

SMCJ SERIES



SURFACE MOUNT TRANSIENT VOLTAGE SUPPRESSORS



FEATURES

- * For surface mount application
- * Built-in strain relief
- * Excellent clamping capability
- * Low profile package
- * Fast response time: Typically less than 1.0ps from 0 volt to BV min.
- * Typical I_R less than $1\mu A$ above 10V
- * High temperature soldering guaranteed: $260^\circ C$ / 10 seconds at terminals

MECHANICAL DATA

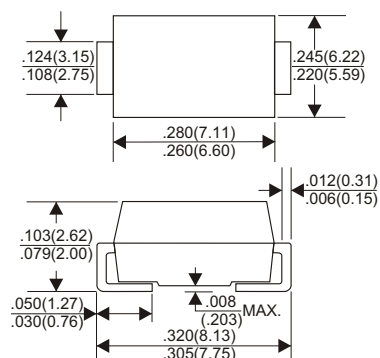
- * Case: Molded plastic
- * Epoxy: UL 94V-0 rate flame retardant
- * Lead: Solderable per MIL-STD-202, method 208 guaranteed
- * Polarity: Color band denotes cathode end except Bidirectional
- * Mounting position: Any
- * Weight: 0.21 grams

VOLTAGE RANGE

5.0 to 170 Volts

1500 Watts Peak Power

DO-214AB



MAXIMUM RATINGS AND ELECTRICAL CHARACTERISTICS

Rating $25^\circ C$ ambient temperature unless otherwise specified.
Single phase half wave, 60Hz, resistive or inductive load.
For capacitive load, derate current by 20%.

| RATINGS | SYMBOL | VALUE | UNITS |
|--|----------------|--------------|------------|
| Peak Power Dissipation at $T_A=25^\circ C$, $T_P=1ms$ (NOTE 1) | P_{PK} | Minimum 1500 | Watts |
| Peak Forward Surge Current at 8.3ms Single Half Sine-Wave superimposed on rated load (JEDEC method) (NOTE 3) | I_{FSM} | 100 | Amps |
| Maximum Instantaneous Forward Voltage at 35.0A for Unidirectional only | V_F | 3.5 | Volts |
| Operating and Storage Temperature Range | T_J, T_{STG} | -55 to +150 | $^\circ C$ |

NOTES:

1. Non-repetitive current pulse per Fig. 3 and derated above $T_A=25^\circ C$ per Fig. 2.
2. Mounted on Copper Pad area of $8.0mm^2$ (.013mm Thick) to each terminal.
3. 8.3ms single half sine-wave, duty cycle = 4 pulses per minute maximum.

DEVICES FOR BIPOLAR APPLICATIONS

1. For Bidirectional use C or CA Suffix for types SMCJ5.0 thru SMCJ170.
2. Electrical characteristics apply in both directions.

RATING AND CHARACTERISTIC CURVES (SMCJ SERIES)

FIG.1-PEAK PULSE POWER DERATING CURVE

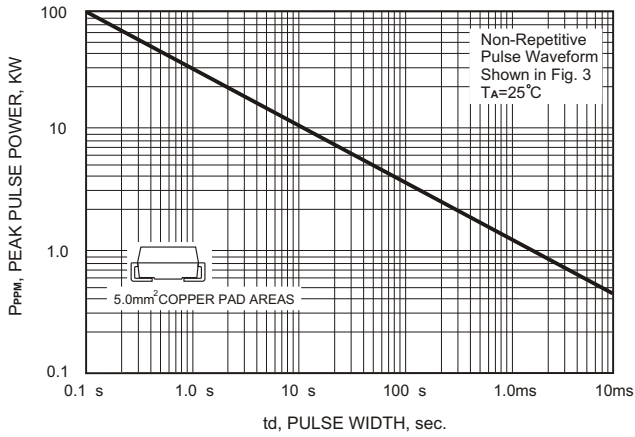


FIG.2-PULSE DERATING CURVE

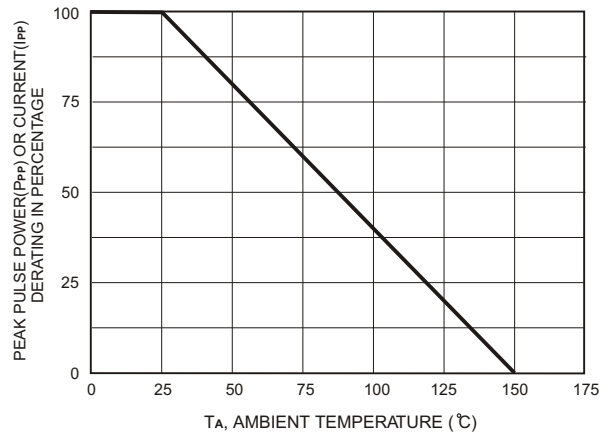


FIG.3-PULSE WAVE FORM

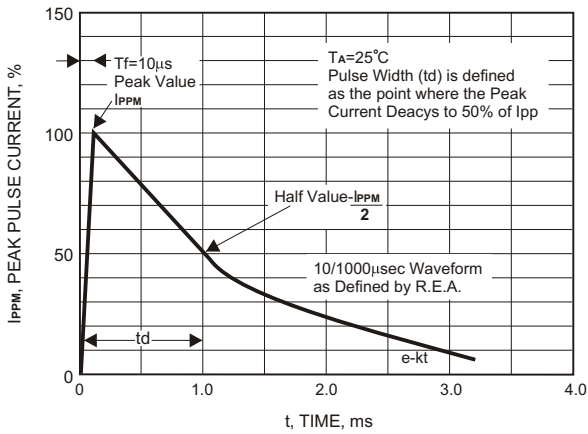


FIG.4-TYPICAL JUNCTION CAPACITANCE

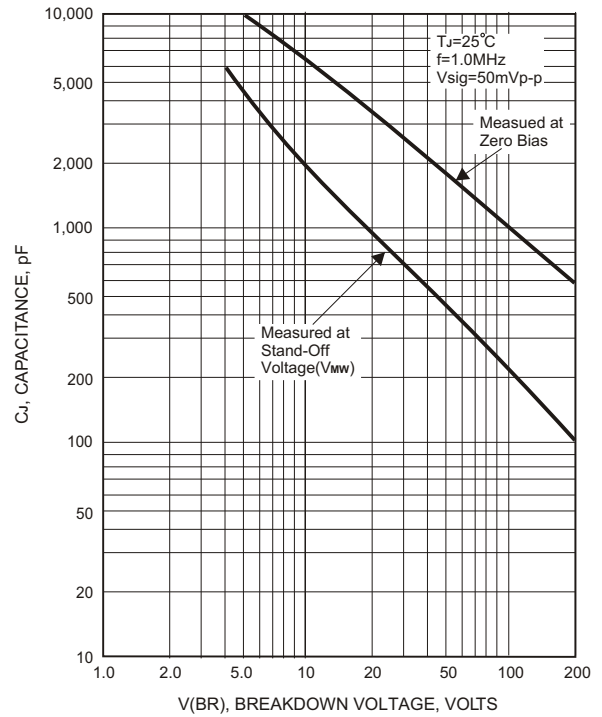
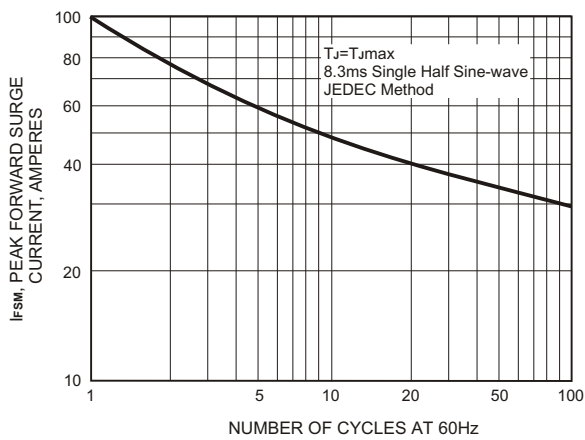


FIG.5-MAXIMUM NON-REPETITIVE PEAK FORWARD SURGE CURRENT



1500 Watt Surface Mount TVS



| PART NUMBER ADD C FOR BI- DIRECTIONAL | REVERSE STAND-OFF VOLTAGE VRWM (V) | BREAKDOWN VOLTAGE VBR (V) MIN. @IT | BREAKDOWN VOLTAGE VBR (V) MAX. @IT | TEST CURRENT IT (mA) | MAXIMUM CLAMPING VOLTAGE @Ipp Vc (V) | PEAK PULSE CURRENT Ipp (A) | REVERSE LEAKAGE @ VRWM IR(μA) | MARKING CODE | |
|---|---|---|---|-------------------------------|---|-------------------------------------|--|-----------------|-----|
| | | | | | | | | UNI | BI |
| SMCJ5.0(C) | 5.0 | 6.40 | 7.55 | 10 | 9.6 | 156.2 | 1000 | GDD | BDD |
| SMCJ5.0(C)A | 5.0 | 6.40 | 7.25 | 10 | 9.2 | 163.0 | 1000 | GDE | BDE |
| SMCJ6.0(C) | 6.0 | 6.67 | 8.45 | 10 | 11.4 | 131.6 | 1000 | GDF | BDF |
| SMCJ6.0(C)A | 6.0 | 6.67 | 7.67 | 10 | 10.3 | 145.6 | 1000 | GDG | BDG |
| SMCJ6.5(C) | 6.5 | 7.22 | 9.14 | 10 | 12.3 | 122.0 | 500 | GDH | BDH |
| SMCJ6.5(C)A | 6.5 | 7.22 | 8.30 | 10 | 11.2 | 133.9 | 500 | GDK | BDK |
| SMCJ7.0(C) | 7.0 | 7.78 | 9.86 | 10 | 13.3 | 112.8 | 200 | GDL | BDL |
| SMCJ7.0(C)A | 7.0 | 7.78 | 8.95 | 10 | 12.0 | 125.0 | 200 | GDM | BDM |
| SMCJ7.5(C) | 7.5 | 8.33 | 10.67 | 1 | 14.3 | 104.9 | 100 | GDN | BDN |
| SMCJ5.0(C)A | 7.5 | 8.33 | 9.58 | 1 | 12.9 | 116.3 | 100 | GDP | BDP |
| SMCJ8.0(C) | 8.0 | 8.89 | 11.30 | 1 | 15.0 | 100.0 | 50 | GDQ | BDQ |
| SMCJ8.0(C)A | 8.0 | 8.89 | 10.23 | 1 | 13.6 | 110.3 | 50 | GDR | BDR |
| SMCJ8.5(C) | 8.5 | 9.44 | 11.92 | 1 | 15.9 | 94.3 | 25 | GDS | BDS |
| SMCJ8.5(C)A | 8.5 | 9.44 | 10.82 | 1 | 14.4 | 104.2 | 20 | GDT | BDT |
| SMCJ9.0(C) | 9.0 | 10.0 | 12.60 | 1 | 16.9 | 88.7 | 10 | GDU | BDU |
| SMCJ9.0(C)A | 9.0 | 10.0 | 11.50 | 1 | 15.4 | 97.4 | 10 | GDV | BDV |
| SMCJ10(C) | 10 | 11.1 | 14.10 | 1 | 18.8 | 79.8 | 5 | GDW | BDW |
| SMCJ10(C)A | 10 | 11.1 | 12.80 | 1 | 17.0 | 88.2 | 5 | GDX | BDX |
| SMCJ11(C) | 11 | 12.2 | 15.40 | 1 | 20.1 | 74.6 | 5 | GDY | BDY |
| SMCJ11(C)A | 11 | 12.2 | 14.00 | 1 | 18.2 | 82.4 | 5 | GDZ | BDZ |
| SMCJ12(C) | 12 | 13.3 | 16.90 | 1 | 22.0 | 68.2 | 5 | GED | BED |
| SMCJ12(C)A | 12 | 13.3 | 15.30 | 1 | 19.9 | 75.3 | 5 | GEE | BEE |
| SMCJ13(C) | 13 | 14.4 | 18.20 | 1 | 23.8 | 63.0 | 5 | GEF | BEF |
| SMCJ13(C)A | 13 | 14.4 | 16.50 | 1 | 21.5 | 69.7 | 5 | GEG | BEG |
| SMCJ14(C) | 14 | 15.6 | 19.80 | 1 | 25.8 | 58.1 | 5 | GEH | BEH |
| SMCJ14(C)A | 14 | 15.6 | 17.90 | 1 | 23.2 | 64.7 | 5 | GEK | BEK |
| SMCJ15(C) | 15 | 16.7 | 21.10 | 1 | 26.9 | 55.8 | 5 | GEL | BEL |
| SMCJ15(C)A | 15 | 16.7 | 19.20 | 1 | 24.4 | 61.5 | 5 | GEM | BEM |
| SMCJ16(C) | 16 | 17.8 | 22.60 | 1 | 28.8 | 52.1 | 5 | GEN | BEN |
| SMCJ16(C)A | 16 | 17.8 | 20.50 | 1 | 26.0 | 57.7 | 5 | GEP | BEP |
| SMCJ17(C) | 17 | 18.9 | 23.90 | 1 | 30.5 | 49.2 | 5 | GEQ | BEQ |
| SMCJ17(C)A | 17 | 18.9 | 21.70 | 1 | 27.6 | 53.3 | 5 | GER | BER |
| SMCJ18(C) | 18 | 20.0 | 25.30 | 1 | 32.2 | 46.6 | 5 | GES | BES |
| SMCJ18(C)A | 18 | 20.0 | 23.30 | 1 | 29.2 | 51.4 | 5 | GET | BET |
| SMCJ20(C) | 20 | 22.2 | 28.10 | 1 | 35.8 | 41.9 | 5 | GEU | BEU |
| SMCJ20(C)A | 20 | 22.2 | 25.50 | 1 | 32.4 | 46.3 | 5 | GEV | BEV |
| SMCJ22(C) | 22 | 24.4 | 30.90 | 1 | 39.4 | 38.1 | 5 | GEW | BEW |
| SMCJ22(C)A | 22 | 24.4 | 28.00 | 1 | 35.5 | 42.2 | 5 | GEX | BEX |
| SMCJ24(C) | 24 | 26.7 | 33.80 | 1 | 43.0 | 34.9 | 5 | GEY | BEY |
| SMCJ24(C)A | 24 | 26.7 | 30.70 | 1 | 38.9 | 38.6 | 5 | GEZ | BEZ |
| SMCJ26(C) | 26 | 28.9 | 36.60 | 1 | 46.6 | 32.2 | 5 | GFD | BFD |
| SMCJ26(C)A | 26 | 28.9 | 33.20 | 1 | 42.1 | 35.6 | 5 | GFE | BFE |
| SMCJ28(C) | 28 | 31.1 | 39.40 | 1 | 50.0 | 30.0 | 5 | GFF | BFF |
| SMCJ28(C)A | 28 | 31.1 | 35.80 | 1 | 45.4 | 33.0 | 5 | GFG | BFG |
| SMCJ30(C) | 30 | 33.3 | 42.20 | 1 | 53.5 | 28.0 | 5 | GFH | BFH |
| SMCJ30(C)A | 30 | 33.3 | 38.30 | 1 | 48.4 | 31.0 | 5 | GFK | BFK |
| SMCJ33(C) | 33 | 36.7 | 46.50 | 1 | 59.0 | 25.2 | 5 | GFL | BFL |
| SMBJ33(C)A | 33 | 36.7 | 42.20 | 1 | 53.3 | 28.1 | 5 | GFM | BFM |
| SMCJ36(C) | 36 | 40.0 | 50.70 | 1 | 64.3 | 23.3 | 5 | GFN | BFN |
| SMCJ36(C)A | 36 | 40.0 | 46.00 | 1 | 58.1 | 25.8 | 5 | GFP | BFP |
| SMCJ40(C) | 40 | 44.4 | 56.30 | 1 | 71.4 | 21.0 | 5 | GFQ | BFQ |
| SMCJ40(C)A | 40 | 44.4 | 51.10 | 1 | 64.5 | 23.2 | 5 | GFR | BFR |
| SMCJ43(C) | 43 | 47.8 | 60.50 | 1 | 76.7 | 19.6 | 5 | GFS | BFS |
| SMCJ43(C)A | 43 | 47.8 | 54.90 | 1 | 69.4 | 21.6 | 5 | GFT | BFT |
| SMCJ45(C) | 45 | 50.0 | 63.30 | 1 | 80.3 | 18.7 | 5 | GFU | BFU |
| SMCJ45(C)A | 45 | 50.0 | 57.50 | 1 | 72.7 | 20.6 | 5 | GFV | BFV |
| SMCJ48(C) | 48 | 53.3 | 67.50 | 1 | 85.5 | 17.5 | 5 | GFW | BFW |
| SMCJ48(C)A | 48 | 53.3 | 61.30 | 1 | 77.4 | 19.4 | 5 | GFX | BFX |
| SMCJ51(C) | 51 | 56.7 | 71.80 | 1 | 91.1 | 16.5 | 5 | GFY | BFY |
| SMCJ51(C)A | 51 | 56.7 | 65.20 | 1 | 82.4 | 18.2 | 5 | GFZ | BFZ |
| SMCJ54(C) | 54 | 60.0 | 76.00 | 1 | 96.3 | 15.6 | 5 | GGD | BGD |
| SMCJ54(C)A | 54 | 60.0 | 69.00 | 1 | 87.1 | 17.2 | 5 | GGE | BGE |
| SMCJ58(C) | 58 | 64.4 | 81.60 | 1 | 103 | 14.6 | 5 | GGF | BGF |
| SMCJ58(C)A | 58 | 64.4 | 74.10 | 1 | 93.6 | 16.0 | 5 | GGG | BGG |

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|---|---|---------------------------------|----------|-------------------------------|---|-------------------------------------|--|-----------------|-----|
| | | MIN. @IT | MAX. @IT | | | | | UNI | BI |
| See Note 1 | | | | | | | | | |
| SMCJ60(C) | 60 | 66.7 | 84.5 | 1 | 107 | 14.0 | 5 | GGH | BGH |
| SMCJ60(C)A | 60 | 66.7 | 76.7 | 1 | 96.8 | 15.5 | 5 | GGK | BGK |
| SMCJ64(C) | 64 | 71.1 | 90.1 | 1 | 114 | 13.2 | 5 | GGL | BGL |
| SMCJ64(C)A | 64 | 71.1 | 81.8 | 1 | 103 | 14.6 | 5 | GGM | BGM |
| SMCJ70(C) | 70 | 77.8 | 98.6 | 1 | 125 | 12.0 | 5 | GGN | BGN |
| SMCJ70(C)A | 70 | 77.8 | 89.5 | 1 | 113 | 13.3 | 5 | GGP | BGP |
| SMCJ75(C) | 75 | 83.3 | 105.7 | 1 | 134 | 11.2 | 5 | GGQ | BGQ |
| SMCJ75(C)A | 75 | 83.3 | 95.8 | 1 | 121 | 12.4 | 5 | GGR | BGR |
| SMCJ78(C) | 78 | 86.7 | 109.8 | 1 | 139 | 10.8 | 5 | GGS | BGS |
| SMCJ78(C)A | 78 | 86.7 | 99.7 | 1 | 126 | 11.4 | 5 | GGT | BGT |
| SMCJ85(C) | 85 | 94.4 | 119.2 | 1 | 151 | 9.9 | 5 | GGU | BGU |
| SMCJ85(C)A | 85 | 94.4 | 108.2 | 1 | 137 | 10.4 | 5 | GGV | BGV |
| SMCJ90(C) | 90 | 100 | 126.5 | 1 | 160 | 9.4 | 5 | GGW | BGW |
| SMCJ90(C)A | 90 | 100 | 115.5 | 1 | 146 | 10.3 | 5 | GGX | BGX |
| SMCJ100(C) | 100 | 111 | 141.0 | 1 | 179 | 8.4 | 5 | GGY | BGY |
| SMCJ100(C)A | 100 | 111 | 128.0 | 1 | 162 | 9.3 | 5 | GGZ | BGZ |
| SMCJ110(C) | 110 | 122 | 154.5 | 1 | 196 | 7.7 | 5 | GHD | BHD |
| SMCJ110(C)A | 110 | 122 | 140.5 | 1 | 177 | 8.4 | 5 | GHE | BHE |
| SMCJ120(C) | 120 | 133 | 169.0 | 1 | 214 | 7.0 | 5 | GHF | BHF |
| SMCJ120(C)A | 120 | 133 | 153.0 | 1 | 193 | 7.9 | 5 | GHG | BHG |
| SMCJ130(C) | 130 | 144 | 182.5 | 1 | 231 | 6.5 | 5 | GHH | BHH |
| SMCJ130(C)A | 130 | 144 | 165.5 | 1 | 209 | 7.2 | 5 | GHK | BHK |
| SMCJ150(C) | 150 | 167 | 211.5 | 1 | 268 | 5.6 | 5 | GHL | BHL |
| SMCJ150(C)A | 150 | 167 | 192.5 | 1 | 243 | 6.2 | 5 | GHM | BHM |
| SMCJ160(C) | 160 | 178 | 226.0 | 1 | 287 | 5.2 | 5 | GHN | BHN |
| SMCJ160(C)A | 160 | 178 | 205.0 | 1 | 259 | 5.8 | 5 | GHP | BHP |
| SMCJ170(C) | 160 | 189 | 239.5 | 1 | 304 | 4.9 | 5 | GHQ | BHQ |
| SMCJ170(C)A | 170 | 189 | 217.5 | 1 | 275 | 5.5 | 5 | GHR | BHR |