SMF SERIES

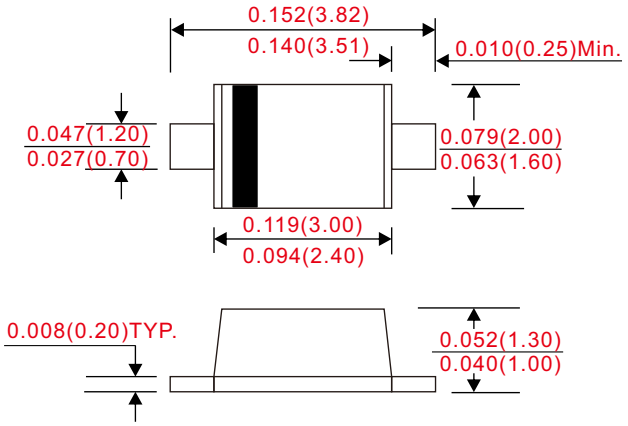
200W Surface Mount Transient Voltage Suppressors

■ Features

- Low leakage current.
- Very fast response time.
- Excellent clamping capability.
- 200W peak pulse power capility with a 10/1000us waveform, repetitive rate(duty cycle):0.01%.
- Uni and bidirectional unit.
- Glass passivated chip junction.
- Suffix "G" indicates Halogen-free part, ex.SMF5.0AG.
- Lead-free parts meet environmental standards of MIL-STD-19500 /228

■ Outline

SOD-123FL



Dimensions in inches and (millimeters)

■ Mechanical data

- Epoxy:UL94-V0 rated flame retardant
- Case : Molded plastic, SOD-123FL
- Terminals : Solder plated, solderable per MIL-STD-750, Method 2026
- Polarity : Indicated by cathode band
- Weight : Approximated 0.010 gram

■ Maximum ratings and electrical characteristics

Rating at 25°C ambient temperature unless otherwise specified. Single phase, half wave, 60Hz, resistive or inductive load. For capacitive load, derate current by 20%.

Parameter	Conditions	Symbol	SMF Series	UNIT
Peak power dissipation	with a 10/1000 us waveform	P_{PP}	200	W
Peak power dissipation	with a 8/20 us waveform	P_{PP}	1000	W
Power dissipation on infinite heatsonk	at T_L=75°C	P_D	0.4	W
Peak pulse current	with a 10/1000 us waveform	I_{PP}	See next table	A
Peak forward surge current	8.3ms single half sine-wave superimposed on rate load (JEDEC methode)	I_{FSM}	20	A
Maximum instantaneous forward voltage	at 25A for unidirectional only	V_F	3.5	V
Operating Junction temperature		T_J	-55 ~ +150	°C
Storage temperature		T_{STG}	-55 ~ +150	°C

Note 1. Measured on 8.3 ms single half sine-wave or equivalent square wave, duty cycle=4 pulses per minute maximum

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■ Electrical characteristics

table 1

Part No.	Reverse Stand-off Voltage	Breakdown Voltage		Test Current	Peak Forward Surge Current	Maximum Clamping Voltage @I_{PP}		Maximum Leakage Current	Marking Code	
	V_{RWM}	$V_{BR\,Min}$	$V_{BR\,Max}$	I_T	I_{FSM}	V_C	I_{PP}	I_R@V_{RWM}		
	Volts	Volts	Volts	mA	A	Volts	A	uA	UNI	BI
SMF5.0(C)A	5.0	6.40	7.00	10	20	9.2	21.7	400	FE	KE
SMF6.0(C)A	6.0	6.67	7.37	10	20	10.3	19.4	400	FG	KG
SMF6.5(C)A	6.5	7.22	7.98	10	20	11.2	17.9	250	FK	KK
SMF7.0(C)A	7.0	7.78	8.60	10	20	12.0	16.7	100	FM	KM
SMF7.5(C)A	7.5	8.33	9.21	1.0	20	12.9	15.5	50	FP	KP
SMF8.0(C)A	8.0	8.89	9.83	1.0	20	13.6	14.7	25	FR	KR
SMF8.5(C)A	8.5	9.44	10.4	1.0	20	14.4	13.9	10	FT	KT
SMF9.0(C)A	9.0	10.0	11.1	1.0	20	15.4	13.0	5	FV	KV
SMF10(C)A	10	11.1	12.3	1.0	20	17.0	11.8	2.5	FX	KX
SMF11(C)A	11	12.2	13.5	1.0	20	18.2	11.0	2.5	FZ	KZ
SMF12(C)A	12	13.3	14.7	1.0	20	19.9	10.1	2.5	HE	LE
SMF13(C)A	13	14.4	15.9	1.0	20	21.5	9.30	1	HG	LG
SMF14(C)A	14	15.6	17.2	1.0	20	23.2	8.62	1	HK	LK
SMF15(C)A	15	16.7	18.5	1.0	20	24.4	8.20	1	HM	LM
SMF16(C)A	16	17.8	19.7	1.0	20	26.0	7.69	1	HP	LP
SMF17(C)A	17	18.9	20.9	1.0	20	27.6	7.25	1	HR	LR
SMF18(C)A	18	20.0	22.1	1.0	20	29.2	6.85	1	HT	LT
SMF19(C)A	19	21.1	23.3	1.0	20	30.6	6.54	1	HB	LB
SMF20(C)A	20	22.2	24.5	1.0	20	32.4	6.17	1	HV	LV
SMF22(C)A	22	24.4	26.9	1.0	20	35.5	5.63	1	HX	LX
SMF24(C)A	24	26.7	29.5	1.0	20	38.9	5.14	1	HZ	LZ
SMF26(C)A	26	28.9	31.9	1.0	20	42.1	4.75	1	JE	ME
SMF28(C)A	28	31.1	34.4	1.0	20	45.4	4.41	1	JG	MG, YG
SMF30(C)A	30	33.3	36.8	1.0	20	48.4	4.13	1	JK	MK
SMF33(C)A	33	36.7	40.6	1.0	20	53.3	3.75	1	JM	MM
SMF36(C)A	36	40.0	44.2	1.0	20	58.1	3.44	1	JP	MP
SMF40(C)A	40	44.4	49.1	1.0	20	64.5	3.10	1	JR	MR
SMF43(C)A	43	47.8	52.8	1.0	20	69.4	2.88	1	JT	MT
SMF45(C)A	45	50.0	55.3	1.0	20	72.7	2.75	1	JV	MV
SMF48(C)A	48	53.3	58.9	1.0	20	77.4	2.58	1	JX	MX

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	V_{RWM}	$V_{BR\,Min}$	$V_{BR\,Max}$	I_T	I_{FSM}	V_C	I_{PP}	I_R@V_{RWM}		
	Volts	Volts	Volts	mA	A	Volts	A	uA	UNI	BI
SMF51(C)A	51	56.7	62.7	1.0	20	82.4	2.43	1	JZ	MZ
SMF54(C)A	54	60.0	66.3	1.0	20	87.1	2.30	1	XE	NE
SMF58(C)A	58	64.4	71.2	1.0	20	93.6	2.14	1	XG	NG
SMF60(C)A	60	66.7	73.7	1.0	20	96.8	2.07	1	XK	NK
SMF64(C)A	64	71.1	78.6	1.0	20	103.0	1.94	1	XM	NM
SMF70(C)A	70	77.8	86.0	1.0	20	113.0	1.77	1	XP	NP
SMF75(C)A	75	83.3	92.1	1.0	20	121.0	1.65	1	XR	NR
SMF78(C)A	78	86.7	95.8	1.0	20	126.0	1.59	1	XT	NT
SMF80(C)A	80.0	88.8	97.6	1.0	20	129.0	1.55	1	XB	NB
SMF85(C)A	85.0	94.4	104.0	1.0	20	137.0	1.46	1	XV	NV
SMF90(C)A	90.0	100.0	111.0	1.0	20	146.0	1.37	1	XX	NX
SMF100(C)A	100.0	111.0	123.0	1.0	20	162.0	1.23	1	XZ	NZ
SMF110(C)A	110.0	122.0	135.0	1.0	20	177.0	1.13	1	TE	PE
SMF120(C)A	120.0	133.0	147.0	1.0	20	193.0	1.04	1	TG	PG
SMF130(C)A	130.0	144.0	159.0	1.0	20	209.0	0.96	1	TK	PK
SMF140(C)A	140.0	155.0	171.0	1.0	20	224.0	0.89	1	TB	PB
SMF150(C)A	150	167.0	185.0	1.0	20	243.0	0.82	1	TM	PM
SMF160(C)A	160	178.0	197.0	1.0	20	259.0	0.77	1	TP	PP
SMF170(C)A	170	189.0	209.0	1.0	20	275.0	0.73	1	TR	PR
SMF180(C)A	180	200.0	220.0	1.0	20	292.0	0.69	1	TT	PT
SMF190(C)A	190	211.0	232.0	1.0	20	308.0	0.69	1	TV	PV

Note : 1. Suffix 'C' denotes bi-directional devices. Suffix 'A' denotes 5% tolerance devices, no suffix denotes 10% tolerance devices.
2. For bi-directional types having V_{RWM} of 10 volts and less, the I_R limit is doubled.

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■ Rating and characteristic curves

Fig.1 - Pulse Derating Curve

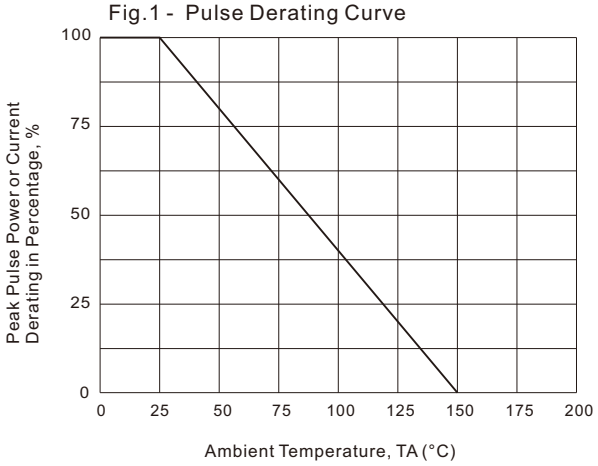


Fig.2 - Pulse Derating Curve

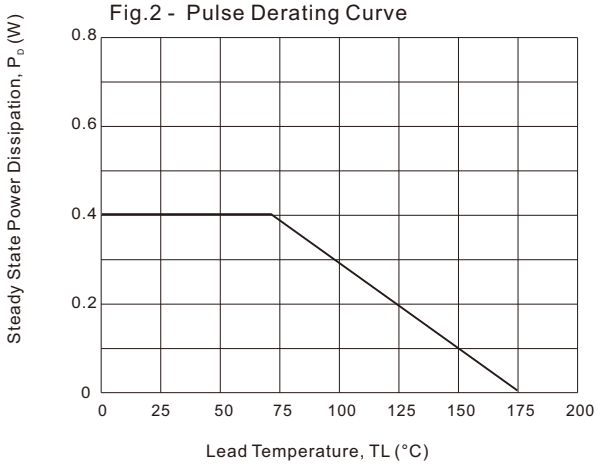


Fig.3 - Pulse Waveform

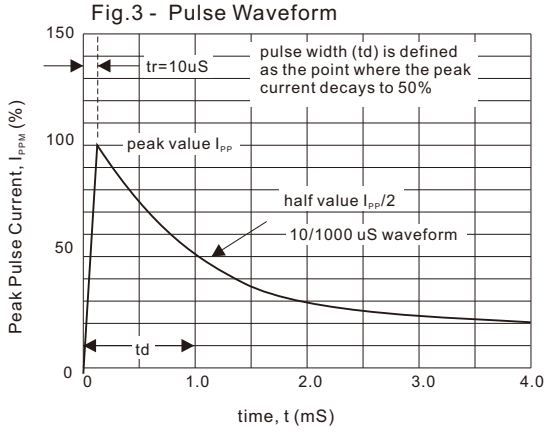


Fig.4 - Peak Pulse Power Rating Curve

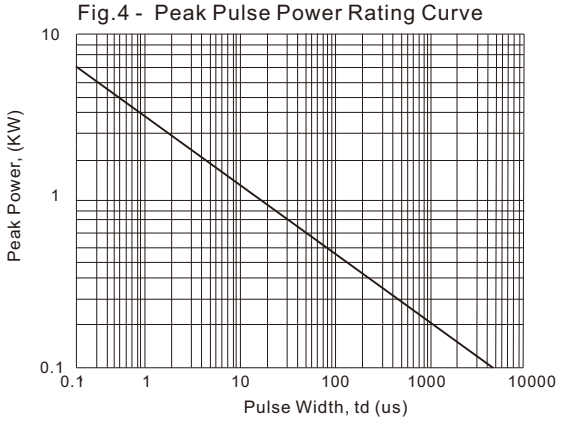
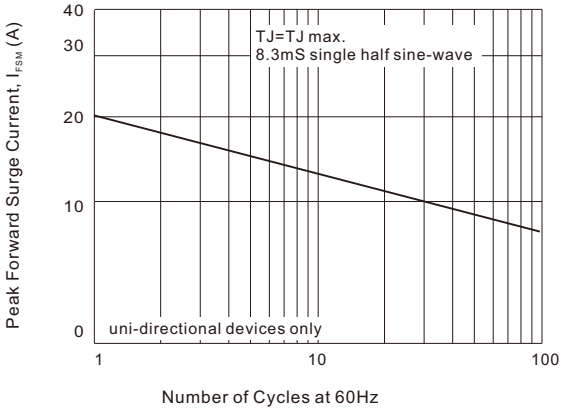


Fig.5 - Maximum Non-Repetitive
Forward Surge Current



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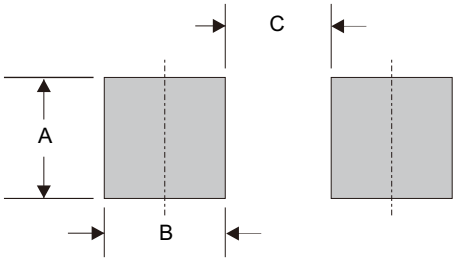
■ SOD-123FL foot print



A	B	C
0.056 (1.40)	0.036 (0.90)	0.091 (2.30)

Dimensions in inches and (millimeters)

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