



5000W High Power Surface Mount TVS 5.0SMDJ Series 5.0SMDJ12A 12VRWM

Our Product Introduction

Basic Information

- Place of Origin: Shenzhen, Guangdong, China
- Brand Name: SOCAY
- Certification: UL, REACH, RoHS, ISO
- Model Number: 5.0SMDJ12A
- Minimum Order Quantity: 500PCS
- Price: Negotiable
- Delivery Time: 5-8 work days



Product Specification

- Product Name: TVS Diodes
- Package Type: DO-214AB/SMC
- V_{rw}: 12.0V
- V_{br@It} (Min.): 13.30V
- V_{br@It} (Max.): 14.70V
- I_t: 1mA
- V_{c@Ipp}: 19.9V
- I_{pp}: 253.77A
- I_{r@Vrw}: 800μA
- Storage Temperature Range: -55 To +150
- Highlight: **5000W Surface Mount TVS,
Surface Mount TVS 12VRWM**

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Product Description

5000W High-power 5.0SMDJ Series TVS Diode 5.0SMDJ12A Surface Mount TVS 12VRWM

DATASHEET: [5.0SMDJ_v2107.1 .pdf](#)

Description:

The **5.0SMDJ** series TVS transient suppression diode product is a new type of high-efficiency circuit protection device developed by SOCA Y for the special needs of the automotive industry. It has extremely fast response time (sub-nanosecond level) and very high surge absorption capability. Designed specifically to protect sensitive electronic equipment in automotive electronics applications from voltage transients caused by lightning strikes 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)
Uni	Bi	Uni	Bi		MIN	MAX				
—	5.0SMDJ8.0CA	—	5BDP	8.0	8.89	9.83	1	13.6	367.60	100
5.0SMDJ11A	5.0SMDJ11CA	5PDX	5BDX	11.0	12.20	13.50	1	18.2	277.47	800
5.0SMDJ12A	5.0SMDJ12CA	5PDZ	5BDZ	12.0	13.30	14.70	1	19.9	253.77	800
5.0SMDJ13A	5.0SMDJ13CA	5PEE	5BEE	13.0	14.40	15.90	1	21.5	234.88	500
5.0SMDJ14A	5.0SMDJ14CA	5PEG	5BEG	14.0	15.60	17.20	1	23.2	217.67	200
5.0SMDJ15A	5.0SMDJ15CA	5PEK	5BEK	15.0	16.70	18.50	1	24.4	206.97	100
5.0SMDJ16A	5.0SMDJ16CA	5PEM	5BEM	16.0	17.80	19.70	1	26.0	194.23	50
5.0SMDJ17A	5.0SMDJ17CA	5PEP	5BEP	17.0	18.90	20.90	1	27.6	182.97	20
5.0SMDJ18A	5.0SMDJ18CA	5PER	5BER	18.0	20.00	22.10	1	29.2	172.95	10
5.0SMDJ19A	5.0SMDJ19CA	5PET	5BET	19.0	21.10	23.30	1	30.8	164.07	10
5.0SMDJ20A	5.0SMDJ20CA	5PEV	5BEV	20.0	22.20	24.50	1	32.4	155.86	5
5.0SMDJ22A	5.0SMDJ22CA	5PEX	5BEX	22.0	24.40	26.90	1	35.5	142.25	5
5.0SMDJ24A	5.0SMDJ24CA	5PEZ	5BEZ	24.0	26.70	29.50	1	38.9	129.82	5
5.0SMDJ26A	5.0SMDJ26CA	5PFE	5BFE	26.0	28.90	31.90	1	42.1	119.95	5
5.0SMDJ28A	5.0SMDJ28CA	5PFG	5BFG	28.0	31.10	34.40	1	45.4	111.23	5
5.0SMDJ30A	5.0SMDJ30CA	5PFK	5BFK	30.0	33.30	36.80	1	48.4	104.34	5
5.0SMDJ33A	5.0SMDJ33CA	5PFM	5BFM	33.0	36.70	40.60	1	53.3	94.75	5
5.0SMDJ36A	5.0SMDJ36CA	5PFP	5BFP	36.0	40.00	44.20	1	58.1	86.92	5
5.0SMDJ40A	5.0SMDJ40CA	5PFR	5BFR	40.0	44.40	49.10	1	64.5	78.29	5
5.0SMDJ43A	5.0SMDJ43CA	5PFT	5BFT	43.0	47.80	52.80	1	69.4	72.77	5
5.0SMDJ45A	5.0SMDJ45CA	5PFV	5BFV	45.0	50.00	55.30	1	72.7	69.46	5
5.0SMDJ48A	5.0SMDJ48CA	5PFX	5BFX	48.0	53.30	58.90	1	77.4	65.25	5
5.0SMDJ51A	5.0SMDJ51CA	5PFZ	5BFZ	51.0	56.70	62.70	1	82.4	61.29	5
5.0SMDJ54A	5.0SMDJ54CA	5PGE	5BGE	54.0	60.00	66.30	1	87.1	57.98	5
5.0SMDJ58A	5.0SMDJ58CA	5PGG	5BGG	58.0	64.40	71.20	1	93.6	53.95	5
5.0SMDJ60A	5.0SMDJ60CA	5PGK	5BGK	60.0	66.70	73.70	1	96.8	52.17	5
5.0SMDJ64A	5.0SMDJ64CA	5PGM	5BGM	64.0	71.10	78.60	1	103.0	49.03	5

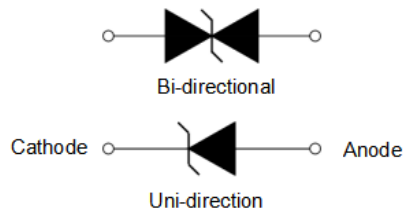
5.0SMDJ7 0A	5.0SMDJ7 0CA	5PGP	5BGP	70.0	77.80	86.00	1	113.0	44.69	5
5.0SMDJ7 5A	5.0SMDJ7 5CA	5PG R	5BG R	75.0	83.30	92.10	1	121.0	41.74	5
5.0SMDJ7 8A	5.0SMDJ7 8CA	5PGT	5BGT	78.0	86.70	95.80	1	126.0	40.08	5
5.0SMDJ8 0A	5.0SMDJ8 0CA	5PGB	5BGB	80.0	88.80	97.60	1	129.6	38.97	5
5.0SMDJ8 5A	5.0SMDJ8 5CA	5PGV	5BGV	85.0	94.40	104.0 0	1	137.0	36.86	5
5.0SMDJ9 0A	5.0SMDJ9 0CA	5PGX	5BGX	90.0	100.0 0	111.0 0	1	146.0	34.59	5
5.0SMDJ1 00A	5.0SMDJ1 00CA	5PGZ	5BGZ	100.0	111.0 0	123.0 0	1	162.0	31.17	5
5.0SMDJ1 10A	5.0SMDJ1 10CA	5PHE	5BHE	110.0	122.0 0	135.0 0	1	177.0	28.53	5
5.0SMDJ1 20A	5.0SMDJ1 20CA	5PH G	5BH G	120.0	133.0 0	147.0 0	1	193.0	26.17	5
5.0SMDJ1 30A	5.0SMDJ1 30CA	5PHK	5BHK	130.0	144.0 0	159.0 0	1	209.0	24.16	5
5.0SMDJ1 40A	5.0SMDJ1 40CA	5PHB	5BHB	140.0	155.0 0	171.0 0	1	226.8	22.27	5
5.0SMDJ1 50A	5.0SMDJ1 50CA	5PH M	5BH M	150.0	167.0 0	185.0 0	1	243.0	20.78	5
5.0SMDJ1 60A	5.0SMDJ1 60CA	5PHP	5BHP	160.0	178.0 0	197.0 0	1	259.0	19.50	5
5.0SMDJ1 70A	5.0SMDJ1 70CA	5PHR	5BHR	170.0	189.0 0	209.0 0	1	275.0	18.36	5
5.0SMDJ1 80A	5.0SMDJ1 80CA	5PHT	5BHT	180.0	201.0 0	220.0 0	1	291.6	17.32	5
5.0SMDJ1 90A	5.0SMDJ1 90CA	5PHV	5BHV	190.0	211.0 0	232.0 0	1	307.8	16.41	5
5.0SMDJ2 00A	5.0SMDJ2 00CA	5PH W	5BH W	200.0	224.0 0	247.0 0	1	324.0	9.26	5
5.0SMDJ2 20A	5.0SMDJ2 20CA	5PHX	5BHX	220.0	246.0 0	272.0 0	1	356.0	8.43	5
5.0SMDJ2 50A	5.0SMDJ2 50CA	5PHZ	5BHZ	250.0	279.0 0	309.0 0	1	405.0	7.41	5
5.0SMDJ3 00A	5.0SMDJ3 00CA	5PJE	5BJE	300.0	335.0 0	371.0 0	1	486.0	6.17	5
5.0SMDJ3 50A	5.0SMDJ3 50CA	5PJG	5BJG	350.0	391.0 0	432.0 0	1	567.0	5.29	5
5.0SMDJ4 00A	5.0SMDJ4 00CA	5PJK	5BJK	400.0	447.0 0	494.0 0	1	648.0	4.63	5
5.0SMDJ4 40A	5.0SMDJ4 40CA	5PJM	5BJM	440.0	492.0 0	543.0 0	1	713.0	4.21	5

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 .

Maximum Ratings (TA=25 unless otherwise noted)			
Parameter	Symbol	Value	Unit
Peak Pulse Power Dissipation with a 10/1000µs waveform (Fig.1)(Note 1), (Note 2)	P _{PPM}	5000	W
Peak Pulse Current with a 10/1000µs waveform. (Note1, Fig.3)	I _{PP}	See Next Table	A
Power Dissipation on Infinite Heat Sink at T _L =75	P _{M(AV)}	6.5	W
Peak Forward Surge Current, 8.3ms Single Half Sine Wave (Note 3)	I _{FSM}	300	A
Maximum Instantaneous Forward Voltage at 25A for Unidirectional Only (Note 4)	V _F	3.5/5.0	V
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 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 < 3.5V for V _{BR} < 200V and V _F < 6.5V for V _{BR} > 201V.			

Functional Diagram



Ratings and Characteristic Curves ($T_A=25^\circ\text{C}$ unless otherwise noted)

Figure 1 - Peak Pulse Power Rating Curve

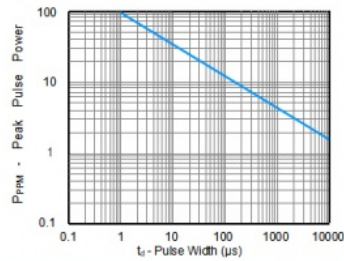


Figure 2 - Pulse Derating Curve

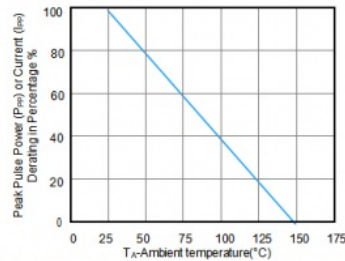


Figure 3 - Pulse Waveform

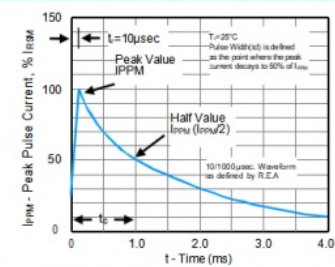


Figure 4 - Typical Junction Capacitance

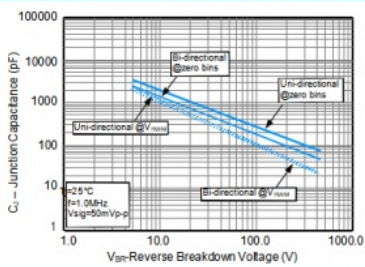


Figure 5 - Steady State Power Derating Curve

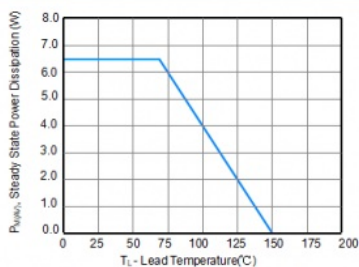
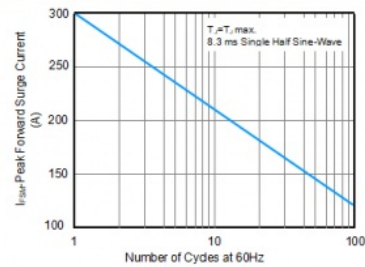
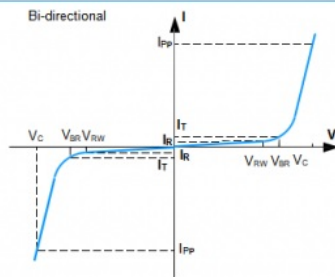
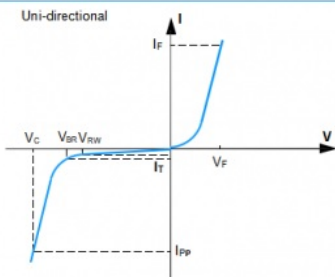


Figure 6 - Maximum Non-Repetitive Surge Current



I-V Curve Characteristics



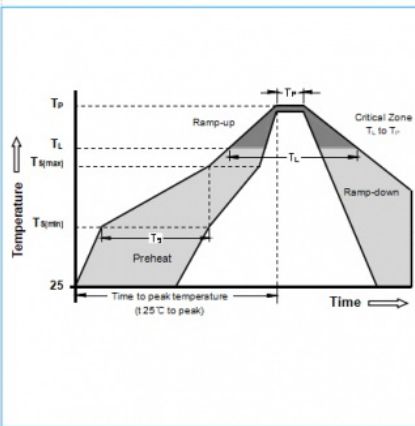
Physical Specifications

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

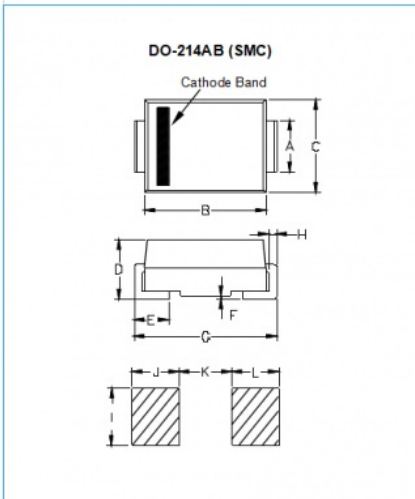
Temperature Cycle	JESD22-A104
Pressure Cooker	JESD22-A102
High Temp. Storage	JESD22-A103
HTRB	JESD22-A108
Thermal Shock	JESD22-A106

Soldering Parameters



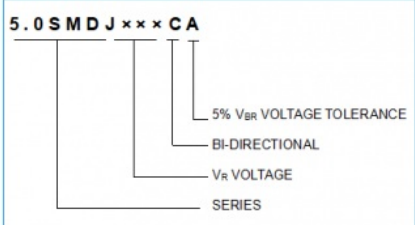
Reflow Condition		Lead-free assembly
Pre Heat	-Temperature Min ($T_{s(min)}$)	150°C
	-Temperature Max ($T_{s(max)}$)	200°C
	-Time (min to max) (T_s)	60 -180 Seconds
Average ramp up rate (Liquidus Temp T_L) to peak		3°C/second max
$T_{s(max)}$ to T_L - Ramp-up Rate		3°C/second max
Reflow	- Temperature (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		280°C

Dimensions

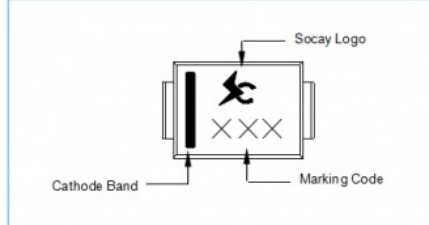


Dimensions	Inches		Millimeters	
	Min	Max	Min	Max
A	0.108	0.126	2.750	3.200
B	0.260	0.280	6.520	7.110
C	0.217	0.244	5.520	6.220
D	0.080	0.112	2.050	2.850
E	0.030	0.060	0.750	1.520
F	-	0.008	-	0.203
G	0.305	0.320	7.640	8.130
H	0.006	0.012	0.150	0.310
I	0.121	-	3.070	-
J	0.068	-	1.715	-
K	-	0.185	-	4.690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

Part Numbering



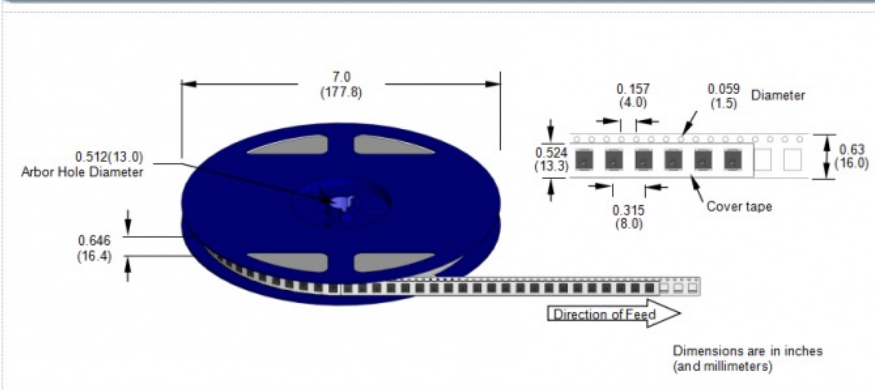
Part Marking



Packaging

Part Number	Component Package	Quantity	Packaging	Option	Packaging Specification
5.0SMDJXXXXX	DO-214AB	500	Tape & Reel -16mm/7"tape		EIA STD RS-481

Tape and Reel Specifications



SOCAY's main products include a full range of Ceramic Gas Discharge Tubes (GDT) Transient Suppression Diodes (TVS Diodes), ESD Suppressor, Thyristor Surge Suppressors (TSS), Spark Gap Protectors (SPG), Varistors (MOV), Chip Varistors (MLV), PTC Resettable Fuse, Negative Temperature Coefficient thermistors (NTC Thermistors), Chip Bead, Schottky Diodes, Zener Diode, etc. From circuit design to product testing (and provide test reports), we will provide you with one-stop services in the field of circuit protection. With excellent quality and service, SOCAY has won extensive praise from customers

and respect from the industry.



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