SMCJ TVS ESD Suppression Diodes DO-214AB-2 SMCJ90CA Surface Mount

Our Product Introduction

Basic Information

- Place of Origin: Shenzhen, Guangdong, China
- Brand Name: SOCAY
- Certification: UL,REACH,RoHS,ISO
- Model Number: SMCJ90CA
- Minimum Order Quantity: 3000PCS
- Price: Negotiable
- Delivery Time: 5-8 work days
- Supply Ability: 1000000pcs

Product Specification

- SMCJ90CA Name: TVS Diodes
- SMCJ90CA Package Type: DO-214AB/SMC
- SMCJ90CA Vrwm: 90V
- SMCJ90CA Vbr@It (Min.): 100V
- SMCJ90CA Vbr@It (Max.): 111V
- SMCJ90CA It: 1mA
- SMCJ90CA Vc@Ipp: 162V
- SMCJ90CA Ipp: 9.26A
- SMCJ90CA Ir@Vrwm: 1000μA
- Storage Temperature Range: -55 To +150
- Package Size: Surface Mount
- SMCJ90CA Brand: SOCAY
- Highlight: **TVS ESD Suppression Diodes**, **SMCJ ESD Suppression Diodes**

Product Description

SMCJ TVS ESD Suppression Diodes DO-214AB-2 SMCJ90CA Surface Mount

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TVS ESD Suppression Diodes Description:
The SMCJ serie SMCJ90CA is designed specifically to protect sensitive electronic equipment from voltage transients induced by lightning and other transient voltage events.

TVS ESD Suppression Diodes Features:
SMCJ90CA is for surface mounted applications in order to optimize board space
SMCJ90CA 's leakage is very low
SMCJ90CA is a Bidirectional unit
Glass passivated junction
It has Low inductance
It has Excellent clamping capability
1500W Peak power capability at 10 × 1000μs waveform Repetition rate (duty cycle):0.01%
Fast response time: typically less than 1.0ps from 0 Volts to VBR min
Typical IR less than 5μA above 12V.
High Temperature soldering: 260°C/40 seconds at terminals
Typical maximum temperature coefficient ΔVBR = 0.1% × VBR@25°C× ΔT
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)

TVS ESD Suppression Diodes Electrical Characteristics(T_A=25 unless otherwise noted) :

Part Number		Marking		Reverse Stand-Off Voltage VRWM (V)	Breakdown Voltage VBR (V) @IT		Test Current IT (mA)	Maximum Clamping Voltage VC @IPP (V)	Maximum Peak Pulse Current IPP (A)	Maximum Reverse Leakage IR @VRWM (μA)
Uni	Bi	Uni	Bi		MIN	MAX				
SMCJ45A	SMCJ45CA	GFV	BFV	45.0	50.00	55.30	1	72.7	20.63	5
SMCJ48A	SMCJ48CA	GFX	BFX	48.0	53.30	58.90	1	77.4	19.38	5
SMCJ51A	SMCJ51CA	GFZ	BFZ	51.0	56.70	62.70	1	82.4	18.20	5
SMCJ54A	SMCJ54CA	GGE	BGE	54.0	60.00	66.30	1	87.1	17.22	5
SMCJ58A	SMCJ58CA	GGG	BGG	58.0	64.40	71.20	1	93.6	16.03	5
SMCJ60A	SMCJ60CA	GGK	BGK	60.0	66.70	73.70	1	96.8	15.50	5
SMCJ64A	SMCJ64CA	GGM	BGM	64.0	71.10	78.60	1	103.0	14.56	5
SMCJ70A	SMCJ70CA	GGP	BGP	70.0	77.80	86.00	1	113.0	13.27	5
SMCJ75A	SMCJ75CA	GGR	BGR	75.0	83.30	92.10	1	121.0	12.40	5
SMCJ78A	SMCJ78CA	GGT	BGT	78.0	86.70	95.80	1	126.0	11.90	5
SMCJ80A	SMCJ80CA	GGB	BGB	80.0	88.80	97.60	1	129.6	11.57	5
SMCJ85A	SMCJ85CA	GGV	BGV	85.0	94.40	104.00	1	137.0	10.95	5
SMCJ90A	SMCJ90CA	GGX	BGX	90.0	100.00	111.00	1	146.0	10.27	5

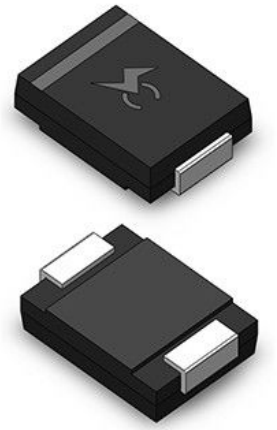
Electrical Characteristics (T_A=25℃ unless otherwise noted)

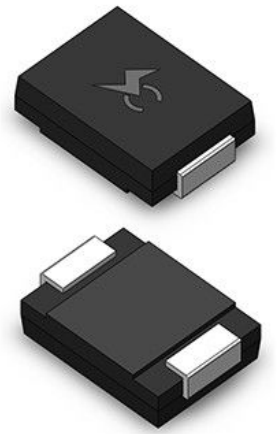
Part Number		Marking		Reverse Stand-Off Voltage V_{RWM} (V)	Breakdown Voltage V_{BR} (V) @I_T		Test Current I_T (mA)	Maximum Clamping Voltage V_C @I_{PP} (V)	Maximum Peak Pulse Current I_{PP} (A)	Maximum Reverse Leakage I_R @V_{RWM} (μA)
Uni	Bi	Uni	Bi		MIN	MAX				
SMDJ5.0A	SMDJ5.0CA	RDE	DDE	5.0	6.40	7.00	10	9.2	326.09	1000
SMDJ6.0A	SMDJ6.0CA	RDG	DDG	6.0	6.67	7.37	10	10.3	291.26	1000
SMDJ6.5A	SMDJ6.5CA	RDK	DDK	6.5	7.22	7.98	10	11.2	267.86	500
SMDJ7.0A	SMDJ7.0CA	PDM	DDM	7.0	7.78	8.60	10	12.0	250.00	200
SMDJ7.5A	SMDJ7.5CA	PDP	DDP	7.5	8.33	9.21	1	12.9	232.56	100
SMDJ8.0A	SMDJ8.0CA	PDR	DDR	8.0	8.89	9.83	1	13.6	220.59	50
SMDJ8.5A	SMDJ8.5CA	PDT	DDT	8.5	9.44	10.40	1	14.4	208.33	25
SMDJ9.0A	SMDJ9.0CA	PDV	DDV	9.0	10.00	11.10	1	15.4	194.81	10
SMDJ10A	SMDJ10CA	PDX	DDX	10.0	11.10	12.30	1	17.0	176.47	5
SMDJ11A	SMDJ11CA	PDZ	DDZ	11.0	12.20	13.50	1	18.2	164.84	5
SMDJ12A	SMDJ12CA	PEE	DEE	12.0	13.30	14.70	1	19.9	150.75	5
SMDJ13A	SMDJ13CA	PEG	DEG	13.0	14.40	15.90	1	21.5	139.53	5
SMDJ14A	SMDJ14CA	PEK	DEK	14.0	15.60	17.20	1	23.2	129.31	5
SMDJ15A	SMDJ15CA	PEM	DEM	15.0	16.70	18.50	1	24.4	122.95	5
SMDJ16A	SMDJ16CA	PEP	DEP	16.0	17.80	19.70	1	26.0	115.38	5
SMDJ17A	SMDJ17CA	PER	DER	17.0	18.90	20.90	1	27.6	108.70	5
SMDJ18A	SMDJ18CA	PET	DET	18.0	20.00	22.10	1	29.2	102.74	5
SMDJ19A	SMDJ19CA	PEB	DEB	19.0	21.10	23.30	1	30.8	97.47	5
SMDJ20A	SMDJ20CA	PEV	DEV	20.0	22.20	24.50	1	32.4	92.59	5
SMDJ22A	SMDJ22CA	PEX	DEX	22.0	24.40	26.90	1	35.5	84.51	5
SMDJ24A	SMDJ24CA	PEZ	DEZ	24.0	26.70	29.50	1	38.9	77.12	5
SMDJ26A	SMDJ26CA	PFE	DFE	26.0	28.90	31.90	1	42.1	71.26	5
SMDJ28A	SMDJ28CA	PFG	DFG	28.0	31.10	34.40	1	45.4	66.08	5
SMDJ30A	SMDJ30CA	PFK	DFK	30.0	33.30	36.80	1	48.4	61.98	5
SMDJ33A	SMDJ33CA	PFM	DFM	33.0	36.70	40.60	1	53.3	56.29	5
SMDJ36A	SMDJ36CA	PFP	DFP	36.0	40.00	44.20	1	58.1	51.64	5
SMDJ40A	SMDJ40CA	PFR	DFR	40.0	44.40	49.10	1	64.5	46.51	5
SMDJ43A	SMDJ43CA	PFT	DFT	43.0	47.80	52.80	1	69.4	43.23	5

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				
SMDJ45A	SMDJ45CA	PFV	DFV	45.0	50.00	55.30	1	72.7	41.27	5
SMDJ48A	SMDJ48CA	PFX	DFX	48.0	53.30	58.90	1	77.4	38.76	5
SMDJ51A	SMDJ51CA	PFZ	DFZ	51.0	56.70	62.70	1	82.4	36.41	5
SMDJ54A	SMDJ54CA	RGE	DGE	54.0	60.00	66.30	1	87.1	34.44	5
SMDJ58A	SMDJ58CA	PGG	DGG	58.0	64.40	71.20	1	93.6	32.05	5
SMDJ60A	SMDJ60CA	PGK	DGK	60.0	66.70	73.70	1	96.8	30.99	5
SMDJ64A	SMDJ64CA	PGM	DGM	64.0	71.10	78.60	1	103.0	29.13	5
SMDJ70A	SMDJ70CA	PGP	DGP	70.0	77.80	86.00	1	113.0	26.55	5
SMDJ75A	SMDJ75CA	PGR	DGR	75.0	83.30	92.10	1	121.0	24.79	5
SMDJ78A	SMDJ78CA	PGT	DGT	78.0	86.70	95.80	1	126.0	23.81	5
SMDJ80A	SMDJ80CA	PGB	DGB	80.0	88.80	97.60	1	129.6	23.15	5
SMDJ85A	SMDJ85CA	PGV	DGV	85.0	94.40	104.00	1	137.0	21.90	5
SMDJ90A	SMDJ90CA	PGX	DGX	90.0	100.00	111.00	1	146.0	20.55	5
SMDJ100A	SMDJ100CA	PGZ	DGZ	100.0	111.00	123.00	1	162.0	18.52	5
SMDJ110A	SMDJ110CA	PHE	DHE	110.0	122.00	135.00	1	177.0	16.95	5
SMDJ120A	SMDJ120CA	PHG	DHG	120.0	133.00	147.00	1	193.0	15.54	5
SMDJ130A	SMDJ130CA	PHK	DHK	130.0	144.00	159.00	1	209.0	14.35	5
SMDJ140A	SMDJ140CA	PHB	DHB	140.0	155.00	171.00	1	226.8	13.23	5
SMDJ150A	SMDJ150CA	PHM	DHM	150.0	167.00	185.00	1	243.0	12.35	5
SMDJ160A	SMDJ160CA	PHP	DHP	160.0	178.00	197.00	1	259.0	11.58	5
SMDJ170A	SMDJ170CA	PHR	DHR	170.0	189.00	209.00	1	275.0	10.91	5
SMDJ180A	SMDJ180CA	PHT	DHT	180.0	201.00	220.00	1	291.6	10.29	5
SMDJ190A	SMDJ190CA	PHV	DHV	190.0	211.00	232.00	1	307.8	9.75	5
SMDJ200A	SMDJ200CA	PHW	DHW	200.0	224.00	247.00	1	324.0	9.26	5
SMDJ220A	SMDJ220CA	PHX	DHX	220.0	246.00	272.00	1	356.0	8.43	5
SMDJ250A	SMDJ250CA	PHZ	DHZ	250.0	279.00	309.00	1	405.0	7.41	5
SMDJ300A	SMDJ300CA	PJE	DJE	300.0	335.00	371.00	1	486.0	6.17	5
SMDJ350A	SMDJ350CA	PJG	DJG	350.0	391.00	432.00	1	567.0	5.29	5
SMDJ400A	SMDJ400CA	PJK	DJK	400.0	447.00	494.00	1	648.0	4.63	5
SMDJ440A	SMDJ440CA	PJM	DJM	440.0	492.00	543.00	1	713.0	4.21	5

Note:

1. Suffix 'A' denotes 5% tolerance device.
2. Add suffix 'CA' after part number to specify Bi-directional devices.
3. For Bi-Directional devices having V_R of 10 volts and under, the I_R limit is double.

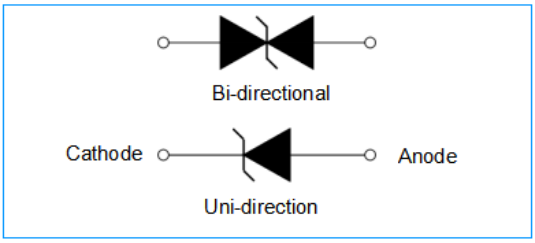




Applications

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

Functional Diagram



Maximum Ratings (T_A=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}	3000	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°C	$P_{M(AV)}$	6.0	Watt
Peak Forward Surge Current, 8.3ms Single Half Sine Wave (Note 3)	I_{FSM}	300	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℃ per Fig.2.
2. Mounted on 5.0mmx 5.0mm(0.03mmthick) 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.

Ratings and Characteristic Curves (T_A=25°C unless otherwise noted)

Figure 1 - Peak Pulse Power Rating Curve

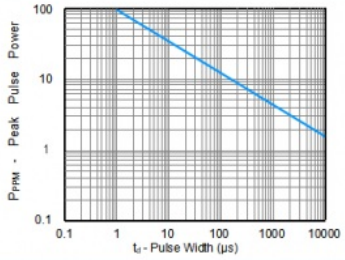


Figure 2 - Pulse Derating Curve

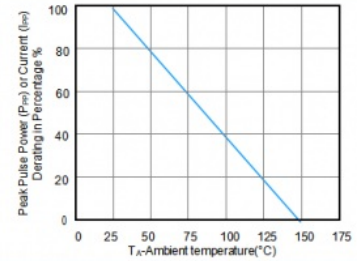


Figure 3 - Pulse Waveform

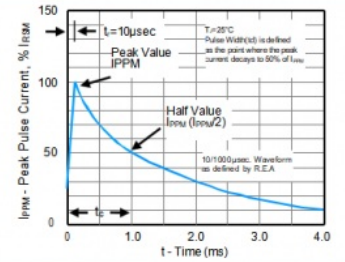


Figure 4 - Typical Junction Capacitance

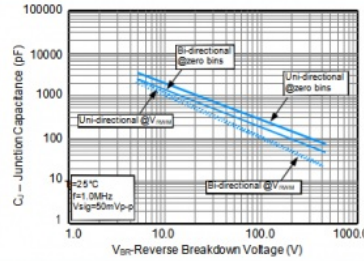


Figure 5 - Steady State Power Derating Curve

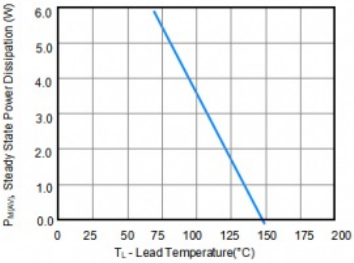
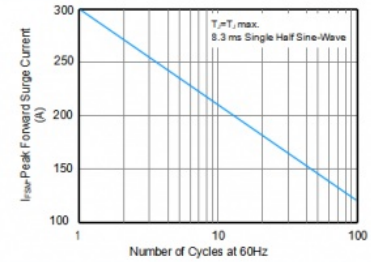
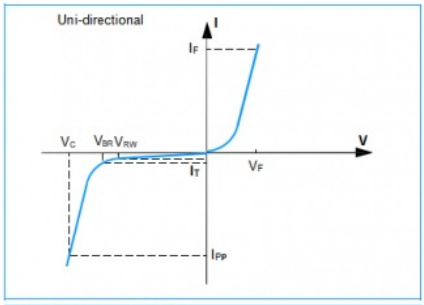
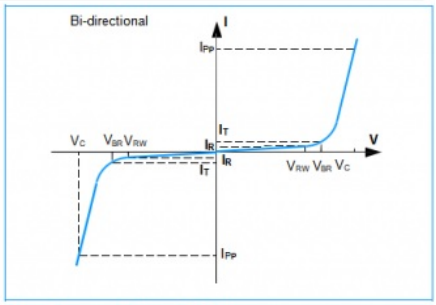


Figure 6 - Maximum Non-Repetitive Surge Current



I-V Curve Characteristics





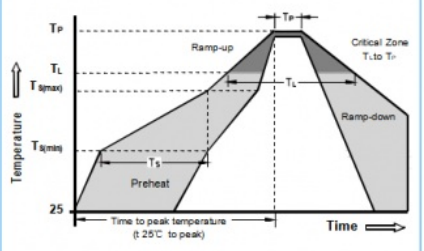
Physical Specifications

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

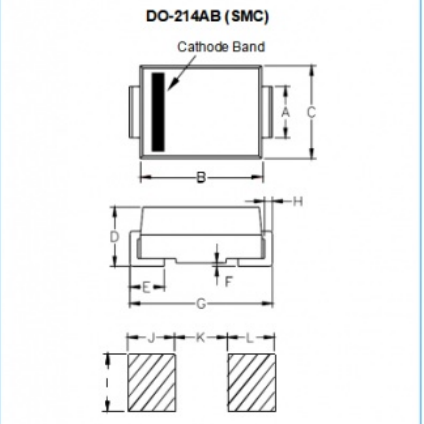
Temperature Cycle	JESD22-A104
Pressure Cooker	JESD22-A102
High Temp. Storage	JESD22-A103
HTRB	JESD22-A108
Thermal Shock	JESD22-A106

Soldering Parameters



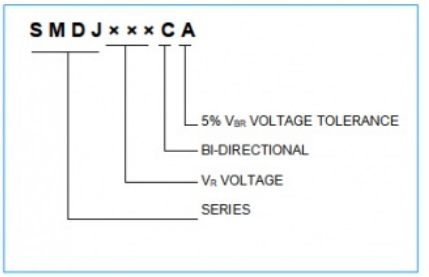
Reflow Condition		Lead–free assembly
Pre Heat	**-Temperature Min ($T_{s(min)}$)**	150°C
	-Temperature Max ($T_{s(max)}$)	200°C
	- Time (min to max) (T_s)	60 -180 Seconds
Average ramp up rate (Liquidus Temp T_L) to peak		3°C/second max
$T_{S(max)}$ to TL - Ramp-up Rate		3°C/second max
Reflow	**- Temperature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

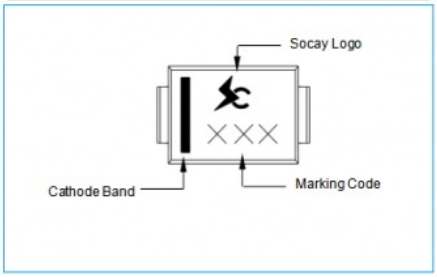


Dimensions	Inches		Millimeters	
	Min	Max	Min	Max
A	0.108	0.126	2.750	3.200
B	0.260	0.280	6.520	7.110
C	0.217	0.244	5.520	6.220
D	0.080	0.112	2.050	2.850
E	0.030	0.060	0.750	1.520
F	-	0.008	-	0.203
G	0.305	0.320	7.640	8.130
H	0.006	0.012	0.150	0.310
I	0.121	-	3.070	-
J	0.068	-	1.715	-
K	-	0.185	-	4.690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

Part Numbering



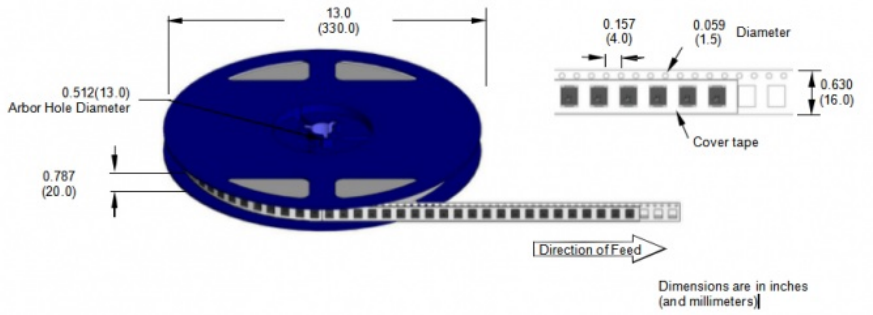
Part Marking



Packaging

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

Tape and Reel Specifications



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