



## Socay TVS Bidirectional TVS Diodes 8.0SMDJ SMC 22V 8000W Surface Mount Transient Voltage Suppressor

Our Product Introduction

### Basic Information

- Place of Origin: Shenzhen, Guangdong, China
- Brand Name: SOCAY
- Certification: UL, REACH, RoHS, ISO
- Model Number: 8.0SMDJ22CA
- Minimum Order Quantity: 500PCS
- Price: Negotiable
- Packaging Details: tape reel, bulk
- Delivery Time: 1-3 WEEKS



### Product Specification

- 8.0SMDJ22CA Key Words: TVS Diodes
- 8.0SMDJ22CA V<sub>rw</sub>m: 22V
- 8.0SMDJ22CA V<sub>br</sub>@I<sub>t</sub> (Min.): 22.20V
- 8.0SMDJ22CA V<sub>br</sub>@I<sub>t</sub> (Max.): 24.50V
- 8.0SMDJ22CA I<sub>t</sub>: 1mA
- 8.0SMDJ22CA V<sub>c</sub>@I<sub>pp</sub>: 32.4V
- 8.0SMDJ22CA I<sub>pp</sub>: 249.38A
- 8.0SMDJ22CA I<sub>r</sub>@V<sub>rw</sub>m: 5μA
- 8.0SMDJ22CA Storage Temperature Range: -55 To +150
- Highlight: **8.0SMDJ22CA, Bidirectional TVS Diodes, Surface Mount TVS Diodes**

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## Product Description

### Socay TVS Bidirectional TVS Diodes 8.0SMDJ SMC 22V 8000W Surface Mount Transient Voltage Suppressor

**DATASHEET:** [8.0SMDJ\\_v2107.1.pdf](#)

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

#### Selection Method

- 1.To determine the customer's product, operating voltage, application port and required protection level, ensure that the VRWM
- 2.value is greater than or equal to the normal operating voltage of the customer's circuit, ensure that the VRWM value of the device is greater than or equal to the normal operating voltage of the customer's circuit.
- 3.It is also important to ensure that the VC (clamp voltage) value is less than or equal to the maximum voltage for the back-end chip.
- 4.Based on the application port and protection level, select the appropriate package and power rating.

#### 8.0SMDJ22CA Description:

The 8.0SMDJ series is designed for the protection of sensitive electronic equipment from voltage transients due to lightning and other transient voltage events.

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				
8.0SMDJ14 A	8.0SMDJ14C A	8PEG	8BEG	14	15.60	17.20	10	23.2	348.28	200
8.0SMDJ15 A	8.0SMDJ15C A	8PEK	8BEK	15	16.70	18.50	1	24.4	331.15	100
8.0SMDJ16 A	8.0SMDJ16C A	8PE M	8BE M	16	17.80	19.70	1	26.0	310.77	50
8.0SMDJ17 A	8.0SMDJ17C A	8PEP	8BEP	17	18.90	20.90	1	27.6	292.75	20
8.0SMDJ18 A	8.0SMDJ18C A	8PER	8BER	18	20.00	22.10	1	29.2	276.71	10
8.0SMDJ19 A	8.0SMDJ19C A	8PET	8BET	19	21.10	23.30	1	30.8	262.51	10
8.0SMDJ20 A	8.0SMDJ20C A	8PEV	8BEV	20	22.20	24.50	1	32.4	249.38	5
8.0SMDJ22 A	8.0SMDJ22C A	8PEX	8BEX	22	24.40	26.90	1	35.5	227.61	5
8.0SMDJ24 A	8.0SMDJ24C A	8PEZ	8BEZ	24	26.70	29.50	1	38.9	207.71	5
8.0SMDJ26 A	8.0SMDJ26C A	8PFE	8BFE	26	28.90	31.90	1	42.1	191.92	5
8.0SMDJ28 A	8.0SMDJ28C A	8PFG	8BFG	28	31.10	34.40	1	45.4	177.97	5
8.0SMDJ30 A	8.0SMDJ30C A	8PFK	8BFK	30	33.30	36.80	1	48.4	166.94	5
8.0SMDJ33 A	8.0SMDJ33C A	8PFM	8BE M	33	36.70	40.60	1	53.3	151.59	5
8.0SMDJ36 A	8.0SMDJ36C A	8PFP	8BEP	36	40.00	44.20	1	58.1	139.07	5
8.0SMDJ40 A	8.0SMDJ40C A	8PFR	8BFR	40	44.40	49.10	1	64.5	125.27	5

#### 8.0SMDJ22CA Features:

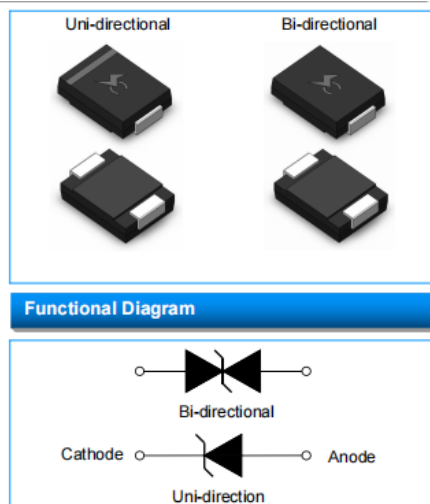
Low leakage rate.  
 Chip with glass passivation  
 Uni and Bidirectional unit  
 Excellent ability to clamp down.  
 Rapid response time  
 RoHS Compliance  
 The device has a peak power capability of 8000W when using a 10 × 1000μs waveform with a repetition rate (duty cycle) of

0.01%.

### 8.0SMDJ22CA Applications:

TVS devices are suitable for protecting I/O interfaces, VCC buses, 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 <sub>PPM</sub>	8000	Watts
Peak Pulse Current with a 10/1000µs waveform. (Note1, Fig.3)	I <sub>PP</sub>	See Next Table	Amps
Power Dissipation on Infinite Heat Sink at T <sub>L</sub> =75	P <sub>M(AV)</sub>	6.5	Watt
Peak Forward Surge Current, 8.3ms Single Half Sine Wave (Note 3)	I <sub>FSM</sub>	300	Amps
Maximum Instantaneous Forward Voltage at 25A for Unidirectional Only (Note 4)	V <sub>F</sub>	3.5/5.0	Voltage
Operating junction and Storage Temperature Range.	T <sub>J</sub> , T <sub>STG</sub>	-55 to +150	
<b>Notes:</b> 1. Non-repetitive current pulse, per Fig. 3 and derated above T <sub>A</sub> = 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 <sub>F</sub> < 3.5V for V <sub>BR</sub> < 200V and V <sub>F</sub> < 6.5V for V <sub>BR</sub> > 201V.			



Electrical Characteristics (T <sub>A</sub> =25℃ unless otherwise noted)										
Part Number		Marking		Reverse Stand-Off Voltage V <sub>WSM</sub> (V)	Breakdown Voltage V <sub>BR</sub> (V) @I <sub>T</sub>		Test Current I <sub>T</sub> (mA)	Maximum Clamping Voltage V <sub>C</sub> @I <sub>CP</sub> (V)	Maximum Peak Pulse Current I <sub>PP</sub> (A)	Maximum Reverse Leakage I <sub>R</sub> @V <sub>WSM</sub> (μA)
Uni	BI	Uni	BI		MIN	MAX				
8.0SMDJ14A	8.0SMDJ14CA	8PEG	8BEG	14	15.60	17.20	10	23.2	348.28	200
8.0SMDJ15A	8.0SMDJ15CA	8PEK	8BEK	15	16.70	18.50	1	24.4	331.15	100
8.0SMDJ16A	8.0SMDJ16CA	8PEM	8BEM	16	17.80	19.70	1	26.0	310.77	50
8.0SMDJ17A	8.0SMDJ17CA	8PEP	8BEP	17	18.90	20.90	1	27.6	292.75	20
8.0SMDJ18A	8.0SMDJ18CA	8PER	8BER	18	20.00	22.10	1	29.2	276.71	10
8.0SMDJ19A	8.0SMDJ19CA	8PET	8BET	19	21.10	23.30	1	30.8	262.51	10

# Electrical Characteristics (T<sub>A</sub>=25°C unless otherwise noted) (Continue)

Part Number		Marking		Reverse Stand-Off Voltage V <sub>RRM</sub> (V)	Breakdown Voltage V <sub>BR</sub> (V) @I <sub>R</sub>		Test Current I <sub>T</sub> (mA)	Maximum Clamping Voltage V <sub>C</sub> @I <sub>TR</sub> (V)	Maximum Peak Pulse Current I <sub>PP</sub> (A)	Maximum Reverse Leakage I <sub>R</sub> @V <sub>RRM</sub> (μA)
Uni	BI	Uni	BI		MIN	MAX				
8.0SMDJ20A	8.0SMDJ20CA	8PEV	8BEV	20	22.20	24.50	1	32.4	249.38	5
8.0SMDJ22A	8.0SMDJ22CA	8PEX	8BEX	22	24.40	26.90	1	35.5	227.61	5
8.0SMDJ24A	8.0SMDJ24CA	8PEZ	8BEZ	24	26.70	29.50	1	38.9	207.71	5
8.0SMDJ26A	8.0SMDJ26CA	8PFE	8BFE	26	28.90	31.90	1	42.1	191.92	5
8.0SMDJ28A	8.0SMDJ28CA	8PFG	8BFG	28	31.10	34.40	1	45.4	177.97	5
8.0SMDJ30A	8.0SMDJ30CA	8PFK	8BFK	30	33.30	36.80	1	48.4	166.94	5
8.0SMDJ33A	8.0SMDJ33CA	8PFM	8BFM	33	36.70	40.60	1	53.3	151.59	5
8.0SMDJ36A	8.0SMDJ36CA	8PFP	8BFP	36	40.00	44.20	1	58.1	139.07	5
8.0SMDJ40A	8.0SMDJ40CA	8PFR	8BFR	40	44.40	49.10	1	64.5	125.27	5
8.0SMDJ43A	8.0SMDJ43CA	8PFT	8BFT	43	47.80	52.80	1	69.4	116.43	5
8.0SMDJ45A	8.0SMDJ45CA	8PFV	8BFV	45	50.00	55.30	1	72.7	111.14	5
8.0SMDJ48A	8.0SMDJ48CA	8PFX	8BFX	48	53.30	58.90	1	77.4	104.39	5
8.0SMDJ51A	8.0SMDJ51CA	8PFZ	8BFZ	51	56.70	62.70	1	82.4	98.06	5
8.0SMDJ54A	8.0SMDJ54CA	8PGE	8BGE	54	60.00	66.30	1	87.1	92.77	5
8.0SMDJ58A	8.0SMDJ58CA	8PGG	8BGG	58	64.40	71.20	1	93.6	86.32	5
8.0SMDJ60A	8.0SMDJ60CA	8PGK	8BGK	60	66.70	73.70	1	96.8	83.47	5
8.0SMDJ64A	8.0SMDJ64CA	8PGM	8BGM	64	71.10	78.60	1	103.0	78.45	5
8.0SMDJ70A	8.0SMDJ70CA	8PGP	8BGP	70	77.80	86.00	1	113.0	71.50	5
8.0SMDJ75A	8.0SMDJ75CA	8PGR	8BGR	75	83.30	92.10	1	121.0	66.78	5
8.0SMDJ78A	8.0SMDJ78CA	8PGT	8BGT	78	86.70	95.80	1	126.0	64.13	5
8.0SMDJ80A	8.0SMDJ80CA	8PGB	8BGB	80	88.80	97.60	1	129.6	62.35	5
8.0SMDJ85A	8.0SMDJ85CA	8PGV	8BGV	85	94.40	104.00	1	137.0	58.98	5

## Ratings and Characteristics Curves (T<sub>A</sub>=25°C unless otherwise noted)

Fig. 1 - Pulse Derating Curve

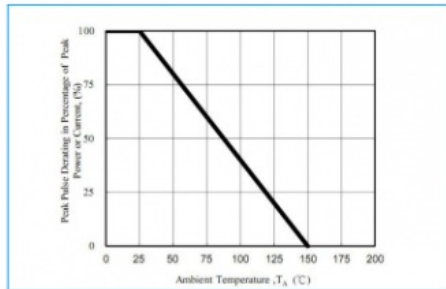


Fig. 2 - Maximum Non-Repetitive Surge Current

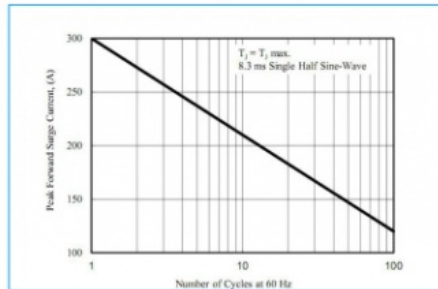


Fig. 3 - Steady State Power Derating Curve

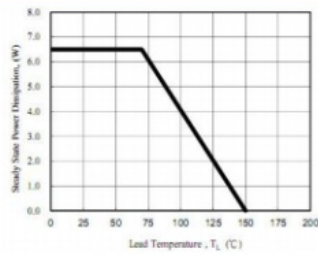


Fig. 4 - Peak Pulse Power Rating Curve

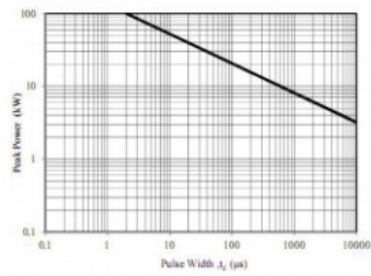


Fig. 5 - Pulse Waveform

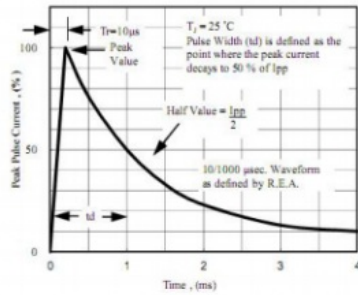
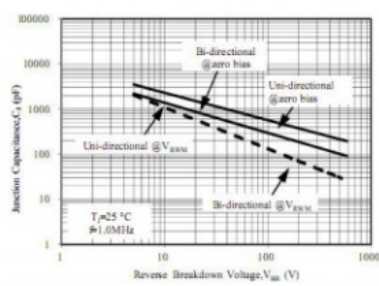
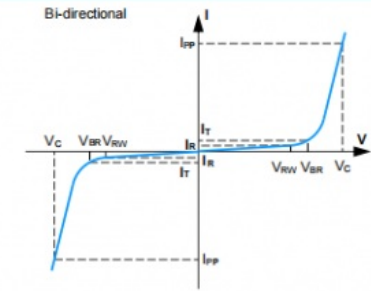
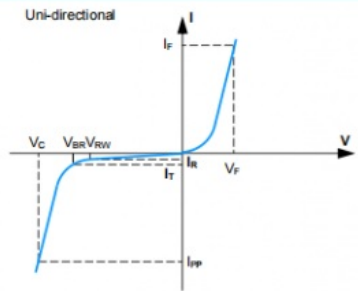


Fig. 6 - Typical Junction Capacitance



## I-V Curve Characteristics



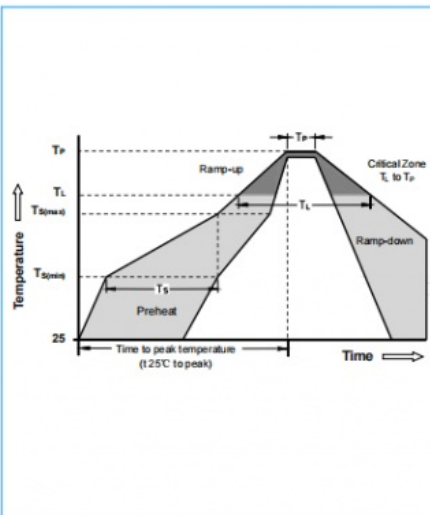
## Physical Specifications

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

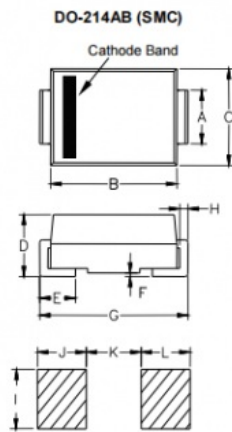
## Soldering Parameters



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-down 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

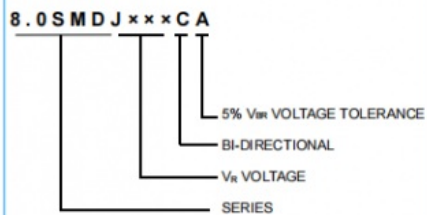


## Dimensions

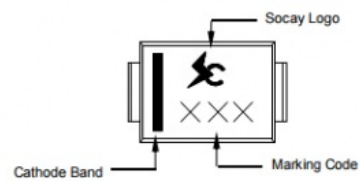


Dimensions	Inches		Millimeters	
	Min	Max	Min	Max
A	0.108	0.126	2.750	3.200
B	0.260	0.280	6.520	7.110
C	0.217	0.244	5.520	6.220
D	0.080	0.112	2.050	2.850
E	0.030	0.060	0.750	1.520
F	-	0.008	-	0.203
G	0.305	0.320	7.640	8.130
H	0.006	0.012	0.150	0.310
I	0.121	-	3.070	-
J	0.068	-	1.715	-
K	-	0.185	-	4.690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

## Part Numbering



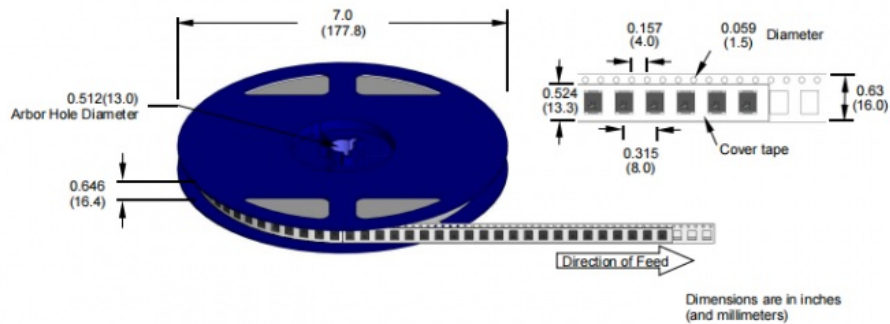
## Part Marking



## Packaging

Part Number	Component Package	Quantity	Packaging	Option	Packaging Specification
8.0SMDJXXXXX	DO-214AB	500	Tape & Reel -16mm/7"tape		EIA STD RS-481

## Tape and Reel Specifications



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