



**Working Voltage: 3.3 to 220 V**  
**Peak Pulse Power: 200 W**

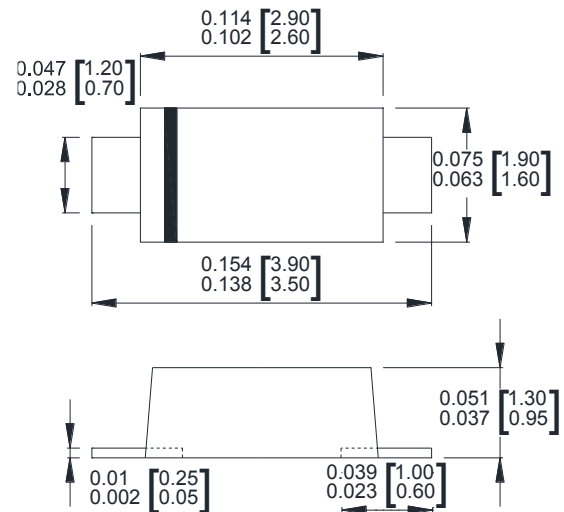
SOD-123FL

## Features

- Glass passivated chip
- 200 W peak pulse power capability with a 10/1000  $\mu$ s waveform, repetitive rate (duty cycle):0.01 %
- Low leakage
- Uni and Bidirectional unit
- Excellent clamping capability
- Very fast response time
- RoHS compliant

## Mechanical Data

- Case: Molded plastic
- Epoxy: UL 94V-0 rate flame retardant
- Lead: Solderable per MIL-STD-750, method 2026
- Polarity: Color band denotes cathode end except Bipolar
- Mounting position: Any



Dimensions : inch [ mm ]

## Maximum Ratings( $T_A=25^\circ\text{C}$ unless otherwise noted)

Parameter	Symbol	Value	UNIT
Peak power dissipation with a 10/1000 $\mu$ s waveform <sup>(1)</sup>	$P_{PP}$	200	W
Peak power dissipation with a 8/20 $\mu$ s waveform <sup>(1)</sup>	$P_{PP}$	1000	W
Peak pulse current with a 10/1000 $\mu$ s waveform <sup>(1)</sup>	$I_{PP}$	See Next Table	A
Power dissipation on infinite heatsink at $T_L = 75^\circ\text{C}$	$P_D$	0.4	W
Peak forward surge current, 8.3 ms single half sine-wave unidirectional only <sup>(2)</sup>	$I_{FSM}$	20	A
Maximum instantaneous forward voltage at 25 A for unidirectional only	$V_F$	3.5	V
Operating junction and storage temperature range	$T_J, T_{STG}$	-55 to +150	$^\circ\text{C}$

### Note:

(1) Non-repetitive current pulse per Fig.5 and derated above  $T_A = 25^\circ\text{C}$  per Fig.1

(2) Measured on 8.3 ms single half sine-wave or equivalent square wave, duty cycle = 4 pulses per minute maximum



### Electrical Characteristics( $T_A=25^{\circ}\text{C}$ unless otherwise noted)

Part Number (Uni)	Part Number (Bi)	Device Marking Code		Breakdown Voltage $V_{BR}$ @ $I_T$			Maximum Reverse Leakage $I_R$ @ $V_{RWM}$ ( $\mu\text{A}$ )	Working Peak Reverse Voltage $V_{RWM}$ (V)	Maximum Reverse Surge Current $I_{PP}$ (A)	Maximum Clamping Voltage $V_C$ @ $I_{PP}$ (V)
		Uni	Bi	Min (V)	Max (V)	$I_T$ (mA)				
SMF3.3A	SMF3.3CA	FD	KD	5.20	6.00	10	400	3.3	23.5	8.5
SMF5.0A	SMF5.0CA	FE	KE	6.40	7.00	10	400	5.0	21.74	9.2
SMF6.0A	SMF6.0CA	EG	KG	6.67	7.37	10	400	6.0	19.42	10.3
SMF6.5A	SMF6.5CA	FK	KK	7.22	7.98	10	250	6.5	17.86	11.2
SMF7.0A	SMF7.0CA	FM	KM	7.78	8.60	10	100	7.0	16.67	12.0
SMF7.5A	SMF7.5CA	FP	KP	8.33	9.21	1	50	7.5	15.50	12.9
SMF8.0A	SMF8.0CA	FR	KR	8.89	9.83	1	25	8.0	14.71	13.6
SMF8.5A	SMF8.5CA	FT	KT	9.44	10.40	1	10	8.5	13.89	14.4
SMF9.0A	SMF9.0CA	FV	KV	10.00	11.10	1	5	9.0	12.99	15.4
SMF10A	SMF10CA	FX	KX	11.10	12.30	1	2.5	10.0	11.76	17.0
SMF11A	SMF11CA	FZ	KZ	12.20	13.50	1	2.5	11.0	10.99	18.2
SMF12A	SMF12CA	HE	LE	13.30	14.70	1	2.5	12.0	10.05	19.9
SMF13A	SMF13CA	HG	LG	14.40	15.90	1	1	13.0	9.30	21.5
SMF14A	SMF14CA	HK	LK	15.60	17.20	1	1	14.0	8.62	23.2
SMF15A	SMF15CA	HM	LM	16.70	18.50	1	1	15.0	8.20	24.4
SMF16A	SMF16CA	HP	LP	17.80	19.70	1	1	16.0	7.69	26.0
SMF17A	SMF17CA	HR	LR	18.90	20.90	1	1	17.0	7.25	27.6
SMF18A	SMF18CA	HT	LT	20.00	22.10	1	1	18.0	6.85	29.2
SMF19A	SMF19CA	HB	LB	21.10	23.30	1	1	19.0	6.54	30.6
SMF20A	SMF20CA	HV	LV	22.20	24.50	1	1	20.0	6.17	32.4
SMF22A	SMF22CA	HX	LX	24.40	26.90	1	1	22.0	5.63	35.5
SMF24A	SMF24CA	HZ	LZ	26.70	29.50	1	1	24.0	5.14	38.9
SMF26A	SMF26CA	JE	ME	28.90	31.90	1	1	26.0	4.75	42.1
SMF28A	SMF28CA	IG	MG	31.10	34.40	1	1	28.0	4.41	45.4
SMF30A	SMF30CA	JK	MK	33.30	36.80	1	1	30.0	4.13	48.4
SMF33A	SMF33CA	IM	MM	36.70	40.60	1	1	33.0	3.75	53.3
SMF36A	SMF36CA	JP	MP	40.00	44.20	1	1	36.0	3.44	58.1
SMF40A	SMF40CA	IR	MR	44.40	49.10	1	1	40.0	3.10	64.5
SMF43A	SMF43CA	IT	MT	47.80	52.80	1	1	43.0	2.88	69.4
SMF45A	SMF45CA	JV	MV	50.00	55.30	1	1	45.0	2.75	72.7
SMF48A	SMF48CA	IX	MX	53.30	58.90	1	1	48.0	2.58	77.4
SMF51A	SMF51CA	JZ	MZ	56.70	62.70	1	1	51.0	2.43	82.4
SMF54A	SMF54CA	XE	NE	60.00	66.30	1	1	54.0	2.30	87.1
SMF58A	SMF58CA	XG	NG	64.40	71.20	1	1	58.0	2.14	93.6
SMF60A	SMF60CA	XK	NK	66.70	73.70	1	1	60.0	2.07	96.8
SMF64A	SMF64CA	XM	NM	71.10	78.60	1	1	64.0	1.94	103.0
SMF70A	SMF70CA	XP	NP	77.80	86.00	1	1	70.0	1.77	113.0
SMF75A	SMF75CA	XR	NR	83.30	92.10	1	1	75.0	1.65	121.0
SMF78A	SMF78CA	XT	NT	86.70	95.80	1	1	78.0	1.59	126.0
SMF80A	SMF80CA	XB	NB	88.80	97.60	1	1	80.0	1.55	129.0
SMF85A	SMF85CA	XV	NV	94.40	104.00	1	1	85.0	1.46	137.0
SMF90A	SMF90CA	XX	NX	100.00	111.00	1	1	90.0	1.37	146.0
SMF100A	SMF100CA	XZ	NZ	111.00	123.00	1	1	100.0	1.23	162.0
SMF110A	SMF110CA	TE	PE	122.00	135.00	1	1	110.0	1.13	177.0
SMF120A	SMF120CA	TG	PG	133.00	147.00	1	1	120.0	1.04	193.0
SMF130A	SMF130CA	TK	PK	144.00	159.00	1	1	130.0	0.96	209.0
SMF140A	SMF140CA	TB	PB	155.00	171.00	1	1	140.0	0.89	224.0
SMF150A	SMF150CA	TM	PM	167.00	185.00	1	1	150.0	0.82	243.0
SMF160A	SMF160CA	TP	PP	178.00	197.00	1	1	160.0	0.77	259.0
SMF170A	SMF170CA	TR	PR	189.00	209.00	1	1	170.0	0.73	275.0
SMF180A	SMF180CA	TT	PT	200.00	220.00	1	1	180.0	0.68	292.0
SMF190A	SMF190CA	TV	PV	211.00	232.00	1	1	190.0	0.65	308.0
SMF200A	SMF200CA	TX	PX	224.00	247.00	1	1	200.0	0.62	324.0
SMF220A	SMF220CA	TZ	PZ	246.00	272.00	1	1	220.0	0.56	356.0

**Note:**

1. The available parts are "A" type only, the parts without A ( $V_{BR}$  is  $\pm 10\%$ ) is not available
2. Add suffix 'C' or 'CA' after part number to specify Bi-directional devices
3. For Bi-Directional devices having VR of 10 volts and under, the IR limit is double



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

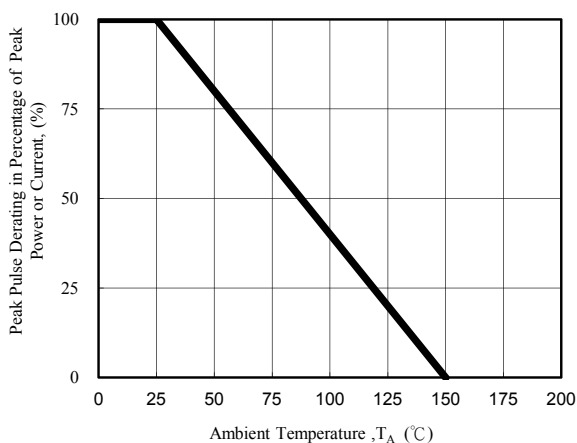


Fig. 1 - Pulse Derating Curve

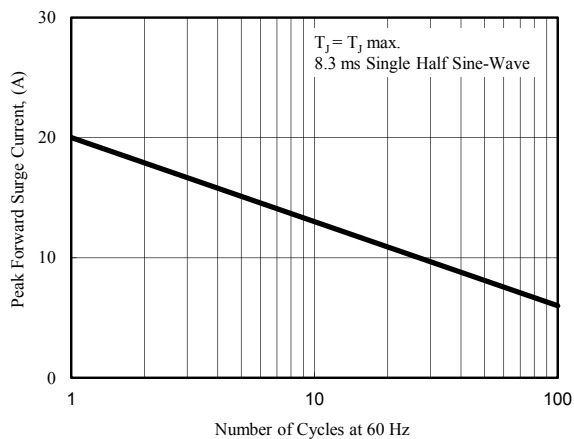


Fig. 2 - Maximum Non-Repetitive Surge Current

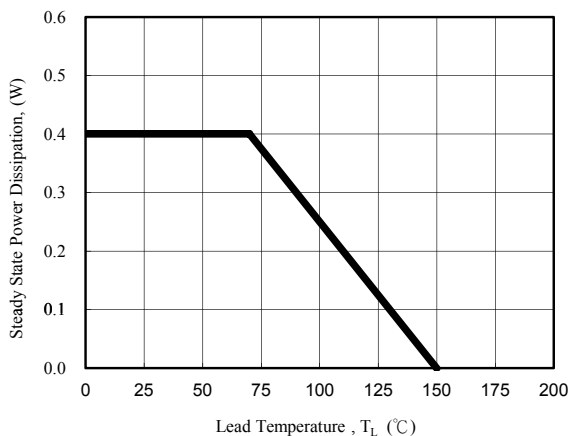


Fig. 3 - Steady State Power Derating Curve

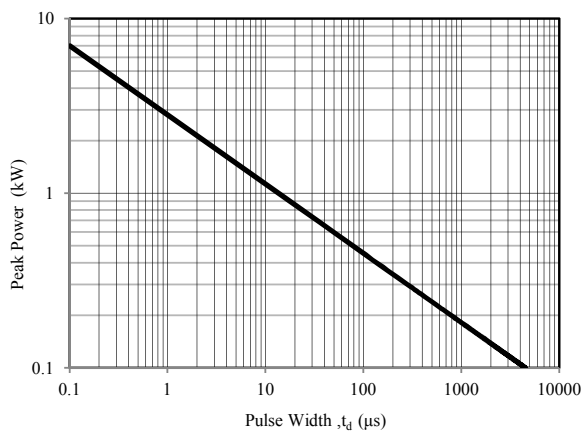


Fig. 4 - Peak Pulse Power Rating Curve

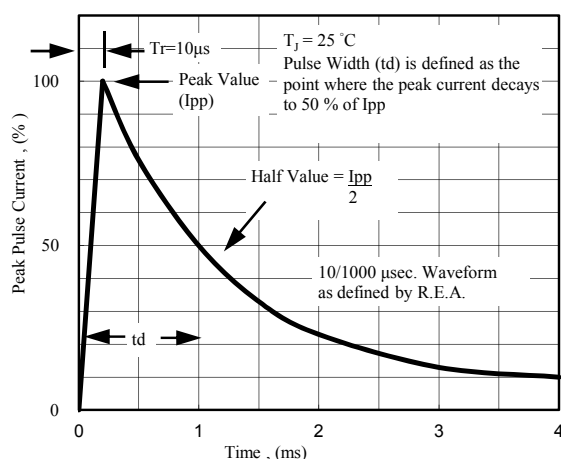


Fig. 5 - Pulse Waveform

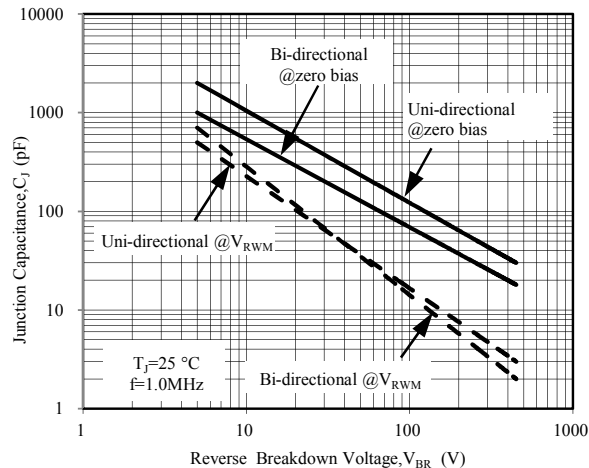


Fig. 6 - Typical Junction Capacitance

PACKAGE	SPQ/PCS	CARTON SPQ/PCS	CARTON SIZE/CM	CARTON GW/KG	CARTON NW/KG
SOD-123FL	3000/REEL	90000	40X20X22	5.00	4.00