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|---|----------------|
|  | E480232 |
|---|----------------|

Features

- For Surface Mount Application in Order to Optimize Board Space
- Built-in Strain Relief
- Glass Passivated Junction
- Plastic Package Has Underwrites Laboratory Flammability
- Temperature Coefficient, Typical Value is 0.1%
- Fast Response Time: Typical Less than 1ps from 0V to BV Min
- Typical I_D Less than $1\mu A$ Above 10V
- High Temperature Soldering: 260°C/10 Seconds at Terminals
- Halogen Free Available Upon Request By Adding Suffix "-HF"
- Moisture Sensitivity Level 1
- Epoxy Meets UL 94 V-0 Flammability Rating
- Lead Free Finish/RoHS Compliant (Note1) ("P" Suffix Designates Compliant. See Ordering Information)

Mechanical Data

- Polarity: Color Band Denotes Positive End(Cathode) Except Bi-directional Types(Note4)
- Weight: 0.007 ounce, 0.21 gram
- IEC-61000-4-2 ESD 15kV(Air), 8kV(Contact)
- Standard Packaging: 16mm Tape Per (EIA 481)
- Terminals: Solderable Per MIL-STD-750, Method 2026

Maximum Ratings

- Operating Junction Temperature Range: -55°C to +175°C
- Storage Temperature Range: -55°C to +175°C
- Typical Thermal Resistance: 15°C/W Junction to Lead
- Typical Thermal Resistance: 75°C/W Junction to Ambient

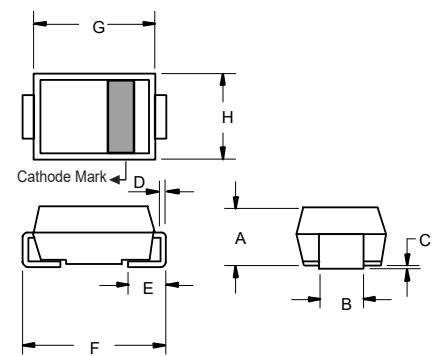
Electrical Characteristics @ 25°C Unless Otherwise Specified

| | | | |
|--|-----------|--------------------------------|---------------------|
| Peak Pulse Power Surge Current on 10/1000µs Waveform | I_{PPM} | See the Table | Note 2 |
| Peak Pulse Power Dissipation on 10/1000µs Waveform | P_{PPM} | 1500W | Note 2,3,Fig1 |
| Power Dissipation on infinite heat sink | P_D | 6.5W | $T_L = 75^\circ C.$ |
| Peak forward surge current, 8.3 ms single half sine-wave unidirectional only | I_{FSM} | 200A | |
| Maximum instantaneous forward voltage at 100A for unidirectional only | V_F | 3.5V MAX 1.7 TYP /5V MAX 4 TYP | Note 5 |

1. High Temperature Solder Exemption Applied, see EU Directive Annex 7a.
2. Non-repetitive current pulse, per Fig.3 and derated above $T_A=25^\circ C$ per Fig.4.
3. Mounted on 8.0mm²copper pads to each terminal.
4. Unidirectional and bidirectional available,for bidirectional devices add "C"suffix to the pn#SMCJ5.0CA
5. $V_F<3.5V$ for devices of $V_{BR}<200V$ and $V_F<5.0V$ for devices of $V_{BR}>201V$

**1500 Watt TVS
5.0 to 440 Volts**

**SMC (DO-214AB)
(LEAD FRAME)**



| DIM | INCHES | | MM | | NOTE |
|-----|--------|-------|-------|-------|------|
| | MIN | MAX | MIN | MAX | |
| A | 0.079 | 0.103 | 2.00 | 2.62 | |
| B | 0.108 | 0.128 | 2.75 | 3.25 | |
| C | 0.002 | 0.008 | 0.051 | 0.203 | |
| D | 0.006 | 0.012 | 0.152 | 0.305 | |
| E | 0.030 | 0.060 | 0.76 | 1.52 | |
| F | 0.305 | 0.320 | 7.75 | 8.13 | |
| G | 0.260 | 0.280 | 6.60 | 7.11 | |
| H | 0.220 | 0.245 | 5.59 | 6.22 | |

Suggested Solder Pad Layout



Electrical Characteristics @ 25°C Unless Otherwise Specified

| MCC Part Number | | Reverse Stand-Off Voltage | Breakdown Voltage $V_{BR}(V)$ | | Test Current | Max. Clamping Voltage @ I_{PP} | Peak Pulse Current | Reverse Leakage Current@ V_{WM} | Marking Code | |
|-----------------|-----------|---------------------------|-------------------------------|-------|--------------|----------------------------------|--------------------|-----------------------------------|--------------|-----|
| Uni-Polar | Bi-Polar | $V_{WM}(V)$ | Min | Max | $I_T(mA)$ | $V_C(V)$ | $I_{PP}(A)$ | $I_D(\mu A)$ | UNI | BI |
| SMCJ5.0A | SMCJ5.0CA | 5 | 6.4 | 7.0 | 10 | 9.2 | 163.0 | 800 | GDE | BDE |
| SMCJ6.0A | SMCJ6.0CA | 6 | 6.7 | 7.4 | 10 | 10.3 | 145.7 | 800 | GDG | BDG |
| SMCJ6.5A | SMCJ6.5CA | 6.5 | 7.2 | 8.0 | 10 | 11.2 | 134.0 | 500 | GDK | BDK |
| SMCJ7.0A | SMCJ7.0CA | 7 | 7.8 | 8.6 | 10 | 12.0 | 125.0 | 200 | GDM | BDM |
| SMCJ7.5A | SMCJ7.5CA | 7.5 | 8.3 | 9.2 | 1 | 12.9 | 116.3 | 100 | GDP | BDP |
| SMCJ8.0A | SMCJ8.0CA | 8 | 8.9 | 9.8 | 1 | 13.6 | 110.3 | 50 | GDR | BDR |
| SMCJ8.5A | SMCJ8.5CA | 8.5 | 9.4 | 10.4 | 1 | 14.4 | 104.2 | 20 | GDT | BDT |
| SMCJ9.0A | SMCJ9.0CA | 9 | 10.0 | 11.1 | 1 | 15.4 | 97.4 | 10 | GDV | BDV |
| SMCJ10A | SMCJ10CA | 10 | 11.1 | 12.3 | 1 | 17.0 | 88.3 | 5 | GDY | BDY |
| SMCJ11A | SMCJ11CA | 11 | 12.2 | 13.5 | 1 | 18.2 | 82.5 | 1 | GDZ | BDZ |
| SMCJ12A | SMCJ12CA | 12 | 13.3 | 14.7 | 1 | 19.9 | 75.4 | 1 | GEE | BEE |
| SMCJ13A | SMCJ13CA | 13 | 14.4 | 15.9 | 1 | 21.5 | 69.8 | 1 | GEG | BEG |
| SMCJ14A | SMCJ14CA | 14 | 15.6 | 17.2 | 1 | 23.2 | 64.7 | 1 | GEK | BEK |
| SMCJ15A | SMCJ15CA | 15 | 16.7 | 18.5 | 1 | 24.4 | 61.5 | 1 | GEM | BEM |
| SMCJ16A | SMCJ16CA | 16 | 17.8 | 19.7 | 1 | 26.0 | 57.7 | 1 | GEP | BEP |
| SMCJ17A | SMCJ17CA | 17 | 18.9 | 20.9 | 1 | 27.6 | 54.4 | 1 | GER | BER |
| SMCJ18A | SMCJ18CA | 18 | 20.0 | 22.1 | 1 | 29.2 | 51.4 | 1 | GET | BET |
| SMCJ20A | SMCJ20CA | 20 | 22.2 | 24.5 | 1 | 32.4 | 46.3 | 1 | GEV | BEV |
| SMCJ22A | SMCJ22CA | 22 | 24.4 | 26.9 | 1 | 35.5 | 42.3 | 1 | GEX | BEX |
| SMCJ24A | SMCJ24CA | 24 | 26.7 | 29.5 | 1 | 38.9 | 38.6 | 1 | GEZ | BEZ |
| SMCJ26A | SMCJ26CA | 26 | 28.9 | 31.9 | 1 | 42.1 | 35.7 | 1 | GFE | BFE |
| SMCJ28A | SMCJ28CA | 28 | 31.1 | 34.4 | 1 | 45.4 | 33.1 | 1 | GFG | BFG |
| SMCJ30A | SMCJ30CA | 30 | 33.3 | 36.8 | 1 | 48.4 | 31.0 | 1 | GFK | BFK |
| SMCJ33A | SMCJ33CA | 33 | 36.7 | 40.6 | 1 | 53.3 | 28.2 | 1 | GFM | BFM |
| SMCJ36A | SMCJ36CA | 36 | 40.0 | 44.2 | 1 | 58.1 | 25.9 | 1 | GFP | BFP |
| SMCJ40A | SMCJ40CA | 40 | 44.4 | 49.1 | 1 | 64.5 | 23.3 | 1 | GFR | BFR |
| SMCJ43A | SMCJ43CA | 43 | 47.8 | 52.8 | 1 | 69.4 | 21.7 | 1 | GFT | BFT |
| SMCJ45A | SMCJ45CA | 45 | 50.0 | 55.3 | 1 | 72.7 | 20.6 | 1 | GFV | BFV |
| SMCJ48A | SMCJ48CA | 48 | 53.3 | 58.9 | 1 | 77.4 | 19.4 | 1 | GFX | BFX |
| SMCJ51A | SMCJ51CA | 51 | 56.7 | 62.7 | 1 | 82.4 | 18.2 | 1 | GFZ | BFZ |
| SMCJ54A | SMCJ54CA | 54 | 60.0 | 66.3 | 1 | 87.1 | 17.3 | 1 | GGE | BGE |
| SMCJ58A | SMCJ58CA | 58 | 64.4 | 71.2 | 1 | 93.6 | 16.1 | 1 | GGG | BGG |
| SMCJ60A | SMCJ60CA | 60 | 66.7 | 73.7 | 1 | 96.8 | 15.5 | 1 | GGK | BGK |
| SMCJ64A | SMCJ64CA | 64 | 71.1 | 78.6 | 1 | 103.0 | 14.6 | 1 | GGM | BGM |
| SMCJ70A | SMCJ70CA | 70 | 77.8 | 86.0 | 1 | 113.0 | 13.3 | 1 | GGP | BGP |
| SMCJ75A | SMCJ75CA | 75 | 83.3 | 92.1 | 1 | 121.0 | 12.4 | 1 | GGR | BGR |
| SMCJ78A | SMCJ78CA | 78 | 86.7 | 95.8 | 1 | 126.0 | 11.9 | 1 | GGT | BGT |
| SMCJ85A | SMCJ85CA | 85 | 94.4 | 104.0 | 1 | 137.0 | 11.0 | 1 | GGV | BGV |
| SMCJ90A | SMCJ90CA | 90 | 100.0 | 111.0 | 1 | 146.0 | 10.3 | 1 | GGX | BGX |
| SMCJ100A | SMCJ100CA | 100 | 111.0 | 123.0 | 1 | 162.0 | 9.3 | 1 | GGZ | BGZ |
| SMCJ110A | SMCJ110CA | 110 | 122.0 | 135.0 | 1 | 177 | 8.5 | 1 | GHE | BHE |
| SMCJ120A | SMCJ120CA | 120 | 133.0 | 147.0 | 1 | 193 | 7.8 | 1 | GHG | BHG |
| SMCJ130A | SMCJ130CA | 130 | 144.0 | 159.0 | 1 | 209 | 7.2 | 1 | GHK | BHK |
| SMCJ150A | SMCJ150CA | 150 | 167.0 | 185.0 | 1 | 243 | 6.2 | 1 | GHM | BHM |
| SMCJ160A | SMCJ160CA | 160 | 178.0 | 197.0 | 1 | 259 | 5.8 | 1 | GHP | BHP |
| SMCJ170A | SMCJ170CA | 170 | 189.0 | 209.0 | 1 | 275 | 5.5 | 1 | GHR | BHR |
| SMCJ180A | SMCJ180CA | 180 | 201.0 | 222.0 | 1 | 292 | 5.1 | 1 | GHT | BHT |
| SMCJ200A | SMCJ200CA | 200 | 224.0 | 247.0 | 1 | 324 | 4.6 | 1 | GHV | BHV |

For bi-directional type having V_{WM} of 10volts and less, the I_R limit is double. For parts without A, the V_{BR} is $\pm 10\%$

Electrical Characteristics @ 25°C Unless Otherwise Specified

| MCC Part Number | | Reverse Stand-Off Voltage | Breakdown Voltage $V_{BR}(V)$ | | Test Current | Max. Clamping Voltage @ I_{PP} | Peak Pulse Current | Reverse Leakage Current @ V_{WM} | Marking Code | |
|-----------------|-----------|---------------------------|-------------------------------|-------|--------------|----------------------------------|--------------------|------------------------------------|--------------|-----|
| SMCJ220A | SMCJ220CA | 220 | 246.0 | 272.0 | 1 | 356 | 4.2 | 1 | GHX | BHX |
| SMCJ250A | SMCJ250CA | 250 | 279.0 | 309.0 | 1 | 405 | 3.7 | 1 | GHZ | BHZ |
| SMCJ300A | SMCJ300CA | 300 | 335.0 | 371.0 | 1 | 486 | 3.1 | 1 | GJE | BJE |
| SMCJ350A | SMCJ350CA | 350 | 391.0 | 432.0 | 1 | 567 | 2.6 | 1 | GJG | BJG |
| SMCJ400A | SMCJ400CA | 400 | 447.0 | 494.0 | 1 | 648 | 2.3 | 1 | GJK | BJK |
| SMCJ440A | SMCJ440CA | 440 | 492.0 | 543.0 | 1 | 713 | 2.1 | 1 | GJM | BJM |

For bi-directional type having V_{WM} of 10volts and less, the I_R limit is double. For parts without A, the V_{BR} is $\pm 10\%$

Curve Characteristics

Fig. 1 - Peak Pulse Power Rating Curve



Fig. 2 - Typical Junction Capacitance



Fig. 3 - Pulse Waveform

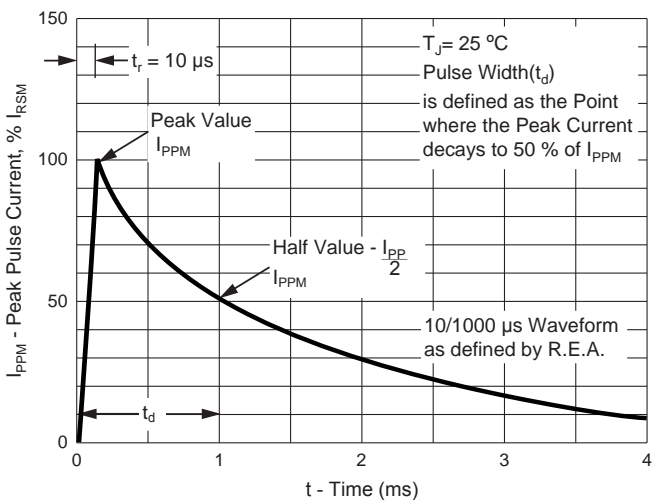


Fig. 4 - Pulse Derating Curve



Ordering Information

| Device | Packing |
|----------------|----------------------|
| Part Number-TP | Tape&Reel:3Kpcs/Reel |

Note : Adding "-HF" Suffix For Halogen Free, eg. Part Number-TP-HF

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