

## SMC 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                | $P_{PK}$        | 5000       | W          |
| Reverse Stand-off Work Voltage<br>反向工作电压      | $V_{RWM}$       | 11~440     | V          |
| Peak Pulse Current<br>峰值脉冲电流                  | $I_{PP}$        | 275~7.02   | A          |
| Peak Forward Surge Current<br>峰值正向浪涌电流(UNI)   | $I_{FSM}$       | 300        | A          |
| Forward Voltage@ $I_F=100A$<br>正向电压(UNI)      | $V_F$           | 5          | V          |
| Thermal Resistance Junction-Ambient<br>结到环境热阻 | $R_{\theta JA}$ | 75         | °C/W       |
| Thermal Resistance Junction-Lead<br>结到管脚热阻    | $R_{\theta JL}$ | 15         | °C/W       |
| Junction/Storage Temperature<br>结温/储存温度       | $T_J, T_{stg}$  | -55~150    | °C         |

**■Electrical Characteristics 电特性**

 (T<sub>A</sub>=25℃ unless otherwise noted 如无特殊说明, 温度为 25℃)

| Part Number |             | Marking |      | V <sub>R</sub> | I <sub>R</sub> @V <sub>R</sub> | V <sub>BR</sub> @ I <sub>T</sub> |            | I <sub>T</sub> | V <sub>C</sub> @ I <sub>PP</sub> | I <sub>PP</sub> |
|-------------|-------------|---------|------|----------------|--------------------------------|----------------------------------|------------|----------------|----------------------------------|-----------------|
| Uni-Polar   | Bi-Polar    | Uni     | Bi   | V              | Max<br>(μA)                    | Min<br>(V)                       | Max<br>(V) | mA             | Max<br>(V)                       | A               |
| 5.0SMDJ11A  | 5.0SMDJ11CA | 5PEN    | 5BEN | 11             | 5                              | 12.20                            | 13.50      | 10             | 18.2                             | 275.0           |
| 5.0SMDJ12A  | 5.0SMDJ12CA | 5PEP    | 5BEP | 12             | 5                              | 13.30                            | 14.70      | 10             | 19.9                             | 252.0           |
| 5.0SMDJ13A  | 5.0SMDJ13CA | 5PEQ    | 5BEQ | 13             | 5                              | 14.40                            | 15.90      | 10             | 21.5                             | 233.0           |
| 5.0SMDJ14A  | 5.0SMDJ14CA | 5PER    | 5BER | 14             | 5                              | 15.60                            | 17.20      | 10             | 23.2                             | 216.0           |
| 5.0SMDJ15A  | 5.0SMDJ15CA | 5PES    | 5BES | 15             | 5                              | 16.70                            | 18.50      | 1              | 24.4                             | 205.0           |
| 5.0SMDJ16A  | 5.0SMDJ16CA | 5PET    | 5BET | 16             | 5                              | 17.80                            | 19.70      | 1              | 26.0                             | 193.0           |
| 5.0SMDJ17A  | 5.0SMDJ17CA | 5PEU    | 5BEU | 17             | 5                              | 18.90                            | 20.90      | 1              | 27.6                             | 181.0           |
| 5.0SMDJ18A  | 5.0SMDJ18CA | 5PEV    | 5BEV | 18             | 5                              | 20.00                            | 22.10      | 1              | 29.2                             | 172.0           |
| 5.0SMDJ20A  | 5.0SMDJ20CA | 5PEW    | 5BEW | 20             | 5                              | 22.20                            | 24.50      | 1              | 32.4                             | 155.0           |
| 5.0SMDJ22A  | 5.0SMDJ22CA | 5PEX    | 5BEX | 22             | 5                              | 24.40                            | 26.90      | 1              | 35.5                             | 141.0           |
| 5.0SMDJ24A  | 5.0SMDJ24CA | 5PEZ    | 5BEZ | 24             | 5                              | 26.70                            | 29.50      | 1              | 38.9                             | 129.0           |
| 5.0SMDJ26A  | 5.0SMDJ26CA | 5PFE    | 5BFE | 26             | 5                              | 28.90                            | 31.90      | 1              | 42.1                             | 119.0           |
| 5.0SMDJ28A  | 5.0SMDJ28CA | 5PFG    | 5BFG | 28             | 5                              | 31.10                            | 34.40      | 1              | 45.4                             | 110.0           |
| 5.0SMDJ30A  | 5.0SMDJ30CA | 5PFK    | 5BFK | 30             | 5                              | 33.30                            | 36.80      | 1              | 48.4                             | 103.0           |
| 5.0SMDJ33A  | 5.0SMDJ33CA | 5PFM    | 5BFM | 33             | 1                              | 36.70                            | 40.60      | 1              | 53.3                             | 93.9            |
| 5.0SMDJ36A  | 5.0SMDJ36CA | 5PFP    | 5BFP | 36             | 1                              | 40.00                            | 44.20      | 1              | 58.1                             | 86.1            |
| 5.0SMDJ40A  | 5.0SMDJ40CA | 5PFR    | 5BFR | 40             | 1                              | 44.40                            | 49.10      | 1              | 64.5                             | 77.6            |
| 5.0SMDJ43A  | 5.0SMDJ43CA | 5PFT    | 5BFT | 43             | 1                              | 47.80                            | 52.80      | 1              | 69.4                             | 72.1            |
| 5.0SMDJ45A  | 5.0SMDJ45CA | 5PFV    | 5BFV | 45             | 1                              | 50.00                            | 55.30      | 1              | 72.7                             | 68.8            |
| 5.0SMDJ48A  | 5.0SMDJ48CA | 5PFX    | 5BFX | 48             | 1                              | 53.30                            | 58.90      | 1              | 77.4                             | 64.7            |
| 5.0SMDJ51A  | 5.0SMDJ51CA | 5PFZ    | 5BFZ | 51             | 1                              | 56.70                            | 62.70      | 1              | 82.4                             | 60.7            |
| 5.0SMDJ54A  | 5.0SMDJ54CA | 5PGE    | 5BGE | 54             | 1                              | 60.00                            | 66.30      | 1              | 87.1                             | 57.5            |
| 5.0SMDJ58A  | 5.0SMDJ58CA | 5PGG    | 5BGG | 58             | 1                              | 64.40                            | 71.20      | 1              | 93.6                             | 53.5            |

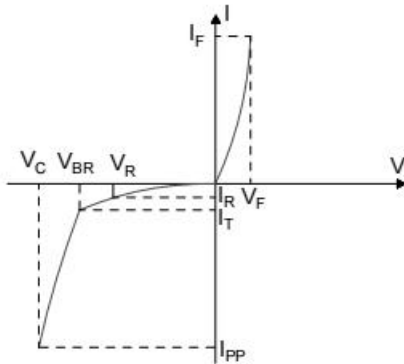
**■Electrical Characteristics 电特性**

 (T<sub>A</sub>=25°C unless otherwise noted 如无特殊说明, 温度为 25°C)

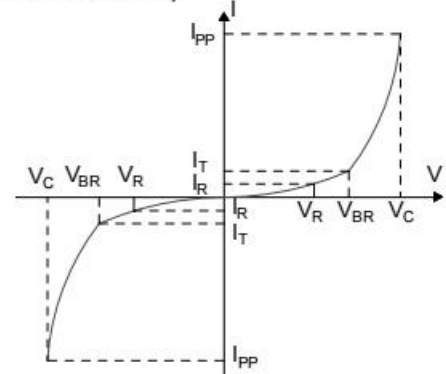
| Part Number |              | Marking |      | V <sub>R</sub> | I <sub>R</sub> @V <sub>R</sub> | V <sub>BR</sub> @ I <sub>T</sub> |            | I <sub>T</sub> | V <sub>C</sub> @ I <sub>PP</sub> | I <sub>PP</sub> |
|-------------|--------------|---------|------|----------------|--------------------------------|----------------------------------|------------|----------------|----------------------------------|-----------------|
| Uni-Polar   | Bi-Polar     | Uni     | Bi   | V              | Max<br>(μA)                    | Min<br>(V)                       | Max<br>(V) | mA             | Max<br>(V)                       | A               |
| 5.0SMDJ60A  | 5.0SMDJ60CA  | 5PGK    | 5BGK | 60             | 1                              | 66.70                            | 73.70      | 1              | 96.8                             | 51.7            |
| 5.0SMDJ64A  | 5.0SMDJ64CA  | 5PGM    | 5BGM | 64             | 1                              | 71.10                            | 78.60      | 1              | 103.0                            | 48.6            |
| 5.0SMDJ70A  | 5.0SMDJ70CA  | 5PGP    | 5BGP | 70             | 1                              | 77.80                            | 86.00      | 1              | 113.0                            | 44.3            |
| 5.0SMDJ75A  | 5.0SMDJ75CA  | 5PGR    | 5BGR | 75             | 1                              | 83.30                            | 92.10      | 1              | 121.0                            | 41.4            |
| 5.0SMDJ78A  | 5.0SMDJ78CA  | 5PGT    | 5BGT | 78             | 1                              | 86.70                            | 95.80      | 1              | 126.0                            | 39.7            |
| 5.0SMDJ85A  | 5.0SMDJ85CA  | 5PGV    | 5BGV | 85             | 1                              | 94.40                            | 104.0      | 1              | 137.0                            | 36.5            |
| 5.0SMDJ90A  | 5.0SMDJ90CA  | 5PGX    | 5BGX | 90             | 1                              | 100.0                            | 111.0      | 1              | 146.0                            | 34.3            |
| 5.0SMDJ100A | 5.0SMDJ100CA | 5PGZ    | 5BGZ | 100            | 1                              | 111.0                            | 123.0      | 1              | 162.0                            | 30.9            |
| 5.0SMDJ110A | 5.0SMDJ110CA | 5PHE    | 5BHE | 110            | 1                              | 122.0                            | 135.0      | 1              | 177.0                            | 28.3            |
| 5.0SMDJ120A | 5.0SMDJ120CA | 5PHG    | 5BHG | 120            | 1                              | 133.0                            | 147.0      | 1              | 193.0                            | 26.0            |
| 5.0SMDJ130A | 5.0SMDJ130CA | 5PHK    | 5BHK | 130            | 1                              | 144.0                            | 159.0      | 1              | 209.0                            | 24.0            |
| 5.0SMDJ150A | 5.0SMDJ150CA | 5PHM    | 5BHM | 150            | 1                              | 167.0                            | 185.0      | 1              | 243.0                            | 20.6            |
| 5.0SMDJ160A | 5.0SMDJ160CA | 5PHP    | 5BHP | 160            | 1                              | 178.0                            | 197.0      | 1              | 259.0                            | 19.3            |
| 5.0SMDJ170A | 5.0SMDJ170CA | 5PHR    | 5BHR | 170            | 1                              | 189.0                            | 209.0      | 1              | 275.0                            | 18.2            |
| 5.0SMDJ180A | 5.0SMDJ180CA | 5PHT    | 5BHT | 180            | 1                              | 201.0                            | 222.0      | 1              | 292.0                            | 17.1            |
| 5.0SMDJ190A | 5.0SMDJ190CA | 5PHU    | 5BHU | 190            | 1                              | 211.0                            | 234.0      | 1              | 307.0                            | 16.3            |
| 5.0SMDJ200A | 5.0SMDJ200CA | 5PHV    | 5BHV | 200            | 1                              | 224.0                            | 247.0      | 1              | 324.0                            | 15.4            |
| 5.0SMDJ210A | 5.0SMDJ210CA | 5PHW    | 5BHW | 210            | 1                              | 233.0                            | 258.0      | 1              | 337.0                            | 14.8            |
| 5.0SMDJ220A | 5.0SMDJ220CA | 5PHX    | 5BHX | 220            | 1                              | 246.0                            | 272.0      | 1              | 356.0                            | 14.0            |
| 5.0SMDJ250A | 5.0SMDJ250CA | 5PHZ    | 5BHZ | 250            | 1                              | 279.0                            | 309.0      | 1              | 405.0                            | 12.3            |
| 5.0SMDJ300A | 5.0SMDJ300CA | 5PJK    | 5BJK | 300            | 1                              | 335.0                            | 371.0      | 1              | 486.0                            | 10.3            |
| 5.0SMDJ350A | 5.0SMDJ350CA | 5PJM    | 5BJM | 350            | 1                              | 391.0                            | 432.0      | 1              | 567.0                            | 8.8             |
| 5.0SMDJ400A | 5.0SMDJ400CA | 5PJP    | 5BJP | 400            | 1                              | 447.0                            | 494.0      | 1              | 648.0                            | 7.72            |
| 5.0SMDJ440A | 5.0SMDJ440CA | 5PJR    | 5BJR | 440            | 1                              | 492.0                            | 543.0      | 1              | 713.0                            | 7.02            |

■ Typical Characteristic Curve 典型特性曲线

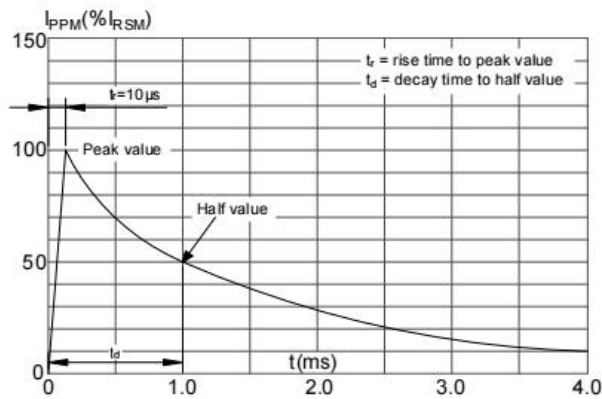
**FIG.1: V- I curve characteristics (Uni-directional)**



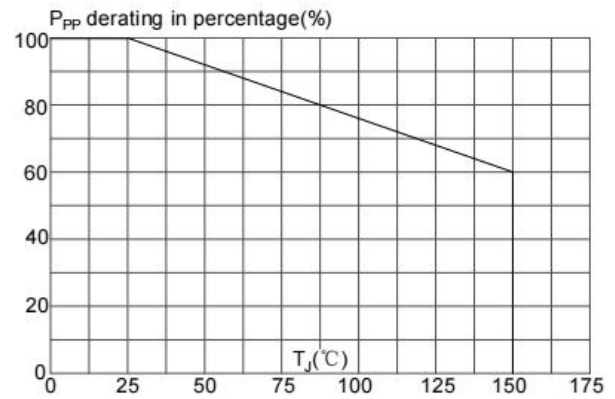
**FIG.2: V- I curve characteristics (Bi-directional)**



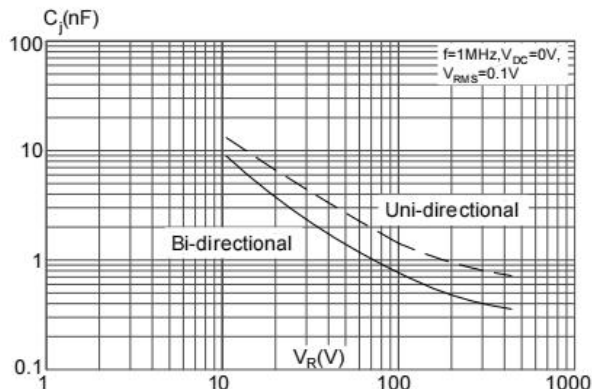
**FIG.3: Pulse waveform**



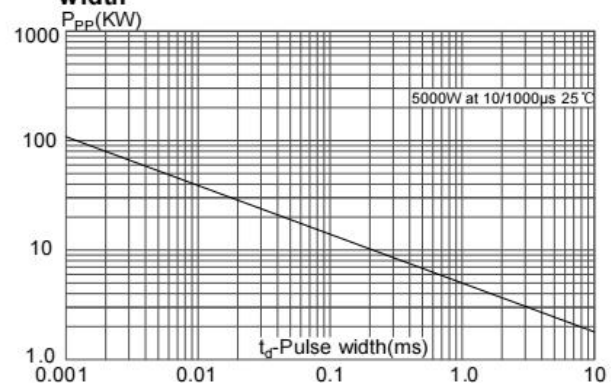
**FIG.4: Pulse derating curve**



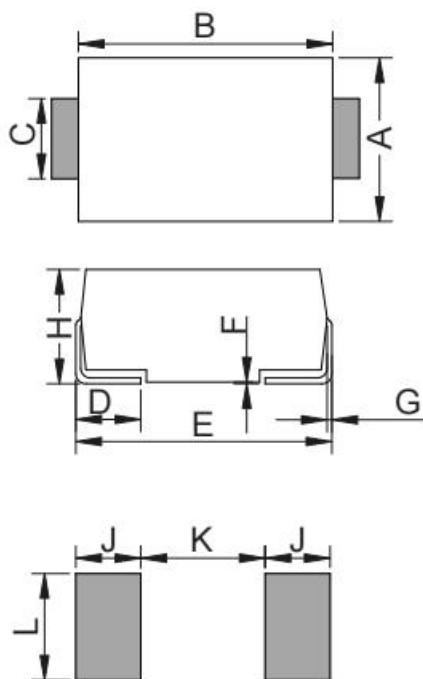
**FIG.5: Typical junction capacitance**



**FIG.6: Peak pulse power dissipation vs. pulse width**



■Dimension 外形封装尺寸



DO-214AB (SMC)

| Ref. | Dimensions  |       |        |       |
|------|-------------|-------|--------|-------|
|      | Millimeters |       | Inches |       |
|      | Min.        | Max.  | Min.   | Max.  |
| A    | 5.75        | 6.25  | 0.226  | 0.246 |
| B    | 6.90        | 7.40  | 0.272  | 0.291 |
| C    | 2.75        | 3.25  | 0.108  | 0.128 |
| D    | 0.95        | 1.52  | 0.037  | 0.060 |
| E    | 7.70        | 8.20  | 0.303  | 0.323 |
| F    | 0.051       | 0.203 | 0.002  | 0.008 |
| G    | 0.15        | 0.31  | 0.006  | 0.012 |
| H    | 2.15        | 2.62  | 0.085  | 0.103 |
| J    | 2.40        |       | 0.094  |       |
| K    |             | 4.20  |        | 0.165 |
| L    | 3.30        |       | 0.130  |       |