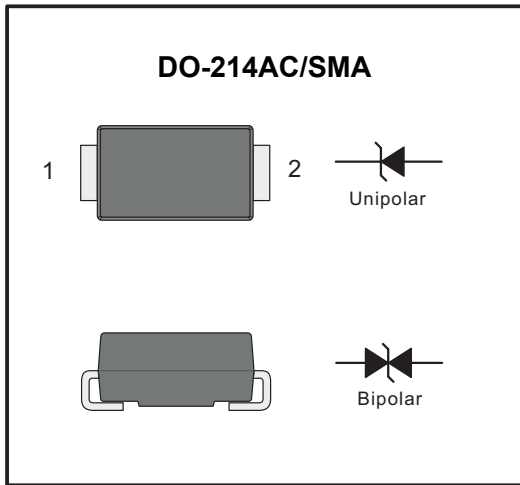


## PINNING

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



## 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

## 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   | $V_{ESD1}$<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 5mm<sup>2</sup> 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 10/1000μS.



# SMAJ5.0 THRU SMAJ440CA

Surface mount transient voltage suppressor power 400 watts

## Electrical Characteristics (TA=25°C)

| Part Number    |               | Device Marking Code |    | Reverse Stand-Off Voltage | Breakdown Voltage @IT | Test Current | Maximum Clamping Voltage @IPP | Peak Pulse Current | Reverse Leakage @VRWM |
|----------------|---------------|---------------------|----|---------------------------|-----------------------|--------------|-------------------------------|--------------------|-----------------------|
| Unidirectional | Bidirectional | UNI                 | BI | VRWM(V)                   | VBR(V)                | IT(mA)       | VC(V)                         | IPP(A)             | IR(μA)                |
| SMAJ5.0A       | SMAJ5.0CA     | AE                  | WE | 5.0                       | 6.40~7.00             | 10           | 9.2                           | 43.5               | 800                   |
| SMAJ6.0A       | SMAJ6.0CA     | AG                  | WG | 6.0                       | 6.67~7.37             | 10           | 10.3                          | 38.8               | 800                   |
| SMAJ6.5A       | SMAJ6.5CA     | AK                  | WK | 6.5                       | 7.22~7.98             | 10           | 11.2                          | 35.7               | 500                   |
| SMAJ7.0A       | SMAJ7.0CA     | AM                  | WM | 7.0                       | 7.78~8.60             | 10           | 12.0                          | 33.3               | 200                   |
| SMAJ7.5A       | SMAJ7.5CA     | AP                  | WP | 7.5                       | 8.33~9.21             | 1            | 12.9                          | 31.0               | 100                   |
| SMAJ8.0A       | SMAJ8.0CA     | AR                  | WR | 8.0                       | 8.89~9.83             | 1            | 13.6                          | 29.4               | 50                    |
| SMAJ8.5A       | SMAJ8.5CA     | AT                  | WT | 8.5                       | 9.44~10.40            | 1            | 14.4                          | 27.8               | 20                    |
| SMAJ9.0A       | SMAJ9.0CA     | AV                  | WV | 9.0                       | 10.00~11.10           | 1            | 15.4                          | 26.0               | 10                    |
| SMAJ10A        | SMAJ10CA      | AX                  | WX | 10.0                      | 11.10~12.30           | 1            | 17.0                          | 23.5               | 5                     |
| SMAJ11A        | SMAJ11CA      | AZ                  | WZ | 11.0                      | 12.20~13.50           | 1            | 18.2                          | 22.0               | 1                     |
| SMAJ12A        | SMAJ12CA      | BE                  | XE | 12.0                      | 13.30~14.70           | 1            | 19.9                          | 20.1               | 1                     |
| SMAJ13A        | SMAJ13CA      | BG                  | XG | 13.0                      | 14.40~15.90           | 1            | 21.5                          | 18.6               | 1                     |
| SMAJ14A        | SMAJ14CA      | BK                  | XK | 14.0                      | 15.60~17.20           | 1            | 23.2                          | 17.2               | 1                     |
| SMAJ15A        | SMAJ15CA      | BM                  | XM | 15.0                      | 16.70~18.50           | 1            | 24.4                          | 16.4               | 1                     |
| SMAJ16A        | SMAJ16CA      | BP                  | XP | 16.0                      | 17.80~19.70           | 1            | 26.0                          | 15.4               | 1                     |
| SMAJ17A        | SMAJ17CA      | BR                  | XR | 17.0                      | 18.90~20.90           | 1            | 27.6                          | 14.5               | 1                     |
| SMAJ18A        | SMAJ18CA      | BT                  | XT | 18.0                      | 20.00~22.10           | 1            | 29.2                          | 13.7               | 1                     |
| SMAJ20A        | SMAJ20CA      | BV                  | XV | 20.0                      | 22.20~24.50           | 1            | 32.4                          | 12.3               | 1                     |
| SMAJ22A        | SMAJ22CA      | BX                  | XX | 22.0                      | 24.40~26.90           | 1            | 35.5                          | 11.3               | 1                     |
| SMAJ24A        | SMAJ24CA      | BZ                  | XZ | 24.0                      | 26.70~29.50           | 1            | 38.9                          | 10.3               | 1                     |
| SMAJ26A        | SMAJ26CA      | CE                  | YE | 26.0                      | 28.90~31.90           | 1            | 42.1                          | 9.5                | 1                     |
| SMAJ28A        | SMAJ28CA      | CG                  | YG | 28.0                      | 31.10~34.40           | 1            | 45.4                          | 8.8                | 1                     |
| SMAJ30A        | SMAJ30CA      | CK                  | YK | 30.0                      | 33.30~36.80           | 1            | 48.4                          | 8.3                | 1                     |
| SMAJ33A        | SMAJ33CA      | CM                  | YM | 33.0                      | 36.70~40.60           | 1            | 53.3                          | 7.5                | 1                     |
| SMAJ36A        | SMAJ36CA      | CP                  | YP | 36.0                      | 40.00~44.20           | 1            | 58.1                          | 6.9                | 1                     |
| SMAJ40A        | SMAJ40CA      | CR                  | YR | 40.0                      | 44.40~49.10           | 1            | 64.5                          | 6.2                | 1                     |
| SMAJ43A        | SMAJ43CA      | CT                  | YT | 43.0                      | 47.80~52.80           | 1            | 69.4                          | 5.8                | 1                     |
| SMAJ45A        | SMAJ45CA      | CV                  | YV | 45.0                      | 50.00~55.30           | 1            | 72.7                          | 5.5                | 1                     |
| SMAJ48A        | SMAJ48CA      | CX                  | YX | 48.0                      | 53.30~58.90           | 1            | 77.4                          | 5.2                | 1                     |
| SMAJ51A        | SMAJ51CA      | CZ                  | YZ | 51.0                      | 56.70~62.70           | 1            | 82.4                          | 4.9                | 1                     |
| SMAJ54A        | SMAJ54CA      | RE                  | ZE | 54.0                      | 60.00~66.30           | 1            | 87.1                          | 4.6                | 1                     |
| SMAJ58A        | SMAJ58CA      | RG                  | ZG | 58.0                      | 64.40~71.20           | 1            | 93.6                          | 4.3                | 1                     |
| SMAJ60A        | SMAJ60CA      | RK                  | ZK | 60.0                      | 66.70~73.70           | 1            | 96.8                          | 4.1                | 1                     |
| SMAJ64A        | SMAJ64CA      | RM                  | ZM | 64.0                      | 71.10~78.60           | 1            | 103.0                         | 3.9                | 1                     |
| SMAJ70A        | SMAJ70CA      | RP                  | ZP | 70.0                      | 77.80~86.00           | 1            | 113.0                         | 3.5                | 1                     |
| SMAJ75A        | SMAJ75CA      | RR                  | ZR | 75.0                      | 83.30~92.10           | 1            | 121.0                         | 3.3                | 1                     |
| SMAJ78A        | SMAJ78CA      | RT                  | ZT | 78.0                      | 86.70~95.80           | 1            | 126.0                         | 3.2                | 1                     |
| SMAJ85A        | SMAJ85CA      | RV                  | ZV | 85.0                      | 94.40~104.00          | 1            | 137.0                         | 2.9                | 1                     |
| SMAJ90A        | SMAJ90CA      | RX                  | ZX | 90.0                      | 100.00~111.00         | 1            | 146.0                         | 2.7                | 1                     |
| SMAJ100A       | SMAJ100CA     | RZ                  | ZZ | 100.0                     | 111.00~123.00         | 1            | 162.0                         | 2.5                | 1                     |
| SMAJ110A       | SMAJ110CA     | SE                  | VE | 110.0                     | 122.00~135.00         | 1            | 177.0                         | 2.3                | 1                     |
| SMAJ120A       | SMAJ120CA     | SG                  | VG | 120.0                     | 133.00~147.00         | 1            | 193.0                         | 2.1                | 1                     |

## Electrical Characteristics (TA=25°C)

| Part Number    |               | Device Marking Code |    | Reverse Stand-Off Voltage | Breakdown Voltage @IT | Test Current | Maximum Clamping Voltage @IPP | Peak Pulse Current | Reverse Leakage @VRWM |
|----------------|---------------|---------------------|----|---------------------------|-----------------------|--------------|-------------------------------|--------------------|-----------------------|
| Unidirectional | Bidirectional | UNI                 | BI | VRWM(V)                   | VBR(V)                | IT(mA)       | Vc(V)                         | IPP(A)             | IR(μA)                |
| SMAJ130A       | SMAJ130CA     | SK                  | VK | 130.0                     | 144.00~159.00         | 1            | 209.0                         | 1.9                | 1                     |
| SMAJ150A       | SMAJ150CA     | SM                  | VM | 150.0                     | 167.00~185.00         | 1            | 243.0                         | 1.6                | 1                     |
| SMAJ160A       | SMAJ160CA     | SP                  | VP | 160.0                     | 178.00~197.00         | 1            | 259.0                         | 1.5                | 1                     |
| SMAJ170A       | SMAJ170CA     | SR                  | VR | 170.0                     | 189.00~209.00         | 1            | 275.0                         | 1.5                | 1                     |
| SMAJ180A       | SMAJ180CA     | ST                  | VT | 180.0                     | 201.00~222.00         | 1            | 292.0                         | 1.4                | 1                     |
| SMAJ190A       | SMAJ190CA     | SU                  | YU | 190.0                     | 211.00~233.00         | 1            | 308.0                         | 1.3                | 1                     |
| SMAJ200A       | SMAJ200CA     | SV                  | VV | 200.0                     | 224.00~247.00         | 1            | 324.0                         | 1.2                | 1                     |
| SMAJ210A       | SMAJ210CA     | SW                  | YW | 210.0                     | 237.00~263.00         | 1            | 340.0                         | 1.2                | 1                     |
| SMAJ220A       | SMAJ220CA     | GE                  | VX | 220.0                     | 246.00~272.00         | 1            | 356.0                         | 1.1                | 1                     |
| SMAJ250A       | SMAJ250CA     | SZ                  | VZ | 250.0                     | 279.00~309.00         | 1            | 405.0                         | 1.0                | 1                     |
| SMAJ300A       | SMAJ300CA     | TE                  | UE | 300.0                     | 335.00~371.00         | 1            | 486.0                         | 0.8                | 1                     |
| SMAJ350A       | SMAJ350CA     | TG                  | UG | 350.0                     | 391.00~432.00         | 1            | 567.0                         | 0.7                | 1                     |
| SMAJ400A       | SMAJ400CA     | TK                  | UK | 400.0                     | 447.00~494.00         | 1            | 648.0                         | 0.6                | 1                     |
| SMAJ440A       | SMAJ440CA     | TM                  | UM | 440.0                     | 492.00~543.00         | 1            | 713.0                         | 0.6                | 1                     |

Fig.1 Peak Pulse Power Rating Curve

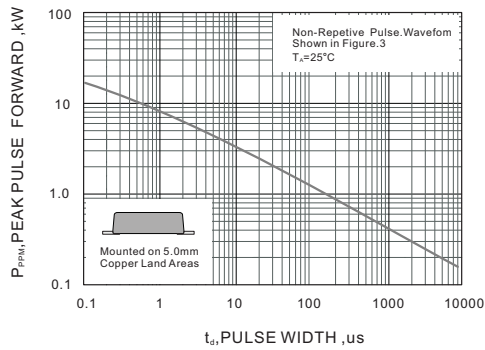


Fig.2 Forward Current Derating Curve

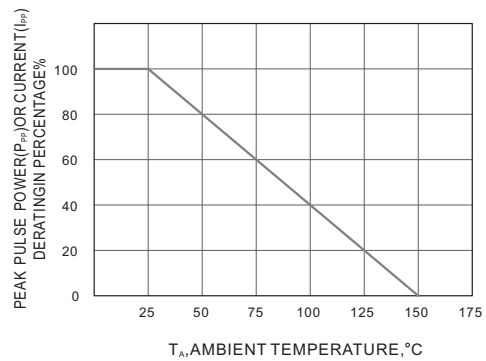


Fig.3 Pulse Waveform

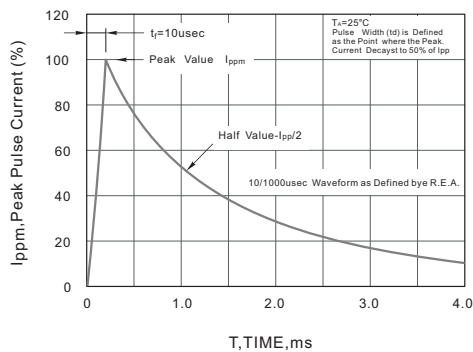
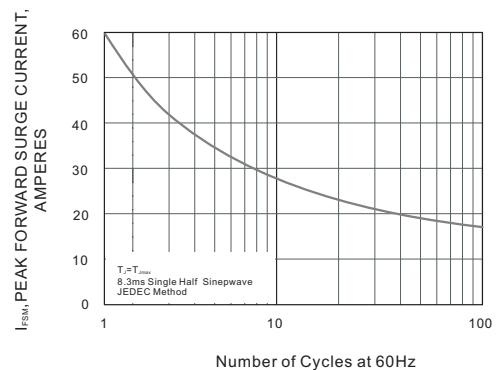


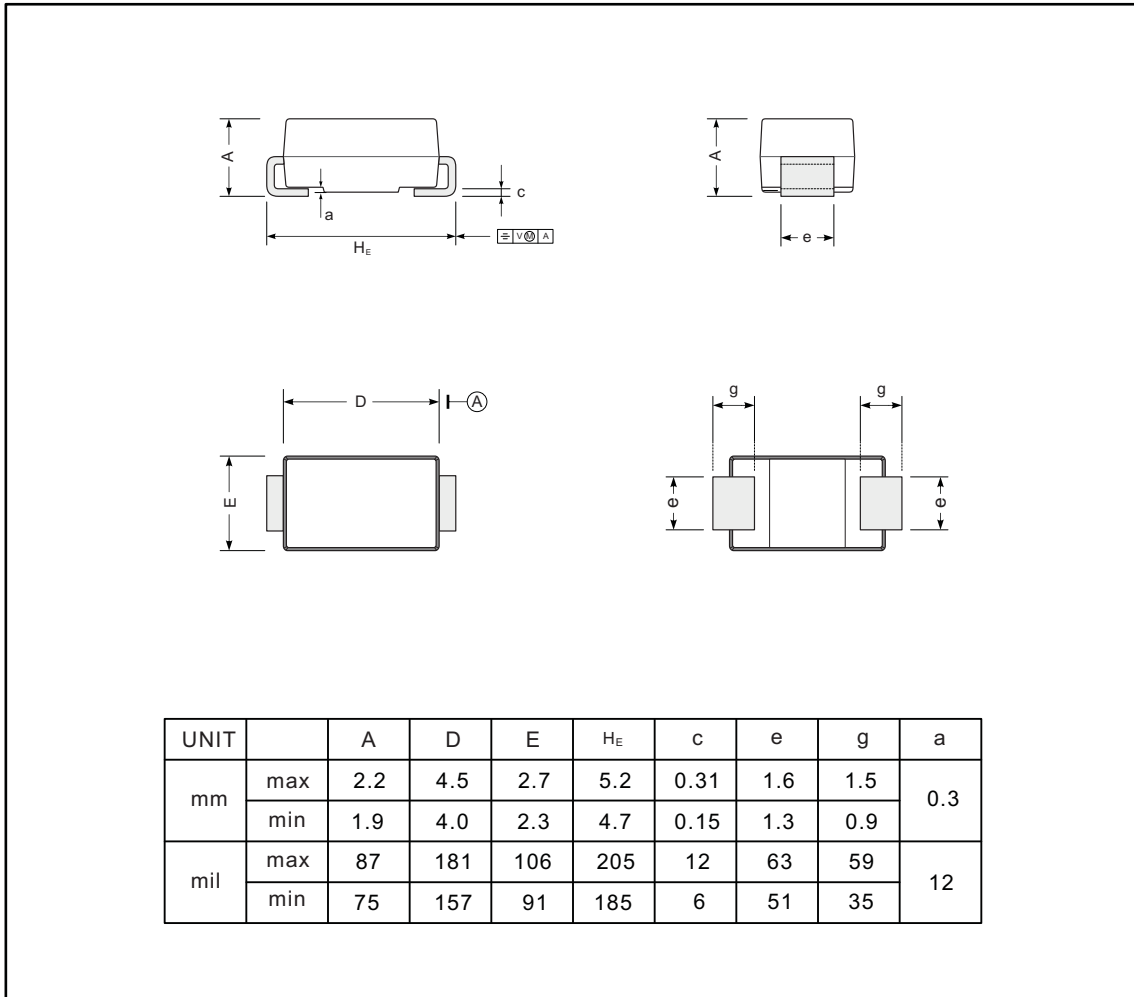
Fig.4 Maximum Non-Repetitive Peak Forward Surge Current



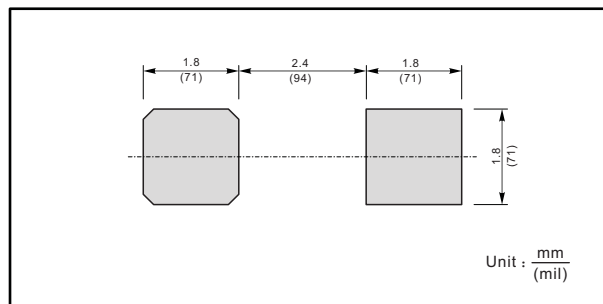
## PACKAGE OUTLINE

Plastic surface mounted package; 2 leads

SMA



### The recommended mounting pad size



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