

# 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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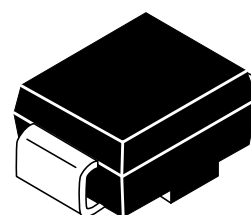
版本Version	编写Compile	审核 Auditing	批准Authorize
V1.0	Frank Chen	Sun Fang	

## 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 in<sup>2</sup> (40mm<sup>2</sup>).
- 3.8.3ms single half sine-wave, duty cycle=4 pulses per minutes maximum.

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

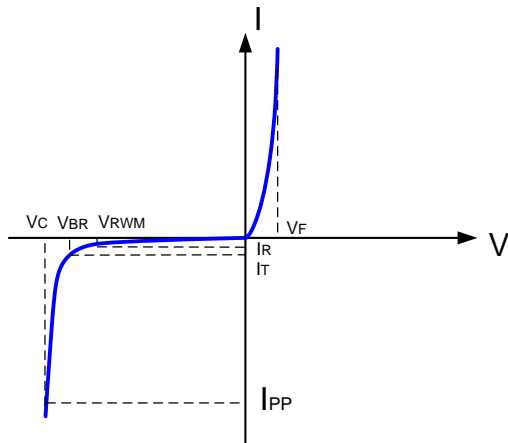
Type Number		Marking		V <sub>RWM</sub>	V <sub>BR</sub> MIN	V <sub>BR</sub> MAX	I <sub>T</sub>	V <sub>C</sub> MAX	I <sub>PP</sub> MAX	I <sub>R</sub>
Uni	Bi	Uni	Bi	(V)	(V)	(V)	(mA)	(V)	(A)	(uA)
1.5SMCJ5.0A	1.5SMCJ5.0CA	GDE	BDE	5	6.4	7.25	10	9.2	163.0	800
1.5SMCJ6.0A	1.5SMCJ6.0CA	GDG	BDG	6	6.67	7.67	10	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<sub>RWM</sub> of 10 volts and less, the I<sub>R</sub> limit is double

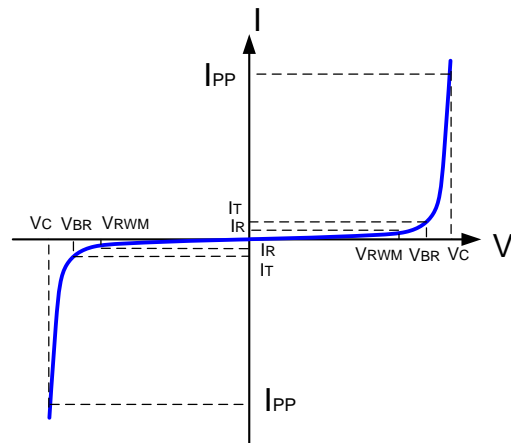
## Product Specification(1.5SMCJ series)

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)	( $\mu A$ )
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

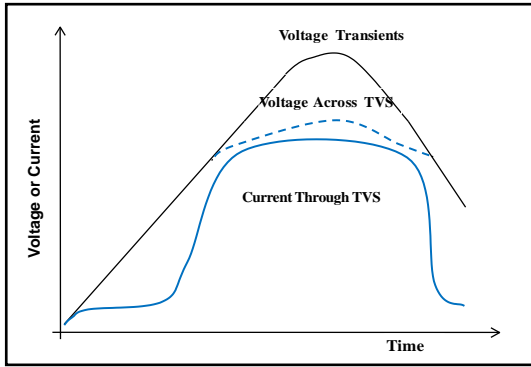


Figure 2 - Peak Pulse Power Rating Curve

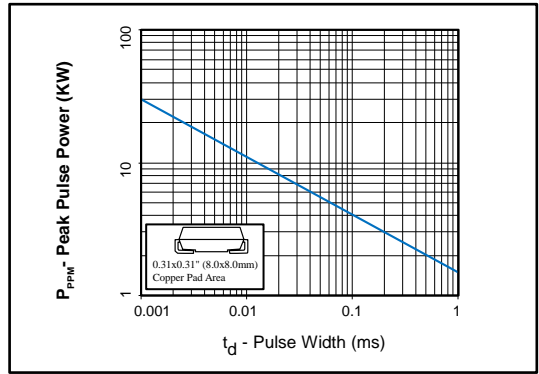


Figure 3 - Pulse Derating Curve

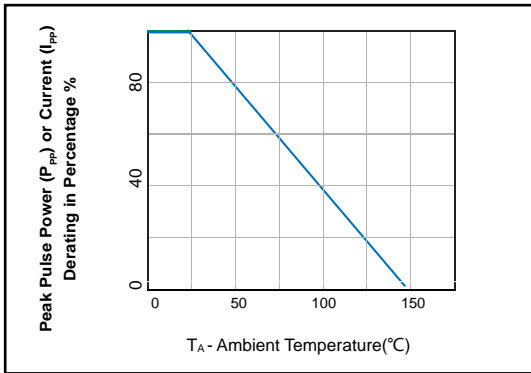


Figure 4 - Pulse Waveform

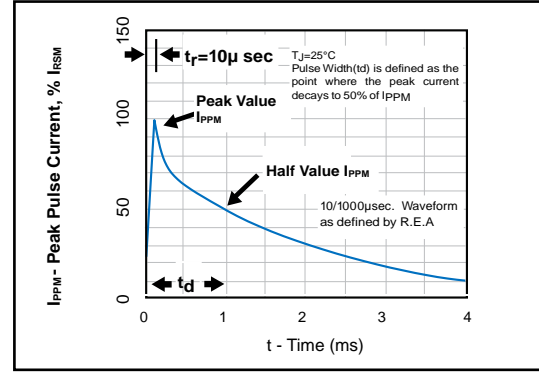


Figure 5 - Typical Junction Capacitance

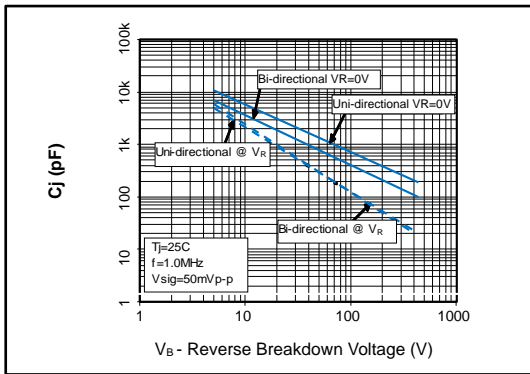


Figure 6 - Maximum Non-Repetitive Peak Forward Surge Current Uni-Directional Only

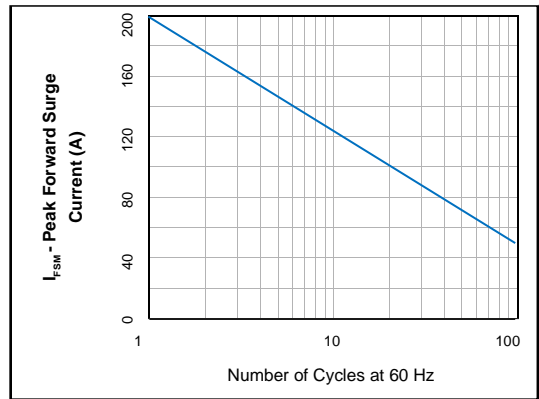
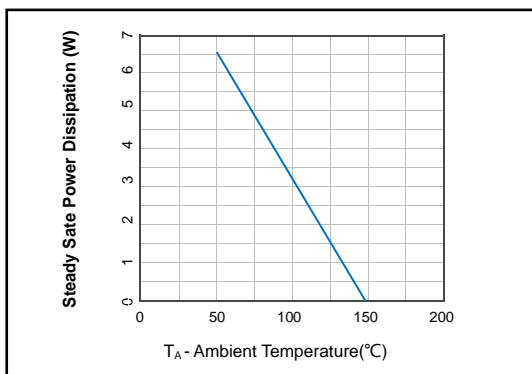
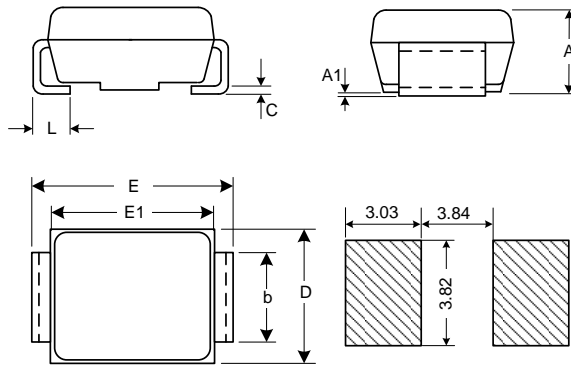


Figure 7 - Steady State Power Derating Curve



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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