



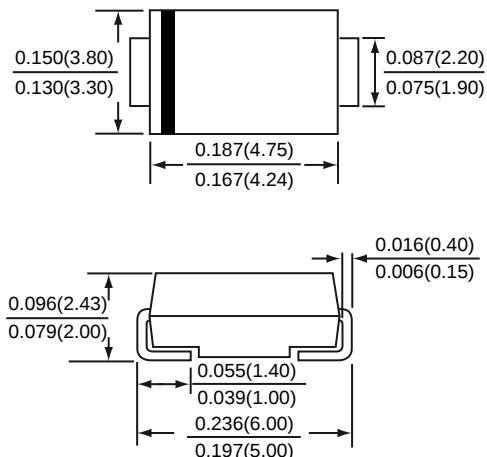
## SMBJ SERIES

GLASS PASSIVATED SURFACE MOUNT TRANSIENT VOLTAGE SUPPRESSOR

Breakdown Voltage - 5.0 to 440Volts

Peak Pulse Power-600 Watts

SMB/DO-214AA



\*Dimensions in inches and (millimeters)



### FEATURES

- \* Glass passivated chip
- \* 600 W peak pulse power capability with a 10/1000  $\mu$ s waveform, repetitive rate (duty cycle) : 0.01%
- \* Low leakage
- \* Excellent clamping capability
- \* Very fast response time

### MECHANICAL DATA

**Case** : JEDEC DO-214AA molded plastic

**Terminals** : Solder plated, solderable per MIL-STD-750, Method 2026

**Polarity** : Color band denotes positive end (cathode) except for bidirectional types

**Weight** : 0.003 ounces , 0.093 gram

### MAXIMUM RATINGS AND ELECTRICAL CHARACTERISTICS

*Ratings at 25 °C ambient temperature unless otherwise specified.  
single phase, half wave, 60Hz resistive or inductive load.  
for capacitive load, derate current by 20%*

| RATING                                                                               | SYMBOL                            | VALUE          | UNITS |
|--------------------------------------------------------------------------------------|-----------------------------------|----------------|-------|
| Peak power dissipation with a 10/1000 $\mu$ s waveform (note 1)                      | P <sub>PPM</sub>                  | 600            | Watts |
| Peak pulse current with a 10/1000 $\mu$ s waveform (note 1)                          | I <sub>PPM</sub>                  | See next table | Amps  |
| Power dissipation on infinite heatsink at T <sub>L</sub> = 75                        | P <sub>D</sub>                    | 5.0            | Watts |
| Peak forward surge current, 8.3ms single half sine-wave unidirectional only (note 2) | I <sub>FSM</sub>                  | 100            | Amps  |
| Operating junction and storage temperature range                                     | T <sub>J</sub> , T <sub>STG</sub> | -55 to +150    |       |

NOTES : (1) Non-repetitive current pulse per Fig. 5 and derated above T<sub>A</sub> = 25 °C per Fig. 1  
(2) Measured on 8.3ms single half sine-wave or equivalent square wave, duty cycle = 4 pulses per minute maximum.

| SMBJ<br>PART NUMBER |           | Device<br>Marking<br>Code |    | Working Peak<br>Reverse Voltage<br>V <sub>RWM</sub><br>(V) | Breakdown Voltage V <sub>BR</sub> @I <sub>T</sub> |          |                     | Maximum Clamping<br>Voltage V <sub>C</sub> (V)<br>@ I <sub>PP</sub> | Maximum Reverse<br>Surge Current<br>I <sub>PP</sub> (A)<br>@10 x 1000 μs<br>sinewave | Maximum Reverse<br>Leakage I <sub>R</sub> (μA)<br>@V <sub>RWM</sub> |
|---------------------|-----------|---------------------------|----|------------------------------------------------------------|---------------------------------------------------|----------|---------------------|---------------------------------------------------------------------|--------------------------------------------------------------------------------------|---------------------------------------------------------------------|
| UNI- POLAR          | BI-POLAR  | UNI                       | BI |                                                            | Min. (V)                                          | Max. (V) | I <sub>T</sub> (mA) |                                                                     |                                                                                      |                                                                     |
| SMBJ5.0A            | SMBJ5.0CA | KE                        | AE | 5.0                                                        | 6.40                                              | 7.00     | 10                  | 9.2                                                                 | 65.22                                                                                | 800                                                                 |
| SMBJ6.0A            | SMBJ6.0CA | KG                        | AG | 6.0                                                        | 6.67                                              | 7.37     | 10                  | 10.3                                                                | 58.25                                                                                | 800                                                                 |
| SMBJ6.5A            | SMBJ6.5CA | KK                        | AK | 6.5                                                        | 7.22                                              | 7.98     | 10                  | 11.2                                                                | 53.57                                                                                | 500                                                                 |
| SMBJ7.0A            | SMBJ7.0CA | KM                        | AM | 7.0                                                        | 7.78                                              | 8.60     | 10                  | 12.0                                                                | 50.00                                                                                | 200                                                                 |
| SMBJ7.5A            | SMBJ7.5CA | KP                        | AP | 7.5                                                        | 8.33                                              | 9.21     | 1                   | 12.9                                                                | 46.51                                                                                | 100                                                                 |
| SMBJ8.0A            | SMBJ8.0CA | KR                        | AR | 8.0                                                        | 8.89                                              | 9.83     | 1                   | 13.6                                                                | 44.12                                                                                | 50                                                                  |
| SMBJ8.5A            | SMBJ8.5CA | KT                        | AT | 8.5                                                        | 9.44                                              | 10.4     | 1                   | 14.4                                                                | 41.67                                                                                | 10                                                                  |
| SMBJ9.0A            | SMBJ9.0CA | KV                        | AV | 9.0                                                        | 10.0                                              | 11.1     | 1                   | 15.4                                                                | 38.96                                                                                | 5                                                                   |
| SMBJ10A             | SMBJ10CA  | KX                        | AX | 10                                                         | 11.1                                              | 12.3     | 1                   | 17.0                                                                | 35.29                                                                                | 5                                                                   |
| SMBJ11A             | SMBJ11CA  | KZ                        | AZ | 11                                                         | 12.2                                              | 13.5     | 1                   | 18.2                                                                | 32.97                                                                                | 5                                                                   |
| SMBJ12A             | SMBJ12CA  | LE                        | BE | 12                                                         | 13.3                                              | 14.7     | 1                   | 19.9                                                                | 30.15                                                                                | 5                                                                   |
| SMBJ13A             | SMBJ13CA  | LG                        | BG | 13                                                         | 14.4                                              | 15.9     | 1                   | 21.5                                                                | 27.91                                                                                | 5                                                                   |
| SMBJ14A             | SMBJ14CA  | LK                        | BK | 14                                                         | 15.6                                              | 17.2     | 1                   | 23.2                                                                | 25.86                                                                                | 5                                                                   |
| SMBJ15A             | SMBJ15CA  | LM                        | BM | 15                                                         | 16.7                                              | 18.5     | 1                   | 24.4                                                                | 24.59                                                                                | 5                                                                   |
| SMBJ16A             | SMBJ16CA  | LP                        | BP | 16                                                         | 17.8                                              | 19.7     | 1                   | 26.0                                                                | 23.08                                                                                | 5                                                                   |
| SMBJ17A             | SMBJ17CA  | LR                        | BR | 17                                                         | 18.9                                              | 20.9     | 1                   | 27.6                                                                | 21.74                                                                                | 5                                                                   |
| SMBJ18A             | SMBJ18CA  | LT                        | BT | 18                                                         | 20.0                                              | 22.1     | 1                   | 29.2                                                                | 20.55                                                                                | 5                                                                   |
| SMBJ19A             | SMBJ19CA  | LB                        | BB | 19                                                         | 21.1                                              | 23.3     | 1                   | 30.8                                                                | 19.49                                                                                | 5                                                                   |
| SMBJ20A             | SMBJ20CA  | LV                        | BV | 20                                                         | 22.2                                              | 24.5     | 1                   | 32.4                                                                | 18.52                                                                                | 5                                                                   |
| SMBJ22A             | SMBJ22CA  | LX                        | BX | 22                                                         | 24.4                                              | 26.9     | 1                   | 35.5                                                                | 16.90                                                                                | 5                                                                   |
| SMBJ24A             | SMBJ24CA  | LZ                        | BZ | 24                                                         | 26.7                                              | 29.5     | 1                   | 38.9                                                                | 15.42                                                                                | 5                                                                   |
| SMBJ26A             | SMBJ26CA  | ME                        | CE | 26                                                         | 28.9                                              | 31.9     | 1                   | 42.1                                                                | 14.25                                                                                | 5                                                                   |
| SMBJ28A             | SMBJ28CA  | MG                        | CG | 28                                                         | 31.1                                              | 34.4     | 1                   | 45.4                                                                | 13.22                                                                                | 5                                                                   |
| SMBJ30A             | SMBJ30CA  | MK                        | CK | 30                                                         | 33.3                                              | 36.8     | 1                   | 48.4                                                                | 12.40                                                                                | 5                                                                   |
| SMBJ33A             | SMBJ33CA  | MM                        | CM | 33                                                         | 36.7                                              | 40.6     | 1                   | 53.3                                                                | 11.26                                                                                | 5                                                                   |
| SMBJ36A             | SMBJ36CA  | MP                        | CP | 36                                                         | 40.0                                              | 44.2     | 1                   | 58.1                                                                | 10.33                                                                                | 5                                                                   |
| SMBJ40A             | SMBJ40CA  | MR                        | CR | 40                                                         | 44.4                                              | 49.1     | 1                   | 64.5                                                                | 9.30                                                                                 | 5                                                                   |
| SMBJ43A             | SMBJ43CA  | MT                        | CT | 43                                                         | 47.8                                              | 52.8     | 1                   | 69.4                                                                | 8.65                                                                                 | 5                                                                   |
| SMBJ45A             | SMBJ45CA  | MV                        | CV | 45                                                         | 50.0                                              | 55.3     | 1                   | 72.7                                                                | 8.25                                                                                 | 5                                                                   |
| SMBJ48A             | SMBJ48CA  | MX                        | CX | 48                                                         | 53.3                                              | 58.9     | 1                   | 77.4                                                                | 7.75                                                                                 | 5                                                                   |
| SMBJ51A             | SMBJ51CA  | MZ                        | CZ | 51                                                         | 56.7                                              | 62.7     | 1                   | 82.4                                                                | 7.28                                                                                 | 5                                                                   |
| SMBJ54A             | SMBJ54CA  | NE                        | DE | 54                                                         | 60.0                                              | 66.3     | 1                   | 87.1                                                                | 6.89                                                                                 | 5                                                                   |
| SMBJ58A             | SMBJ58CA  | NG                        | DG | 58                                                         | 64.4                                              | 71.2     | 1                   | 93.6                                                                | 6.41                                                                                 | 5                                                                   |
| SMBJ60A             | SMBJ60CA  | NK                        | DK | 60                                                         | 66.7                                              | 73.7     | 1                   | 96.8                                                                | 6.20                                                                                 | 5                                                                   |
| SMBJ64A             | SMBJ64CA  | NM                        | DM | 64                                                         | 71.1                                              | 78.6     | 1                   | 103                                                                 | 5.83                                                                                 | 5                                                                   |
| SMBJ70A             | SMBJ70CA  | NP                        | DP | 70                                                         | 77.8                                              | 86.0     | 1                   | 113                                                                 | 5.31                                                                                 | 5                                                                   |
| SMBJ75A             | SMBJ75CA  | NR                        | DR | 75                                                         | 83.3                                              | 92.1     | 1                   | 121                                                                 | 4.96                                                                                 | 5                                                                   |
| SMBJ78A             | SMBJ78CA  | NT                        | DT | 78                                                         | 86.7                                              | 95.8     | 1                   | 126                                                                 | 4.76                                                                                 | 5                                                                   |
| SMBJ80A             | SMBJ80CA  | NB                        | DB | 80                                                         | 88.8                                              | 97.6     | 1                   | 130                                                                 | 4.63                                                                                 | 5                                                                   |
| SMBJ85A             | SMBJ85CA  | NV                        | DV | 85                                                         | 94.4                                              | 104      | 1                   | 137                                                                 | 4.38                                                                                 | 5                                                                   |
| SMBJ90A             | SMBJ90CA  | NX                        | DX | 90                                                         | 100                                               | 111      | 1                   | 146                                                                 | 4.11                                                                                 | 5                                                                   |
| SMBJ100A            | SMBJ100CA | NZ                        | DZ | 100                                                        | 111                                               | 123      | 1                   | 162                                                                 | 3.70                                                                                 | 5                                                                   |
| SMBJ110A            | SMBJ110CA | PE                        | EE | 110                                                        | 122                                               | 135      | 1                   | 177                                                                 | 3.39                                                                                 | 5                                                                   |
| SMBJ120A            | SMBJ120CA | PG                        | EG | 120                                                        | 133                                               | 147      | 1                   | 193                                                                 | 3.11                                                                                 | 5                                                                   |
| SMBJ130A            | SMBJ130CA | PK                        | EK | 130                                                        | 144                                               | 159      | 1                   | 209                                                                 | 2.87                                                                                 | 5                                                                   |
| SMBJ140A            | SMBJ140CA | PB                        | EB | 140                                                        | 155                                               | 171      | 1                   | 227                                                                 | 2.65                                                                                 | 5                                                                   |
| SMBJ150A            | SMBJ150CA | PM                        | EM | 150                                                        | 167                                               | 185      | 1                   | 243                                                                 | 2.47                                                                                 | 5                                                                   |
| SMBJ160A            | SMBJ160CA | PP                        | EP | 160                                                        | 178                                               | 197      | 1                   | 259                                                                 | 2.32                                                                                 | 5                                                                   |
| SMBJ170A            | SMBJ170CA | PR                        | ER | 170                                                        | 189                                               | 209      | 1                   | 275                                                                 | 2.18                                                                                 | 5                                                                   |
| SMBJ180A            | SMBJ180CA | PT                        | ET | 180                                                        | 200                                               | 220      | 1                   | 292                                                                 | 2.06                                                                                 | 5                                                                   |
| SMBJ190A            | SMBJ190CA | PV                        | EV | 190                                                        | 211                                               | 232      | 1                   | 308                                                                 | 1.95                                                                                 | 5                                                                   |
| SMBJ200A            | SMBJ200CA | PW                        | EW | 200                                                        | 224                                               | 247      | 1                   | 324                                                                 | 1.85                                                                                 | 5                                                                   |
| SMBJ220A            | SMBJ220CA | PX                        | EX | 220                                                        | 246                                               | 272      | 1                   | 356                                                                 | 1.69                                                                                 | 5                                                                   |
| SMBJ250A            | SMBJ250CA | PZ                        | EZ | 250                                                        | 279                                               | 309      | 1                   | 405                                                                 | 1.48                                                                                 | 5                                                                   |
| SMBJ300A            | SMBJ300CA | QE                        | FE | 300                                                        | 335                                               | 371      | 1                   | 486                                                                 | 1.23                                                                                 | 5                                                                   |
| SMBJ350A            | SMBJ350CA | QG                        | FG | 350                                                        | 391                                               | 432      | 1                   | 567                                                                 | 1.06                                                                                 | 5                                                                   |
| SMBJ400A            | SMBJ400CA | QK                        | FK | 400                                                        | 447                                               | 494      | 1                   | 648                                                                 | 0.93                                                                                 | 5                                                                   |
| SMBJ440A            | SMBJ440CA | QM                        | FM | 440                                                        | 492                                               | 543      | 1                   | 713                                                                 | 0.84                                                                                 | 5                                                                   |

NOTE : 1. Suffix " A " denotes 5% tolerance device.

2. Add suffix " CA " after part number to specify Bi-directional devices.

3. For Bi-Directional devices having V<sub>R</sub> of 10 volts and under, the I<sub>R</sub> limit is double .

# RATINGS AND CHARACTERISTIC CURVES SMBJ SERIES

FIG. 1- PULSE DERATING CURVE

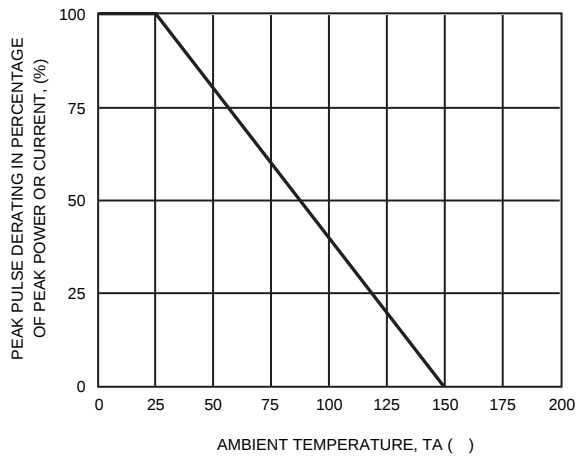


FIG. 2 - MAXIMUM NON-REPETITIVE

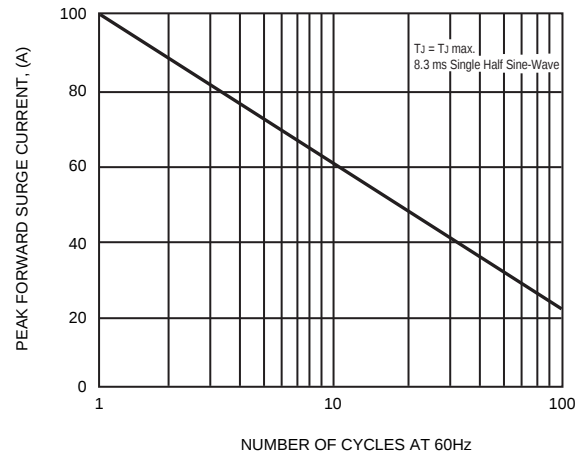


FIG. 3 - STEADY STATE POWER DERATING CURVE

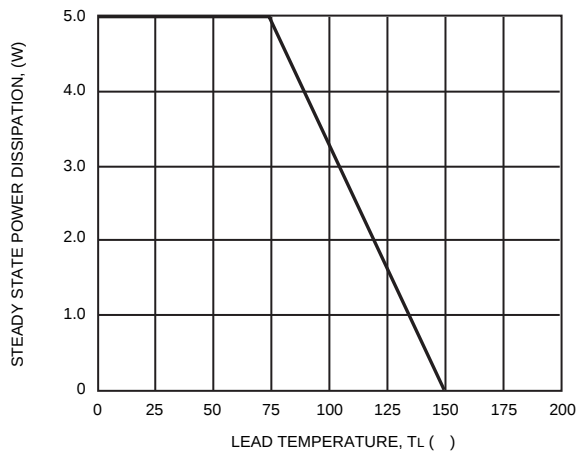


FIG. 4 - PEAK PULSE POWER RATING CURVE

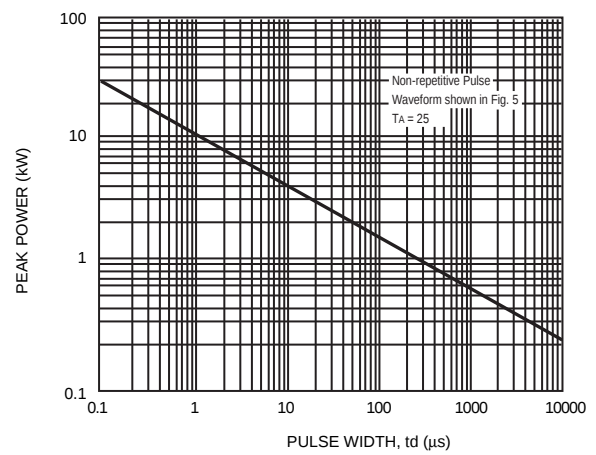


FIG. 5 - PULSE WAVEFORM

