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3000W SURFACE MOUNT TRANSIENT VOLTAGE SUPPRESSOR

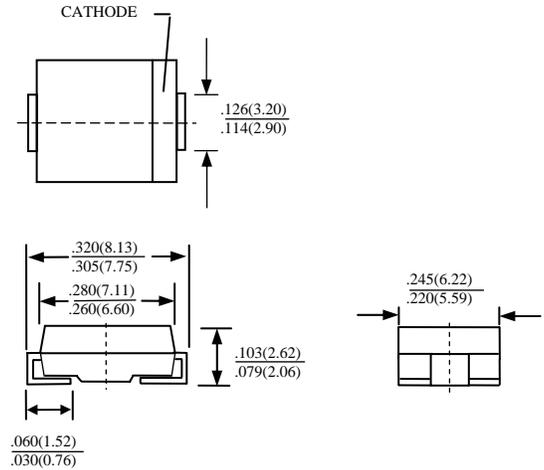
3.0SMCJ5.0-LFR THRU 3.0SMCJ170A-LFR

FEATURES

- PLASTIC PACKAGE HAS UNDERWRITERS LABORATORY FLAMMABILITY CLASSIFICATION 94V-0
- GLASS PASSIVATED JUNCTION
- LOW PROFILE
- EXCELLENT CLAMPING CAPABILITY
- LOW INCREMENTAL SURGE RESISTANCE
- FAST RESPONSE TIME: TYPICALLY LESS THAN 1.0 ps FROM 0 VOLTS TO V(BR) MIN
- 3000 W PEAK PULSE POWER CAPABILITY WITH A 10/1000 μ S WAVEFORM , REPETITION RATE (DUTY CYCLE): 0.01%
- TYPICAL I_B LESS THAN 1 μ A ABOVE 10V
- HIGH TEMPERATURE SOLDERING GUARANTEED: 250°C/10 SECONDS AT TERMINALS
- LEAD FREE

MECHANICAL DATA

- CASE: MOLDED PLASTIC
- TERMINALS: SOLDER PLATED
- POLARITY: INDICATED BY CATHODE BAND
- WEIGHT: 0.21 GRAMS



CASE : DO-214AB (SMC)
DIMENSIONS IN INCHES AND (MILLIMETERS)

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 3000 | WATTS |
| PEAK PULSE CURRENT OF 0N 10/1000 μ S WAVEFORM (NOTE 1,FIG. 3) | I_{PPM} | SEE TABLE 1 | A |
| PEAK FORWARD SURGE CURRENT, 8.3ms SINGLE HALF SINE-WAVE SUPERIMPOSED ON RATED LOAD, UNIDIRECTIONAL ONLY(NOTE 2) | I_{FSM} | 250 | A |
| MAXIMUM INSTANTANEOUS FORWARD VOLTAGE AT 25A FOR UNIDIRECTIONAL ONLY (NOTE 3 & 4) | VF | 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 8.0x8.0mm 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. VF=3.5V ON 3.0SMCJ5.0 THRU 3.0SMCJ90A DEVICES AND VF=5.0V ON 3.0SMCJ100 THRU 3.0SMCJ170A
 5. PEAK PULSE POWER WAVE FORM IS 10 / 1000 μ S

| DEVICE | DEVICE MARKING CODE | | WORKING PEAK REVERSE VOLTAGE V_{WM} (VOLTS) | BREAKDOWN VOLTAGE $V_{(BR)}$ (VOLTS) at I_T | | TEST CURRENT I_T (mA) | MAXIMUM Clamping VOLTAGE AT I_{PPM} VC(Volts) (Note 2) | MAX PEAK PULSE SURGE CURRENT I_{PPM} (NOTE 2) (Amps) | MAXIMUM REVERSE LEAKAGE AT V_{WM} I_b (μ A) |
|-----------------|---------------------|-----|---|---|------|-------------------------|--|--|--|
| | UNI | BI | | MIN | MAX | | | | |
| | | | | | | | | | |
| 3.0SMCJ5.0-LFR | HDD | IDD | 5.0 | 6.40 | 7.82 | 10 | 9.6 | 312.5 | 800 |
| 3.0SMCJ5.0A-LFR | HDE | IDE | 5.0 | 6.40 | 7.07 | 10 | 9.2 | 326.0 | 800 |
| 3.0SMCJ6.0-LFR | HDF | IDF | 6.0 | 6.67 | 8.15 | 10 | 11.4 | 263.2 | 800 |
| 3.0SMCJ6.0A-LFR | HDG | IDG | 6.0 | 6.67 | 7.37 | 10 | 10.3 | 291.3 | 800 |
| 3.0SMCJ6.5-LFR | HDH | IDH | 6.5 | 7.22 | 8.82 | 10 | 12.3 | 243.9 | 500 |
| 3.0SMCJ6.5A-LFR | HDK | IDK | 6.5 | 7.22 | 7.98 | 10 | 11.2 | 267.9 | 500 |
| 3.0SMCJ7.0-LFR | HDL | IDL | 7.0 | 7.78 | 9.51 | 10 | 13.3 | 225.6 | 200 |
| 3.0SMCJ7.0A-LFR | HDM | IDM | 7.0 | 7.78 | 8.60 | 10 | 12.0 | 250.0 | 200 |
| 3.0SMCJ7.5-LFR | HDN | IDN | 7.5 | 8.33 | 10.2 | 1.0 | 14.3 | 209.8 | 100 |
| 3.0SMCJ7.5A-LFR | HDP | IDP | 7.5 | 8.33 | 9.21 | 1.0 | 12.9 | 232.6 | 100 |
| 3.0SMCJ8.0-LFR | HDQ | IDQ | 8.0 | 8.89 | 10.9 | 1.0 | 15.0 | 200.0 | 50.0 |
| 3.0SMCJ8.0A-LFR | HDR | IDR | 8.0 | 8.89 | 9.83 | 1.0 | 13.6 | 220.6 | 50.0 |
| 3.0SMCJ8.5-LFR | HDS | IDS | 8.5 | 9.44 | 11.5 | 1.0 | 15.9 | 188.8 | 10.0 |
| 3.0SMCJ8.5A-LFR | HDT | IDT | 8.5 | 9.44 | 10.4 | 1.0 | 14.4 | 208.4 | 10.0 |
| 3.0SMCJ9.0-LFR | HDU | IDU | 9.0 | 10.0 | 12.2 | 1.0 | 16.9 | 177.4 | 5.0 |
| 3.0SMCJ9.0A-LFR | HDV | IDV | 9.0 | 10.0 | 11.1 | 1.0 | 15.4 | 194.8 | 5.0 |
| 3.0SMCJ10-LFR | HDW | IDW | 10.0 | 11.1 | 13.6 | 1.0 | 18.8 | 159.6 | 5.0 |
| 3.0SMCJ10A-LFR | HDX | IDX | 10.0 | 11.1 | 12.3 | 1.0 | 17.0 | 176.4 | 5.0 |
| 3.0SMCJ11-LFR | HDY | IDY | 11.0 | 12.2 | 14.9 | 1.0 | 20.1 | 149.2 | 5.0 |
| 3.0SMCJ11A-LFR | HDZ | IDZ | 11.0 | 12.2 | 13.5 | 1.0 | 18.2 | 164.8 | 5.0 |
| 3.0SMCJ12-LFR | HED | IED | 12.0 | 13.3 | 16.3 | 1.0 | 22.0 | 136.4 | 5.0 |
| 3.0SMCJ12A-LFR | HEE | IEE | 12.0 | 13.3 | 14.7 | 1.0 | 19.9 | 150.6 | 5.0 |
| 3.0SMCJ13-LFR | HEF | IEF | 13.0 | 14.4 | 17.6 | 1.0 | 23.8 | 126.0 | 5.0 |
| 3.0SMCJ13A-LFR | HEG | IEG | 13.0 | 14.4 | 15.9 | 1.0 | 21.5 | 139.4 | 5.0 |
| 3.0SMCJ14-LFR | HEH | IEH | 14.0 | 15.6 | 19.1 | 1.0 | 25.8 | 116.2 | 5.0 |
| 3.0SMCJ14A-LFR | HEK | IEK | 14.0 | 15.6 | 17.2 | 1.0 | 23.2 | 129.4 | 5.0 |
| 3.0SMCJ15-LFR | HEL | IEL | 15.0 | 16.7 | 20.4 | 1.0 | 26.9 | 111.6 | 5.0 |
| 3.0SMCJ15A-LFR | HEM | IEM | 15.0 | 16.7 | 18.5 | 1.0 | 24.4 | 123.0 | 5.0 |
| 3.0SMCJ16-LFR | HEN | IEN | 16.0 | 17.8 | 21.8 | 1.0 | 28.8 | 104.2 | 5.0 |
| 3.0SMCJ16A-LFR | HEP | IEP | 16.0 | 17.8 | 19.7 | 1.0 | 26.0 | 115.4 | 5.0 |
| 3.0SMCJ17-LFR | HEQ | IEQ | 17.0 | 18.9 | 23.1 | 1.0 | 30.5 | 98.4 | 5.0 |
| 3.0SMCJ17A-LFR | HER | IER | 17.0 | 18.9 | 20.9 | 1.0 | 27.6 | 108.7 | 5.0 |
| 3.0SMCJ18-LFR | HES | IES | 18.0 | 20.0 | 24.4 | 1.0 | 32.2 | 93.2 | 5.0 |
| 3.0SMCJ18A-LFR | HET | IET | 18.0 | 20.0 | 22.1 | 1.0 | 29.2 | 102.8 | 5.0 |
| 3.0SMCJ20-LFR | HEU | IEU | 20.0 | 22.2 | 27.1 | 1.0 | 35.8 | 83.8 | 5.0 |
| 3.0SMCJ20A-LFR | HEV | IEV | 20.0 | 22.2 | 24.5 | 1.0 | 32.4 | 92.6 | 5.0 |
| 3.0SMCJ22-LFR | HEW | IEW | 22.0 | 24.4 | 29.8 | 1.0 | 39.4 | 76.2 | 5.0 |
| 3.0SMCJ22A-LFR | HEX | IEX | 22.0 | 24.4 | 26.9 | 1.0 | 35.5 | 84.4 | 5.0 |
| 3.0SMCJ24-LFR | HEY | IEY | 24.0 | 26.7 | 32.6 | 1.0 | 43.0 | 69.8 | 5.0 |
| 3.0SMCJ24A-LFR | HEZ | IEZ | 24.0 | 26.7 | 29.5 | 1.0 | 38.9 | 77.2 | 5.0 |
| 3.0SMCJ26-LFR | HFD | IFD | 26.0 | 28.9 | 35.3 | 1.0 | 46.6 | 64.4 | 5.0 |
| 3.0SMCJ26A-LFR | HFE | IFE | 26.0 | 28.9 | 31.9 | 1.0 | 42.1 | 71.2 | 5.0 |
| 3.0SMCJ28-LFR | HFF | IFF | 28.0 | 31.1 | 38.0 | 1.0 | 50.0 | 60.0 | 5.0 |
| 3.0SMCJ28A-LFR | HFG | IFG | 28.0 | 31.1 | 34.4 | 1.0 | 45.4 | 66.0 | 5.0 |
| 3.0SMCJ30-LFR | HFH | IFH | 30.0 | 33.3 | 40.7 | 1.0 | 53.5 | 56.0 | 5.0 |
| 3.0SMCJ30A-LFR | HFK | IFK | 30.0 | 33.3 | 36.8 | 1.0 | 48.4 | 62.0 | 5.0 |
| 3.0SMCJ33-LFR | HFL | IFL | 33.0 | 36.7 | 44.9 | 1.0 | 59.0 | 50.4 | 5.0 |
| 3.0SMCJ33A-LFR | HFM | IFM | 33.0 | 36.7 | 40.6 | 1.0 | 53.3 | 56.2 | 5.0 |
| 3.0SMCJ36-LFR | HFN | IFN | 36.0 | 40.0 | 48.9 | 1.0 | 64.3 | 46.6 | 5.0 |
| 3.0SMCJ36A-LFR | HFP | IFP | 36.0 | 40.0 | 44.2 | 1.0 | 58.1 | 51.6 | 5.0 |
| 3.0SMCJ40-LFR | HFQ | IFQ | 40.0 | 44.4 | 54.3 | 1.0 | 71.4 | 42.0 | 5.0 |
| 3.0SMCJ40A-LFR | HFR | IFR | 40.0 | 44.4 | 49.1 | 1.0 | 64.5 | 46.4 | 5.0 |
| 3.0SMCJ43-LFR | HFS | IFS | 43.0 | 47.8 | 58.4 | 1.0 | 76.7 | 39.2 | 5.0 |
| 3.0SMCJ43A-LFR | HFT | IFT | 43.0 | 47.8 | 52.8 | 1.0 | 69.4 | 43.2 | 5.0 |
| 3.0SMCJ45-LFR | HFU | IFU | 45.0 | 50.0 | 61.1 | 1.0 | 80.3 | 37.4 | 5.0 |
| 3.0SMCJ45A-LFR | HFV | IFV | 45 | 50.0 | 55.3 | 1.0 | 72.7 | 41.2 | 5.0 |
| 3.0SMCJ48-LFR | HFW | IFW | 48 | 53.3 | 65.1 | 1.0 | 85.5 | 35.0 | 5.0 |
| 3.0SMCJ48A-LFR | HFX | IFX | 48 | 53.3 | 58.9 | 1.0 | 77.4 | 38.8 | 5.0 |

| DEVICE | DEVICE MARKING CODE | | WORKING PEAK REVERSE VOLTAGE V_{WM} (VOLTS) | BREAKDOWN VOLTAGE $V_{(BR)}$ (VOLTS) at I_T | | TEST CURRENT I_T (mA) | MAXIMUM Clamping VOLTAGE AT I_{PPM} VC(Volts) (Note 2) | MAX PEAK PULSE SURGE CURRENT I_{PPM} (NOTE 2) (Amps) | MAXIMUM REVERSE LEAKAGE AT V_{WM} I_D (μ A) |
|-----------------|---------------------|-----|---|---|-------|-------------------------|--|--|--|
| | UNI | BI | | MIN | MAX | | | | |
| 3.0SMCJ51-LFR | HFY | IFY | 51 | 56.7 | 69.3 | 1.0 | 91.1 | 37.0 | 5.0 |
| 3.0SMCJ51A-LFR | HFZ | IFZ | 51 | 56.7 | 62.7 | 1.0 | 82.4 | 36.4 | 5.0 |
| 3.0SMCJ54-LFR | HGD | IGD | 54 | 60.0 | 73.3 | 1.0 | 96.3 | 31.2 | 5.0 |
| 3.0SMCJ54A-LFR | HGE | IGE | 54 | 60.0 | 66.3 | 1.0 | 87.1 | 34.4 | 5.0 |
| 3.0SMCJ58-LFR | HGF | IGF | 58 | 64.4 | 78.7 | 1.0 | 103.0 | 39.2 | 5.0 |
| 3.0SMCJ58A-LFR | HGG | IGG | 58 | 64.4 | 71.2 | 1.0 | 93.0 | 32.0 | 5.0 |
| 3.0SMCJ60-LFR | HGH | IGH | 60 | 66.7 | 81.5 | 1.0 | 107.0 | 28.0 | 5.0 |
| 3.0SMCJ60A-LFR | HGK | IGK | 60 | 66.7 | 73.7 | 1.0 | 96.0 | 31.0 | 5.0 |
| 3.0SMCJ64-LFR | HGL | IGL | 64 | 71.1 | 86.9 | 1.0 | 114.0 | 26.4 | 5.0 |
| 3.0SMCJ64A-LFR | HGM | IGM | 64 | 71.1 | 78.6 | 1.0 | 103.0 | 29.2 | 5.0 |
| 3.0SMCJ70-LFR | HGN | IGN | 70 | 77.8 | 95.1 | 1.0 | 125.0 | 24.0 | 5.0 |
| 3.0SMCJ70A-LFR | HGP | IGP | 70 | 77.8 | 86.0 | 1.0 | 113.0 | 26.6 | 5.0 |
| 3.0SMCJ75-LFR | HGQ | IGQ | 75 | 83.3 | 102.0 | 1.0 | 134.0 | 22.4 | 5.0 |
| 3.0SMCJ75A-LFR | HGR | IGR | 75 | 83.3 | 92.1 | 1.0 | 121.0 | 24.8 | 5.0 |
| 3.0SMCJ78-LFR | HGS | IGS | 78 | 86.7 | 106.0 | 1.0 | 139.0 | 21.6 | 5.0 |
| 3.0SMCJ78A-LFR | HGT | IGT | 78 | 86.7 | 95.8 | 1.0 | 126.0 | 23.8 | 5.0 |
| 3.0SMCJ85-LFR | HGU | IGU | 85 | 94.4 | 115.0 | 1.0 | 151.0 | 19.8 | 5.0 |
| 3.0SMCJ85A-LFR | HGV | IGV | 85 | 94.4 | 104.0 | 1.0 | 137.0 | 21.9 | 5.0 |
| 3.0SMCJ90-LFR | HGW | IGW | 90 | 100 | 122.0 | 1.0 | 160.0 | 18.8 | 5.0 |
| 3.0SMCJ90A-LFR | HGX | IGX | 90 | 100 | 111.0 | 1.0 | 146.0 | 20.6 | 5.0 |
| 3.0SMCJ100-LFR | HGY | IGY | 100 | 111 | 136.0 | 1.0 | 179.0 | 16.6 | 5.0 |
| 3.0SMCJ100A-LFR | HGZ | IGZ | 100 | 111 | 123.0 | 1.0 | 162.0 | 18.6 | 5.0 |
| 3.0SMCJ110-LFR | HHD | IHD | 110 | 122 | 149.0 | 1.0 | 196.0 | 15.4 | 5.0 |
| 3.0SMCJ110A-LFR | HHE | IHE | 110 | 122 | 135.0 | 1.0 | 177.0 | 16.8 | 5.0 |
| 3.0SMCJ110A-LFR | HHF | IHF | 120 | 133 | 163.0 | 1.0 | 214.0 | 14.0 | 5.0 |
| 3.0SMCJ110A-LFR | HHG | IHG | 120 | 133 | 147.0 | 1.0 | 193.0 | 15.6 | 5.0 |
| 3.0SMCJ120-LFR | HHH | IHH | 130 | 144 | 176.0 | 1.0 | 231.0 | 13.0 | 5.0 |
| 3.0SMCJ120A-LFR | HHK | IHK | 130 | 144 | 159.0 | 1.0 | 209.0 | 14.4 | 5.0 |
| 3.0SMCJ120A-LFR | HHL | IHL | 150 | 167 | 204.0 | 1.0 | 268.0 | 11.2 | 5.0 |
| 3.0SMCJ130-LFR | HHM | IHM | 150 | 167 | 185.0 | 1.0 | 243.0 | 12.4 | 5.0 |
| 3.0SMCJ130A-LFR | HHN | IHN | 160 | 178 | 218.0 | 1.0 | 287.0 | 10.4 | 5.0 |
| 3.0SMCJ130A-LFR | HHP | IHP | 160 | 178 | 197.0 | 1.0 | 259.0 | 11.6 | 5.0 |
| 3.0SMCJ150-LFR | HHQ | IHQ | 170 | 189 | 231.0 | 1.0 | 304.0 | 9.8 | 5.0 |
| 3.0SMCJ150A-LFR | HHR | IHR | 170 | 189 | 209.0 | 1.0 | 275.0 | 11.0 | 5.0 |
| 3.0SMCJ160-LFR | | | | | | | | | |
| 3.0SMCJ160A-LFR | | | | | | | | | |
| 3.0SMCJ170-LFR | | | | | | | | | |
| 3.0SMCJ170A-LFR | | | | | | | | | |

- NOTE :
1. $V_F=3.5V$ on 3.0SMCJ5.0 thru 90A devices and $V_F=5.0V$ on 3.0SMCJ100 thru 170A devices at $I_F=25A$ on $\frac{1}{2}$ Square or Equivalent Sine Wave. $PW = 8.3ms$, Duty Cycle = 4 Pulses per Minute Maximum
 2. For Bipolar types with V_R of 10 volts and under , the I_R limit is doubled
 3. Mounted on $5.0mm^2$ copper pads to each terminal.
 4. For Bidirectional use C suffix for 10% tolerance , CA suffix for 5% tolerance

RATINGS AND CHARACTERISTIC CURVES 3.0SMCJ5.0-LFR THRU 3.0SMCJ170A-LFR

FIG. 1 - PEAK PULSE POWER RATING CURVE

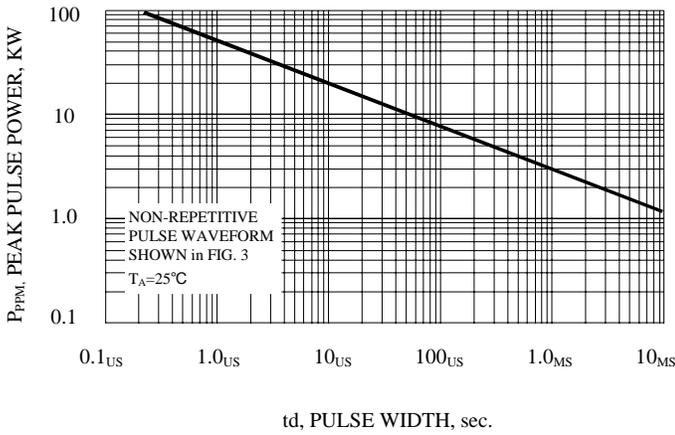


FIG. 2 - PULSE DERATING CURVE

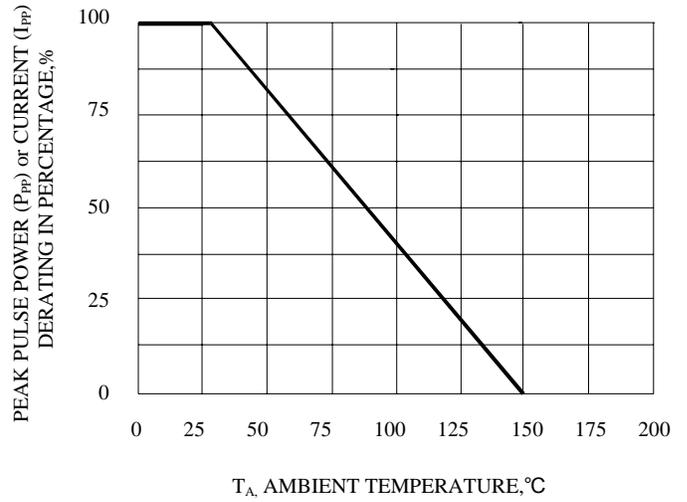


FIG. 3 - PULSE WAVEFORM
 10 / 1000 μ A

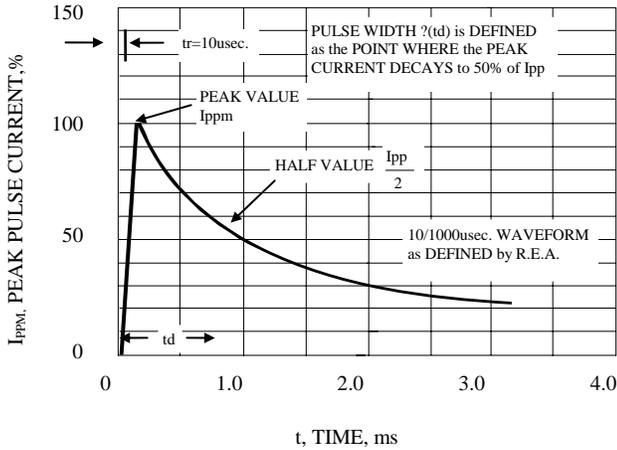


FIG. 4 - TYPICAL JUNCTION CAPACITANCE

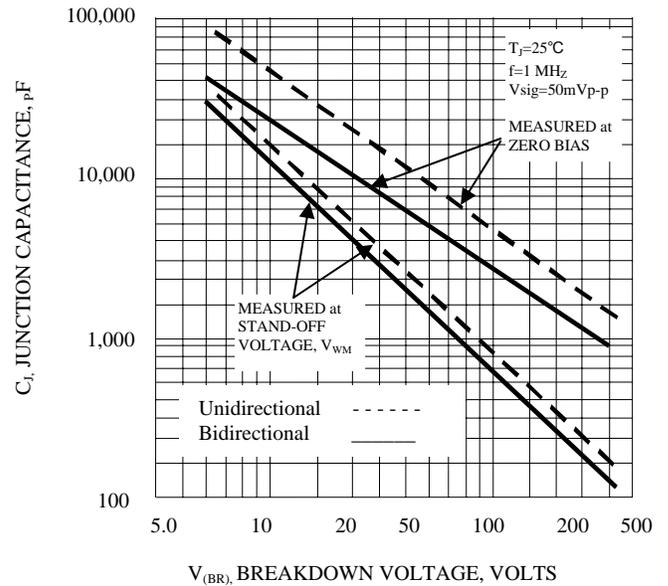


FIG.5 - PULSE WAVEFORM
 8 / 20 μ s

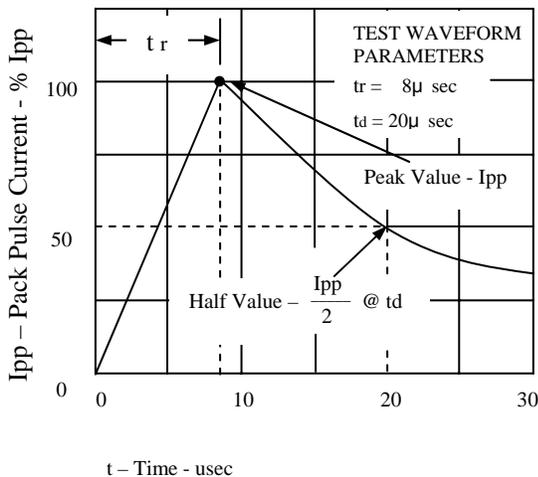


FIG.6 - MAXIMUM NON-REPETITIVE FORWARD SURGE CURRENT

