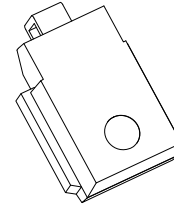


FEATURES

- ◆ Low leakage current
- ◆ Low forward voltage drop
- ◆ High surge capability
- ◆ Meet ISO7637-2 5a protection and ISO16750 load dump test
- ◆ Meet AEC-Q101 requirement
- ◆ Bidirectional unit
- ◆ RoHS compliant



MECHANICAL DATA

- ◆ Case : DO-218
- ◆ Case Material: "Green" Molding compound UL flammability classification rating 94V-0
- ◆ Component in accordance with RoHS and AEC-Q101 qualified
- ◆ Terminals: matte tin-plated leads, solderable per J-STD-002 and JESD 22-B102
- ◆ Halogen Free

APPLICATIONS

- ◆ Use in sensitive electronics
- ◆ For protection against voltage transients induced by inductive load switching and lighting
- ◆ For automotive load dump protection application

PRIMARY CHARACTERISTICS

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

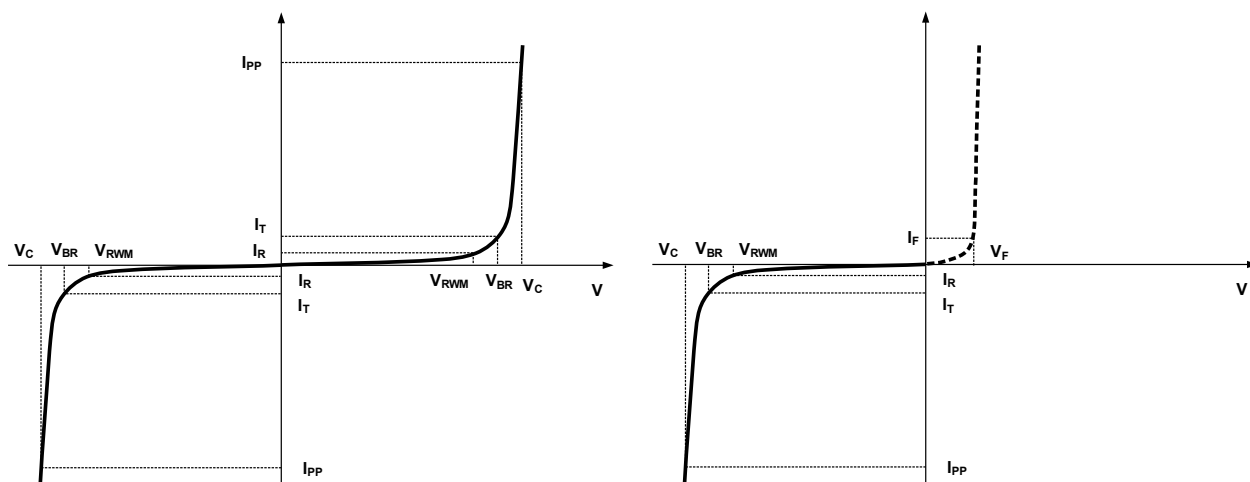
MAXIMUM RATINGS ($T_C = 25$ °C unless otherwise noted)

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

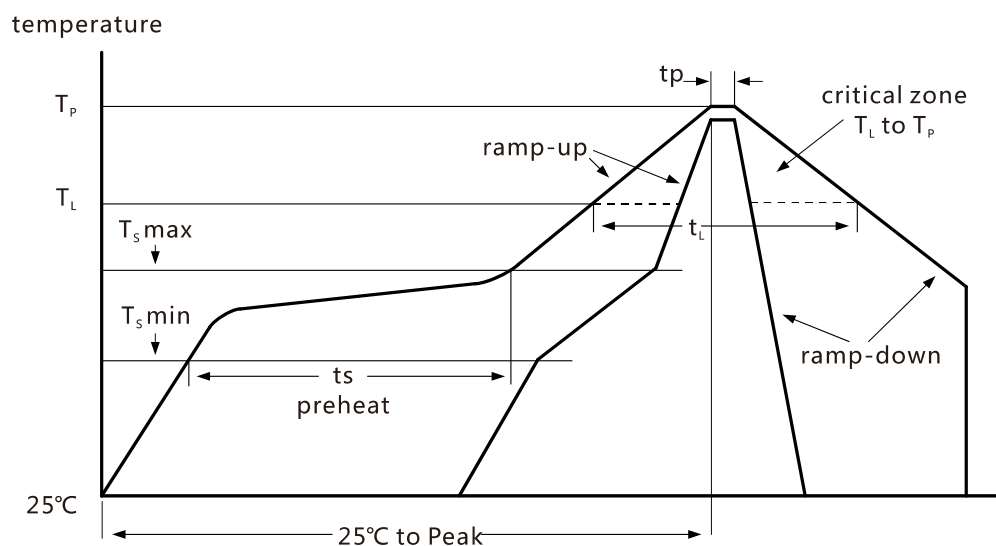
Note

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

I-V CURVE CHARACTERISTICS



REFLOW SOLDERING PROFILE



Profile Feature	SnPb eutectic assembly	Pb-free assembly
Average ramp-up rate ($T_{S\ max}$ to T_P)	3°C/s maximum	3°C/s maximum
Preheat		
Temperature minimum ($T_{S\ min}$)	100°C	150°C
Temperature maximum ($T_{S\ max}$)	150°C	200°C
Time ($T_{S\ min}$ to $T_{S\ max}$)	60 s to 120 s	60 s to 180 s
Time maintained above		
Temperature (T_L)	183°C	217°C
Time (t_L)	60 s to 150 s	60 s to 150 s
Peak/classification temperature (T_P)	235°C	260°C
Number of allowed reflow cycles	3	3
Time within 5 °C of actual peak temperature (t_P)	10 s to 30 s	20 s to 40 s
Ramp-down rate	6°C/s maximum	6°C/s maximum
Time 25 °C to peak temperature	6 minutes maximum	8 minutes maximum

**ELECTRICAL CHARACTERISTICS** ($T_C = 25\text{ }^{\circ}\text{C}$ unless otherwise noted)

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.							
SM8T10CA	11.1	11.7	12.3	5.0	10.0	10	150	388	17.0	0.069
SM8T11CA	12.2	12.9	13.5	5.0	11.0	10	150	363	18.2	0.072
SM8T12CA	13.3	14.0	14.7	5.0	12.0	10	150	332	19.9	0.074
SM8T13CA	14.4	15.2	15.9	5.0	13.0	10	150	307	21.5	0.076
SM8T14CA	15.6	16.4	17.2	5.0	14.0	10	150	284	23.2	0.078
SM8T15CA	16.7	17.6	18.5	5.0	15.0	10	150	270	24.4	0.080
SM8T16CA	17.8	18.8	19.7	5.0	16.0	10	150	254	26.0	0.081
SM8T17CA	18.9	19.9	20.9	5.0	17.0	10	150	239	27.6	0.082
SM8T18CA	20.0	21.1	22.1	5.0	18.0	10	150	226	29.2	0.083
SM8T20CA	22.2	23.4	24.5	5.0	20.0	10	150	204	32.4	0.085
SM8T22CA	24.4	25.7	26.9	5.0	22.0	10	150	186	35.5	0.086
SM8T24CA	26.7	28.1	29.5	5.0	24.0	10	150	170	38.9	0.087
SM8T26CA	28.9	30.4	31.9	5.0	26.0	10	150	157	42.1	0.088
SM8T28CA	31.1	32.8	34.4	5.0	28.0	10	150	145	45.4	0.089
SM8T30CA	33.3	35.1	36.8	5.0	30.0	10	150	136	48.4	0.090
SM8T33CA	36.7	38.7	40.6	5.0	33.0	10	150	124	53.3	0.091
SM8T36CA	40.0	42.1	44.2	5.0	36.0	10	150	114	58.1	0.091
SM8T40CA	44.4	46.8	49.1	5.0	40.0	10	150	102	64.5	0.092
SM8T43CA	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 $25\text{ }^{\circ}\text{C} \times (1 + \alpha_T \times (T_J - 25))$

Figure 1. Pulse Waveform

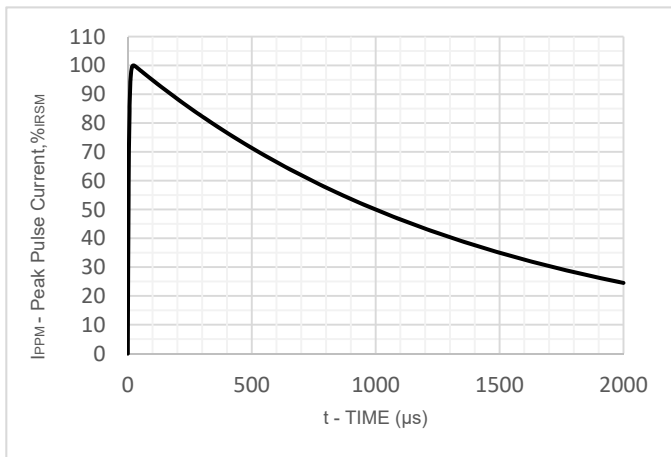


Figure 2. Power Derating Curve

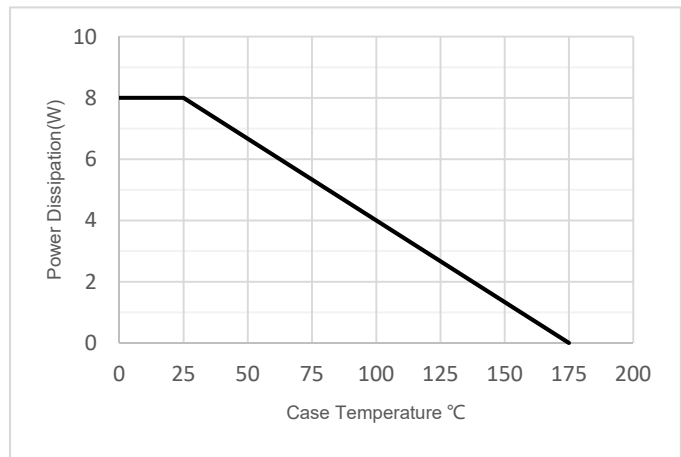


Figure 3. Power Pulse Power Derating

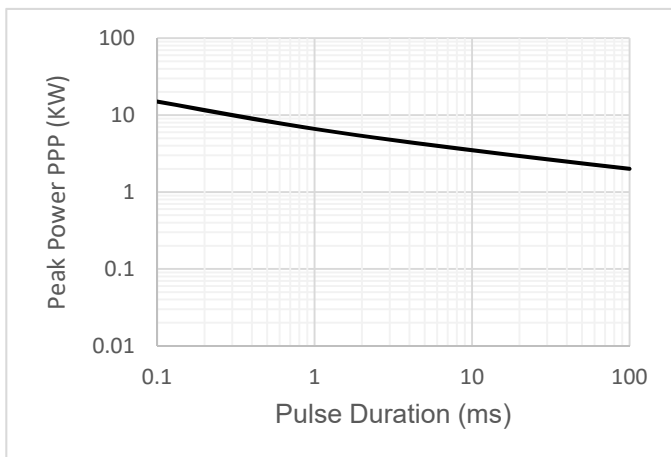
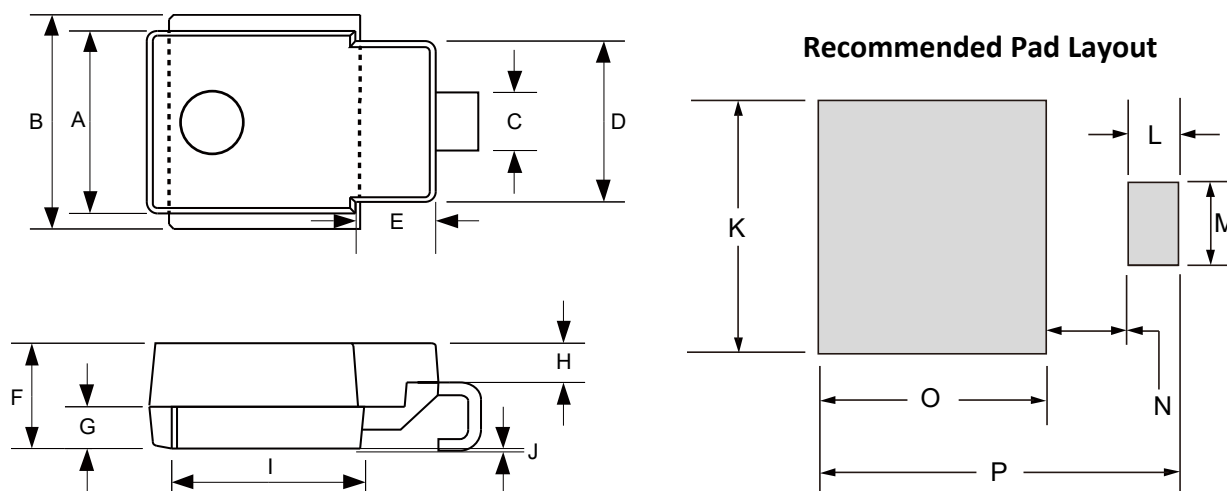


Figure 4. Reverse Power Capability



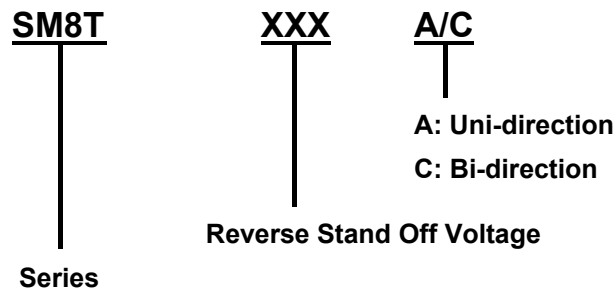
DIMENSIONS



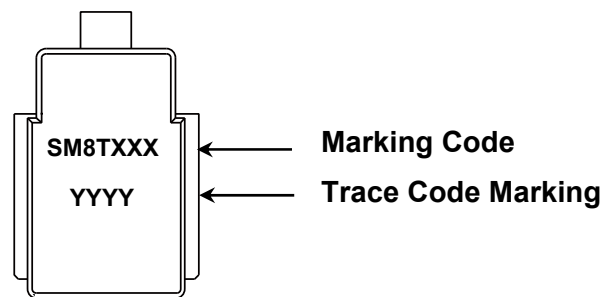
DO-218AB

DIM	Millimeters		Inch	
	Min	Max	Min	Max
A	8.300	8.700	0.3268	0.3425
B	9.500	10.500	0.3740	0.4134
C	2.400	3.000	0.0945	0.1181
D	7.000	8.000	0.2756	0.3150
E	3.200	3.800	0.1260	0.1496
F	4.600	5.200	0.1811	0.2047
G	1.700	2.300	0.0669	0.0906
H	1.500	2.100	0.0591	0.0827
I	8.500	9.500	0.3346	0.3740
J	-	0.160	-	0.0063
K	9.500	10.500	0.3740	0.4134
L	1.700	2.300	0.0669	0.0906
M	2.400	3.000	0.0945	0.1181
N	3.200	3.800	0.1260	0.1496
O	8.700	9.300	0.3425	0.3661
P	14.800	15.400	0.5827	0.6063

PART NUMBERING



MARKING & PACKAGING



Part Number	Package	Quantity	Packaging
SM8TXXX	DO-218AB	750pcs	13" Reel