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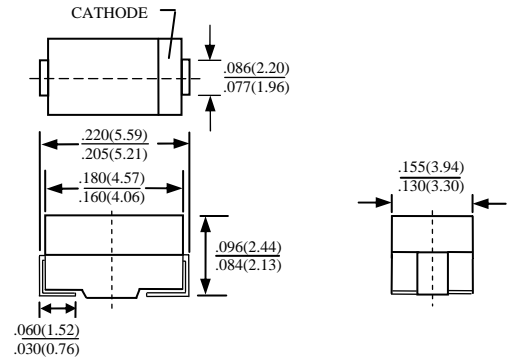
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600W SURFACE MOUNT TRANSIENT VOLTAGE SUPPRESSOR P6SMBJ5.0-LFR THRU P6SMBJ188A-LFR

FEATURES

- OPTIMIZED FOR LAN PROTECTION APPLICATION
- IDEAL FOR ESD PROTECTION OF DATA LINES IN ACCORDANCE WITH IEC 1000-4-2(IEC801-2)
- IDEAL FOR EFT PROTECTION OF DATA LINE IN ACCORDANCE WITH IEC 1000-4-4(IEC801-4)
- EXCELLENT CLAMPING CAPABILITY
- LOW INCREMENTAL SURGE RESISTANCE
- FAST RESPONSE TIME: TYPICALLY LESS THAN 1.0 ps FROM 0 VOLTS TO V(BR) MIN
- 600 W PEAK PULSE POWER CAPABILITY WITH A 10/1000 μ S WAVEFORM , REPETITION RATE (DUTY CYCLE):0.01%
- TYPICAL I_D LESS THAN 1 μ A ABOVE 10V
- HIGH TEMPERATURE SOLDERING GUARANTEED: 250°C/10 SECONDS AT TERMINAL
- ROHS



MECHANICAL DATA

- CASE: MOLDED PLASTIC, DO-214AA(SMB), DIMENSIONS IN INCHES AND (MILLIMETERS)
- TERMINALS: SOLDER PLATED
- POLARITY: INDICATED BY CATHODE BAND
- WEIGHT: 0.093 GRAMS

MAXIMUM RATINGS AND ELECTRICAL CHARACTERISTICS RATINGS AT 25°C AMBIENT TEMPERATURE UNLESS OTHERWISE SPECIFIED

| RATINGS | SYMBOL | VALUE | UNITS |
|---|----------------|---------------|-------|
| PEAK PULSE POWER DISSIPATION ON 10/1000 μ S WAVEFORM (NOTE 1, FIG. 1) | P_{PPM} | MINIMUM 600 | WATTS |
| PEAK PULSE CURRENT OF 0N 10/1000 μ S WAVEFORM (NOTE 1,FIG. 3) | I_{PPM} | SEE TABLE 1 | A |
| STEADY STATE POWER DISSIPATION AT $T_L=75^\circ\text{C}$ (NOTE 2) | $P_{M(AV)}$ | 1.0 | WATTS |
| PEAK FORWARD SURGE CURRENT, 8.3ms SINGLE HALF SINE-WAVE SUPERIMPOSED ON RATED LOAD, UNIDIRECTIONAL ONLY(NOTE 2) | I_{FSM} | 100 | A |
| MAXIMUM INSTANTANEOUS FORWARD VOLTAGE AT 25.0A FOR UNIDIRECTIONAL ONLY (NOTE 3 & 4) | V _F | SEE NOTE 4 | V |
| OPERATING JUNCTION AND STORAGE TEMPERATURE RANGE | T_J, T_{STG} | - 55 TO + 150 | °C |

- NOTE: 1.NON-REPETITIVE CURRENT PULSE, PER FIG.3 AND DERATED ABOVE $T_A=25^\circ\text{C}$ PER FIG 2.
 2. MOUNTED ON 5mm² COPPER PADS TO EACH TERMINAL
 3. MEASURED ON 8.3mS SINGLE HALF SINE-WAVE OR EQUIVALENT SQUARE WAVE, DUTY CYCLE = 4 PULSES PER MINUTE MAXIMUM
 4. V_F=3.5V ON P6SMBJ5.0 THRU P6SMBJ90A DEVICES AND V_F=5.0V ON P6SMBJ100 THRU P6SMBJ188A

| DEVICE | DEVICE MARKING CODE | | WORKING PEAK REVERSE VOLTAGE V_{RWM} (VOLTS) @IT (mA) | BREAKDOWN VOLTAGE $V_{(BR)}$ (VOLTS) at I_T | | TEST CURRENT I_T (mA) | MAXIMUM Clamping VOLTAGE AT I_{PPM} VC(Volts) (Note 5) | MAX PEAK PULSE SURGE CURRENT I_{PPM} (NOTE 5) (Amps) | MAXIMUM REVERSE LEAKAGE AT V_{WM} I_D (μ A) |
|----------------|---------------------|----|---|--|------|----------------------------|--|---|--|
| | UNI | BI | | MIN | MAX | | | | |
| | | | | | | | | | |
| P6SMBJ5.0-LFR | KD | AD | 5.0 | 6.40 | 7.82 | 10 | 9.6 | 62.5 | 800 |
| P6SMBJ5.0A-LFR | KE | AE | 5.0 | 6.40 | 7.07 | 10 | 9.2 | 65.2 | 800 |
| P6SMBJ6.0-LFR | KF | AF | 6.0 | 6.67 | 8.15 | 10 | 11.4 | 52.6 | 800 |
| P6SMBJ6.0A-LFR | KG | AG | 6.0 | 6.67 | 7.37 | 10 | 10.3 | 58.3 | 800 |
| P6SMBJ6.5-LFR | KH | AH | 6.5 | 7.22 | 8.82 | 10 | 12.3 | 48.8 | 500 |
| P6SMBJ6.5A-LFR | KK | AK | 6.5 | 7.22 | 7.98 | 10 | 11.2 | 53.6 | 500 |
| P6SMBJ7.0-LFR | KL | AL | 7.0 | 7.78 | 9.51 | 10 | 13.3 | 45.1 | 200 |
| P6SMBJ7.0A-LFR | KM | AM | 7.0 | 7.78 | 8.60 | 10 | 12.0 | 50.0 | 200 |
| P6SMBJ7.5-LFR | KN | AN | 7.5 | 8.33 | 10.2 | 1.0 | 14.3 | 42.0 | 100 |
| P6SMBJ7.5A-LFR | KP | AP | 7.5 | 8.33 | 9.21 | 1.0 | 12.9 | 46.5 | 100 |
| P6SMBJ8.0-LFR | KQ | AQ | 8.0 | 8.89 | 10.9 | 1.0 | 15.0 | 40.0 | 50.0 |
| P6SMBJ8.0A-LFR | KR | AR | 8.0 | 8.89 | 9.83 | 1.0 | 13.6 | 44.1 | 50.0 |
| P6SMBJ8.5-LFR | KS | AS | 8.5 | 9.44 | 11.5 | 1.0 | 15.9 | 37.7 | 10.0 |
| P6SMBJ8.5A-LFR | KT | AT | 8.5 | 9.44 | 10.4 | 1.0 | 14.4 | 41.7 | 10.0 |
| P6SMBJ9.0-LFR | KU | AU | 9.0 | 10.0 | 12.2 | 1.0 | 16.9 | 35.5 | 5.0 |
| P6SMBJ9.0A-LFR | KV | AV | 9.0 | 10.0 | 11.1 | 1.0 | 15.4 | 39.0 | 5.0 |
| P6SMBJ10-LFR | KW | AW | 10.0 | 11.1 | 13.6 | 1.0 | 18.8 | 31.9 | 5.0 |
| P6SMBJ10A-LFR | KX | AX | 10.0 | 11.1 | 12.3 | 1.0 | 17.0 | 35.3 | 5.0 |
| P6SMBJ11-LFR | KY | AY | 11.0 | 12.2 | 14.9 | 1.0 | 20.1 | 29.9 | 5.0 |
| P6SMBJ11A-LFR | KZ | AZ | 11.0 | 12.2 | 13.5 | 1.0 | 18.2 | 33.0 | 5.0 |
| P6SMBJ12-LFR | LD | BD | 12.0 | 13.3 | 16.3 | 1.0 | 22.0 | 27.3 | 5.0 |
| P6SMBJ12A-LFR | LE | BE | 12.0 | 13.3 | 14.7 | 1.0 | 19.9 | 30.2 | 5.0 |
| P6SMBJ13-LFR | LF | BF | 13.0 | 14.4 | 17.6 | 1.0 | 23.8 | 25.2 | 5.0 |
| P6SMBJ13A-LFR | LG | BG | 13.0 | 14.4 | 15.9 | 1.0 | 21.5 | 27.9 | 5.0 |
| P6SMBJ14-LFR | LH | BH | 14.0 | 15.6 | 19.1 | 1.0 | 25.8 | 23.3 | 5.0 |
| P6SMBJ14A-LFR | LK | BK | 14.0 | 15.6 | 17.2 | 1.0 | 23.2 | 25.9 | 5.0 |
| P6SMBJ15-LFR | LL | BL | 15.0 | 16.7 | 20.4 | 1.0 | 26.9 | 22.3 | 5.0 |
| P6SMBJ15A-LFR | LM | BM | 15.0 | 16.7 | 18.5 | 1.0 | 24.4 | 24.6 | 5.0 |
| P6SMBJ16-LFR | LN | BN | 16.0 | 17.8 | 21.8 | 1.0 | 28.8 | 20.8 | 5.0 |
| P6SMBJ16A-LFR | LP | BP | 16.0 | 17.8 | 19.7 | 1.0 | 26.0 | 23.1 | 5.0 |
| P6SMBJ17-LFR | LQ | BQ | 17.0 | 18.9 | 23.1 | 1.0 | 30.5 | 19.7 | 5.0 |
| P6SMBJ17A-LFR | LR | BR | 17.0 | 18.9 | 20.9 | 1.0 | 27.6 | 21.7 | 5.0 |
| P6SMBJ18-LFR | LS | BS | 18.0 | 20.0 | 24.4 | 1.0 | 32.2 | 18.6 | 5.0 |
| P6SMBJ18A-LFR | LT | BT | 18.0 | 20.0 | 22.1 | 1.0 | 29.2 | 20.5 | 5.0 |
| P6SMBJ20-LFR | LU | BU | 20.0 | 22.2 | 27.1 | 1.0 | 35.8 | 16.8 | 5.0 |
| P6SMBJ20A-LFR | LV | BV | 20.0 | 22.2 | 24.5 | 1.0 | 32.4 | 18.5 | 5.0 |
| P6SMBJ22-LFR | LW | BW | 22.0 | 24.4 | 29.8 | 1.0 | 39.4 | 15.2 | 5.0 |
| P6SMBJ22A-LFR | LX | BX | 22.0 | 24.4 | 26.9 | 1.0 | 35.5 | 16.9 | 5.0 |
| P6SMBJ24-LFR | LY | BY | 24.0 | 26.7 | 32.6 | 1.0 | 43.0 | 14.0 | 5.0 |
| P6SMBJ24A-LFR | LZ | BZ | 24.0 | 26.7 | 29.5 | 1.0 | 38.9 | 15.4 | 5.0 |
| P6SMBJ26-LFR | MD | CD | 26.0 | 28.9 | 35.3 | 1.0 | 46.6 | 12.9 | 5.0 |
| P6SMBJ26A-LFR | ME | CE | 26.0 | 28.9 | 31.9 | 1.0 | 42.1 | 14.3 | 5.0 |
| P6SMBJ28-LFR | MF | CF | 28.0 | 31.1 | 38.0 | 1.0 | 50.0 | 12.0 | 5.0 |
| P6SMBJ28A-LFR | MG | CG | 28.0 | 31.1 | 34.4 | 1.0 | 45.4 | 13.2 | 5.0 |
| P6SMBJ30-LFR | MH | CH | 30.0 | 33.3 | 40.7 | 1.0 | 53.5 | 11.2 | 5.0 |
| P6SMBJ30A-LFR | MK | CK | 30.0 | 33.3 | 36.8 | 1.0 | 48.4 | 12.4 | 5.0 |
| P6SMBJ33-LFR | ML | CL | 33.0 | 36.7 | 44.9 | 1.0 | 59.0 | 10.2 | 5.0 |
| P6SMBJ33A-LFR | MM | CM | 33.0 | 36.7 | 40.6 | 1.0 | 53.3 | 11.3 | 5.0 |
| P6SMBJ36-LFR | MN | CN | 36.0 | 40.0 | 48.9 | 1.0 | 64.3 | 9.3 | 5.0 |
| P6SMBJ36A-LFR | MP | CP | 36.0 | 40.0 | 44.2 | 1.0 | 58.1 | 10.3 | 5.0 |
| P6SMBJ40-LFR | MQ | CQ | 40.0 | 44.4 | 54.3 | 1.0 | 71.4 | 8.4 | 5.0 |
| P6SMBJ40A-LFR | MR | CR | 40.0 | 44.4 | 49.1 | 1.0 | 64.5 | 9.3 | 5.0 |
| P6SMBJ43-LFR | MS | CS | 43.0 | 47.8 | 58.4 | 1.0 | 76.7 | 7.8 | 5.0 |
| P6SMBJ43A-LFR | MT | CT | 43.0 | 47.8 | 52.8 | 1.0 | 69.4 | 8.6 | 5.0 |
| P6SMBJ45-LFR | MU | CU | 45.0 | 50.0 | 61.1 | 1.0 | 80.3 | 7.5 | 5.0 |
| P6SMBJ45A-LFR | MV | CV | 45 | 50.0 | 55.3 | 1.0 | 72.7 | 8.3 | 5.0 |
| P6SMBJ48-LFR | MW | CW | 48 | 53.3 | 65.1 | 1.0 | 85.5 | 7.0 | 5.0 |
| P6SMBJ48A-LFR | MX | CX | 48 | 53.3 | 58.9 | 1.0 | 77.4 | 7.8 | 5.0 |

| DEVICE | DEVICE MARKING CODE | | WORKING PEAK REVERSE VOLTAGE V _{RWM} (VOLTS) @IT (mA) | BREAKDOWN VOLTAGE V _(BR) (VOLTS) at I _T | | TEST CURRENT I _T (mA) | MAXIMUM Clamping VOLTAGE AT I _{PPM} VC(Volts) (Note 5) | MAX PEAK PULSE SURGE CURRENT I _{PPM} (NOTE 5) (Amps) | MAXIMUM REVERSE LEAKAGE AT V _{WM} I _D (μA) |
|----------------|---------------------|----|--|--|-------|-------------------------------------|--|--|--|
| | UNI | BI | | MIN | MAX | | | | |
| | | | | | | | | | |
| P6SMBJ5-LFR | MY | CY | 51 | 56.7 | 69.3 | 1.0 | 91.1 | 6.6 | 5.0 |
| P6SMBJ51A-LFR | MZ | CZ | 51 | 56.7 | 62.7 | 1.0 | 82.4 | 7.3 | 5.0 |
| P6SMBJ54-LFR | ND | DD | 54 | 60.0 | 73.3 | 1.0 | 96.3 | 6.2 | 5.0 |
| P6SMBJ54A-LFR | NE | DE | 54 | 60.0 | 66.3 | 1.0 | 87.1 | 6.9 | 5.0 |
| P6SMBJ58-LFR | NF | DF | 58 | 64.4 | 78.7 | 1.0 | 103.0 | 5.8 | 5.0 |
| P6SMBJ58A-LFR | NG | DG | 58 | 64.4 | 71.2 | 1.0 | 93.6 | 6.4 | 5.0 |
| P6SMBJ60-LFR | NH | DH | 60 | 66.7 | 81.5 | 1.0 | 107.0 | 5.6 | 5.0 |
| P6SMBJ60A-LFR | NK | DK | 60 | 66.7 | 73.7 | 1.0 | 96.8 | 6.2 | 5.0 |
| P6SMBJ64-LFR | NL | DL | 64 | 71.1 | 86.9 | 1.0 | 114.0 | 5.3 | 5.0 |
| P6SMBJ64A-LFR | NM | DM | 64 | 71.1 | 78.6 | 1.0 | 103.0 | 5.8 | 5.0 |
| P6SMBJ70-LFR | NN | DN | 70 | 77.8 | 95.1 | 1.0 | 125.0 | 4.8 | 5.0 |
| P6SMBJ70A-LFR | NP | DP | 70 | 77.8 | 86.0 | 1.0 | 113.0 | 5.3 | 5.0 |
| P6SMBJ75-LFR | NQ | DQ | 75 | 83.3 | 102.0 | 1.0 | 134.0 | 4.5 | 5.0 |
| P6SMBJ75A-LFR | NR | DR | 75 | 83.3 | 92.1 | 1.0 | 121.0 | 5.0 | 5.0 |
| P6SMBJ78-LFR | NS | DS | 78 | 86.7 | 106.0 | 1.0 | 139.0 | 4.3 | 5.0 |
| P6SMBJ78A-LFR | NT | DT | 78 | 86.7 | 95.8 | 1.0 | 126.0 | 4.8 | 5.0 |
| P6SMBJ85-LFR | NU | DU | 85 | 94.4 | 115.0 | 1.0 | 151.0 | 4.0 | 5.0 |
| P6SMBJ85A-LFR | NV | DV | 85 | 94.4 | 104.0 | 1.0 | 137.0 | 4.4 | 5.0 |
| P6SMBJ90-LFR | NW | DW | 90 | 100 | 122.0 | 1.0 | 160.0 | 3.8 | 5.0 |
| P6SMBJ90A-LFR | NX | DX | 90 | 100 | 111.0 | 1.0 | 146.0 | 4.1 | 5.0 |
| P6SMBJ100-LFR | NY | DY | 100 | 111 | 136.0 | 1.0 | 179.0 | 3.4 | 5.0 |
| P6SMBJ100A-LFR | NZ | DZ | 100 | 111 | 123.0 | 1.0 | 162.0 | 3.7 | 5.0 |
| P6SMBJ110-LFR | PD | ED | 110 | 122 | 149.0 | 1.0 | 196.0 | 3.1 | 5.0 |
| P6SMBJ110A-LFR | PE | EE | 110 | 122 | 135.0 | 1.0 | 177.0 | 3.4 | 5.0 |
| P6SMBJ120-LFR | PF | EF | 120 | 133 | 163.0 | 1.0 | 214.0 | 2.8 | 5.0 |
| P6SMBJ120A-LFR | PG | EG | 120 | 133 | 147.0 | 1.0 | 193.0 | 3.1 | 5.0 |
| P6SMBJ130-LFR | PH | EH | 130 | 144 | 176.0 | 1.0 | 231.0 | 2.6 | 5.0 |
| P6SMBJ130A-LFR | PK | EK | 130 | 144 | 159.0 | 1.0 | 209.0 | 2.9 | 5.0 |
| P6SMBJ150-LFR | PL | EL | 150 | 167 | 204.0 | 1.0 | 268.0 | 2.2 | 5.0 |
| P6SMBJ150A-LFR | PM | EM | 150 | 167 | 185.0 | 1.0 | 243.0 | 2.5 | 5.0 |
| P6SMBJ160-LFR | PN | EN | 160 | 178 | 218.0 | 1.0 | 287.0 | 2.1 | 5.0 |
| P6SMBJ160A-LFR | PP | EP | 160 | 178 | 197.0 | 1.0 | 259.0 | 2.3 | 5.0 |
| P6SMBJ170-LFR | PQ | EQ | 170 | 189 | 231.0 | 1.0 | 304.0 | 2.0 | 5.0 |
| P6SMBJ170A-LFR | PR | ER | 170 | 189 | 209.0 | 1.0 | 275.0 | 2.2 | 5.0 |
| P6SMBJ188-LFR | PT | ET | 188 | 209 | 255.0 | 1.0 | 344.0 | 1.7 | 5.0 |
| P6SMBJ188A-LFR | PS | ES | 188 | 209 | 231.0 | 1.0 | 328.0 | 2.0 | 5.0 |

- NOTE:
1. VF=3.5V on P6SMBJ5.0 thru 90A devices and VF=5.0V on P6SMBJ100 thru 188A devices at IF=25A on ½ Square or Equivalent Sine Wave. PW = 8.3ms , Duty Cycle = 4 Pulses per Minute Maximum
 2. For Bipolar types with VR of 10 volts and under , the IR limit is doubled
 3. Mounted on 5.0mm² copper pads to each terminal.
 4. For Bidirectional use C suffix for 10% tolerance , CA suffix for 5% tolerance

RATINGS AND CHARACTERISTIC CURVES P6SMBJ5.0-LFR THRU P6SMBJ188A-LFR

FIG. 1 - PEAK PULSE POWER RATING CURVE

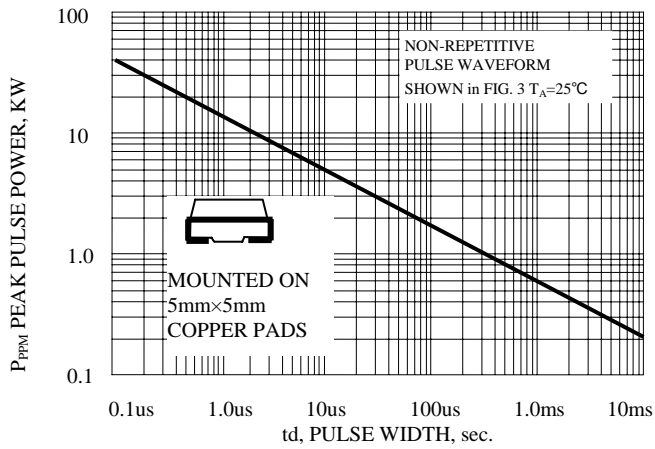


FIG. 2 - PULSE DERATING CURVE

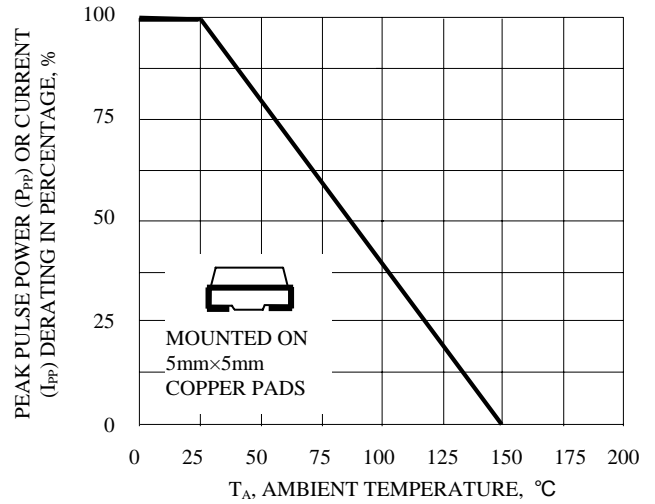


FIG. 3 - PULSE WAVEFORM

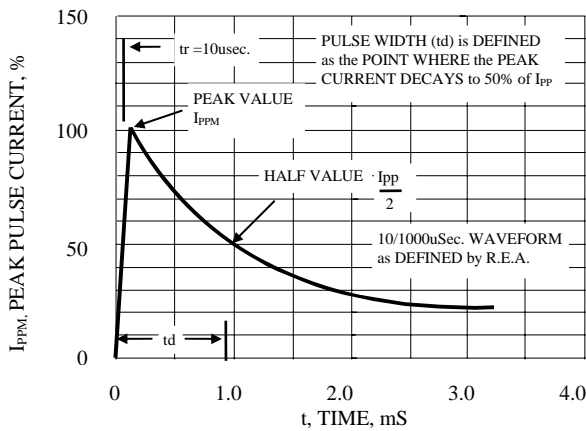


FIG. 4 - TYPICAL JUNCTION CAPACITANCE UNIDIRECTIONAL

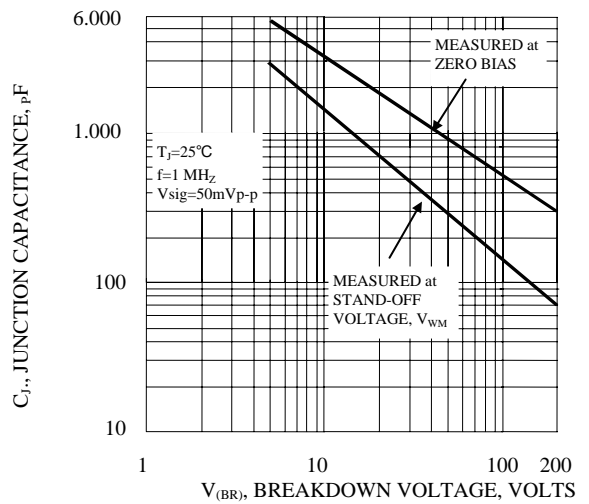


FIG. 5 - TYPICAL JUNCTION CAPACITANCE BIDIRECTIONAL

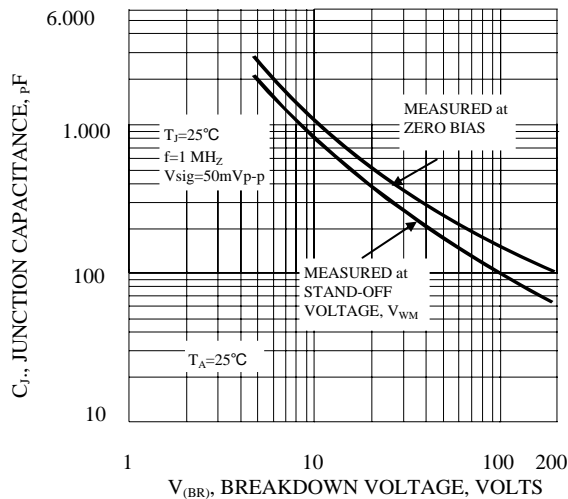


FIG. 6 - MAXIMUM NON-REPETITIVE FORWARD SURGE CURRENT UNIDIRECTIONAL

