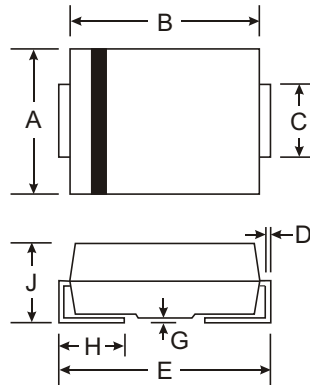


### Features

- 400W Peak Pulse Power Dissipation
- 5.0V - 170V Standoff Voltages
- Glass Passivated Die Construction
- Uni- and Bi-Directional Versions Available
- Excellent Clamping Capability
- Fast Response Time
- Plastic Material: UL Flammability Classification Rating 94V-0

### Mechanical Data

- Case: SMA, Transfer Molded Epoxy
- Terminals: Solderable per MIL-STD-202, Method 208
- Also Available in Lead Free Plating (Matte Tin Finish). Please see Ordering Information, Note 5, on Page 4
- Polarity Indicator: Cathode Band (Note: Bi-directional devices have no polarity indicator.)
- Marking: Date Code and Marking Code See Page 3
- Weight: 0.064 grams (approx.)
- Ordering Info: See Page 3



| SMA                  |      |      |
|----------------------|------|------|
| Dim                  | Min  | Max  |
| A                    | 2.29 | 2.92 |
| B                    | 4.00 | 4.60 |
| C                    | 1.27 | 1.63 |
| D                    | 0.15 | 0.31 |
| E                    | 4.80 | 5.59 |
| G                    | 0.10 | 0.20 |
| H                    | 0.76 | 1.52 |
| J                    | 2.01 | 2.62 |
| All Dimensions in mm |      |      |

### Maximum Ratings @ $T_A = 25^\circ\text{C}$ unless otherwise specified

| Characteristic                                                                                                         | Symbol      | Value       | Unit             |
|------------------------------------------------------------------------------------------------------------------------|-------------|-------------|------------------|
| Peak Pulse Power Dissipation<br>(Non repetitive current pulse derated above $T_A = 25^\circ\text{C}$ ) (Note 1)        | $P_{PK}$    | 400         | W                |
| Peak Forward Surge Current, 8.3ms Single Half Sine Wave<br>Superimposed on Rated Load (JEDEC Method) (Notes 1, 2, & 3) | $I_{FSM}$   | 40          | A                |
| Steady State Power Dissipation @ $T_L = 75^\circ\text{C}$                                                              | $PM_{(AV)}$ | 1.0         | W                |
| Instantaneous Forward Voltage @ $I_{PP} = 35\text{A}$<br>(Notes 1, 2, & 3)                                             | $V_F$       | 3.5         | V                |
| Operating Temperature Range                                                                                            | $T_j$       | -55 to +150 | $^\circ\text{C}$ |
| Storage Temperature Range                                                                                              | $T_{STG}$   | -55 to +175 | $^\circ\text{C}$ |

- Notes:
1. Valid provided that terminals are kept at ambient temperature.
  2. Measured with 8.3ms single half sine-wave. Duty cycle = 4 pulses per minute maximum.
  3. Unidirectional units only.

| Part Number<br>Add C For<br>Bi-Directional<br>(Note 4) | Reverse<br>Standoff<br>Voltage | Breakdown<br>Voltage<br>$V_{BR}$ @ $I_T$ (Note 5) |         | Test<br>Current | Max. Reverse<br>Leakage @<br>$V_{RWM}$ (Note 6) | Max. Clamping<br>Voltage @ $I_{PP}$ | Max. Peak Pulse<br>Current<br>$I_{PP}$ | Marking Code |      |
|--------------------------------------------------------|--------------------------------|---------------------------------------------------|---------|-----------------|-------------------------------------------------|-------------------------------------|----------------------------------------|--------------|------|
|                                                        | $V_{RWM}$ (V)                  | Min (V)                                           | Max (V) | $I_T$ (mA)      | $I_R$ ( $\mu$ A)                                | $V_C$ (V)                           | (A)                                    | BI-          | UNI- |
| SMAJ5.0(C)A                                            | 5.0                            | 6.40                                              | 7.25    | 10              | 800                                             | 9.2                                 | 43.5                                   | TE           | HE   |
| SMAJ6.0(C)A                                            | 6.0                            | 6.67                                              | 7.37    | 10              | 800                                             | 10.3                                | 38.8                                   | TG           | HG   |
| SMAJ6.5(C)A                                            | 6.5                            | 7.22                                              | 7.98    | 10              | 500                                             | 11.2                                | 35.7                                   | TK           | HK   |
| SMAJ7.0(C)A                                            | 7.0                            | 7.78                                              | 8.60    | 10              | 200                                             | 12.0                                | 33.3                                   | TM           | HM   |
| SMAJ7.5(C)A                                            | 7.5                            | 8.33                                              | 9.21    | 1.0             | 100                                             | 12.9                                | 31.0                                   | TP           | HP   |
| SMAJ8.0(C)A                                            | 8.0                            | 8.89                                              | 9.83    | 1.0             | 50                                              | 13.6                                | 29.4                                   | TR           | HR   |
| SMAJ8.5(C)A                                            | 8.5                            | 9.44                                              | 10.4    | 1.0             | 10                                              | 14.4                                | 27.7                                   | TT           | HT   |
| SMAJ9.0(C)A                                            | 9.0                            | 10.0                                              | 11.1    | 1.0             | 5.0                                             | 15.4                                | 26.0                                   | TV           | HV   |
| SMAJ10(C)A                                             | 10                             | 11.1                                              | 12.3    | 1.0             | 5.0                                             | 17.0                                | 23.5                                   | TX           | HX   |
| SMAJ11(C)A                                             | 11                             | 12.2                                              | 13.5    | 1.0             | 5.0                                             | 18.2                                | 22.0                                   | TZ           | HZ   |
| SMAJ12(C)A                                             | 12                             | 13.3                                              | 14.7    | 1.0             | 5.0                                             | 19.9                                | 20.1                                   | UE           | IE   |
| SMAJ13(C)A                                             | 13                             | 14.4                                              | 15.9    | 1.0             | 5.0                                             | 21.5                                | 18.6                                   | UG           | IG   |
| SMAJ14(C)A                                             | 14                             | 15.6                                              | 17.2    | 1.0             | 5.0                                             | 23.2                                | 17.2                                   | UK           | IK   |
| SMAJ15(C)A                                             | 15                             | 16.7                                              | 18.5    | 1.0             | 5.0                                             | 24.4                                | 16.4                                   | UM           | IM   |
| SMAJ16(C)A                                             | 16                             | 17.8                                              | 19.7    | 1.0             | 5.0                                             | 26.0                                | 15.3                                   | UP           | IP   |
| SMAJ17(C)A                                             | 17                             | 18.9                                              | 20.9    | 1.0             | 5.0                                             | 27.6                                | 14.5                                   | UR           | IR   |
| SMAJ18(C)A                                             | 18                             | 20.0                                              | 22.1    | 1.0             | 5.0                                             | 29.2                                | 13.7                                   | UT           | IT   |
| SMAJ20(C)A                                             | 20                             | 22.2                                              | 24.5    | 1.0             | 5.0                                             | 32.4                                | 12.3                                   | UV           | IV   |
| SMAJ22(C)A                                             | 22                             | 24.4                                              | 26.9    | 1.0             | 5.0                                             | 35.5                                | 11.2                                   | UX           | IX   |
| SMAJ24(C)A                                             | 24                             | 26.7                                              | 29.5    | 1.0             | 5.0                                             | 38.9                                | 10.3                                   | UZ           | IZ   |
| SMAJ26(C)A                                             | 26                             | 28.9                                              | 31.9    | 1.0             | 5.0                                             | 42.1                                | 9.5                                    | VE           | JE   |
| SMAJ28(C)A                                             | 28                             | 31.1                                              | 34.4    | 1.0             | 5.0                                             | 45.4                                | 8.8                                    | VG           | JG   |
| SMAJ30(C)A                                             | 30                             | 33.3                                              | 36.8    | 1.0             | 5.0                                             | 48.4                                | 8.3                                    | VK           | JK   |
| SMAJ33(C)A                                             | 33                             | 36.7                                              | 40.6    | 1.0             | 5.0                                             | 53.3                                | 7.5                                    | VM           | JM   |
| SMAJ36(C)A                                             | 36                             | 40.0                                              | 44.2    | 1.0             | 5.0                                             | 58.1                                | 6.9                                    | VP           | JP   |
| SMAJ40(C)A                                             | 40                             | 44.4                                              | 49.1    | 1.0             | 5.0                                             | 64.5                                | 6.2                                    | VR           | JR   |
| SMAJ43(C)A                                             | 43                             | 47.8                                              | 52.8    | 1.0             | 5.0                                             | 69.4                                | 5.7                                    | VT           | JT   |
| SMAJ45(C)A                                             | 45                             | 50.0                                              | 55.3    | 1.0             | 5.0                                             | 72.7                                | 5.5                                    | VV           | JV   |
| SMAJ48(C)A                                             | 48                             | 53.3                                              | 58.9    | 1.0             | 5.0                                             | 77.4                                | 5.2                                    | VX           | JX   |
| SMAJ51(C)A                                             | 51                             | 56.7                                              | 62.7    | 1.0             | 5.0                                             | 82.4                                | 4.9                                    | VZ           | JZ   |
| SMAJ54(C)A                                             | 54                             | 60.0                                              | 66.3    | 1.0             | 5.0                                             | 87.1                                | 4.6                                    | WE           | RE   |
| SMAJ58(C)A                                             | 58                             | 64.4                                              | 71.2    | 1.0             | 5.0                                             | 93.6                                | 4.3                                    | WG           | RG   |
| SMAJ60(C)A                                             | 60                             | 66.7                                              | 73.7    | 1.0             | 5.0                                             | 96.8                                | 4.1                                    | WK           | RK   |
| SMAJ64(C)A                                             | 64                             | 71.1                                              | 78.6    | 1.0             | 5.0                                             | 103                                 | 3.9                                    | WM           | RM   |
| SMAJ70(C)A                                             | 70                             | 77.8                                              | 86.0    | 1.0             | 5.0                                             | 113                                 | 3.5                                    | WP           | RP   |
| SMAJ75(C)A                                             | 75                             | 83.3                                              | 92.1    | 1.0             | 5.0                                             | 121                                 | 3.3                                    | WR           | RR   |
| SMAJ78(C)A                                             | 78                             | 86.7                                              | 95.8    | 1.0             | 5.0                                             | 126                                 | 2.2                                    | WT           | RT   |
| SMAJ85(C)A                                             | 85                             | 94.4                                              | 104     | 1.0             | 5.0                                             | 137                                 | 2.9                                    | WV           | RV   |
| SMAJ90(C)A                                             | 90                             | 100                                               | 111     | 1.0             | 5.0                                             | 146                                 | 2.7                                    | WX           | RX   |
| SMAJ100(C)A                                            | 100                            | 111                                               | 123     | 1.0             | 5.0                                             | 162                                 | 2.5                                    | WZ           | RZ   |
| SMAJ110(C)A                                            | 110                            | 122                                               | 135     | 1.0             | 5.0                                             | 177                                 | 2.3                                    | XE           | SE   |
| SMAJ120(C)A                                            | 120                            | 133                                               | 147     | 1.0             | 5.0                                             | 193                                 | 2.0                                    | XG           | SG   |
| SMAJ130(C)A                                            | 130                            | 144                                               | 159     | 1.0             | 5.0                                             | 209                                 | 1.9                                    | XK           | SK   |
| SMAJ150(C)A                                            | 150                            | 167                                               | 185     | 1.0             | 5.0                                             | 243                                 | 1.6                                    | XM           | SM   |
| SMAJ160(C)A                                            | 160                            | 178                                               | 197     | 1.0             | 5.0                                             | 259                                 | 1.5                                    | XP           | SP   |
| SMAJ170(C)A                                            | 170                            | 189                                               | 209     | 1.0             | 5.0                                             | 275                                 | 1.4                                    | XR           | SR   |

Notes: 4. Suffix C denotes Bi-directional device.  
5.  $V_{BR}$  measured with  $I_T$  current pulse = 300 $\mu$ s  
6. For Bi-Directional devices having  $V_{RWM}$  of 10V and under, the  $I_R$  is doubled.

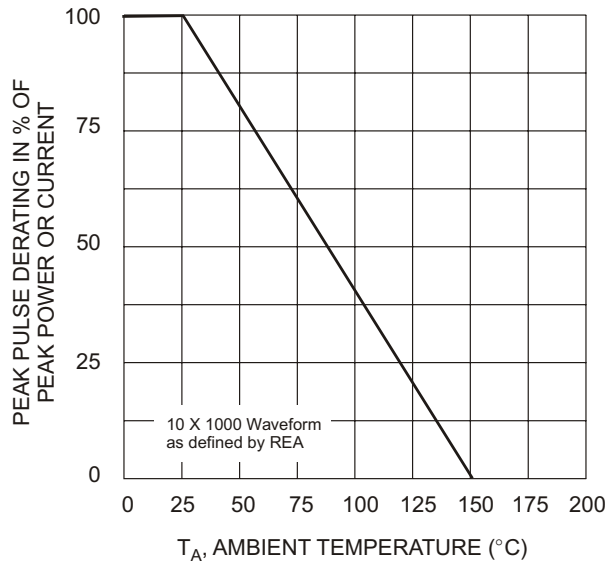


Fig. 1 Pulse Derating Curve

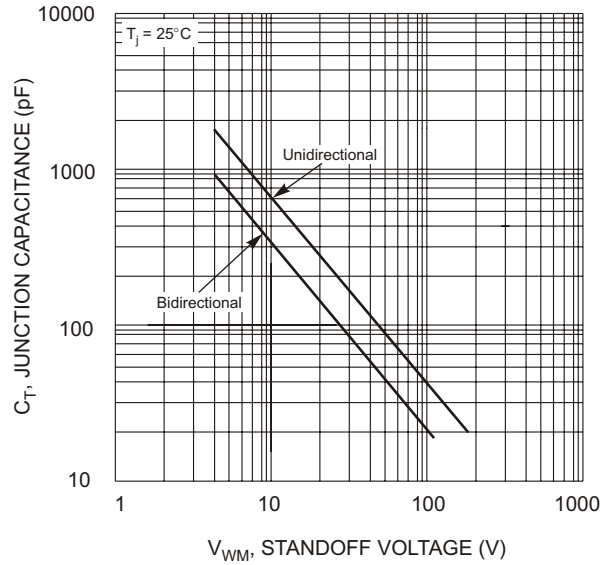


Fig. 2 Typical Total Capacitance

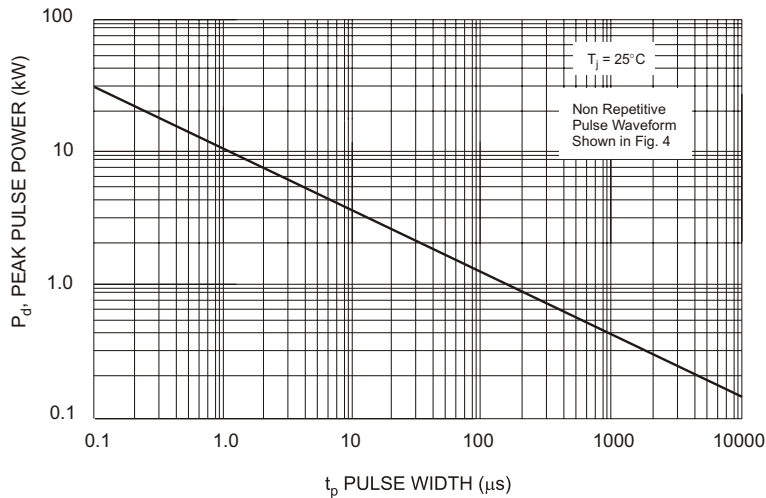


Fig. 3 Pulse Rating Curve

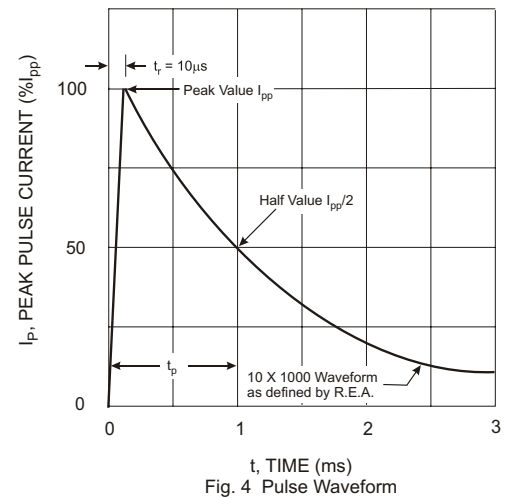


Fig. 4 Pulse Waveform

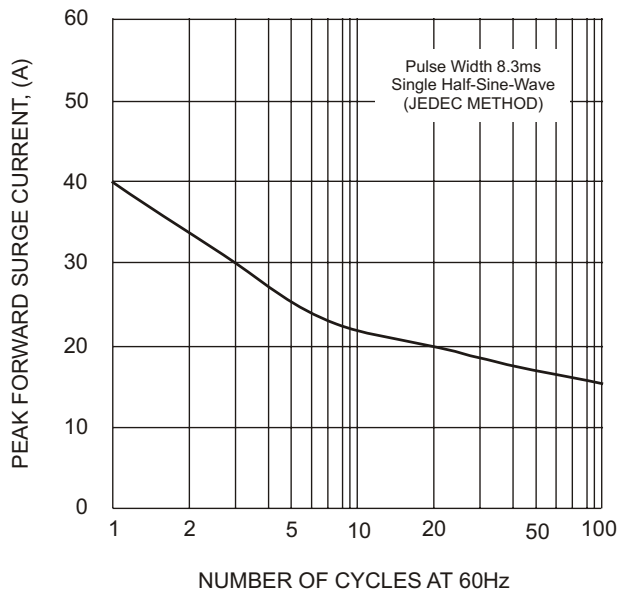


Fig. 5 Maximum Non-Repetitive Surge Current

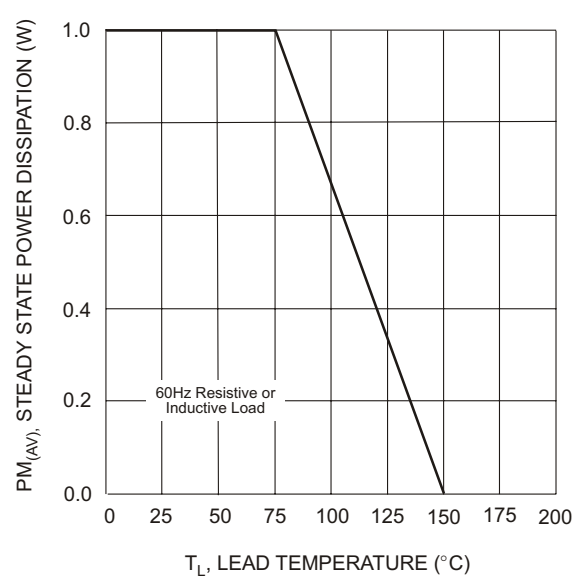
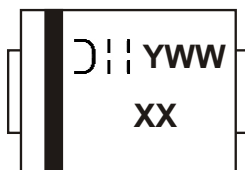


Fig. 6 Steady State Power Derating Curve

**Ordering Information** (Note 4)

| Device         | Packaging | Shipping         |
|----------------|-----------|------------------|
| SMAJXXX(C)A-13 | SMA       | 5000/Tape & Reel |

- Notes:
- For Packaging Details, go to our website at <http://www.diodes.com/datasheets/ap02007.pdf>.
  - For Lead Free version (with Lead Free terminal finish) part number, please add "-F" suffix to part number above.  
Example: SMAJ170A-13-F.

**Marking Information**

XX = Product type marking code (See Page 2)  
DIII = Manufacturers' code marking  
YWW = Date code marking  
Y = Last digit of year ex: 2 for 2002  
WW = Week code 01 to 52