

SMF5.0A thru SMF190A

Surface Mount Transient Voltage Suppressors
 Peak Pulse Power 200W Stand-off Voltage 5.0V to 190V

Features

- Glass passivated junction
- Excellent clamping capability and fast response time
- 200W peak pulse power capability with a 10/1000us waveform
- Moisture sensitivity: level 1, per J-STD-020
- Solder dip 260 °C, 10s
- Low profile, typical thickness 1.0mm



RoHS
COMPLIANT



eSGA
(SOD-123FL)

Applications

For use in sensitive electronics protection against voltage transients induced by lightning or inductive load switching. Key applications include protection of I/O interfaces, industrial and LED lighting applications, DC power buses, and other vulnerable circuits used in consumer electronics.

Maximum Ratings and Thermal Characteristics (T_A=25°C unless otherwise noted)

Parameter	Symbol	Value	Unit
Peak Power Dissipation with a 10/1000us Waveform	P _{PPM}	200	W
Peak Pulse Current with a 10/1000us Waveform	I _{PPM}	See Next Table	A
Steady State Power Dissipation on Infinite Heatsink	P _{M(AV)}	1	W
Peak Forward Surge Current, 8.3ms Single Half Sine-Wave	I _{FSM}	30	A
Maximum Instantaneous Forward Voltage at 25A	V _F	3.5	V
Thermal Resistance Junction to Ambient Air ¹	R _{θJA}	90	°C/W
Operating Junction and Storage Temperature Range	T _J , T _{STG}	-65 to +150	°C

Note:

1. The thermal resistance from junction to ambient, case or mounted on P.C.B with 5×5mm copper pads, 2 oz, FR4 PCB.



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Part Number	Marking	Reverse Stand-off Voltage	Breakdown Voltage		Test Current	Reverse Leakage	Max. Clamp Voltage	Peak Pulse Power	
			$V_{BR} @ I_T$						
			V_{RWM}	Min	Max	I_T	$I_R @ V_{RWM}$	$V_C @ I_{PP}$	I_{PP}
			V	V	V	mA	μA	V	A
SMF5.0A	5A0	5	6.4	7.07	10	400	9.2	21.7	
SMF6.0A	6A1	6	6.67	7.37	10	400	10.3	19.4	
SMF6.5A	6A5	6.5	7.22	7.98	10	250	11.2	17.9	
SMF7.0A	7A0	7	7.78	8.6	10	100	12	16.7	
SMF7.5A	7A5	7.5	8.33	9.21	1	50	12.9	15.5	
SMF8.0A	8A0	8	8.89	9.83	1	25	13.6	14.7	
SMF8.5A	8A5	8.5	9.44	10.4	1	10	14.4	13.9	
SMF9.0A	9A0	9	10	11.1	1	5	15.4	13	
SMF10A	10A	10	11.1	12.3	1	1	17	11.8	
SMF11A	11A	11	12.2	13.5	1	1	18.2	11	
SMF12A	12A	12	13.3	14.7	1	1	19.9	10.1	
SMF13A	13A	13	14.4	15.9	1	1	21.5	9.3	
SMF14A	14A	14	15.6	17.2	1	1	23.2	8.62	
SMF15A	15A	15	16.7	18.5	1	1	24.4	8.2	
SMF16A	16A	16	17.8	19.7	1	1	26	7.69	
SMF17A	17A	17	18.9	20.9	1	1	27.6	7.25	
SMF18A	18A	18	20	22.1	1	1	29.2	6.85	
SMF19A	19A	19	21.1	23.3	1	1	30.6	6.54	
SMF20A	20A	20	22.2	24.5	1	1	32.4	6.17	
SMF22A	22A	22	24.4	26.9	1	1	35.5	5.63	
SMF24A	24A	24	26.7	29.5	1	1	38.9	5.14	
SMF26A	26A	26	28.9	31.9	1	1	42.1	4.75	
SMF28A	28A	28	31.1	34.4	1	1	45.4	4.41	
SMF30A	30A	30	33.3	36.8	1	1	48.4	4.13	
SMF33A	33A	33	36.7	40.6	1	1	53.3	3.75	
SMF36A	36A	36	40	44.2	1	1	58.1	3.44	
SMF40A	40A	40	44.4	49.1	1	1	64.5	3.1	
SMF43A	43A	43	47.8	52.8	1	1	69.4	2.88	
SMF45A	45A	45	50	55.3	1	1	72.7	2.75	
SMF48A	48A	48	53.3	58.9	1	1	77.4	2.58	
SMF51A	51A	51	56.7	62.7	1	1	82.4	2.43	
SMF54A	54A	54	60	66.3	1	1	87.1	2.3	
SMF58A	58A	58	64.4	71.2	1	1	93.6	2.14	
SMF60A	60A	60	66.7	73.7	1	1	96.8	2.07	

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Part Number	Marking	Reverse Stand-off Voltage	Breakdown Voltage		Test Current	Reverse Leakage	Max. Clamp Voltage	Peak Pulse Power	
			V _{BR} @ I _T						
			V _{RWM}	Min	Max	I _T	I _R @ V _{RWM}	V _C @ I _{PP}	I _{PP}
			V	V	V	mA	μA	V	A
SMF64A	64A	64	71.1	78.6	1	1	103	1.94	
SMF70A	70A	70	77.8	86	1	1	113	1.77	
SMF75A	75A	75	83.3	92.1	1	1	121	1.65	
SMF78A	78A	78	86.7	95.8	1	1	126	1.59	
SMF80A	80A	80	88.8	97.6	1	1	129	1.55	
SMF85A	85A	85	94.4	104	1	1	137	1.46	
SMF90A	90A	90	100	111	1	1	146	1.37	
SMF100A	100A	100	111	123	1	1	162	1.23	
SMF110A	110A	110	122	135	1	1	177	1.13	
SMF120A	120A	120	133	147	1	1	193	1.04	
SMF130A	130A	130	144	159	1	1	209	0.96	
SMF140A	140A	140	155	171	1	1	224	0.89	
SMF150A	150A	150	167	185	1	1	243	0.82	
SMF160A	160A	160	178	197	1	1	259	0.77	
SMF170A	170A	170	189	209	1	1	275	0.73	
SMF180A	180A	180	201	222	1	1	292	0.69	
SMF190A	190A	190	211	232	1	1	324	0.62	

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Ratings and Characteristics Curves ($T_A=25^\circ\text{C}$ unless otherwise noted)

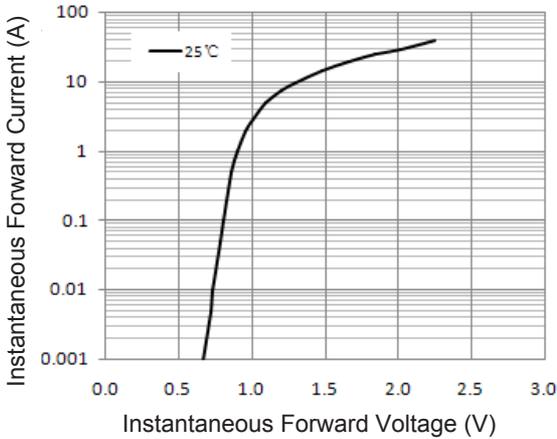


Figure 1. Typical Instantaneous Forward Characteristics

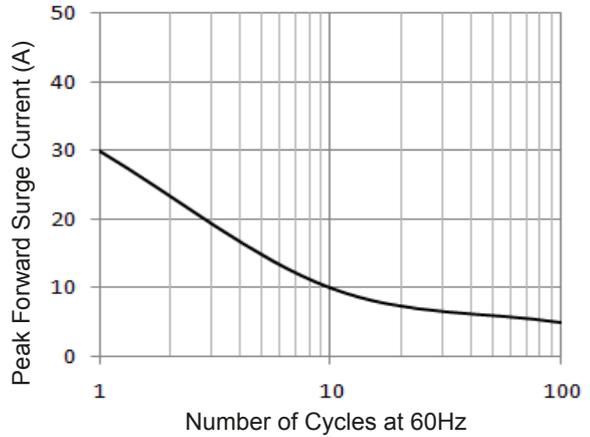


Figure 2. Maximum Non-Repetitive Peak Forward Surge Current

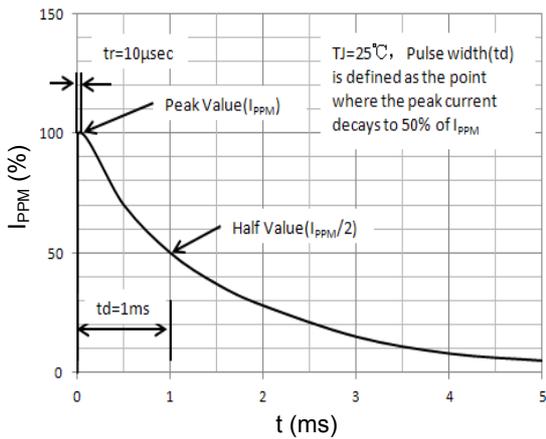


Figure 3. Pulse Waveform

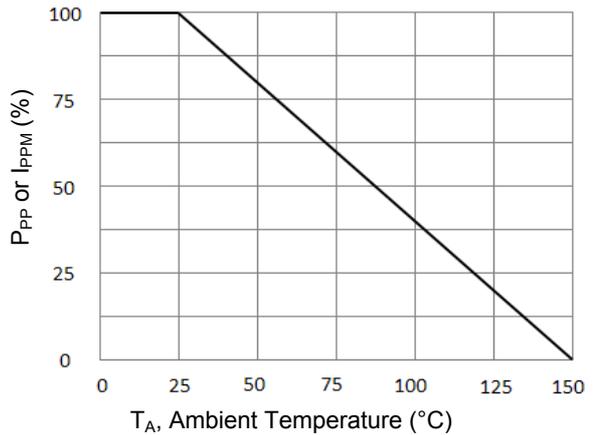


Figure 4. Peak Pulse Power Derating Curve

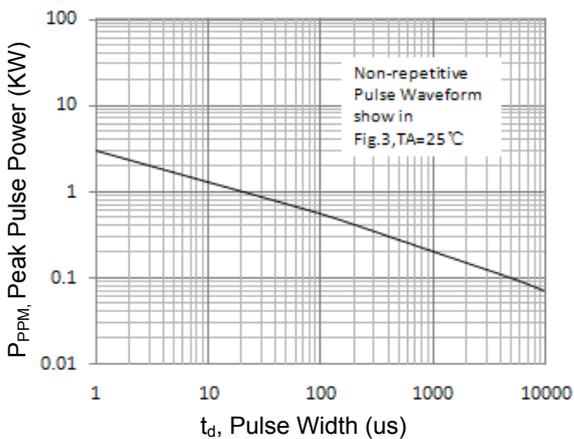
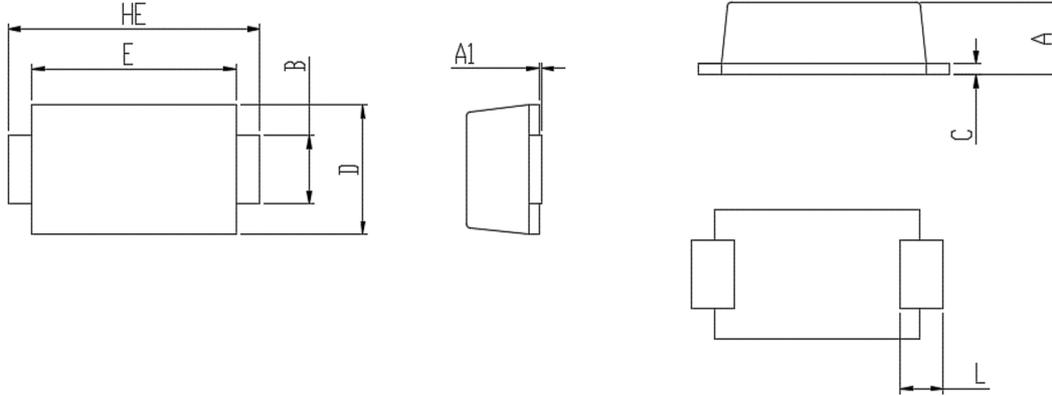


Figure 5. Peak Pulse Power Derating Curve

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Package Outline Dimensions eSGA (SOD-123FL)



Symbol	Dimensions In Millimeters		Dimensions In Inches	
	Min	Max	Min	Max
A	0.900	1.080	0.035	0.043
A1	0.000	0.100	0.000	0.004
B	0.850	1.050	0.033	0.041
C	0.100	0.250	0.004	0.010
D	1.700	2.000	0.067	0.079
E	2.900	3.100	0.114	0.122
L	0.430	0.830	0.017	0.033
HE	3.500	3.900	0.138	0.154

Recommended Pad Layout

