



TRANSIENT VOLTAGE SUPPRESSOR

SMBJ5.0 THRU SMBJ170

VOLTAGE RANGE
POWER

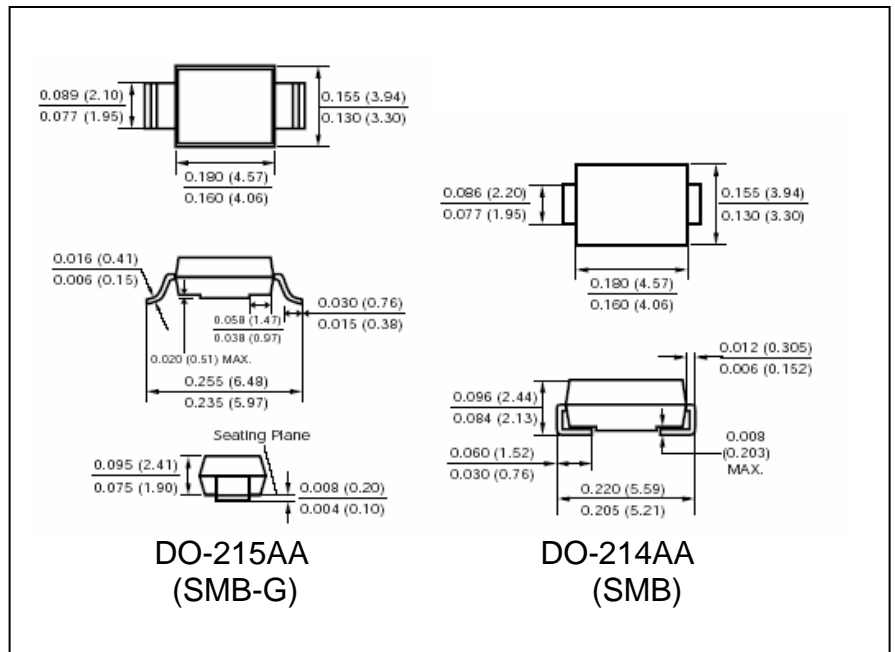
5.0 to 170 Volts
600 Watts

FEATURES

- Glass passivated chip junction
- 600W surge capacity @ 10/1000 μ Sec wave form
- Fast response, typically less then 1 pSec
- Low Zener impedance
- Excellent clamping capability
- Available in either "J" lead (SMBJ) of "G" lead (SMBG)
- High temperature soldering guaranteed: 250°C/ seconds at terminals

MECHANICAL DATA

- Case: transfer molded plastic
- Epoxy: UL94V – 0 rate flame retardant
- Polarity: Color band denotes cathode end, except on bipolar parts which have no band
- Terminals: solderable per MIL-STD-202E method 208C
- Weight: 0.003 ounce, 0.093 gram



MAXIMUM RATINGS AND ELECTRICAL CHARACTERISTICS

- Ratings at 25°C ambient temperature unless otherwise specified

| | SYMBOLS | | UNIT |
|-----------------------------------------------------------------------------------------------------------------|------------------|---------------|-------|
| Peak Power Dissipation 10/1000 μ S waveform (Note 1,2) | P _{PPM} | 600 | Watts |
| Peak Forward Surge Current 8.3mS single half sine wave superimposed on rated load (JEDEC method) (Note 2) | I _{FSM} | 100 | Amps |
| Operating Junction Temperature Range | T _J | (-55 to +150) | °C |
| Storage Temperature Range | T _{STG} | (-55 to +150) | °C |

Notes:

1. Non-repetitive current pulse, per Fig. 3 and derated to T_A = 25 °C per Fig. 2.
2. Mounted on copper pad area 0.2" x 0.2" x 0.00011" (5mm x 5mm x .03mm) at each terminal
3. 8.3ns single half sine-wave, or equivalent square wave, duty cycle = 4 pulses per minute, maximum.
4. For bipolar devices add a C to the part number, i.e. SMBJ5.0C or SMBJ5.0CA
5. Electrical characteristics apply in both directions for bipolar devices



RATINGS AND CHARACTERISTIC CURVES SMBJ5.0 THRU SMBJ170

For Bipolar devices add a "C" to the part number, i. e. SMBJ5.0C or SMBJ5.0CA

| Device | | Device Marking Code | | Standoff Voltage | Breakdown Voltage (V _{BR}) | | Test Current | Maximum Clamping Voltage @ I _{PP} | Peak Pulse Current | Reverse leakage @ V _{RWM} |
|----------|----------|---------------------|----|------------------|--------------------------------------|------|----------------|--------------------------------------------|--------------------|------------------------------------|
| | | | | V _{RWM} | Min | Max | I _T | V _C | I _{PP} | I _R |
| | | | | Volts | Volts | | mA | Volts | Amps | μAmps |
| Uni | Bi | | | | | | | | | |
| SMBJ5.0 | SMBG5.0 | KD | AD | 5.0 | 6.4 | 7.3 | 10 | 9.6 | 65.3 | 800 |
| SMBJ5.0A | SMBG5.0A | KE | AE | 5.0 | 6.4 | 7.0 | 10 | 9.2 | 65.3 | 800 |
| SMBJ6.0 | SMBG6.0 | KF | AF | 6.0 | 6.67 | 8.15 | 10 | 11.4 | 58.3 | 800 |
| SMBJ6.0A | SMBG6.0A | KG | AG | 6.0 | 6.67 | 7.37 | 10 | 10.3 | 58.3 | 800 |
| SMBJ6.5 | SMBG6.5 | KH | AH | 6.5 | 7.22 | 8.82 | 10 | 12.3 | 53.6 | 500 |
| SMBJ6.5A | SMBG6.5A | KK | AK | 6.5 | 7.22 | 7.98 | 10 | 11.2 | 53.6 | 500 |
| SMBJ7.0 | SMBG7.0 | KL | AL | 7.0 | 7.78 | 9.51 | 10 | 13.3 | 50 | 200 |
| SMBJ7.0A | SMBG7.0A | KM | AM | 7.0 | 7.78 | 8.6 | 10 | 12 | 50 | 200 |
| SMBJ7.5 | SMBG7.5 | KN | AN | 7.5 | 8.33 | 10.2 | 1 | 14.3 | 46.6 | 100 |
| SMBJ7.5A | SMBG7.5A | KP | AP | 7.5 | 8.33 | 9.21 | 1 | 12.9 | 46.6 | 100 |
| SMBJ8.0 | SMBG8.0 | KQ | AQ | 8.0 | 8.89 | 10.9 | 1 | 15 | 44.2 | 50 |
| SMBJ8.0A | SMBG8.0A | KR | AR | 8.0 | 8.89 | 9.83 | 1 | 13.6 | 44.2 | 50 |
| SMBJ8.5 | SMBG8.5 | KS | AS | 8.5 | 9.44 | 11.5 | 1 | 15.9 | 41.7 | 20 |
| SMBJ8.5A | SMBG8.5A | KT | AT | 8.5 | 9.44 | 10.4 | 1 | 14.4 | 41.7 | 20 |
| SMBJ9.0 | SMBG9.0 | KU | AU | 9.0 | 10 | 12.2 | 1 | 16.9 | 39 | 10 |
| SMBJ9.0A | SMBG9.0A | KV | AV | 9.0 | 10 | 11.1 | 1 | 15.4 | 39 | 10 |
| SMBJ10 | SMBG10 | KW | AW | 10 | 11.1 | 13.6 | 1 | 18.8 | 35.3 | 5 |
| SMBJ10A | SMBG10A | KX | AX | 10 | 11.1 | 12.3 | 1 | 17 | 35.3 | 5 |
| SMBJ11 | SMBG11 | KY | AY | 11 | 12.2 | 14.9 | 1 | 20.1 | 33 | 5 |
| SMBJ11A | SMBG11A | KZ | AZ | 11 | 12.2 | 13.5 | 1 | 18.2 | 33 | 5 |
| SMBJ12 | SMBG12 | LD | BD | 12 | 13.3 | 16.3 | 1 | 22 | 30.2 | 5 |
| SMBJ12A | SMBG12A | LE | BE | 12 | 13.3 | 14.7 | 1 | 19.9 | 30.2 | 5 |
| SMBJ13 | SMBG13 | LF | BF | 13 | 14.4 | 17.6 | 1 | 23.8 | 28 | 5 |
| SMBJ13A | SMBG13A | LG | BG | 13 | 14.4 | 15.9 | 1 | 21.5 | 28 | 5 |
| SMBJ14 | SMBG14 | LH | BH | 14 | 15.6 | 19.1 | 1 | 25.8 | 25.9 | 5 |
| SMBJ14A | SMBG14A | LK | BK | 14 | 15.6 | 17.2 | 1 | 23.2 | 25.9 | 5 |
| SMBJ15 | SMBG15 | LL | BL | 15 | 19.7 | 20.4 | 1 | 26.9 | 24.6 | 5 |
| SMBJ15A | SMBG15A | LM | BM | 15 | 16.7 | 18.5 | 1 | 24.4 | 24.6 | 5 |
| SMBJ16 | SMBG16 | LN | BN | 16 | 17.8 | 21.8 | 1 | 28.8 | 23.1 | 5 |
| SMBJ16A | SMBG16A | LP | BP | 16 | 17.8 | 19.7 | 1 | 26 | 23.1 | 5 |
| SMBJ17 | SMBG17 | LQ | BQ | 17 | 18.9 | 23.1 | 1 | 30.5 | 21.8 | 5 |
| SMBJ17A | SMBG17A | LR | BR | 17 | 18.9 | 20.9 | 1 | 27.6 | 21.8 | 5 |
| SMBJ18 | SMBG18 | LS | BS | 18 | 20 | 24.4 | 1 | 32.2 | 20.6 | 5 |
| SMBJ18A | SMBG18A | LT | BT | 18 | 20 | 22.1 | 1 | 29.2 | 20.6 | 5 |
| SMBJ20 | SMBG20 | LU | BU | 20 | 22.2 | 27.1 | 1 | 35.8 | 18.6 | 5 |
| SMBJ20A | SMBG20A | LV | BV | 20 | 22.2 | 24.5 | 1 | 32.4 | 18.6 | 5 |
| SMBJ22 | SMBG22 | LW | BW | 22 | 24.4 | 29.8 | 1 | 39.4 | 16.9 | 5 |
| SMBJ22A | SMBG22A | LX | BX | 22 | 24.4 | 26.9 | 1 | 35.5 | 16.9 | 5 |
| SMBJ24 | SMBG24 | LY | BY | 24 | 26.7 | 32.6 | 1 | 43 | 15.5 | 5 |
| SMBJ24A | SMBG24A | LZ | BZ | 24 | 26.7 | 29.5 | 1 | 38.9 | 15.5 | 5 |
| SMBJ26 | SMBG26 | MD | CD | 26 | 28.9 | 35.3 | 1 | 46.6 | 14.3 | 5 |
| SMBJ26A | SMBG26A | ME | CE | 26 | 28.9 | 31.9 | 1 | 42.1 | 14.3 | 5 |
| SMBJ28 | SMBG28 | MF | CF | 28 | 31.1 | 38 | 1 | 50.1 | 13.3 | 5 |
| SMBJ28A | SMBG28A | MG | CG | 28 | 31.1 | 34.4 | 1 | 45.4 | 13.3 | 5 |
| SMBJ30 | SMBG30 | MH | CH | 30 | 33.3 | 40.7 | 1 | 53.5 | 12.4 | 5 |
| SMBJ30A | SMBG30A | MK | CK | 30 | 33.3 | 36.8 | 1 | 48.4 | 12.4 | 5 |
| SMBJ33 | SMBG33 | ML | CL | 33 | 36.7 | 44.9 | 1 | 59 | 11.3 | 5 |
| SMBJ33A | SMBG33A | MM | CM | 33 | 36.7 | 40.6 | 1 | 53.3 | 11.3 | 5 |
| SMBJ36 | SMBG36 | MN | CN | 36 | 40 | 48.9 | 1 | 64.3 | 10.4 | 5 |
| SMBJ36A | SMBG36A | MP | CP | 36 | 40 | 44.2 | 1 | 58.1 | 10.4 | 5 |
| SMBJ40 | SMBG40 | MQ | CQ | 40 | 44.4 | 54.3 | 1 | 71.4 | 9.3 | 5 |
| SMBJ40A | SMBG40A | MR | CR | 40 | 44.4 | 49.1 | 1 | 64.5 | 9.3 | 5 |
| SMBJ43 | SMBG43 | MS | CS | 43 | 47.8 | 58.4 | 1 | 76.7 | 8.7 | 5 |
| SMBJ43A | SMBG43A | MT | CT | 43 | 47.8 | 52.8 | 1 | 69.4 | 8.7 | 5 |
| SMBJ45 | SMBG45 | MU | CU | 45 | 50 | 61.1 | 1 | 80.3 | 8.3 | 5 |
| SMBJ45A | SMBG45A | MV | CV | 45 | 50 | 55.3 | 1 | 72.7 | 8.3 | 5 |
| SMBJ48 | SMBG48 | MW | CW | 48 | 53.3 | 65.2 | 1 | 85.5 | 7.8 | 5 |
| SMBJ48A | SMBG48A | MX | CX | 48 | 53.3 | 58.9 | 1 | 77.4 | 7.8 | 5 |



RATINGS AND CHARACTERISTIC CURVES SMBJ5.0 THRU SMBJ170

For Bipolar devices add a "C" to the part number, i. e. SMBJ5.0C or SMBJ5.0CA

| Device | | Device Marking Code | | Standoff Voltage | Breakdown Voltage (V_{BR}) | | Test Current | Maximum Clamping Voltage @ I_{PP} | Peak Pulse Current | Reverse leakage @ V_{RWM} |
|----------|----------|---------------------|----|------------------|--------------------------------|-------|--------------|-------------------------------------|--------------------|-----------------------------|
| | | | | | V_{RWM} | Min | | | | |
| | | | | Uni | Uni | Volts | Volts | | I_T | V_C |
| SMBJ51 | SMBG51 | MY | BY | 51 | 56.7 | 69.3 | 1 | 91.1 | 7.3 | 5 |
| SMBJ51A | SMBG51A | MZ | BZ | 51 | 56.7 | 62.7 | 1 | 82.4 | 7.3 | 5 |
| SMBJ54 | SMBG54 | ND | DD | 54 | 60 | 73.3 | 1 | 96.3 | 6.9 | 5 |
| SMBJ54A | SMBG54A | NE | DE | 54 | 60 | 66.3 | 1 | 87.1 | 6.9 | 5 |
| SMBJ58 | SMBG58 | NF | DF | 58 | 64.4 | 78.7 | 1 | 103 | 6.5 | 5 |
| SMBJ58A | SMBG58A | NG | DG | 58 | 64.4 | 71.2 | 1 | 93.6 | 6.5 | 5 |
| SMBJ60 | SMBG60 | NH | DH | 60 | 66.7 | 81.5 | 1 | 107 | 6.2 | 5 |
| SMBJ60A | SMBG60A | NK | DK | 60 | 66.7 | 73.7 | 1 | 96.8 | 6.2 | 5 |
| SMBJ64 | SMBG64 | NL | DL | 64 | 71.1 | 86.9 | 1 | 114 | 5.9 | 5 |
| SMBJ64A | SMBG64A | NM | DM | 64 | 71.1 | 78.6 | 1 | 103 | 5.9 | 5 |
| SMBJ70 | SMBG70 | NN | DN | 70 | 77.8 | 95.1 | 1 | 125 | 5.3 | 5 |
| SMBJ70A | SMBG70A | NP | DP | 70 | 77.8 | 86 | 1 | 113 | 5.3 | 5 |
| SMBJ75 | SMBG75 | NQ | DQ | 75 | 83.3 | 102 | 1 | 134 | 5 | 5 |
| SMBJ75A | SMBG75A | NR | DR | 75 | 83.3 | 92.1 | 1 | 121 | 5 | 5 |
| SMBJ78 | SMBG78 | NS | DS | 79 | 86.7 | 103 | 1 | 139 | 4.8 | 5 |
| SMBJ78A | SMBG78A | NT | DT | 79 | 86.7 | 95.8 | 1 | 126 | 4.8 | 5 |
| SMBJ85 | SMBG85 | NU | DU | 85 | 94.4 | 115 | 1 | 151 | 4.4 | 5 |
| SMBJ85A | SMBG85A | NV | DV | 85 | 94.4 | 104 | 1 | 137 | 4.4 | 5 |
| SMBJ90 | SMBG90 | NW | DW | 90 | 100 | 122 | 1 | 160 | 4.1 | 5 |
| SMBJ90A | SMBG90A | NX | DX | 90 | 100 | 111 | 1 | 146 | 4.1 | 5 |
| SMBJ100 | SMBG100 | NY | DY | 100 | 111 | 136 | 1 | 179 | 3.7 | 5 |
| SMBJ100A | SMBG100A | NZ | DZ | 100 | 111 | 123 | 1 | 162 | 3.7 | 5 |
| SMBJ110 | SMBG110 | PD | ED | 110 | 122 | 149 | 1 | 196 | 3.4 | 5 |
| SMBJ110A | SMBG110A | PE | EE | 110 | 122 | 135 | 1 | 177 | 3.4 | 5 |
| SMBJ120 | SMBG120 | PF | EF | 120 | 133 | 163 | 1 | 214 | 3.1 | 5 |
| SMBJ120A | SMBG120A | PG | EG | 120 | 133 | 147 | 1 | 193 | 3.1 | 5 |
| SMBJ130 | SMBG130 | PH | EH | 130 | 144 | 176 | 1 | 230 | 2.9 | 5 |
| SMBJ130A | SMBG130A | PK | EK | 130 | 144 | 159 | 1 | 209 | 2.9 | 5 |
| SMBJ150 | SMBG150 | PL | EL | 150 | 167 | 204 | 1 | 268 | 2.5 | 5 |
| SMBJ150A | SMBG150A | PM | EM | 150 | 167 | 185 | 1 | 243 | 2.5 | 5 |
| SMBJ160 | SMBG160 | PN | EN | 160 | 178 | 218 | 1 | 277 | 2.3 | 5 |
| SMBJ160A | SMBG160A | PP | EP | 160 | 178 | 197 | 1 | 259 | 2.3 | 5 |
| SMBJ170 | SMBG170 | PQ | EQ | 170 | 189 | 231 | 1 | 304 | 2.2 | 5 |
| SMBJ170A | SMBG170A | PR | ER | 170 | 189 | 209 | 1 | 275 | 2.2 | 5 |

Notes

1. For bidirectional parts with V_{RWM} of 10V or less, the I_R limit is doubled.

Fig. 1 - Peak Pulse Power Rating

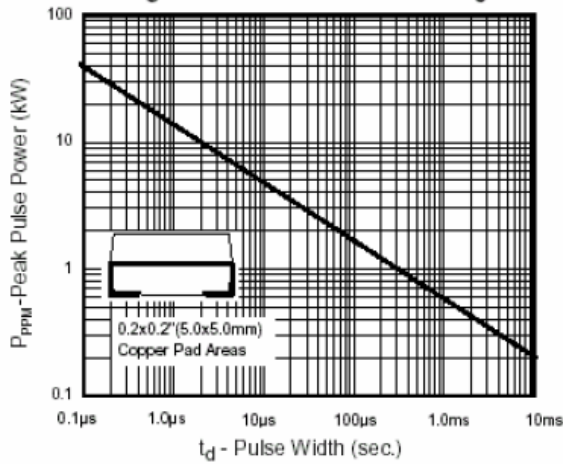


Fig.2 - Pulse Derating Curve

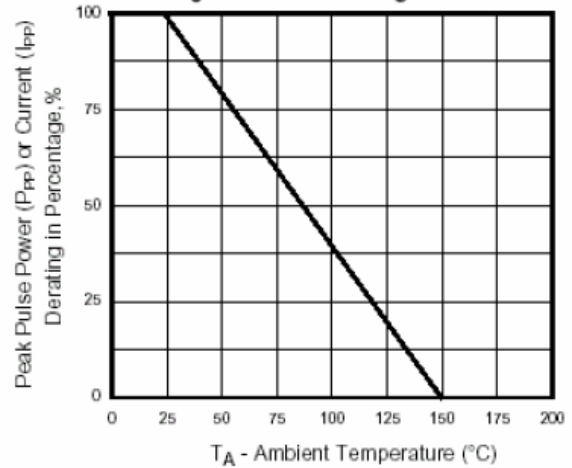


Fig.3 - Pulse Waveform

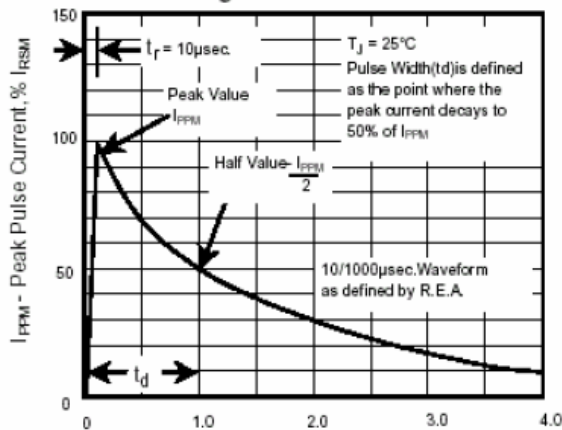


Fig.4 - Typical Junction Capacitance

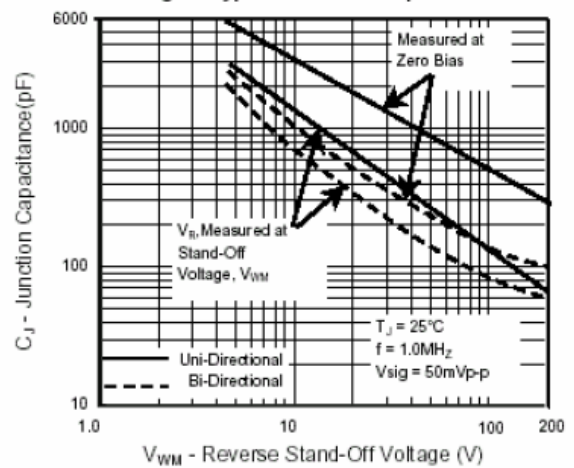


Fig. 5 - Typ. Transient Thermal Impedance

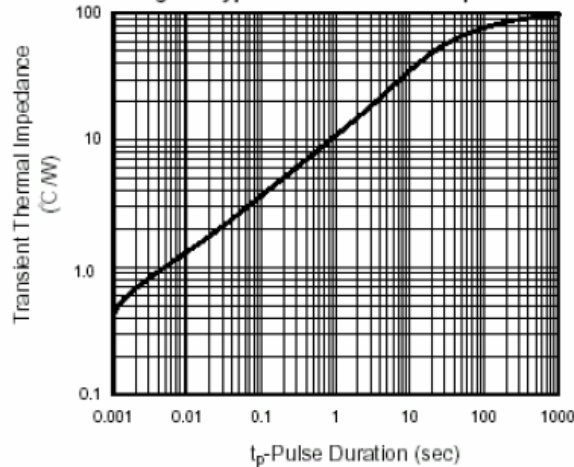


Fig.6 - Maximum Non-Repetitive Peak Forward Surge Current

