

**SURFACE MOUNT 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 surge capability at 1ms
- \* Excellent clamping capability
- \* Low zener impedance
- \* Fast response time
- \* P/N suffix V means AEC-Q101 qualified
- \* P/N suffix V means Halogen-free

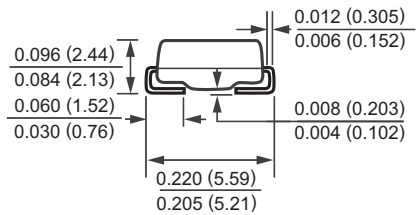
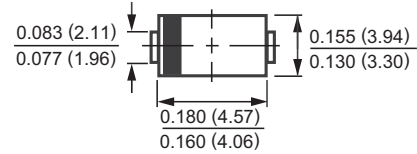
Ratings at 25 °C ambient temperature unless otherwise specified.

**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 P6FMBJ6.8 thru P6FMBJ600

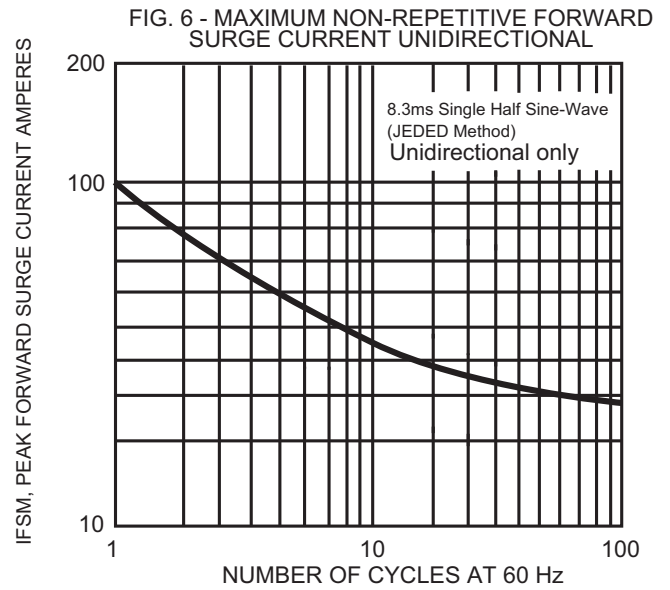
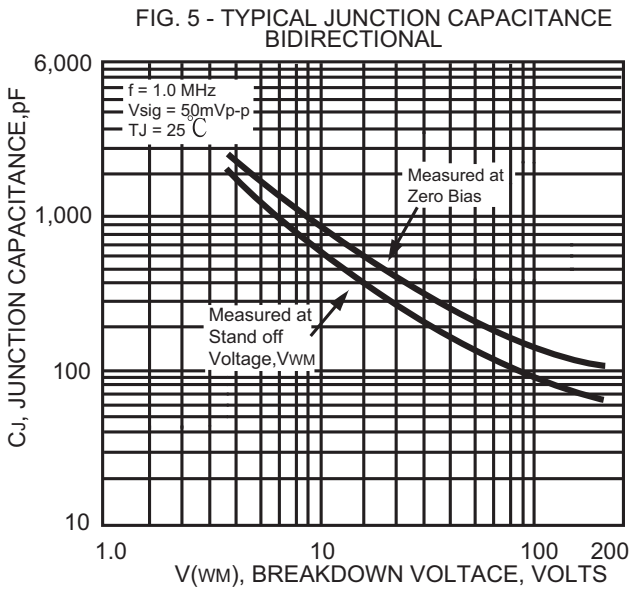
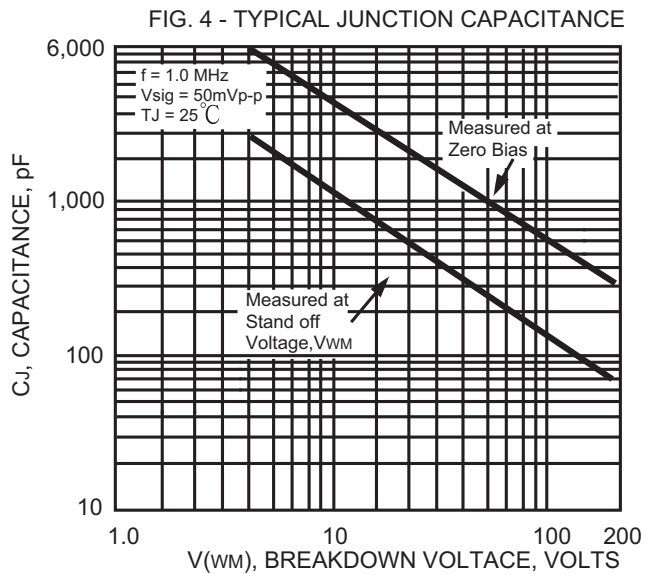
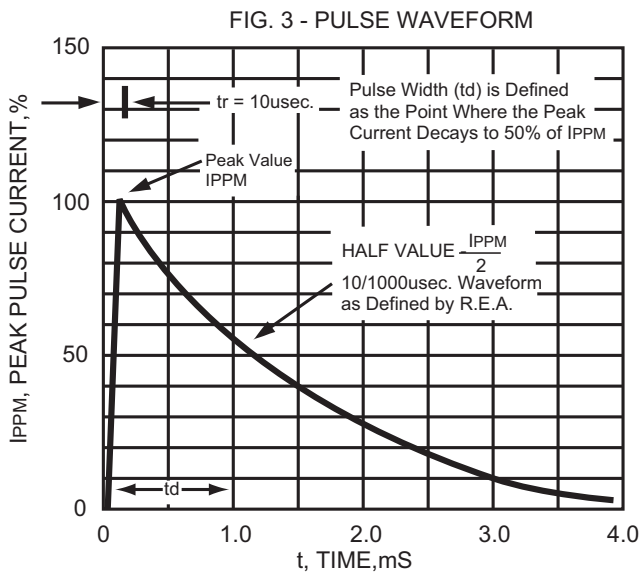
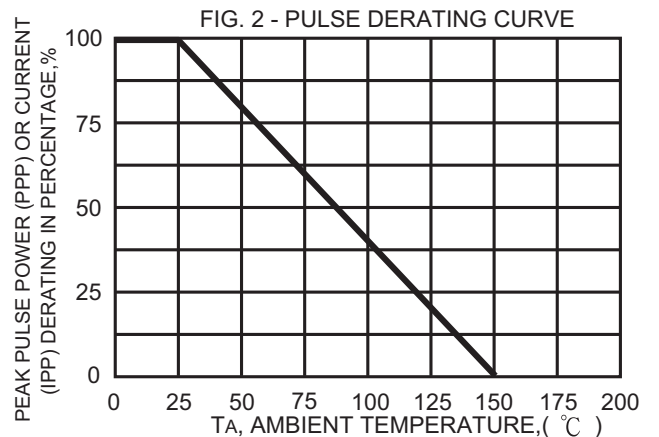
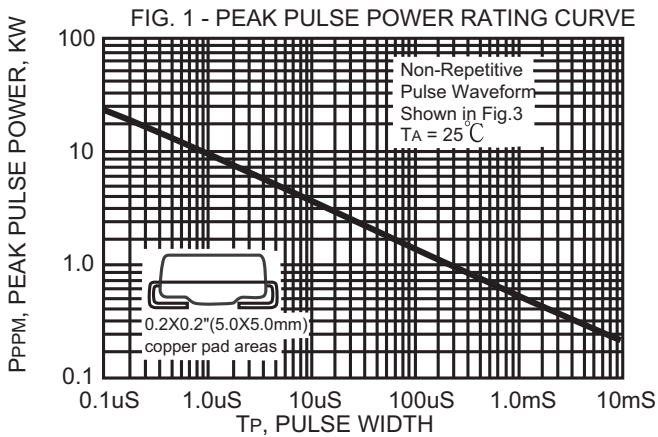
Electrical characteristics apply in both direction

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

| RATINGS   | SYMBOL           | VALUE        | UNITS               |
|---|------------------|--------------|---------------------|
| Peak Power Dissipation with a 10/1000uS (Note 1, Fig.1)   | PPPM             | Minimum 600  | Watts               |
| Peak Pulse Durrent with a 10/1000uS waveform ( Note 1, Fig.3 )  | IPPM             | SEE TABLE 1  | Amps                |
| Steady State Power Dissipation at TL = 75°C   | PM(AV)           | 5.0          | Watts               |
| Peak Forward Surge Current, 8.3mS single half sine wave superimposed on rated load (Jedec Method)(Note 2) unidirectional only | IFSM             | 100          | Amps                |
| Typical Current Squarad Time  | I <sup>2</sup> t | 41.5         | A <sup>2</sup> /Sec |
| Maximum Instantaneous Forward Voltage at 50A for unidirectional only ( Note 3 )   | VF               | SEE NOTE 4   | Volts               |
| Operating and Storage Temperature Range   | TJ, TSTG         | -55 to + 150 | °C                  |

- NOTES : 1. Non-repetitive current pulse, per Fig.3 and derated above TA = 25°C per Fig.2.  
 2. Measured on 8.3mS single half Sine-Wave or equivalent wave, duty cycle = 4 pulses per minute maximum.  
 3. VF = 3.5V on P6FMBJ6.8 thru P6FMB90 devices and VF = 5.0V on P6FMBJ100 thur P6FMB600 devices.

# RATING AND CHARACTERISTIC CURVES ( P6FMBJ6.8 THRU P6FMBJ600CA )



## TRANSIENT VOLTAGE SUPPRESSORS

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

| TYPE       | Breakdown Voltage          |      | @IT<br>(mA) | Reverse<br>Stand off<br>Voltage<br>V <sub>WM</sub><br>(Volts) | Maximum<br>Reverse<br>Leakage<br>at V <sub>WM</sub><br>I <sub>D</sub> (uA) | Maximum<br>Peak Pulse<br>Current<br>I <sub>PPM</sub><br>(Amps) | Maximum<br>Clamping<br>Voltage<br>at I <sub>PPM</sub><br>V <sub>C</sub> (Volts) |
|------------|----------------------------|------|-------------|---|--|--|---|
|            | V <sub>BR</sub><br>(Volts) |      |             |   |  |  |   |
|            | MIN.                       | MAX. |             |   |  |  |   |
| P6FMBJ6.8  | 6.12                       | 7.48 | 10          | 5.50  | 1000   | 55.6   | 10.8  |
| P6FMBJ6.8A | 6.45                       | 7.14 | 10          | 5.80  | 1000   | 57.1   | 10.5  |
| P6FMBJ7.5  | 6.75                       | 8.25 | 10          | 6.05  | 500  | 51.3   | 11.7  |
| P6FMBJ7.5A | 7.13                       | 7.88 | 10          | 6.40  | 500  | 53.1   | 11.3  |
| P6FMBJ8.2  | 7.38                       | 9.02 | 10          | 6.63  | 200  | 48   | 12.5  |
| P6FMBJ8.2A | 7.79                       | 8.61 | 10          | 7.02  | 200  | 49.6   | 12.1  |
| P6FMBJ9.1  | 8.19                       | 10.0 | 1.0         | 7.37  | 50   | 43.5   | 13.8  |
| P6FMBJ9.1A | 8.65                       | 9.55 | 1.0         | 7.78  | 50   | 44.8   | 13.4  |
| P6FMBJ10   | 9.00                       | 11.0 | 1.0         | 8.10  | 10   | 40   | 15.0  |
| P6FMBJ10A  | 9.50                       | 10.5 | 1.0         | 8.55  | 10   | 41.4   | 14.5  |
| P6FMBJ11   | 9.90                       | 12.1 | 1.0         | 8.92  | 5.0  | 37   | 16.2  |
| P6FMBJ11A  | 10.5                       | 11.6 | 1.0         | 9.40  | 5.0  | 38.5   | 15.6  |
| P6FMBJ12   | 10.8                       | 13.2 | 1.0         | 9.72  | 5.0  | 34.7   | 17.3  |
| P6FMBJ12A  | 11.4                       | 12.6 | 1.0         | 10.2  | 5.0  | 35.9   | 16.7  |
| P6FMBJ13   | 12.4                       | 13.7 | 1.0         | 11.1  | 1.0  | 33   | 18.2  |
| P6FMBJ13A  | 11.7                       | 14.3 | 1.0         | 10.5  | 1.0  | 31.6   | 19.0  |
| P6FMBJ15   | 13.5                       | 16.5 | 1.0         | 12.1  | 1.0  | 27.3   | 22.0  |
| P6FMBJ15A  | 14.3                       | 15.8 | 1.0         | 12.8  | 1.0  | 28.3   | 21.2  |
| P6FMBJ16   | 14.4                       | 17.6 | 1.0         | 12.9  | 1.0  | 25.5   | 23.5  |
| P6FMBJ16A  | 15.2                       | 16.8 | 1.0         | 13.6  | 1.0  | 26.7   | 22.5  |
| P6FMBJ18   | 16.2                       | 19.8 | 1.0         | 14.5  | 1.0  | 22.6   | 26.5  |
| P6FMBJ18A  | 17.1                       | 18.9 | 1.0         | 15.3  | 1.0  | 23.8   | 25.2  |
| P6FMBJ20   | 18.0                       | 22.0 | 1.0         | 16.2  | 1.0  | 20.6   | 29.1  |
| P6FMBJ20A  | 19.0                       | 21.0 | 1.0         | 17.1  | 1.0  | 21.7   | 27.7  |
| P6FMBJ22   | 19.8                       | 24.2 | 1.0         | 17.8  | 1.0  | 18.8   | 31.9  |
| P6FMBJ22A  | 20.9                       | 23.1 | 1.0         | 18.8  | 1.0  | 19.6   | 30.6  |
| P6FMBJ24   | 21.6                       | 26.4 | 1.0         | 19.4  | 1.0  | 17.3   | 34.7  |
| P6FMBJ24A  | 22.8                       | 25.2 | 1.0         | 20.5  | 1.0  | 18.1   | 33.2  |
| P6FMBJ27   | 24.3                       | 29.7 | 1.0         | 21.8  | 1.0  | 15.3   | 39.1  |
| P6FMBJ27A  | 25.7                       | 28.4 | 1.0         | 23.1  | 1.0  | 16   | 37.5  |
| P6FMBJ30   | 27.0                       | 33.0 | 1.0         | 24.3  | 1.0  | 13.8   | 43.5  |
| P6FMBJ30A  | 28.5                       | 31.5 | 1.0         | 25.6  | 1.0  | 14.5   | 41.4  |
| P6FMBJ33   | 29.7                       | 36.3 | 1.0         | 26.8  | 1.0  | 12.6   | 47.7  |
| P6FMBJ33A  | 31.4                       | 34.7 | 1.0         | 28.2  | 1.0  | 13.1   | 45.7  |
| P6FMBJ36   | 32.4                       | 39.6 | 1.0         | 29.1  | 1.0  | 11.5   | 52.0  |
| P6FMBJ36A  | 34.2                       | 37.8 | 1.0         | 30.8  | 1.0  | 12   | 49.9  |
| P6FMBJ39   | 35.1                       | 42.9 | 1.0         | 31.6  | 1.0  | 10.6   | 56.4  |
| P6FMBJ39A  | 37.1                       | 41.0 | 1.0         | 33.3  | 1.0  | 11.1   | 53.9  |
| P6FMBJ43   | 38.7                       | 47.3 | 1.0         | 34.8  | 1.0  | 9.7  | 61.9  |
| P6FMBJ43A  | 40.9                       | 45.2 | 1.0         | 36.8  | 1.0  | 10.1   | 59.3  |
| P6FMBJ47   | 42.3                       | 51.7 | 1.0         | 38.1  | 1.0  | 8.8  | 67.8  |
| P6FMBJ47A  | 44.7                       | 49.4 | 1.0         | 40.2  | 1.0  | 9.3  | 64.8  |
| P6FMBJ51   | 45.9                       | 56.1 | 1.0         | 41.3  | 1.0  | 8.2  | 73.5  |
| P6FMBJ51A  | 48.5                       | 53.6 | 1.0         | 43.6  | 1.0  | 8.6  | 70.1  |
| P6FMBJ56   | 50.4                       | 61.6 | 1.0         | 45.4  | 1.0  | 7.5  | 80.5  |
| P6FMBJ56A  | 53.2                       | 58.8 | 1.0         | 47.8  | 1.0  | 7.8  | 77.0  |

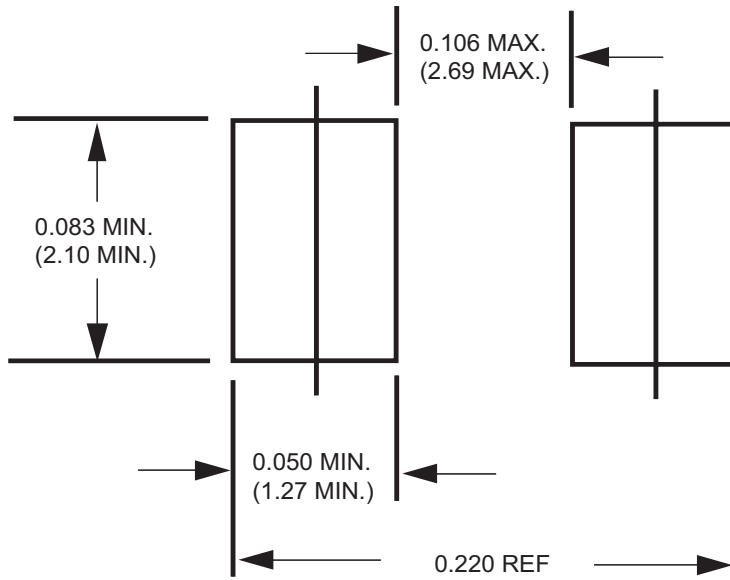
## TRANSIENT VOLTAGE SUPPRESSORS

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

| TYPE        | Breakdown Voltage          |       | @I <sub>T</sub><br>(mA) | Reverse Stand off Voltage<br>V <sub>WM</sub><br>(Volts) | Maximum Reverse Leakage at V <sub>WM</sub><br>I <sub>D</sub> (uA) | Maximum Peak Pulse Current<br>I <sub>PPM</sub><br>(Amps) | Maximum Clamping Voltage at I <sub>PPM</sub><br>V <sub>C</sub> (Volts) |
|-------------|----------------------------|-------|-------------------------|---|---|--|--|
|             | V <sub>BR</sub><br>(Volts) |       |                         |   |   |  |  |
|             | MIN.                       | MAX.  |                         |   |   |  |  |
| P6FMBJ62    | 55.8                       | 68.2  | 1.0                     | 50.2  | 1.0   | 7.0  | 89.0   |
| P6FMBJ62A   | 58.9                       | 65.1  | 1.0                     | 53.0  | 1.0   | 7.4  | 85.0   |
| P6FMBJ68    | 61.2                       | 74.8  | 1.0                     | 55.1  | 1.0   | 6.4  | 98.0   |
| P6FMBJ68A   | 64.6                       | 71.4  | 1.0                     | 58.1  | 1.0   | 6.8  | 92.0   |
| P6FMBJ75    | 67.5                       | 82.5  | 1.0                     | 60.7  | 1.0   | 5.8  | 108  |
| P6FMBJ75A   | 71.3                       | 78.8  | 1.0                     | 64.1  | 1.0   | 6.1  | 103  |
| P6FMBJ82    | 73.8                       | 90.2  | 1.0                     | 66.4  | 1.0   | 5.3  | 118  |
| P6FMBJ82A   | 77.9                       | 86.1  | 1.0                     | 70.1  | 1.0   | 5.5  | 113  |
| P6FMBJ91    | 81.9                       | 100   | 1.0                     | 73.7  | 1.0   | 4.8  | 131  |
| P6FMBJ91A   | 86.5                       | 95.5  | 1.0                     | 77.8  | 1.0   | 5.0  | 125  |
| *P6FMBJ100  | 90.0                       | 110   | 1.0                     | 81.0  | 1.0   | 4.4  | 144  |
| *P6FMBJ100A | 95.0                       | 105   | 1.0                     | 85.5  | 1.0   | 4.5  | 137  |
| *P6FMBJ110  | 99.0                       | 121   | 1.0                     | 89.2  | 1.0   | 3.9  | 158  |
| *P6FMBJ110A | 105                        | 116   | 1.0                     | 94.0  | 1.0   | 4.0  | 152  |
| *P6FMBJ120  | 108                        | 132   | 1.0                     | 97.2  | 1.0   | 3.6  | 173  |
| *P6FMBJ120A | 114                        | 126   | 1.0                     | 102   | 1.0   | 3.7  | 165  |
| *P6FMBJ130  | 117                        | 143   | 1.0                     | 105   | 1.0   | 3.3  | 187  |
| *P6FMBJ130A | 124                        | 137   | 1.0                     | 111   | 1.0   | 3.4  | 179  |
| *P6FMBJ150  | 135                        | 165   | 1.0                     | 121   | 1.0   | 2.8  | 215  |
| *P6FMBJ150A | 143                        | 158   | 1.0                     | 128   | 1.0   | 2.9  | 207  |
| *P6FMBJ160  | 144                        | 176   | 1.0                     | 130   | 1.0   | 2.7  | 230  |
| *P6FMBJ160A | 152                        | 168   | 1.0                     | 136   | 1.0   | 2.8  | 219  |
| *P6FMBJ170  | 153                        | 187   | 1.0                     | 138   | 1.0   | 2.5  | 244  |
| *P6FMBJ170A | 162                        | 179   | 1.0                     | 145   | 1.0   | 2.6  | 234  |
| *P6FMBJ180  | 162                        | 198   | 1.0                     | 146   | 1.0   | 2.4  | 258  |
| *P6FMBJ180A | 171                        | 189   | 1.0                     | 154   | 1.0   | 2.5  | 246  |
| *P6FMBJ200  | 180                        | 220   | 1.0                     | 162   | 1.0   | 2.1  | 287  |
| *P6FMBJ200A | 190                        | 210   | 1.0                     | 171   | 1.0   | 2.2  | 274  |
| *P6FMBJ220  | 198                        | 242   | 1.0                     | 175   | 1.0   | 1.8  | 344  |
| *P6FMBJ220A | 209                        | 231   | 1.0                     | 185   | 1.0   | 1.9  | 328  |
| *P6FMBJ250  | 225                        | 275   | 1.0                     | 202   | 1.0   | 1.7  | 360  |
| *P6FMBJ250A | 237                        | 263   | 1.0                     | 214   | 1.0   | 1.8  | 344  |
| *P6FMBJ300  | 270                        | 330   | 1.0                     | 243   | 1.0   | 1.4  | 430  |
| *P6FMBJ300A | 285                        | 315   | 1.0                     | 256   | 1.0   | 1.5  | 414  |
| *P6FMBJ350  | 315                        | 385   | 1.0                     | 284   | 1.0   | 1.2  | 504  |
| *P6FMBJ350A | 332                        | 368   | 1.0                     | 300   | 1.0   | 1.3  | 482  |
| *P6FMBJ400  | 360                        | 440   | 1.0                     | 324   | 1.0   | 1.0  | 574  |
| *P6FMBJ400A | 380                        | 420   | 1.0                     | 342   | 1.0   | 1.1  | 548  |
| *P6FMBJ440A | 418                        | 462   | 1.0                     | 376   | 1.0   | 1.0  | 602  |
| *P6FMBJ480A | 456                        | 504   | 1.0                     | 408   | 1.0   | 0.9  | 658  |
| *P6FMBJ510A | 485                        | 535   | 1.0                     | 434   | 1.0   | 0.9  | 698  |
| *P6FMBJ530A | 503                        | 556   | 1.0                     | 450   | 1.0   | 0.8  | 725  |
| *P6FMBJ540A | 513                        | 567   | 1.0                     | 459   | 1.0   | 0.8  | 740  |
| *P6FMBJ550A | 522.5                      | 577.5 | 1.0                     | 467   | 1.0   | 0.8  | 760  |
| *P6FMBJ600A | 570                        | 630   | 1.0                     | 509   | 1.0   | 0.75   | 820  |

- Notes :
1. V<sub>BR</sub> measured after I<sub>T</sub> applied for 300ms. I<sub>T</sub> = square pulse or equivalent.
  2. For bidirectional use C or CA suffixs for all types (ex. P6FMBJ6.8C,P6FMBJ600CA) electrical characteristics apply in both directions.
  3. For bidirectional types having V<sub>WM</sub> of 10 volts and less, the I<sub>D</sub> limit is doubled.
  4. All devices UL listed file# E211196.
  5. Mark "\*" reverse power rating are 500W .

## Mounting Pad Layout



Dimensions in inches and (millimeters)



## Attachment information about P6FMBJXXX

### 1. Internal Circuit



### 2. Marking on the body

