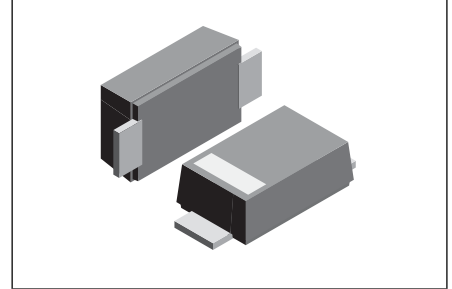
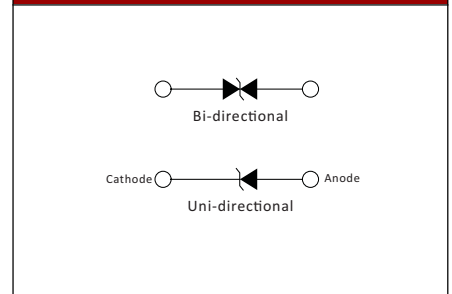


DESCRIPTION

The SMF series is designed specifically to protect sensitive electronic equipment from voltage transients induced by lightning and other transient voltage events.

FEATURES

- > For surface mounted applications in order to optimize board space.
- > Low profile package.
- > Built-in strain relief.
- > Glass passivated junction.
- > Low inductance.
- > Excellent clamping capability.
- > Repetition Rate (duty cycle):0.01%.
- > Fast response time: typically less than 1.0ps from 0 Volts to BV for unidirectional types.
- > Typical IR less than 1μA above 10V
- > High Temperature soldering: 260°C/10 seconds at terminals.
- > Plastic package has Underwriters Laboratory Flammability 94V-O.

SOD-123FL

PIN CONFIGURATION

MAXIMUM RATINGS AND CHARACTERISTICS Ratings at 25° C ambient temperature unless otherwise specified.

RATING	SYMBOL	VALUE	UNITS
Peak Pulse Power Dissipation on 10/1000us waveform (Note1,Note2).	PPPM	Minimum 200	Watts
Peak Pulse Current of on 10/1000us waveform(Note1)	IPPM	See Table	Amps
Steady State Power Dissipation at T _L =75°C, Lead lengths.375",(9.5mm) (Note2).	P _{M(AV)}	0.4	Watts
Peak Forward Surge Current,8.3ms Single Half Sine-Wave Superimposed on Rated Load, (JEDEC Method) (Note 3).	I _{FSM}	20	Amps
Operating junction and Storage Temperature Range.	T _J ,T _{STG}	-65~+150	°C

NOTES:

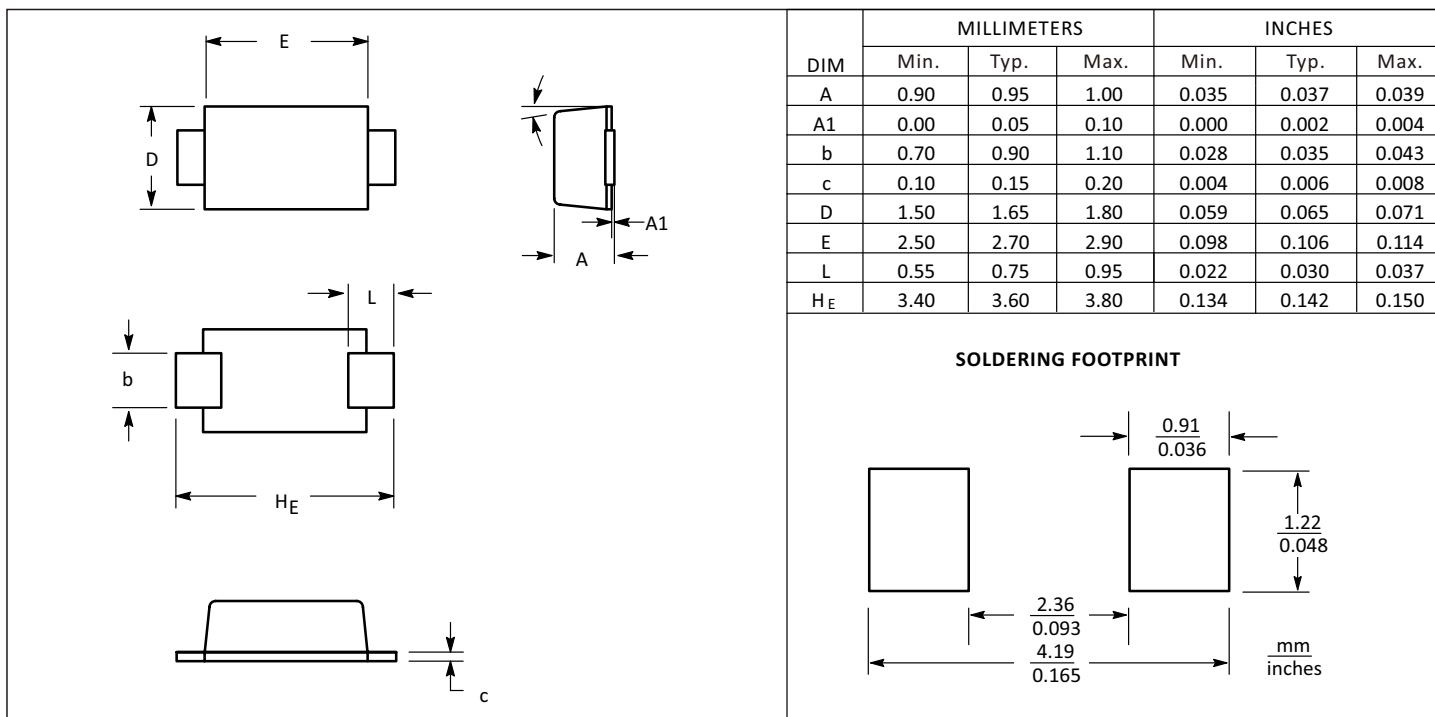
1. Non-repetitive current pulse, T_A = 25°C.
2. Mounted on 5.0mm x 5.0mm (0.03mm thick) Copper Pads to each terminal.
3. 8.3ms single half sine-wave, or equivalent square wave, Duty cycle=4 pulses per minutes maximum.

ELECTRICAL CHARACTERISTICS

Part Number		Device Marking Code		Reverse Stand-off Voltage	Breakdown Voltage Min.@IT	Breakdown Voltage Max.@IT	Test Current	Maximum Clamping Voltage	Peak Pulse Current	Reverse Leakage @VRWM
Uni	Bi	Uni	Bi	VRWM(V)	VBR (V)	VBR (V)	IT(mA)	VC(V)	Ipp(A)	Ir(uA)
SMF5.0A	SMF5.0CA	AE	FE	5.0	6.40	7.00	10	9.2	21.74	400
SMF6.0A	SMF6.0CA	AG	FG	6.0	6.67	7.37	10	10.3	19.42	400
SMF6.5A	SMF6.5CA	AK	FK	6.5	7.22	7.98	10	11.2	17.86	250
SMF7.0A	SMF7.0CA	AM	FM	7.0	7.78	8.60	10	12.0	16.67	100
SMF7.5A	SMF7.5CA	AP	FP	7.5	8.33	9.21	1	12.9	15.50	50
SMF8.0A	SMF8.0CA	AR	FR	8.0	8.89	9.83	1	13.6	14.71	25
SMF8.5A	SMF8.5CA	AT	FT	8.5	9.44	10.40	1	14.4	13.89	10
SMF9.0A	SMF9.0CA	AV	FV	9.0	10.00	11.10	1	15.4	12.99	5
SMF10A	SMF10CA	AX	FX	10.0	11.10	12.30	1	17.0	11.76	2.5
SMF11A	SMF11CA	AZ	FZ	11.0	12.20	13.50	1	18.2	10.99	2.5
SMF12A	SMF12CA	BE	HE	12.0	13.30	14.70	1	19.9	10.05	2.5
SMF13A	SMF13CA	BG	HG	13.0	14.40	15.90	1	21.5	9.30	1
SMF14A	SMF14CA	BK	HK	14.0	15.60	17.20	1	23.2	8.62	1
SMF15A	SMF15CA	BM	HM	15.0	16.70	18.50	1	24.4	8.20	1
SMF16A	SMF16CA	BP	HP	16.0	17.80	19.70	1	26.0	7.69	1
SMF17A	SMF17CA	BR	HR	17.0	18.90	20.90	1	27.6	7.25	1
SMF18A	SMF18CA	BT	HT	18.0	20.00	22.10	1	29.2	6.85	1
SMF19A	SMF19CA	BB	HB	19.0	21.10	23.30	1	30.6	6.54	1
SMF20A	SMF20CA	BV	HV	20.0	22.20	24.50	1	32.4	6.17	1
SMF22A	SMF22CA	BX	HX	22.0	24.40	26.90	1	35.5	5.63	1
SMF24A	SMF24CA	BZ	HZ	24.0	26.70	29.50	1	38.9	5.14	1
SMF26A	SMF26CA	CE	JE	26.0	28.90	31.90	1	42.1	4.75	1
SMF28A	SMF28CA	CG	JG	28.0	31.10	34.40	1	45.4	4.41	1
SMF30A	SMF30CA	CK	JK	30.0	33.30	36.80	1	48.4	4.13	1
SMF33A	SMF33CA	CM	JM	33.0	36.70	40.60	1	53.3	3.75	1
SMF36A	SMF36CA	CP	JP	36.0	40.00	44.20	1	58.1	3.44	1
SMF40A	SMF40CA	CR	JR	40.0	44.40	49.10	1	64.5	3.10	1
SMF43A	SMF43CA	CT	JT	43.0	47.80	52.80	1	69.4	2.88	1
SMF45A	SMF45CA	CV	JV	45.0	50.00	55.30	1	72.7	2.75	1
SMF48A	SMF48CA	CX	JX	48.0	53.30	58.90	1	77.4	2.58	1
SMF51A	SMF51CA	CZ	JZ	51.0	56.70	62.70	1	82.4	2.43	1
SMF54A	SMF54CA	DE	XE	54.0	60.00	66.30	1	87.1	2.30	1
SMF58A	SMF58CA	DG	XG	58.0	64.40	71.20	1	93.6	2.14	1

ELECTRICAL CHARACTERISTICS

Part Number		Device Marking Code		Reverse Stand-off Voltage	Breakdown Voltage Min.@IT	Breakdown Voltage Max.@IT	Test Current	Maximum Clamping Voltage	Peak Pulse Current	Reverse Leakage @VRWM
Uni	Bi	Uni	Bi	VRWM(V)	VBR (V)	VBR (V)	IT(mA)	VC(V)	Ipp(A)	Ir(uA)
SMF60A	SMF60CA	DK	XK	60.0	66. 70	73. 70	1	96. 8	2.07	1
SMF64A	SMF64CA	DM	XM	64.0	71. 10	78. 60	1	103. 0	1. 94	1
SMF70A	SMF70CA	DP	XP	70.0	77.80	86.00	1	113.0	1.77	1
SMF75A	SMF75CA	DR	XR	75.0	83.30	92.10	1	121.0	1.65	1
SMF78A	SMF78CA	DT	XT	78.0	86.70	95.80	1	126.0	1.59	1
SMF80A	SMF80CA	DV	XV	80.0	88.80	97.60	1	129.0	1.55	1
SMF85A	SMF85CA	DV	XB	85.0	94.00	104.10	1	137.0	1.46	1
SMF90A	SMF90CA	DX	XX	90.0	100.00	111.30	1	146.0	1.37	1
SMF100A	SMF100CA	DZ	XZ	100.0	111.00	123.00	1	162.0	1.23	1
SMF110A	SMF110CA	EE	TE	110 .0	122.0	135.0	1	177.0	1.13	1
SMF120A	SMF120CA	EG	TG	120.0	133.0	147.0	1	193.0	1.04	1
SMF130A	SMF130CA	EK	TK	130.0	144.0	159.0	1	209.0	0.96	1
SMF140A	SMF140CA	EB	TB	140.0	155.0	171.0	1	224.0	0.89	1
SMF150A	SMF150CA	EM	TM	150. 0	167.0	185.0	1	243.0	0. 82	1
SMF160A	SMF160CA	EP	TP	160. 0	178.0	197.0	1	259.0	0.77	1
SMF170A	SMF170CA	ER	TR	170. 0	189.0	209. 0	1	275.0	0.73	1
SMF180A	SMF180CA	ET	TT	180. 0	200. 0	220.0	1	292. 0	0.69	1
SMF190A	SMF190CA	EV	TV	190. 0	211.0	232.0	1	308.0	0.69	1

DIMENSIONS

SOLDERING PARAMETERS

Reflow Condition		Lead-free assembly
Pre Heat	Temperature Min (Ts(min))	150°C
	Temperature Max (Ts(max))	200°C
	Time (min to max) (ts)	60 – 180 secs
Average ramp up rate (Liquidus Temp (TL) to peak)		3°C/second max
Ts(max) to TL - Ramp-up Rate		3°C/second max
Reflow	Temperature (TL) (Liquidus)	217°C
	Time (min to max) (ts)	60 – 150 seconds
Peak Temperature (TP)		260°C
Time within 5°C of actual peak Temperature (tp)		20 – 40 seconds
Ramp-down Rate		6°C/second max
Time 25°C to peak Temperature (TP)		8 minutes Max.
Do not exceed		260°C

