

**SURFACE MOUNT GPP**  
**TRANSIENT VOLTAGE SUPPRESSOR**  
**1500 WATT PEAK POWER 5.0 WATTS STEADY STATE**

**FEATURES**

- \* Plastic package has underwriters laboratory
- \* Glass passivated chip construction
- \* 1500 watt surge capability at 1ms
- \* Excellent clamping capability
- \* Low zener impedance
- \* Fast response time

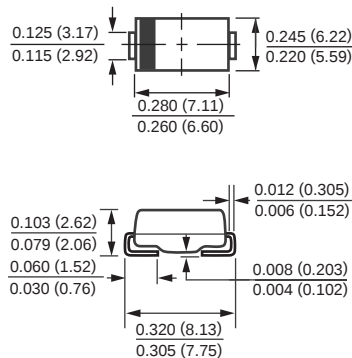
Ratings at 25 °C ambient temperature unless otherwise specified.

**MAXIMUM RATINGS AND ELECTRICAL CHARACTERISTICS**

Ratings at 25 °C ambient temperature unless otherwise specified.



**DO-214AB**



Dimensions in inches and (millimeters)

**DEVICES FOR BIPOLAR APPLICATIONS**

For Bidirectional use C or CA suffix for types TFMCJ5.0 thru TFMCJ170

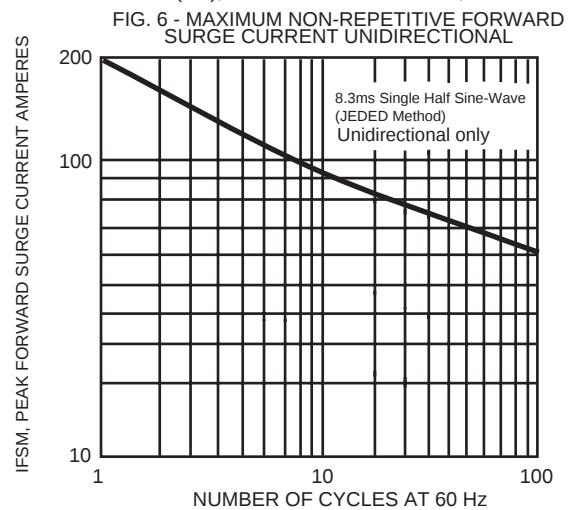
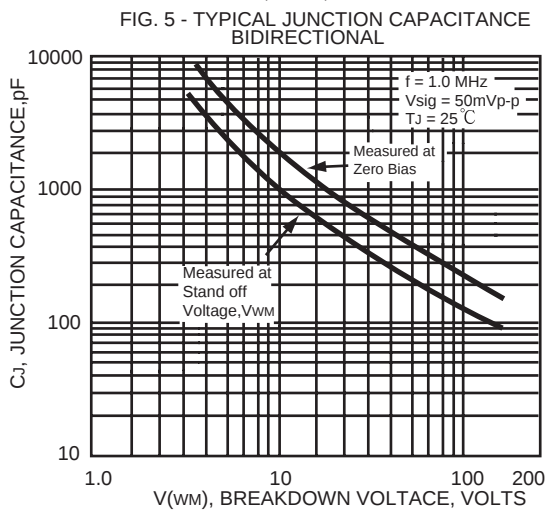
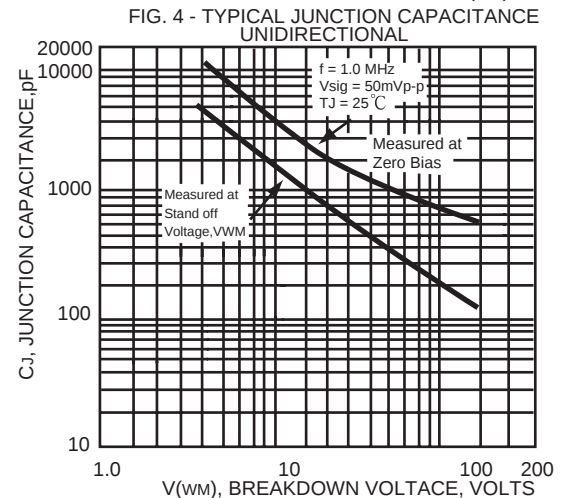
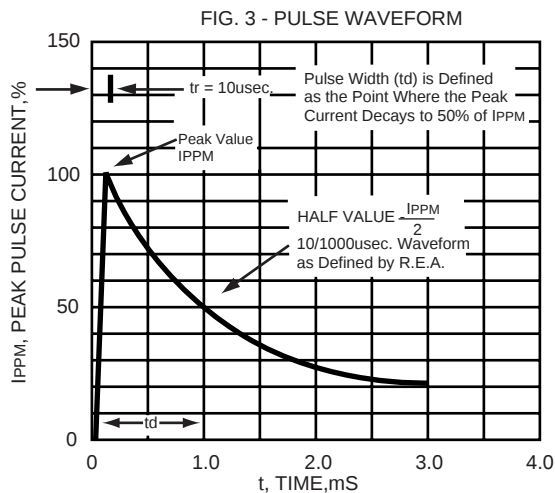
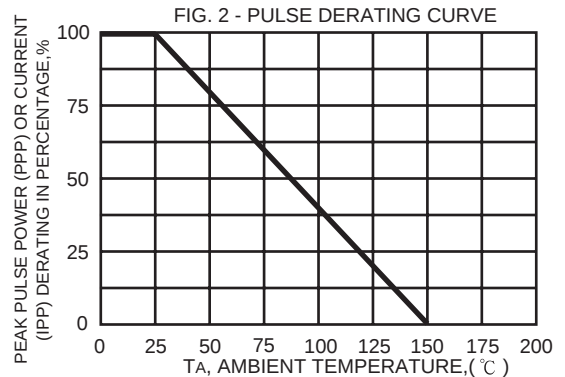
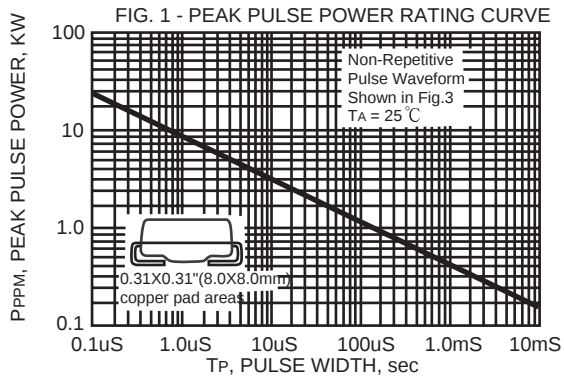
Electrical characteristics apply in both direction

**MAXIMUM RATINGS** (At  $T_A = 25^\circ\text{C}$  unless otherwise noted)

| RATINGS                                                                                                                         | SYMBOL                            | VALUE        | UNITS |
|---------------------------------------------------------------------------------------------------------------------------------|-----------------------------------|--------------|-------|
| Peak Power Dissipation with a 10/1000uS (Note 1,2, Fig.1)                                                                       | PPPM                              | Minimum 1500 | Watts |
| Peak Pulse Current with a 10/1000uS waveform ( Note 1, Fig.3 )                                                                  | IPPM                              | SEE TABLE 1  | Amps  |
| Steady State Power Dissipation at $T_L = 75^\circ\text{C}$ (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 | IFSM                              | 200          | Amps  |
| Maximum Instantaneous Forward Voltage at 100A for unidirectional only (Note 3,4)                                                | V <sub>F</sub>                    | SEE NOTE 3,4 | 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  $T_A = 25^\circ\text{C}$  per Fig.2.
  2. Mounted on 0.31 X 0.31" ( 8.0 X 8.0mm) copper pad to each terminal.
  3. Lead temperature at  $T_L = 25^\circ\text{C}$
  4. Measured on 8.3mS single half sine-wave duty cycle = 4 pules per minute maximum.
  5.  $V_F = 3.5\text{V}$  on TFMCJ-5.0 thru TFMCJ-90 devices and  $V_F = 5.0\text{V}$  on TFMCJ-100 thru TFMCJ-170 devices.

# RATING AND CHARACTERISTIC CURVES (TFMCJ5.0 THRU TFM CJ170CA)



# TRANSIENT VOLTAGE SUPPRESSORS

1500W SERIES TVS DIODES/DO-214AB ( CASE 4 ) 1500W

| Rectron<br>Industry No. | Rectron<br>House No. | Breakdown Voltage |      |             | Reverse<br>Stand off<br>Voltage<br>VWM<br>(Volts) | Maximum<br>Reverse<br>Leakage<br>at VWM<br>ID(uA) | Maximum<br>Peak Pulse<br>Current<br>IPPM<br>(Amps) | Maximum<br>Clamping<br>Voltage<br>at IPPM<br>VC (Volts) |
|-------------------------|----------------------|-------------------|------|-------------|---------------------------------------------------|---------------------------------------------------|----------------------------------------------------|---------------------------------------------------------|
|                         |                      | VBR<br>(Volts)    |      | @IT<br>(mA) |                                                   |                                                   |                                                    |                                                         |
|                         |                      | MIN.              | MAX. |             |                                                   |                                                   |                                                    |                                                         |
| SMCJ5.0                 | TFMCJ5.0             | 6.40              | 7.82 | 10          | 5.0                                               | 1000                                              | 156.3                                              | 9.6                                                     |
| SMCJ5.0A                | TFMCJ5.0A            | 6.40              | 7.07 | 10          | 5.0                                               | 1000                                              | 163.0                                              | 9.2                                                     |
| SMCJ6.0                 | TFMCJ6.0             | 6.67              | 8.15 | 10          | 6.0                                               | 1000                                              | 131.6                                              | 11.4                                                    |
| SMCJ6.0A                | TFMCJ6.0A            | 6.67              | 7.37 | 10          | 6.0                                               | 1000                                              | 145.6                                              | 10.3                                                    |
| SMCJ6.5                 | TFMCJ6.5             | 7.22              | 8.82 | 10          | 6.5                                               | 500.0                                             | 122.0                                              | 12.3                                                    |
| SMCJ6.5A                | TFMCJ6.5A            | 7.22              | 7.98 | 10          | 6.5                                               | 500.0                                             | 133.9                                              | 11.2                                                    |
| SMCJ7.0                 | TFMCJ7.0             | 7.78              | 9.51 | 10          | 7.0                                               | 200.0                                             | 112.8                                              | 13.3                                                    |
| SMCJ7.0A                | TFMCJ7.0A            | 7.78              | 8.60 | 10          | 7.0                                               | 200.0                                             | 125.0                                              | 12.0                                                    |
| SMCJ7.5                 | TFMCJ7.5             | 8.33              | 10.2 | 1.0         | 7.5                                               | 100.0                                             | 104.9                                              | 14.3                                                    |
| SMCJ7.5A                | TFMCJ7.5A            | 8.33              | 9.21 | 1.0         | 7.5                                               | 100.0                                             | 116.3                                              | 12.9                                                    |
| SMCJ8.0                 | TFMCJ8.0             | 8.89              | 10.9 | 1.0         | 8.0                                               | 50.0                                              | 100.0                                              | 15.0                                                    |
| SMCJ8.0A                | TFMCJ8.0A            | 8.89              | 9.83 | 1.0         | 8.0                                               | 50.0                                              | 110.3                                              | 13.6                                                    |
| SMCJ8.5                 | TFMCJ8.5             | 9.44              | 11.5 | 1.0         | 8.5                                               | 25                                                | 94.3                                               | 15.9                                                    |
| SMCJ8.5A                | TFMCJ8.5A            | 9.44              | 10.4 | 1.0         | 8.5                                               | 25                                                | 104.2                                              | 14.4                                                    |
| SMCJ9.0                 | TFMCJ9.0             | 10.0              | 12.2 | 1.0         | 9.0                                               | 10                                                | 88.8                                               | 16.9                                                    |
| SMCJ9.0A                | TFMCJ9.0A            | 10.0              | 11.1 | 1.0         | 9.0                                               | 10                                                | 97.4                                               | 15.4                                                    |
| SMCJ10                  | TFMCJ10              | 11.1              | 13.6 | 1.0         | 10.0                                              | 5.0                                               | 79.8                                               | 18.8                                                    |
| SMCJ10A                 | TFMCJ10A             | 11.1              | 12.3 | 1.0         | 10.0                                              | 5.0                                               | 88.2                                               | 17.0                                                    |
| SMCJ11                  | TFMCJ11              | 12.2              | 14.9 | 1.0         | 11.0                                              | 5.0                                               | 74.6                                               | 20.1                                                    |
| SMCJ11A                 | TFMCJ11A             | 12.2              | 13.5 | 1.0         | 11.0                                              | 5.0                                               | 82.4                                               | 18.2                                                    |
| SMCJ12                  | TFMCJ12              | 13.3              | 16.3 | 1.0         | 12.0                                              | 5.0                                               | 68.2                                               | 22.0                                                    |
| SMCJ12A                 | TFMCJ12A             | 13.3              | 14.7 | 1.0         | 12.0                                              | 5.0                                               | 75.4                                               | 19.9                                                    |
| SMCJ13                  | TFMCJ13              | 14.4              | 17.6 | 1.0         | 13.0                                              | 5.0                                               | 63.0                                               | 23.8                                                    |
| SMCJ13A                 | TFMCJ13A             | 14.4              | 15.9 | 1.0         | 13.0                                              | 5.0                                               | 69.8                                               | 21.5                                                    |
| SMCJ14                  | TFMCJ14              | 15.6              | 19.1 | 1.0         | 14.0                                              | 5.0                                               | 58.1                                               | 25.8                                                    |
| SMCJ14A                 | TFMCJ14A             | 15.6              | 17.2 | 1.0         | 14.0                                              | 5.0                                               | 64.7                                               | 23.2                                                    |
| SMCJ15                  | TFMCJ15              | 16.7              | 20.4 | 1.0         | 15.0                                              | 5.0                                               | 55.8                                               | 26.9                                                    |
| SMCJ15A                 | TFMCJ15A             | 16.7              | 18.5 | 1.0         | 15.0                                              | 5.0                                               | 61.5                                               | 24.4                                                    |
| SMCJ16                  | TFMCJ16              | 17.8              | 21.8 | 1.0         | 16.0                                              | 5.0                                               | 52.1                                               | 28.8                                                    |
| SMCJ16A                 | TFMCJ16A             | 17.8              | 19.7 | 1.0         | 16.0                                              | 5.0                                               | 57.7                                               | 26.0                                                    |
| SMCJ17                  | TFMCJ17              | 18.9              | 23.1 | 1.0         | 17.0                                              | 5.0                                               | 49.2                                               | 30.5                                                    |
| SMCJ17A                 | TFMCJ17A             | 18.9              | 20.9 | 1.0         | 17.0                                              | 5.0                                               | 54.3                                               | 27.6                                                    |
| SMCJ18                  | TFMCJ18              | 20.0              | 24.4 | 1.0         | 18.0                                              | 5.0                                               | 46.6                                               | 32.2                                                    |
| SMCJ18A                 | TFMCJ18A             | 20.0              | 22.1 | 1.0         | 18.0                                              | 5.0                                               | 51.4                                               | 29.2                                                    |
| SMCJ20                  | TFMCJ20              | 22.2              | 27.1 | 1.0         | 20.0                                              | 5.0                                               | 41.9                                               | 35.8                                                    |
| SMCJ20A                 | TFMCJ20A             | 22.2              | 24.5 | 1.0         | 20.0                                              | 5.0                                               | 46.3                                               | 32.4                                                    |
| SMCJ22                  | TFMCJ22              | 24.4              | 29.8 | 1.0         | 22.0                                              | 5.0                                               | 38.1                                               | 39.4                                                    |
| SMCJ22A                 | TFMCJ22A             | 24.4              | 26.9 | 1.0         | 22.0                                              | 5.0                                               | 42.3                                               | 35.5                                                    |
| SMCJ24                  | TFMCJ24              | 26.7              | 32.6 | 1.0         | 24.0                                              | 5.0                                               | 34.9                                               | 43.0                                                    |
| SMCJ24A                 | TFMCJ24A             | 26.7              | 29.5 | 1.0         | 24.0                                              | 5.0                                               | 38.6                                               | 38.9                                                    |
| SMCJ26                  | TFMCJ26              | 28.9              | 35.3 | 1.0         | 26.0                                              | 5.0                                               | 32.2                                               | 46.6                                                    |
| SMCJ26A                 | TFMCJ26A             | 28.9              | 31.9 | 1.0         | 26.0                                              | 5.0                                               | 35.6                                               | 42.1                                                    |
| SMCJ28                  | TFMCJ28              | 31.1              | 38.0 | 1.0         | 28.0                                              | 5.0                                               | 30.0                                               | 50.1                                                    |
| SMCJ28A                 | TFMCJ28A             | 31.1              | 34.4 | 1.0         | 28.0                                              | 5.0                                               | 33.0                                               | 45.4                                                    |
| SMCJ30                  | TFMCJ30              | 33.3              | 40.7 | 1.0         | 30.0                                              | 5.0                                               | 28.0                                               | 53.5                                                    |
| SMCJ30A                 | TFMCJ30A             | 33.3              | 36.8 | 1.0         | 30.0                                              | 5.0                                               | 31.0                                               | 48.4                                                    |
| SMCJ33                  | TFMCJ33              | 36.7              | 44.9 | 1.0         | 33.0                                              | 5.0                                               | 25.4                                               | 59.0                                                    |
| SMCJ33A                 | TFMCJ33A             | 36.7              | 40.6 | 1.0         | 33.0                                              | 5.0                                               | 28.1                                               | 53.3                                                    |
| SMCJ36                  | TFMCJ36              | 40.0              | 48.9 | 1.0         | 36.0                                              | 5.0                                               | 23.3                                               | 64.3                                                    |
| SMCJ36A                 | TFMCJ36A             | 40.0              | 44.2 | 1.0         | 36.0                                              | 5.0                                               | 25.8                                               | 58.1                                                    |

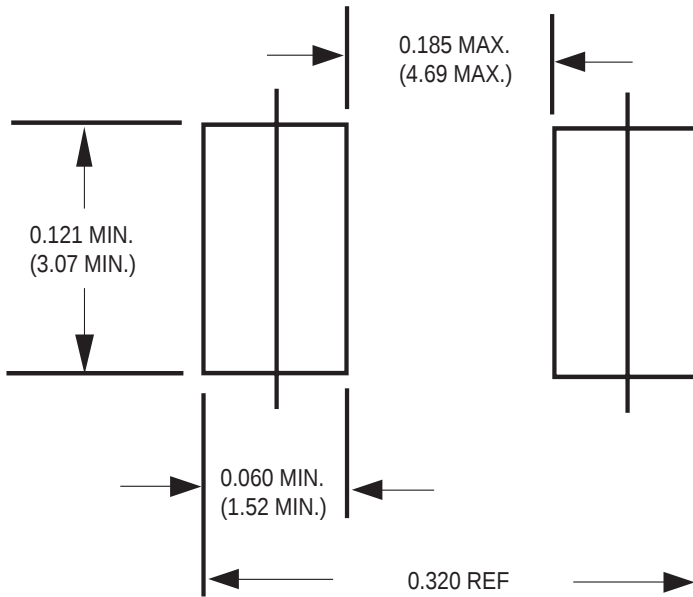
# TRANSIENT VOLTAGE SUPPRESSORS

1500W SERIES TVS DIODES/DO-214AB ( CASE 4 ) 1500W

| 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  |                                       |                                       |                                        |                                             |
|                      |                   | MIN.              | MAX. | (mA) |                                       |                                       |                                        |                                             |
| SMCJ40               | TFMCJ40           | 44.4              | 54.3 | 1.0  | 40                                    | 5.0                                   | 21.0                                   | 71.4                                        |
| SMCJ40A              | TFMCJ40A          | 44.4              | 49.1 | 1.0  | 40                                    | 5.0                                   | 23.3                                   | 64.5                                        |
| SMCJ43               | TFMCJ43           | 47.8              | 58.4 | 1.0  | 43                                    | 5.0                                   | 19.6                                   | 76.7                                        |
| SMCJ43A              | TFMCJ43A          | 47.8              | 52.8 | 1.0  | 43                                    | 5.0                                   | 21.6                                   | 69.4                                        |
| SMCJ45               | TFMCJ45           | 50.0              | 61.1 | 1.0  | 45                                    | 5.0                                   | 18.7                                   | 80.3                                        |
| SMCJ45A              | TFMCJ45A          | 50.0              | 55.3 | 1.0  | 45                                    | 5.0                                   | 20.6                                   | 72.7                                        |
| SMCJ48               | TFMCJ48           | 53.3              | 65.1 | 1.0  | 48                                    | 5.0                                   | 17.5                                   | 85.5                                        |
| SMCJ48A              | TFMCJ48A          | 53.3              | 58.9 | 1.0  | 48                                    | 5.0                                   | 19.4                                   | 77.4                                        |
| SMCJ51               | TFMCJ51           | 56.7              | 69.3 | 1.0  | 51                                    | 5.0                                   | 16.5                                   | 91.1                                        |
| SMCJ51A              | TFMCJ51A          | 56.7              | 62.7 | 1.0  | 51                                    | 5.0                                   | 18.2                                   | 82.4                                        |
| SMCJ54               | TFMCJ54           | 60.0              | 73.3 | 1.0  | 54                                    | 5.0                                   | 15.6                                   | 96.3                                        |
| SMCJ54A              | TFMCJ54A          | 60.0              | 66.3 | 1.0  | 54                                    | 5.0                                   | 17.2                                   | 87.1                                        |
| SMCJ58               | TFMCJ58           | 64.4              | 78.7 | 1.0  | 58                                    | 5.0                                   | 14.6                                   | 103                                         |
| SMCJ58A              | TFMCJ58A          | 64.4              | 71.2 | 1.0  | 58                                    | 5.0                                   | 16.0                                   | 93                                          |
| SMCJ60               | TFMCJ60           | 66.7              | 81.5 | 1.0  | 60                                    | 5.0                                   | 14.0                                   | 107                                         |
| SMCJ60A              | TFMCJ60A          | 66.7              | 73.7 | 1.0  | 60                                    | 5.0                                   | 15.5                                   | 96                                          |
| SMCJ64               | TFMCJ64           | 71.1              | 86.9 | 1.0  | 64                                    | 5.0                                   | 13.2                                   | 114                                         |
| SMCJ64A              | TFMCJ64A          | 71.1              | 78.6 | 1.0  | 64                                    | 5.0                                   | 14.6                                   | 103                                         |
| SMCJ70               | TFMCJ70           | 77.8              | 95.1 | 1.0  | 70                                    | 5.0                                   | 12.0                                   | 125                                         |
| SMCJ70A              | TFMCJ70A          | 77.8              | 86.0 | 1.0  | 70                                    | 5.0                                   | 13.3                                   | 113                                         |
| SMCJ75               | TFMCJ75           | 83.3              | 102  | 1.0  | 75                                    | 5.0                                   | 11.2                                   | 134                                         |
| SMCJ75A              | TFMCJ75A          | 83.3              | 92.1 | 1.0  | 75                                    | 5.0                                   | 12.4                                   | 121                                         |
| SMCJ78               | TFMCJ78           | 86.7              | 106  | 1.0  | 78                                    | 5.0                                   | 10.8                                   | 139                                         |
| SMCJ78A              | TFMCJ78A          | 86.7              | 95.8 | 1.0  | 78                                    | 5.0                                   | 11.9                                   | 126                                         |
| SMCJ85               | TFMCJ85           | 94.4              | 115  | 1.0  | 85                                    | 5.0                                   | 9.9                                    | 151                                         |
| SMCJ85A              | TFMCJ85A          | 94.4              | 104  | 1.0  | 85                                    | 5.0                                   | 10.9                                   | 137                                         |
| SMCJ90               | TFMCJ90           | 100               | 122  | 1.0  | 90                                    | 5.0                                   | 9.4                                    | 160                                         |
| SMCJ90A              | TFMCJ90A          | 100               | 111  | 1.0  | 90                                    | 5.0                                   | 10.3                                   | 146                                         |
| SMCJ100              | TFMCJ100          | 111               | 136  | 1.0  | 100                                   | 5.0                                   | 8.4                                    | 179                                         |
| SMCJ100A             | TFMCJ100A         | 111               | 123  | 1.0  | 100                                   | 5.0                                   | 9.3                                    | 162                                         |
| SMCJ110              | TFMCJ110          | 122               | 149  | 1.0  | 110                                   | 5.0                                   | 7.7                                    | 196                                         |
| SMCJ110A             | TFMCJ110A         | 122               | 135  | 1.0  | 110                                   | 5.0                                   | 8.5                                    | 177                                         |
| SMCJ120              | TFMCJ120          | 133               | 163  | 1.0  | 120                                   | 5.0                                   | 7.0                                    | 214                                         |
| SMCJ120A             | TFMCJ120A         | 133               | 147  | 1.0  | 120                                   | 5.0                                   | 7.8                                    | 193                                         |
| SMCJ130              | TFMCJ130          | 144               | 176  | 1.0  | 130                                   | 5.0                                   | 6.5                                    | 231                                         |
| SMCJ130A             | TFMCJ130A         | 144               | 159  | 1.0  | 130                                   | 5.0                                   | 7.2                                    | 209                                         |
| SMCJ150              | TFMCJ150          | 167               | 204  | 1.0  | 150                                   | 5.0                                   | 5.6                                    | 268                                         |
| SMCJ150A             | TFMCJ150A         | 167               | 185  | 1.0  | 150                                   | 5.0                                   | 6.2                                    | 243                                         |
| SMCJ160              | TFMCJ160          | 178               | 218  | 1.0  | 160                                   | 5.0                                   | 5.2                                    | 287                                         |
| SMCJ160A             | TFMCJ160A         | 178               | 197  | 1.0  | 160                                   | 5.0                                   | 5.8                                    | 259                                         |
| SMCJ170              | TFMCJ170          | 189               | 231  | 1.0  | 170                                   | 5.0                                   | 4.9                                    | 304                                         |
| SMCJ170A             | TFMCJ170A         | 189               | 209  | 1.0  | 170                                   | 5.0                                   | 5.5                                    | 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. SMCJ5.0C, SMCJ170CA) 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.

## Mounting Pad Layout



Dimensions in inches and (millimeters)