



SMF SERIES

Surface Mount Transient Voltage Suppressor

Features

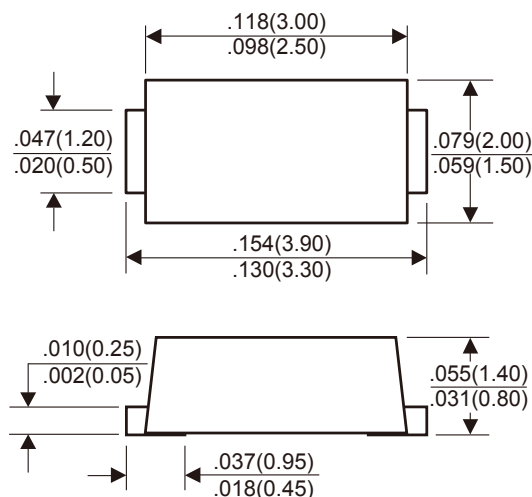
- ★ High reliability application and automotive grade AEC-Q101 qualified
- ★ 200W peak pulse power capability at 10/1000 μ s waveform, repetition rate (duty cycles):0.01%
- ★ Low leakage
- ★ Excellent clamping capability
- ★ Very fast response time
- ★ RoHS compliant
- ★ ESD Rating of Class 3 (>16 kV) per Human Body Model
- ★ ESD Rating of Level 4 (8 kV Contact Discharge) per IEC61000-4-2
- ★ EFT (Electrical Fast Transients) Rating of 40A per IEC61000-4-4

Mechanical Data

- ★ Case: Molded plastic, SOD-123FL
- ★ Epoxy: UL 94V-0 rate flame retardant
- ★ Terminals: Solderable per MIL-STD-750, method 2026
- ★ Polarity: Color band denotes cathode end
- ★ Part no. with suffix "-A" means AEC-Q101 qualified

Working Voltage 5.0 to 58 V
Peak Pulse Power 200W

SOD-123FL



Dimensions in inches and (millimeters)

MAXIMUM RATINGS AND THERMAL CHARACTERISTICS

$T_A = 25^\circ\text{C}$ unless otherwise noted

PARAMETER	SYMBOL	VALUE	UNIT
Peak power dissipation with a 10/1000 μ s waveform (Note 1,2)	P_{PPM}	200	W
Peak forward surge current, 8.3 ms single half sine-wave (Note 3)	I_{FSM}	20	A
Power dissipation on infinite heatsink at $T_L=75^\circ\text{C}$	P_D	0.4	W
Maximum instantaneous forward voltage at 25A for unidirectional only	V_F	3.5	V
Typical thermal resistance junction to ambient	$R_{\theta JA}$	220	$^\circ\text{C}/\text{W}$
Typical thermal resistance junction to lead	$R_{\theta JL}$	110	$^\circ\text{C}/\text{W}$
Operating junction and storage temperature range	T_J, T_{STG}	-65 to +150	$^\circ\text{C}$

NOTES : (1) Non-repetitive current pulse, per Fig. 3 and derated above $T_A=25^\circ\text{C}$ per Fig. 2

(2) Mounted on copper pad area of 0.2" x 0.2" (5.0 x 5.0mm) to each terminal

(3) Measured on 8.3ms single half sine wave or equivalent square wave for unidirectional device only, duty cycle=4 per minute maximum

SMF SERIES

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 $I_R@V_{RWM}$ (μA)	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)				
SMF5.0A	SMF5.0CA	FE	KE	6.40	7.00	10	400	5.0	21.74	9.2
SMF6.0A	SMF6.0CA	FG	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	10.4	1	10	8.5	13.89	14.4
SMF9.0A	SMF9.0CA	FV	KV	10.0	11.1	1	5	9.0	12.99	15.4
SMF10A	SMF10CA	FX	KX	11.1	12.3	1	2.5	10	11.76	17.0
SMF11A	SMF11CA	FZ	KZ	12.2	13.5	1	2.5	11	10.99	18.2
SMF12A	SMF12CA	HE	LE	13.3	14.7	1	2.5	12	10.05	19.9
SMF13A	SMF13CA	HG	LG	14.4	15.9	1	1	13	9.30	21.5
SMF14A	SMF14CA	HK	LK	15.6	17.2	1	1	14	8.62	23.2
SMF15A	SMF15CA	HM	LM	16.7	18.5	1	1	15	8.20	24.4
SMF16A	SMF16CA	HP	LP	17.8	19.7	1	1	16	7.69	26.0
SMF17A	SMF17CA	HR	LR	18.9	20.9	1	1	17	7.25	27.6
SMF18A	SMF18CA	HT	LT	20.0	22.1	1	1	18	6.85	29.2
SMF20A	SMF20CA	HV	LV	22.2	24.5	1	1	20	6.17	32.4
SMF22A	SMF22CA	HX	LX	24.4	26.9	1	1	22	5.63	35.5
SMF24A	SMF24CA	HZ	LZ	26.7	29.5	1	1	24	5.14	38.9
SMF26A	SMF26CA	JE	ME	28.9	31.9	1	1	26	4.75	42.1
SMF28A	SMF28CA	JG	MG	31.1	34.4	1	1	28	4.41	45.4
SMF30A	SMF30CA	JK	MK	33.3	36.8	1	1	30	4.13	48.4
SMF33A	SMF33CA	JM	MM	36.7	40.6	1	1	33	3.75	53.3
SMF36A	SMF36CA	JP	MP	40.0	44.2	1	1	36	3.44	58.1
SMF40A	SMF40CA	JR	MR	44.4	49.1	1	1	40	3.10	64.5
SMF43A	SMF43CA	JT	MT	47.8	52.8	1	1	43	2.88	69.4
SMF45A	SMF45CA	JV	MV	50.0	55.3	1	1	45	2.75	72.7
SMF48A	SMF48CA	JX	MX	53.3	58.9	1	1	48	2.58	77.4
SMF51A	SMF51CA	JZ	MZ	56.7	62.7	1	1	51	2.43	82.4
SMF54A	SMF54CA	XE	NE	60.0	66.3	1	1	54	2.30	87.1
SMF58A	SMF58CA	XG	NG	64.4	71.2	1	1	58	2.14	93.6

Suffix "A" denotes 5% tolerance device.

Add suffix "CA" after part number to specify Bi-directional devices.

For Bi-directional type having V_R of 10 volts and less, the I_R limit is double.

RATINGS AND CHARACTERISTICS CURVES SMF SERIES

Fig.1 - Peak Pulse Power Rating Curve

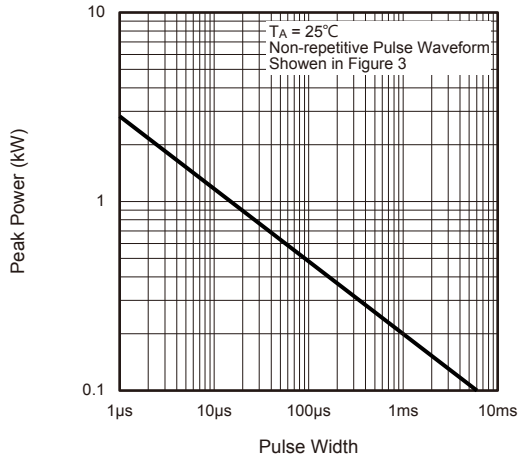


Fig.2 - Pulse Derating Curve

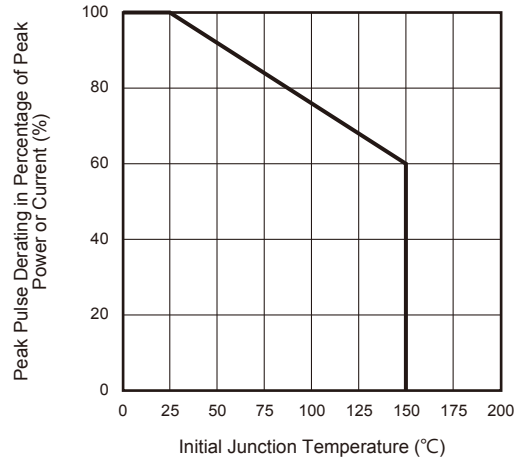


Fig.3 - Pulse Waveform

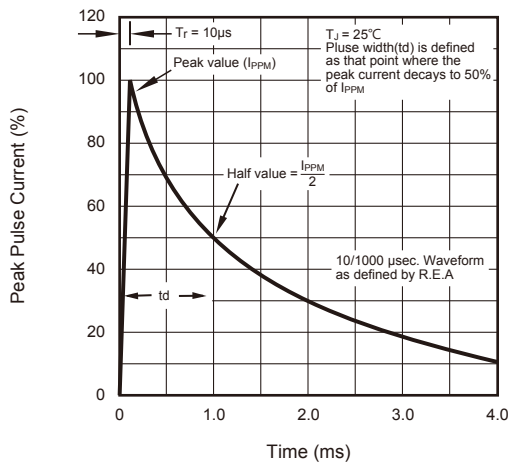


Fig.4 - Typical Junction Capacitance

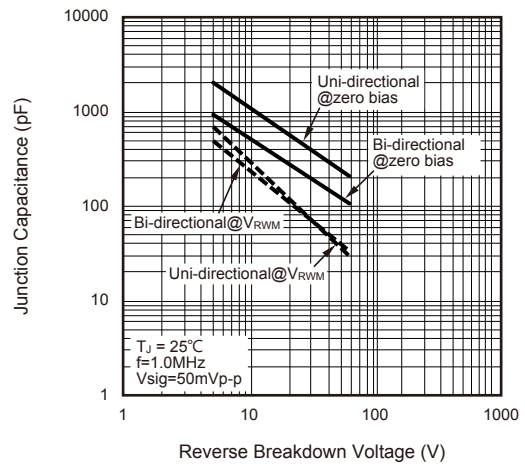


Fig.5 - Steady State Power Derating Curve

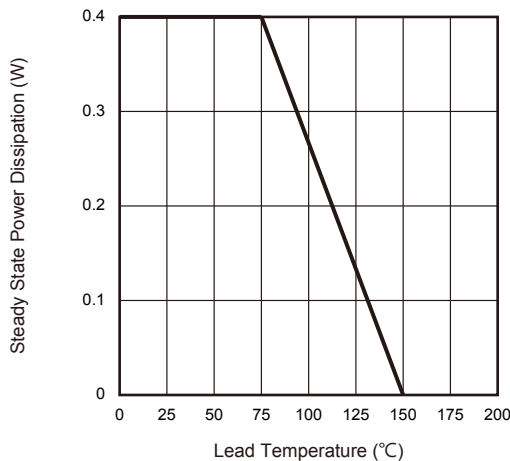


Fig.6 - Maximum Non-Repetitive Surge Current

