 111.00~123.00 | 1 | 162.0 | 9.3 | 1 |
| SMCJ110A | SMCJ110CA | GHE | BHE | 110.0 | 122.00~135.00 | 1 | 177.0 | 8.5 | 1 |
| SMCJ120A | SMCJ120CA | GHG | BHG | 120.0 | 133.00~147.00 | 1 | 193.0 | 7.8 | 1 |



SMCJ5.0 THRU SMCJ440CA

Stand-off Voltage - 5.0 to 440 Volts Peak Pulse Power: 1500 Watts

Electrical Characteristics (TA=25°C)

| Part Number | | Device Marking Code | | Reverse Stand-Off Voltage | Breakdown Voltage @I _T | Test Current | Maximum Clamping Voltage @I _{PP} | Peak Pulse Current | Reverse Leakage @V _{RWM} |
|----------------|---------------|---------------------|-----|---------------------------|-----------------------------------|---------------------|---|---------------------|-----------------------------------|
| Unidirectional | Bidirectional | UNI | BI | V _{RWM} (V) | V _{BR} (V) | I _T (mA) | V _C (V) | I _{PP} (A) | I _R (μA) |
| SMCJ130A | SMCJ130CA | GHK | BHK | 130.0 | 144.00~159.00 | 1 | 209.0 | 7.2 | 1 |
| SMCJ150A | SMCJ150CA | GHM | BHM | 150.0 | 167.00~185.00 | 1 | 243.0 | 6.2 | 1 |
| SMCJ160A | SMCJ160CA | GHP | BHP | 160.0 | 178.00~197.00 | 1 | 259.0 | 5.8 | 1 |
| SMCJ170A | SMCJ170CA | GHR | BHR | 170.0 | 189.00~209.00 | 1 | 275.0 | 5.5 | 1 |
| SMCJ180A | SMCJ180CA | GHT | BHT | 180.0 | 201.00~222.00 | 1 | 292.0 | 5.1 | 1 |
| SMCJ190A | SMCJ190CA | GHU | BHU | 190.0 | 211.00~233.00 | 1 | 308.0 | 4.8 | 1 |
| SMCJ200A | SMCJ200CA | GHV | BHV | 200.0 | 224.00~247.00 | 1 | 324.0 | 4.6 | 1 |
| SMCJ210A | SMCJ210CA | GHW | BHW | 210.0 | 237.00~263.00 | 1 | 340.0 | 4.4 | 1 |
| SMCJ220A | SMCJ220CA | GHX | BHX | 220.0 | 246.00~272.00 | 1 | 356.0 | 4.2 | 1 |
| SMCJ250A | SMCJ250CA | GHZ | BHZ | 250.0 | 279.00~309.00 | 1 | 405.0 | 3.7 | 1 |
| SMCJ300A | SMCJ300CA | GJE | BJE | 300.0 | 335.00~371.00 | 1 | 486.0 | 3.1 | 1 |
| SMCJ350A | SMCJ350CA | GJG | BJG | 350.0 | 391.00~432.00 | 1 | 567.0 | 2.6 | 1 |
| SMCJ400A | SMCJ400CA | GJK | BJK | 400.0 | 447.00~494.00 | 1 | 648.0 | 2.3 | 1 |
| SMCJ440A | SMCJ440CA | GJM | BJM | 440.0 | 492.00~543.00 | 1 | 713.0 | 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

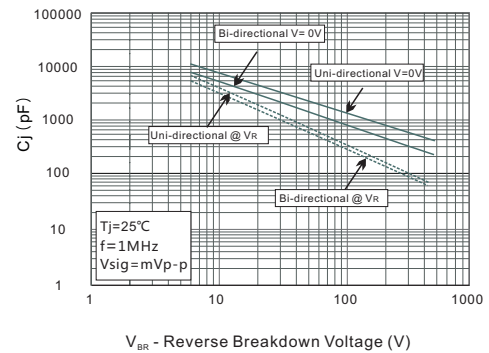


Fig.5 Maximum Non-Repetitive Peak Forward Surge Current



PACKAGE OUTLINE

Plastic surface mounted package; 2 leads



SMC mechanical data

| UNIT | | A | E | D | E ₁ | A ₁ | 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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