

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

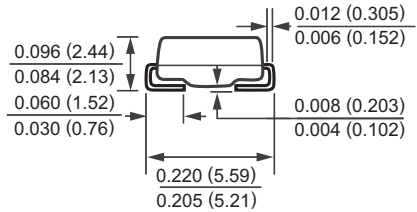
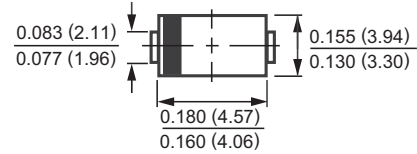
Ratings at 25 °C ambient temperature unless otherwise specified.

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 Current 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 Squared Time | I ² t | 41.5 | A ² /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)

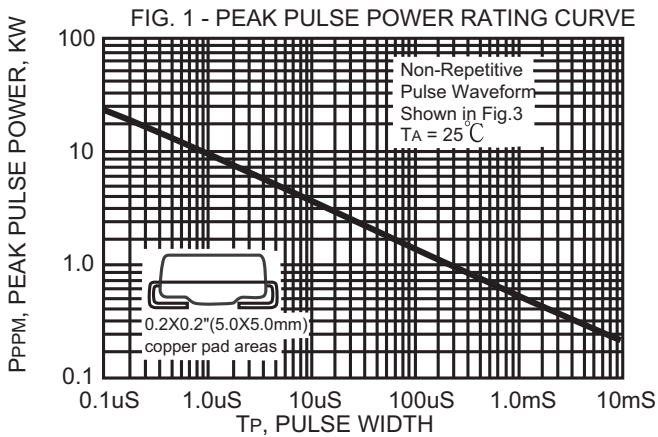


FIG. 3 - PULSE WAVEFORM

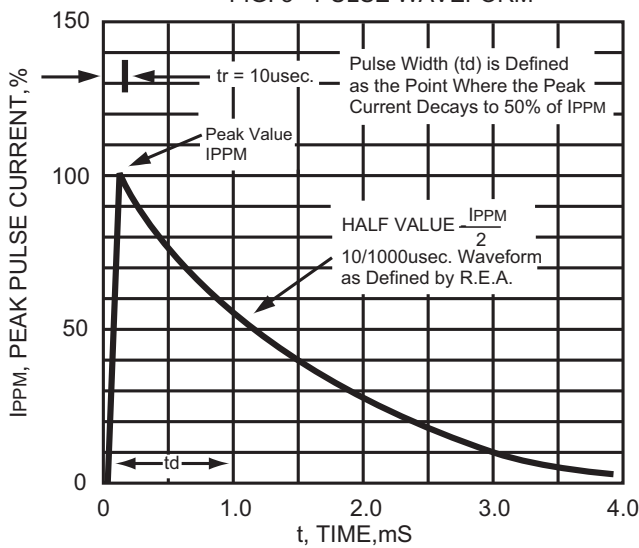


FIG. 5 - TYPICAL JUNCTION CAPACITANCE BIDIRECTIONAL

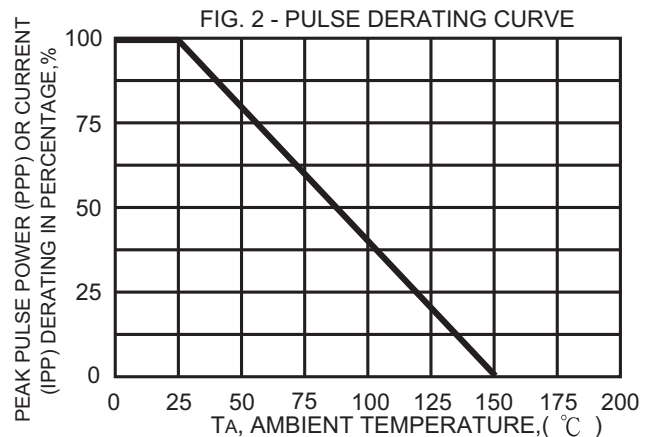
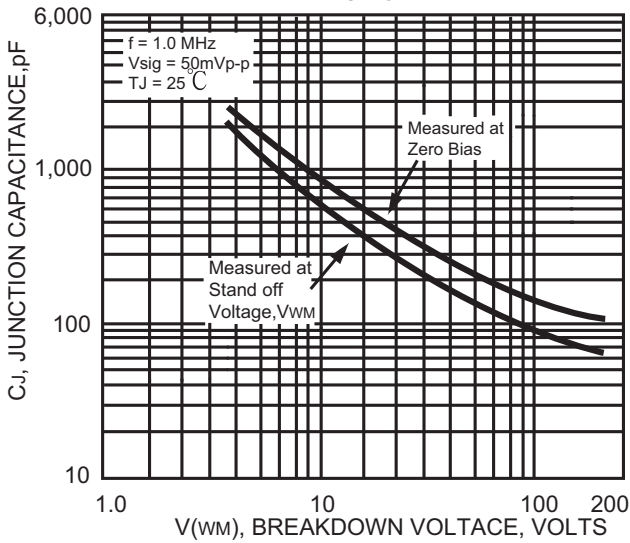


FIG. 4 - TYPICAL JUNCTION CAPACITANCE

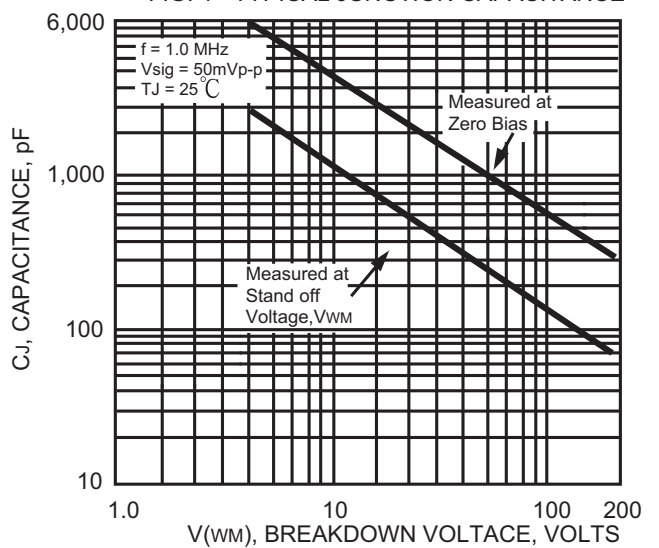
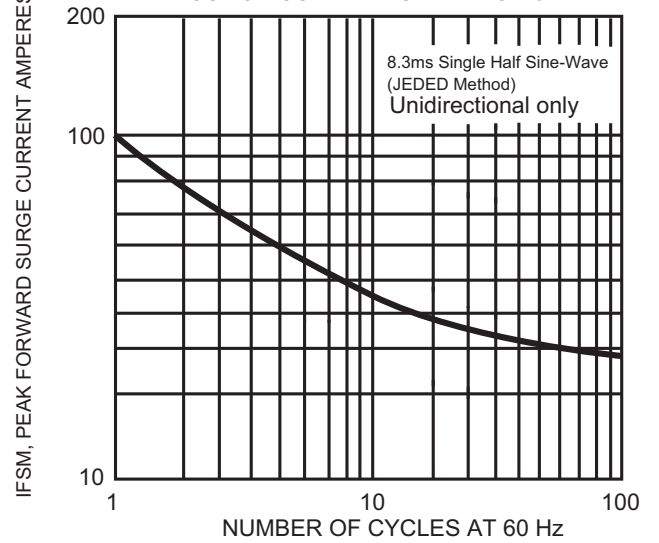


FIG. 6 - MAXIMUM NON-REPETITIVE FORWARD SURGE CURRENT UNIDIRECTIONAL



TRANSIENT VOLTAGE SUPPRESSORS

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

| TYPE | Breakdown Voltage | | @IT (mA) | Reverse Stand off Voltage V _{WM} (Volts) | Maximum Reverse Leakage at V _{WM} I _D (uA) | Maximum Peak Pulse Current I _{PPM} (Amps) | Maximum Clamping Voltage at I _{PPM} V _C (Volts) |
|------------|----------------------------|------|-------------|---|--|--|---|
| | V _{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 |

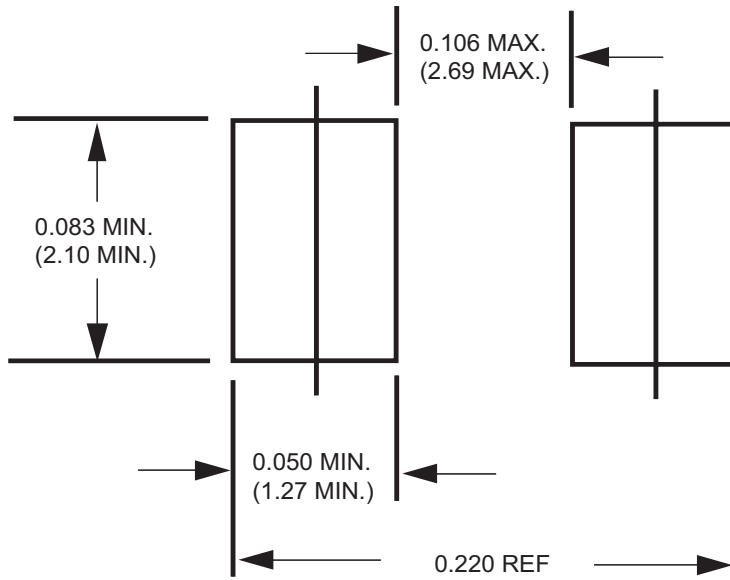
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| TYPE | Breakdown Voltage | | @I _T (mA) | Reverse Stand off Voltage V _{WM} (Volts) | Maximum Reverse Leakage at V _{WM} I _D (uA) | Maximum Peak Pulse Current I _{PPM} (Amps) | Maximum Clamping Voltage at I _{PPM} V _C (Volts) |
|-------------|----------------------------|-------|-------------------------|---|---|--|--|
| | V _{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_{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. P6FMBJ6.8C,P6FMBJ600CA) 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.
 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

