

## SMA TVS 瞬态电压抑制二极管

### ■ Features 特点

Excellent Clamping Capability 优秀的钳位能力

Fast Response Time 快速反应时间

Built-in Strain Relief 内应力释放

### ■ Applications 应用

Clamping Voltage 钳制电压



### ■ Internal Schematic Diagram 内部结构



### ■ Absolute Maximum Ratings 最大额定值

| Characteristic<br>特性参数                        | Symbol<br>符号    | Rat<br>额定值 | Unit<br>单位    |
|-----------------------------------------------|-----------------|------------|---------------|
| Peak Power Dissipation<br>峰值功率                | $P_{PK}$        | 400        | W             |
| Reverse Stand-off Work Voltage<br>反向工作电压      | $V_{RWM}$       | 5.0~440    | V             |
| Peak Pulse Current<br>峰值脉冲电流                  | $I_{PP}$        | 43.5~0.6   | A             |
| Peak Forward Surge Current<br>峰值正向浪涌电流(UNI)   | $I_{FSM}$       | 40         | A             |
| Forward Voltage@ $I_F=25A$<br>正向电压(UNI)       | $V_F$           | 3.5        | V             |
| Thermal Resistance Junction-Ambient<br>结到环境热阻 | $R_{\theta JA}$ | 30         | $^{\circ}C/W$ |
| Junction/Storage Temperature<br>结温/储存温度       | $T_J, T_{stg}$  | -55~150    | $^{\circ}C$   |

### ■ Electrical Characteristics 电特性

( $T_A=25^{\circ}C$  unless otherwise noted 如无特殊说明, 温度为  $25^{\circ}C$ )

| Type Number | V <sub>RWM</sub><br>(V) | V <sub>BR</sub> (V)@I <sub>T</sub> |       | I <sub>T</sub><br>(mA) | V <sub>C</sub> (V)<br>@I <sub>PP</sub> | I <sub>PP</sub><br>(A) | I <sub>R</sub> (μA)<br>@V <sub>RWM</sub> | Marking |        |
|-------------|-------------------------|------------------------------------|-------|------------------------|----------------------------------------|------------------------|------------------------------------------|---------|--------|
|             |                         | Min.                               | Max.  |                        |                                        |                        |                                          | A(UNI)  | CA(BI) |
| SMAJ5.0(C)A | 5.0                     | 6.40                               | 7.25  | 10                     | 9.2                                    | 43.5                   | 800                                      | AE      | WE     |
| SMAJ6.0(C)A | 6.0                     | 6.67                               | 7.67  | 10                     | 10.3                                   | 38.8                   | 800                                      | AG      | WG     |
| SMAJ6.5(C)A | 6.5                     | 7.22                               | 8.30  | 10                     | 11.2                                   | 35.7                   | 500                                      | AK      | WK     |
| SMAJ7.0(C)A | 7.0                     | 7.78                               | 8.95  | 10                     | 12.0                                   | 33.3                   | 200                                      | AM      | WM     |
| SMAJ7.5(C)A | 7.5                     | 8.33                               | 9.58  | 1                      | 12.9                                   | 31.0                   | 100                                      | AP      | WP     |
| SMAJ8.0(C)A | 8.0                     | 8.89                               | 10.23 | 1                      | 13.6                                   | 29.4                   | 50                                       | AR      | WR     |
| SMAJ8.5(C)A | 8.5                     | 9.44                               | 10.82 | 1                      | 14.4                                   | 27.7                   | 10                                       | AT      | WT     |
| SMAJ9.0(C)A | 9.0                     | 10.0                               | 11.50 | 1                      | 15.4                                   | 26.0                   | 5                                        | AV      | WV     |
| SMAJ10(C)A  | 10                      | 11.1                               | 12.80 | 1                      | 17.0                                   | 23.5                   | 5                                        | AX      | WX     |
| SMAJ11(C)A  | 11                      | 12.2                               | 14.00 | 1                      | 18.2                                   | 22.0                   | 5                                        | AZ      | WZ     |
| SMAJ12(C)A  | 12                      | 13.3                               | 15.30 | 1                      | 19.9                                   | 20.1                   | 5                                        | BE      | XE     |
| SMAJ13(C)A  | 13                      | 14.4                               | 15.60 | 1                      | 21.5                                   | 18.6                   | 5                                        | BG      | XG     |
| SMAJ14(C)A  | 14                      | 15.6                               | 17.90 | 1                      | 23.2                                   | 17.2                   | 5                                        | BK      | XK     |
| SMAJ15(C)A  | 15                      | 16.7                               | 19.20 | 1                      | 24.4                                   | 16.4                   | 5                                        | BM      | XM     |
| SMAJ16(C)A  | 16                      | 17.8                               | 20.50 | 1                      | 26.0                                   | 15.3                   | 5                                        | BP      | XP     |
| SMAJ17(C)A  | 17                      | 18.9                               | 21.70 | 1                      | 27.6                                   | 14.5                   | 5                                        | BR      | XR     |
| SMAJ18(C)A  | 18                      | 20.0                               | 23.30 | 1                      | 29.2                                   | 13.7                   | 5                                        | BT      | XT     |
| SMAJ20(C)A  | 20                      | 22.2                               | 25.50 | 1                      | 32.4                                   | 12.3                   | 5                                        | BV      | XV     |
| SMAJ22(C)A  | 22                      | 24.4                               | 28.00 | 1                      | 35.5                                   | 11.2                   | 5                                        | BX      | XX     |
| SMAJ24(C)A  | 24                      | 26.7                               | 30.70 | 1                      | 38.9                                   | 10.3                   | 5                                        | BZ      | XZ     |
| SMAJ26(C)A  | 26                      | 28.9                               | 33.20 | 1                      | 42.1                                   | 9.5                    | 5                                        | CE      | YE     |
| SMAJ28(C)A  | 28                      | 31.1                               | 35.80 | 1                      | 45.4                                   | 8.8                    | 5                                        | CG      | YG     |
| SMAJ30(C)A  | 30                      | 33.3                               | 38.30 | 1                      | 48.4                                   | 8.3                    | 5                                        | CK      | YK     |
| SMAJ33(C)A  | 33                      | 36.7                               | 42.20 | 1                      | 53.3                                   | 7.5                    | 5                                        | CM      | YM     |
| SMAJ36(C)A  | 36                      | 40.0                               | 46.00 | 1                      | 58.1                                   | 6.9                    | 5                                        | CP      | YP     |
| SMAJ40(C)A  | 40                      | 44.4                               | 51.10 | 1                      | 64.5                                   | 6.2                    | 5                                        | CR      | YR     |
| SMAJ43(C)A  | 43                      | 47.8                               | 54.90 | 1                      | 69.4                                   | 5.7                    | 5                                        | CT      | YT     |
| SMAJ45(C)A  | 45                      | 50.0                               | 57.50 | 1                      | 72.7                                   | 5.5                    | 5                                        | CV      | YV     |
| SMAJ48(C)A  | 48                      | 53.3                               | 61.30 | 1                      | 77.4                                   | 5.2                    | 5                                        | CX      | YX     |
| SMAJ51(C)A  | 51                      | 56.7                               | 65.20 | 1                      | 82.4                                   | 4.9                    | 5                                        | CZ      | YZ     |
| SMAJ54(C)A  | 54                      | 60.0                               | 69.00 | 1                      | 87.1                                   | 4.6                    | 5                                        | RE      | ZE     |
| SMAJ58(C)A  | 58                      | 64.4                               | 74.10 | 1                      | 93.6                                   | 4.3                    | 5                                        | RG      | ZG     |
| SMAJ60(C)A  | 60                      | 66.7                               | 76.70 | 1                      | 96.8                                   | 4.1                    | 5                                        | RK      | ZK     |
| SMAJ64(C)A  | 64                      | 71.1                               | 81.80 | 1                      | 103                                    | 3.9                    | 5                                        | RM      | ZM     |
| SMAJ70(C)A  | 70                      | 77.8                               | 89.50 | 1                      | 113                                    | 3.5                    | 5                                        | RP      | ZP     |
| SMAJ75(C)A  | 75                      | 83.3                               | 95.80 | 1                      | 121                                    | 3.3                    | 5                                        | RR      | ZR     |
| SMAJ78(C)A  | 78                      | 86.7                               | 99.70 | 1                      | 126                                    | 3.2                    | 5                                        | RT      | ZT     |
| SMAJ85(C)A  | 85                      | 94.4                               | 108.2 | 1                      | 137                                    | 2.2                    | 5                                        | RV      | ZV     |
| SMAJ90(C)A  | 90                      | 100                                | 115.5 | 1                      | 146                                    | 2.1                    | 5                                        | RX      | ZX     |
| SMAJ100(C)A | 100                     | 111                                | 128.0 | 1                      | 162                                    | 1.9                    | 5                                        | RZ      | ZZ     |
| SMAJ110(C)A | 110                     | 122                                | 140.5 | 1                      | 177                                    | 1.7                    | 5                                        | SE      | VE     |
| SMAJ120(C)A | 120                     | 133                                | 153.0 | 1                      | 193                                    | 1.6                    | 5                                        | SG      | VG     |
| SMAJ130(C)A | 130                     | 144                                | 165.5 | 1                      | 209                                    | 1.4                    | 5                                        | SK      | VK     |
| SMAJ150(C)A | 150                     | 167                                | 192.5 | 1                      | 243                                    | 1.2                    | 5                                        | SM      | VM     |
| SMAJ160(C)A | 160                     | 178                                | 205.0 | 1                      | 259                                    | 1.2                    | 5                                        | SP      | VP     |
| SMAJ170(C)A | 170                     | 189                                | 217.5 | 1                      | 275                                    | 1.09                   | 5                                        | SR      | VR     |
| SMAJ180(C)A | 180                     | 201                                | 222.0 | 1                      | 328                                    | 0.91                   | 5                                        | ST      | VT     |
| SMAJ200(C)A | 200                     | 224                                | 247.0 | 1                      | 332                                    | 0.89                   | 5                                        | SV      | VV     |
| SMAJ220(C)A | 220                     | 246                                | 272.0 | 1                      | 352                                    | 0.8                    | 5                                        | SX      | VX     |
| SMAJ250(C)A | 250                     | 279                                | 309.0 | 1                      | 405                                    | 0.75                   | 5                                        | SZ      | VZ     |
| SMAJ300(C)A | 300                     | 335                                | 371.0 | 1                      | 486                                    | 0.7                    | 5                                        | TE      | UE     |
| SMAJ350(C)A | 350                     | 391                                | 432.0 | 1                      | 567                                    | 0.7                    | 5                                        | TG      | UG     |
| SMAJ400(C)A | 400                     | 447                                | 494.0 | 1                      | 648                                    | 0.6                    | 5                                        | TK      | UK     |
| SMAJ440(C)A | 440                     | 492                                | 543.0 | 1                      | 713                                    | 0.6                    | 5                                        | TM      | UM     |

## ■ Typical Characteristic Curve 典型特性曲线

FIG.1-PEAK PULSE POWER DERATING CURVE

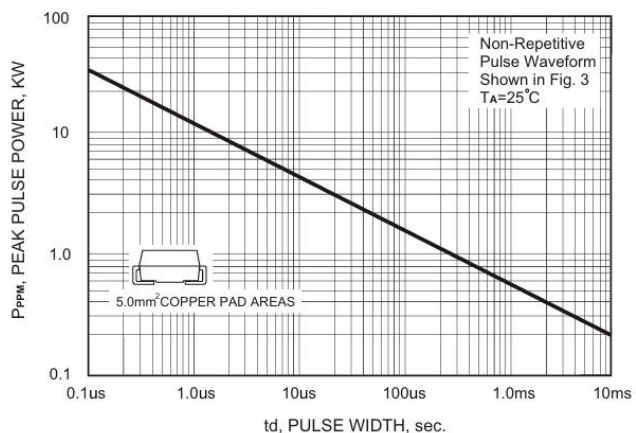


FIG.2-PULSE DERATING CURVE

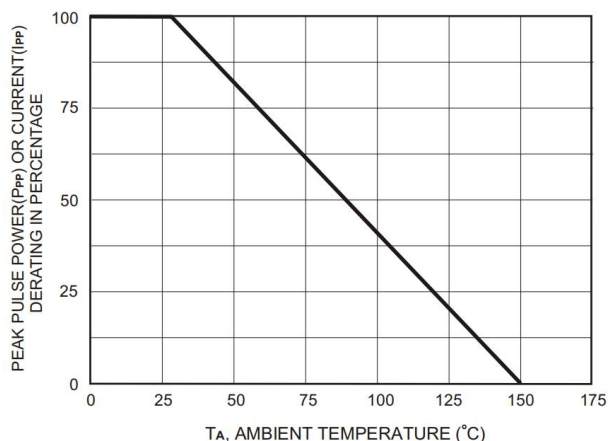


FIG.3-PULSE WAVE FORM

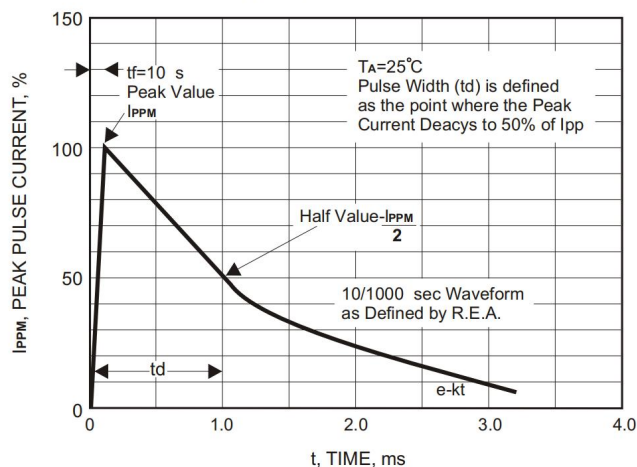


FIG.5-MAXIMUM NON-REPETITIVE PEAK FORWARD SURGE CURRENT

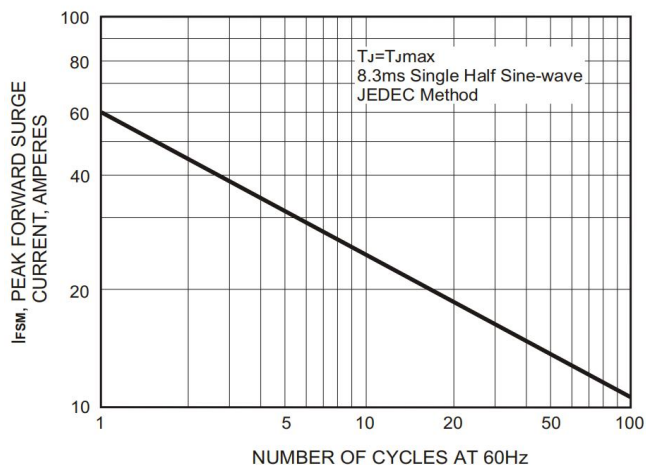
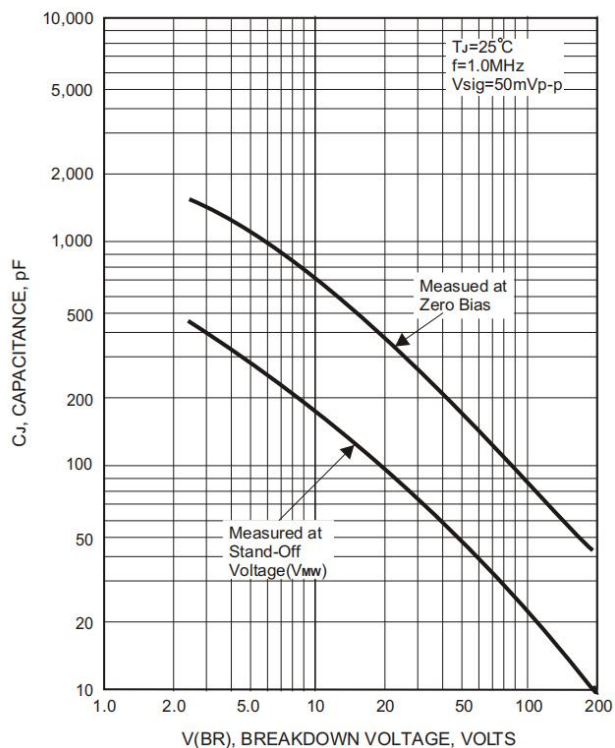
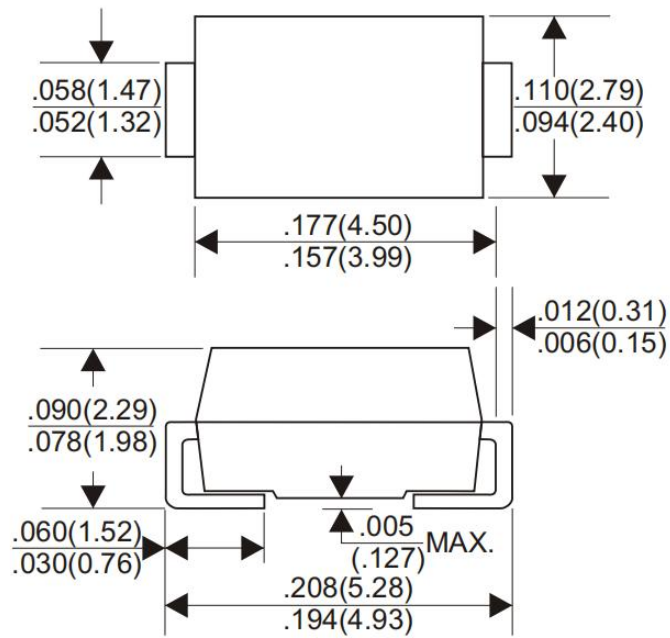


FIG.4-TYPICAL JUNCTION CAPACITANCE



■Dimension 外形封装尺寸

**DO-214AC(SMA)**



Dimensions in inches and (millimeters)