

**SURFACE MOUNT GPP**  
**GPP TRANSIENT VOLTAGE SUPPRESSOR**  
**600 WATT PEAK POWER 5.0 WATTS STEADY STATE**

**FEATURES**

- \* Plastic package has underwriters laboratory
- \* Glass passivated chip construction
- \* 600 watt surage capability at 1ms
- \* Excellent clamping capability
- \* Low zener impedance
- \* Fast response time

Ratings at 25 °C ambient temperature unless otherwise specified.

**MAXIMUM RATINGS AND ELECTRICAL CHARACTERISTICS**

Ratings at 25 °C ambient temperature unless otherwise specified.



**DO-214AA**



Dimensions in inches and (millimeters)

**DEVICES FOR BIPOLAR APPLICATIONS**

For Bidirectional use C or CA suffix for types TFMBJ5.0 thru TFMBJ170

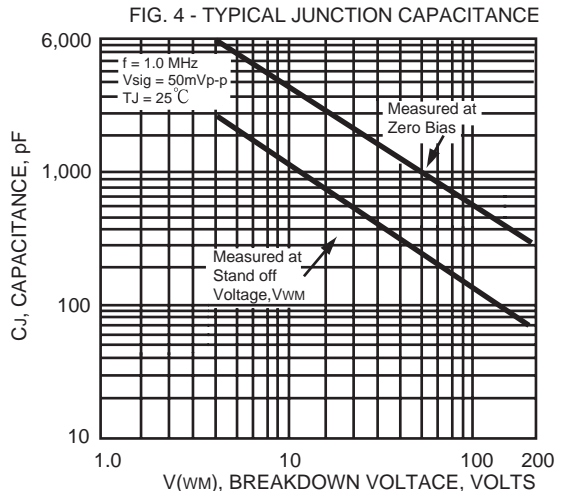
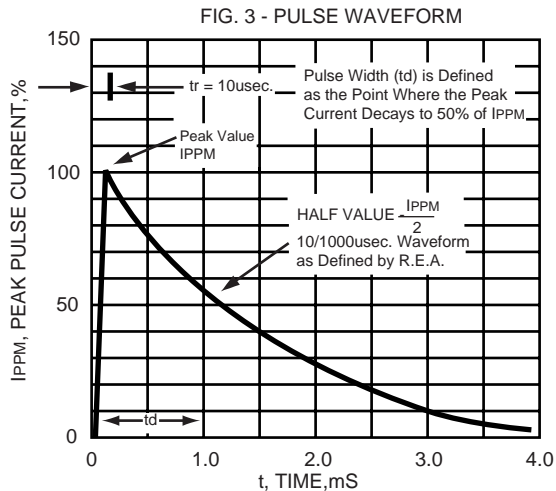
Electrical characteristics apply in both direction

**MAXIMUM RATINGS** (At TA = 25°C unless otherwise noted)

| RATINGS   | SYMBOL                            | VALUE       | UNITS |
|---|-----------------------------------|-------------|-------|
| Peak Power Dissipation with a 10/1000uS (Note 1,2, Fig.1)   | PPPM                              | Minimum 600 | Watts |
| Peak Pulse Current with a 10/1000uS waveform ( Note 1, Fig.3 )  | I <sub>PPM</sub>                  | SEE TABLE 1 | Amps  |
| Steady State Power Dissipation at TL = 75°C (Note 2)  | PM(AV)                            | 5.0         | Watts |
| Peak Forward Surge Current 8.3mS single half sine-wave superimposed on rated load (JEDEC method) (Note 2,3) unidirectional only | I <sub>FSM</sub>                  | 100         | Amps  |
| Maximum Instantaneous Forward Voltage at 50A for unidirectional only (Note 3,4)   | V <sub>F</sub>                    | SEE NOTE 4  | Volts |
| Operating and Storage Temperature Range   | T <sub>J</sub> , T <sub>STG</sub> | -55 to +150 | °C    |

- NOTES : 1. Non-repetitive current pulse, per Fig.3 and derated above TA = 25°C per Fig.2.  
 2. Mounted on 0.2 X 0.2( 5.0 X 5.0mm ) copper pad to each terminal.  
 3. Lead temperature at TL = 25°C  
 4. Measured on 8.3mS single half sine-wave duty cycle = 4 pules per minute maximum.  
 5. VF = 3.5V on TFMBJ-5.0 thru TFMBJ-90 devices and VF = 5.0V on TFMBJ-100 thru TFMBJ-170 devices.

# RATING AND CHARACTERISTIC CURVES ( TFMBJ5.0 THRU TFMBJ170CA )



# TRANSIENT VOLTAGE SUPPRESSORS

600W SERIES TVS DIODES / DO-214AA ( CASE 3 ) 600W

| Rectron Industry No. | Rectron House No. | Breakdown Voltage |      |          | Reverse Stand off Voltage VWM (Volts) | Maximum Reverse Leakage at VWM ID(μA) | Maximum Peak Pulse Current IPPM (Amps) | Maximum Clamping Voltage at IPPM VC (Volts) |
|----------------------|-------------------|-------------------|------|----------|---------------------------------------|---------------------------------------|--|---|
|                      |                   | VBR (Volts)       |      | @IT (mA) |                                       |                                       |  |   |
|                      |                   | MIN.              | MAX. |          |                                       |                                       |  |   |
| SMBJ5.0              | TFMBJ5.0          | 6.40              | 7.82 | 10       | 5.0                                   | 800.0                                 | 62.5                                   | 9.6   |
| SMBJ5.0A             | TFMBJ5.0A         | 6.40              | 7.07 | 10       | 5.0                                   | 800.0                                 | 65.2                                   | 9.2   |
| SMBJ6.0              | TFMBJ6.0          | 6.67              | 8.15 | 10       | 6.0                                   | 800.0                                 | 52.6                                   | 11.4  |
| SMBJ6.0A             | TFMBJ6.0A         | 6.67              | 7.37 | 10       | 6.0                                   | 800.0                                 | 58.3                                   | 10.3  |
| SMBJ6.5              | TFMBJ6.5          | 7.22              | 8.82 | 10       | 6.5                                   | 500.0                                 | 48.8                                   | 12.3  |
| SMBJ6.5A             | TFMBJ6.5A         | 7.22              | 7.98 | 10       | 6.5                                   | 500.0                                 | 53.6                                   | 11.2  |
| SMBJ7.0              | TFMBJ7.0          | 7.78              | 9.51 | 10       | 7.0                                   | 200.0                                 | 45.1                                   | 13.3  |
| SMBJ7.0A             | TFMBJ7.0A         | 7.78              | 8.60 | 10       | 7.0                                   | 200.0                                 | 50.0                                   | 12.0  |
| SMBJ7.5              | TFMBJ7.5          | 8.33              | 10.2 | 1.0      | 7.5                                   | 100.0                                 | 42.0                                   | 14.3  |
| SMBJ7.5A             | TFMBJ7.5A         | 8.33              | 9.21 | 1.0      | 7.5                                   | 100.0                                 | 46.5                                   | 12.9  |
| SMBJ8.0              | TFMBJ8.0          | 8.89              | 10.9 | 1.0      | 8.0                                   | 50.0                                  | 40.0                                   | 15.0  |
| SMBJ8.0A             | TFMBJ8.0A         | 8.89              | 9.83 | 1.0      | 8.0                                   | 50.0                                  | 44.1                                   | 13.6  |
| SMBJ8.5              | TFMBJ8.5          | 9.44              | 11.5 | 1.0      | 8.5                                   | 20.0                                  | 37.7                                   | 15.9  |
| SMBJ8.5A             | TFMBJ8.5A         | 9.44              | 10.4 | 1.0      | 8.5                                   | 20.0                                  | 41.7                                   | 14.4  |
| SMBJ9.0              | TFMBJ9.0          | 10.0              | 12.2 | 1.0      | 9.0                                   | 10.0                                  | 35.5                                   | 16.9  |
| SMBJ9.0A             | TFMBJ9.0A         | 10.0              | 11.1 | 1.0      | 9.0                                   | 10.0                                  | 39.0                                   | 15.4  |
| SMBJ10               | TFMBJ10           | 11.1              | 13.6 | 1.0      | 10.0                                  | 5.0                                   | 31.9                                   | 18.8  |
| SMBJ10A              | TFMBJ10A          | 11.1              | 12.3 | 1.0      | 10.0                                  | 5.0                                   | 35.3                                   | 17.0  |
| SMBJ11               | TFMBJ11           | 12.2              | 14.9 | 1.0      | 11.0                                  | 5.0                                   | 29.9                                   | 20.1  |
| SMBJ11A              | TFMBJ11A          | 12.2              | 13.5 | 1.0      | 11.0                                  | 5.0                                   | 33.0                                   | 18.2  |
| SMBJ12               | TFMBJ12           | 13.3              | 16.3 | 1.0      | 12.0                                  | 5.0                                   | 27.3                                   | 22.0  |
| SMBJ12A              | TFMBJ12A          | 13.3              | 14.7 | 1.0      | 12.0                                  | 5.0                                   | 30.2                                   | 19.9  |
| SMBJ13               | TFMBJ13           | 14.4              | 17.6 | 1.0      | 13.0                                  | 5.0                                   | 25.2                                   | 23.8  |
| SMBJ13A              | TFMBJ13A          | 14.4              | 15.9 | 1.0      | 13.0                                  | 5.0                                   | 27.9                                   | 21.5  |
| SMBJ14               | TFMBJ14           | 15.6              | 19.1 | 1.0      | 14.0                                  | 5.0                                   | 23.3                                   | 25.8  |
| SMBJ14A              | TFMBJ14A          | 15.6              | 17.2 | 1.0      | 14.0                                  | 5.0                                   | 25.9                                   | 23.2  |
| SMBJ15               | TFMBJ15           | 16.7              | 20.4 | 1.0      | 15.0                                  | 5.0                                   | 22.3                                   | 26.9  |
| SMBJ15A              | TFMBJ15A          | 16.7              | 18.5 | 1.0      | 15.0                                  | 5.0                                   | 24.6                                   | 24.4  |
| SMBJ16               | TFMBJ16           | 17.8              | 21.8 | 1.0      | 16.0                                  | 5.0                                   | 20.8                                   | 28.8  |
| SMBJ16A              | TFMBJ16A          | 17.8              | 19.7 | 1.0      | 16.0                                  | 5.0                                   | 23.1                                   | 26.0  |
| SMBJ17               | TFMBJ17           | 18.9              | 23.1 | 1.0      | 17.0                                  | 5.0                                   | 19.7                                   | 30.5  |
| SMBJ17A              | TFMBJ17A          | 18.9              | 20.9 | 1.0      | 17.0                                  | 5.0                                   | 21.7                                   | 27.6  |
| SMBJ18               | TFMBJ18           | 20.0              | 24.4 | 1.0      | 18.0                                  | 5.0                                   | 18.6                                   | 32.2  |
| SMBJ18A              | TFMBJ18A          | 20.0              | 22.1 | 1.0      | 18.0                                  | 5.0                                   | 20.5                                   | 29.2  |
| SMBJ20               | TFMBJ20           | 22.2              | 27.1 | 1.0      | 20.0                                  | 5.0                                   | 16.8                                   | 35.8  |
| SMBJ20A              | TFMBJ20A          | 22.2              | 24.5 | 1.0      | 20.0                                  | 5.0                                   | 18.5                                   | 32.4  |
| SMBJ22               | TFMBJ22           | 24.4              | 29.8 | 1.0      | 22.0                                  | 5.0                                   | 15.2                                   | 39.4  |
| SMBJ22A              | TFMBJ22A          | 24.4              | 26.9 | 1.0      | 22.0                                  | 5.0                                   | 16.9                                   | 35.5  |
| SMBJ24               | TFMBJ24           | 26.7              | 32.6 | 1.0      | 24.0                                  | 5.0                                   | 14.0                                   | 43.0  |
| SMBJ24A              | TFMBJ24A          | 26.7              | 29.5 | 1.0      | 24.0                                  | 5.0                                   | 15.4                                   | 38.9  |
| SMBJ26               | TFMBJ26           | 28.9              | 35.3 | 1.0      | 26.0                                  | 5.0                                   | 12.9                                   | 46.6  |
| SMBJ26A              | TFMBJ26A          | 28.9              | 31.9 | 1.0      | 26.0                                  | 5.0                                   | 14.3                                   | 42.1  |
| SMBJ28               | TFMBJ28           | 31.1              | 38.0 | 1.0      | 28.0                                  | 5.0                                   | 12.0                                   | 50.0  |
| SMBJ28A              | TFMBJ28A          | 31.1              | 34.4 | 1.0      | 28.0                                  | 5.0                                   | 13.2                                   | 45.4  |
| SMBJ30               | TFMBJ30           | 33.3              | 40.7 | 1.0      | 30.0                                  | 5.0                                   | 11.2                                   | 53.5  |
| SMBJ30A              | TFMBJ30A          | 33.3              | 36.8 | 1.0      | 30.0                                  | 5.0                                   | 12.4                                   | 48.4  |
| SMBJ33               | TFMBJ33           | 36.7              | 44.9 | 1.0      | 33.0                                  | 5.0                                   | 10.2                                   | 59.0  |
| SMBJ33A              | TFMBJ33A          | 36.7              | 40.6 | 1.0      | 33.0                                  | 5.0                                   | 11.3                                   | 53.3  |
| SMBJ36               | TFMBJ36           | 40.0              | 48.9 | 1.0      | 36.0                                  | 5.0                                   | 9.3                                    | 64.3  |
| SMBJ36A              | TFMBJ36A          | 40.0              | 44.2 | 1.0      | 36.0                                  | 5.0                                   | 10.3                                   | 58.1  |

# TRANSIENT VOLTAGE SUPPRESSORS

600W SERIES TVS DIODES / DO-214AA ( CASE 3 ) 600W

| Rectron Industry No. | Rectron House No. | Breakdown Voltage |      |          | Reverse Stand off Voltage VWM (Volts) | Maximum Reverse Leakage at VWM ID(uA) | Maximum Peak Pulse Current IPPM (Amps) | Maximum Clamping Voltage at IPPM VC (Volts) |
|----------------------|-------------------|-------------------|------|----------|---------------------------------------|---------------------------------------|--|---|
|                      |                   | VBR (Volts)       |      | @IT (mA) |                                       |                                       |  |   |
|                      |                   | MIN.              | MAX. |          |                                       |                                       |  |   |
| SMBJ40               | TFMBJ40           | 44.4              | 54.3 | 1.0      | 40                                    | 5.0                                   | 71.4                                   |   |
| SMBJ40A              | TFMBJ40A          | 44.4              | 49.1 | 1.0      | 40                                    | 5.0                                   | 64.5                                   |   |
| SMBJ43               | TFMBJ43           | 47.8              | 58.4 | 1.0      | 43                                    | 5.0                                   | 76.7                                   |   |
| SMBJ43A              | TFMBJ43A          | 47.8              | 52.8 | 1.0      | 43                                    | 5.0                                   | 69.4                                   |   |
| SMBJ45               | TFMBJ45           | 50.0              | 61.1 | 1.0      | 45                                    | 5.0                                   | 80.3                                   |   |
| SMBJ45A              | TFMBJ45A          | 50.0              | 55.3 | 1.0      | 45                                    | 5.0                                   | 72.7                                   |   |
| SMBJ48               | TFMBJ48           | 53.3              | 65.1 | 1.0      | 48                                    | 5.0                                   | 85.5                                   |   |
| SMBJ48A              | TFMBJ48A          | 53.3              | 58.9 | 1.0      | 48                                    | 5.0                                   | 77.4                                   |   |
| SMBJ51               | TFMBJ51           | 56.7              | 69.3 | 1.0      | 51                                    | 5.0                                   | 91.1                                   |   |
| SMBJ51A              | TFMBJ51A          | 56.7              | 62.7 | 1.0      | 51                                    | 5.0                                   | 82.4                                   |   |
| SMBJ54               | TFMBJ54           | 60.0              | 73.3 | 1.0      | 54                                    | 5.0                                   | 96.3                                   |   |
| SMBJ54A              | TFMBJ54A          | 60.0              | 66.3 | 1.0      | 54                                    | 5.0                                   | 87.1                                   |   |
| SMBJ58               | TFMBJ58           | 64.4              | 78.7 | 1.0      | 58                                    | 5.0                                   | 103                                    |   |
| SMBJ58A              | TFMBJ58A          | 64.4              | 71.2 | 1.0      | 58                                    | 5.0                                   | 93.6                                   |   |
| SMBJ60               | TFMBJ60           | 66.7              | 81.5 | 1.0      | 60                                    | 5.0                                   | 107                                    |   |
| SMBJ60A              | TFMBJ60A          | 66.7              | 73.7 | 1.0      | 60                                    | 5.0                                   | 96.8                                   |   |
| SMBJ64               | TFMBJ64           | 71.1              | 86.9 | 1.0      | 64                                    | 5.0                                   | 114                                    |   |
| SMBJ64A              | TFMBJ64A          | 71.1              | 78.6 | 1.0      | 64                                    | 5.0                                   | 103                                    |   |
| SMBJ70               | TFMBJ70           | 77.8              | 95.1 | 1.0      | 70                                    | 5.0                                   | 125                                    |   |
| SMBJ70A              | TFMBJ70A          | 77.8              | 86.0 | 1.0      | 70                                    | 5.0                                   | 113                                    |   |
| SMBJ75               | TFMBJ75           | 83.3              | 102  | 1.0      | 75                                    | 5.0                                   | 134                                    |   |
| SMBJ75A              | TFMBJ75A          | 83.3              | 92.1 | 1.0      | 75                                    | 5.0                                   | 121                                    |   |
| SMBJ78               | TFMBJ78           | 86.7              | 106  | 1.0      | 78                                    | 5.0                                   | 139                                    |   |
| SMBJ78A              | TFMBJ78A          | 86.7              | 95.8 | 1.0      | 78                                    | 5.0                                   | 126                                    |   |
| SMBJ85               | TFMBJ85           | 94.4              | 115  | 1.0      | 85                                    | 5.0                                   | 151                                    |   |
| SMBJ85A              | TFMBJ85A          | 94.4              | 104  | 1.0      | 85                                    | 5.0                                   | 137                                    |   |
| SMBJ90               | TFMBJ90           | 100               | 122  | 1.0      | 90                                    | 5.0                                   | 160                                    |   |
| SMBJ90A              | TFMBJ90A          | 100               | 111  | 1.0      | 90                                    | 5.0                                   | 146                                    |   |
| SMBJ100              | TFMBJ100          | 111               | 136  | 1.0      | 100                                   | 5.0                                   | 179                                    |   |
| SMBJ100A             | TFMBJ100A         | 111               | 123  | 1.0      | 100                                   | 5.0                                   | 162                                    |   |
| SMBJ110              | TFMBJ110          | 122               | 149  | 1.0      | 110                                   | 5.0                                   | 196                                    |   |
| SMBJ110A             | TFMBJ110A         | 122               | 135  | 1.0      | 110                                   | 5.0                                   | 177                                    |   |
| SMBJ120              | TFMBJ120          | 133               | 163  | 1.0      | 120                                   | 5.0                                   | 214                                    |   |
| SMBJ120A             | TFMBJ120A         | 133               | 147  | 1.0      | 120                                   | 5.0                                   | 193                                    |   |
| SMBJ130              | TFMBJ130          | 144               | 176  | 1.0      | 130                                   | 5.0                                   | 231                                    |   |
| SMBJ130A             | TFMBJ130A         | 144               | 159  | 1.0      | 130                                   | 5.0                                   | 209                                    |   |
| SMBJ150              | TFMBJ150          | 167               | 204  | 1.0      | 150                                   | 5.0                                   | 268                                    |   |
| SMBJ150A             | TFMBJ150A         | 167               | 185  | 1.0      | 150                                   | 5.0                                   | 243                                    |   |
| SMBJ160              | TFMBJ160          | 178               | 218  | 1.0      | 160                                   | 5.0                                   | 287                                    |   |
| SMBJ160A             | TFMBJ160A         | 178               | 197  | 1.0      | 160                                   | 5.0                                   | 259                                    |   |
| SMBJ170              | TFMBJ170          | 189               | 231  | 1.0      | 170                                   | 5.0                                   | 304                                    |   |
| SMBJ170A             | TFMBJ170A         | 189               | 209  | 1.0      | 170                                   | 5.0                                   | 275                                    |   |

- Notes :
1.  $V_{BR}$  measured after  $I_T$  applied for 300ms.  $I_T$  = square pulse or equivalent.
  2. For bidirectional use C or CA suffixs for all types (ex. SMBJ5.0C,SMBJ170CA) electrical characteristics apply in both directions.
  3. For bidirectional types having  $V_{WM}$  of 10 volts and less, the  $I_D$  limit is doubled.
  4. All devices UL listed file# E211196.