Surface Mount Transient Voltage Suppressors

High Temperature Stability and High Reliability Conditions

DO-218AB

FEATURES

- Chip produced by chemical method
- Junction passivated by high temperature resistant insulating adhesive
- T_J = 175 °C capability suitable for high reliability and automotive requirement
- Available in Bi-directional polarity only
- Low leakage current
- Low forward voltage drop
- High surge capability
- Meets ISO16750-2 surge specification (varied by test condition)
  LF maximum peak of 245 °C
- AEC-Q101 qualified

PRIMARY CHARACTERISTICS	
V_{BR}	11.1 V to 52.8 V
V_{WM}	10 V to 43 V
P_{PPM} (10 x 1000 µs)	6600 W
P_{PPM} (10 x 10 000 µs)	5200 W
P_D	8 W
T_J max.	175 °C
Polarity	Bi-directional
Package	DO-218AB

TYPICAL APPLICATIONS

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

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 (T_C = 25 °C unless otherwise noted)				
PARAMETER		**SYMBOL**	**VALUE**	**UNIT**
Peak pulse power dissipation	with 10/1000 µs waveform	P_{PPM}	6600	W
	with 10/10 000 µs waveform		5200	
Power dissipation on infinite heatsink at T_C = 25 °C (fig. 1)		P_D	8.0	W
Peak pulse current with 10/1000 µs waveform		I_{PPM} (1)	See next table	A
Operating junction and storage temperature range		T_J, T_{STG}	-55 to +175	°C

Note

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

ELECTRICAL CHARACTERISTICS (T_C = 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.							
SM8S10CA	11.1	11.7	12.3	5.0	10.0	10	150	388	17.0	0.069
SM8S11CA	12.2	12.9	13.5	5.0	11.0	10	150	363	18.2	0.072
SM8S12CA	13.3	14.0	14.7	5.0	12.0	10	150	332	19.9	0.074
SM8S13CA	14.4	15.2	15.9	5.0	13.0	10	150	307	21.5	0.076
SM8S14CA	15.6	16.4	17.2	5.0	14.0	10	150	284	23.2	0.078
SM8S15CA	16.7	17.6	18.5	5.0	15.0	10	150	270	24.4	0.080
SM8S16CA	17.8	18.8	19.7	5.0	16.0	10	150	254	26.0	0.081
SM8S17CA	18.9	19.9	20.9	5.0	17.0	10	150	239	27.6	0.082
SM8S18CA	20.0	21.1	22.1	5.0	18.0	10	150	226	29.2	0.083
SM8S20CA	22.2	23.4	24.5	5.0	20.0	10	150	204	32.4	0.085
SM8S22CA	24.4	25.7	26.9	5.0	22.0	10	150	186	35.5	0.086
SM8S24CA	26.7	28.1	29.5	5.0	24.0	10	150	170	38.9	0.087
SM8S26CA	28.9	30.4	31.9	5.0	26.0	10	150	157	42.1	0.088
SM8S28CA	31.1	32.8	34.4	5.0	28.0	10	150	145	45.4	0.089
SM8S30CA	33.3	35.1	36.8	5.0	30.0	10	150	136	48.4	0.090
SM8S33CA	36.7	38.7	40.6	5.0	33.0	10	150	124	53.3	0.091
SM8S36CA	40.0	42.1	44.2	5.0	36.0	10	150	114	58.1	0.091
SM8S40CA	44.4	46.8	49.1	5.0	40.0	10	150	102	64.5	0.092
SM8S43CA	47.8	50.3	52.8	5.0	43.0	10	150	95.1	69.4	0.093

Notes

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

ORDERING INFORMATION (Example)				
PREFERRED P/N	UNIT WEIGHT (g)	PACKAGE	BASE QUANTITY	DELIVERY MODE
SM8SXXCA	2.85	DO-218AB	NA	According to customer's requirement

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

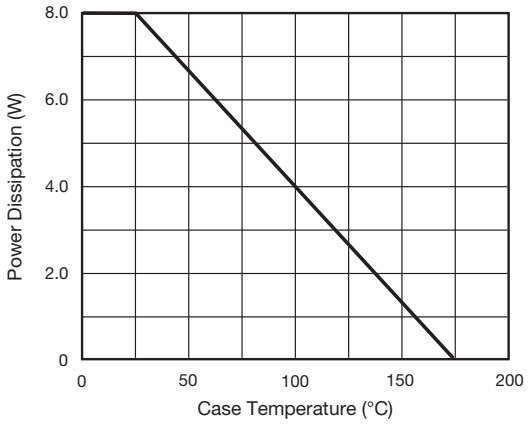


Fig. 1 - Power Derating Curve

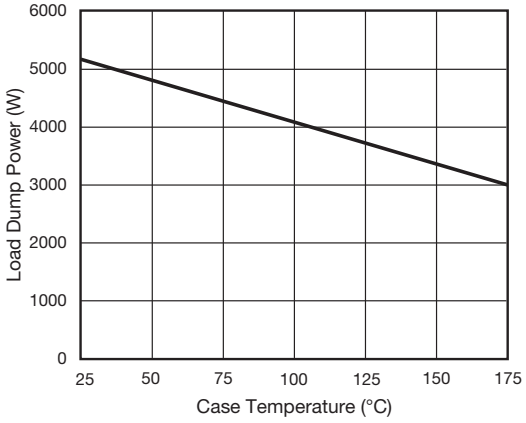


Fig. 2 - Load Dump Power Characteristics
(10 ms Exponential Waveform)

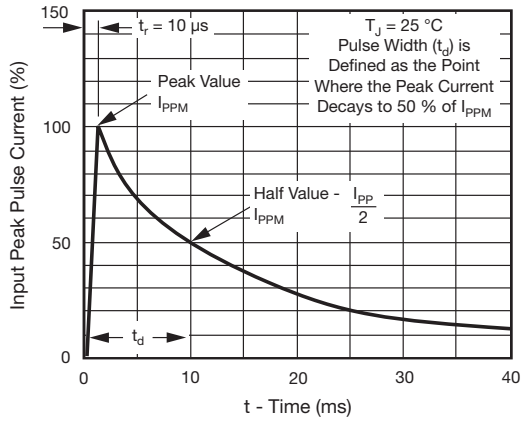


Fig. 3 - Pulse Waveform

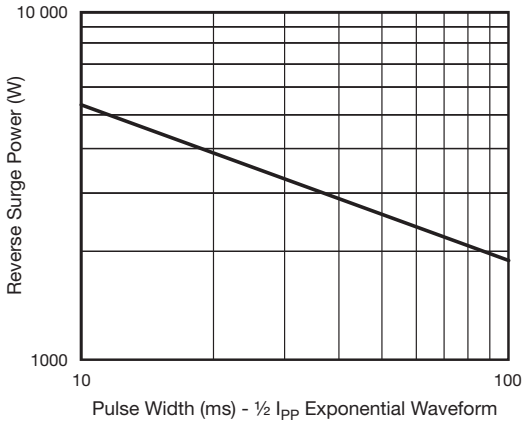
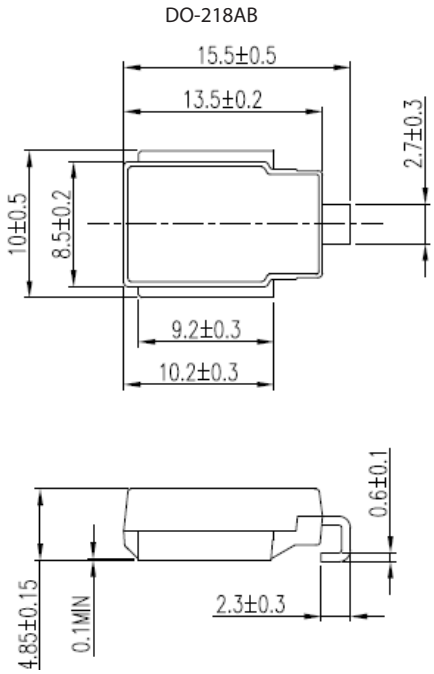
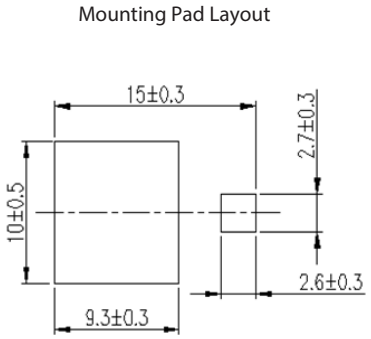


Fig. 4 - Reverse Power Capability

PACKAGE OUTLINE DIMENSIONS (millimeters)





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