

**Surface mount transient voltage suppressor power 400 watts**

**Stand-Off Voltage : 5.0V~440V**

**FEATURES**

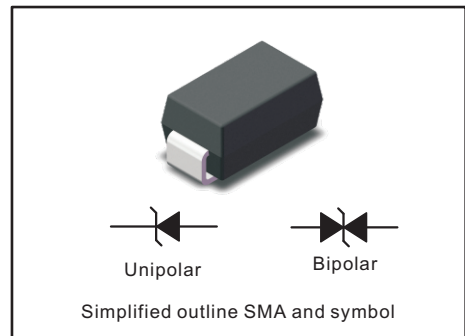
- For surface mounted applications in order to optimize board space.
- Low profile package
- Glass passivated junction
- Low inductance
- Plastic package has Underwriters Laboratory Flammability

**MECHANICAL DATA**

- Case: SMA
- Terminals: Solderable per MIL-STD-750, Method 2026
- Approx. Weight: 0.055g / 0.002oz

**PINNING**

| PIN | DESCRIPTION |
|-----|-------------|
| 1   | Cathode     |
| 2   | Anode       |



**Maximum Ratings and Electrical characteristics**

**Ratings at 25 °C ambient temperature unless otherwise specified.**

| Parameter   | Symbol                   | Value                | Unit                        |
|---|--------------------------|----------------------|-----------------------------|
| Peak Pulse Power Dissipation on $T_A=25^{\circ}\text{C}$ (Note 1,2,4, Fig1) | $P_{PPM}$                | 400                  | W                           |
| Peak Forward Surge Current (Note 3, Fig 4)                                  | $I_{FSM}$<br>(UNI)       | 60                   | A                           |
| Peak Pulse Current on 10/1000 us waveform (Note 1, Fig 3)                   | $I_{PPM}$                | see Table 1          | A                           |
| ESD Voltage per IEC6100-4-2<br>Contact<br>Air                               | $V_{ESD1}$<br>$V_{ESD2}$ | $\pm 30$<br>$\pm 30$ | kV                          |
| Typical Thermal Resistance Junction to Ambient(Note 2)                      | $R_{\theta JA}$          | 30                   | $^{\circ}\text{C}/\text{W}$ |
| Operating Junction Temperature and Storage Temperature Range                | $T_j, T_{stg}$           | -65 ~ +150           | $^{\circ}\text{C}$          |

**NOTES:**

1. Non-repetitive current pulse, per Fig.3 and derated above  $T_A = 25^{\circ}\text{C}$  per Fig. 2.
2. Mounted on  $5\text{mm}^2$  copper pads to each terminal.
3. Peak Forward Surge Current : 8.3ms single half sine-wave Superimposed on rated load (JEDEC method).
4. Peak pulse power waveform is 10/1000 $\mu\text{S}$ .



Characteristics at Ta = 25°C

Table 1

| Type     |           | Reverse Stand-off Voltage | Breakdown Voltage                |      | Test Current | Reverse Leakage | Max. Clamp Voltage                | Peak Pulse Current               | Package         |                      |
|----------|-----------|---------------------------|----------------------------------|------|--------------|-----------------|-----------------------------------|----------------------------------|-----------------|----------------------|
|          |           |                           | V <sub>BR</sub> @ I <sub>T</sub> |      |              |                 |                                   |                                  | SMA             |                      |
|          |           |                           | V <sub>RRM</sub>                 | Min  | Max          | I <sub>T</sub>  | I <sub>R</sub> @ V <sub>RRM</sub> | V <sub>C</sub> @ I <sub>PP</sub> | I <sub>PP</sub> | Device Marking Ccode |
| UNI      | BI        | V                         | V                                | V    | mA           | μA              | V                                 | A                                | UNI             | BI                   |
| SMAJ5.0A | SMAJ5.0CA | 5                         | 6.4                              | 7    | 10           | 800             | 9.2                               | 43.5                             | AE              | WE                   |
| SMAJ6.0A | SMAJ6.0CA | 6                         | 6.67                             | 7.37 | 10           | 800             | 10.3                              | 38.8                             | AG              | WG                   |
| SMAJ6.5A | SMAJ6.5CA | 6.5                       | 7.22                             | 7.98 | 10           | 500             | 11.2                              | 35.7                             | AK              | WK                   |
| SMAJ7.0A | SMAJ7.0CA | 7                         | 7.78                             | 8.6  | 10           | 200             | 12.0                              | 33.3                             | AM              | WM                   |
| SMAJ7.5A | SMAJ7.5CA | 7.5                       | 8.33                             | 9.21 | 1            | 100             | 12.9                              | 31.0                             | AP              | WP                   |
| SMAJ8.0A | SMAJ8.0CA | 8                         | 8.89                             | 9.83 | 1            | 50              | 13.6                              | 29.4                             | AR              | WR                   |
| SMAJ8.5A | SMAJ8.5CA | 8.5                       | 9.44                             | 10.4 | 1            | 20              | 14.4                              | 27.8                             | AT              | WT                   |
| SMAJ9.0A | SMAJ9.0CA | 9                         | 10                               | 11.1 | 1            | 10              | 15.4                              | 26.0                             | AV              | WV                   |
| SMAJ10A  | SMAJ10CA  | 10                        | 11.1                             | 12.3 | 1            | 5               | 17.0                              | 23.5                             | AX              | WX                   |
| SMAJ11A  | SMAJ11CA  | 11                        | 12.2                             | 13.5 | 1            | 1               | 18.2                              | 22.0                             | AZ              | WZ                   |
| SMAJ12A  | SMAJ12CA  | 12                        | 13.3                             | 14.7 | 1            | 1               | 19.9                              | 20.1                             | BE              | XE                   |
| SMAJ13A  | SMAJ13CA  | 13                        | 14.4                             | 15.9 | 1            | 1               | 21.5                              | 18.6                             | BG              | XG                   |
| SMAJ14A  | SMAJ14CA  | 14                        | 15.6                             | 17.2 | 1            | 1               | 23.2                              | 17.2                             | BK              | XK                   |
| SMAJ15A  | SMAJ15CA  | 15                        | 16.7                             | 18.5 | 1            | 1               | 24.4                              | 16.4                             | BM              | XM                   |
| SMAJ16A  | SMAJ16CA  | 16                        | 17.8                             | 19.7 | 1            | 1               | 26.0                              | 15.4                             | BP              | XP                   |
| SMAJ17A  | SMAJ17CA  | 17                        | 18.9                             | 20.9 | 1            | 1               | 27.6                              | 14.5                             | BR              | XR                   |
| SMAJ18A  | SMAJ18CA  | 18                        | 20                               | 22.1 | 1            | 1               | 29.2                              | 13.7                             | BT              | XT                   |
| SMAJ20A  | SMAJ20CA  | 20                        | 22.2                             | 24.5 | 1            | 1               | 32.4                              | 12.3                             | BV              | XV                   |
| SMAJ22A  | SMAJ22CA  | 22                        | 24.4                             | 26.9 | 1            | 1               | 35.5                              | 11.3                             | BX              | XX                   |
| SMAJ24A  | SMAJ24CA  | 24                        | 26.7                             | 29.5 | 1            | 1               | 38.9                              | 10.3                             | BZ              | XZ                   |
| SMAJ26A  | SMAJ26CA  | 26                        | 28.9                             | 31.9 | 1            | 1               | 42.1                              | 9.5                              | CE              | YE                   |
| SMAJ28A  | SMAJ28CA  | 28                        | 31.1                             | 34.4 | 1            | 1               | 45.4                              | 8.8                              | CG              | YG                   |
| SMAJ30A  | SMAJ30CA  | 30                        | 33.3                             | 36.8 | 1            | 1               | 48.4                              | 8.3                              | CK              | YK                   |
| SMAJ33A  | SMAJ33CA  | 33                        | 36.7                             | 40.6 | 1            | 1               | 53.3                              | 7.5                              | CM              | YM                   |
| SMAJ36A  | SMAJ36CA  | 36                        | 40                               | 44.2 | 1            | 1               | 58.1                              | 6.9                              | CP              | YP                   |
| SMAJ40A  | SMAJ40CA  | 40                        | 44.4                             | 49.1 | 1            | 1               | 64.5                              | 6.2                              | CR              | YR                   |
| SMAJ43A  | SMAJ43CA  | 43                        | 47.8                             | 52.8 | 1            | 1               | 69.4                              | 5.8                              | CT              | YT                   |
| SMAJ45A  | SMAJ45CA  | 45                        | 50                               | 55.3 | 1            | 1               | 72.7                              | 5.5                              | CV              | YV                   |
| SMAJ48A  | SMAJ48CA  | 48                        | 53.3                             | 58.9 | 1            | 1               | 77.4                              | 5.2                              | CX              | YX                   |
| SMAJ51A  | SMAJ51CA  | 51                        | 56.7                             | 62.7 | 1            | 1               | 82.4                              | 4.9                              | CZ              | YZ                   |
| SMAJ54A  | SMAJ54CA  | 54                        | 60                               | 66.3 | 1            | 1               | 87.1                              | 4.6                              | RE              | ZE                   |
| SMAJ58A  | SMAJ58CA  | 58                        | 64.4                             | 71.2 | 1            | 1               | 93.6                              | 4.3                              | RG              | ZG                   |
| SMAJ60A  | SMAJ60CA  | 60                        | 66.7                             | 73.7 | 1            | 1               | 96.8                              | 4.1                              | RK              | ZK                   |
| SMAJ64A  | SMAJ64CA  | 64                        | 71.1                             | 78.6 | 1            | 1               | 103.0                             | 3.9                              | RM              | ZM                   |
| SMAJ70A  | SMAJ70CA  | 70                        | 77.8                             | 86   | 1            | 1               | 113.0                             | 3.5                              | RP              | ZP                   |
| SMAJ75A  | SMAJ75CA  | 75                        | 83.3                             | 92.1 | 1            | 1               | 121.0                             | 3.3                              | RR              | ZR                   |
| SMAJ78A  | SMAJ78CA  | 78                        | 86.7                             | 95.8 | 1            | 1               | 126.0                             | 3.2                              | RT              | ZT                   |
| SMAJ85A  | SMAJ85CA  | 85                        | 94.4                             | 104  | 1            | 1               | 137.0                             | 2.9                              | RV              | ZV                   |
| SMAJ90A  | SMAJ90CA  | 90                        | 100                              | 111  | 1            | 1               | 146.0                             | 2.7                              | RX              | ZX                   |
| SMAJ100A | SMAJ100CA | 100                       | 111                              | 123  | 1            | 1               | 162.0                             | 2.5                              | RZ              | ZZ                   |
| SMAJ110A | SMAJ110CA | 110                       | 122                              | 135  | 1            | 1               | 177.0                             | 2.3                              | SE              | VE                   |
| SMAJ120A | SMAJ120CA | 120                       | 133                              | 147  | 1            | 1               | 193.0                             | 2.1                              | SG              | VG                   |
| SMAJ130A | SMAJ130CA | 130                       | 144                              | 159  | 1            | 1               | 209.0                             | 1.9                              | SK              | VK                   |
| SMAJ150A | SMAJ150CA | 150                       | 167                              | 185  | 1            | 1               | 243.0                             | 1.6                              | SM              | VM                   |
| SMAJ160A | SMAJ160CA | 160                       | 178                              | 197  | 1            | 1               | 259.0                             | 1.5                              | SP              | VP                   |
| SMAJ170A | SMAJ170CA | 170                       | 189                              | 209  | 1            | 1               | 275.0                             | 1.5                              | SR              | VR                   |
| SMAJ180A | SMAJ180CA | 180                       | 201                              | 222  | 1            | 1               | 292.0                             | 1.4                              | ST              | VT                   |
| SMAJ200A | SMAJ200CA | 200                       | 224                              | 247  | 1            | 1               | 324.0                             | 1.2                              | SV              | VV                   |
| SMAJ220A | SMAJ220CA | 220                       | 246                              | 272  | 1            | 1               | 356.0                             | 1.1                              | SX              | VX                   |
| SMAJ250A | SMAJ250CA | 250                       | 279                              | 309  | 1            | 1               | 405.0                             | 1.0                              | SZ              | VZ                   |
| SMAJ300A | SMAJ300CA | 300                       | 335                              | 371  | 1            | 1               | 486.0                             | 0.8                              | TE              | UE                   |
| SMAJ350A | SMAJ350CA | 350                       | 391                              | 432  | 1            | 1               | 567.0                             | 0.7                              | TG              | UG                   |
| SMAJ400A | SMAJ400CA | 400                       | 447                              | 494  | 1            | 1               | 648.0                             | 0.6                              | TK              | UK                   |
| SMAJ440A | SMAJ440CA | 440                       | 492                              | 543  | 1            | 1               | 713.0                             | 0.6                              | TM              | UM                   |



Fig.1 Peak Pulse Power Rating Curve

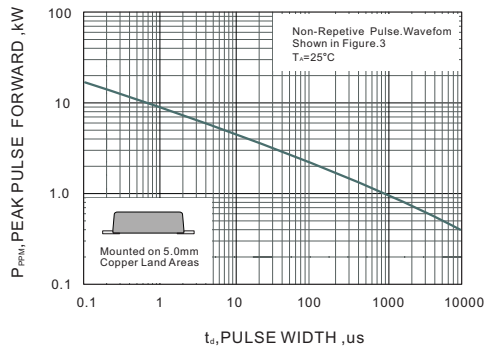


Fig.2 Forward Current Derating Curve

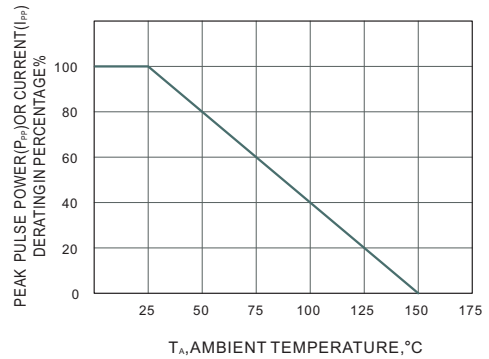


Fig.3 Pulse Waveform

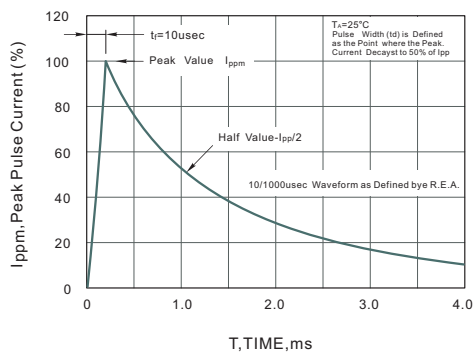


Fig.4 Maximum Non-Repetitive Peak Forward Surge Current





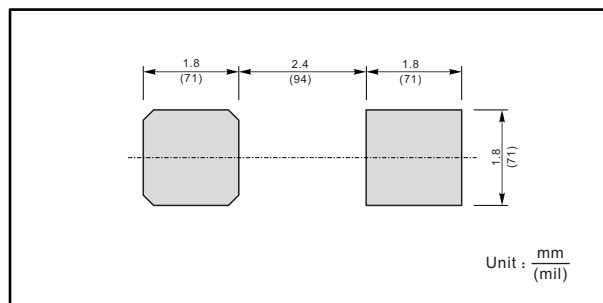
**PACKAGE OUTLINE**

Plastic surface mounted package; 2 leads

SMA



**The recommended mounting pad size**



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