SM5.0AF THRU SMF220CAF

Transient Voltage Suppressors	Power Dissipation - 200 Watts

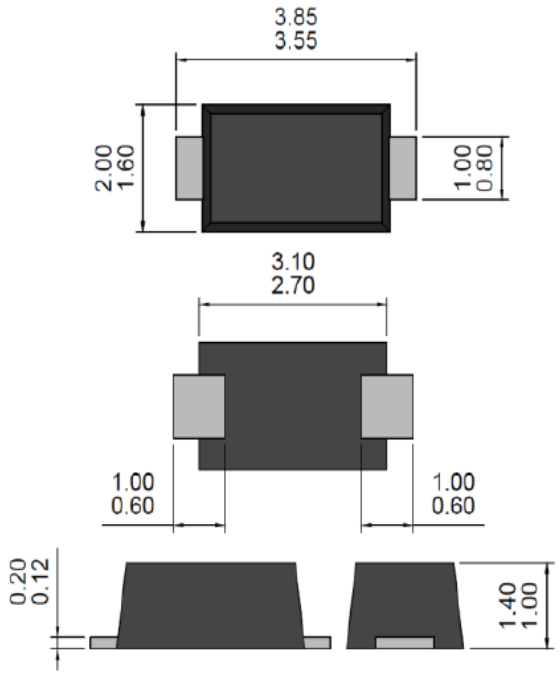
Features

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

Mechanical Data

- Epoxy: UL94V-0 rated flame retardant
- Case: Epoxy, Molded
- Terminals: Solder plated solderable per MIL-STD-750 Method 2026
- Polarity: Color band denotes cathode end except Bipolar

SOD-123F



Package Outline Dimensions in Millimeters

Maximum Ratings and Electrical Characteristics

Rating at 25℃ ambient temperature unless otherwise specified.

Single phase, half wave, 60Hz, resistive or inductive load.

For capacitive load, derate current by 20%.

Characteristics	Symbol	Value	Unit
Peak Power Dissipation with a 10/1000 μs waveform (Notes 1)	P_{PP}	200	W
Peak Power Dissipation with a 8/20 μs waveform (Notes 1)	P_{PP}	1000	W
Peak Forward Surge Current , 8.3 ms single half sine-wave unidirectional only (Notes 2)	I_{FSM}	20	A
Peak Pulse Current with a 10/1000μs waveform (Notes 1)	I_{PP}	See Next Table	A
Power dissipation on infinite heatsink at TL=75℃	P_D	0.4	W
Max. 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~+150	℃

Notes: 1. Non-repetitive current pulse, per Fig.5 and derated above TA = 25℃ per Fig.1.

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

SMF*-7-99-01-CC0149

Rev. 1, 20-Feb-2020

Rating and Characteristic Curves
SM5.0AF THRU SMF220CAF

Part Number		Marking Code		Breakdown Voltage			Max. Reverse Leakage	Working Peak Reverse Voltage	Max. Reverse Surge Current	Max. Clamping Voltage
				VBR @ IT			IR @ VRWM	VRWM	IPP	VC@IPP
				Min.	Max.	IT				
UNI	BI	UNI	BI	V	V	mA	µA	V	A	V
SMF5.0AF	SMF5.0CAF	FE	KE	6.4	7	10	400	5	21.74	9.2
SMF6.0AF	SMF6.0CAF	FG	KG	6.67	7.37	10	400	6	19.42	10.3
SMF6.5AF	SMF6.5CAF	FK	KK	7.22	7.98	10	250	6.5	17.86	11.2
SMF7.0AF	SMF7.0CAF	FM	KM	7.78	8.6	10	100	7	16.67	12
SMF7.5AF	SMF7.5CAF	FP	KP	8.33	9.21	1	50	7.5	15.5	12.9
SMF8.0AF	SMF8.0CAF	FR	KR	8.89	9.83	1	25	8	14.71	13.6
SMF8.5AF	SMF8.5CAF	FT	KT	9.44	10.4	1	10	8.5	13.89	14.4
SMF9.0AF	SMF9.0CAF	FV	KV	10	11.1	1	5	9	12.99	15.4
SMF10AF	SMF10CAF	FX	KX	11.1	12.3	1	2.5	10	11.76	17
SMF11AF	SMF11CAF	FZ	KZ	12.2	13.5	1	2.5	11	10.99	18.2
SMF12AF	SMF12CAF	HE	LE	13.3	14.7	1	2.5	12	10.05	19.9
SMF13AF	SMF13CAF	HG	LG	14.4	15.9	1	1	13	9.3	21.5
SMF14AF	SMF14CAF	HK	LK	15.6	17.2	1	1	14	8.62	23.2
SMF15AF	SMF15CAF	HM	LM	16.7	18.5	1	1	15	8.2	24.4
SMF16AF	SMF16CAF	HP	LP	17.8	19.7	1	1	16	7.69	26
SMF17AF	SMF17CAF	HR	LR	18.9	20.9	1	1	17	7.25	27.6
SMF18AF	SMF18CAF	HT	LT	20	22.1	1	1	18	6.85	29.2
SMF19AF	SMF19CAF	HB	LB	21.1	23.3	1	1	19	6.54	30.6
SMF20AF	SMF20CAF	HV	LV	22.2	24.5	1	1	20	6.17	32.4
SMF22AF	SMF22CAF	HX	LX	24.4	26.9	1	1	22	5.63	35.5
SMF24AF	SMF24CAF	HZ	LZ	26.7	29.5	1	1	24	5.14	38.9
SMF26AF	SMF26CAF	JE	ME	28.9	31.9	1	1	26	4.75	42.1
SMF28AF	SMF28CAF	JG	MG	31.1	34.4	1	1	28	4.41	45.4
SMF30AF	SMF30CAF	JK	MK	33.3	36.8	1	1	30	4.13	48.4
SMF33AF	SMF33CAF	JM	MM	36.7	40.6	1	1	33	3.75	53.3
SMF36AF	SMF36CAF	JP	MP	40	44.2	1	1	36	3.44	58.1
SMF40AF	SMF40CAF	JR	MR	44.4	49.1	1	1	40	3.1	64.5
SMF43AF	SMF43CAF	JT	MT	47.8	52.8	1	1	43	2.88	69.4
SMF45AF	SMF45CAF	JV	MV	50	55.3	1	1	45	2.75	72.7
SMF48AF	SMF48CAF	JX	MX	53.3	58.9	1	1	48	2.58	77.4
SMF51AF	SMF51CAF	JZ	MZ	56.7	62.7	1	1	51	2.43	82.4
SMF54AF	SMF54CAF	XE	NE	60	66.3	1	1	54	2.3	87.1
SMF58AF	SMF58CAF	XG	NG	64.4	71.2	1	1	58	2.14	93.6
SMF60AF	SMF60CAF	XK	NK	66.7	73.7	1	1	60	2.07	96.8
SMF64AF	SMF64CAF	XM	NM	71.1	78.6	1	1	64	1.94	103

Rating and Characteristic Curves
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				VBR @ IT			IR @ VRWM	VRWM	IPP	VC@IPP
				Min.	Max.	IT				
UNI	BI	UNI	BI	V	V	mA	μA	V	A	V
SMF70AF	SMF70CAF	XP	NP	77.8	86	1	1	70	1.77	113
SMF75AF	SMF75CAF	XR	NR	83.3	92.1	1	1	75	1.65	121
SMF78AF	SMF78CAF	XT	NT	86.7	95.8	1	1	78	1.59	126
SMF80AF	SMF80CAF	XB	NB	88.8	97.6	1	1	80	1.55	129
SMF85AF	SMF85CAF	XV	NV	94.4	104	1	1	85	1.46	137
SMF90AF	SMF90CAF	XX	NX	100	111	1	1	90	1.37	146
SMF100AF	SMF100CAF	XZ	NZ	111	123	1	1	100	1.23	162
SMF110AF	SMF110CAF	TE	PE	122	135	1	1	110	1.13	177
SMF120AF	SMF120CAF	TG	PG	133	147	1	1	120	1.04	193
SMF130AF	SMF130CAF	TK	PK	144	159	1	1	130	0.96	209
SMF140AF	SMF140CAF	TB	PB	155	171	1	1	140	0.89	224
SMF150AF	SMF150CAF	TM	PM	167	185	1	1	150	0.82	243
SMF160AF	SMF160CAF	TP	PP	178	197	1	1	160	0.77	259
SMF170AF	SMF170CAF	TR	PR	189	209	1	1	170	0.73	275
SMF180AF	SMF180CAF	TT	PT	200	220	1	1	180	0.68	292
SMF190AF	SMF190CAF	TV	PV	211	232	1	1	190	0.65	308
SMF200AF	SMF200CAF	TX	PX	224	247	1	1	200	0.62	324
SMF220AF	SMF220CAF	TZ	PZ	246	272	1	1	220	0.56	356

Notes: 1. The available parts are “A” type only, the parts without A (VBR is ±10%) is not available.

2.Add suffix ‘CA’ after part number to specify Bi-directional devices.

3.For Bi-Directional devices having VR of 10 volts and under, the IR Iimit is double.

Fig.1Pulse Derating Curve

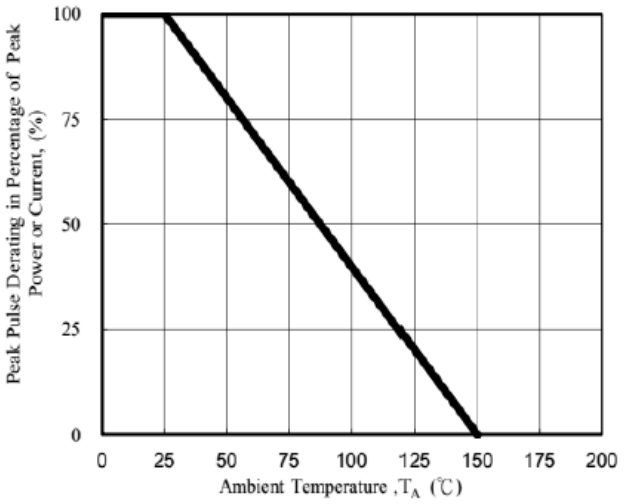


Fig. 2 Max. Non-Repetitive Surge Current

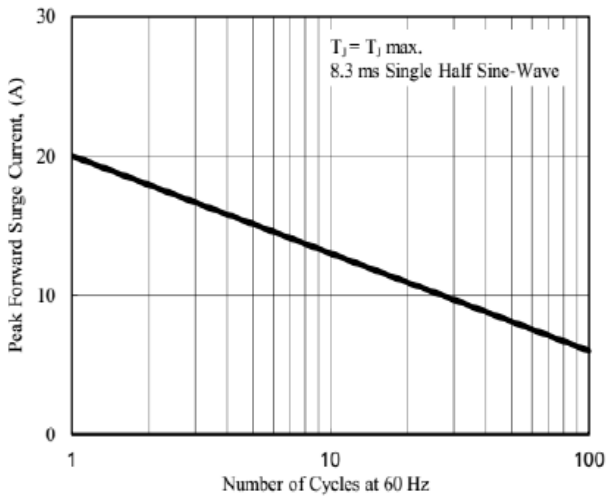


Fig. 3 Steady State Power Derating Curve

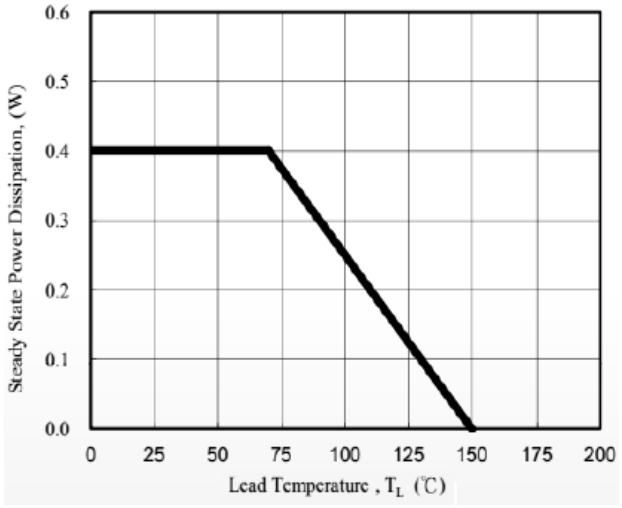


Fig. 4 Peak Pulse Power Rating Curve

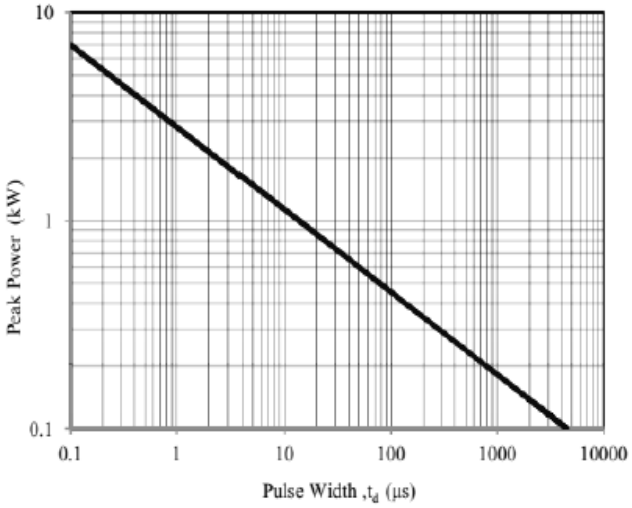


Fig. 5 Pulse Waveform

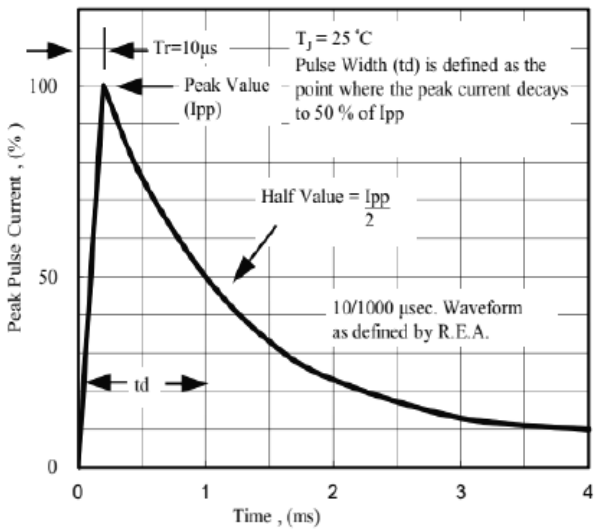
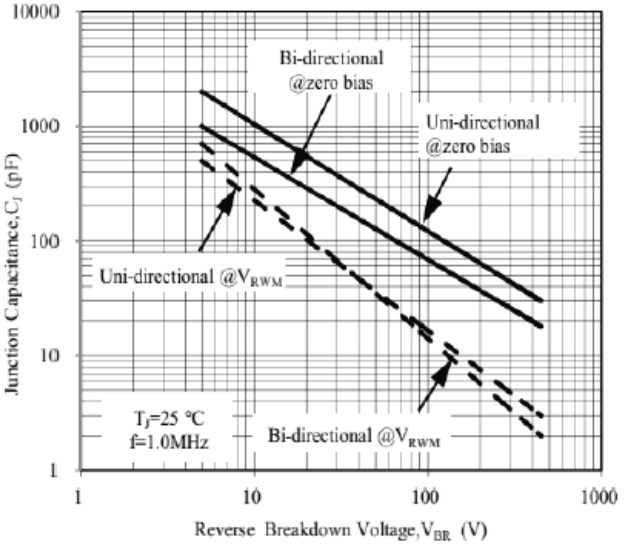


Fig. 6 Typical Junction Capacitance



The curve above is for reference only.

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