

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

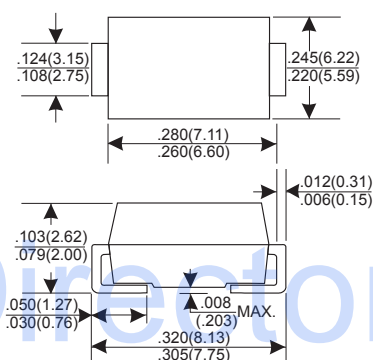
- * Case: Molded plastic
- * Epoxy: UL 94V-0 rate flame retardant
- * Lead: Solderable per MIL-STD-202, method 208 guaranteed
- * Polarity: Color band denotes cathode end except Bidirectional
- * Mounting position: Any
- * Weight: 0.21 grams

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

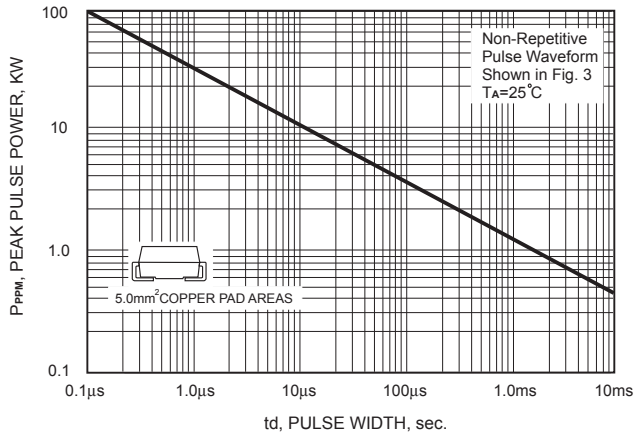


FIG.2-PULSE DERATING CURVE

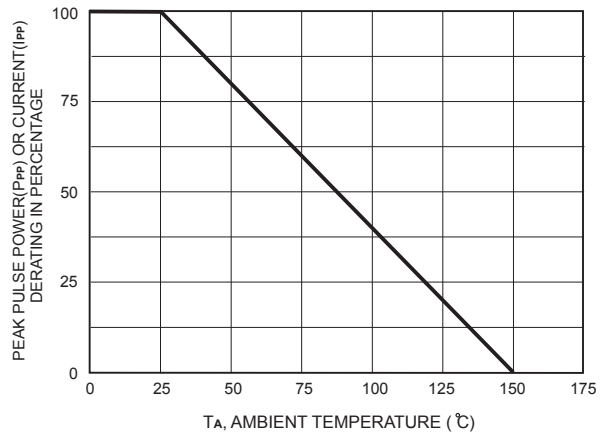


FIG.3-PULSE WAVE FORM

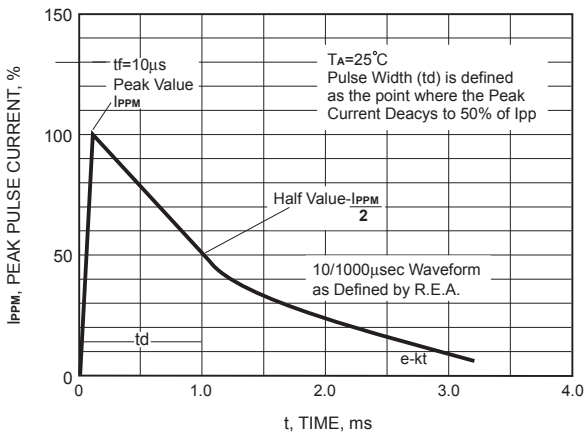


FIG.4-TYPICAL JUNCTION CAPACITANCE

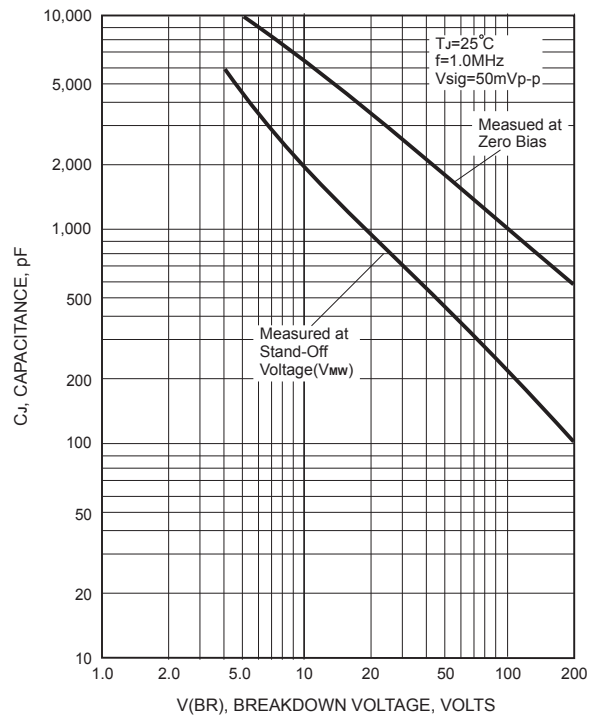
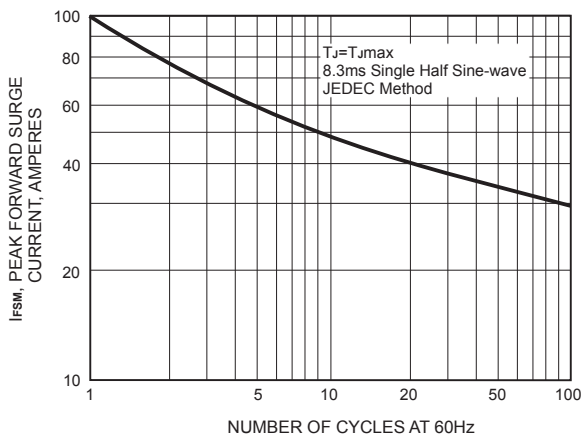


FIG.5-MAXIMUM NON-REPETITIVE PEAK FORWARD SURGE CURRENT



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

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