

SMF5.0A - SMF170A

ZENER OVERVOLTAGE TRANSIENT SUPPRESSOR

Stand-off Voltage : 5 to 170 V

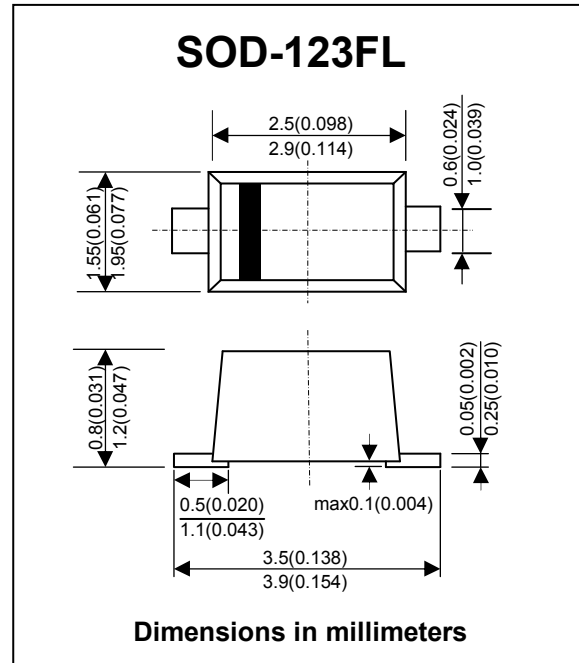
Peak Power : 200 W

FEATURES :

- * Stand-off voltage ; 5 - 170 Volts
- * Peak Power ; - 200 Watts @ 1 ms (SMF5.0A - SMF58A)
- 175 Watts @ 1 ms (SMF60A - SMF170A)
- * Maximum clamp voltage @ Peak pulse current
- * Low leakage
- * **Pb Free / RoHS Compliant**

MECHANICAL DATA :

- * Case: JEDEC SOD-123FL, molded plastic over passivated chip
- * Terminals: Solder Plated, solderable per MIL-STD-750, Method 2026
- * Polarity: Color band denotes cathode end
- * Mounting position : Any
- * Weight: 0.006 ounces, 0.02 gram



MAXIMUM RATINGS

Rating at 25 °C ambient temperature unless otherwise specified.

Parameter	Symbol	Value	Unit	
Maximum P_{PK} Dissipation (PW - 10/1000 μ s) (Note 1)	P_{PK}	SMF60A - SMF170A	175	W
		SMF5.0A - SMF58A	200	W
Maximum P_{PK} Dissipation @ $T_a = 25\text{ }^\circ\text{C}$ (PW - 8/10 μ s) (Note 2)	P_{PK}	1000	W	
DC Power Dissipation @ $T_a = 25\text{ }^\circ\text{C}$ (Note 3) Derate above 25 °C	P_D		385	mW
			4.0	mW/°C
Thermal Resistance, Junction to Ambient (Note 3)	$R_{\theta JA}$	325	°C/W	
Thermal Resistance, Junction to Lead (Note 3)	$R_{\theta JL}$	26	°C/W	
Operating Junction and Storage Temperature Range	T_J, T_{STG}	-55 to +150	°C	

Notes :

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

ELECTRICAL CHARACTERISTICS ($T_L = 30^\circ\text{C}$ unless otherwise noted $V_F = 1.25\text{ Volts @ }200\text{ mA}$)

Type No.	Marking	Working Peak Reverse Voltage ⁽¹⁾	Breakdown Voltage @ †			Test Current	Max. Reverse Leakage Current	Max. Clamping Voltage at I_P	Max. Reverse Peak Pulse Current ⁽³⁾
		V_{RWM}	$V_{BR} @ I_T$			I_T	$I_R @ V_{RWM}$	V_C	I_{PP}
		(V)	Min	Nom	Max.	(mA)	(μA)	(V)	(mA)
SMF5.0A	KE	5.0	6.40	6.70	7.00	10	400	9.2	21.7
SMF6.0A	KG	6.0	6.67	7.02	7.37	10	400	10.3	19.4
SMF6.5A	KK	6.5	7.22	7.60	7.98	10	250	11.2	17.9
SMF7.0A	KM	7.0	7.78	8.20	8.60	10	100	12.0	16.7
SMF7.5A	KP	7.5	8.33	8.77	9.21	1.0	50	12.9	15.5
SMF8.0A	KR	8.0	8.89	9.36	9.83	1.0	25	13.6	14.7
SMF8.5A	KT	8.5	9.44	9.92	10.4	1.0	10	14.4	13.9
SMF9.0A	KV	9.0	10.0	10.55	11.1	1.0	5.0	15.4	13.0
SMF10A	KX	10	11.1	11.70	12.3	1.0	2.5	17.0	11.8
SMF11A	KZ	11	12.2	12.85	13.5	1.0	2.5	18.2	11.0
SMF12A	LE	12	13.3	14.00	14.7	1.0	2.5	19.9	10.1
SMF13A	LG	13	14.4	15.15	15.9	1.0	1.0	21.5	9.3
SMF14A	LK	14	15.6	16.40	17.2	1.0	1.0	23.2	8.6
SMF15A	LM	15	16.7	17.60	18.5	1.0	1.0	24.4	8.2
SMF16A	LP	16	17.8	18.75	19.7	1.0	1.0	26.0	7.7
SMF17A	LR	17	18.9	19.90	20.9	1.0	1.0	27.6	7.2
SMF18A	LT	18	20.0	21.00	22.1	1.0	1.0	29.2	6.8
SMF20A	LV	20	22.2	23.35	24.5	1.0	1.0	32.4	6.2
SMF22A	LX	22	24.4	25.60	26.9	1.0	1.0	35.5	5.6
SMF24A	LZ	24	26.7	28.10	29.5	1.0	1.0	38.9	5.1
SMF26A	ME	26	28.9	30.40	31.9	1.0	1.0	42.1	4.8
SMF28A	MG	28	31.1	32.80	34.4	1.0	1.0	45.4	4.4
SMF30A	MK	30	33.3	35.10	36.8	1.0	1.0	48.4	4.1
SMF33A	MM	33	36.7	38.70	40.6	1.0	1.0	53.3	3.8
SMF36A	MP	36	40.0	42.10	44.2	1.0	1.0	58.1	3.4
SMF40A	MR	40	44.4	46.80	49.1	1.0	1.0	64.5	3.1
SMF43A	MT	43	47.8	50.30	52.8	1.0	1.0	69.4	2.9
SMF45A	MV	45	50.0	52.65	55.3	1.0	1.0	72.7	2.8
SMF48A	MX	48	53.3	56.10	58.9	1.0	1.0	77.4	2.6
SMF51A	MZ	51	56.7	59.70	62.7	1.0	1.0	82.4	2.4
SMF54A	NE	54	60.0	63.15	66.3	1.0	1.0	87.1	2.3
SMF58A	NG	58	64.4	67.80	71.2	1.0	1.0	93.6	2.1
SMF60A	NK	60	66.7	70.20	73.7	1.0	1.0	96.8	1.8
SMF64A	NM	64	71.1	74.85	78.6	1.0	1.0	103	1.7
SMF70A	NP	70	77.8	81.90	86.0	1.0	1.0	113	1.5
SMF75A	NR	75	83.3	87.70	92.1	1.0	1.0	121	1.4
SMF78A	NT	78	86.7	91.25	95.8	1.0	1.0	126	1.4
SMF85A	NV	85	94.4	99.20	104	1.0	1.0	137	1.3
SMF90A	NX	90	100	105.50	111	1.0	1.0	146	1.2
SMF100A	NZ	100	111	117.00	123	1.0	1.0	162	1.1
SMF110A	PE	110	122	128.50	135	1.0	1.0	177	1.0
SMF120A	PG	120	133	140.00	147	1.0	1.0	193	0.9
SMF130A	PK	130	144	151.50	159	1.0	1.0	209	0.8
SMF150A	PM	150	167	176.00	185	1.0	1.0	243	0.7
SMF160A	PP	160	178	187.50	197	1.0	1.0	259	0.7
SMF170A	PR	170	189	199.00	209	1.0	1.0	275	0.6

Notes :

- (1) A transient suppressor is normally selected according to the Working Peak Reverse Voltage (V_{RWM}) which should be equal to or greater than the DC or continuous peak operating voltage level.
- (2) V_{BR} measured at pulse test current † at ambient temperature of 25°C .
- (3) Surge current waveform per Fig. 2 and derate per Fig. 5.

RATING AND CHARACTERISTIC CURVES (SMF5.0A - SMF170A)

FIG.1 - PULSE DERATING CURVE

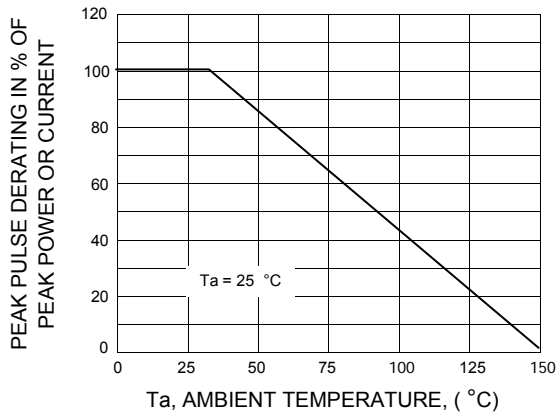


FIG.2 - 10 x 1000 μs PULSE WAVEFORM

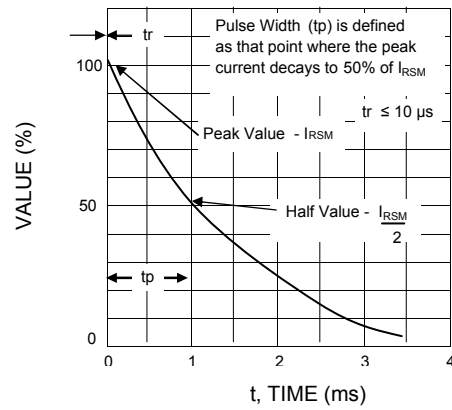


FIG.3 - STEADY STATE POWER DERATING

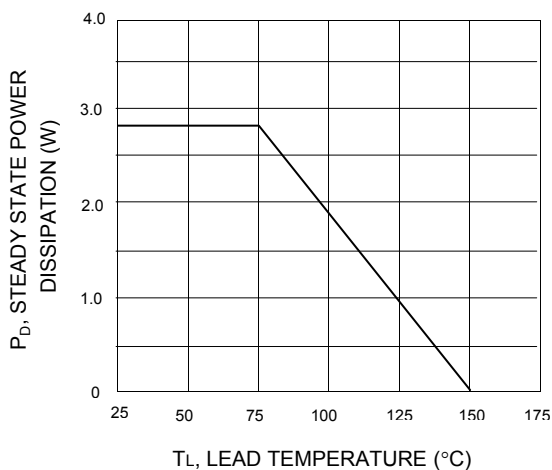


FIG.4 - PULSE RATING CURVE

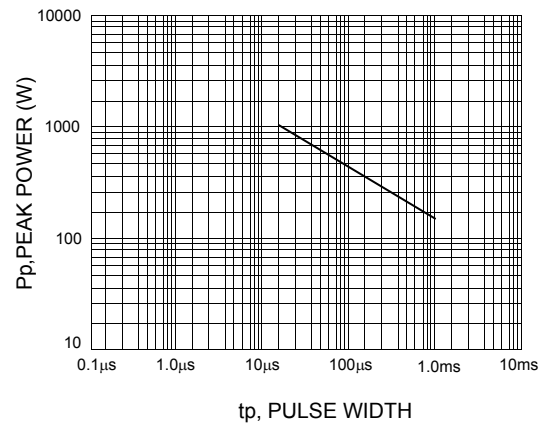


FIG.5 - 8 x 20 μs PULSE WAVEFORM

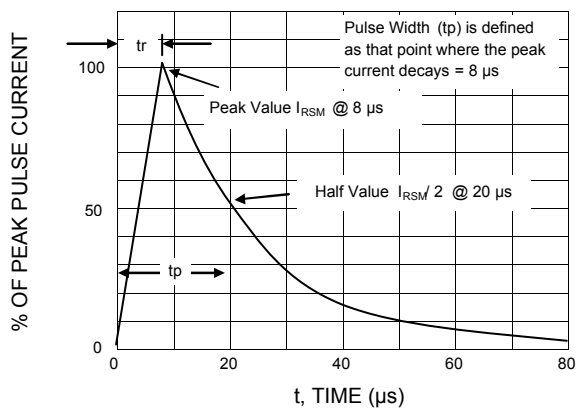


FIG.6 - CAPACITANCE VS. WORKING PEAK REVERSE VOLTAGE

