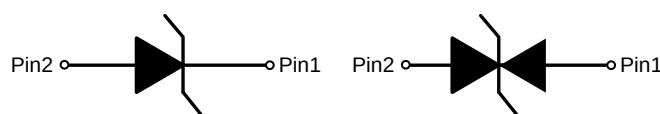
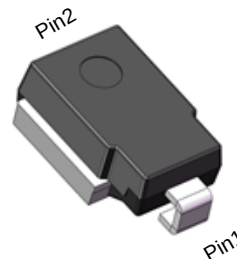


Surface Mount Transient Voltage Suppressors

FEATURES

- Chip produced by chemical method
- Junction passivated by high temperature resistant insulating adhesive
- Low leakage current
- Low forward voltage drop for uni-directional production
- High surge capability
- Meets ISO16750-2 surge specification (varied by test condition)
- LF maximum peak of 245 °C

DO-218AB



Unidirectional

Bidirectional

Circuit diagram

TYPICAL APPLICATIONS

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

MAXIMUM RATINGS ($T_C = 25\text{ °C}$ 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 $T_C = 25\text{ °C}$ (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		$I_{FSM}^{(2)}$	700	A
Operating junction and storage temperature range		T_J, T_{STG}	-55 to +155	°C

Note

(1) Non-repetitive current pulse derated above $T_A = 25\text{ °C}$

(2) I_{FSM} only for uni-directional production

Surface Mount Transient Voltage Suppressors

ELECTRICAL CHARACTERISTICS ($T_C = 25\text{ }^{\circ}\text{C}$ 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} $T_J = 175\text{ }^{\circ}\text{C}$ 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} α_T ($\%/^{\circ}\text{C}$)
	MIN.	NOM.	MAX.							
SM6S10V/B	11.1	11.7	12.3	5.0	10.0	10	150	388	17.0	0.069
SM6S11V/B	12.2	12.9	13.5	5.0	11.0	10	150	363	18.2	0.072
SM6S12V/B	13.3	14.0	14.7	5.0	12.0	10	150	332	19.9	0.074
SM6S13V/B	14.4	15.2	15.9	5.0	13.0	10	150	307	21.5	0.076
SM6S14V/B	15.6	16.4	17.2	5.0	14.0	10	150	284	23.2	0.078
SM6S15V/B	16.7	17.6	18.5	5.0	15.0	10	150	270	24.4	0.080
SM6S16V/B	17.8	18.8	19.7	5.0	16.0	10	150	254	26.0	0.081
SM6S17V/B	18.9	19.9	20.9	5.0	17.0	10	150	239	27.6	0.082
SM6S18V/B	20.0	21.1	22.1	5.0	18.0	10	150	226	29.2	0.083
SM6S20V/B	22.2	23.4	24.5	5.0	20.0	10	150	204	32.4	0.085
SM6S22V/B	24.4	25.7	26.9	5.0	22.0	10	150	186	35.5	0.086
SM6S24V/B	26.7	28.1	29.5	5.0	24.0	10	150	170	38.9	0.087
SM6S26V/B	28.9	30.4	31.9	5.0	26.0	10	150	157	42.1	0.088
SM6S28V/B	31.1	32.8	34.4	5.0	28.0	10	150	145	45.4	0.089
SM6S30V/B	33.3	35.1	36.8	5.0	30.0	10	150	136	48.4	0.090
SM6S33V/B	36.7	38.7	40.6	5.0	33.0	10	150	124	53.3	0.091
SM6S36V/B	40.0	42.1	44.2	5.0	36.0	10	150	114	58.1	0.091
SM6S40V/B	44.4	46.8	49.1	5.0	40.0	10	150	102	64.5	0.092
SM6S43V/B	47.8	50.3	52.8	5.0	43.0	10	150	95.1	69.4	0.093
SM6S45V/B	50.0	52.7	55.3	5.0	45.0	10	150	90.8	72.7	0.094
SM6S48V/B	53.3	56.1	58.9	5.0	48.0	10	150	85.3	77.4	0.095
SM6S51V/B	56.7	59.7	62.7	5.0	51.0	10	150	80.1	82.4	0.096
SM6S54V/B	60.0	63.1	66.3	5.0	54.0	10	150	75.8	87.1	0.097
SM6S58V/B	64.4	67.8	71.2	5.0	58.0	10	150	70.5	93.6	0.098
SM6S60V/B	66.7	70.2	73.7	5.0	60.0	10	150	68.2	96.8	0.099
SM6S64V/B	71.1	74.9	78.6	5.0	64.0	10	150	64.1	103	0.100
SM6S70V/B	77.8	81.9	86.0	5.0	70.0	10	150	58.4	113	0.101
SM6S75V/B	83.3	87.7	92.1	5.0	75.0	10	150	54.5	121	0.102
SM6S78V/B	86.7	91.3	95.8	5.0	78.0	10	150	52.4	126	0.103
SM6S85V/B	94.4	99.2	104.0	5.0	85.0	10	150	48.2	137	0.104

Notes

- For all uni-directional types maximum $V_F = 1.8\text{ V}$ at $I_F = 100\text{ A}$ measured on 8.3 ms single half sine-wave or equivalent square wave, duty cycle = 4 pulses per minute maximum

(1) To calculate V_{BR} vs. junction temperature, use the following formula: V_{BR} at $T_J = V_{BR}$ at $25\text{ }^{\circ}\text{C} \times (1 + \alpha_T \times (T_J - 25))$

Surface Mount Transient Voltage Suppressors

RATINGS AND CHARACTERISTICS CURVES

($T_A = 25\text{ }^{\circ}\text{C}$ unless otherwise noted)

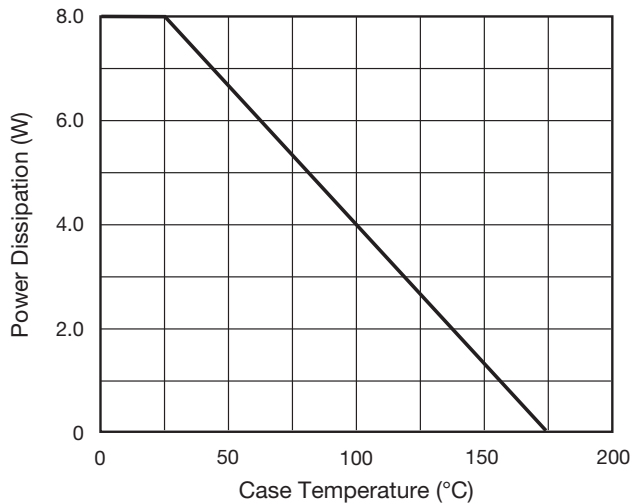


Fig. 1 - Power Derating Curve

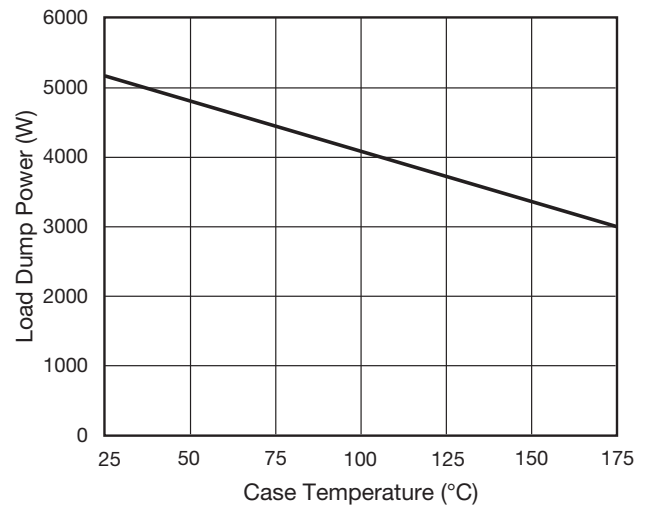


Fig. 2 - Load Dump Power Characteristics
(10 ms Exponential Waveform)

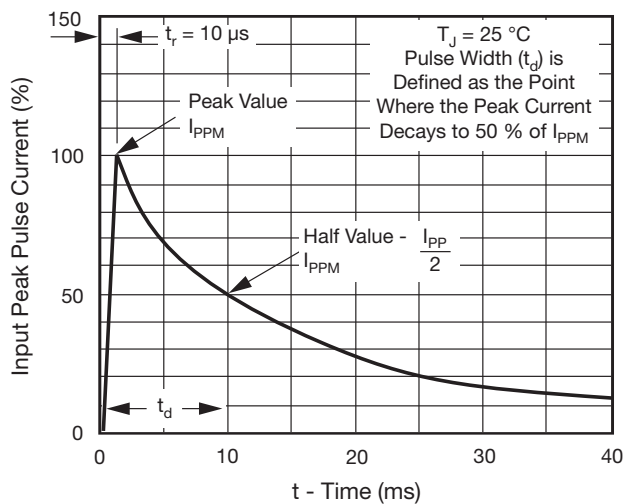


Fig. 3 - Pulse Waveform

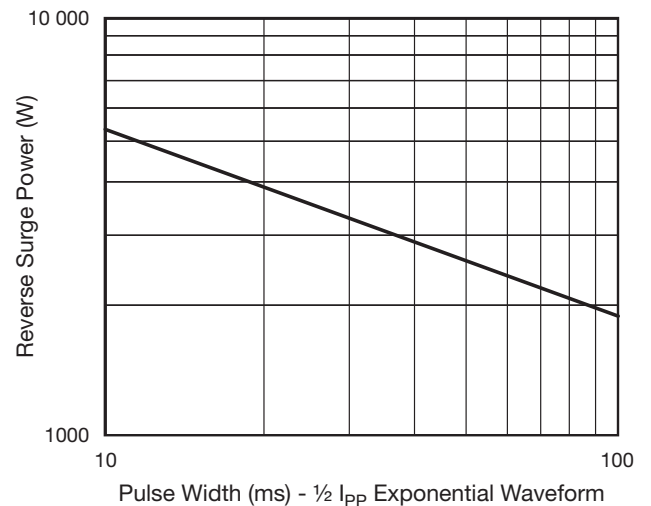


Fig. 4 - Reverse Power Capability

Surface Mount Transient Voltage Suppressors

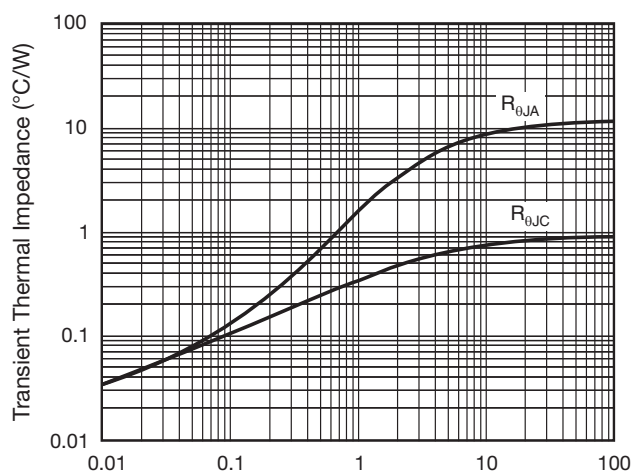


Fig. 5 - Typical Transient Thermal Impedance

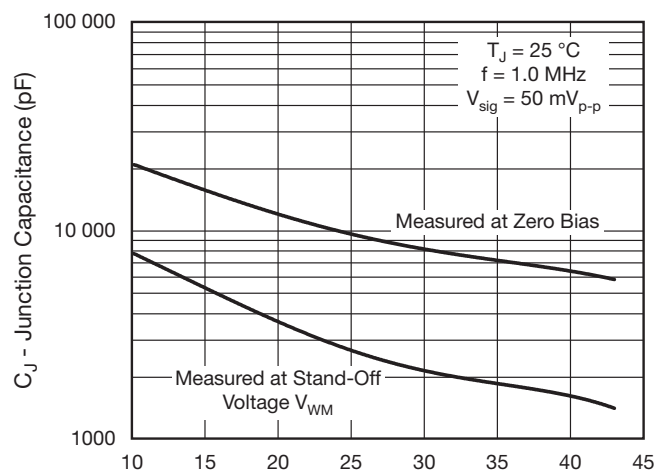


Fig. 6 - Typical Junction Capacitance

PACKAGE OUTLINE DIMENSIONS (millimeters)

