

产品规格书

Product Specification

功率型表贴式瞬态抑制二极管

Transient Voltage Suppressor (TVS) Diodes

型号 (Part Number) : 1.5SMCJ series

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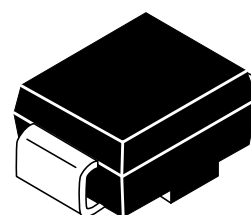
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| V1.0 | Frank Chen | Sun Fang | |

一、简介 Introduction

Transient Voltage Suppressors(TVS) are semiconductor devices designed to provide protection against over voltage transients. When over voltage events occur, the silicon TVS activates from an very high impedance status to a very low impedance status by operating in the avalanche mode and uses a large junction area to absorb large transient currents in a fast response time, protecting voltage sensitive electronics equipment from damaging. JinHui supplies unipolar and bipolar TVS devices with axial and SMD packages, with maximum working voltage 5V to 440V, maximum power dissipation from 400W-5000W.

二、特点 Features

- Glass passivated chip junction in SMC Package
- Low Clamping Voltage
- Low Leakage
- Response Time is < 1 ns
- Meets MSL 1 Requirements
- RoHS compliant
- Low incremental surge resistance
- 1500W peak pulse power@10/1000μs
- Excellent clamping Capability
- Typical failure mode is short from over-specified voltage or current



SMC
(JEDEC DO-214AB)

三、主要应用 Main applications

- Telecom and Network
- Industrial Products
- Medical Equipment
- Computers
- Business Machines
- Vehicles Electronics
- Power Adapter
- Consumer Products
- Security Protection

四、极限参数 Maximum Ratings (Tamb=25°C Unless Otherwise Specified)

| RATING | SYMBOL | VALUE | UNITS |
|-----------------------------------------------------------------------------------------------------------|-----------|-----------|-------|
| Peak Power Dissipation at TA = 25°C , TP = 1ms (Note 1) | PPP | 1500 | Watts |
| Peak Forward Surge Current,8.3ms Single Half Sine-Wave Superimposed on Rated Load,(JEDEC Method) (Note 3) | IFSM | 200 | Amps |
| Operating junction and Storage Temperature Range | TJ , TSTG | -55 ~ 175 | °C |

NOTES:

- 1.Non-repetitive current pulse, per Fig.3 and derated above TA=25°C per Fig.2.
- 2.Mounted on Copper Leaf area of 1.57 in² (40mm²).
- 3.8.3ms single half sine-wave, duty cycle=4 pulses per minutes maximum.

Product Specification(1.5SMCJ series)

五、电参数 Electrical information (Tamb=25℃)

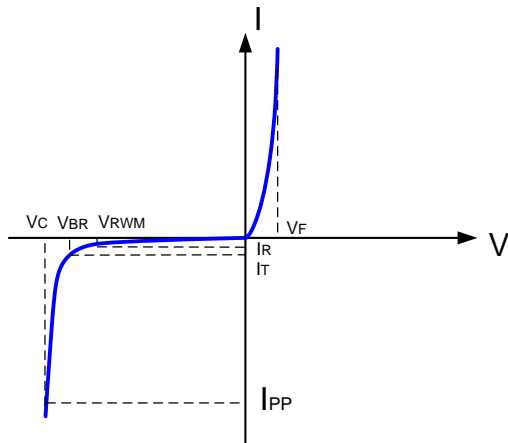
| Type Number | | Marking | | V _{RWM} | V _{BR} MIN | V _{BR} MAX | I _T | V _C MAX | I _{PP} MAX | I _R |
|-------------|--------------|---------|-----|------------------|---------------------|---------------------|----------------|--------------------|---------------------|----------------|
| Uni | Bi | Uni | Bi | (V) | (V) | (V) | (mA) | (V) | (A) | (uA) |
| 1.5SMCJ5.0A | 1.5SMCJ5.0CA | GDE | BDE | 5 | 6.4 | 7.25 | 10 | 9.2 | 163.0 | 800 |
| 1.5SMCJ6.0A | 1.5SMCJ6.0CA | GDG | BDG | 6 | 6.67 | 7.67 | 10 | 10.3 | 145.7 | 800 |
| 1.5SMCJ7.0A | 1.5SMCJ7.0CA | GDM | BDM | 7 | 7.78 | 8.95 | 10 | 12 | 125.0 | 200 |
| 1.5SMCJ8.0A | 1.5SMCJ8.0CA | GDR | BDR | 8 | 8.89 | 10.23 | 1 | 13.6 | 110.3 | 50 |
| 1.5SMCJ9.0A | 1.5SMCJ9.0CA | GDV | BDV | 9 | 10 | 11.5 | 1 | 15.4 | 97.4 | 10 |
| 1.5SMCJ10A | 1.5SMCJ10CA | GDX | BDX | 10 | 11.1 | 12.8 | 1 | 17 | 88.3 | 5 |
| 1.5SMCJ12A | 1.5SMCJ12CA | GEE | BEE | 12 | 13.3 | 15.3 | 1 | 19.9 | 75.4 | 5 |
| 1.5SMCJ14A | 1.5SMCJ14CA | GEK | BEK | 14 | 15.6 | 17.9 | 1 | 23.2 | 64.7 | 5 |
| 1.5SMCJ16A | 1.5SMCJ16CA | GEP | BEP | 16 | 17.8 | 20.5 | 1 | 26 | 57.7 | 5 |
| 1.5SMCJ18A | 1.5SMCJ18CA | GET | BET | 18 | 20 | 23.3 | 1 | 29.2 | 51.4 | 5 |
| 1.5SMCJ20A | 1.5SMCJ20CA | GEV | BEV | 20 | 22.2 | 25.5 | 1 | 32.4 | 46.3 | 5 |
| 1.5SMCJ22A | 1.5SMCJ22CA | GEX | BEX | 22 | 24.4 | 28 | 1 | 35.5 | 42.3 | 5 |
| 1.5SMCJ24A | 1.5SMCJ24CA | GEZ | BEZ | 24 | 26.7 | 30.7 | 1 | 38.9 | 38.6 | 5 |
| 1.5SMCJ26A | 1.5SMCJ26CA | GFE | BFE | 26 | 28.9 | 33.2 | 1 | 42.1 | 35.7 | 5 |
| 1.5SMCJ28A | 1.5SMCJ28CA | GFG | BFG | 28 | 31.1 | 35.8 | 1 | 45.4 | 33.1 | 5 |
| 1.5SMCJ30A | 1.5SMCJ30CA | GFK | BFK | 30 | 33.3 | 38.3 | 1 | 48.4 | 31.0 | 5 |
| 1.5SMCJ33A | 1.5SMCJ33CA | GFM | BFM | 33 | 36.7 | 42.2 | 1 | 53.3 | 28.2 | 5 |
| 1.5SMCJ36A | 1.5SMCJ36CA | GFP | BFP | 36 | 40 | 46 | 1 | 58.1 | 25.9 | 5 |
| 1.5SMCJ40A | 1.5SMCJ40CA | GFR | BFR | 40 | 44.4 | 51.1 | 1 | 64.5 | 23.3 | 5 |
| 1.5SMCJ43A | 1.5SMCJ43CA | GFT | BFT | 43 | 47.8 | 54.9 | 1 | 69.4 | 21.7 | 5 |
| 1.5SMCJ45A | 1.5SMCJ45CA | GFV | BFV | 45 | 50 | 57.5 | 1 | 72.7 | 20.6 | 5 |
| 1.5SMCJ48A | 1.5SMCJ48CA | GFX | BFX | 48 | 53.3 | 61.3 | 1 | 77.4 | 19.4 | 5 |
| 1.5SMCJ51A | 1.5SMCJ51CA | GFZ | BFZ | 51 | 56.7 | 65.2 | 1 | 82.4 | 18.2 | 5 |
| 1.5SMCJ54A | 1.5SMCJ54CA | GGE | BGE | 54 | 60 | 69 | 1 | 87.1 | 17.3 | 5 |
| 1.5SMCJ58A | 1.5SMCJ58CA | GGG | BGG | 58 | 64.4 | 74.1 | 1 | 93.6 | 16.1 | 5 |
| 1.5SMCJ60A | 1.5SMCJ60CA | GGK | BGK | 60 | 66.7 | 76.7 | 1 | 96.8 | 15.5 | 5 |
| 1.5SMCJ64A | 1.5SMCJ64CA | GGM | BGM | 64 | 71.1 | 81.8 | 1 | 103 | 14.6 | 5 |
| 1.5SMCJ70A | 1.5SMCJ70CA | GGP | BGP | 70 | 77.8 | 89.5 | 1 | 113 | 13.3 | 5 |
| 1.5SMCJ75A | 1.5SMCJ75CA | GGR | BGR | 75 | 83 | 95.8 | 1 | 121 | 12.4 | 5 |
| 1.5SMCJ78A | 1.5SMCJ78CA | GGT | BGT | 78 | 86 | 99.7 | 1 | 126 | 11.9 | 5 |
| 1.5SMCJ85A | 1.5SMCJ85CA | GGV | BGV | 85 | 94 | 108.2 | 1 | 137 | 11.0 | 5 |
| 1.5SMCJ90A | 1.5SMCJ90CA | GGX | BGX | 90 | 100 | 115.5 | 1.0 | 146 | 10.3 | 5 |
| 1.5SMCJ100A | 1.5SMCJ100CA | GGZ | BGZ | 100 | 111 | 128.0 | 1.0 | 162 | 9.3.1 | 5 |
| 1.5SMCJ110A | 1.5SMCJ110CA | GHE | BHE | 110 | 122 | 140.5 | 1.0 | 177 | 8.5 | 5 |
| 1.5SMCJ120A | 1.5SMCJ120CA | GHG | BHG | 120 | 133 | 153.0 | 1.0 | 193 | 7.8 | 5 |
| 1.5SMCJ130A | 1.5SMCJ130CA | GHK | BHK | 130 | 144 | 165.5 | 1.0 | 209 | 7.2 | 5 |
| 1.5SMCJ150A | 1.5SMCJ150CA | GHM | BHM | 150 | 167 | 192.5 | 1.0 | 243 | 6.2 | 5 |
| 1.5SMCJ160A | 1.5SMCJ160CA | GHP | BHP | 160 | 178 | 205.0 | 1.0 | 259 | 5.8 | 5 |
| 1.5SMCJ170A | 1.5SMCJ170CA | GHR | BHR | 170 | 189 | 217.5 | 1.0 | 275 | 5.5 | 5 |
| 1.5SMCJ180A | 1.5SMCJ180CA | GHT | BHT | 180 | 200 | 230.4 | 1.0 | 292 | 5.1 | 5 |

For bidirectional type having V_{RWM} of 10 volts and less, the I_R limit is double

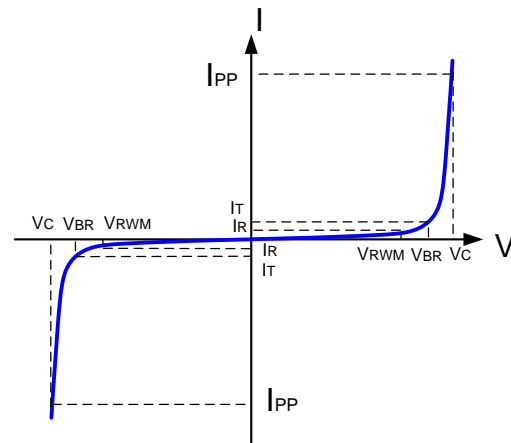
Product Specification(1.5SMCJ series)

| Type Number | | Marking | | V_{RWM} | $V_{BR\ MIN}$ | $V_{BR\ MAX}$ | I_T | $V_C\ MAX$ | $I_{PP}\ MAX$ | I_R |
|-------------|--------------|---------|-----|-----------|---------------|---------------|-------|------------|---------------|-------------|
| Uni | Bi | Uni | Bi | (V) | (V) | (V) | (mA) | (V) | (A) | (μA) |
| 1.5SMCJ200A | 1.5SMCJ200CA | GHX | BHX | 200 | 222 | 256.0 | 1.0 | 324 | 4.6 | 5.0 |
| 1.5SMCJ210A | 1.5SMCJ210CA | GHZ | BHZ | 210 | 233 | 268.8 | 1.0 | 340 | 4.4 | 5.0 |
| 1.5SMCJ220A | 1.5SMCJ220CA | GIE | BIE | 220 | 244 | 281.6 | 1.0 | 356 | 4.2 | 5.0 |

For bidirectional type having V_{RWM} of 10 volts and less, the I_R limit is double



Uni-Directional TVS



Bi-Directional TVS

V_{RWM} - **Reverse Stand-Off Voltage** - Working Peak Reverse Voltage

V_{BR} - **Breakdown Voltage** - Maximum current that flows through the TVS at a specified test current (I_T)

I_T - **Test Current** - Test Current

V_C - **Clamping Voltage** - Peak voltage measured across the suppressor at a specified I_{ppm} (peak impulse current)

I_{PP} - **Peak Pulse Current** - Maximum Reverse Peak Pulse Current

P_{PP} - **Peak Pulse Power Dissipation** - Max power dissipation

I_R - **Reverse Leakage Current** - Current measured at V_{RWM}

V_F - **Forward Voltage** - Drop for Uni-directional

六、典型电特性曲线 Typical electrical characters applications

Figure 1 - TVS Transients Clamping Waveform

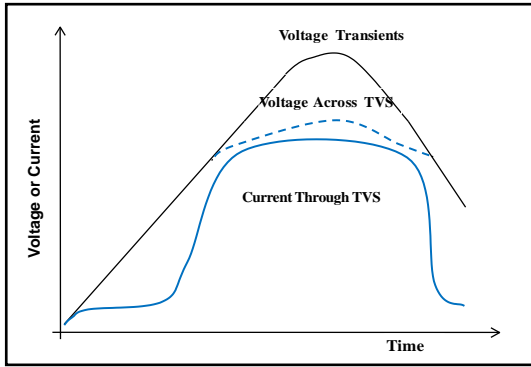


Figure 2 - Peak Pulse Power Rating Curve

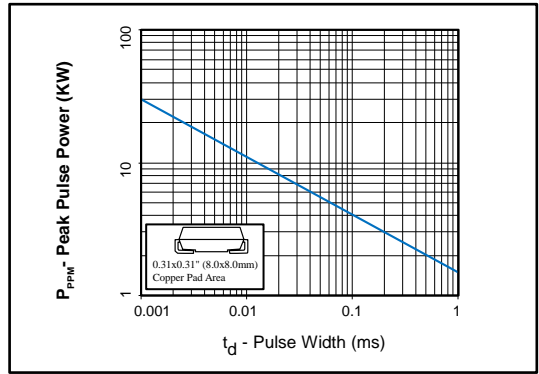


Figure 3 - Pulse Derating Curve

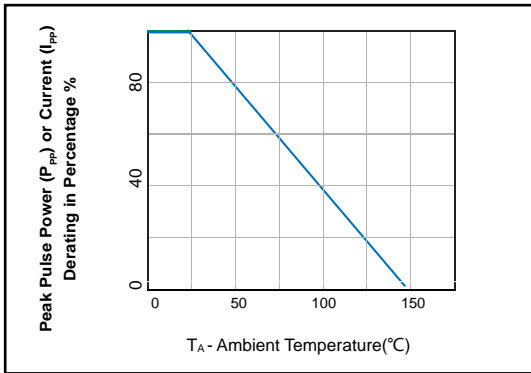


Figure 4 - Pulse Waveform

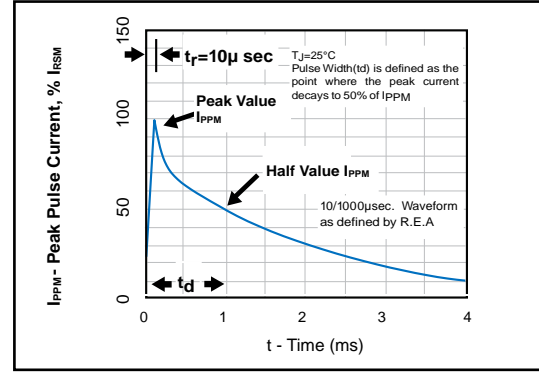


Figure 5 - Typical Junction Capacitance

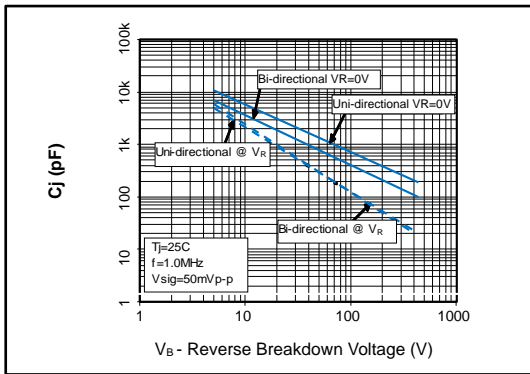


Figure 6 - Maximum Non-Repetitive Peak Forward Surge Current Uni-Directional Only

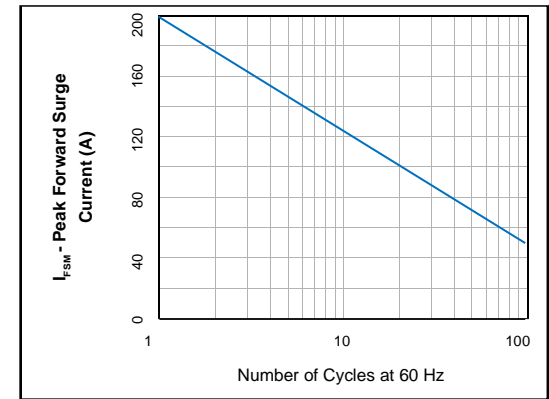
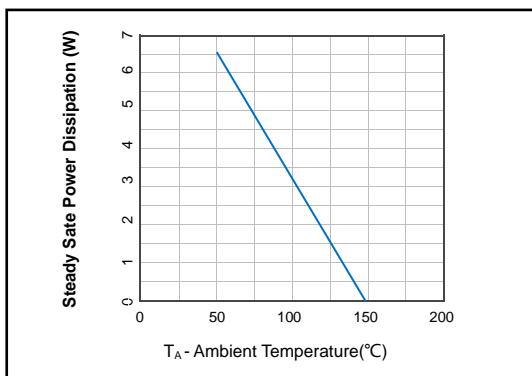
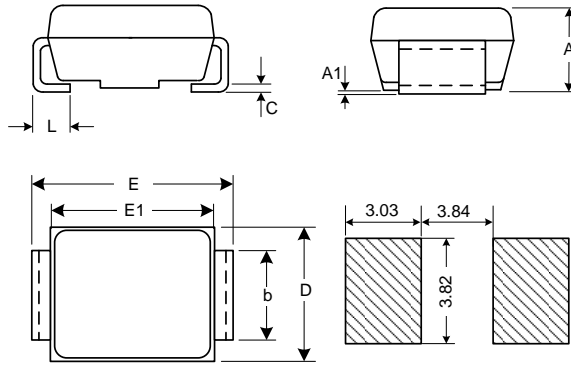


Figure 7 - Steady State Power Derating Curve



七、外观尺寸 Shape and Dimensions

| Ref. (mm) | Min. | Max. |
|-----------|-------|-------|
| A | 2.00 | 2.62 |
| A1 | 0.051 | 0.203 |
| b | 2.75 | 3.25 |
| C | 0.152 | 0.305 |
| E | 7.75 | 8.13 |
| E1 | 6.60 | 7.11 |
| D | 5.59 | 6.22 |
| L | 0.76 | 1.27 |



八、订购信息 How To Order

| Device | Qty per Reel | Tape |
|----------------|--------------|---------|
| 1.5SMCJ series | 500 | 7" Reel |

九、其他 Other

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[3.0SMCJ33CA-F](#) [3.0SMCJ36A-F](#) [HSPC16701B02TP](#) [D3V3Q1B2DLP3-7](#) [D55V0M1B2WS-7](#) [DESD5V0U1BL-7B](#) [DRTR5V0U4SL-7](#)
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