



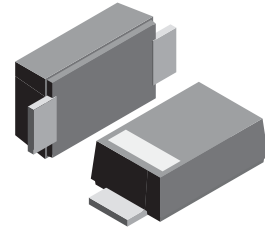
# THE DATASHEET OF SMF5.0CA



## SURFACE MOUNT TRANSIENT VOLTAGE SUPPRESSOR DIODE

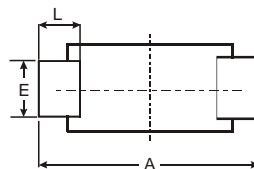
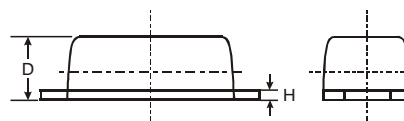
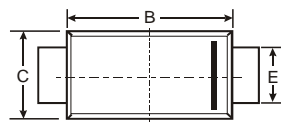
### Features

- For surface mounted applications
- Low profile package
- Low incremental surge resistance, excellent clamping capability
- 200W peak pulse power capability with a 10/1000  $\mu$ s wave from, repetition rate (duty cycle): 0.01%
- High temperature soldering guaranteed: 260 /10 seconds, at terminals



### Mechanical Data

- Case: JEDEC SOD-123FL, molded plastic over passivated chip
- Polarity: Color band denotes positive end (cathode) except for bidirectional
- Mounting position: Any
- Weight: 0.006 ounces, 0.02 gram



SOD-123FL			
Dim	Min	Max	Typ
A	3.58	3.72	3.65
B	2.72	2.78	2.75
C	1.77	1.83	1.80
D	1.02	1.08	1.05
E	0.097	1.03	1.00
H	0.13	0.17	0.15
L	0.53	0.57	0.55
All Dimensions in mm			

### Maximum Ratings $T_A = 25^\circ\text{C}$ unless otherwise specified

Characteristic	Symbol	Value	Unit
Maximum $P_{PK}$ Dissipation (PW - 10/1000 $\mu$ s)	$P_{PK}$	200	W
Maximum $P_{PK}$ Dissipation @ $T_a = 25^\circ\text{C}$ (PW - 8/10 $\mu$ s) (Note 2)	$P_{PK}$	1000	W
DC Power Dissipation @ $T_a = 25^\circ\text{C}$ (Note 3)	$P_D$	385	mW
Derate above $25^\circ\text{C}$		4.0	mW/ $^\circ\text{C}$
Thermal Resistance, Junction to Ambient (Note 3)	$R_{\theta JA}$	325	$^\circ\text{C}/\text{W}$
Thermal Resistance, Junction to Lead (Note 3)	$R_{\theta JL}$	26	$^\circ\text{C}/\text{W}$
Operating Junction and Storage Temperature Range	$T_J, T_{STG}$	-55 to +150	$^\circ\text{C}$

#### Notes :

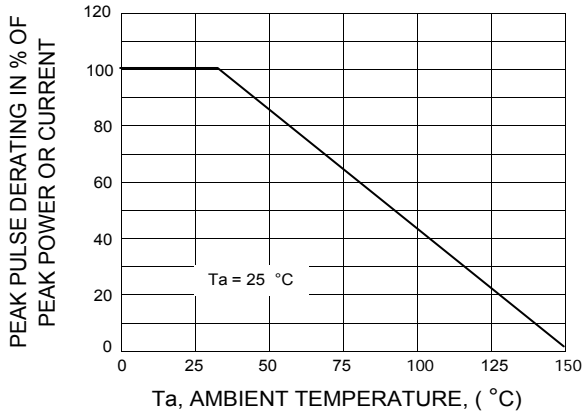
- (1) Non-repetitive current pulse at  $T_a = 25^\circ\text{C}$ , per waveform of Fig. 2.
- (2) Non-repetitive current pulse at  $T_a = 25^\circ\text{C}$ , per waveform of Fig. 5.
- (3) Mounted with recommended minimum pad size, DC board FR4.



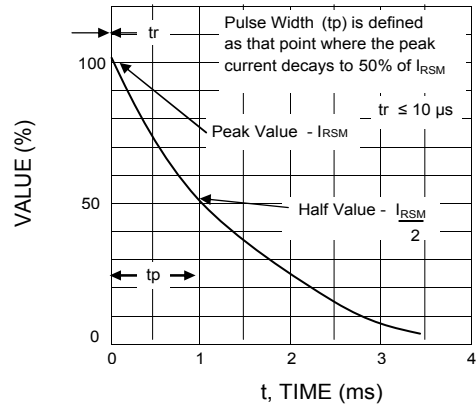
# SMF5.0A(CA)-SMF58A(CA)

TYPE		Marking		Reverse Stand-Off Voltage	Breakdown Voltage Min. @I <sub>T</sub>	Breakdown Voltage Max. @ I <sub>T</sub>	Test Current	Reverse Leakage @V <sub>RWM</sub>	Maximum Clamping Voltage @I <sub>PP</sub>	Peak Pulse Current
(Uni)	(Bi)	(Uni)	(Bi)	V <sub>RWM</sub> (V)	V <sub>BR MIN</sub> (V)	V <sub>BR MAX</sub> (V)	I <sub>T</sub> (mA)	I <sub>R</sub> (uA)	V <sub>C</sub> (V)	I <sub>PP</sub> (mA)
SMF5.0A	SMF5.0CA	AE	NE	5.0	6.40	7.00	10	400	9.2	21.7
SMF6.0A	SMF6.0CA	AG	NG	6.0	6.67	7.37	10	400	10.3	19.4
SMF6.5A	SMF6.5CA	AK	NK	6.5	7.22	7.98	10	250	11.2	17.9
SMF7.0A	SMF7.0CA	AM	NM	7.0	7.78	8.60	10	100	12.0	16.7
SMF7.5A	SMF7.5CA	AP	NP	7.5	8.33	9.21	1.0	50	12.9	15.5
SMF8.0A	SMF8.0CA	AR	NR	8.0	8.89	9.83	1.0	25	13.6	14.7
SMF8.5A	SMF8.5CA	AT	NT	8.5	9.44	10.4	1.0	10	14.4	13.9
SMF9.0A	SMF9.0CA	AV	NV	9.0	10.0	11.1	1.0	5.0	15.4	13.0
SMF10A	SMF10CA	AX	NX	10	11.1	12.3	1.0	2.5	17.0	11.8
SMF11A	SMF11CA	AZ	NZ	11	12.2	13.5	1.0	2.5	18.2	11.0
SMF12A	SMF12CA	BE	OE	12	13.3	14.7	1.0	2.5	19.9	10.1
SMF13A	SMF13CA	BG	OG	13	14.4	15.9	1.0	1.0	21.5	9.3
SMF14A	SMF14CA	BK	OK	14	15.6	17.2	1.0	1.0	23.2	8.6
SMF15A	SMF15CA	BM	OM	15	16.7	18.5	1.0	1.0	24.4	8.2
SMF16A	SMF16CA	BP	OP	16	17.8	19.7	1.0	1.0	26.0	7.7
SMF17A	SMF17CA	BR	OR	17	18.9	20.9	1.0	1.0	27.6	7.2
SMF18A	SMF18CA	BT	OT	18	20.0	22.1	1.0	1.0	29.2	6.8
SMF20A	SMF20CA	BV	OV	20	22.2	24.5	1.0	1.0	32.4	6.2
SMF22A	SMF22CA	BX	OX	22	24.4	26.9	1.0	1.0	35.5	5.6
SMF24A	SMF24CA	BZ	OZ	24	26.7	29.5	1.0	1.0	38.9	5.1
SMF26A	SMF26CA	CE	PE	26	28.9	31.9	1.0	1.0	42.1	4.8
SMF28A	SMF28CA	CG	PG	28	31.1	34.4	1.0	1.0	45.4	4.4
SMF30A	SMF30CA	CK	PK	30	33.3	36.8	1.0	1.0	48.4	4.1
SMF33A	SMF33CA	CM	PM	33	36.7	40.6	1.0	1.0	53.3	3.8
SMF36A	SMF36CA	CP	PP	36	40.0	44.2	1.0	1.0	58.1	3.4
SMF40A	SMF40CA	CR	PR	40	44.4	49.1	1.0	1.0	64.5	3.1
SMF43A	SMF43CA	CT	PT	43	47.8	52.8	1.0	1.0	69.4	2.9
SMF45A	SMF45CA	CV	PV	45	50.0	55.3	1.0	1.0	72.7	2.8
SMF48A	SMF48CA	CX	PX	48	53.3	58.9	1.0	1.0	77.4	2.6
SMF51A	SMF51CA	CZ	PZ	51	56.7	62.7	1.0	1.0	82.4	2.4
SMF54A	SMF54CA	CA	PA	54	60.0	66.3	1.0	1.0	87.1	2.3
SMF58A	SMF58CA	CC	PC	58	64.4	71.2	1.0	1.0	93.6	2.1

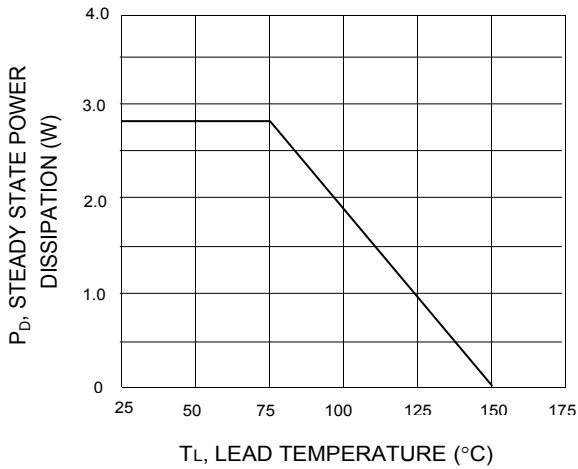
**FIG.1 - PULSE DERATING CURVE**



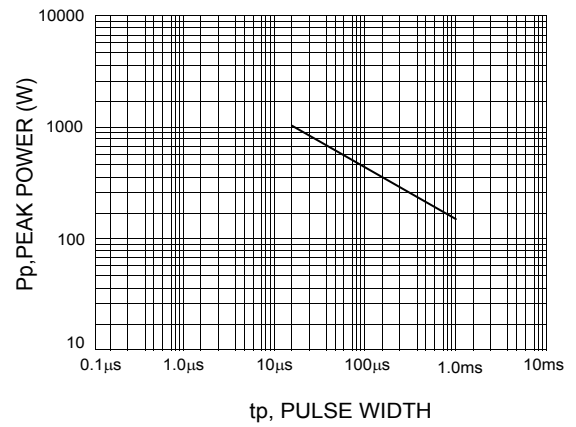
**FIG.2 - 10 x 1000 μs PULSE WAVEFORM**



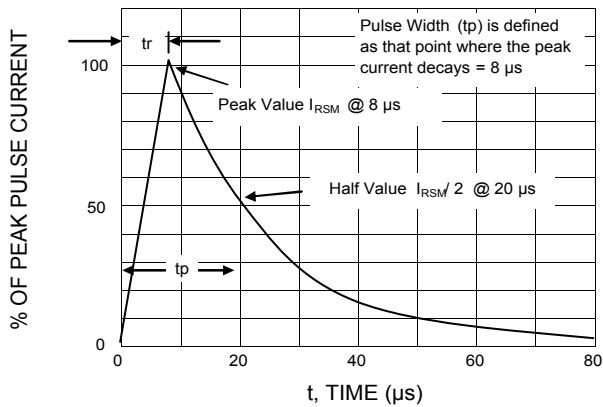
**FIG.3 - STEADY STATE POWER DERATING**



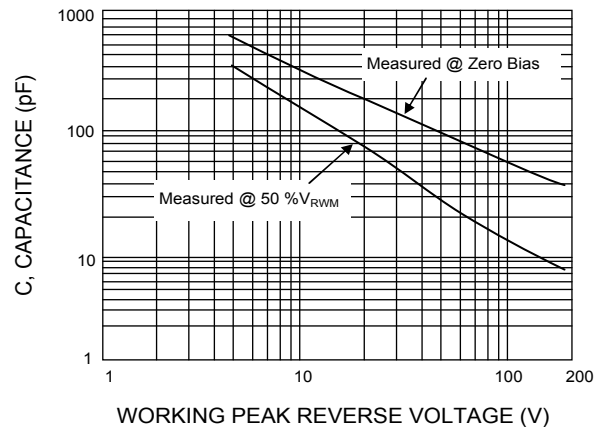
**FIG.4 - PULSE RATING CURVE**



**FIG.5 - 8 x 20 μs PULSE WAVEFORM**



**FIG. 6 - CAPACITANCE VS. WORKING PEAK REVERSE VOLTAGE**



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