Description

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

Features

- Glass passivated chip
- Low leakage
- Uni and Bidirectional unit
- Excellent clamping capability
- The plastic material has U/L recognition 94V-0
- Fast response time
- RoHS compliant

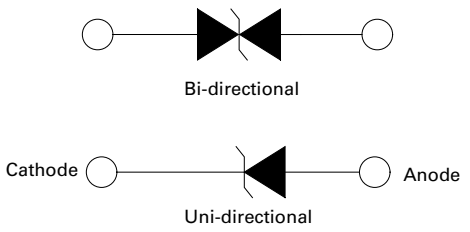
Mechanical Characteristics

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

Applications

SMF devices are ideal for the protection of I/O interfaces, VCC bus and other vulnerable circuits used in cellular phones, portable devices, business machines, power supplies and other consumer applications.

Dimensions and Pin Configuration



Circuit and Pin Schematic

Marking Information

KG : Device Marking Code SMF6.0CA

Absolute Maximum Ratings (T_A=25°C unless otherwise specified)

Parameter	Symbol	Value	UNIT
Peak power dissipation with a 10/1000μs waveform(1)	P_{PP}	200	W
Peak power dissipation with a 8/20μs waveform(1)	P_{PP}	1000	W
Peak pulse current wih a 10/1000μs waveform(1)	I_{PP}	See Next Table	A
Power dissipation on infinite heatsink at T_L = 75 °C	P_D	0.4	W
Peak forward surge current, 8.3 ms single half sine-wave unidirectional only(2)	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	°C

Note:

(1)Non-repetitive current pulse per Fig.5 and derated above T_A= 25 °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°C unless otherwise specified)

Part Number (Uni)	Part Number (Bi)	Device Marking Code		Breakdown Voltage VBR @IT			Maximum Reverse Leakage IR @VRWM (uA)	Working Peak Reverse Voltage VRWM (V)	Maximum Reverse Surge Current IPP (A)	Maximum Clamping Voltage VC @IPP (V)
		Uni	Bi	Min (V)	Max (V)	IT (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	10.40	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	JG	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	JM	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	JR	MR	44.40	49.10	1	1	40.0	3.10	64.5
SMF43A	SMF43CA	JT	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	JX	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 ±10%) is not available
2. Add suffix 'C 'or ' CA ' after part number to specify Bi-directional devices
3. For Bi-Directional devices having V_R of 10 volts and under, the I_R limit is double

Typical Performance Characteristics (T_A=25℃ unless otherwise Specified)

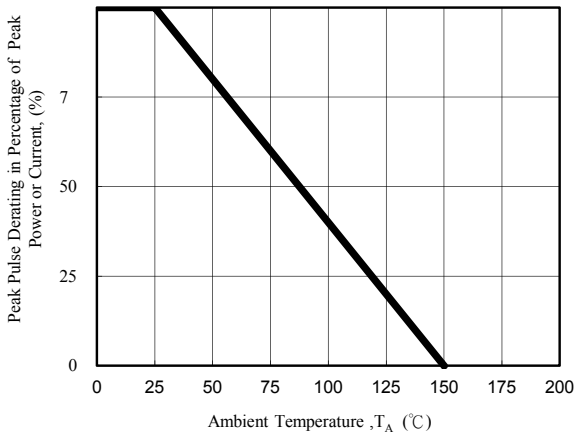


Fig. 1 - Pulse Derating Curve

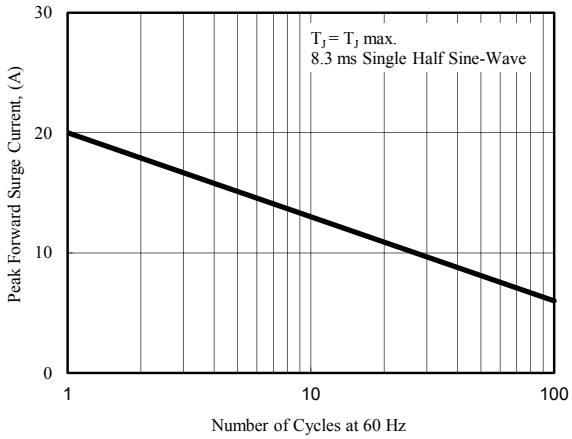


Fig. 2 - Maximum Non-Repetitive Surge Current

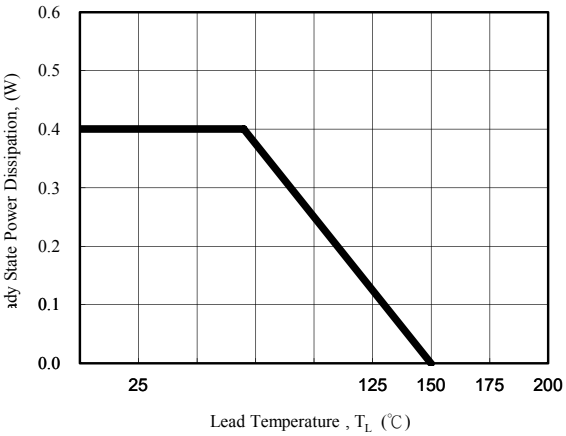


Fig. 3 - Steady State Power Derating Curve

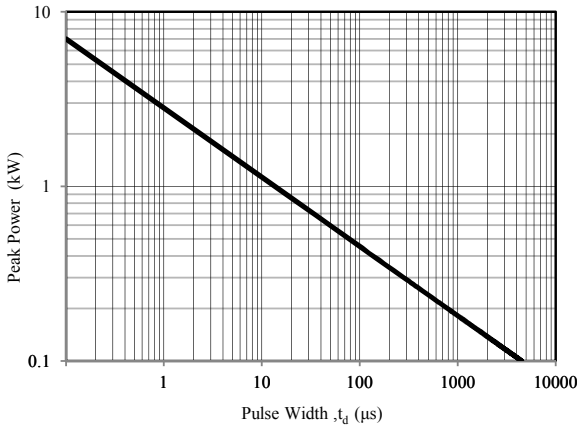


Fig. 4 - Peak Pulse Power Rating Curve

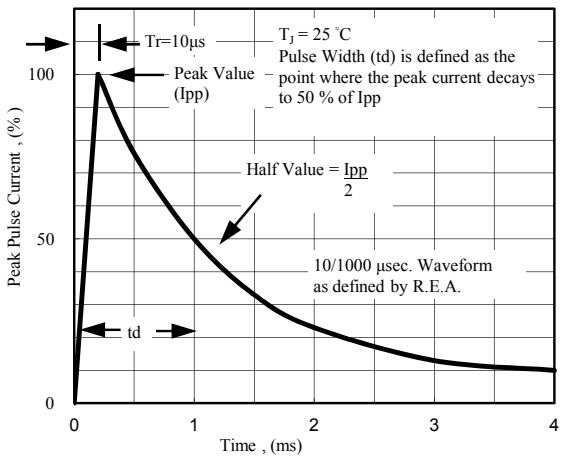


Fig. 5 - Pulse Waveform

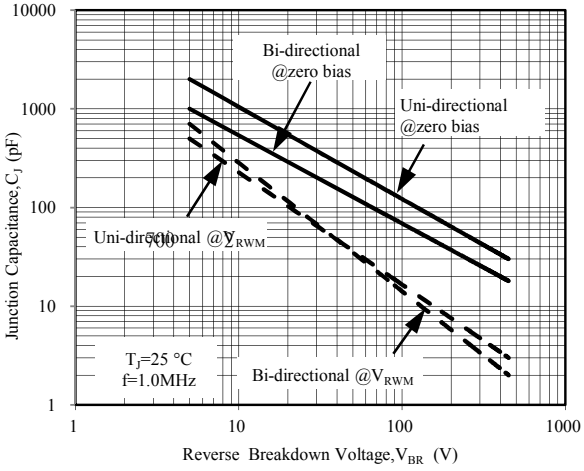
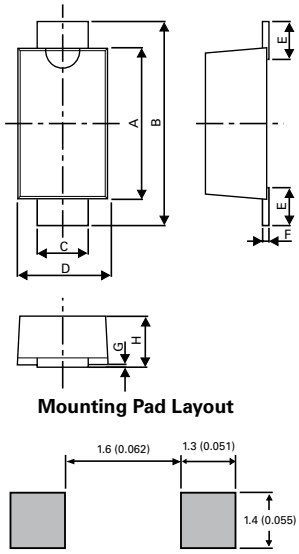


Fig. 6 - Typical Junction Capacitance

SOD-123 Package Outline Drawing



Dimensions	Millimeters		Inches	
	Min	Max	Min	Max
A	2.50	2.90	0.0984	0.1142
B	3.40	3.90	0.1339	0.1535
C	0.70	1.20	0.0275	0.0472
D	1.50	2.00	0.0591	0.0787
E	0.35	0.90	0.0138	0.0354
F	0.05	0.26	0.0020	0.0102
G	0.00	0.10	0.000	0.0039
H	0.95	1.10	0.0374	0.0433

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