

Transient Voltage Suppressor

TSM5S Series

Features

- Ideally suited for load dump protection
- Plastic package has Underwriters Laboratory Flammability Classification 94V-0
- Integrally molded heatsink provides a very low thermal resistance for maximum heat dissipation
- Low leakage current at $T_J = 150^{\circ}\text{C}$
- High temperature soldering guaranteed: $260^{\circ}\text{C} / 10\text{s}$ at terminals
- Low forward voltage drop
- Qualified to AEC-Q101 Standards



Mechanical Data

- Case: DO-218AB molded plastic
- Terminals: Plated, solderable per MIL-STD-750, Method 2026

Maximum Ratings (@ $T_A = 25^{\circ}\text{C}$ unless otherwise specified)

Parameter	Symbol	Value	Unit
Peak pulse power dissipation with 10/1000 μs waveform	P_{PPM}	3600	W
10/10,000 μs waveform		2800	
Steady state power dissipation	P_D	5.0	W
Peak pulse current with a 10/1000 μs waveform ⁽¹⁾	I_{PPM}	See Table 1	A
Peak forward surge current, 8.3ms single half sine-wave	I_{FSM}	700	A
Operating junction and storage temperature range	T_J, T_{STG}	-55 ~ +175	$^{\circ}\text{C}$

Notes^{*1}: Non-repetitive current pulse derated above $T_A=25^{\circ}\text{C}$

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

Device Type	Breakdown Voltage V(BR)		Test Current I _T	Stand-off Voltage V _{WM}	Maximum Reverse Leakage at V _{WM} I _D	Maximum Reverse Leakage at V _{WM} T _C = 175°C I _D	Max. Peak Pulse Current at 10/1000µs Waveform	Maximum Clamping Voltage at I _{PPM} V _C
	Min	Max						
TSM5S10A	11.1	12.3	5	10	15	250	212	17
TSM5S11A	12.2	13.5	5	11	10	150	198	18.2
TSM5S12A	13.3	14.7	5	12	10	150	181	19.9
TSM5S13A	14.4	15.9	5	13	10	150	167	21.5
TSM5S14A	15.6	17.2	5	14	10	150	155	23.2
TSM5S15A	16.7	18.5	5	15	10	150	148	24.4
TSM5S16A	17.8	19.7	5	16	10	150	138	26
TSM5S17A	18.9	20.9	5	17	10	150	130	27.6
TSM5S18A	20	22.1	5	18	10	150	123	29.2
TSM5S20A	22.2	24.5	5	20	10	150	111	32.4
TSM5S22A	24.4	26.9	5	22	10	150	101	35.5
TSM5S24A	26.7	29.5	5	24	10	150	93.3	38.9
TSM5S26A	28.9	31.9	5	26	10	150	86.4	42.1
TSM5S27A	30	33.1	5	27	10	150	82.4	43.7
TSM5S28A	31.1	34.4	5	28	10	150	79.4	45.4
TSM5S30A	33.3	36.8	5	30	10	150	74.4	48.4
TSM5S33A	36.7	40.6	5	33	10	150	68.5	53.3
TSM5S36A	40	44.2	5	36	10	150	62.5	58.1

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

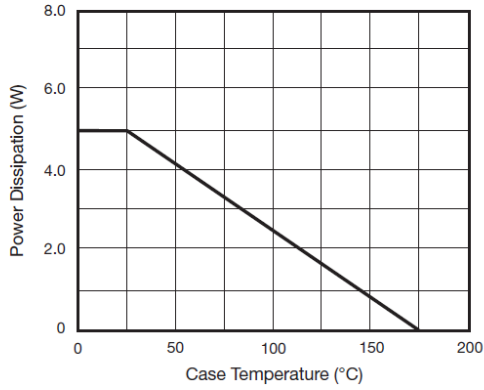


Fig. 1 - Power Derating Curve

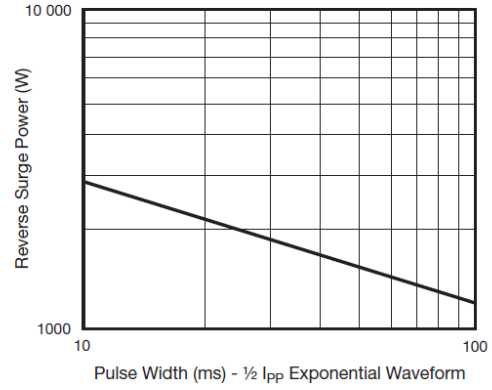


Fig. 4 - Reverse Power Capability

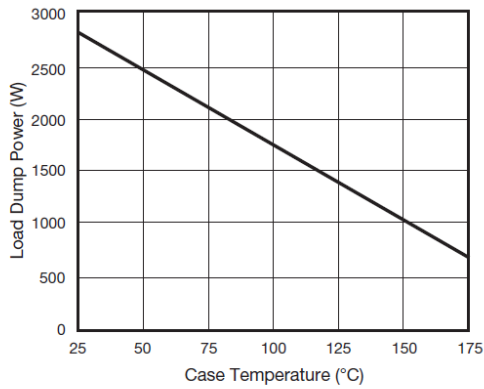


Fig. 2 - Load Dump Power Characteristics
(10 ms Exponential Waveform)

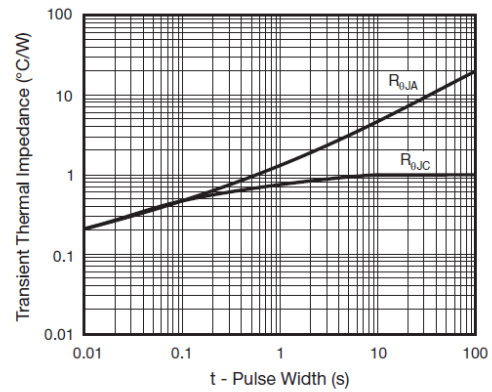


Fig. 5 - Typical Transient Thermal Impedance

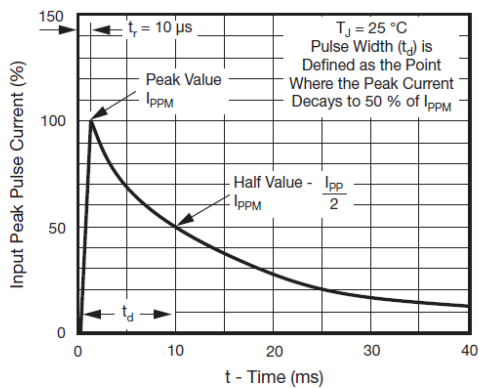
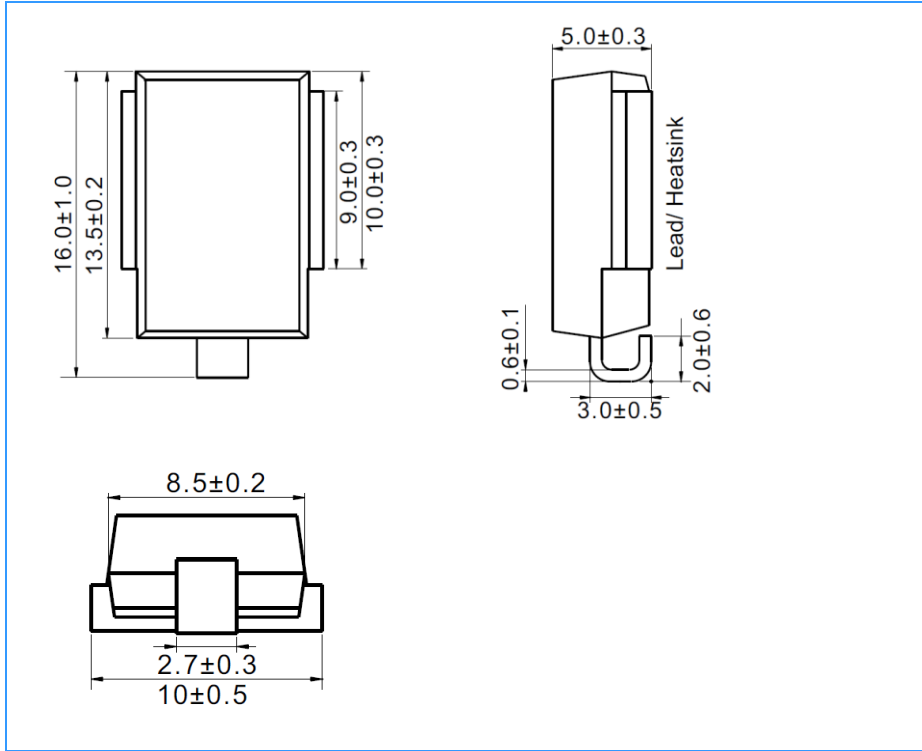


Fig. 3 - Pulse Waveform

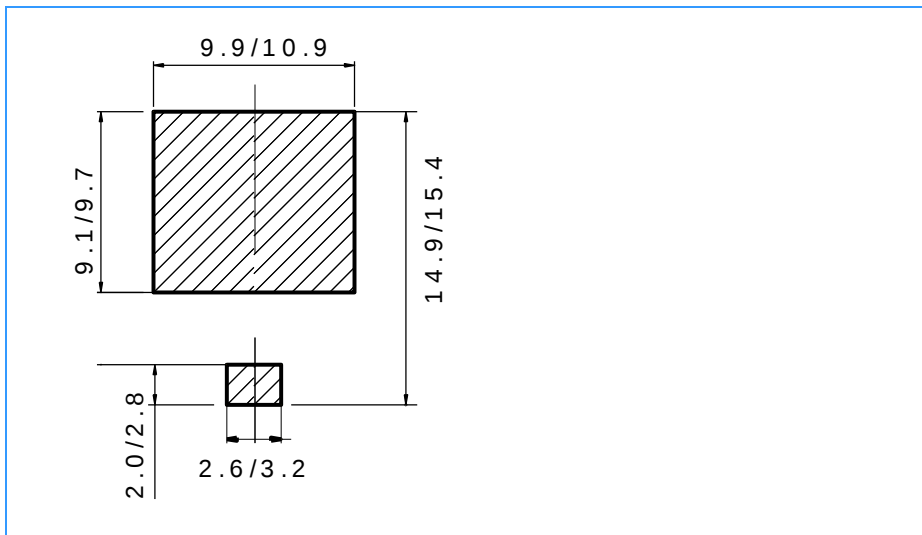
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Package Outline Dimensions (unit: mm)



Mounting Pad Layout (unit: mm)



Ordering Information

Part Number	Package
TSM5S Series	DO-218AB