



FEATURES

- * For surface mount application
- * Built-in strain relief
- * Excellent clamping capability
- * Low profile package
- * Fast response time: Typically less than 1.0ps from 0 volt to BV min.
- * Typical I_r less than 1 A above 10V
- * High temperature soldering guaranteed: 260°C / 10 seconds at terminals

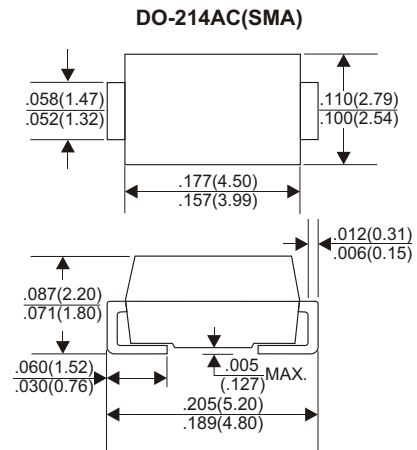
MECHANICAL DATA

- * Case: Molded plastic
- * Epoxy: UL 94V-0 rate flame retardant
- * Lead: Solderable per MIL-STD-202, method 208 guaranteed
- * Polarity: Color band denotes cathode end except Bidirectional
- * Mounting position: Any
- * Weight: 0.063 grams

VOLTAGE RANGE

5.0 to 440 Volts

400 Watts Peak Power



Dimensions in inches and (millimeters)

MAXIMUM RATINGS AND ELECTRICAL CHARACTERISTICS

Rating 25°C ambient temperature unless otherwise specified.
 Single phase half wave, 60Hz, resistive or inductive load.
 For capacitive load, derate current by 20%.

| RATINGS | SYMBOL | VALUE | UNITS |
|--|-----------------------------------|-------------|-------|
| Peak Power Dissipation at T _A =25°C, T _P =1ms(NOTE 1) | P _{PK} | Minimum 400 | Watts |
| Peak Forward Surge Current at 8.3ms Single Half Sine-Wave superimposed on rated load (JEDEC method) (NOTE 3) | I _{FSM} | 40 | Amps |
| Maximum Instantaneous Forward Voltage at 25.0A for Unidirectional only | V _F | 3.5 | Volts |
| Operating and Storage Temperature Range | T _J , T _{STG} | -55 to +150 | °C |

NOTES:

1. Non-repetitive current pulse per Fig. 3 and derated above T_A=25°C per Fig. 2.
2. Mounted on Copper Pad area of 5.0mm²(.013mm Thick) to each terminal.
3. 8.3ms single half sine-wave, duty cycle = 4 pulses per minute maximum.

DEVICES FOR BIPOLAR APPLICATIONS

1. For Bidirectional use C or CA Suffix for types SMAJ5.0 thru SMAJ170.
2. Electrical characteristics apply in both directions.

RATING AND CHARACTERISTIC CURVES (SMAJ SERIES)

FIG.1-PEAK PULSE POWER DERATING CURVE

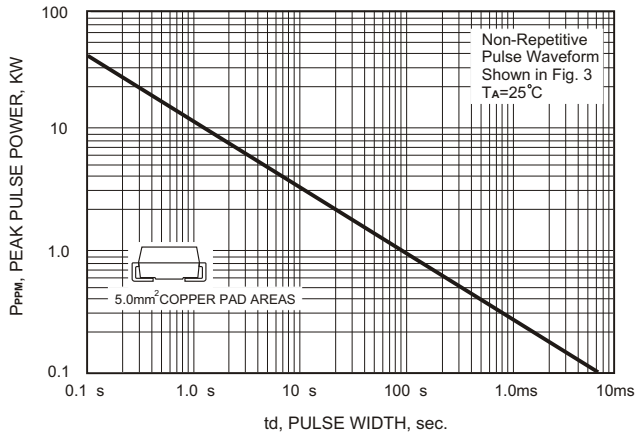


FIG.2-PULSE DERATING CURVE

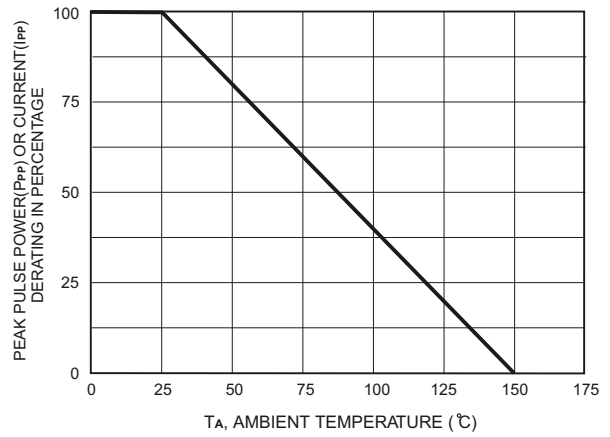


FIG.3-PULSE WAVE FORM

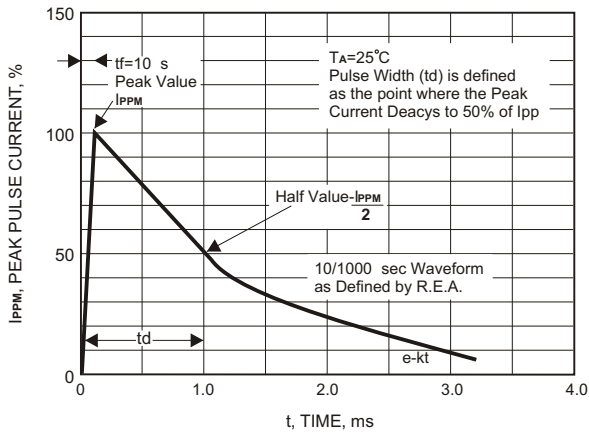


FIG.4-TYPICAL JUNCTION CAPACITANCE

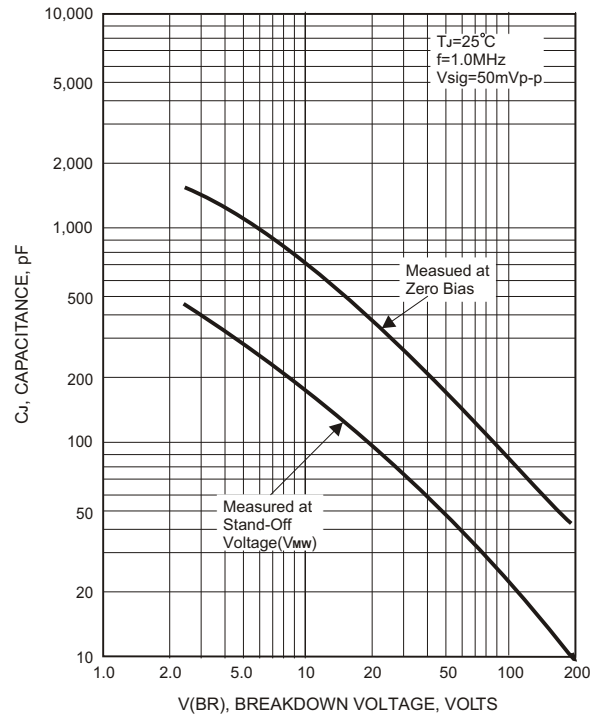
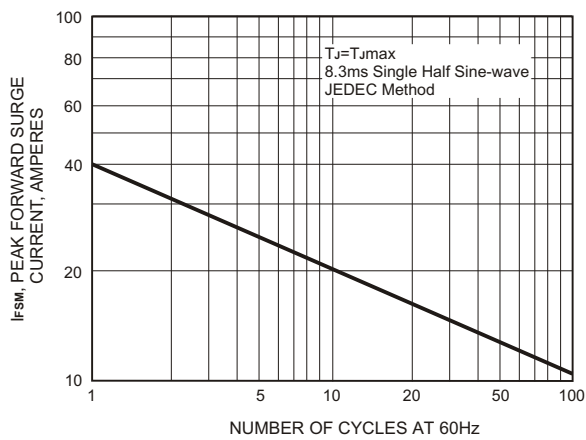


FIG.5-MAXIMUM NON-REPETITIVE PEAK FORWARD SURGE CURRENT



400 Watt Surface Mount TVS

| PART NUMBER ADD C FOR BI- DIRECTIONAL See Note 1 | REVERSE STAND-OFF VOLTAGE VRWM (V) | BREAKDOWN VOLTAGE VBR (V) MIN. @IT | BREAKDOWN VOLTAGE VBR (V) MAX. @IT | TEST CURRENT IT (mA) | MAXIMUM CLAMPING VOLTAGE @Ipp Vc (V) | PEAK PULSE CURRENT Ipp (A) | REVERSE LEAKAGE @ VRWM IR(μA) | MARKING CODE | |
|---|---|---|---|-------------------------------|---|-------------------------------------|--|-----------------|----|
| | | | | | | | | UNI | BI |
| SMAJ5.0(C)A | 5.0 | 6.40 | 7.25 | 10 | 9.2 | 43.5 | 800 | AE | WE |
| SMAJ6.0(C)A | 6.0 | 6.67 | 7.67 | 10 | 10.3 | 38.8 | 800 | AG | WG |
| SMAJ6.5(C)A | 6.5 | 7.22 | 8.30 | 10 | 11.2 | 35.7 | 500 | AK | WK |
| SMAJ7.0(C)A | 7.0 | 7.78 | 8.95 | 10 | 12.0 | 33.3 | 200 | AM | WM |
| SMAJ7.5(C)A | 7.5 | 8.33 | 9.58 | 1 | 12.9 | 31.0 | 100 | AP | WP |
| SMAJ8.0(C)A | 8.0 | 8.89 | 10.23 | 1 | 13.6 | 29.4 | 50 | AR | WR |
| SMAJ8.5(C)A | 8.5 | 9.44 | 10.82 | 1 | 14.4 | 27.7 | 10 | AT | WT |
| SMAJ9.0(C)A | 9.0 | 10.0 | 11.50 | 1 | 15.4 | 26.0 | 5 | AV | WV |
| SMAJ10(C)A | 10 | 11.1 | 12.80 | 1 | 17.0 | 23.5 | 5 | AX | WX |
| SMAJ11(C)A | 11 | 12.2 | 14.00 | 1 | 18.2 | 22.0 | 5 | AZ | WZ |
| SMAJ12(C)A | 12 | 13.3 | 15.30 | 1 | 19.9 | 20.1 | 5 | BE | XE |
| SMAJ13(C)A | 13 | 14.4 | 16.50 | 1 | 21.5 | 18.6 | 5 | BG | XG |
| SMAJ14(C)A | 14 | 15.6 | 17.90 | 1 | 23.2 | 17.2 | 5 | BK | XK |
| SMAJ15(C)A | 15 | 16.7 | 19.20 | 1 | 24.4 | 16.4 | 5 | BM | XM |
| SMAJ16(C)A | 16 | 17.8 | 20.50 | 1 | 26.0 | 15.3 | 5 | BP | XP |
| SMAJ17(C)A | 17 | 18.9 | 21.70 | 1 | 27.6 | 14.5 | 5 | BR | XR |
| SMAJ18(C)A | 18 | 20.0 | 23.30 | 1 | 29.2 | 13.7 | 5 | BT | XT |
| SMAJ20(C)A | 20 | 22.2 | 25.50 | 1 | 32.4 | 12.3 | 5 | BV | XV |
| SMAJ22(C)A | 22 | 24.4 | 28.00 | 1 | 35.5 | 11.2 | 5 | BX | XX |
| SMAJ24(C)A | 24 | 26.7 | 30.70 | 1 | 38.9 | 10.3 | 5 | BZ | XZ |
| SMAJ26(C)A | 26 | 28.9 | 33.20 | 1 | 42.1 | 9.5 | 5 | CE | YE |
| SMAJ28(C)A | 28 | 31.1 | 35.80 | 1 | 45.4 | 8.8 | 5 | CG | YG |
| SMAJ30(C)A | 30 | 33.3 | 38.30 | 1 | 48.4 | 8.3 | 5 | CK | YK |
| SMAJ33(C)A | 33 | 36.7 | 42.20 | 1 | 53.3 | 7.5 | 5 | CM | YM |
| SMAJ36(C)A | 36 | 40.0 | 46.00 | 1 | 58.1 | 6.9 | 5 | CP | YP |
| SMAJ40(C)A | 40 | 44.4 | 51.10 | 1 | 64.5 | 6.2 | 5 | CR | YR |
| SMAJ43(C)A | 43 | 47.8 | 54.90 | 1 | 69.4 | 5.7 | 5 | CT | YT |
| SMAJ45(C)A | 45 | 50.0 | 57.50 | 1 | 72.7 | 5.5 | 5 | CV | YV |
| SMAJ48(C)A | 48 | 53.3 | 61.30 | 1 | 77.4 | 5.2 | 5 | CX | YX |
| SMAJ51(C)A | 51 | 56.7 | 65.20 | 1 | 82.4 | 4.9 | 5 | CZ | YZ |
| SMAJ54(C)A | 54 | 60.0 | 69.00 | 1 | 87.1 | 4.6 | 5 | RE | ZE |
| SMAJ58(C)A | 58 | 64.4 | 74.10 | 1 | 93.6 | 4.3 | 5 | RG | ZG |

400 Watt Surface Mount TVS

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|---|---|---|---|-------------------------------|---|-------------------------------------|--|-----------------|----|
| | | | | | | | | UNI | BI |
| See Note 1 | | | | | | | | | |
| SMAJ60(C)A | 60 | 66.7 | 76.7 | 1 | 96.8 | 4.1 | 5 | RK | ZK |
| SMAJ64(C)A | 64 | 71.1 | 81.8 | 1 | 103 | 3.9 | 5 | RM | ZM |
| SMAJ70(C)A | 70 | 77.8 | 89.5 | 1 | 113 | 3.5 | 5 | RP | ZP |
| SMAJ75(C)A | 75 | 83.3 | 95.8 | 1 | 121 | 3.3 | 5 | RR | ZR |
| SMAJ78(C)A | 78 | 86.7 | 99.7 | 1 | 126 | 3.2 | 5 | RT | ZT |
| SMAJ85(C)A | 85 | 94.4 | 108.2 | 1 | 137 | 2.2 | 5 | RV | ZV |
| SMAJ90(C)A | 90 | 100 | 115.5 | 1 | 146 | 2.1 | 5 | RX | ZX |
| SMAJ100(C)A | 100 | 111 | 128.0 | 1 | 162 | 1.9 | 5 | RZ | ZZ |
| SMAJ110(C)A | 110 | 122 | 140.5 | 1 | 177 | 1.7 | 5 | SE | VE |
| SMAJ120(C)A | 120 | 133 | 153.0 | 1 | 193 | 1.6 | 5 | VG | VG |
| SMAJ130(C)A | 130 | 144 | 165.5 | 1 | 209 | 1.4 | 5 | VK | VK |
| SMAJ150(C)A | 150 | 167 | 192.5 | 1 | 243 | 1.2 | 5 | VM | VM |
| SMAJ160(C)A | 160 | 178 | 205.0 | 1 | 259 | 1.2 | 5 | SP | VP |
| SMAJ170(C)A | 170 | 189 | 217.5 | 1 | 275 | 1.09 | 5 | SR | VR |
| SMAJ188(C)A | 188 | 209 | 231.0 | 1 | 328 | 0.91 | 5 | SS | VS |
| SMAJ200(C)A | 200 | 224 | 247.0 | 1 | 332 | 0.89 | 5 | SV | VV |
| SMAJ210(C)A | 210 | 237 | 263.0 | 1 | 340 | 0.86 | 5 | SW | VW |
| SMAJ220(C)A | 220 | 246 | 272 | 1 | 352 | 0.8 | 5 | SZ | VZ |
| SMAJ250(C)A | 250 | 279 | 309 | 1 | 405 | 0.75 | 5 | VM | VM |
| SMAJ300(C)A | 300 | 335 | 371 | 1 | 486 | 0.7 | 5 | TE | UE |
| SMAJ400(C)A | 400 | 447 | 494 | 1 | 648 | 0.6 | 5 | TK | UK |
| SMAJ440(C)A | 440 | 492 | 543 | 1 | 713 | 0.6 | 5 | TM | UM |

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