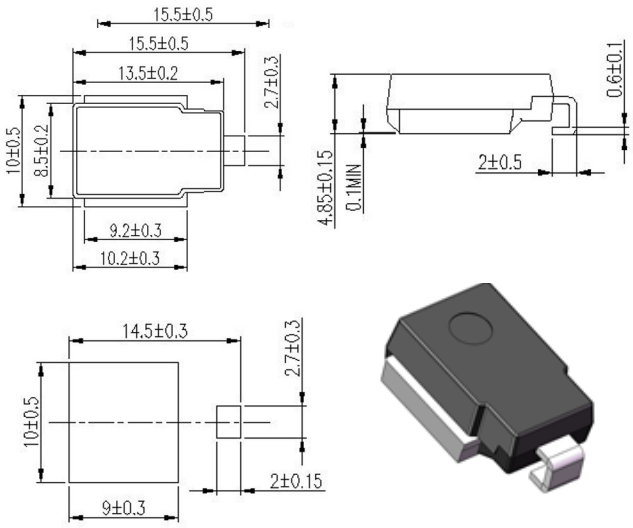
SM8S10(C)A - SM8S43(C)A

Surface Mount Transient Voltage Suppressors

Features

- Round chip produced by chemical method
- Junction passivated by polyimide
- T_J 175 °C capability suitable for high reliability and automotive requirement
- Available in uni-directional and bi-directional polarity
- Low leakage current
- Low forward voltage drop
- High surge capability
- Meets MSL level 1, per J-STD-020, LF maximum peak of 245 °C
- AEC-Q101 qualified

DO-218AB



Dimensions in millimeters

MECHANICAL DATA :

* Case : DO-218AB
* Epoxy : UL94V-0 rate flame retardant
* Lead : Axial lead solderable per MIL-STD-202, Method 208 guaranteed
* Mounting position : Any

DEVICES FOR UNIPOLAR APPLICATIONS

For uni-directional without "C"
Electrical characteristics apply in both directions

Maximum Ratings and Electrical characteristics

Ratings at 25 °C ambient temperature unless otherwise specified.

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
Peak forward surge current 8.3 ms single half sine-wave		I_{FSM}	700	A
Typical thermal resistance, junction to case		$R_{\theta JC}$	0.90	°C/W
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)
Uni.	Bi.	MIN.	NOM.	MAX.							
SM8S10A	SM8S10CA	11.1	11.7	12.3	5.0	10.0	15	250	388	17.0	0.069
SM8S11A	SM8S11CA	12.2	12.9	13.5	5.0	11.0	10	150	363	18.2	0.072
SM8S12A	SM8S12CA	13.3	14.0	14.7	5.0	12.0	10	150	332	19.9	0.074
SM8S13A	SM8S13CA	14.4	15.2	15.9	5.0	13.0	10	150	307	21.5	0.076
SM8S14A	SM8S14CA	15.6	16.4	17.2	5.0	14.0	10	150	284	23.2	0.078
SM8S15A	SM8S15CA	16.7	17.6	18.5	5.0	15.0	10	150	270	24.4	0.080
SM8S16A	SM8S16CA	17.8	18.8	19.7	5.0	16.0	10	150	254	26.0	0.081
SM8S17A	SM8S17CA	18.9	19.9	20.9	5.0	17.0	10	150	239	27.6	0.082
SM8S18A	SM8S18CA	20.0	21.1	22.1	5.0	18.0	10	150	226	29.2	0.083
SM8S20A	SM8S20CA	22.2	23.4	24.5	5.0	20.0	10	150	204	32.4	0.085
SM8S22A	SM8S22CA	24.4	25.7	26.9	5.0	22.0	10	150	186	35.5	0.086
SM8S24A	SM8S24CA	26.7	28.1	29.5	5.0	24.0	10	150	170	38.9	0.087
SM8S26A	SM8S26CA	28.9	30.4	31.9	5.0	26.0	10	150	157	42.1	0.088
SM8S28A	SM8S28CA	31.1	32.8	34.4	5.0	28.0	10	150	145	45.4	0.089
SM8S30A	SM8S30CA	33.3	35.1	36.8	5.0	30.0	10	150	136	48.4	0.090
SM8S33A	SM8S33CA	36.7	38.7	40.6	5.0	33.0	10	150	124	53.3	0.091
SM8S36A	SM8S36CA	40.0	42.1	44.2	5.0	36.0	10	150	114	58.1	0.091
SM8S40A	SM8S40CA	44.4	46.8	49.1	5.0	40.0	10	150	102	64.5	0.092
SM8S43A	SM8S43CA	47.8	50.3	52.8	5.0	43.0	10	150	95.1	69.4	0.093

Notes

- For all types maximum V_F = 1.8 V at I_F = 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 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))

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

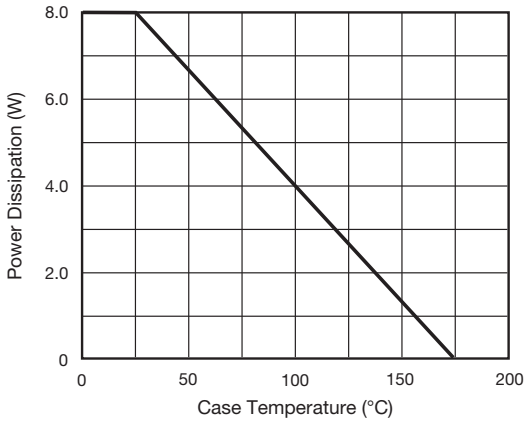


Fig. 1 - Power Derating Curve

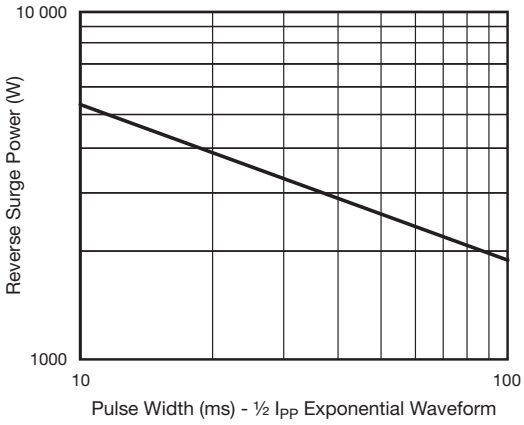


Fig. 4 - Reverse Power Capability

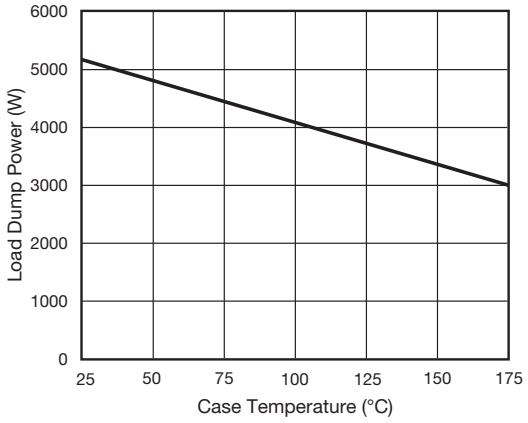


Fig. 2 - Load Dump Power Characteristics
(10 ms Exponential Waveform)

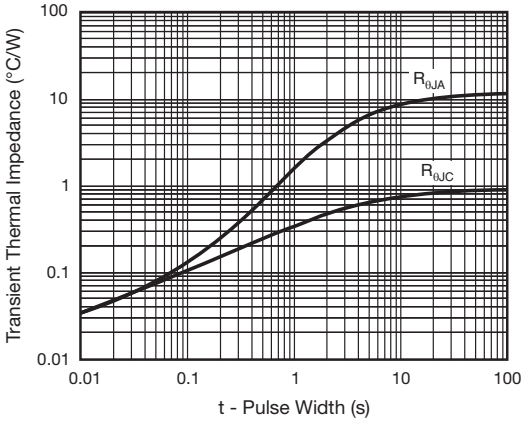


Fig. 5 - Typical Transient Thermal Impedance

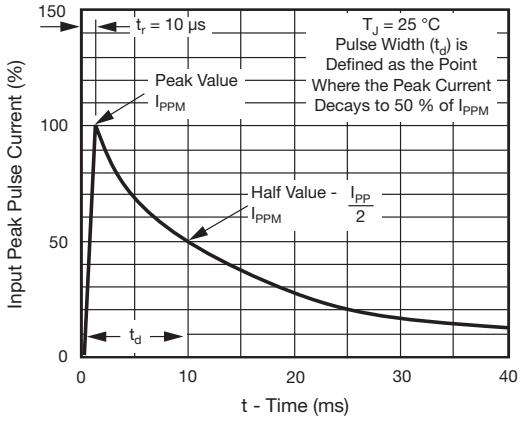


Fig. 3 - Pulse Waveform

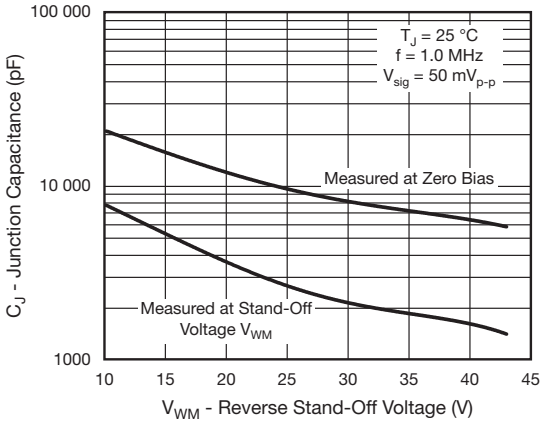


Fig. 6 - Typical Junction Capacitance