



SMBJ SERIES

SURFACE MOUNT TRANSIENT VOLTAGE SUPPRESSOR

Voltage Range
5.0 to 170 Volts
600 Watts Peak Power

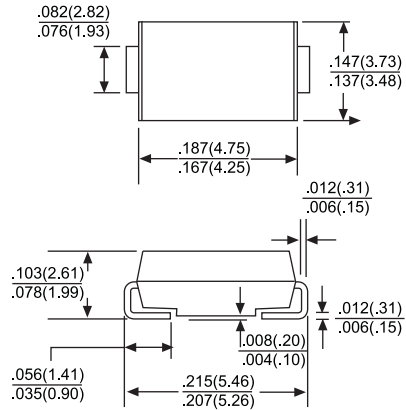
Features

- For surface mounted application
- Low profile package
- Built-in strain relief
- Glass passivated junction
- Fast response time: Typically less than 1.0ps from 0 volt to BV min.
- Typical Ir less than 1uA above 10V
- High temperature soldering guaranteed: 250°C/ 10 seconds at terminals
- Plastic material used carries Underwriters Laboratory Flammability Classification 94V-0
- 600 watts peak pulse power capability with a 10 x 100 us waveform by 0.01% duty cycle

Mechanical Data

- Case: Molded plastic
- Terminals: Solder plated
- Polarity: Indicated by cathode band
- Standard Packaging: 12mm tape (EIA STD RS-481)
- Weight: 0.093 gram

SMB/DO-214AA



Dimensions in inches and (millimeters)

MAXIMUM RATINGS AND ELECTRICAL CHARACTERISTICS

Rating at 25°C ambient temperature unless otherwise specified.

| Type Number | Value | Units |
|--|--|-------|
| Peak Power Dissipation at TA=25°C, Tp=1ms(Note 1) | PPK Minimum 600 | Watts |
| Peak Forward Surge Current, 8.3 ms Single Half Sine-wave Superimposed on Rated Load (JEDEC method)(Note2, 3)-Unidirectional Only | IFSM 100 | Amps |
| Maximum Instantaneous Forward Voltage at 50.0A for Unidirectional Only(Note 4) | V _F 3.5/5.0 | Volts |
| Operating and Storage Temperature Range | T _J , T _{STG} -65 to +150 | °C |

- NOTES: 1. Non-repetitive Current Pulse Per Fig.3 and Derated above TA=25°C Per Fig.2.
 2. Mounted on 5.0mm² (.013 mm Thick) Copper Pads to Each Terminal.
 3. 8.3ms Single Half Sine-Wave or Equivalent Square Wave, Duty Cycle=4 Pulses Per Minutes Maximum.
 4. V_F=3.5V on SMBJ5.0 thru SMBJ90 Devices and V_F=5.0V on SMBJ100 thru SMBJ170 Devices.
 Devices for Bipolar Applications
 1. For Bidirectional Use C or CA Suffix for Types SMBJ5.0 through Types SMBJ170.
 2. Electrical Characteristics Apply in Both Directions.

RATING AND CHARACTERISTIC CURVES SMBJ SERIES



FIG.1- PEAK PULSE POWER RATING CURVE

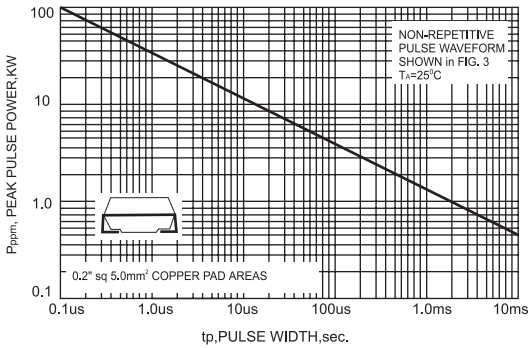


FIG.2-PULSE DERATING CURVE

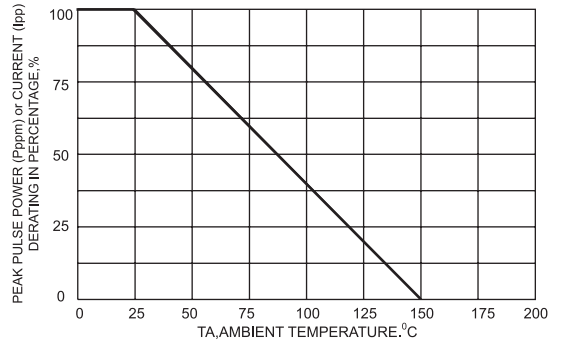


FIG.3-PULSE WAVEFORM

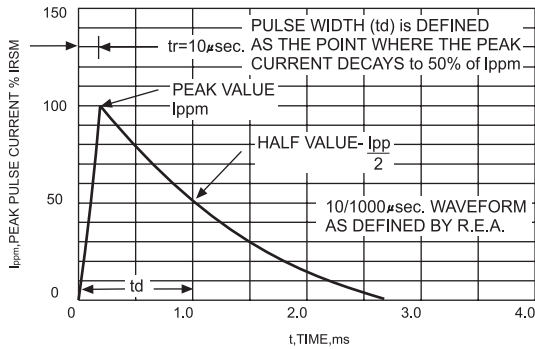


FIG.4-MAXIMUM NON-REPETITIVE PEAK FORWARD SURGE CURRENT

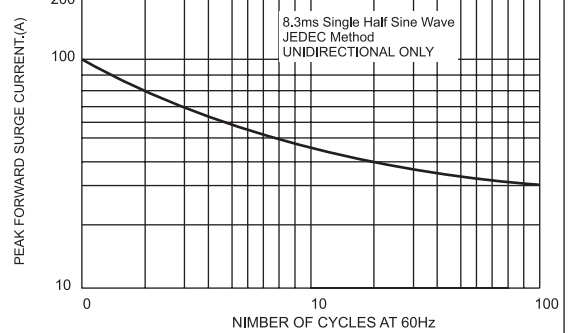
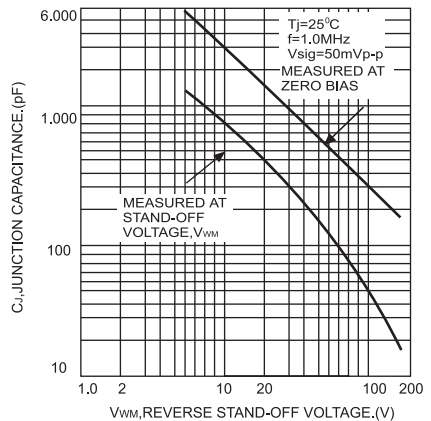


FIG.5-TYPICAL JUNCTION CAPACITANCE





ELECTRICAL CHARACTERISTICS (TA=25°C unless otherwise noted)

| Device | Device Marking Code | Breakdown Voltage V(BR) (Volts) at IT | | Test Current @IT(mA) | Stand-Off Voltage VWM(Volts) | Maximun Reverse Leakage at VWM Id(µA) | Maximun Peak Surge Current IPKM (Note 2)(Amps) | Maximun Clamping Voltage at IPKM Vc(Volts) |
|----------|---------------------|---------------------------------------|------|----------------------|------------------------------|---------------------------------------|--|--|
| | | Min. | Max. | | | | | |
| SMBJ5.0 | KD | 6.40 | 7.30 | 10 | 5.0 | 800.0 | 65 | 9.6 |
| SMBJ5.0A | KE | 6.40 | 7.00 | 10 | 5.0 | 800.0 | 68 | 9.2 |
| SMBJ6.0 | KF | 6.67 | 8.15 | 10 | 6.0 | 800.0 | 55 | 11.4 |
| SMBJ6.0A | KG | 6.67 | 7.37 | 10 | 6.0 | 800.0 | 61 | 10.3 |
| SMBJ6.5 | KH | 7.22 | 8.92 | 10 | 6.5 | 500.0 | 51 | 12.3 |
| SMBJ6.5A | KK | 7.22 | 7.98 | 10 | 6.5 | 500.0 | 56 | 11.2 |
| SMBJ7.0 | KL | 7.78 | 9.51 | 10 | 7.0 | 200.0 | 47 | 13.3 |
| SMBJ7.0A | KM | 7.78 | 8.60 | 10 | 7.0 | 200.0 | 52 | 12.0 |
| SMBJ7.5 | KN | 8.33 | 10.3 | 1.0 | 7.5 | 100.0 | 44 | 14.3 |
| SMBJ7.5A | KP | 8.33 | 9.21 | 1.0 | 7.5 | 100.0 | 48 | 12.9 |
| SMBJ8.0 | KQ | 8.89 | 10.9 | 1.0 | 8.0 | 50.0 | 42 | 15.0 |
| SMBJ8.0A | KR | 8.89 | 9.83 | 1.0 | 8.0 | 50.0 | 46 | 13.6 |
| SMBJ8.5 | KS | 9.44 | 11.5 | 1.0 | 8.5 | 20.0 | 39 | 15.9 |
| SMBJ8.5A | KT | 9.44 | 10.4 | 1.0 | 8.5 | 20.0 | 43 | 14.4 |
| SMBJ9.0 | KU | 10.0 | 12.2 | 1.0 | 9.0 | 10.0 | 37 | 16.9 |
| SMBJ9.0A | KV | 10.0 | 11.1 | 1.0 | 9.0 | 10.0 | 40 | 15.4 |
| SMBJ10 | KW | 11.1 | 13.6 | 1.0 | 10 | 5.0 | 33 | 18.8 |
| SMBJ10A | KX | 11.1 | 12.3 | 1.0 | 10 | 5.0 | 37 | 17.0 |
| SMBJ11 | KY | 12.2 | 14.9 | 1.0 | 11 | 5.0 | 31 | 20.1 |
| SMBJ11A | KZ | 12.2 | 13.5 | 1.0 | 11 | 5.0 | 34 | 18.2 |
| SMBJ12 | LD | 13.3 | 16.3 | 1.0 | 12 | 5.0 | 28 | 22.0 |
| SMBJ12A | LE | 13.3 | 14.7 | 1.0 | 12 | 5.0 | 31 | 19.9 |
| SMBJ13 | LF | 14.4 | 17.6 | 1.0 | 13 | 5.0 | 26 | 23.8 |
| SMBJ13A | LG | 14.4 | 15.9 | 1.0 | 13 | 5.0 | 29 | 21.5 |
| SMBJ14 | LH | 15.6 | 19.1 | 1.0 | 14 | 5.0 | 24.4 | 25.8 |
| SMBJ14A | LK | 15.6 | 17.2 | 1.0 | 14 | 5.0 | 27 | 23.2 |
| SMBJ15 | LL | 16.7 | 20.4 | 1.0 | 15 | 5.0 | 23.1 | 26.9 |
| SMBJ15A | LM | 16.7 | 18.5 | 1.0 | 15 | 5.0 | 25.1 | 24.4 |
| SMBJ16 | LN | 17.8 | 21.8 | 1.0 | 16 | 5.0 | 21.8 | 28.8 |
| SMBJ16A | LO | 17.8 | 19.7 | 1.0 | 16 | 5.0 | 24.2 | 26.0 |
| SMBJ17 | LQ | 18.9 | 23.1 | 1.0 | 17 | 5.0 | 20.0 | 30.5 |
| SMBJ17A | LR | 18.9 | 20.9 | 1.0 | 17 | 5.0 | 22.8 | 27.6 |
| SMBJ18 | LS | 20.0 | 24.4 | 1.0 | 18 | 5.0 | 19.5 | 32.2 |
| SMBJ18A | LT | 20.0 | 22.1 | 1.0 | 18 | 5.0 | 21.5 | 29.2 |
| SMBJ20 | LU | 22.2 | 27.1 | 1.0 | 20 | 5.0 | 17.6 | 25.8 |
| SMBJ20A | LV | 22.2 | 24.5 | 1.0 | 20 | 5.0 | 19.4 | 32.4 |
| SMBJ22 | LW | 24.4 | 29.8 | 1.0 | 22 | 5.0 | 15.0 | 39.4 |
| SMBJ22A | LX | 24.4 | 26.9 | 1.0 | 22 | 5.0 | 17.7 | 35.5 |
| SMBJ24 | LY | 26.7 | 32.6 | 1.0 | 24 | 5.0 | 14.6 | 43.0 |
| SMBJ24A | LZ | 26.7 | 29.5 | 1.0 | 24 | 5.0 | 16.0 | 38.9 |
| SMBJ26 | MD | 28.9 | 35.3 | 1.0 | 26 | 5.0 | 13.5 | 46.6 |
| SMBJ26A | ME | 28.9 | 31.9 | 1.0 | 26 | 5.0 | 14.9 | 42.1 |
| SMBJ28 | MF | 31.1 | 38.0 | 1.0 | 28 | 5.0 | 12.6 | 50.0 |
| SMBJ28A | MG | 31.1 | 34.4 | 1.0 | 28 | 5.0 | 13.8 | 45.4 |
| SMBJ30 | MH | 33.3 | 40.7 | 1.0 | 30 | 5.0 | 11.7 | 53.5 |
| SMBJ30A | MK | 33.3 | 36.8 | 1.0 | 30 | 5.0 | 13.0 | 48.4 |
| SMBJ33 | ML | 36.7 | 44.9 | 1.0 | 33 | 5.0 | 10.6 | 59.0 |
| SMBJ33A | MM | 36.7 | 40.6 | 1.0 | 33 | 5.0 | 11.8 | 53.3 |
| SMBJ36 | MN | 40.0 | 48.9 | 1.0 | 36 | 5.0 | 9.8 | 64.3 |
| SMBJ36A | MP | 40.0 | 44.2 | 1.0 | 36 | 5.0 | 10.8 | 58.1 |
| SMBJ40 | MQ | 44.4 | 54.3 | 1.0 | 40 | 5.0 | 8.8 | 71.4 |
| SMBJ40A | MR | 44.4 | 49.1 | 1.0 | 40 | 5.0 | 9.7 | 64.5 |
| SMBJ43 | MS | 47.8 | 58.4 | 1.0 | 43 | 5.0 | 8.2 | 76.7 |
| SMBJ43A | MT | 47.8 | 52.8 | 1.0 | 43 | 5.0 | 9.0 | 69.4 |
| SMBJ45 | MU | 50.0 | 61.1 | 1.0 | 45 | 5.0 | 7.8 | 80.3 |
| SMBJ45A | MV | 50.0 | 55.3 | 1.0 | 45 | 5.0 | 8.6 | 72.7 |
| SMBJ48 | MW | 53.3 | 65.1 | 1.0 | 48 | 5.0 | 7.3 | 85.5 |
| SMBJ48A | MX | 53.3 | 58.9 | 1.0 | 48 | 5.0 | 8.1 | 77.4 |
| SMBJ51 | MY | 56.7 | 69.3 | 1.0 | 51 | 5.0 | 6.9 | 91.1 |
| SMBJ51A | MZ | 56.7 | 62.7 | 1.0 | 51 | 5.0 | 7.6 | 82.4 |
| SMBJ54 | ND | 60.0 | 73.3 | 1.0 | 54 | 5.0 | 6.5 | 96.3 |
| SMBJ54A | NE | 60.0 | 66.3 | 1.0 | 54 | 5.0 | 7.2 | 87.1 |
| SMBJ58 | NF | 64.4 | 78.7 | 1.0 | 58 | 5.0 | 6.1 | 103 |
| SMBJ58A | NG | 64.4 | 71.2 | 1.0 | 58 | 5.0 | 6.7 | 93.6 |
| SMBJ60 | NH | 66.7 | 81.5 | 1.0 | 60 | 5.0 | 5.8 | 107 |
| SMBJ60A | NK | 66.7 | 73.7 | 1.0 | 60 | 5.0 | 6.5 | 96.8 |
| SMBJ64 | NL | 71.1 | 86.9 | 1.0 | 64 | 5.0 | 5.5 | 114 |
| SMBJ64A | NM | 71.1 | 78.6 | 1.0 | 64 | 5.0 | 6.1 | 103 |
| SMBJ70 | NN | 77.8 | 95.1 | 1.0 | 70 | 5.0 | 5.0 | 125 |
| SMBJ70A | NP | 77.8 | 86.0 | 1.0 | 70 | 5.0 | 5.5 | 113 |
| SMBJ75 | NQ | 83.3 | 102 | 1.0 | 75 | 5.0 | 4.7 | 134 |
| SMBJ75A | NR | 83.3 | 92.1 | 1.0 | 75 | 5.0 | 5.2 | 121 |
| SMBJ78 | NS | 86.7 | 106 | 1.0 | 78 | 5.0 | 4.5 | 139 |
| SMBJ78A | NT | 86.7 | 95.8 | 1.0 | 78 | 5.0 | 5.0 | 126 |
| SMBJ85 | NU | 94.4 | 115 | 1.0 | 85 | 5.0 | 4.1 | 151 |
| SMBJ85A | NV | 94.4 | 104 | 1.0 | 85 | 5.0 | 4.6 | 137 |
| SMBJ90 | NW | 100 | 122 | 1.0 | 90 | 5.0 | 3.9 | 160 |
| SMBJ90A | NX | 100 | 111 | 1.0 | 90 | 5.0 | 4.3 | 146 |
| SMBJ100 | NY | 111 | 136 | 1.0 | 100 | 5.0 | 3.5 | 179 |
| SMBJ100A | NZ | 111 | 123 | 1.0 | 100 | 5.0 | 3.8 | 162 |
| SMBJ110 | PD | 122 | 149 | 1.0 | 110 | 5.0 | 3.2 | 196 |
| SMBJ110A | PE | 122 | 135 | 1.0 | 110 | 5.0 | 3.5 | 177 |
| SMBJ120 | PF | 133 | 163 | 1.0 | 120 | 5.0 | 2.9 | 214 |
| SMBJ120A | PG | 133 | 147 | 1.0 | 120 | 5.0 | 3.2 | 193 |
| SMBJ130 | PH | 144 | 176 | 1.0 | 130 | 5.0 | 2.7 | 231 |
| SMBJ130A | PK | 144 | 159 | 1.0 | 130 | 5.0 | 3.0 | 209 |
| SMBJ150 | PL | 167 | 204 | 1.0 | 150 | 5.0 | 2.3 | 268 |
| SMBJ150A | PM | 167 | 185 | 1.0 | 150 | 5.0 | 2.5 | 243 |
| SMBJ160 | PN | 178 | 218 | 1.0 | 160 | 5.0 | 2.2 | 287 |
| SMBJ160A | PP | 178 | 197 | 1.0 | 160 | 5.0 | 2.4 | 259 |
| SMBJ170 | PQ | 189 | 231 | 1.0 | 170 | 5.0 | 2.0 | 304 |
| SMBJ170A | PR | 189 | 209 | 1.0 | 170 | 5.0 | 2.2 | 275 |

Note:
 1.VBR measured after IT applied for 300us,IT=square wave pulse or equivalent.
 2.Surge current wave from per Figure 3 and derate per Figure 2.
 3.All terms and symbols are consistent with ANSI/IEEE C62.35.
 4.For bidirectional use C or CA suffix for types SMBJ5.0 through types SMBJ170.
 5.For bipolar types having VWM of 10 volts (SMBJ8.0C) and under the ID limit is doubled.