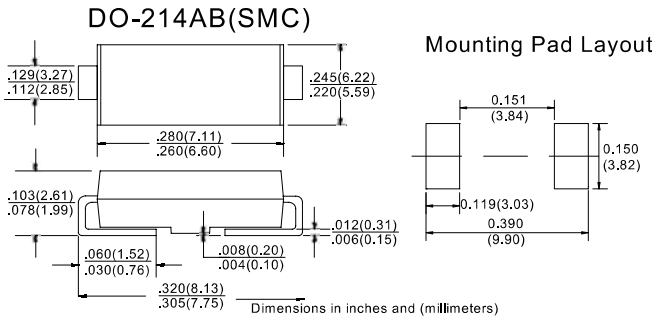
## ■外形尺寸和印记 Outline Dimensions and Mark




## ■特征 Features

- $P_{PP}$ 1500W
- $V_{BR}$ 5.0V-188V

## ■用途 Applications

- 箝位电压用 Clamping Voltage

## ■极限值（绝对最大额定值）
## Limiting Values (Absolute Maximum Rating)

| 参数名称<br>Item | 符号<br>Symbol | 单位<br>Unit | 条件<br>Conditions | 最大值<br>Max |
|---|---|---|---|---|
| 最大损耗功率(1)(2)<br>Peak power dissipation | $P_{PPM}$ | W | 在10/1000us 波形下测试<br>with a 10/1000us waveform | 1500 |
| 最大脉冲电流(1)<br>Peak pulse current | $I_{PPM}$ | A | 在10/1000us 波形下测试<br>with a 10/1000us waveform | 见下面表格<br>See Next Table |
| 功率损耗<br>Power dissipation | $P_D$ | W | 无限散热片@ $T_A$=50℃<br>on infinite heat sink at $T_A$=50℃ | 6.5 |
| 最大正向浪涌电流(2)<br>Peak forward surge current | $I_{FSM}$ | A | 8.3ms正弦半波，仅单向型<br>8.3 ms single half sine-wave unidirectional only | 200 |
| 工作结温和存储温度范围<br>Operating junction and storage temperature range | $T_J$,$T_{STG}$ | ℃ | | -55 to +150 |

## ■电特性 （Ta=25℃ 除非另有规定）
## Electrical Characteristics (Ta=25℃ Unless otherwise specified）

| 参数名称<br>Item | 符号<br>Symbol | 单位<br>Unit | 条件<br>Conditions | 最大值<br>Max |
|---|---|---|---|---|
| 最大瞬间正向电压<br>Maximum instantaneous forward Voltage | $V_F$ | V | 在100A下测试，仅单向型<br>at 100A for unidirectional only | 3.5 |
| 典型热阻<br>Thermal resistance | $R_{\theta JA}$ | ℃/W | 结到环境<br>junction to ambient | 75 |
| | $R_{\theta JL}$ | ℃/W | 结到引线<br>junction to lead | 15 |

### 备注：Notes:

(1) 不重复脉冲电流，如图3，在$T_A$= 25℃下功率降额曲线见如图2。

Non-repetitive current pulse, per Fig. 3 and derated above $T_A$= 25℃per Fig.2.

(2) 每个端子安装在 0.31 x 0.31" (8.0 x 8.0 mm)铜焊盘上

Mounted on 0.31 x 0.31" (8.0 x 8.0 mm) copper pads to each terminal

## ■电性参数 ($T_A$=25℃ 除非另有规定)

## Electrical Characteristics ($T_A$=25℃ unless otherwise noted)

| 产品型号（单向） Part Number(Uni) | 产品型号（双向） Part Number(Bi) | 击穿电压 $V_{BR}$@$I_T$ Breakdown Voltage $V_{BR}$@$I_T$ | | | 最大反向漏电流 $I_R$ @$V_{WM}$ Maximum Reverse Leakage $I_R$ (3) (μA) | 最大工作电压 $V_{RWM}$ Working Peak Reverse Voltage $V_{RWM}$ (V) | 最大反向浪涌电流 IPP Maximum Reverse Surge Current IPP(2) (A) | 最大箝位电压 Maximum Clamping Voltage Vc @ $I_{PP}$ (V) |
|---|---|---|---|---|---|---|---|---|
| | | 最小 Min(V) | 最大 Max (V) | 测试电流 IT(1)(mA) | | | | |
| SMCJ5.0 | SMCJ5.0C | 6.40 | 7.82 | 10.0 | 1000 | 5.0 | 156.3 | 9.6 |
| SMCJ5.0A | SMCJ5.0CA(4) | 6.40 | 7.07 | 10.0 | 1000 | 5.0 | 163.0 | 9.2 |
| SMCJ6.0 | SMCJ6.0C | 6.67 | 8.15 | 10.0 | 1000 | 6.0 | 131.6 | 11.4 |
| SMCJ6.0A | SMCJ6.0CA | 6.67 | 7.37 | 10.0 | 1000 | 6.0 | 145.6 | 10.3 |
| SMCJ6.5 | SMCJ6.5C | 7.22 | 8.82 | 10.0 | 500 | 6.5 | 122.0 | 12.3 |
| SMCJ6.5A | SMCJ6.5CA | 7.22 | 7.98 | 10.0 | 500 | 6.5 | 133.9 | 11.2 |
| SMCJ7.0 | SMCJ7.0C | 7.78 | 9.51 | 10.0 | 200 | 7.0 | 112.8 | 13.3 |
| SMCJ7.0A | SMCJ7.0CA | 7.78 | 8.60 | 10.0 | 200 | 7.0 | 125.0 | 12.0 |
| SMCJ7.5 | SMCJ7.5C | 8.33 | 10.2 | 1.0 | 100 | 7.5 | 104.9 | 14.3 |
| SMCJ7.5A | SMCJ7.5CA | 8.33 | 9.21 | 1.0 | 100 | 7.5 | 116.3 | 12.9 |
| SMCJ8.0 | SMCJ8.0C | 8.89 | 10.9 | 1.0 | 50 | 8.0 | 100.0 | 15.0 |
| SMCJ8.0A | SMCJ8.0CA | 8.89 | 9.83 | 1.0 | 50 | 8.0 | 110.3 | 13.6 |
| SMCJ8.5 | SMCJ8.5C | 9.44 | 11.5 | 1.0 | 20 | 8.5 | 94.3 | 15.9 |
| SMCJ8.5A | SMCJ8.5CA | 9.44 | 10.4 | 1.0 | 20 | 8.5 | 104.2 | 14.4 |
| SMCJ9.0 | SMCJ9.0C | 10.0 | 12.2 | 1.0 | 10 | 9.0 | 88.8 | 16.9 |
| SMCJ9.0A | SMCJ9.0CA | 10.0 | 11.1 | 1.0 | 10 | 9.0 | 97.4 | 15.4 |
| SMCJ10 | SMCJ10C | 11.1 | 13.6 | 1.0 | 5.0 | 10 | 79.8 | 18.8 |
| SMCJ10A | SMCJ10CA | 11.1 | 12.3 | 1.0 | 5.0 | 10 | 88.2 | 17.0 |
| SMCJ11 | SMCJ11C | 12.2 | 14.9 | 1.0 | 5.0 | 11 | 74.6 | 20.1 |
| SMCJ11A | SMCJ11CA | 12.2 | 13.5 | 1.0 | 5.0 | 11 | 82.4 | 18.2 |
| SMCJ12 | SMCJ12C | 13.3 | 16.3 | 1.0 | 5.0 | 12 | 68.2 | 22.0 |
| SMCJ12A | SMCJ12CA | 13.3 | 14.7 | 1.0 | 5.0 | 12 | 75.4 | 19.9 |
| SMCJ13 | SMCJ13C | 14.4 | 17.6 | 1.0 | 1.0 | 13 | 63.0 | 23.8 |
| SMCJ13A | SMCJ13CA | 14.4 | 15.9 | 1.0 | 1.0 | 13 | 69.8 | 21.5 |
| SMCJ14 | SMCJ14C | 15.6 | 19.1 | 1.0 | 1.0 | 14 | 58.1 | 25.8 |
| SMCJ14A | SMCJ14CA | 15.6 | 17.2 | 1.0 | 1.0 | 14 | 64.7 | 23.2 |
| SMCJ15 | SMCJ15C | 16.7 | 20.4 | 1.0 | 1.0 | 15 | 55.8 | 26.9 |
| SMCJ15A | SMCJ15CA | 16.7 | 18.5 | 1.0 | 1.0 | 15 | 61.5 | 24.4 |
| SMCJ16 | SMCJ16C | 17.8 | 21.8 | 1.0 | 1.0 | 16 | 52.1 | 28.8 |
| SMCJ16A | SMCJ16CA | 17.8 | 19.7 | 1.0 | 1.0 | 16 | 57.7 | 26.0 |
| SMCJ17 | SMCJ17C | 18.9 | 23.1 | 1.0 | 1.0 | 17 | 49.2 | 30.5 |
| SMCJ17A | SMCJ17CA | 18.9 | 20.9 | 1.0 | 1.0 | 17 | 54.3 | 27.6 |
| SMCJ18 | SMCJ18C | 20.0 | 24.4 | 1.0 | 1.0 | 18 | 46.6 | 32.2 |
| SMCJ18A | SMCJ18CA | 20.0 | 22.1 | 1.0 | 1.0 | 18 | 51.4 | 29.2 |
| SMCJ20 | SMCJ20C | 22.2 | 27.1 | 1.0 | 1.0 | 20 | 41.9 | 35.8 |
| SMCJ20A | SMCJ20CA | 22.2 | 24.5 | 1.0 | 1.0 | 20 | 46.3 | 32.4 |

## ■电性参数 (TA=25℃ 除非另有规定)

## Electrical Characteristics (TA=25℃ unless otherwise noted)

| 产品型号（单向） Part Number(Uni) | 产品型号（双向） Part Number(Bi) | 击穿电压 $V_{BR}@I_T$ Breakdown Voltage $V_{BR}@I_T$ | | | 最大反向漏电流 $I_R@V_{WM}$ Maximum Reverse Leakage $I_R$ (3) (μA) | 最大工作电压 $V_{RWM}$ Working Peak Reverse Voltage $V_{RWM}$ (V) | 最大反向浪涌电流 IPP Maximum Reverse Surge Current IPP(2) (A) | 最大箝位电压 Maximum Clamping Voltage Vc @ $I_{PP}$ (V) |
|---|---|---|---|---|---|---|---|---|
| | | 最小 Min(V) | 最大 Max (V) | 测试电流 IT(1)(mA) | | | | |
| SMCJ22 | SMCJ22C | 24.4 | 29.8 | 1.0 | 1.0 | 22 | 38.1 | 39.4 |
| SMCJ22A | SMCJ22CA | 24.4 | 26.9 | 1.0 | 1.0 | 22 | 42.3 | 35.5 |
| SMCJ24 | SMCJ24C | 26.7 | 32.6 | 1.0 | 1.0 | 24 | 34.9 | 43.0 |
| SMCJ24A | SMCJ24CA | 26.7 | 29.5 | 1.0 | 1.0 | 24 | 38.6 | 38.9 |
| SMCJ26 | SMCJ26C | 28.9 | 35.3 | 1.0 | 1.0 | 26 | 32.2 | 46.6 |
| SMCJ26A | SMCJ26CA | 28.9 | 31.9 | 1.0 | 1.0 | 26 | 35.6 | 42.1 |
| SMCJ28 | SMCJ28C | 31.1 | 38.0 | 1.0 | 1.0 | 28 | 30.0 | 50.0 |
| SMCJ28A | SMCJ28CA | 31.1 | 34.4 | 1.0 | 1.0 | 28 | 33.0 | 45.4 |
| SMCJ30 | SMCJ30C | 33.3 | 40.7 | 1.0 | 1.0 | 30 | 28.0 | 53.5 |
| SMCJ30A | SMCJ30CA | 33.3 | 36.8 | 1.0 | 1.0 | 30 | 31.0 | 48.4 |
| SMCJ33 | SMCJ33C | 36.7 | 44.9 | 1.0 | 1.0 | 33 | 25.4 | 59.0 |
| SMCJ33A | SMCJ33CA | 36.7 | 40.6 | 1.0 | 1.0 | 33 | 28.1 | 53.3 |
| SMCJ36 | SMCJ36C | 40.0 | 48.9 | 1.0 | 1.0 | 36 | 23.3 | 64.3 |
| SMCJ36A | SMCJ36CA | 40.0 | 44.2 | 1.0 | 1.0 | 36 | 25.8 | 58.1 |
| SMCJ40 | SMCJ40C | 44.4 | 54.3 | 1.0 | 1.0 | 40 | 21.0 | 71.4 |
| SMCJ40A | SMCJ40CA | 44.4 | 49.1 | 1.0 | 1.0 | 40 | 23.3 | 64.5 |
| SMCJ43 | SMCJ43C | 47.8 | 58.4 | 1.0 | 1.0 | 43 | 19.6 | 76.7 |
| SMCJ43A | SMCJ43CA | 47.8 | 52.8 | 1.0 | 1.0 | 43 | 21.6 | 69.4 |
| SMCJ45 | SMCJ45C | 50.0 | 61.1 | 1.0 | 1.0 | 45 | 18.7 | 80.3 |
| SMCJ45A | SMCJ45CA | 50.0 | 55.3 | 1.0 | 1.0 | 45 | 20.6 | 72.7 |
| SMCJ48 | SMCJ48C | 53.3 | 65.1 | 1.0 | 1.0 | 48 | 17.5 | 85.5 |
| SMCJ48A | SMCJ48CA | 53.3 | 58.9 | 1.0 | 1.0 | 48 | 19.4 | 77.4 |
| SMCJ51 | SMCJ51C | 56.7 | 69.3 | 1.0 | 1.0 | 51 | 16.5 | 91.1 |
| SMCJ51A | SMCJ51CA | 56.7 | 62.7 | 1.0 | 1.0 | 51 | 18.2 | 82.4 |
| SMCJ54 | SMCJ54C | 60.0 | 73.3 | 1.0 | 1.0 | 54 | 15.6 | 96.3 |
| SMCJ54A | SMCJ54CA | 60.0 | 66.3 | 1.0 | 1.0 | 54 | 17.2 | 87.1 |
| SMCJ58 | SMCJ58C | 64.4 | 78.7 | 1.0 | 1.0 | 58 | 14.6 | 103 |
| SMCJ58A | SMCJ58CA | 64.4 | 71.2 | 1.0 | 1.0 | 58 | 16.0 | 93 |
| SMCJ60 | SMCJ60C | 66.7 | 81.5 | 1.0 | 1.0 | 60 | 14.0 | 107 |
| SMCJ60A | SMCJ60CA | 66.7 | 73.7 | 1.0 | 1.0 | 60 | 15.5 | 96 |
| SMCJ64 | SMCJ64C | 71.1 | 86.9 | 1.0 | 1.0 | 64 | 13.2 | 114 |
| SMCJ64A | SMCJ64CA | 71.1 | 78.6 | 1.0 | 1.0 | 64 | 14.6 | 103 |
| SMCJ70 | SMCJ70C | 77.8 | 95.1 | 1.0 | 1.0 | 70 | 12.0 | 125 |
| SMCJ70A | SMCJ70CA | 77.8 | 86.0 | 1.0 | 1.0 | 70 | 13.3 | 113 |
| SMCJ75 | SMCJ75C | 83.3 | 102 | 1.0 | 1.0 | 75 | 11.2 | 134 |
| SMCJ75A | SMCJ75CA | 83.3 | 92.1 | 1.0 | 1.0 | 75 | 12.4 | 121 |

## ■电性参数 (TA=25℃ 除非另有规定)

## Electrical Characteristics (TA=25℃ unless otherwise noted)

| 产品型号（单向） Part Number(Uni) | 产品型号（双向） Part Number(Bi) | 击穿电压 $V_{BR}@I_T$ Breakdown Voltage $V_{BR}@I_T$ | | | 最大反向漏电流 $I_R$ @$V_{WM}$ Maximum Reverse Leakage $I_R$ (3) (μA) | 最大工作电压 $V_{RWM}$ Working Peak Reverse Voltage $V_{RWM}$ (V) | 最大反向浪涌电流 IPP Maximum Reverse Surge Current IPP(2) (A) | 最大箝位电压 Maximum Clamping Voltage Vc @ $I_{PP}$ (V) |
|---|---|---|---|---|---|---|---|---|
| | | 最小 Min(V) | 最大 Max (V) | 测试电流 IT(1)(mA) | | | | |
| SMCJ78 | SMCJ78C | 86.7 | 106 | 1.0 | 1.0 | 78 | 10.8 | 139 |
| SMCJ78A | SMCJ78CA | 86.7 | 95.8 | 1.0 | 1.0 | 78 | 11.9 | 126 |
| SMCJ85 | SMCJ85C | 94.4 | 115 | 1.0 | 1.0 | 85 | 9.9 | 151 |
| SMCJ85A | SMCJ85CA | 94.4 | 104 | 1.0 | 1.0 | 85 | 10.9 | 137 |
| SMCJ90 | SMCJ90C | 100 | 122 | 1.0 | 1.0 | 90 | 9.4 | 160 |
| SMCJ90A | SMCJ90CA | 100 | 111 | 1.0 | 1.0 | 90 | 10.3 | 146 |
| SMCJ100 | SMCJ100C | 111 | 136 | 1.0 | 1.0 | 100 | 8.4 | 179 |
| SMCJ100A | SMCJ100CA | 111 | 123 | 1.0 | 1.0 | 100 | 9.3 | 162 |
| SMCJ110 | SMCJ110C | 122 | 149 | 1.0 | 1.0 | 110 | 7.7 | 196 |
| SMCJ110A | SMCJ110CA | 122 | 135 | 1.0 | 1.0 | 110 | 8.5 | 177 |
| SMCJ120 | SMCJ120C | 133 | 163 | 1.0 | 1.0 | 120 | 7.0 | 214 |
| SMCJ120A | SMCJ120CA | 133 | 147 | 1.0 | 1.0 | 120 | 7.8 | 193 |
| SMCJ130 | SMCJ130C | 144 | 176 | 1.0 | 1.0 | 130 | 6.5 | 231 |
| SMCJ130A | SMCJ130CA | 144 | 159 | 1.0 | 1.0 | 130 | 7.2 | 209 |
| SMCJ150 | SMCJ150C | 167 | 204 | 1.0 | 1.0 | 150 | 5.6 | 268 |
| SMCJ150A | SMCJ150CA | 167 | 185 | 1.0 | 1.0 | 150 | 6.2 | 243 |
| SMCJ160 | SMCJ160C | 178 | 218 | 1.0 | 1.0 | 160 | 5.2 | 287 |
| SMCJ160A | SMCJ160CA | 178 | 197 | 1.0 | 1.0 | 160 | 5.8 | 259 |
| SMCJ170 | SMCJ170C | 189 | 231 | 1.0 | 1.0 | 170 | 4.9 | 304 |
| SMCJ170A | SMCJ170CA | 189 | 209 | 1.0 | 1.0 | 170 | 5.5 | 275 |
| SMCJ188 | SMCJ188C | 209 | 255 | 1.0 | 1.0 | 188 | 4.4 | 344 |
| SMCJ188A | SMCJ188CA | 209 | 231 | 1.0 | 1.0 | 188 | 4.6 | 328 |

## 备注：Notes:

(1) 脉冲测试：$t_p$≤50ms Pulse test: $t_p$≤50ms

(2) 浪涌电流波形，如图3，功率降额曲线如图2。

Surge current waveform per Fig. 3 and derated per Fig.2.

(3) 对于双向型，$V_{WM}$在10V及10V以下，$I_R$值加倍

For bi-directional types having VWM of 10 V and less, the $I_R$ limit is doubled

(4) 对于双向SMCJ5.0CA，$V_{BR}$最大值为7.25V

For the bi-directional SMCJ5.0CA, the maximum $V_{BR}$ is 7.25 V

## ■特性曲线（典型）

图1：最大脉冲功率曲线
FIG1:Peak Pulse Power Rating Curve

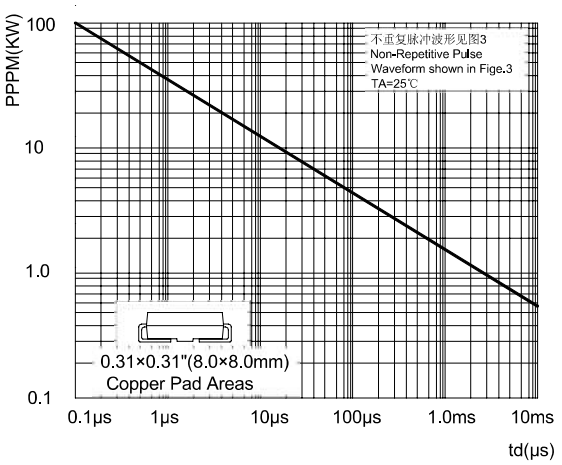



图2：脉冲功率或电流与结温关系
FIG2: Pulse Power or Current vs. Initial Junction Temperature

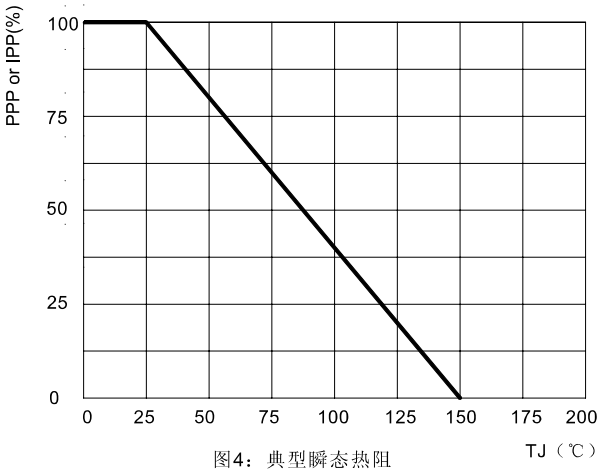



图3：脉冲波形
FIG3: Pulse Waveform

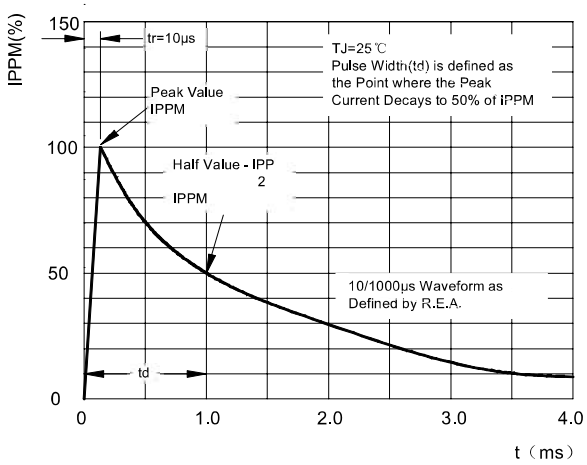
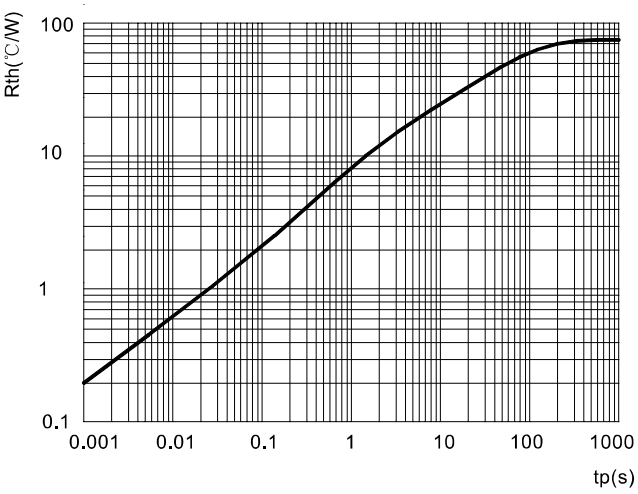



图4：典型瞬态热阻
FIG4:Typical Transient Thermal Impedance



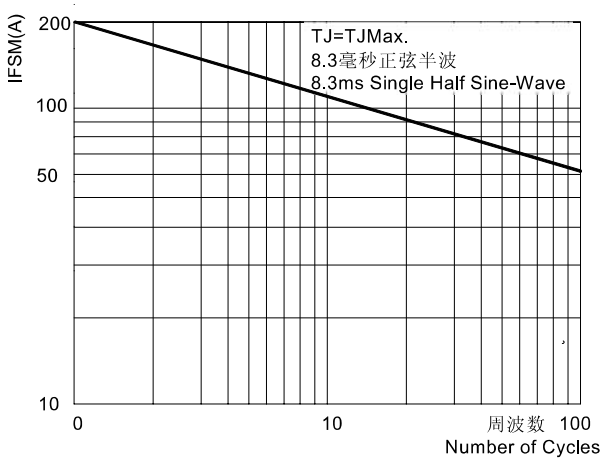


图5：最大不重复浪涌电流
FIG5: Maximum Non-Repetitive Surge Current