



Socay TVS Diodes 200W Bi-Directional SMF Series Surface Mount Transient Voltage Suppressors

Our Product Introduction

Basic Information

- Place of Origin: Shenzhen, Guangdong, China
- Brand Name: Socay
- Certification: UL, REACH, RoHS, ISO
- Model Number: SMF22CA
- Minimum Order Quantity: 5000PCS
- Price: Negotiable
- Delivery Time: 5-8 work days



Product Specification

- Package Type: SOD-123
- SMF22CA Reverse Stand-Off Voltage VRWM: 22.0
- SMF22CA Breakdown Voltage VBR(V) @IT MIN: 24.40
- SMF22CA Breakdown Voltage VBR(V) @IT MAX: 26.900
- SMF22CA Test Current IT (mA): 1
- SMF22CA Maximum Clamping Voltage VC@IPP (V): 35.5
- SMF22CA Maximum Peak Pulse Current IPP (A): 5.63
- SMF22CA Maximum Reverse Leakage IR @VRWM (μA): 1
- Highlight: **Surface Mount TVS Diodes,**

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Product Description

Socay TVS Diodes 200W Bi-directional SMF Series Surface Mount Transient Voltage Suppressors

DATASHEET:SMF Series_v2211.1.pdf

Description:

The SMF series of transient voltage suppressors are designed to protect sensitive electronic equipment from transient voltages caused by lightning and other transient voltage events that can damage electronic equipment and interfere with normal equipment use.

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)
					MIN	MAX				
SMF5.0A	SMF5.0CA	FE	KE	5.0	6.40	7.00	10	9.2	21.74	400
SMF6.0A	SMF6.0CA	FG	KG	6.0	6.67	7.37	10	10.3	19.42	400
SMF6.5A	SMF6.5CA	FK	KK	6.5	7.22	7.98	10	11.2	17.86	200
SMF7.0A	SMF7.0CA	FM	KM	7.0	7.78	8.60	10	12.0	16.67	100
SMF7.5A	SMF7.5CA	FP	KP	7.5	8.33	9.21	1	12.9	15.50	50
SMF8.0A	SMF8.0CA	FR	KR	8.0	8.89	9.83	1	13.6	14.71	25
SMF8.5A	SMF8.5CA	FT	KT	8.5	9.44	10.40	1	14.4	13.89	10
SMF9.0A	SMF9.0CA	FV	KV	9.0	10.00	11.10	1	15.4	12.99	5
SMF10A	SMF10CA	FX	KX	10.0	11.10	12.30	1	17.0	11.76	2.5
SMF11A	SMF11CA	FZ	KZ	11.0	12.20	13.50	1	18.2	10.99	2.5
SMF12A	SMF12CA	HE	LE	12.0	13.30	14.70	1	19.9	10.05	2.5
SMF13A	SMF13CA	HG	LG	13.0	14.40	15.90	1	21.5	9.30	1
SMF14A	SMF14CA	HK	LK	14.0	15.60	17.20	1	23.2	8.62	1
SMF15A	SMF15CA	HM	LM	15.0	16.70	18.50	1	24.4	8.20	1
SMF16A	SMF16CA	HP	LP	16.0	17.80	19.70	1	26.0	7.69	1
SMF17A	SMF17CA	HR	LR	17.0	18.90	20.90	1	27.6	7.25	1
SMF18A	SMF18CA	HT	LT	18.0	20.00	22.10	1	29.2	6.85	1
SMF19A	SMF19CA	HB	LB	19.0	21.10	23.30	1	30.6	6.54	1
SMF20A	SMF20CA	HV	LV	20.0	22.20	24.50	1	32.4	6.17	1
SMF22A	SMF22CA	HX	LX	22.0	24.0	26.90	1	35.5	5.63	1
SMF24A	SMF24CA	HZ	LZ	24.0	26.70	29.50	1	38.9	5.14	1
SMF26A	SMF26CA	JE	ME	26.0	28.90	31.90	1	42.1	4.75	1

Features:

Compatible with industrial standard package SOD-123
 For surface mounted applications in order to optimize board space
 Low leakage
 Uni and Bidirectional unit
 Glass passivated junction
 Low inductance
 Excellent clamping capability
 200W 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
 High Temperature soldering: 260 /40 seconds at terminals
 Typical maximum temperature coefficient ΔVBR = 0.1% × VBR@25 ×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)

Applications:

TVS devices are ideal for protecting I/O interfaces, VCC buses, and other vulnerable circuits used in telecommunications, consumer electronics, computers, and industrial applications.

SMF Series	5.0 To 350 V	200W	SOD-123
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Electrical Characteristics (T_A=25°C unless otherwise noted)

Part Number		Marking		Reverse Stand-Off Voltage V _{RRM} (V)	Breakdown Voltage V _{BR} (V) @I _r		Test Current I _r (mA)	Maximum Clamping Voltage V _{C@I_{RP}} (V)	Maximum Peak Pulse Current I _{PP} (A)	Maximum Reverse Leakage I _{RS} @V _{RRM} (μA)
Uni	BI	Uni	BI		MIN	MAX				
SMF5.0A	SMF5.0CA	FE	KE	5.0	6.40	7.00	10	9.2	21.74	400
SMF6.0A	SMF6.0CA	FG	KG	6.0	6.67	7.37	10	10.3	19.42	400
SMF6.5A	SMF6.5CA	FK	KK	6.5	7.22	7.98	10	11.2	17.86	250
SMF7.0A	SMF7.0CA	FM	KM	7.0	7.78	8.60	10	12.0	16.67	100
SMF7.5A	SMF7.5CA	FP	KP	7.5	8.33	9.21	1	12.9	15.50	50
SMF8.0A	SMF8.0CA	FR	KR	8.0	8.89	9.83	1	13.6	14.71	25
SMF8.5A	SMF8.5CA	FT	KT	8.5	9.44	10.40	1	14.4	13.89	10
SMF9.0A	SMF9.0CA	FV	KV	9.0	10.00	11.10	1	15.4	12.99	5
SMF10A	SMF10CA	FX	KX	10.0	11.10	12.30	1	17.0	11.76	2.5
SMF11A	SMF11CA	FZ	KZ	11.0	12.20	13.50	1	18.2	10.99	2.5
SMF12A	SMF12CA	HE	LE	12.0	13.30	14.70	1	19.9	10.05	2.5
SMF13A	SMF13CA	HG	LG	13.0	14.40	15.90	1	21.5	9.30	1
SMF14A	SMF14CA	HK	LK	14.0	15.60	17.20	1	23.2	8.62	1
SMF15A	SMF15CA	HM	LM	15.0	16.70	18.50	1	24.4	8.20	1
SMF16A	SMF16CA	HP	LP	16.0	17.80	19.70	1	26.0	7.69	1
SMF17A	SMF17CA	HR	LR	17.0	18.90	20.90	1	27.6	7.25	1
SMF18A	SMF18CA	HT	LT	18.0	20.00	22.10	1	29.2	6.85	1
SMF19A	SMF19CA	HB	LB	19.0	21.10	23.30	1	30.6	6.54	1
SMF20A	SMF20CA	HV	LV	20.0	22.20	24.50	1	32.4	6.17	1
SMF22A	SMF22CA	HX	LX	22.0	24.40	26.90	1	35.5	5.63	1
SMF24A	SMF24CA	HZ	LZ	24.0	26.70	29.50	1	38.9	5.14	1
SMF26A	SMF26CA	JE	ME	26.0	28.90	31.90	1	42.1	4.75	1
SMF28A	SMF28CA	JG	MG	28.0	31.10	34.40	1	45.4	4.41	1
SMF30A	SMF30CA	JK	MK	30.0	33.30	36.80	1	48.4	4.13	1
SMF33A	SMF33CA	JM	MM	33.0	36.70	40.60	1	53.3	3.75	1
SMF36A	SMF36CA	JP	MP	36.0	40.00	44.20	1	58.1	3.44	1
SMF40A	SMF40CA	JR	MR	40.0	44.40	49.10	1	64.5	3.10	1
SMF43A	SMF43CA	JT	MT	43.0	47.80	52.80	1	69.4	2.88	1
SMF45A	SMF45CA	JV	MV	45.0	50.00	55.30	1	72.7	2.75	1
SMF48A	SMF48CA	JX	MX	48.0	53.30	58.90	1	77.4	2.58	1

Maximum Ratings (T_A=25°C unless otherwise noted)

Parameter	Symbol	Value	Unit
Peak Pulse Power Dissipation with a 10/1000μs waveform (Fig.1)(Note 1), (Note 2)	P _{PMU}	200	Watts
Peak Pulse Power Dissipation with a 8/20μs waveform (Fig.1)(Note 1), (Note 2)	P _{PMU}	1000	Watts
Peak Pulse Current with a 10/1000μs waveform.(Note 1, Fig.3)	I _{RP}	See Next Table	Amps
Power Dissipation on Infinite Heat Sink at T _A =75°C	P _{AMU}	0.4	Watt
Peak Forward Surge Current, 8.3ms Single Half Sine Wave (Note 3)	I _{FSM}	20	Amps
Maximum Instantaneous Forward Voltage at 25A for Unidirectional Only (Note 4)	V _F	3.5	Voltage
Operating junction and Storage Temperature Range.	T _J , T _{STG}	-55 to +150	°C

Notes:

1. Non-repetitive current pulse, per Fig. 3 and derated above T_A = 25 °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 < 3.5V for V_{BR} < 200V and V_F < 6.5V for V_{BR} > 201V.

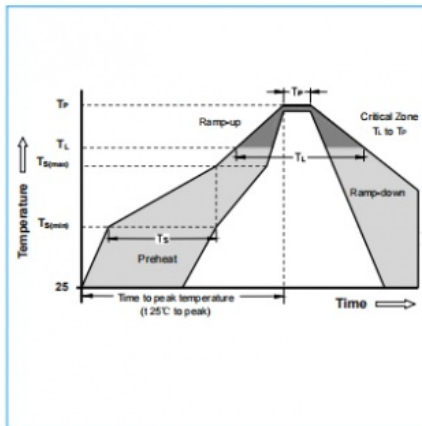
Physical Specifications

Case	SOD-123 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 _J) (Liquidus)	217°C
	- Time (min to max) (T _J)	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

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