



## SMB 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                | $P_{PK}$        | 600        | 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                  | $I_{PP}$        | 65.2~0.9   | A             |
| Peak Forward Surge Current<br>峰值正向浪涌电流(UNI)   | $I_{FSM}$       | 100        | A             |
| Forward Voltage@ $I_F=35A$<br>正向电压(UNI)       | $V_F$           | 3.5        | V             |
| Thermal Resistance Junction-Ambient<br>结到环境热阻 | $R_{\theta JA}$ | 20         | $^{\circ}C/W$ |
| 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  $25^{\circ}C$ )



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| 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) |
| SMBJ5.0(C)A | 5.0                     | 6.40                               | 7.25  | 10                     | 9.2                                    | 65.2                   | 800                                      | KE      | AE     |
| SMBJ6.0(C)A | 6.0                     | 6.67                               | 7.67  | 10                     | 10.3                                   | 58.3                   | 800                                      | KG      | AG     |
| SMBJ6.5(C)A | 6.5                     | 7.22                               | 8.30  | 10                     | 11.2                                   | 53.6                   | 500                                      | KK      | AK     |
| SMBJ7.0(C)A | 7.0                     | 7.78                               | 8.95  | 10                     | 12.0                                   | 50.0                   | 200                                      | KM      | AM     |
| SMBJ7.5(C)A | 7.5                     | 8.33                               | 9.58  | 1                      | 12.9                                   | 46.5                   | 100                                      | KP      | AP     |
| SMBJ8.0(C)A | 8.0                     | 8.89                               | 10.23 | 1                      | 13.6                                   | 44.1                   | 50                                       | KR      | AR     |
| SMBJ8.5(C)A | 8.5                     | 9.44                               | 10.82 | 1                      | 14.4                                   | 41.7                   | 10                                       | KT      | AT     |
| SMBJ9.0(C)A | 9.0                     | 10.0                               | 11.50 | 1                      | 15.4                                   | 39.0                   | 5  | KV      | AV     |
| SMBJ10(C)A  | 10                      | 11.1                               | 12.80 | 1                      | 17.0                                   | 35.3                   | 5  | KX      | AX     |
| SMBJ11(C)A  | 11                      | 12.2                               | 14.00 | 1                      | 18.2                                   | 33.0                   | 5  | KZ      | AZ     |
| SMBJ12(C)A  | 12                      | 13.3                               | 15.30 | 1                      | 19.9                                   | 30.2                   | 5  | LE      | BE     |
| SMBJ13(C)A  | 13                      | 14.4                               | 15.60 | 1                      | 21.5                                   | 27.9                   | 5  | LG      | BG     |
| SMBJ14(C)A  | 14                      | 15.6                               | 17.90 | 1                      | 23.2                                   | 25.8                   | 5  | LK      | BK     |
| SMBJ15(C)A  | 15                      | 16.7                               | 19.20 | 1                      | 24.4                                   | 24.0                   | 5  | LM      | BM     |
| SMBJ16(C)A  | 16                      | 17.8                               | 20.50 | 1                      | 26.0                                   | 23.1                   | 5  | LP      | BP     |
| SMBJ17(C)A  | 17                      | 18.9                               | 21.70 | 1                      | 27.6                                   | 21.7                   | 5  | LR      | BR     |
| SMBJ18(C)A  | 18                      | 20.0                               | 23.30 | 1                      | 29.2                                   | 20.5                   | 5  | LT      | BT     |
| SMBJ20(C)A  | 20                      | 22.2                               | 25.50 | 1                      | 32.4                                   | 18.5                   | 5  | LV      | BV     |
| SMBJ22(C)A  | 22                      | 24.4                               | 28.00 | 1                      | 35.5                                   | 16.9                   | 5  | LX      | BX     |
| SMBJ24(C)A  | 24                      | 26.7                               | 30.70 | 1                      | 38.9                                   | 15.4                   | 5  | LZ      | BZ     |
| SMBJ26(C)A  | 26                      | 28.9                               | 33.20 | 1                      | 42.1                                   | 14.2                   | 5  | ME      | CE     |
| SMBJ28(C)A  | 28                      | 31.1                               | 35.80 | 1                      | 45.4                                   | 13.2                   | 5  | MG      | CG     |
| SMBJ30(C)A  | 30                      | 33.3                               | 38.30 | 1                      | 48.4                                   | 12.4                   | 5  | MK      | CK     |
| SMBJ33(C)A  | 33                      | 36.7                               | 42.20 | 1                      | 53.3                                   | 11.3                   | 5  | MM      | CM     |
| SMBJ36(C)A  | 36                      | 40.0                               | 46.00 | 1                      | 58.1                                   | 10.3                   | 5  | MP      | CP     |
| SMBJ40(C)A  | 40                      | 44.4                               | 51.10 | 1                      | 64.5                                   | 9.3                    | 5  | MR      | CR     |
| SMBJ43(C)A  | 43                      | 47.8                               | 54.90 | 1                      | 69.4                                   | 8.6                    | 5  | MT      | CT     |
| SMBJ45(C)A  | 45                      | 50.0                               | 57.50 | 1                      | 72.7                                   | 8.3                    | 5  | MV      | CV     |
| SMBJ48(C)A  | 48                      | 53.3                               | 61.30 | 1                      | 77.4                                   | 7.7                    | 5  | MX      | CX     |
| SMBJ51(C)A  | 51                      | 56.7                               | 65.20 | 1                      | 82.4                                   | 7.3                    | 5  | MZ      | CZ     |
| SMBJ54(C)A  | 54                      | 60.0                               | 69.00 | 1                      | 87.1                                   | 6.9                    | 5  | NE      | DE     |
| SMBJ58(C)A  | 58                      | 64.4                               | 74.10 | 1                      | 93.6                                   | 6.4                    | 5  | NG      | DG     |
| SMBJ60(C)A  | 60                      | 66.7                               | 76.70 | 1                      | 96.8                                   | 6.2                    | 5  | NK      | DK     |
| SMBJ64(C)A  | 64                      | 71.1                               | 81.80 | 1                      | 103                                    | 5.8                    | 5  | NM      | DM     |
| SMBJ70(C)A  | 70                      | 77.8                               | 89.50 | 1                      | 113                                    | 5.3                    | 5  | NP      | DP     |
| SMBJ75(C)A  | 75                      | 83.3                               | 95.80 | 1                      | 121                                    | 4.9                    | 5  | NR      | DR     |
| SMBJ78(C)A  | 78                      | 86.7                               | 99.70 | 1                      | 126                                    | 4.7                    | 5  | NT      | DT     |
| SMBJ85(C)A  | 85                      | 94.4                               | 108.2 | 1                      | 137                                    | 4.4                    | 5  | NV      | DV     |
| SMBJ90(C)A  | 90                      | 100                                | 115.5 | 1                      | 146                                    | 4.1                    | 5  | NX      | DX     |
| SMBJ100(C)A | 100                     | 111                                | 128.0 | 1                      | 162                                    | 3.7                    | 5  | NZ      | DZ     |
| SMBJ110(C)A | 110                     | 122                                | 140.5 | 1                      | 177                                    | 3.4                    | 5  | PE      | EE     |
| SMBJ120(C)A | 120                     | 133                                | 153.0 | 1                      | 193                                    | 3.1                    | 5  | PG      | EG     |
| SMBJ130(C)A | 130                     | 144                                | 165.5 | 1                      | 209                                    | 2.9                    | 5  | PK      | EK     |
| SMBJ150(C)A | 150                     | 167                                | 192.5 | 1                      | 243                                    | 2.5                    | 5  | PM      | EM     |
| SMBJ160(C)A | 160                     | 178                                | 205.0 | 1                      | 259                                    | 2.3                    | 5  | PP      | EP     |
| SMBJ170(C)A | 170                     | 189                                | 217.5 | 1                      | 275                                    | 2.2                    | 5  | PR      | ER     |
| SMBJ188(C)A | 188                     | 209                                | 231.0 | 1                      | 328                                    | 2.0                    | 5  | PT      | ET     |
| SMBJ200(C)A | 200                     | 224                                | 247.0 | 1                      | 332                                    | 1.9                    | 5  | PV      | EV     |
| SMBJ220(C)A | 220                     | 246                                | 272.0 | 1                      | 352                                    | 1.5                    | 5  | PX      | EX     |
| SMBJ250(C)A | 250                     | 279                                | 305.0 | 1                      | 405                                    | 1.5                    | 5  | PZ      | EZ     |
| SMBJ300(C)A | 300                     | 335                                | 371.0 | 1                      | 486                                    | 1.3                    | 5  | QE      | FE     |
| SMBJ350(C)A | 350                     | 391                                | 432.0 | 1                      | 567                                    | 1.1                    | 5  | QG      | FG     |
| SMBJ400(C)A | 400                     | 447                                | 494.0 | 1                      | 648                                    | 0.9                    | 5  | QK      | FK     |
| SMBJ440(C)A | 440                     | 492                                | 543.0 | 1                      | 713                                    | 0.9                    | 5  | QM      | FM     |

## ■ Typical Characteristic Curve 典型特性曲线

FIG.1-PEAK PULSE POWER DERATING CURVE

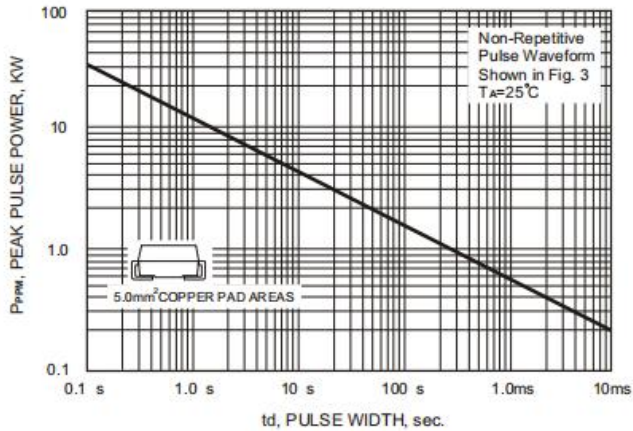


FIG.2-PULSE DERATING CURVE

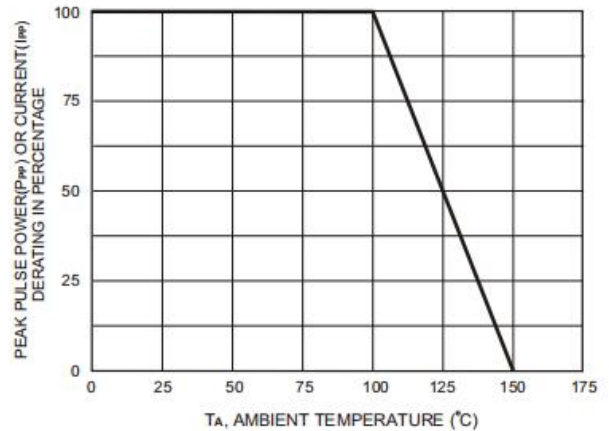


FIG.3-PULSE WAVE FORM

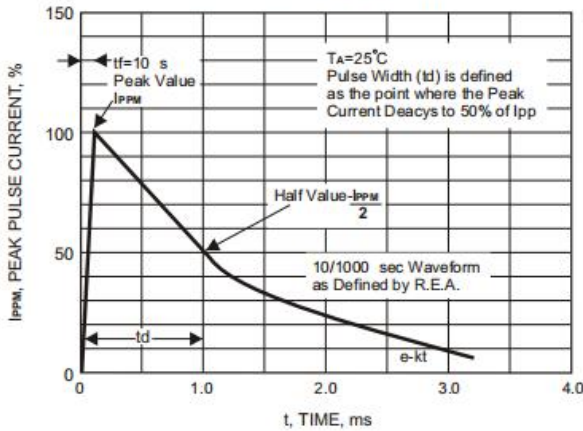
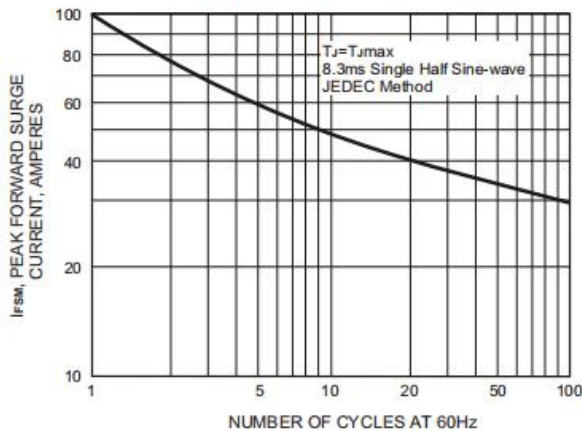


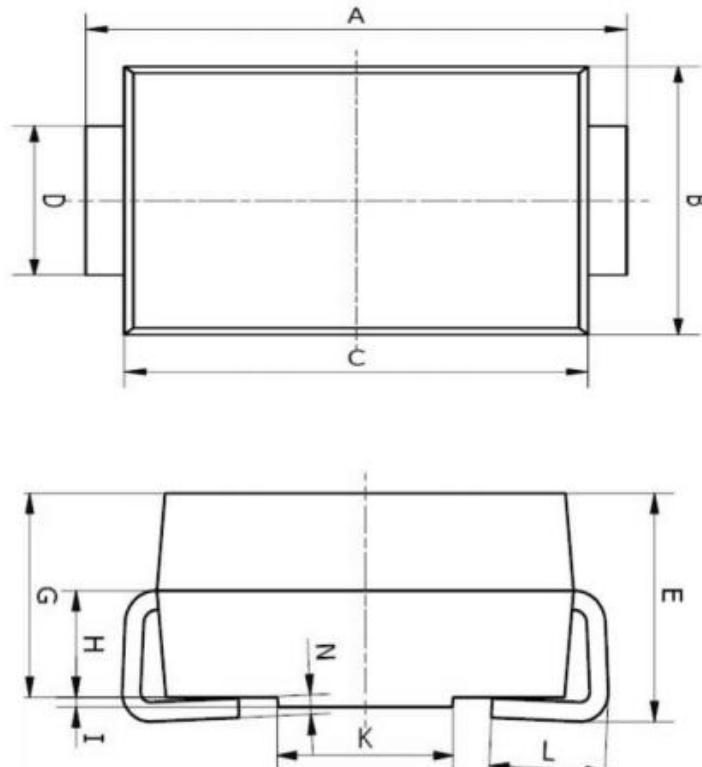
FIG.4-TYPICAL JUNCTION CAPACITANCE



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



## ■Dimension 外形封装尺寸



| Symbol | Dimensions In Millimeters |      | Dimensions In Inches |       |
|--------|---------------------------|------|----------------------|-------|
|        | Min.                      | Max. | Min.                 | Max.  |
| A      | 5.00                      | 5.45 | 0.197                | 0.215 |
| B      | 3.20                      | 4.00 | 0.126                | 0.157 |
| C      | 4.30                      | 4.70 | 0.169                | 0.185 |
| D      | 1.80                      | 2.20 | 0.071                | 0.087 |
| E      | 2.20                      | 2.50 | 0.087                | 0.098 |
| G      | 1.90                      | 2.30 | 0.075                | 0.090 |
| H      | 0.95                      | 1.25 | 0.037                | 0.049 |
| I      | 0.05                      | 0.15 | 0.002                | 0.006 |
| K      | 1.70                      | 2.10 | 0.067                | 0.083 |
| L      | 0.90                      | 1.60 | 0.035                | 0.063 |
| N      | 0.10                      | 0.30 | 0.004                | 0.012 |

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