

1500W Surface Mount TVS Diodes Transient Voltage Suppressor SMCJ5.0A 5.0V

Our Product Introduction

Basic Information

- Place of Origin: Shenzhen, Guangdong, China
- Brand Name: SOCAY
- Certification: UL, REACH, RoHS, ISO
- Model Number: SMCJ5.0A
- Minimum Order Quantity: 3000PCS
- Price: Negotiable
- Delivery Time: 5-8 work days



Product Specification

- Product Name: TVS Diodes
- Package Type: DO-214AB/SMC
- V_{rw}: 5.0V
- V_{br@It} (Min.): 6.40V
- V_{br@It} (Max.): 7.00V
- I_t: 10mA
- V_{c@Ipp}: 9.2V
- I_{pp}: 163.04A
- I_{r@Vrw}: 1000μA
- Storage Temperature Range: -55 To +150
- Highlight: **1500W TVS Diodes, TVS Diodes 5.0V, 1500W TVS Transient Voltage Suppressor**

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Product Description

1500W Surface Mount TVS SMCJ5.0A, 1000µA IR VRWM 5.0V Transient Voltage Suppressor

DATASHEET: [SMCJ_v2107.1 .pdf](#)

Description:

The SMCJ series is designed specifically to protect sensitive electronic equipment from voltage transients induced by lightning and other transient voltage events.

Part Number		Marking		Reverse Stand-Off Voltage V_{RWM} (V)	Breakdown Voltage V_{BR} (V) @ I_T		Test Current I_T (mA)	Maximum Clamping Voltage V_C @ I_{PP} (V)	Maximum Peak Pulse Current I_{PP} (A)	Maximum Reverse Leakage I_R @ V_{RWM} (µA)
					MIN	MAX				
SMCJ5.0A	SMCJ5.0CA	GDE	BDE	5.0	6.40	7.00	10	9.2	163.04	1000
SMCJ6.0A	SMCJ6.0CA	GDG	BDG	6.0	6.67	7.37	10	10.3	145.63	1000
SMCJ6.5A	SMCJ6.5CA	GDK	BDK	6.5	7.22	7.98	10	11.2	133.93	500
SMCJ7.0A	SMCJ7.0CA	GDM	BDM	7.0	7.78	8.60	10	12.0	125.00	200
SMCJ7.5A	SMCJ7.5CA	GDP	BDP	7.5	8.33	9.21	1	12.9	116.28	100
SMCJ8.0A	SMCJ8.0CA	GDR	BDR	8.0	8.89	9.83	1	13.6	110.29	50
SMCJ8.5A	SMCJ8.5CA	GDT	BDT	8.5	9.44	10.40	1	14.4	104.17	20
SMCJ9.0A	SMCJ9.0CA	GDV	BDV	9.0	10.00	11.10	1	15.4	97.40	10
SMCJ10A	SMCJ10CA	GDX	BDX	10.0	11.10	12.30	1	17.0	88.24	5
SMCJ11A	SMCJ11CA	GDZ	BDZ	11.0	12.20	13.50	1	18.2	82.42	5
SMCJ12A	SMCJ12CA	GEE	BEE	12.0	13.30	14.70	1	19.9	75.38	5
SMCJ13A	SMCJ13CA	GEG	BEG	13.0	14.40	15.90	1	21.5	69.77	5
SMCJ14A	SMCJ14CA	GEK	BEK	14.0	15.60	17.20	1	23.2	64.66	5
SMCJ15A	SMCJ15CA	GEM	BEM	15.0	16.70	18.50	1	24.4	61.48	5
SMCJ16A	SMCJ16CA	GEP	BEP	16.0	17.80	19.70	1	26.0	57.69	5
SMCJ17A	SMCJ17CA	GER	BER	17.0	18.90	20.90	1	27.6	54.35	5
SMCJ18A	SMCJ18CA	GET	BET	18.0	20.00	22.10	1	29.2	51.37	5
SMCJ19A	SMCJ19CA	GEB	BEB	19.0	21.10	23.30	1	30.8	48.73	5
SMCJ20A	SMCJ20CA	GEV	BEV	20.0	22.20	24.50	1	32.4	46.30	5
SMCJ22A	SMCJ22CA	GEX	BEX	22.0	24.40	26.90	1	35.5	42.25	5
SMCJ24A	SMCJ24CA	GEZ	BEZ	24.0	26.70	29.50	1	38.9	38.56	5
SMCJ26A	SMCJ26CA	GFE	BFE	26.0	28.90	31.90	1	42.1	35.63	5
SMCJ28A	SMCJ28CA	GFG	BFG	28.0	31.10	34.40	1	45.4	33.04	5
SMCJ30A	SMCJ30CA	GFK	BFK	30.0	33.30	36.80	1	48.4	30.99	5
SMCJ33A	SMCJ33CA	GFM	BFM	33.0	36.70	40.60	1	53.3	28.14	5
SMCJ36A	SMCJ36CA	GFP	BFP	36.0	40.00	44.20	1	58.1	25.82	5
SMCJ40A	SMCJ40CA	GFR	BFR	40.0	44.40	49.10	1	64.5	23.26	5
SMCJ43A	SMCJ43CA	GFT	BFT	43.0	47.80	52.80	1	69.4	21.61	5

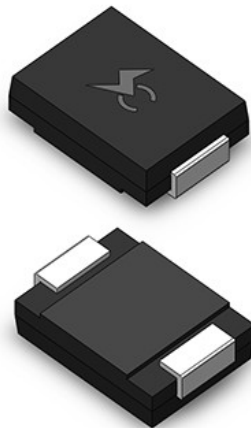
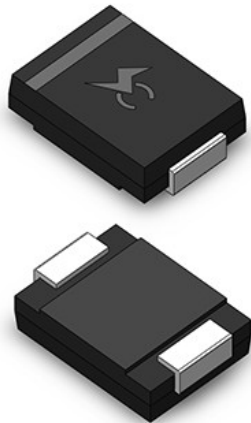
SMCJ45A	SMCJ45 CA	GFV	BFV	45.0	50.00	55.30	1	72.7	20.63	5
SMCJ48A	SMCJ48 CA	GFX	BFX	48.0	53.30	58.90	1	77.4	19.38	5
SMCJ51A	SMCJ51 CA	GFZ	BFZ	51.0	56.70	62.70	1	82.4	18.20	5
SMCJ54A	SMCJ54 CA	GGE	BGE	54.0	60.00	66.30	1	87.1	17.22	5
SMCJ58A	SMCJ58 CA	GGG	BGG	58.0	64.40	71.20	1	93.6	16.03	5
SMCJ60A	SMCJ60 CA	GGK	BGK	60.0	66.70	73.70	1	96.8	15.50	5
SMCJ64A	SMCJ64 CA	GGM	BGM	64.0	71.10	78.60	1	103.0	14.56	5
SMCJ70A	SMCJ70 CA	GGP	BGP	70.0	77.80	86.00	1	113.0	13.27	5
SMCJ75A	SMCJ75 CA	GGR	BGR	75.0	83.30	92.10	1	121.0	12.40	5
SMCJ78A	SMCJ78 CA	GGT	BGT	78.0	86.70	95.80	1	126.0	11.90	5
SMCJ80A	SMCJ80 CA	GGB	BGB	80.0	88.80	97.60	1	129.6	11.57	5
SMCJ85A	SMCJ85 CA	GGV	BGV	85.0	94.40	104.00	1	137.0	10.95	5
SMCJ90A	SMCJ90 CA	GGX	BGX	90.0	100.00	111.00	1	146.0	10.27	5
SMCJ100 A	SMCJ100 CA	GGZ	BGZ	100.0	111.00	123.00	1	162.0	9.26	5
SMCJ110 A	SMCJ110 CA	GHE	BHE	110.0	122.00	135.00	1	177.0	8.47	5
SMCJ120 A	SMCJ120 CA	GHG	BHG	120.0	133.00	147.00	1	193.0	7.77	5
SMCJ130 A	SMCJ130 CA	GHK	BHK	130.0	144.00	159.00	1	209.0	7.18	5
SMCJ140 A	SMCJ140 CA	--	BHB	140.0	155.00	171.00	1	226.8	6.61	5
SMCJ150 A	SMCJ150 CA	GHM	BHM	150.0	167.00	185.00	1	243.0	6.17	5
SMCJ160 A	SMCJ160 CA	GHP	BHP	160.0	178.00	197.00	1	259.0	5.79	5
SMCJ170 A	SMCJ170 CA	GHR	BHR	170.0	189.00	209.00	1	275.0	5.45	5
SMCJ180 A	SMCJ180 CA	GHT	BHT	180.0	201.00	220.00	1	291.6	5.14	5
SMCJ190 A	SMCJ190 CA	GHV	BHV	190.0	211.00	232.00	1	307.8	4.87	5
SMCJ200 A	SMCJ200 CA	GHW	BHW	200.0	224.00	247.00	1	324.0	4.60	5
SMCJ220 A	SMCJ220 CA	GHX	BHX	220.0	246.00	272.00	1	356.0	4.20	5
SMCJ250 A	SMCJ250 CA	GHZ	BHZ	250.0	279.00	309.00	1	405.0	3.70	5
SMCJ300 A	SMCJ300 CA	GJE	BJE	300.0	335.00	371.00	1	486.0	3.10	5
SMCJ350 A	SMCJ350 CA	GJG	BJG	350.0	391.00	432.00	1	567.0	2.60	5
SMCJ400 A	SMCJ400 CA	GJK	BJK	400.0	447.00	494.00	1	648.0	2.30	5
SMCJ440 A	SMCJ440 CA	GJM	BJM	440.0	492.00	543.00	1	713.0	2.10	5

Notes:

1. Suffix 'A' denotes 5% tolerance device.

2. Add suffix 'CA' after part number to specify Bi-directional devices.

For Bi-Directional devices having V_R of 10 volts and under, the I_R limit is doubl.

**Features:**

- For surface mounted applications in order to optimize board space
- Low leakage
- Uni and Bidirectional unit
- Glass passivated junction
- Low inductance
- Excellent clamping capability
- 1500W Peak power capability at $10 \times 1000\mu\text{s}$ waveform Repetition rate (duty cycle):0.01%
- Fast response time: typically less than 1.0ps from 0 Volts to V_{BR} min
- Typical I_R less than 5 μA above 12V.
- High Temperature soldering: 260°C/40 seconds at terminals
- Typical maximum temperature coefficient $\Delta V_{BR} = 0.1\% \times V_{BR}@25^\circ\text{C} \times \Delta T$
- Plastic package has Underwriters Laboratory Flammability 94V-0
- Matte tin lead-free Plated

Halogen free and RoHS compliant

Typical failure mode is short from over-specified voltage or current

Whisker test is conducted based on JEDEC JESD201A per its table 4a and 4c

IEC-61000-4-2 ESD 15kV(Air), 8kV (Contact)

ESD protection of data lines in accordance with IEC 61000-4-2 (IEC801-2)

EFT protection of data lines in accordance with IEC 61000-4-4 (IEC801-4)

Applications:

TVS devices are ideal for the protection of I/O interfaces, VCC bus and other vulnerable circuits used in Telecom, Computer, Industrial and Consumer electronic applications .

Parameter	Symbol	Value	Unit
Peak Pulse Power Dissipation with a 10/1000µs waveform (Fig.1)(Note 1), (Note 2)	P_{PPM}	1500	Watts
Peak Pulse Current with a 10/1000µs waveform.(Note1, Fig.3)	I_{PP}	See Next Table	Amps
Power Dissipation on Infinite Heat Sink at $T_L=75^{\circ}\text{C}$	$P_{M(AV)}$	6.5	Watt
Peak Forward Surge Current, 8.3ms Single Half Sine Wave (Note 3)	I_{FSM}	200	Amps
Maximum Instantaneous Forward Voltage at 25A for Unidirectional Only (Note 4)	V_F	3.5/5.0	Voltage
Operating junction and Storage Temperature Range.	T_J, T_{STG}	-55 to +150	

Notes:

1. Non-repetitive current pulse, per Fig. 3 and derated above $T_A = 25^{\circ}\text{C}$ per Fig. 2.
2. Mounted on 5.0mm x 5.0mm (0.03mm thick) Copper Pads to each terminal.
3. 8.3ms single half sine-wave, or equivalent square wave, Duty cycle = 4 pulses per minutes maximum.
4. $V_F < 3.5\text{V}$ for $V_{BR} < 200\text{V}$ and $V_F < 6.5\text{V}$ for $V_{BR} > 201\text{V}$.

Figure 1 - Peak Pulse Power Rating Curve

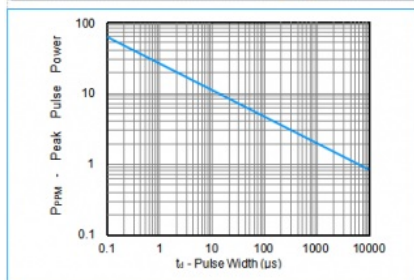


Figure 2 - Pulse Derating Curve

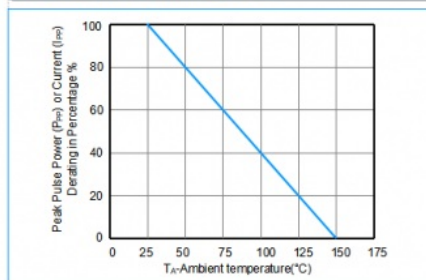


Figure 3 - Pulse Waveform

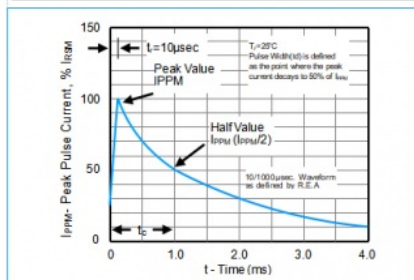


Figure 4 - Typical Junction Capacitance

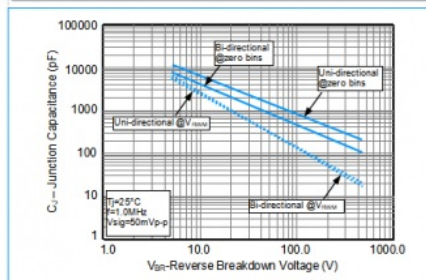


Figure 5 - Steady State Power Derating Curve

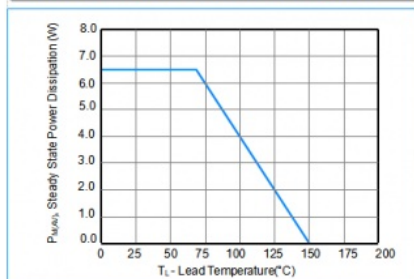
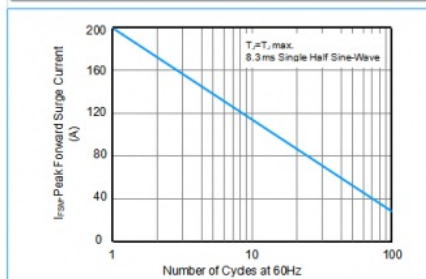
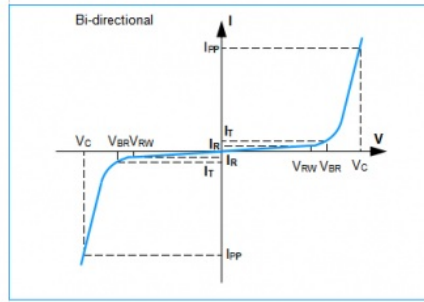
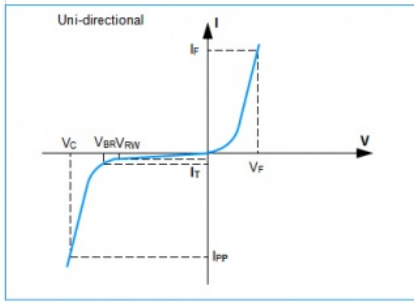


Figure 6 - Maximum Non-Repetitive Surge Current



I-V Curve Characteristics



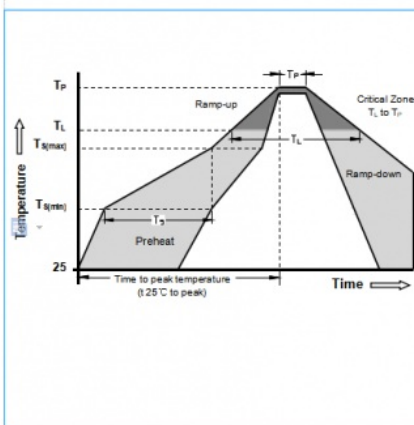
Physical Specifications

Weight	0.007 ounce, 0.21 gram
Case	JEDEC DO-214AB Molded Plastic over glass passivated junction
Polarity	Color band denotes cathode except Bipolar
Terminal	Matte Tin-plated leads, Solderable per JESD22-B102D

Environmental Specifications

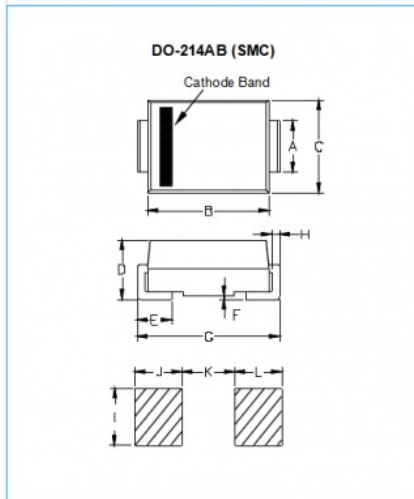
Temperature Cycle	JESD22-A104
Pressure Cooker	JESD22-A102
High Temp. Storage	JESD22-A103
HTRB	JESD22-A108
Thermal Shock	JESD22-A106

Soldering Parameters



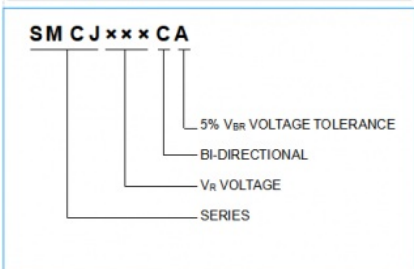
Reflow Condition		Lead-free assembly
Pre Heat	-Temperature Min ($T_{s(min)}$)	150°C
	-Temperature Max ($T_{s(max)}$)	200°C
	-Time (min to max) (T_s)	60 - 180 Seconds
Average ramp up rate (Liquidus Temp T_L) to peak		3°C/second max
$T_{s(max)}$ to T_L - Ramp-up Rate		3°C/second max
Reflow	- Temperature (T_L) (Liquidus)	217°C
	- Time (min to max) (T_L)	60 - 150 Seconds
Peak Temperature (T_P)		260 ±0/-5°C
Time within 5°C of actual peak Temperature (T_P)		20 - 40 Seconds
Ramp-down Rate		6°C/second max
Time 25°C to peak Temperature (T_P)		8 minutes Max
Do not exceed		260°C

Dimensions

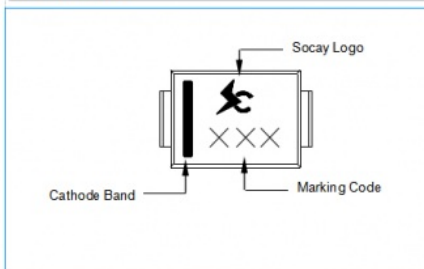


Dimensions	Inches		Millimeters	
	Min	Max	Min	Max
A	0.108	0.126	2.750	3.200
B	0.260	0.280	6.520	7.110
C	0.217	0.244	5.520	6.220
D	0.080	0.112	2.050	2.850
E	0.030	0.060	0.750	1.520
F	-	0.008	-	0.203
G	0.305	0.320	7.640	8.130
H	0.006	0.012	0.150	0.310
I	0.121	-	3.070	-
J	0.068	-	1.715	-
K	-	0.185	-	4.690
L	0.068	-	1.715	-

Part Numbering



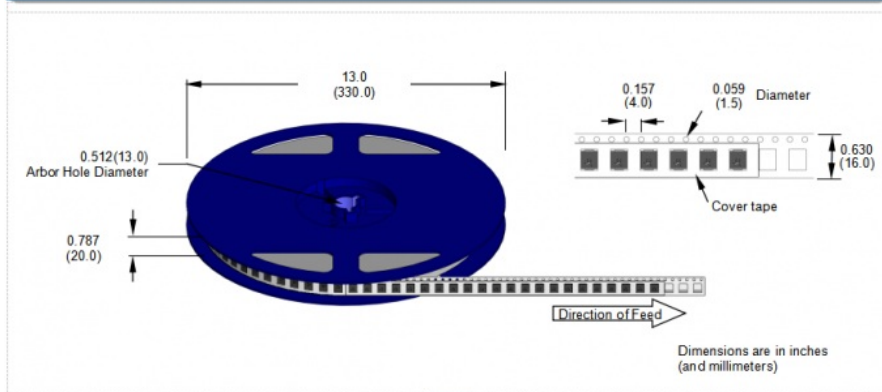
Part Marking



Packaging

Part Number	Component Package	Reel (pcs)	Per Carton (pcs)	Packaging Option	Reel Diameters (mm)
SMCJXXXX	DO-214AB (SMC)	3000	48000	Tape & Reel - 20mm/13"tape	330.0

Tape and Reel Specifications



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