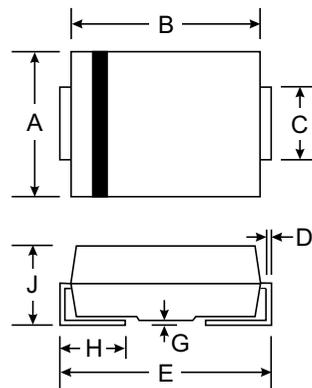
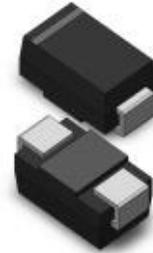


**VOLTAGE RANGE: 3.3 - 440 V**  
**POWER: 400Watts**

### Features

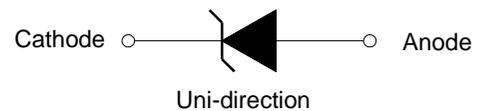
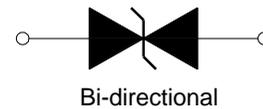
- Glass Passivated Die Construction
- Uni- and Bi-Directional Versions Available
- Excellent Clamping Capability
- Fast Response Time
- Plastic Material: UL Flammability Classification Rating 94V-0
- Peak power dissipation 400W @ 10 x 1000 us Pulse
- Low profile package.
- Excellent clamping capability.
- Fast response time: typically less than 1 ns for Uni-direction.
- Less than 5 ns for Bi-direction, from 0 Volts to BV min



| SMA(DO-214AC)        |      |      |
|----------------------|------|------|
| 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 |      |      |

### Mechanical Data

- Case: SMA/DO-214AC, Molded Plastic
- Terminals: Solder Plated, Solderable per MIL-STD-750, Method 2026
- Polarity: Cathode Band or Cathode Notch
- Marking: Type Number
- Weight: 0.064 grams (approx.)



### 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 $T_A = 25^\circ\text{C}$ )<br>(Note 1)     | $P_{PK}$       | 400         | W                |
| Peak Forward Surge Current, 8.3ms Single Half Sine Wave Superimposed on Rated Load (JEDEC Method)<br>(Notes 1, 2, & 3) | $I_{FSM}$      | 40          | A                |
| Instantaneous Forward Voltage @ $I_{PP} = 35\text{A}$<br>(Notes 1, 2, & 3)   | $V_F$          | 3.5         | V                |
| Operating and Storage Temperature Range  | $T_j, T_{STG}$ | -55 to +150 | $^\circ\text{C}$ |

- 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.



## Electrical Specification @ Tamb 25°C

| Type Number |           | Marking |      | Reverse Stand-Off Voltage | Breakdown Voltage Min. @I <sub>T</sub> | Breakdown Voltage Max. @ I <sub>T</sub> | Test Current        | Maximum Clamping Voltage @I <sub>PP</sub> | Peak Pulse Current  | Reverse Leakage @V <sub>RMW</sub> |
|-------------|-----------|---------|------|---------------------------|--|---|---------------------|---|---------------------|-----------------------------------|
| (Uni)       | (Bi)      | (Uni)   | (Bi) | V <sub>RMW</sub> (V)      | V <sub>BR MIN</sub> (V)                | V <sub>BR MAX</sub> (V)                 | I <sub>T</sub> (mA) | V <sub>C</sub> (V)                        | I <sub>PP</sub> (A) | I <sub>R</sub> (uA)               |
| SMAJ3.3A    | SMAJ3.3CA | HA      | TA   | 3.3                       | 5.20                                   | 6.00                                    | 10                  | 8.0                                       | 43.8                | 600                               |
| SMAJ5.0A    | SMAJ5.0CA | HE      | TE   | 5.0                       | 6.40                                   | 7.00                                    | 10                  | 9.2                                       | 43.5                | 800                               |
| SMAJ6.0A    | SMAJ6.0CA | HG      | TG   | 6.0                       | 6.67                                   | 7.37                                    | 10                  | 10.3                                      | 38.8                | 800                               |
| SMAJ6.5A    | SMAJ6.5CA | HK      | TK   | 6.5                       | 7.22                                   | 7.98                                    | 10                  | 11.2                                      | 35.7                | 500                               |
| SMAJ7.0A    | SMAJ7.0CA | HM      | TM   | 7.0                       | 7.78                                   | 8.60                                    | 10                  | 12.0                                      | 33.3                | 200                               |
| SMAJ7.5A    | SMAJ7.5CA | HP      | TP   | 7.5                       | 8.33                                   | 9.21                                    | 1                   | 12.9                                      | 31.0                | 100                               |
| SMAJ8.0A    | SMAJ8.0CA | HR      | TR   | 8.0                       | 8.89                                   | 9.83                                    | 1                   | 13.6                                      | 29.4                | 50                                |
| SMAJ8.5A    | SMAJ8.5CA | HT      | TT   | 8.5                       | 9.44                                   | 10.40                                   | 1                   | 14.4                                      | 27.8                | 20                                |
| SMAJ9.0A    | SMAJ9.0CA | HV      | TV   | 9.0                       | 10.0                                   | 11.10                                   | 1                   | 15.4                                      | 26.0                | 10                                |
| SMAJ10A     | SMAJ10CA  | HX      | TX   | 10.0                      | 11.10                                  | 12.30                                   | 1                   | 17.0                                      | 23.5                | 5                                 |
| SMAJ11A     | SMAJ11CA  | HZ      | TZ   | 11.0                      | 12.20                                  | 13.50                                   | 1                   | 18.2                                      | 22.0                | 1                                 |
| SMAJ12A     | SMAJ12CA  | IE      | UE   | 12.0                      | 13.30                                  | 14.70                                   | 1                   | 19.9                                      | 20.1                | 1                                 |
| SMAJ13A     | SMAJ13CA  | IG      | UG   | 13.0                      | 14.40                                  | 15.90                                   | 1                   | 21.5                                      | 18.6                | 1                                 |
| SMAJ14A     | SMAJ14CA  | IK      | UK   | 14.0                      | 15.60                                  | 17.20                                   | 1                   | 23.2                                      | 17.2                | 1                                 |
| SMAJ15A     | SMAJ15CA  | IM      | UM   | 15.0                      | 16.70                                  | 18.50                                   | 1                   | 24.4                                      | 16.4                | 1                                 |
| SMAJ16A     | SMAJ16CA  | IP      | UP   | 16.0                      | 17.80                                  | 19.70                                   | 1                   | 26.0                                      | 15.4                | 1                                 |
| SMAJ17A     | SMAJ17CA  | IR      | UR   | 17.0                      | 18.90                                  | 20.90                                   | 1                   | 27.6                                      | 14.5                | 1                                 |
| SMAJ18A     | SMAJ18CA  | IT      | UT   | 18.0                      | 20.00                                  | 22.10                                   | 1                   | 29.2                                      | 13.7                | 1                                 |
| SMAJ20A     | SMAJ20CA  | IV      | UV   | 20.0                      | 22.20                                  | 24.50                                   | 1                   | 32.4                                      | 12.3                | 1                                 |
| SMAJ22A     | SMAJ22CA  | IX      | UX   | 22.0                      | 24.40                                  | 26.90                                   | 1                   | 35.5                                      | 11.3                | 1                                 |
| SMAJ24A     | SMAJ24CA  | IZ      | UZ   | 24.0                      | 26.70                                  | 29.50                                   | 1                   | 38.9                                      | 10.3                | 1                                 |
| SMAJ26A     | SMAJ26CA  | JE      | VE   | 26.0                      | 28.90                                  | 31.90                                   | 1                   | 42.1                                      | 9.5                 | 1                                 |
| SMAJ28A     | SMAJ28CA  | JG      | VG   | 28.0                      | 31.10                                  | 34.40                                   | 1                   | 45.4                                      | 8.8                 | 1                                 |
| SMAJ30A     | SMAJ30CA  | JK      | VK   | 30.0                      | 33.30                                  | 36.80                                   | 1                   | 48.4                                      | 8.3                 | 1                                 |
| SMAJ33A     | SMAJ33CA  | JM      | VM   | 33.0                      | 36.70                                  | 40.60                                   | 1                   | 53.3                                      | 7.5                 | 1                                 |
| SMAJ36A     | SMAJ36CA  | JP      | VP   | 36.0                      | 40.00                                  | 44.20                                   | 1                   | 58.1                                      | 6.9                 | 1                                 |
| SMAJ40A     | SMAJ40CA  | JR      | VR   | 40.0                      | 44.40                                  | 49.10                                   | 1                   | 64.5                                      | 6.2                 | 1                                 |
| SMAJ43A     | SMAJ43CA  | JT      | VT   | 43.0                      | 47.80                                  | 52.80                                   | 1                   | 69.4                                      | 5.8                 | 1                                 |
| SMAJ45A     | SMAJ45CA  | JV      | VV   | 45.0                      | 50.00                                  | 55.30                                   | 1                   | 72.7                                      | 5.5                 | 1                                 |
| SMAJ48A     | SMAJ48CA  | JX      | VX   | 48.0                      | 53.30                                  | 58.90                                   | 1                   | 77.4                                      | 5.2                 | 1                                 |
| SMAJ51A     | SMAJ51CA  | JZ      | VZ   | 51.0                      | 56.70                                  | 62.70                                   | 1                   | 82.4                                      | 4.9                 | 1                                 |
| SMAJ54A     | SMAJ54CA  | RE      | WE   | 54.0                      | 60.00                                  | 66.30                                   | 1                   | 87.1                                      | 4.6                 | 1                                 |
| SMAJ58A     | SMAJ58CA  | RG      | WG   | 58.0                      | 64.40                                  | 71.20                                   | 1                   | 93.6                                      | 4.3                 | 1                                 |
| SMAJ60A     | SMAJ60CA  | RK      | WK   | 60.0                      | 66.70                                  | 73.70                                   | 1                   | 96.8                                      | 4.1                 | 1                                 |
| SMAJ64A     | SMAJ64CA  | RM      | WM   | 64.0                      | 71.10                                  | 78.60                                   | 1                   | 103.0                                     | 3.9                 | 1                                 |
| SMAJ70A     | SMAJ70CA  | RP      | WP   | 70.0                      | 77.80                                  | 86.00                                   | 1                   | 113.0                                     | 3.5                 | 1                                 |

## Electrical Specification @ Tamb 25°C

| Type Number |           | Marking |      | Reverse Stand-Off Voltage | Breakdown Voltage Min. @I <sub>T</sub> | Breakdown Voltage Max. @ I <sub>T</sub> | Test Current        | Maximum Clamping Voltage @I <sub>PP</sub> | Peak Pulse Current  | Reverse Leakage @V <sub>RMW</sub> |
|-------------|-----------|---------|------|---------------------------|--|---|---------------------|---|---------------------|-----------------------------------|
| (Uni)       | (Bi)      | (Uni)   | (Bi) | V <sub>RMW</sub> (V)      | V <sub>BR MIN</sub> (V)                | V <sub>BR MAX</sub> (V)                 | I <sub>T</sub> (mA) | V <sub>c</sub> (V)                        | I <sub>PP</sub> (A) | I <sub>R</sub> (uA)               |
| SMAJ75A     | SMAJ75CA  | RR      | WR   | 75.0                      | 83.30                                  | 92.10                                   | 1                   | 121.0                                     | 3.3                 | 1                                 |
| SMAJ78A     | SMAJ78CA  | RT      | WT   | 78.0                      | 86.70                                  | 95.80                                   | 1                   | 126.0                                     | 3.2                 | 1                                 |
| SMAJ85A     | SMAJ85CA  | RV      | WV   | 85.0                      | 94.40                                  | 104.00                                  | 1                   | 137.0                                     | 2.9                 | 1                                 |
| SMAJ90A     | SMAJ90CA  | RX      | WX   | 90.0                      | 100.00                                 | 111.00                                  | 1                   | 146.0                                     | 2.7                 | 1                                 |
| SMAJ100A    | SMAJ100CA | RZ      | WZ   | 100.0                     | 111.00                                 | 123.00                                  | 1                   | 162.0                                     | 2.5                 | 1                                 |
| SMAJ110A    | SMAJ110CA | SE      | XE   | 110.0                     | 122.00                                 | 135.00                                  | 1                   | 177.0                                     | 2.3                 | 1                                 |
| SMAJ120A    | SMAJ120CA | SG      | XG   | 120.0                     | 133.00                                 | 147.00                                  | 1                   | 193.0                                     | 2.1                 | 1                                 |
| SMAJ130A    | SMAJ130CA | SK      | XK   | 130.0                     | 144.00                                 | 159.00                                  | 1                   | 209.0                                     | 1.9                 | 1                                 |
| SMAJ150A    | SMAJ150CA | SM      | XM   | 150.0                     | 167.00                                 | 185.00                                  | 1                   | 243.0                                     | 1.6                 | 1                                 |
| SMAJ160A    | SMAJ160CA | SP      | XP   | 160.0                     | 178.00                                 | 197.00                                  | 1                   | 259.0                                     | 1.5                 | 1                                 |
| SMAJ170A    | SMAJ170CA | SR      | XR   | 170.0                     | 189.00                                 | 209.00                                  | 1                   | 275.0                                     | 1.5                 | 1                                 |
| SMAJ180A    | SMAJ180CA | ST      | XT   | 180.0                     | 201.00                                 | 222.00                                  | 1                   | 292.0                                     | 1.4                 | 1                                 |
| SMAJ190A    | SMAJ190CA | SV      | XV   | 190.0                     | 211.00                                 | 233.00                                  | 1                   | 308.0                                     | 1.3                 | 1                                 |
| SMAJ200A    | SMAJ200CA | SX      | XX   | 200.0                     | 224.00                                 | 247.00                                  | 1                   | 324.0                                     | 1.2                 | 1                                 |
| SMAJ210A    | SMAJ210CA | SZ      | XZ   | 210.0                     | 237.00                                 | 263.00                                  | 1                   | 340.0                                     | 1.2                 | 1                                 |
| SMAJ220A    | SMAJ220CA | ZE      | YE   | 220.0                     | 246.00                                 | 272.00                                  | 1                   | 356.0                                     | 1.1                 | 1                                 |
| SMAJ250A    | SMAJ250CA | ZG      | YG   | 250.0                     | 279.00                                 | 309.00                                  | 1                   | 405.0                                     | 1.0                 | 1                                 |
| SMAJ300A    | SMAJ300CA | ZK      | YK   | 300.0                     | 335.00                                 | 371.00                                  | 1                   | 486.0                                     | 0.8                 | 1                                 |
| SMAJ350A    | SMAJ350CA | ZM      | YM   | 350.0                     | 391.00                                 | 432.00                                  | 1                   | 567.0                                     | 0.7                 | 1                                 |
| SMAJ400A    | SMAJ400CA | ZP      | YP   | 400.0                     | 447.00                                 | 494.00                                  | 1                   | 648.0                                     | 0.6                 | 1                                 |
| SMAJ440A    | SMAJ440CA | ZR      | YR   | 440.0                     | 492.00                                 | 543.00                                  | 1                   | 713.0                                     | 0.6                 | 1                                 |

**Note:**

1. Suffix 'A' denotes 5% tolerance device.
2. Add suffix 'CA' after part number to specify Bi-directional devices.
3. For Bi-Directional devices having V<sub>Rof</sub> 10 volts and under, the I<sub>R</sub> limit is double.

## Ratings and Characteristic Curves $T_A=25^\circ\text{C}$ unless otherwise noted

Fig.1 Peak Pulse Power Rating

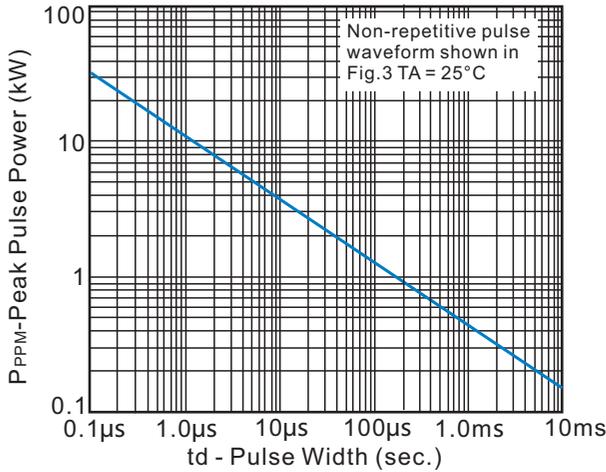


Fig.2 Pulse Derating Curve

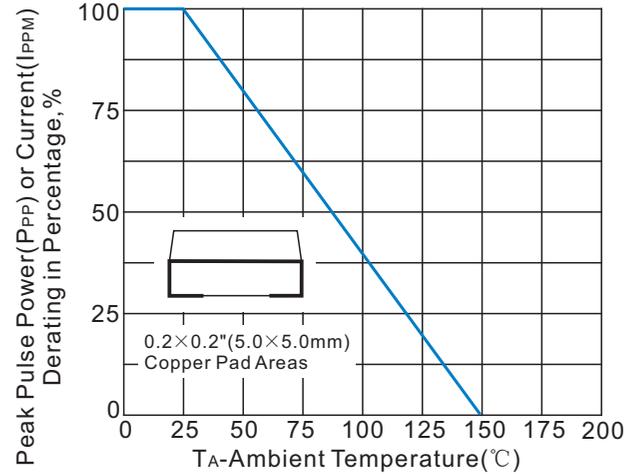


Fig.3 Pulse Waveform

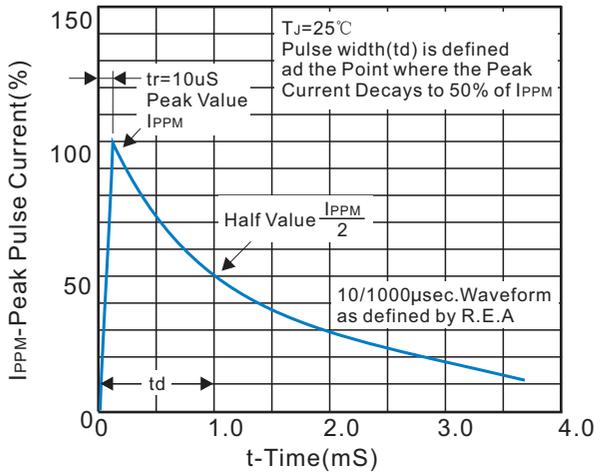


Fig.4 Typical Junction Capacitance

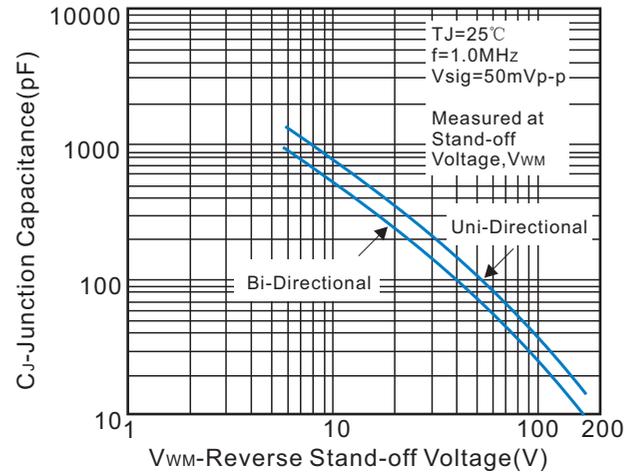


Fig.5 Typ. Transient Thermal Impedance

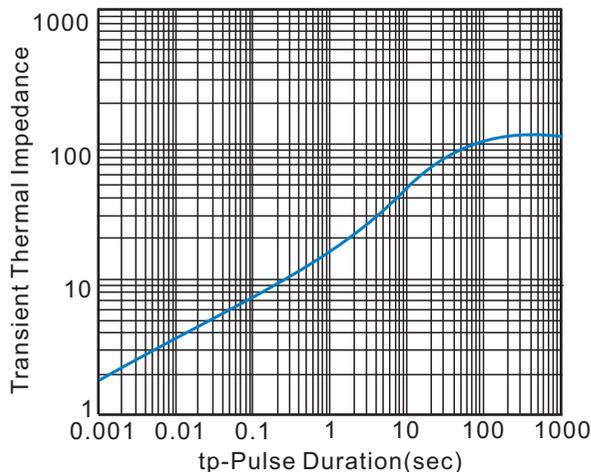
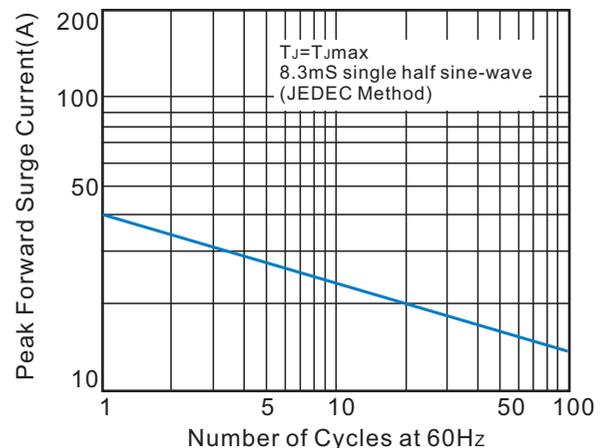


Fig.6 Maximum Non-Repetitive Peak Forward Surge Current Uni-Directional Only





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