

Transient Voltage Suppressor

TSMAJ5.0A - TSMAJ440A

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



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	Marking Code	Breakdown Voltage V _{BR} @ I _T		Test Current	Reverse Stand off 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	μA	A	V
TSMAJ5.0A	AAE	6.4	7.08	10	5	800	43.5	9.2
TSMAJ6.0A	AAG	6.67	7.37	10	6	800	38.8	10.3
TSMAJ6.5A	AAK	7.22	7.98	10	6.5	500	35.7	11.2
TSMAJ6.8A	AEE	7.56	8.35	10	6.8	200	36.4	11
TSMAJ7.0A	AAM	7.78	8.6	10	7	200	33.3	12
TSMAJ7.5A	AAP	8.33	9.21	1	7.5	100	31	12.9
TSMAJ8.0A	AAR	8.89	9.83	1	8	50	29.4	13.6
TSMAJ8.5A	AAT	9.44	10.4	1	8.5	10	27.8	14.4
TSMAJ9.0A	AAV	10	11.1	1	9	5	26	15.4
TSMAJ10A	AAX	11.1	12.3	1	10	5	23.5	17
TSMAJ11A	AAZ	12.2	13.5	1	11	1	22	18.2
TSMAJ12A	ABE	13.3	14.7	1	12	1	20.1	19.9
TSMAJ13A	ABG	14.4	15.9	1	13	1	18.6	21.5
TSMAJ14A	ABK	15.6	17.2	1	14	1	17.2	23.2
TSMAJ15A	ABM	16.7	18.5	1	15	1	16.4	24.4
TSMAJ16A	ABP	17.8	19.7	1	16	1	15.4	26
TSMAJ17A	ABR	18.9	20.9	1	17	1	14.5	27.6
TSMAJ18A	ABT	20	22.4	1	18	1	13.7	29.2
TSMAJ20A	ABV	22.2	24.5	1	20	1	12.3	32.4
TSMAJ22A	ABX	24.4	26.9	1	22	1	11.3	35.5
TSMAJ24A	ABZ	26.7	29.5	1	24	1	10.3	38.9
TSMAJ26A	ACE	28.9	31.9	1	26	1	9.5	42.1
TSMAJ28A	ACG	31.3	34.4	1	28	1	8.8	45.4
TSMAJ30A	ACK	33.3	36.8	1	30	1	8.3	48.4
TSMAJ33A	ACM	36.7	40.6	1	33	1	7.5	53.3
TSMAJ36A	ACP	40	44.2	1	36	1	6.9	58.1
TSMAJ40A	ACR	44.4	49.1	1	40	1	6.2	64.5
TSMAJ43A	ACT	47.8	52.8	1	43	1	5.8	69.4
TSMAJ45A	ACV	50	55.3	1	45	1	5.5	72.7
TSMAJ48A	ACX	53.3	58.9	1	48	1	5.2	77.4

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Type	Marking Code	Breakdown Voltage V_{BR} @ I_T		Test Current	Reverse Stand off Voltage	Max. Reverse Leakage @ V_{RWM}	Max. Peak Pulse Current I_{PP}	Max. Clamping Voltage
		V		I_T	V_{RWM}	I_{R_MAX}	I_{PP}	V_C
		Min.	Max.	mA	V	μA	A	V
TSMAJ50A	AEG	55.5	61.3	1	50	1	4.9	81
TSMAJ51A	ACZ	56.7	62.7	1	51	1	4.9	82.4
TSMAJ54A	ARE	60	66.3	1	54	1	4.6	87.1
TSMAJ56A	ATZ	62.2	68.8	1	56	1	4.4	90.3
TSMAJ58A	ARG	64.4	71.2	1	58	1	4.3	93.6
TSMAJ60A	ARK	66.7	73.7	1	60	1	4.1	96.8
TSMAJ63A	ARM	69.9	77.2	1	63	1	3.9	102.1
TSMAJ64A	ARP	71.1	78.6	1	64	1	3.9	103
TSMAJ70A	AEK	77.8	86	1	70	1	3.5	113
TSMAJ75A	ARR	83.3	92.1	1	75	1	3.3	121
TSMAJ78A	ART	86.7	95.8	1	78	1	3.2	126
TSMAJ85A	ARV	94.4	104	1	85	1	2.9	137
TSMAJ90A	ARX	100	111	1	90	1	2.7	146
TSMAJ100A	ARZ	111	123	1	100	1	2.5	162
TSMAJ110A	ASE	122	135	1	110	1	2.3	177
TSMAJ120A	ASG	133	147	1	120	1	2.1	193
TSMAJ130A	ASK	144	159	1	130	1	1.9	209
TSMAJ150A	ASM	167	185	1	150	1	1.6	243
TSMAJ160A	ASP	178	197	1	160	1	1.5	259
TSMAJ170A	ASR	189	209	1	170	1	1.5	275
TSMAJ175A	AEM	195	215	1	175	1	1.4	280
TSMAJ180A	ATX	200	221	1	180	1	1.4	291
TSMAJ188A	ASS	209	231	1	188	1	1.3	304
TSMAJ190A	AEP	211	233	1	190	1	1.3	307
TSMAJ200A	ASV	222	246	1	200	1	1.2	323
TSMAJ220A	ASX	245	270	1	220	1	1.1	355
TSMAJ240A	ASZ	267	295	1	240	1	1	388
TSMAJ250A	ATT	278	307	1	250	1	1	404
TSMAJ300A	ATG	333	368	1	300	1	0.8	485
TSMAJ350A	ATR	389	430	1	350	1	0.7	565
TSMAJ360A	ATK	400	442	1	360	1	0.7	582
TSMAJ400A	ATM	445	491	1	400	1	0.6	646
TSMAJ440A	ATP	489	540	1	440	1	0.6	711

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

Fig.1 Peak Pulse Power Rating Curve

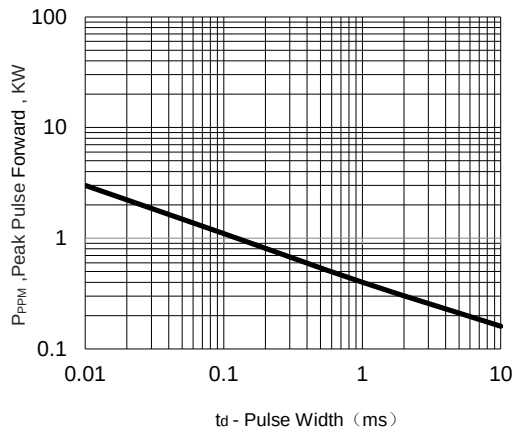


Fig.2 DERATING CURVE

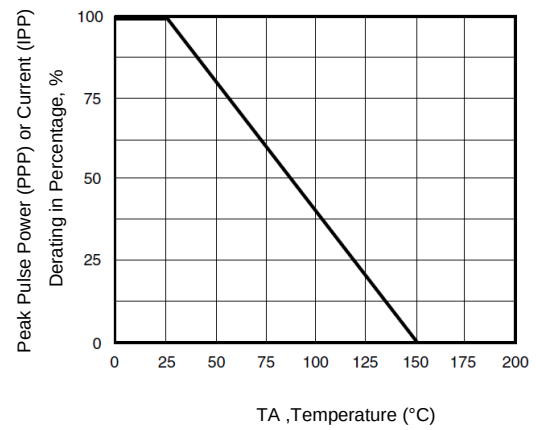
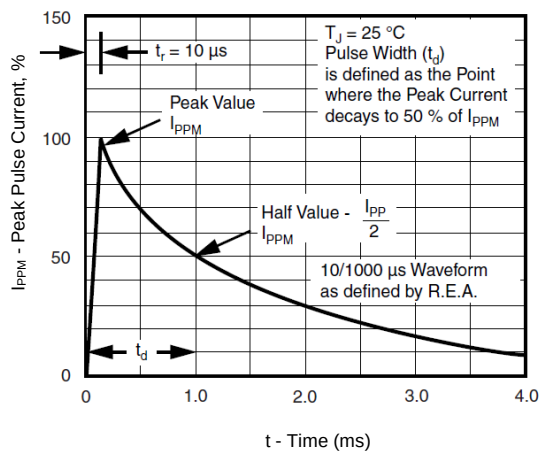


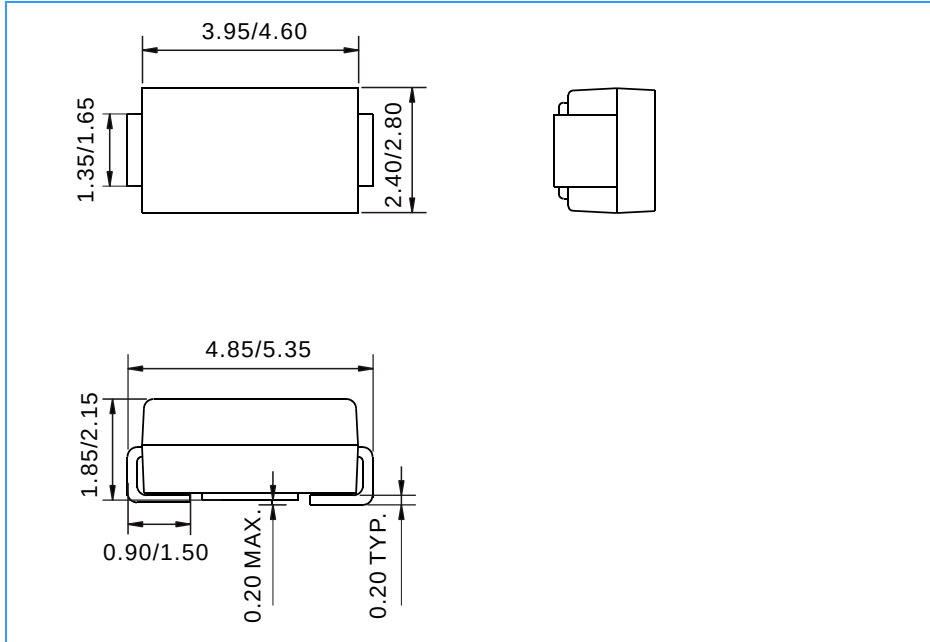
Fig.3 Pulse Waveform



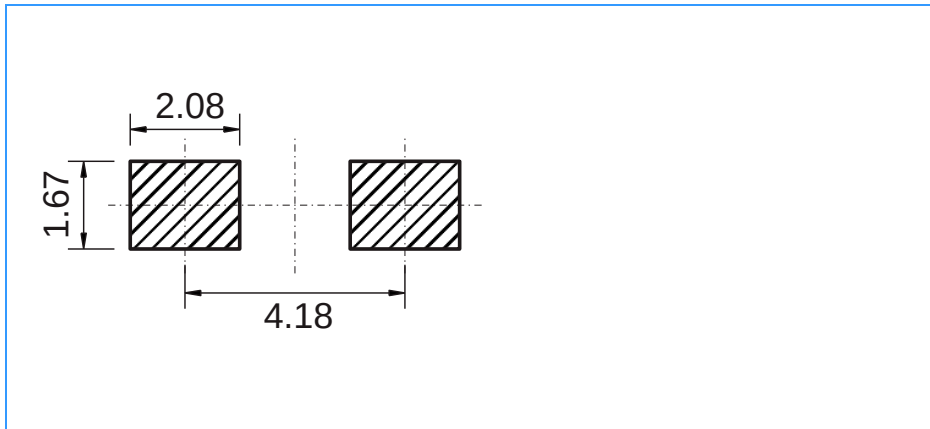
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Package Outline Dimensions (Unit: mm)



Mounting Pad Layout (Unit: mm)



Ordering Information

Part Number	Package	Shipping Quantity
T SMAJ5.0A - TSMAJ440A	SMA	5000 / Tape & Reel