

Transient Voltage Suppressor

TP4SMA Series

Features

- Low profile package with built-in strain relief for SMT applications
- Low incremental surge resistance, excellent clamping capability
- 400W peak pulse power capability with very fast response time
- High temperature soldering guaranteed: 260°C / 10s at terminals
- Uni-directional applications
- RoHS compliant with Halogen-free
- Qualified to AEC-Q101 Standards

HF



Mechanical Data

- Case: SMA 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 (FIG.1)	P _{PPM}	400	W
Peak pulse current with a 10/1000μs waveform *1	I _{PP}	see E. Characteristics	A
Typical Thermal Resistance *2	R _{θJA}	70	°C/W
	R _{θJC}	25	
	R _{θJL}	30	
Operating junction and storage temperature range	T _J , T _{STG}	-55 ~ +150	°C

Note *1: Non-repetitive current pulses, per Fig. 3 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 Number	Marking Code	Breakdown Voltage VBR @ IT		Test Current	Reverse Standoff Voltage	Max. Clamping Voltage @ I _{PP}	Max. Peak Pulse Current	Max. Reverse Leakage @ V _{RWM}
		Min.	Max.	I _T	V _{RWM}	V _C	I _{PP}	I _R
		V		mA	V	V	A	uA
TP4SMA6.8A	6V8A	6.45	7.14	10	5.8	10.5	38.1	1000
TP4SMA7.5A	7V5A	7.13	7.88	10	6.4	11.3	35.4	500
TP4SMA8.2A	8V2A	7.79	8.61	10	7.02	12.1	33.1	200
TP4SMA9.1A	9V1A	8.65	9.55	1	7.78	13.4	29.9	50
TP4SMA10A	10A	9.5	10.5	1	8.55	14.5	27.6	10
TP4SMA11A	11A	10.5	11.6	1	9.4	15.6	25.6	5
TP4SMA12A	12A	11.4	12.6	1	10.2	16.7	24	1
TP4SMA13A	13A	12.4	13.7	1	11.1	18.2	22	1
TP4SMA15A	15A	14.3	15.8	1	12.8	21.2	18.9	1
TP4SMA16A	16A	15.2	16.8	1	13.6	22.5	17.8	1
TP4SMA18A	18A	17.1	18.9	1	15.3	25.2	15.9	1
TP4SMA20A	20A	19	21	1	17.1	27.7	14.4	1
TP4SMA22A	22A	20.9	23.1	1	18.8	30.6	13.1	1
TP4SMA24A	24A	22.8	25.2	1	20.5	33.2	12	1
TP4SMA27A	27A	25.7	28.4	1	23.1	37.5	10.7	1
TP4SMA30A	30A	28.5	31.5	1	25.6	41.4	9.7	1
TP4SMA33A	33A	31.4	34.7	1	28.2	45.7	8.8	1
TP4SMA36A	36A	34.2	37.8	1	30.8	49.9	8	1
TP4SMA39A	39A	37.1	41	1	33.3	53.9	7.4	1
TP4SMA43A	43A	40.9	45.2	1	36.8	59.3	6.7	1
TP4SMA47A	47A	44.7	49.4	1	40.2	64.8	6.2	1
TP4SMA51A	51A	48.5	53.6	1	43.6	70.1	5.7	1
TP4SMA56A	56A	53.2	58.8	1	47.8	77	5.19	1
TP4SMA62A	62A	58.9	65.1	1	53	85	4.71	1
TP4SMA68A	68A	64.6	71.4	1	58.1	92	4.35	1
TP4SMA75A	75A	71.3	78.8	1	64.1	104	3.9	1
TP4SMA82A	82A	77.9	86.1	1	70.1	113	3.5	1
TP4SMA91A	91A	86.5	95.5	1	77.8	125	3.2	1
TP4SMA100A	100A	95	105	1	85.5	137	2.92	1
TP4SMA110A	110A	105	116	1	94	152	2.63	1
TP4SMA120A	120A	114	126	1	102	165	2.42	1
TP4SMA130A	130A	124	137	1	111	179	2.23	1

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Type Number	Marking Code	Breakdown Voltage VBR @ IT		Test Current	Reverse Standoff Voltage	Max. Clamping Voltage @ I _{PP}	Max. Peak Pulse Current	Max. Reverse Leakage @ V _{RWM}
		Min.	Max.	I _T	V _{RWM}	VC	I _{PP_MAX}	I _{R_MAX}
		(V)		(mA)	(V)	V	(A)	(uA)
TP4SMA150A	150A	143	158	1	128	207	1.93	1
TP4SMA160A	160A	152	168	1	136	219	1.83	1
TP4SMA170A	170A	162	179	1	145	234	1.71	1
TP4SMA180A	180A	171	189	1	154	246	1.63	1
TP4SMA200A	200A	190	210	1	171	274	1.46	1
TP4SMA220A	220A	209	231	1	185	328	1.22	1
TP4SMA250A	250A	237	263	1	214	344	1.16	1
TP4SMA300A	300A	285	315	1	256	414	0.97	1
TP4SMA350A	350A	333	368	1	300	482	0.83	1
TP4SMA400A	400A	380	420	1	342	548	0.73	1
TP4SMA440A	440A	418	462	1	376	602	0.66	1
TP4SMA480A	480A	456	504	1	408	658	0.61	1
TP4SMA510A	510A	485	535	1	434	698	0.57	1
TP4SMA540A	540A	513	567	1	459	740	0.54	1

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

Fig.1 Peak Pulse Power Rating Curve

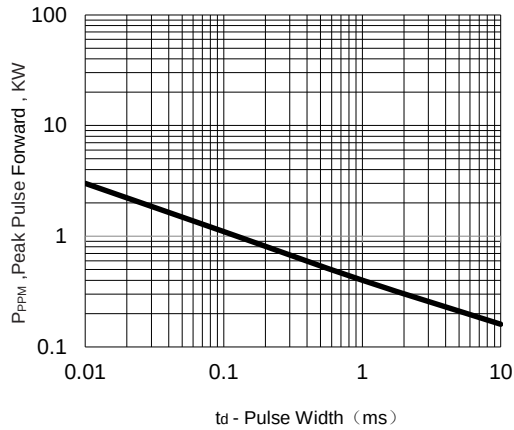


Fig.2 DERATING CURVE

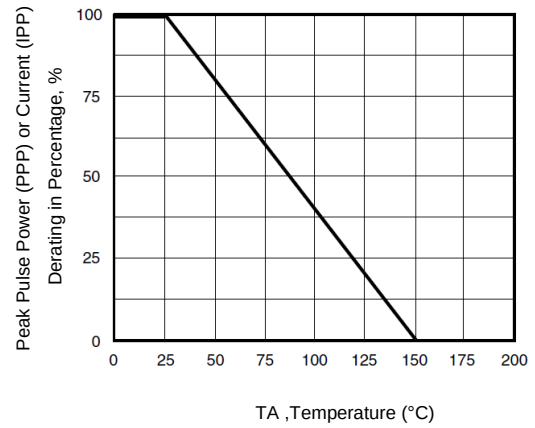
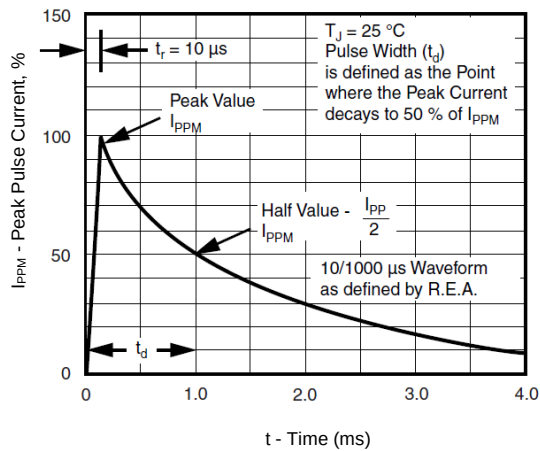


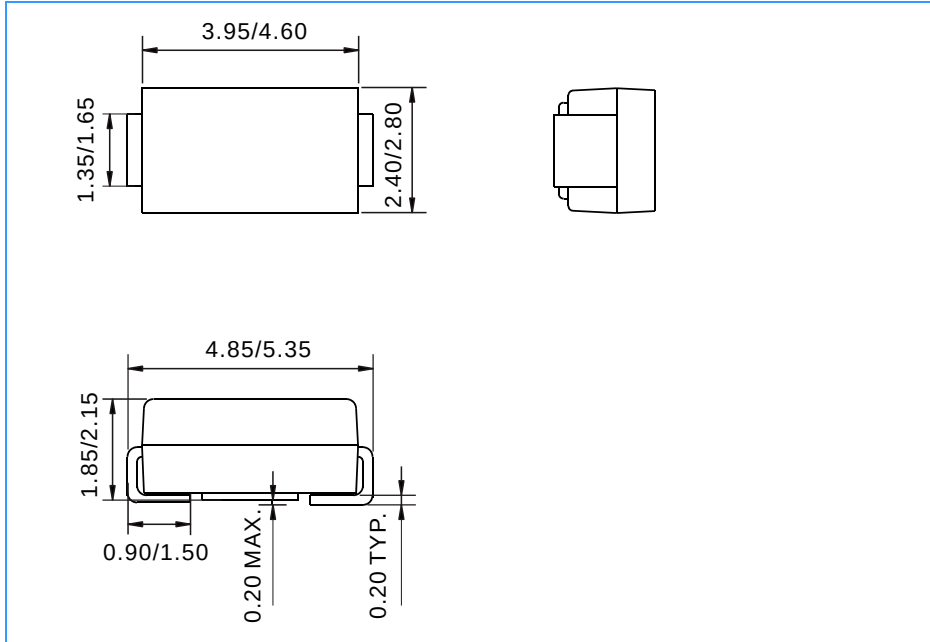
Fig.3 Pulse Waveform



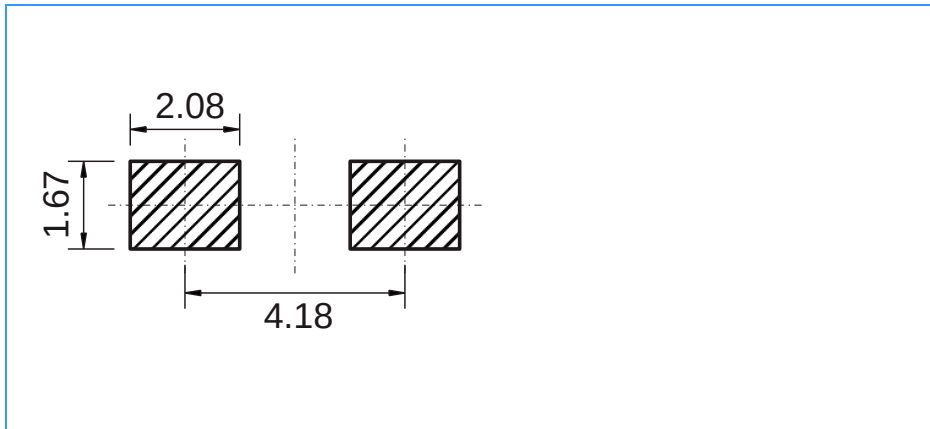
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Package Outline Dimensions (Unit: mm)



Mounting Pad Layout (Unit: mm)



Ordering Information

Part Number	Package	Shipping Quantity
TP4SMA Series	SMA	5000 / Tape & Reel