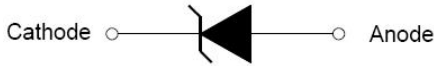


**SMB**


Bi-directional



Uni-direction

Symbol

**Features**

- Peak power dissipation 600W@10 x 1000 us Pulse
- Low incremental surge resistance
- Excellent clamping capability
- Glass passivated junction
- Fast response time
- Typical IR less than 1uA above 10V
- Halogen free and RoHS compliant

**Mechanical Data**

- CASE: SMBJ(DO-214AA) Molded Plastic
- Polarity: By cathode band denotes uni-directional device, none cathode band denotes bi-directional device
- Mounting Position: Any

**Making Code & information**

Marking Code

Marking Code

| Package | Packing Description | Packing Quantity |
|---------|---------------------|------------------|
| SMB     | Tape/Reel, 13" reel | 3000             |

SMBJ

└── Series Code

XXX

└── V<sub>RWM</sub> Voltage

C

└── Bidirectional

A

└── 5% V<sub>BR</sub> Voltage Tolerance

**Maximum Ratings & Thermal Characteristics**

(Ratings at 25°C ambient temperature unless otherwise specified.)

| Parameter  | Symbol           | Value       | Units |
|--|------------------|-------------|-------|
| Peak Pulse Power Dissipation on 10/1000 us Waveform (Note 1, 2, FIG.1) | P <sub>PPM</sub> | Min 600     | W     |
| Power Dissipation on Infinite Heat Sink at T <sub>L</sub> =50°C        | P <sub>D</sub>   | 5           | W     |
| Peak Pulse Current of on 10/1000us Waveform (Note 1, FIG.3)            | I <sub>PPM</sub> | See Table 1 | A     |
| Peak Forward Surge Current, 8.3ms Single Half Sine-Wave (Note 2. 3)    | I <sub>FSM</sub> | 100         | A     |
| Operating Junction Temperature Range                                   | T <sub>J</sub>   | -55 to 150  | °C    |
| Storage Temperature Range  | T <sub>STG</sub> | -55 to 150  | °C    |

**Notes:**

1. Non-repetitive current pulse, per Fig.3 and derated above T<sub>A</sub>=25°C per Fig.2.
2. Mounted on 5.0x5.0mm<sup>2</sup> (0.03mm thick) Copper Pads to each terminal.
3. Measured on 8.3ms single half sine-wave, or equivalent square wave, for Unidirectional device only.

## Electrical Characteristics

(Ratings at 25°C ambient temperature unless otherwise specified).

| Type Number |           | Marking |      | Reverse Stand-Off Voltage | Breakdown Voltage Min. @I <sub>T</sub> | Breakdown Voltage Max. @ I <sub>T</sub> | Test Current        | Maximum Clamping Voltage @I <sub>PP</sub> | Peak Pulse Current  | Reverse Leakage @V <sub>RMW</sub> |
|-------------|-----------|---------|------|---------------------------|--|---|---------------------|---|---------------------|-----------------------------------|
| (Uni)       | (Bi)      | (Uni)   | (Bi) | V <sub>RMW</sub> (V)      | V <sub>BR MIN</sub> (V)                | V <sub>BR MAX</sub> (V)                 | I <sub>T</sub> (mA) | V <sub>C</sub> (V)                        | I <sub>PP</sub> (A) | I <sub>R</sub> (uA)               |
| SMBJ5.0A    | SMBJ5.0CA | KE      | AE   | 5.0                       | 6.40                                   | 7.00                                    | 10                  | 9.2                                       | 65.3                | 500                               |
| SMBJ6.0A    | SMBJ6.0CA | KG      | AG   | 6.0                       | 6.67                                   | 7.37                                    | 10                  | 10.3                                      | 58.3                | 500                               |
| SMBJ6.5A    | SMBJ6.5CA | KK      | AK   | 6.5                       | 7.22                                   | 7.98                                    | 10                  | 11.2                                      | 53.6                | 300                               |
| SMBJ7.0A    | SMBJ7.0CA | KM      | AM   | 7.0                       | 7.78                                   | 8.60                                    | 10                  | 12.0                                      | 50.0                | 200                               |
| SMBJ7.5A    | SMBJ7.5CA | KP      | AP   | 7.5                       | 8.33                                   | 9.21                                    | 1                   | 12.9                                      | 46.6                | 100                               |
| SMBJ8.0A    | SMBJ8.0CA | KR      | AR   | 8.0                       | 8.89                                   | 9.83                                    | 1                   | 13.6                                      | 44.2                | 50                                |
| SMBJ8.5A    | SMBJ8.5CA | KT      | AT   | 8.5                       | 9.44                                   | 10.40                                   | 1                   | 14.4                                      | 41.7                | 20                                |
| SMBJ9.0A    | SMBJ9.0CA | KV      | AV   | 9.0                       | 10.00                                  | 11.10                                   | 1                   | 15.4                                      | 39.0                | 10                                |
| SMBJ10A     | SMBJ10CA  | KX      | AX   | 10.0                      | 11.10                                  | 12.30                                   | 1                   | 17.0                                      | 35.3                | 5                                 |
| SMBJ11A     | SMBJ11CA  | KZ      | AZ   | 11.0                      | 12.20                                  | 13.50                                   | 1                   | 18.2                                      | 33.0                | 2                                 |
| SMBJ12A     | SMBJ12CA  | LE      | BE   | 12.0                      | 13.30                                  | 14.70                                   | 1                   | 19.9                                      | 30.2                | 1                                 |
| SMBJ13A     | SMBJ13CA  | LG      | BG   | 13.0                      | 14.40                                  | 15.90                                   | 1                   | 21.5                                      | 27.9                | 1                                 |
| SMBJ14A     | SMBJ14CA  | LK      | BK   | 14.0                      | 15.60                                  | 17.20                                   | 1                   | 23.2                                      | 25.9                | 1                                 |
| SMBJ15A     | SMBJ15CA  | LM      | BM   | 15.0                      | 16.70                                  | 18.50                                   | 1                   | 24.4                                      | 24.6                | 1                                 |
| SMBJ16A     | SMBJ16CA  | LP      | BP   | 16.0                      | 17.80                                  | 19.70                                   | 1                   | 26.0                                      | 23.1                | 1                                 |
| SMBJ17A     | SMBJ17CA  | LR      | BR   | 17.0                      | 18.90                                  | 20.90                                   | 1                   | 27.6                                      | 21.8                | 1                                 |
| SMBJ18A     | SMBJ18CA  | LT      | BT   | 18.0                      | 20.00                                  | 22.10                                   | 1                   | 29.2                                      | 20.6                | 1                                 |
| SMBJ20A     | SMBJ20CA  | LV      | BV   | 20.0                      | 22.20                                  | 24.50                                   | 1                   | 32.4                                      | 18.6                | 1                                 |
| SMBJ22A     | SMBJ22CA  | LX      | BX   | 22.0                      | 24.40                                  | 26.90                                   | 1                   | 35.5                                      | 16.9                | 1                                 |
| SMBJ24A     | SMBJ24CA  | LZ      | BZ   | 24.0                      | 26.70                                  | 29.50                                   | 1                   | 38.9                                      | 15.5                | 1                                 |
| SMBJ26A     | SMBJ26CA  | ME      | CE   | 26.0                      | 28.90                                  | 31.90                                   | 1                   | 42.1                                      | 14.3                | 1                                 |
| SMBJ28A     | SMBJ28CA  | MG      | CG   | 28.0                      | 31.10                                  | 34.40                                   | 1                   | 45.4                                      | 13.3                | 1                                 |
| SMBJ30A     | SMBJ30CA  | MK      | CK   | 30.0                      | 33.30                                  | 36.80                                   | 1                   | 48.4                                      | 12.4                | 1                                 |
| SMBJ33A     | SMBJ33CA  | MM      | CM   | 33.0                      | 36.70                                  | 40.60                                   | 1                   | 53.3                                      | 11.3                | 1                                 |
| SMBJ36A     | SMBJ36CA  | MP      | CP   | 36.0                      | 40.00                                  | 44.20                                   | 1                   | 58.1                                      | 10.4                | 1                                 |
| SMBJ40A     | SMBJ40CA  | MR      | CR   | 40.0                      | 44.40                                  | 49.10                                   | 1                   | 64.5                                      | 9.3                 | 1                                 |
| SMBJ43A     | SMBJ43CA  | MT      | CT   | 43.0                      | 47.80                                  | 52.80                                   | 1                   | 69.4                                      | 8.7                 | 1                                 |
| SMBJ45A     | SMBJ45CA  | MV      | CV   | 45.0                      | 50.00                                  | 55.30                                   | 1                   | 72.7                                      | 8.3                 | 1                                 |
| SMBJ48A     | SMBJ48CA  | MX      | CX   | 48.0                      | 53.30                                  | 58.90                                   | 1                   | 77.4                                      | 7.8                 | 1                                 |
| SMBJ51A     | SMBJ51CA  | MZ      | CZ   | 51.0                      | 56.70                                  | 62.70                                   | 1                   | 82.4                                      | 7.3                 | 1                                 |
| SMBJ54A     | SMBJ54CA  | NE      | DE   | 54.0                      | 60.00                                  | 66.30                                   | 1                   | 87.1                                      | 6.9                 | 1                                 |
| SMBJ58A     | SMBJ58CA  | NG      | DG   | 58.0                      | 64.40                                  | 71.20                                   | 1                   | 93.6                                      | 6.5                 | 1                                 |
| SMBJ60A     | SMBJ60CA  | NK      | DK   | 60.0                      | 66.70                                  | 73.70                                   | 1                   | 96.8                                      | 6.2                 | 1                                 |
| SMBJ64A     | SMBJ64CA  | NM      | DM   | 64.0                      | 71.10                                  | 78.60                                   | 1                   | 103.0                                     | 5.9                 | 1                                 |
| SMBJ70A     | SMBJ70CA  | NP      | DP   | 70.0                      | 77.80                                  | 86.00                                   | 1                   | 113.0                                     | 5.3                 | 1                                 |
| SMBJ75A     | SMBJ75CA  | NR      | DR   | 75.0                      | 83.30                                  | 92.10                                   | 1                   | 121.0                                     | 5.0                 | 1                                 |
| SMBJ78A     | SMBJ78CA  | NT      | DT   | 78.0                      | 86.70                                  | 95.80                                   | 1                   | 126.0                                     | 4.8                 | 1                                 |
| SMBJ85A     | SMBJ85CA  | NV      | DV   | 85.0                      | 94.40                                  | 104.00                                  | 1                   | 137.0                                     | 4.4                 | 1                                 |
| SMBJ90A     | SMBJ90CA  | NX      | DX   | 90.0                      | 100.00                                 | 111.00                                  | 1                   | 146.0                                     | 4.1                 | 1                                 |
| SMBJ100A    | SMBJ100CA | NZ      | DZ   | 100.0                     | 111.00                                 | 123.00                                  | 1                   | 162.0                                     | 3.7                 | 1                                 |
| SMBJ110A    | SMBJ110CA | PE      | EE   | 110.0                     | 122.00                                 | 135.00                                  | 1                   | 177.0                                     | 3.4                 | 1                                 |
| SMBJ120A    | SMBJ120CA | PG      | EG   | 120.0                     | 133.00                                 | 147.00                                  | 1                   | 193.0                                     | 3.1                 | 1                                 |
| SMBJ130A    | SMBJ130CA | PK      | EK   | 130.0                     | 144.00                                 | 159.00                                  | 1                   | 209.0                                     | 2.9                 | 1                                 |
| SMBJ150A    | SMBJ150CA | PM      | EM   | 150.0                     | 167.00                                 | 185.00                                  | 1                   | 243.0                                     | 2.5                 | 1                                 |
| SMBJ160A    | SMBJ160CA | PP      | EP   | 160.0                     | 178.00                                 | 197.00                                  | 1                   | 259.0                                     | 2.3                 | 1                                 |
| SMBJ170A    | SMBJ170CA | PR      | ER   | 170.0                     | 189.00                                 | 209.00                                  | 1                   | 275.0                                     | 2.2                 | 1                                 |
| SMBJ180A    | SMBJ180CA | PT      | ET   | 180.0                     | 201.00                                 | 222.00                                  | 1                   | 292.0                                     | 2.1                 | 1                                 |
| SMBJ188A    | SMBJ188CA | PV      | EV   | 188.0                     | 209.00                                 | 231.00                                  | 1                   | 304.0                                     | 2.0                 | 1                                 |
| SMBJ200A    | SMBJ200CA | PX      | EX   | 200.0                     | 224.00                                 | 247.00                                  | 1                   | 324.0                                     | 1.9                 | 1                                 |
| SMBJ210A    | SMBJ210CA | PZ      | EZ   | 210.0                     | 237.00                                 | 263.00                                  | 1                   | 340.0                                     | 1.8                 | 1                                 |
| SMBJ220A    | SMBJ220CA | QE      | FE   | 220.0                     | 246.00                                 | 272.00                                  | 1                   | 356.0                                     | 1.7                 | 1                                 |
| SMBJ250A    | SMBJ250CA | QG      | FG   | 250.0                     | 279.00                                 | 309.00                                  | 1                   | 405.0                                     | 1.5                 | 1                                 |
| SMBJ300A    | SMBJ300CA | QK      | FK   | 300.0                     | 335.00                                 | 371.00                                  | 1                   | 486.0                                     | 1.3                 | 1                                 |
| SMBJ350A    | SMBJ350CA | QM      | FM   | 350.0                     | 391.00                                 | 432.00                                  | 1                   | 567.0                                     | 1.1                 | 1                                 |
| SMBJ400A    | SMBJ400CA | QP      | FP   | 400.0                     | 447.00                                 | 494.00                                  | 1                   | 648.0                                     | 0.9                 | 1                                 |
| SMBJ440A    | SMBJ440CA | QR      | FR   | 440.0                     | 492.00                                 | 543.00                                  | 1                   | 713.0                                     | 0.9                 | 1                                 |

 Notes: For Bi-directional type having V<sub>RMW</sub> of 10 Volts and less, the I<sub>R</sub> limit is double.

 For parts without A, the V<sub>BR</sub> is ± 10% and V<sub>C</sub> is 5% higher than with A parts.

## Ratings and Characteristic Curves

(Ratings at 25°C ambient temperature unless otherwise specified).

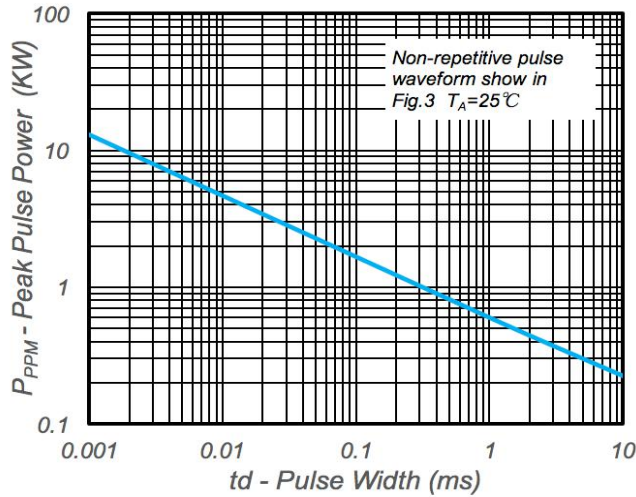


Fig. 1 - Peak Pulse Power Rating



Fig. 2 - Pulse Derating Curve

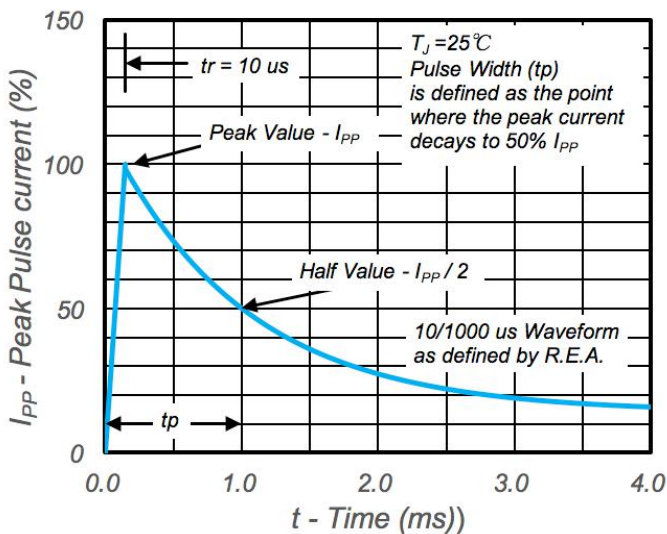


Fig. 3 - Pulse Waveform



Fig. 4 - Typical Junction Capacitance

## Package Outline Dimensions: SMB(DO-214AA)

| Dim | Millimeters |      | Inches |       |
|-----|-------------|------|--------|-------|
|     | Min         | Max  | Min    | Max   |
| L   | 4.4         | 4.6  | 0.173  | 0.181 |
| D   | 3.5         | 3.7  | 0.138  | 0.146 |
| D1  | 1.9         | 2.1  | 0.075  | 0.083 |
| T   | 5.1         | 5.48 | 0.201  | 0.216 |
| T1  | 1.0         | 1.6  | 0.039  | 0.063 |
| d   | -           | 0.2  | -      | 0.008 |
| H   | 2.2         | 2.45 | 0.087  | 0.096 |
| H1  | 2.15        | 2.35 | 0.085  | 0.093 |