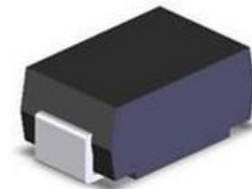


## 400Watts Transient Voltage Suppressor SMAJ5.0(C)A - SMAJ550(C)A

### Features

- Glass passivated chip
- 400 W peak pulse power capability with a 10/1000 us waveform, repetitive rate (duty cycle):0.01 %
- Excellent clamping capability
- Low reverse leakage
- Very fast response time
- Lead and body according with RoHS standard



**SMA  
DO-214AC**



### Mechanical Characteristics

- JEDEC DO-214AC(SMA) package
- Molding compound flammability rating:  
UL 94V-0
- Marking: Marking Code
- Packaging: Tape and Reel per EIA 481

### Applications

- I/O Interfaces
- Power lines
- Automotive and Telecommunication
- Computers & Consumer Electronics
- Industrial Electronics

| Absolute Maximum Rating   |                                   |                |       |
|---|-----------------------------------|----------------|-------|
| Rating  | Symbol                            | Value          | Units |
| Peak power dissipation with a 10/1000 us waveform <sup>(1)</sup>                            | P <sub>PPM</sub>                  | 400            | W     |
| Peak pulse current with a 10/1000 us waveform <sup>(1)</sup>                                | I <sub>PPM</sub>                  | See Next Table | A     |
| Power dissipation on infinite heatsink at T <sub>L</sub> = 75 °C                            | P <sub>D</sub>                    | 3.0            | W     |
| Peak forward surge current, 8.3 ms single half sine wave unidirectional only <sup>(2)</sup> | I <sub>FSM</sub>                  | 40             | A     |
| Maximum instantaneous forward voltage at 25 A for unidirectional only <sup>(3)</sup>        | V <sub>F</sub>                    | 3.5/6.5        | V     |
| Operating junction and storage temperature range  | T <sub>J</sub> , T <sub>STG</sub> | -55 to +150    | °C    |

1) Non-repetitive current pulse per Fig.5 and derated above T<sub>A</sub> = 25 °C per Fig.1 ;

2) Measured on 8.3 ms single half sine-wave or equivalent square wave, duty cycle = 4 pulses per minute maximum ;

3) V<sub>F</sub> < 3.5V for devices of V<sub>BR</sub> < 200V and V<sub>F</sub> < 6.5V for devices of V<sub>BR</sub> > 201V.

## 400Watts

### Transient Voltage Suppressor SMAJ5.0(C)A - SMAJ550(C)A

### Electrical Characteristics

| Part Number |           | Marking |    | Reverse Stand Off Voltage<br>$V_R$ (V) | Breakdown Voltage    |      | Test Current<br>$I_T$ (mA) | Maximum Clamping Voltage<br>$V_C$ (V) @ $I_{PP}$ | Maximum Peak Pulse Current<br>$I_{PP}$ (A) | Maximum Reverse Leakage<br>$I_R$ ( $\mu$ A) @ $V_R$ |
|-------------|-----------|---------|----|--|----------------------|------|----------------------------|--|--|---|
| Uni         | Bi        | Uni     | Bi |  | $V_{BR}$ (V) @ $I_T$ | Min. |                            |  |  |   |
| SMAJ5.0A    | SMAJ5.0CA | AE      | WE | 5                                      | 6.4                  | 7    | 10                         | 9.2  | 43.5                                       | 800   |
| SMAJ6.0A    | SMAJ6.0CA | AG      | WG | 6                                      | 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                                      | 7.78                 | 8.6  | 10                         | 12   | 33.3                                       | 200   |
| SMAJ7.5A    | SMAJ7.5CA | AP      | WP | 7.5                                    | 8.33                 | 9.21 | 1                          | 12.9   | 31   | 100   |
| SMAJ8.0A    | SMAJ8.0CA | AR      | WR | 8                                      | 8.89                 | 9.83 | 1                          | 13.6   | 29.4                                       | 50  |
| SMAJ8.5A    | SMAJ8.5CA | AT      | WT | 8.5                                    | 9.44                 | 10.4 | 1                          | 14.4   | 27.8                                       | 20  |
| SMAJ9.0A    | SMAJ9.0CA | AV      | WV | 9                                      | 10                   | 11.1 | 1                          | 15.4   | 26   | 10  |
| SMAJ10A     | SMAJ10CA  | AX      | WX | 10                                     | 11.1                 | 12.3 | 1                          | 17   | 23.5                                       | 5   |
| SMAJ11A     | SMAJ11CA  | AZ      | WZ | 11                                     | 12.2                 | 13.5 | 1                          | 18.2   | 22   | 1   |
| SMAJ12A     | SMAJ12CA  | BE      | XE | 12                                     | 13.3                 | 14.7 | 1                          | 19.9   | 20.1                                       | 1   |
| SMAJ13A     | SMAJ13CA  | BG      | XG | 13                                     | 14.4                 | 15.9 | 1                          | 21.5   | 18.6                                       | 1   |
| SMAJ14A     | SMAJ14CA  | BK      | XK | 14                                     | 15.6                 | 17.2 | 1                          | 23.2   | 17.2                                       | 1   |
| SMAJ15A     | SMAJ15CA  | BM      | XM | 15                                     | 16.7                 | 18.5 | 1                          | 24.4   | 16.4                                       | 1   |
| SMAJ16A     | SMAJ16CA  | BP      | XP | 16                                     | 17.8                 | 19.7 | 1                          | 26   | 15.4                                       | 1   |
| SMAJ17A     | SMAJ17CA  | BR      | XR | 17                                     | 18.9                 | 20.9 | 1                          | 27.6   | 14.5                                       | 1   |
| SMAJ18A     | SMAJ18CA  | BT      | XT | 18                                     | 20                   | 22.1 | 1                          | 29.2   | 13.7                                       | 1   |
| SMAJ20A     | SMAJ20CA  | BV      | XV | 20                                     | 22.2                 | 24.5 | 1                          | 32.4   | 12.3                                       | 1   |
| SMAJ22A     | SMAJ22CA  | BX      | XX | 22                                     | 24.4                 | 26.9 | 1                          | 35.5   | 11.3                                       | 1   |
| SMAJ24A     | SMAJ24CA  | BZ      | XZ | 24                                     | 26.7                 | 29.5 | 1                          | 38.9   | 10.3                                       | 1   |
| SMAJ26A     | SMAJ26CA  | CE      | YE | 26                                     | 28.9                 | 31.9 | 1                          | 42.1   | 9.5  | 1   |
| SMAJ28A     | SMAJ28CA  | CG      | YG | 28                                     | 31.1                 | 34.4 | 1                          | 45.4   | 8.8  | 1   |
| SMAJ30A     | SMAJ30CA  | CK      | YK | 30                                     | 33.3                 | 36.8 | 1                          | 48.4   | 8.3  | 1   |
| SMAJ33A     | SMAJ33CA  | CM      | YM | 33                                     | 36.7                 | 40.6 | 1                          | 53.3   | 7.5  | 1   |
| SMAJ36A     | SMAJ36CA  | CP      | YP | 36                                     | 40                   | 44.2 | 1                          | 58.1   | 6.9  | 1   |
| SMAJ40A     | SMAJ40CA  | CR      | YR | 40                                     | 44.4                 | 49.1 | 1                          | 64.5   | 6.2  | 1   |
| SMAJ43A     | SMAJ43CA  | CT      | YT | 43                                     | 47.8                 | 52.8 | 1                          | 69.4   | 5.8  | 1   |
| SMAJ45A     | SMAJ45CA  | CV      | YV | 45                                     | 50                   | 55.3 | 1                          | 72.7   | 5.5  | 1   |
| SMAJ48A     | SMAJ48CA  | CX      | YX | 48                                     | 53.3                 | 58.9 | 1                          | 77.4   | 5.2  | 1   |
| SMAJ51A     | SMAJ51CA  | CZ      | YZ | 51                                     | 56.7                 | 62.7 | 1                          | 82.4   | 4.9  | 1   |
| SMAJ54A     | SMAJ54CA  | RE      | ZE | 54                                     | 60                   | 66.3 | 1                          | 87.1   | 4.6  | 1   |
| SMAJ58A     | SMAJ58CA  | RG      | ZG | 58                                     | 64.4                 | 71.2 | 1                          | 93.6   | 4.3  | 1   |
| SMAJ60A     | SMAJ60CA  | RK      | ZK | 60                                     | 66.7                 | 73.7 | 1                          | 96.8   | 4.1  | 1   |
| SMAJ64A     | SMAJ64CA  | RM      | ZM | 64                                     | 71.1                 | 78.6 | 1                          | 103  | 3.9  | 1   |
| SMAJ70A     | SMAJ70CA  | RP      | ZP | 70                                     | 77.8                 | 86   | 1                          | 113  | 3.5  | 1   |
| SMAJ75A     | SMAJ75CA  | RR      | ZR | 75                                     | 83.3                 | 92.1 | 1                          | 121  | 3.3  | 1   |
| SMAJ78A     | SMAJ78CA  | RT      | ZT | 78                                     | 86.7                 | 95.8 | 1                          | 126  | 3.2  | 1   |
| SMAJ85A     | SMAJ85CA  | RV      | ZV | 85                                     | 94.4                 | 104  | 1                          | 137  | 2.9  | 1   |
| SMAJ90A     | SMAJ90CA  | RX      | ZX | 90                                     | 100                  | 111  | 1                          | 146  | 2.7  | 1   |
| SMAJ100A    | SMAJ100CA | RZ      | ZZ | 100                                    | 111                  | 123  | 1                          | 162  | 2.5  | 1   |

**400Watts**  
**Transient Voltage Suppressor**  
**SMAJ5.0(C)A - SMAJ550(C)A**

**Electrical Characteristics** (continued)

| Part Number |           | Marking |    | Reverse Stand Off Voltage | Breakdown Voltage    |      | Test Current | Maximum Clamping Voltage | Maximum Peak Pulse Current | Maximum Reverse Leakage  |
|-------------|-----------|---------|----|---------------------------|----------------------|------|--------------|--------------------------|----------------------------|--------------------------|
| Uni         | Bi        | Uni     | Bi | $V_R$ (V)                 | $V_{BR}$ (V) @ $I_T$ |      | $I_T$ (mA)   | $V_C$ (V) @ $I_{PP}$     | $I_{PP}$ (A)               | $I_R$ ( $\mu$ A) @ $V_R$ |
|             |           |         |    |                           | Min.                 | Max. |              |                          |                            |                          |
| SMAJ110A    | SMAJ110CA | SE      | VE | 110                       | 122                  | 135  | 1            | 177                      | 2.3                        | 1                        |
| SMAJ120A    | SMAJ120CA | SG      | VG | 120                       | 133                  | 147  | 1            | 193                      | 2.1                        | 1                        |
| SMAJ130A    | SMAJ130CA | SK      | VK | 130                       | 144                  | 159  | 1            | 209                      | 1.9                        | 1                        |
| SMAJ150A    | SMAJ150CA | SM      | VM | 150                       | 167                  | 185  | 1            | 243                      | 1.6                        | 1                        |
| SMAJ160A    | SMAJ160CA | SP      | VP | 160                       | 178                  | 197  | 1            | 259                      | 1.5                        | 1                        |
| SMAJ170A    | SMAJ170CA | SR      | VR | 170                       | 189                  | 209  | 1            | 275                      | 1.5                        | 1                        |
| SMAJ180A    | SMAJ180CA | ST      | VT | 180                       | 201                  | 222  | 1            | 292                      | 1.4                        | 1                        |
| SMAJ190A    | SMAJ190CA | SU      | YU | 190                       | 209                  | 243  | 1            | 308                      | 1.3                        | 1                        |
| SMAJ200A    | SMAJ200CA | SV      | VV | 200                       | 224                  | 247  | 1            | 324                      | 1.2                        | 1                        |
| SMAJ210A    | SMAJ210CA | SW      | YW | 210                       | 231                  | 268  | 1            | 340                      | 1.2                        | 1                        |
| SMAJ220A    | SMAJ220CA | GX      | VX | 220                       | 246                  | 272  | 1            | 356                      | 1.1                        | 1                        |
| SMAJ250A    | SMAJ250CA | SZ      | VZ | 250                       | 279                  | 309  | 1            | 405                      | 1                          | 1                        |
| SMAJ300A    | SMAJ300CA | TE      | UE | 300                       | 335                  | 371  | 1            | 486                      | 0.8                        | 1                        |
| SMAJ350A    | SMAJ350CA | TG      | UG | 350                       | 391                  | 432  | 1            | 567                      | 0.7                        | 1                        |
| SMAJ400A    | SMAJ400CA | TK      | UK | 400                       | 447                  | 494  | 1            | 648                      | 0.6                        | 1                        |
| SMAJ440A    | SMAJ440CA | TM      | UM | 440                       | 492                  | 543  | 1            | 713                      | 0.6                        | 1                        |
| SMAJ480A    | SMAJ480CA | TP      | UP | 480                       | 536                  | 593  | 1            | 750                      | 0.5                        | 1                        |
| SMAJ520A    | SMAJ520CA | TR      | UR | 520                       | 578                  | 640  | 1            | 762                      | 0.5                        | 1                        |
| SMAJ550A    | SMAJ550CA | TT      | UT | 550                       | 615                  | 680  | 1            | 860                      | 0.4                        | 1                        |

# 400Watts Transient Voltage Suppressor SMAJ5.0(C)A - SMAJ550(C)A

## Ratings and Characteristics Curves (TA=25°C unless otherwise noted)

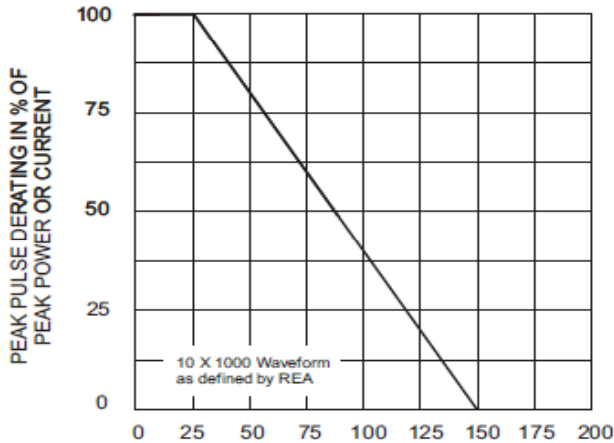


Fig. 1 - Pulse Derating Curve

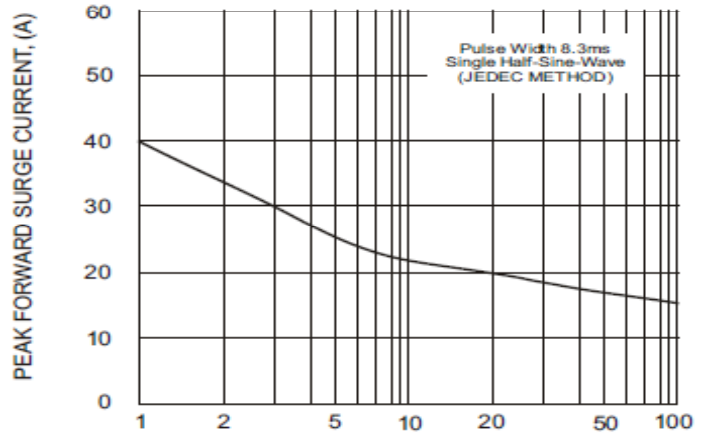


Fig. 2 - Maximum Non-Repetitive Surge Current

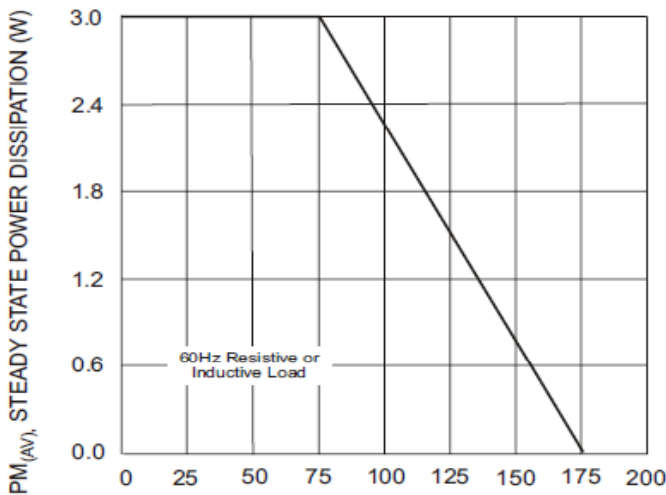


Fig. 3 - Steady State Power Derating Curve

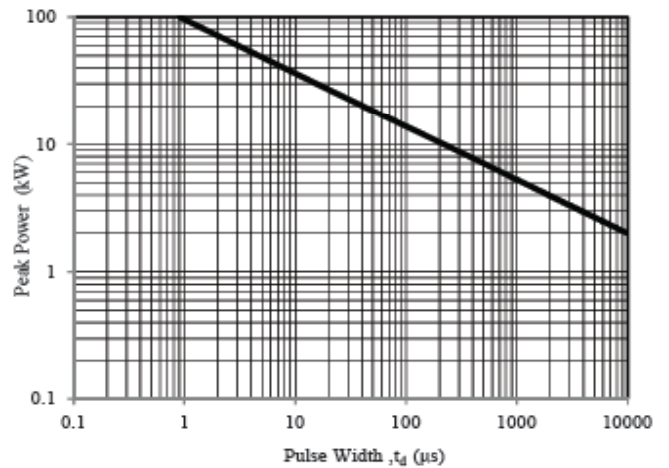


Fig. 4 - Peak Pulse Power Rating Curve

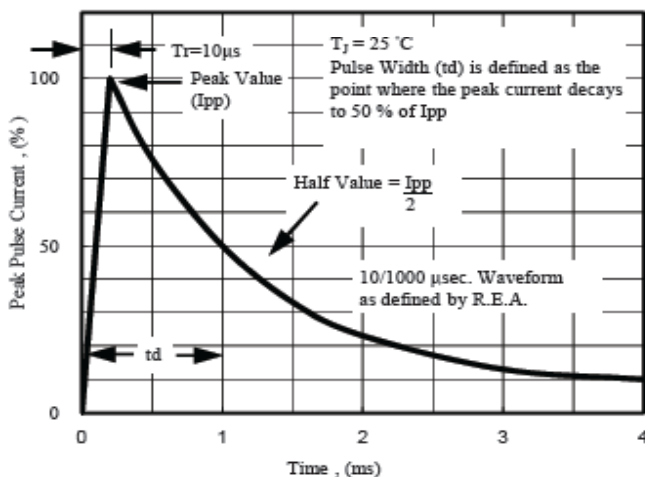


Fig. 5 - Pulse Waveform

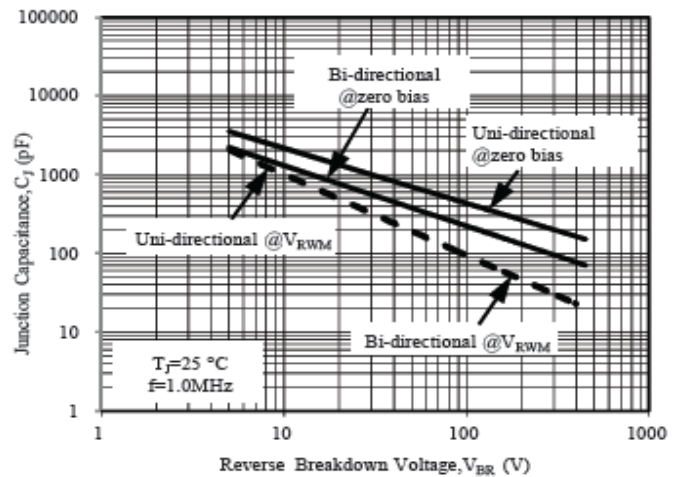
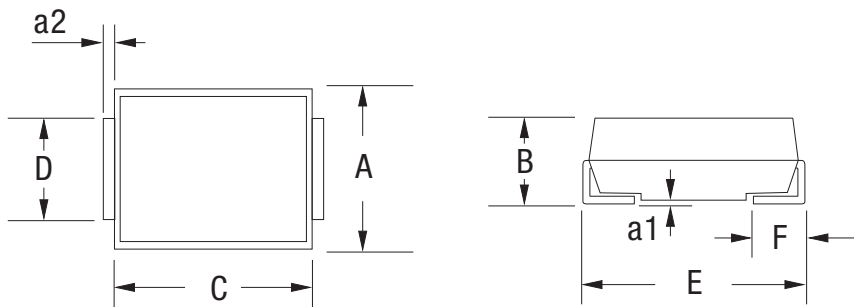


Fig. 6 - Typical Junction Capacitance

**400Watts**  
**Transient Voltage Suppressor**  
**SMAJ5.0(C)A - SMAJ550(C)A**

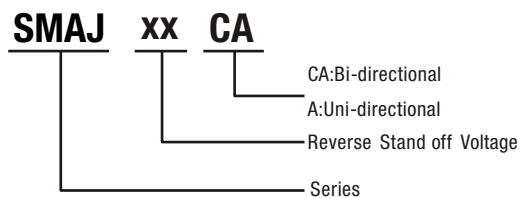
**Dimension** (Unit: mm)



| A     |       | B     |       | C     |       | D     |       | E     |       | F     |       | a1   |       | a2    |       |
|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|------|-------|-------|-------|
| Min.  | Max.  | Min.  | Max.  | Min.  | Max.  | Min.  | Max.  | Min.  | Max.  | Min.  | Max.  | Min. | Max.  | Min.  | Max.  |
| 2.500 | 2.800 | 1.900 | 2.450 | 3.900 | 4.600 | 1.400 | 1.800 | 4.800 | 5.300 | 0.760 | 1.520 | -    | 0.203 | 0.145 | 0.255 |

**Packaging: 5,000/Tape & Reel**

**Part Marking System**



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