

Transient Voltage Suppressor

TSMF5V0A - TSMF220A

Features

- Low profile package with built-in strain relief for SMT applications
- Low incremental surge resistance, excellent clamping capability
- 200W peak pulse power capability with very fast response time
- High temperature soldering guaranteed: 260°C / 10s
- RoHS compliant with Halogen-free
- Qualified to AEC-Q101 Standards



Mechanical Data

- Case: SOD-123FL molded plastic
- Molding compound: UL flammability classification rating 94V-0
- Terminals: Solder plated; solderable per MIL- STD-202, Method 208

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

Parameter	Symbol	Value	Unit
Peak power dissipation with a 10/1000μs waveform ^{*1}	P _{PPM}	200	W
Peak pulse current with a 10/1000μs waveform ^{*1}	I _{PP}	see E. Characteristics	A
Forward Voltage @ I _F = 1A	V _F	1.6	V
Typical thermal resistance ^{*2}	R _{θJA}	85	°C/W
	R _{θJC}	23	
	R _{θJL}	15	
Operating junction and storage temperature range	T _J , T _{STG}	-55 ~ +150	°C

Note *1: Non-repetitive current pulses and derated above T_A = 25°C

Note *2: Device mounted on p.c.b. with 10 mm x 20 mm x 0.1 mm copper pad area

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Electrical Characteristics (@T_A = 25°C unless otherwise specified)

Type	Marking	Breakdown Voltage V _{BR} @I _T		Test Current	Reverse Standoff Voltage	Max. Reverse Leakage @V _{RWM}	Max. Peak Pulse Current	Max. Clamping Voltage @I _{PP}
		V		I _T	V _{RWM}	I _R	I _{PP}	V _C
		Min	Max	mA	V	uA	A	V
TSMF5V0A	AE	6.4	7	10	5	400	21.7	9.2
TSMF6V0A	AG	6.7	7.4	10	6	400	19.4	10.3
TSMF6V5A	AK	7.2	8	10	6.5	250	17.9	11.2
TSMF7V0A	AM	7.8	8.6	10	7	100	16.7	12.0
TSMF7V5A	AP	8.3	9.2	1	7.5	50	15.5	12.9
TSMF8V0A	AR	8.9	9.8	1	8	25	14.7	13.6
TSMF8V5A	AT	9.4	10.4	1	8.5	10	13.9	14.4
TSMF9V0A	AV	10	11.1	1	9	5	13.0	15.4
TSMF10A	AX	11.1	12.3	1	10	2.5	11.8	17.0
TSMF11A	AZ	12.2	13.5	1	11	2.5	11	18.2
TSMF12A	BE	13.3	14.7	1	12	2.5	10.1	19.9
TSMF13A	BG	14.4	15.9	1	13	1	9.3	21.5
TSMF14A	BK	15.6	17.2	1	14	1	8.6	23.2
TSMF15A	BM	16.7	18.5	1	15	1	8.2	24.4
TSMF16A	BP	17.8	19.7	1	16	1	7.7	26.0
TSMF17A	BR	18.9	20.9	1	17	1	7.2	27.6
TSMF18A	BT	20	22.1	1	18	1	6.8	29.2
TSMF20A	BV	22.2	24.5	1	20	1	6.2	32.4
TSMF22A	BX	24.4	26.9	1	22	1	5.6	35.5
TSMF24A	BZ	26.7	29.5	1	24	1	5.1	38.9
TSMF26A	CE	28.9	31.9	1	26	1	4.8	42.1
TSMF28A	CG	31.1	34.4	1	28	1	4.4	45.4
TSMF30A	CK	33.3	36.8	1	30	1	4.1	48.4
TSMF33A	CM	36.7	40.6	1	33	1	3.8	53.3
TSMF36A	CP	40	44.2	1	36	1	3.4	58.1
TSMF40A	CR	44.4	49.1	1	40	1	3.1	64.5
TSMF43A	CT	47.8	52.8	1	43	1	2.9	69.4
TSMF45A	CV	50	55.3	1	45	1	2.8	72.7
TSMF48A	CX	53.3	58.9	1	48	1	2.6	77.4

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Type	Marking	Breakdown Voltage $V_{BR@I_T}$		Test Current	Reverse Standoff Voltage	Max. Reverse Leakage@ V_{RWM}	Max. Peak Pulse Current	Max. Clamping Voltage @ I_{PP}
		V		I_T	V_{RWM}	I_R	I_{PP}	V_C
		Min	Max	mA	V	uA	A	V
TSMF51A	CZ	56.7	62.7	1	51	1	2.4	82.4
TSMF54A	DE	60	66.3	1	54	1	2.3	87.1
TSMF58A	DG	64	71.2	1	58	1	2.1	93.6
TSMF60A	DK	66.7	73.7	1	60	1	2.1	96.8
TSMF64A	DM	71.1	78.6	1	64	1	1.9	103
TSMF70A	DP	78.8	86	1	70	1	1.8	113
TSMF75A	DR	83.3	92.1	1	75	1	1.7	121
TSMF78A	DT	86.7	95.8	1	78	1	1.6	126
TSMF85A	DV	94.4	104	1	85	1	1.5	137
TSMF90A	DX	100	111	1	90	1	1.4	146
TSMF100A	DZ	111	123	1	100	1	1.2	162
TSMF110A	EE	122	135	1	110	1	1.1	177
TSMF120A	EG	133	147	1	120	1	1.0	193
TSMF130A	EK	144	159	1	130	1	1.0	209
TSMF150A	EM	167	185	1	150	1	0.8	243
TSMF160A	EP	178	197	1	160	1	0.8	259
TSMF170A	ER	189	209	1	170	1	0.7	275
TSMF200A	EX	224	247	1	200	1	0.6	324
TSMF220A	ET	245	270	1	220	1	0.6	356

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

Fig.1 Peak Pulse Power Rating Curve

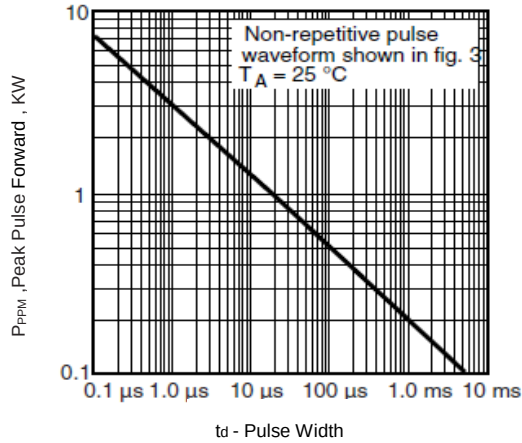


Fig.2 DERATING CURVE

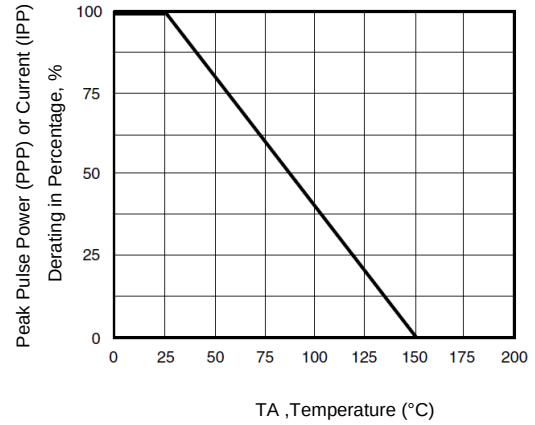
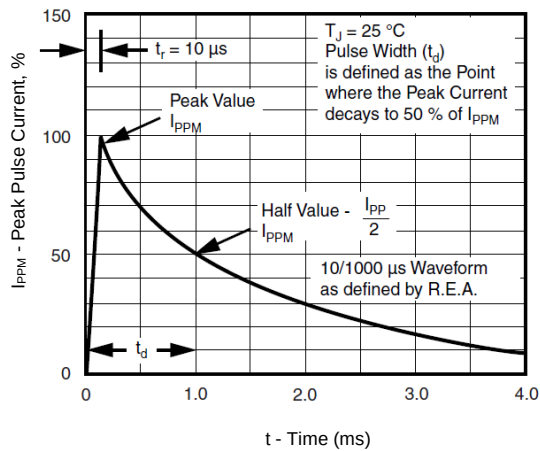


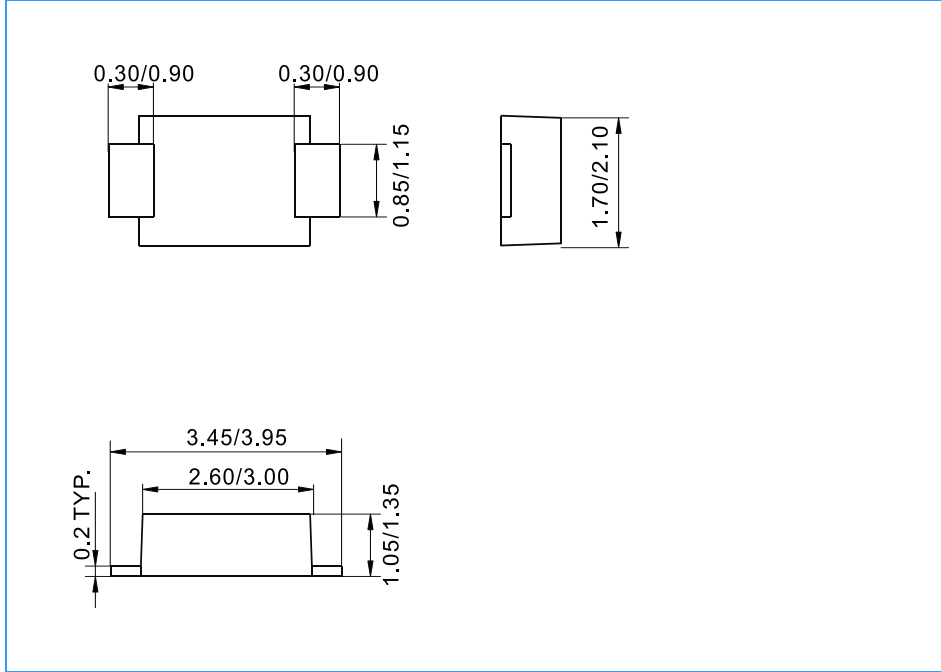
Fig.3 Pulse Waveform



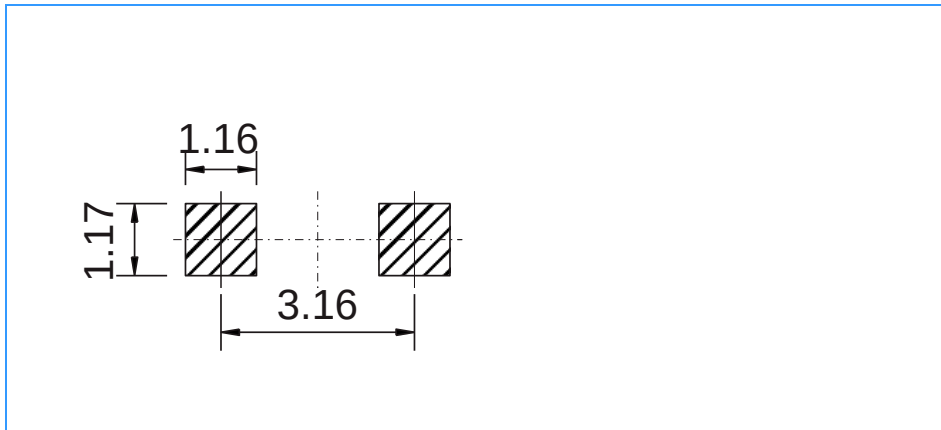
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Package Outline Dimensions (Unit: mm)



Mounting Pad Layout (Unit: mm)



Ordering Information

Part Number	Package	Shipping Quantity
TSMF5V0A - TSMF220A	SOD-123FL	10000 / Tape & Reel