Surface Mount Transient Voltage Suppressors

Use in sensitive electronics protection against voltage transients induced by inductive load switching and lighting, especially for automotive load dump protection application.

FEATURES：

- Junction passivated by high temperature resistant insulating adhesive
- TJ = 175 °C capability suitable for high reliability and automotive requirement
- Available in Uni-directional polarity only
- Low leakage current
- Low forward voltage drop
- High surge capability
- Meets ISO 7637-2 surge specification (varied by test condition)
- Meets MSL level 1，LF maximum peak of 245°C
- AEC-Q101 qualified
- RoHS compliant.

DO-218AB

MECHANICAL DATA：

Case: DO-218AB
Molding compound meets UL 94 V-0 flammability rating Base P/NHE3_X - RoHS-compliant and AEC-Q101 qualified (“X” denotes revision code e.g. A, B, ...)
Terminals : matte tin plated leads, solderable per J-STD-002 and JESD 22-B102
Polarity: heatsink is anode

MAXIMUM RATINGS (Tc=25℃ unless otherwise specified)

Characteristic	Condition	Symbol	Value	Unit
Peak pulse power dissipation	with 10/1000 μs waveform with 10/10000 μs waveform	P_{PPM}	6600 5200	W
Power dissipation on infinite heatsink	At Tc = 25 °C (fig. 1)	P_D	8.0	W
Peak pulse current with 10/1000 μs waveform		I_{PPM} (1)	See next table	A
Peak forward surge current 8.3 ms single half sine-wave		I_{FSM}	700	A
Operating junction and storage temperature range		T_J, T_{STG}	-55~+175	℃

Note
(1) Non-repetitive current pulse derated above T_A = 25 °C

ELECTRICAL CHARATERISTICS (Tc = 25 °C unless otherwise noted)

DEVICE TYPE	BREAKDOWN VOLTAGE V_{BR} (V)			TEST CURRENT I_T (mA)	STAND-OFF VOLTAGE V_{WM} (V)	MAXIMUM REVERSE LEAKAGE AT V_{WM} I_D (µA)	MAXIMUM REVERSE LEAKAGE AT V_{WM} T_J = 175 °C, I_D (µA)	MAX. PEAK PULSE CURRENT AT 10/1000 µs WAVEFORM (A)	MAXIMUM CLAMPING VOLTAGE AT I_{PPM} V_C (V)	TYPICAL TEMP. COEFFICIENT OF V_{BR} (1) αT (%/°C)
	MIN.	NOM.	MAX.							
SM8S10A	11.1	11.7	12.3	5.0	10.0	10	150	388	17.0	0.069
SM8S11A	12.2	12.9	13.5	5.0	11.0	10	150	363	18.2	0.072
SM8S12A	13.3	14.0	14.7	5.0	12.0	10	150	332	19.9	0.074
SM8S13A	14.4	15.2	15.9	5.0	13.0	10	150	307	21.5	0.076
SM8S14A	15.6	16.4	17.2	5.0	14.0	10	150	284	23.2	0.078
SM8S15A	16.7	17.6	18.5	5.0	15.0	10	150	270	24.4	0.080
SM8S16A	17.8	18.8	19.7	5.0	16.0	10	150	254	26.0	0.081
SM8S17A	18.9	19.9	20.9	5.0	17.0	10	150	239	27.6	0.082
SM8S18A	20.0	21.1	22.1	5.0	18.0	10	150	226	29.2	0.083
SM8S20A	22.2	23.4	24.5	5.0	20.0	10	150	204	32.4	0.085
SM8S22A	24.4	25.7	26.9	5.0	22.0	10	150	186	35.5	0.086
SM8S24A	26.7	28.1	29.5	5.0	24.0	10	150	170	38.9	0.087
SM8S26A	28.9	30.4	31.9	5.0	26.0	10	150	157	42.1	0.088
SM8S28A	31.1	32.8	34.4	5.0	28.0	10	150	145	45.4	0.089
SM8S30A	33.3	35.1	36.8	5.0	30.0	10	150	136	48.4	0.090
SM8S33A	36.7	38.7	40.6	5.0	33.0	10	150	124	53.3	0.091
SM8S36A	40.0	42.1	44.2	5.0	36.0	10	150	114	58.1	0.091
SM8S40A	44.4	46.8	49.1	5.0	40.0	10	150	102	64.5	0.092
SM8S43A	47.8	50.3	52.8	5.0	43.0	10	150	95.1	69.4	0.093

Notes

- For all types maximum VF = 1.8 V at IF = 100 A measured on 8.3 ms single half sine-wave or equivalent square wave, duty cycle = 4 pulses per minute maximum

(1) To calculate VBR vs. junction temperature, use the following formula: V_{BR} at T_J = V_{BR} at 25 °C x (1 + αT x (T_J - 25)

RATINGS AND CHARACTERISTICS CURVES (T_A = 25 °C unless otherwise noted)

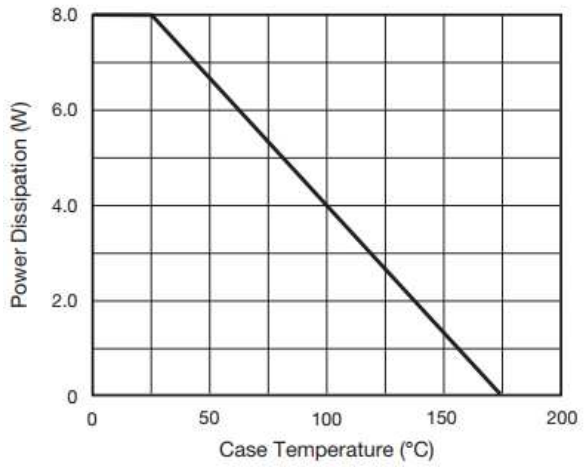


Figure 1. Power Derating Curve

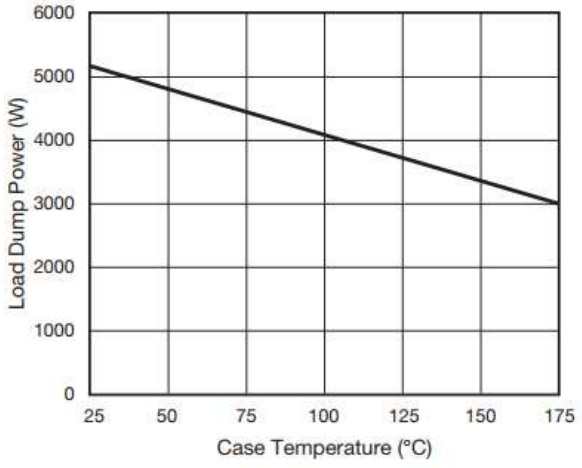


Figure 2. Load Dump Power Characteristics (10 ms Exponential Waveform)

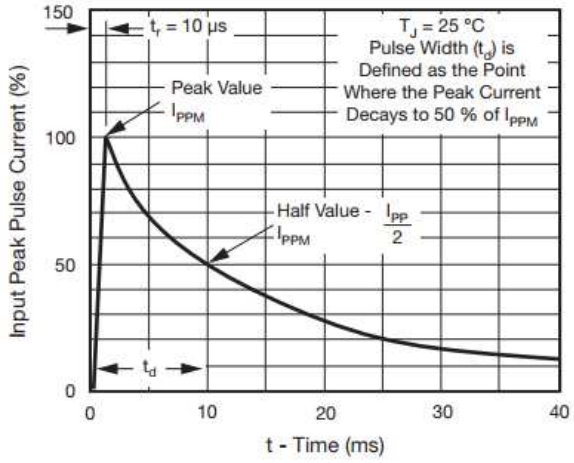


Figure 3. Pulse Waveform

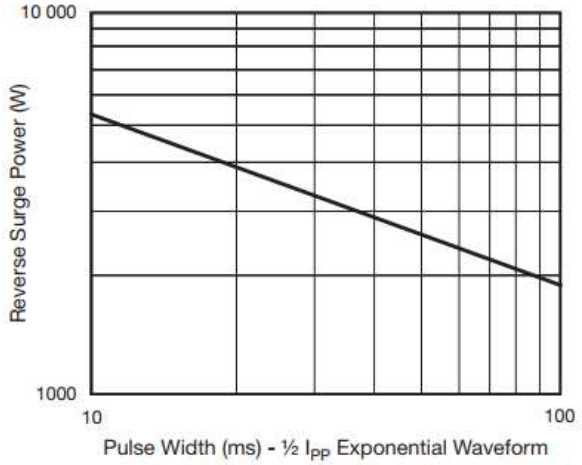


Figure 4. Reverse Power Capability

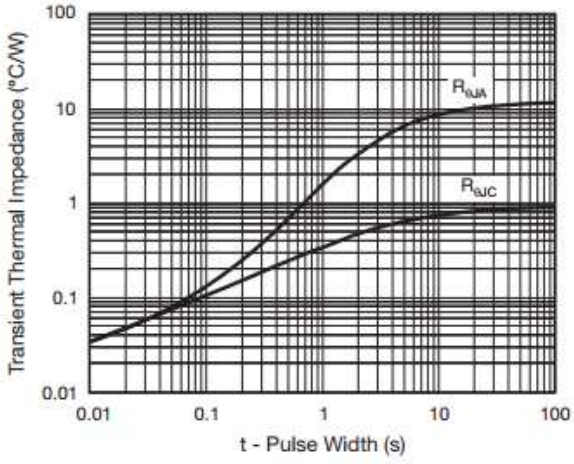


Figure 5. Typical Transient Thermal Impedance

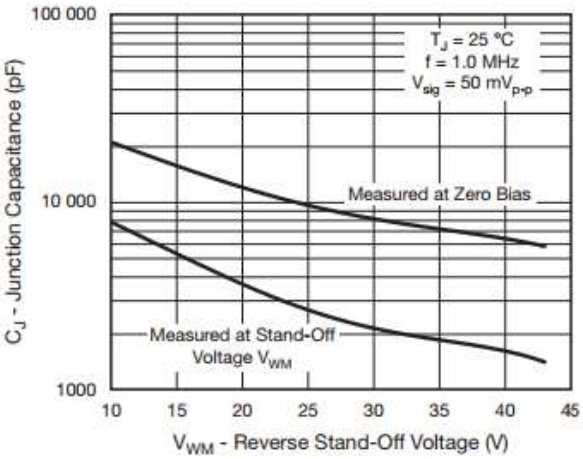
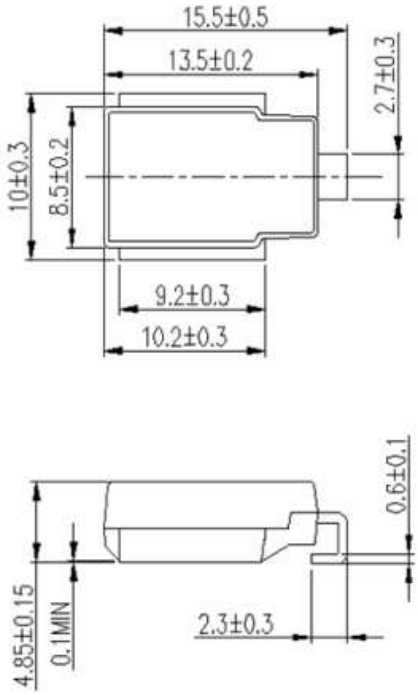


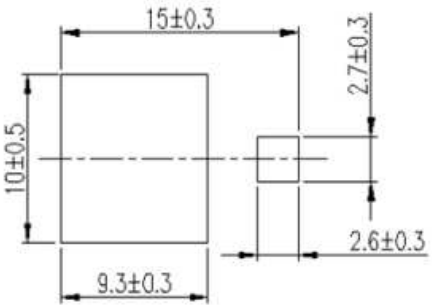
Figure 6. Typical Junction Capacitance

• Package outlines : Dimensions in (mm)

DO-218AB



Mounting Pad Layout



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