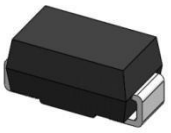
# 400W,5 - 300V Transient Voltage Suppressors

## Features

- Very fast response time
- Glass passivated junction
- Moisture sensitivity: level 1, per J-STD-020
- Available in unidirectional and bidirectional
- Plastic package has underwriters Laboratory Flammability Classification 94V-0
- Halogen-free according to IEC 61249-2-21 definition
- 400W peak pulse power capability with a 10/1000 μs waveform

Pb
RoHS
COMPLIANT



SMA(DO-214AC)

## Applications

- SMPS
- Adapters
- Monitor

| **Absolute Maximum Ratings** ($T_A$ =25°C unless otherwise noted) | | | |
|---|---|---|---|
| **Parameter** | **Symbol** | **Ratings** | **Unit** |
| Peak power dissipation with a 10/1000us waveform | $P_{PPM}$ | 400 | W |
| Peak pulse current with a 10/1000us waveform | $I_{PPM}$ | See Next Table | A |
| Power dissipation, on infinite heat sink at $T_L$=75℃ | $P_D$ | 3 | W |
| Peak forward surge current, 8.3ms single half-sine wave | $I_{FSM}$ | 40 | A |
| Typical Thermal Resistance , Junction to Ambient | $R_{\theta JA}$ | 90 | ℃/W |
| Typical Thermal Resistance , Junction to Case | $R_{\theta JC}$ | 20 | ℃/W |
| Typical Thermal Resistance , Junction to Lead | $R_{\theta JL}$ | 25 | ℃/W |
| Operating junction and storage temperature range | $T_J$, $T_{STG}$ | -55 to +150 | ℃ |

## Electrical Characteristics (TA = 25 °C unless otherwise noted)

| Part Number (Uni) | Part Number (Bi) | Marking | | Breakdown Voltage VBR (Volts) | | Test Current $I_T$ (mA) | Stand off Voltage $V_{WM}$ (Volts) | Maximum reverse leakage at VWM $I_D$ (μA) | Maximum Peak Pulse Current $I_{ppM}$ (A) | Maximum Clamping Voltage at $I_{PPM}$ $V_C$(Volts) |
|---|---|---|---|---|---|---|---|---|---|---|
| | | UNI | BI | Min | Max | | | | | |
| SMAJ5.0A | SMAJ5.0CA | AE | WE | 6.40 | 7.07 | 10.0 | 5.0 | 800 | 43.5 | 9.2 |
| SMAJ6.0A | SMAJ6.0CA | AG | WG | 6.67 | 7.37 | 10.0 | 6.0 | 800 | 38.8 | 10.3 |
| SMAJ6.5A | SMAJ6.5CA | AK | WK | 7.22 | 7.98 | 10.0 | 6.5 | 500 | 35.7 | 11.2 |
| SMAJ7.0A | SMAJ7.0CA | AM | WM | 7.78 | 8.60 | 10.0 | 7.0 | 200 | 33.3 | 12.0 |
| SMAJ7.5A | SMAJ7.5CA | AP | WP | 8.33 | 9.21 | 1.0 | 7.5 | 100 | 31.0 | 12.9 |
| SMAJ8.0A | SMAJ8.0CA | AR | WR | 8.89 | 9.83 | 1.0 | 8.0 | 50 | 29.4 | 13.6 |
| SMAJ8.5A | SMAJ8.5CA | AT | WT | 9.44 | 10.4 | 1.0 | 8.5 | 10 | 27.8 | 14.4 |
| SMAJ9.0A | SMAJ9.0CA | AV | WV | 10.0 | 11.1 | 1.0 | 9.0 | 5.0 | 26.0 | 15.4 |
| SMAJ10A | SMAJ10CA | AX | WX | 11.1 | 12.3 | 1.0 | 10 | 1.0 | 23.5 | 17.0 |
| SMAJ11A | SMAJ11CA | AZ | WZ | 12.2 | 13.5 | 1.0 | 11 | 1.0 | 22.0 | 18.2 |
| SMAJ12A | SMAJ12CA | BE | XE | 13.3 | 14.7 | 1.0 | 12 | 1.0 | 20.1 | 19.9 |
| SMAJ13A | SMAJ13CA | BG | XG | 14.4 | 15.9 | 1.0 | 13 | 1.0 | 18.6 | 21.5 |
| SMAJ14A | SMAJ14CA | BK | XK | 15.6 | 17.2 | 1.0 | 14 | 1.0 | 17.2 | 23.2 |
| SMAJ15A | SMAJ15CA | BM | XM | 16.7 | 18.5 | 1.0 | 15 | 1.0 | 16.4 | 24.4 |
| SMAJ16A | SMAJ16CA | BP | XP | 17.8 | 19.7 | 1.0 | 16 | 1.0 | 15.4 | 26.0 |
| SMAJ17A | SMAJ17CA | BR | XR | 18.9 | 20.9 | 1.0 | 17 | 1.0 | 14.5 | 27.6 |
| SMAJ18A | SMAJ18CA | BT | XT | 20.0 | 22.1 | 1.0 | 18 | 1.0 | 13.7 | 29.2 |
| SMAJ20A | SMAJ20CA | BV | XV | 22.2 | 24.5 | 1.0 | 20 | 1.0 | 12.3 | 32.4 |
| SMAJ22A | SMAJ22CA | BX | XX | 24.4 | 26.9 | 1.0 | 22 | 1.0 | 11.3 | 35.5 |
| SMAJ24A | SMAJ24CA | BZ | XZ | 26.7 | 29.5 | 1.0 | 24 | 1.0 | 10.3 | 38.9 |
| SMAJ26A | SMAJ26CA | CE | YE | 28.9 | 31.9 | 1.0 | 26 | 1.0 | 9.5 | 42.1 |
| SMAJ28A | SMAJ28CA | CG | YG | 31.1 | 34.4 | 1.0 | 28 | 1.0 | 8.8 | 45.4 |
| SMAJ30A | SMAJ30CA | CK | YK | 33.3 | 36.8 | 1.0 | 30 | 1.0 | 8.3 | 48.4 |
| SMAJ33A | SMAJ33CA | CM | YM | 36.7 | 40.6 | 1.0 | 33 | 1.0 | 7.5 | 53.3 |
| SMAJ36A | SMAJ36CA | CP | YP | 40.0 | 44.4 | 1.0 | 36 | 1.0 | 6.9 | 58.1 |
| SMAJ40A | SMAJ40CA | CR | YR | 44.4 | 49.1 | 1.0 | 40 | 1.0 | 6.2 | 64.5 |
| SMAJ43A | SMAJ43CA | CT | YT | 47.8 | 52.8 | 1.0 | 43 | 1.0 | 5.8 | 69.4 |
| SMAJ45A | SMAJ45CA | CV | YV | 50.0 | 55.3 | 1.0 | 45 | 1.0 | 5.5 | 72.7 |
| SMAJ48A | SMAJ48CA | CX | YX | 53.3 | 58.9 | 1.0 | 48 | 1.0 | 5.2 | 77.4 |
| SMAJ51A | SMAJ51CA | CZ | YZ | 56.7 | 62.7 | 1.0 | 51 | 1.0 | 4.9 | 82.4 |
| SMAJ54A | SMAJ54CA | RE | ZE | 60.0 | 66.3 | 1.0 | 54 | 1.0 | 4.6 | 87.1 |
| SMAJ58A | SMAJ58CA | RG | ZG | 64.4 | 71.2 | 1.0 | 58 | 1.0 | 4.3 | 93.6 |
| SMAJ60A | SMAJ60CA | RK | ZK | 66.7 | 73.7 | 1.0 | 60 | 1.0 | 4.1 | 96.8 |
| SMAJ64A | SMAJ64CA | RM | ZM | 71.1 | 78.6 | 1.0 | 64 | 1.0 | 3.9 | 103 |
| SMAJ70A | SMAJ70CA | RP | ZP | 77.8 | 86.0 | 1.0 | 70 | 1.0 | 3.5 | 113 |
| SMAJ75A | SMAJ75CA | RR | ZR | 83.3 | 92.1 | 1.0 | 75 | 1.0 | 3.3 | 121 |

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| SMAJ78A | SMAJ78CA | RT | ZT | 86.7 | 95.8 | 1.0 | 78 | 1.0 | 3.2 | 126 |
| SMAJ85A | SMAJ85CA | RV | ZV | 94.4 | 104 | 1.0 | 85 | 1.0 | 2.9 | 137 |
| SMAJ90A | SMAJ90CA | RX | ZX | 100 | 111 | 1.0 | 90 | 1.0 | 2.7 | 146 |
| SMAJ100A | SMAJ100CA | RZ | ZZ | 111 | 123 | 1.0 | 100 | 1.0 | 2.5 | 162 |
| SMAJ110A | SMAJ110CA | SE | VE | 122 | 135 | 1.0 | 110 | 1.0 | 2.3 | 177 |
| SMAJ120A | SMAJ120CA | SG | VG | 133 | 147 | 1.0 | 120 | 1.0 | 2.1 | 193 |
| SMAJ130A | SMAJ130CA | SK | VK | 144 | 159 | 1.0 | 130 | 1.0 | 1.9 | 209 |
| SMAJ150A | SMAJ150CA | SM | VM | 167 | 185 | 1.0 | 150 | 1.0 | 1.6 | 243 |
| SMAJ160A | SMAJ160CA | SP | VP | 178 | 197 | 1.0 | 160 | 1.0 | 1.5 | 259 |
| SMAJ170A | SMAJ170CA | SR | VR | 189 | 209 | 1.0 | 170 | 1.0 | 1.5 | 275 |
| SMAJ180A | SMAJ180CA | ST | VT | 201 | 222 | 1.0 | 180 | 1.0 | 1.4 | 292 |
| SMAJ200A | SMAJ200CA | SV | VV | 224 | 247 | 1.0 | 200 | 1.0 | 1.2 | 324 |
| SMAJ220A | SMAJ220CA | SX | VX | 246 | 272 | 1.0 | 220 | 1.0 | 1.1 | 356 |
| SMAJ250A | SMAJ250CA | SZ | VZ | 279 | 309 | 1.0 | 250 | 1.0 | 1.0 | 405 |
| SMAJ300A | SMAJ300CA | TE | UE | 335 | 371 | 1.0 | 300 | 1.0 | 0.8 | 486 |

Note：

1. The thermal resistance from junction to ambient, case or lead, mounted on P.C.B with 5×5mm copper pads

## Ratings and Characteristics Curves

($T_A$ = 25℃ unless otherwise noted)

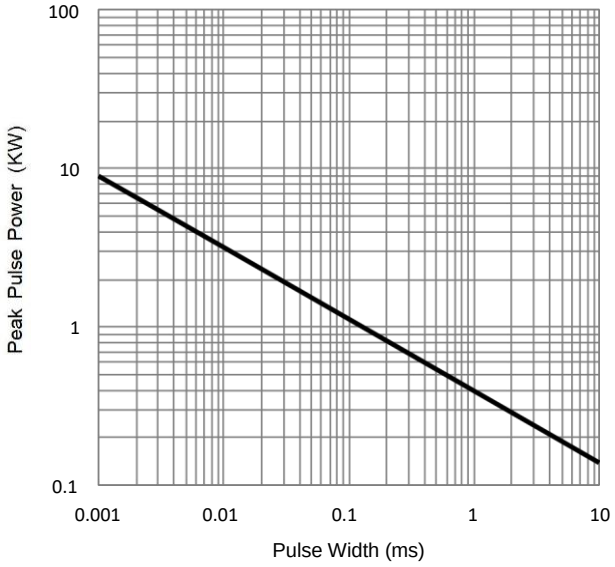



**Fig.1 –Peak Pulse Power Derating Curve**

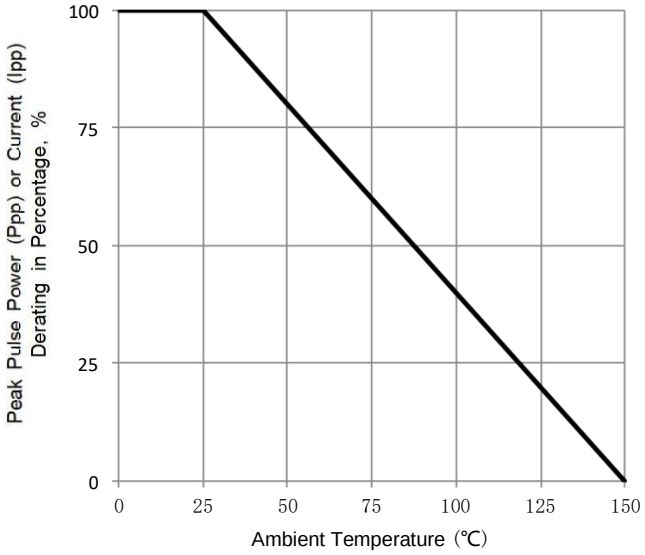



**Fig.2 – Pulse Power vs Ambient Temperature**

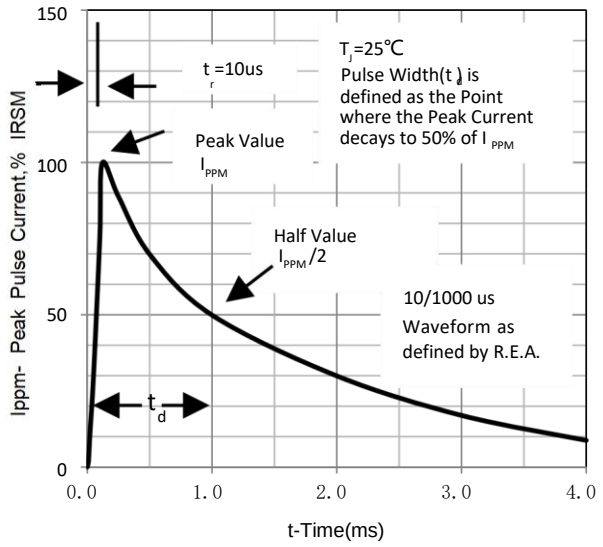



**Fig.3 – Pulse Waveform**

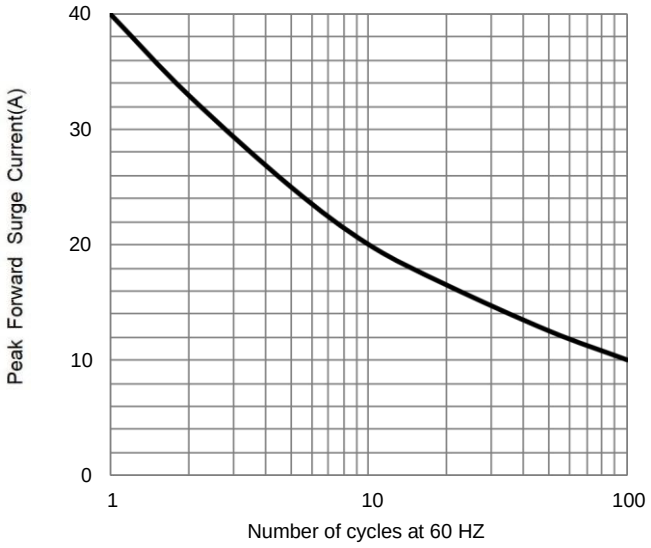
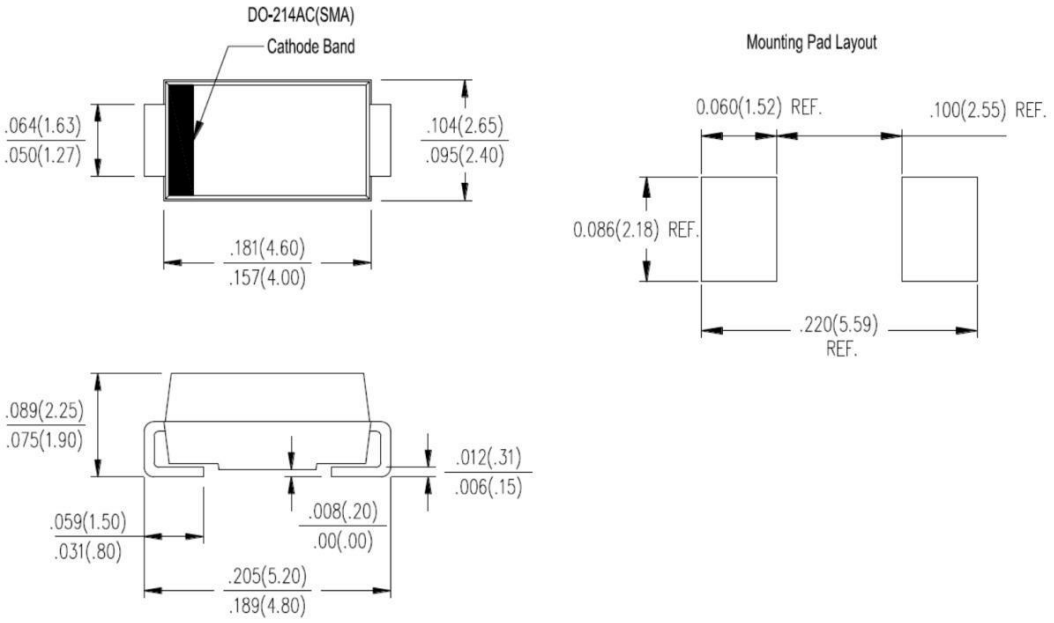



**Fig.4 – Maximum Non-Repetitive Surge Current**

## Package Outline Dimensions

in inches (millimeters)

### SMA (DO-214AC)




## Revision History

| Document Version | Date of release | Description of changes |
|---|---|---|
| Rev.A | 2021.06.15 | Released Datasheet |
| Rev.B | 2023.10.13 | Modify document format |
| Rev.C | 2023.12.18 | Update product range |
| Rev.D | 2025.02.18 | Update product range |
| Rev.E | 2026.09.20 | Update product range |

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