

Description

The SM8S series is designed specifically to be used in sensitive electronics protection against voltage transients induced by inductive load switching and lighting, especially for automotive load dump pulse protection.

Features

- Ideally suited for load dump protection
- Flammability Classification 94V-0
- 6600W peak pulse power capability at 10/1000 μ s waveform, repetition rate (duty cycle): 0.01%
- Integrally molded heatsink provides a very low thermal
- Resistance for maximum heat dissipation
- Low leakage current at $T_J = 150^\circ\text{C}$
- High temperature soldering guaranteed 260°C for 10 seconds at terminals
- Meets ISO7637-2 surge spec.
- Low forward voltage drop
- Meets RoHS2.0 (2011/65/EU) but Halogen
- Meets MSL level 1, per J-STD-020
- Meets AEC-Q101 requirement
- Unit Weight: 2.59g

Maximum Ratings and Characteristics ($T_A=25^\circ\text{C}$)

Rating	Symbol	Value
Peak pulse power dissipation at 10/1000 μ s waveform (Note1, Fig.1)	P_{PPM}	6600W
Peak pulse current of at 10/1000 μ s waveform (Note 1, Fig.3)	I_{PPM}	See Table(A)
Steady state power dissipation at $T_L=25^\circ\text{C}$ (Fig.4)	$P_{M(AV)}$	8.0W
Peak forward surge current, 8.3ms single half sine-wave superimposed on rated load	I_{FSM}	700A
Operating junction and Storage Temperature Ranges	T_J, T_{STG}	-55°C to $+150^\circ\text{C}$
Typical thermal resistance junction to Case	$R_{\theta JC}$	0.9°C/W

Notes:1. Non-repetitive current pulse, per Fig.3 and derating above $T_A=25^\circ\text{C}$ per Fig.2.

Electrical Characteristics ($T_A=25^{\circ}\text{C}$)

Part Number		Reverse Stand-Off Voltage	Breakdown Voltage @ I_T		Test Current	Maximum Clamping Voltage @ I_{PP}	Peak Pulse Current	Reverse Leakage @ V_R
Uni.	Bi.	$V_R(V)$	$V_{B\ Min.}(V)$	$V_{B\ Max.}(V)$	$I_T(mA)$	$V_C(V)$	$I_{PP}(A)$	$I_R(\mu A)$
SM8S18A	SM8S18CA	18.0	20.00	22.10	5	29.2	226.0	2
SM8S20A	SM8S20CA	20.0	22.20	24.50	5	32.4	204.0	2
SM8S22A	SM8S22CA	22.0	24.40	26.90	5	35.5	186.0	2
SM8S24A	SM8S24CA	24.0	26.70	29.50	5	38.9	170.0	2
SM8S26A	SM8S26CA	26.0	28.90	31.90	5	42.1	157.0	2
SM8S28A	SM8S28CA	28.0	31.10	34.40	5	45.4	145.0	2
SM8S30A	SM8S30CA	30.0	33.30	36.80	5	48.4	136.0	2
SM8S33A	SM8S33CA	33.0	36.70	40.60	5	53.3	124.0	2
SM8S36A	SM8S36CA	36.0	40.00	44.20	5	58.1	114.0	2
SM8S40A	SM8S40CA	40.0	44.4	49.1	5	64.5	102.0	2
SM8S43A	SM8S43CA	43.0	47.80	52.80	5	69.4	95.1	2
SM8S48A	SM8S48CA	48.0	53.30	58.90	5	77.4	85.3	2
SM8S58A	SM8S58CA	58.0	64.40	71.20	5	93.6	70.5	2

Ratings and Characteristic Curves ($T_A=25^\circ\text{C}$)

Figure 1. Peak Pulse Power Rating Curve

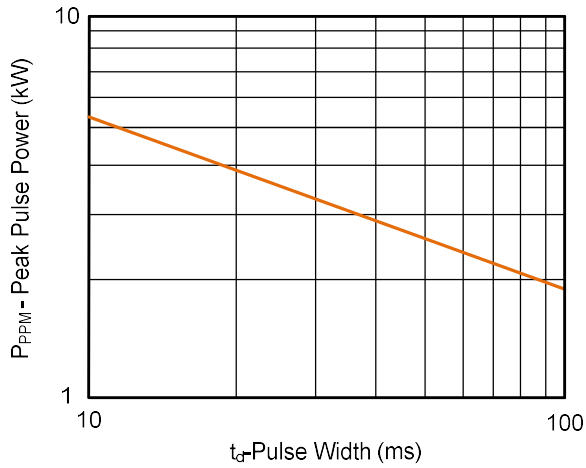


Figure 2. Pulse Derating Curve

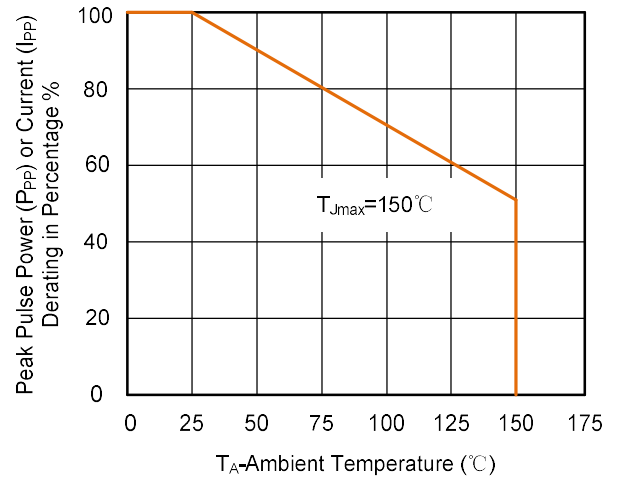


Figure 3. Pulse Waveform

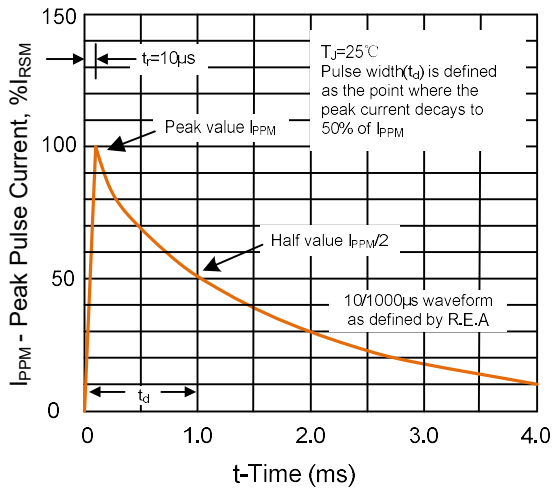
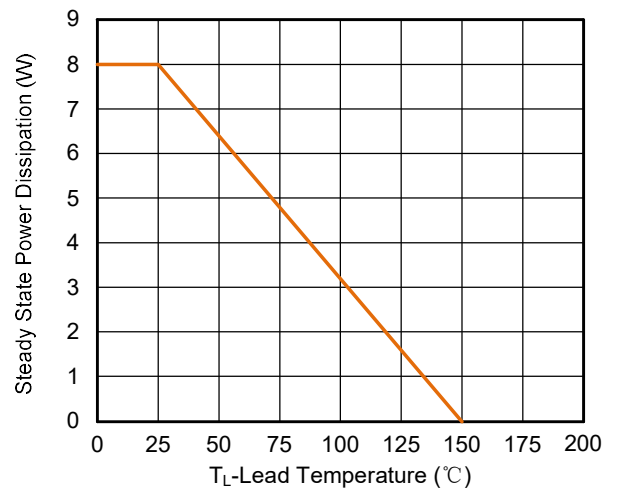
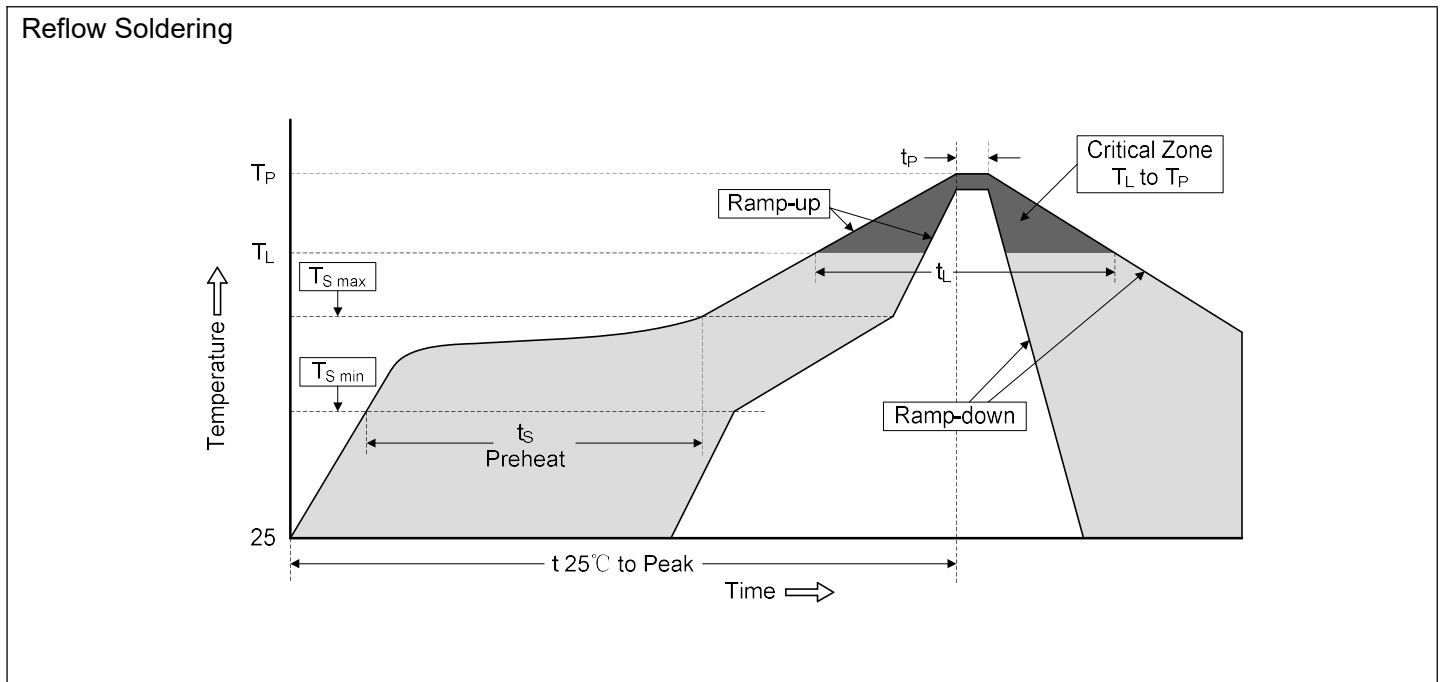


Figure 4. Steady State Power Dissipation Derating Curve

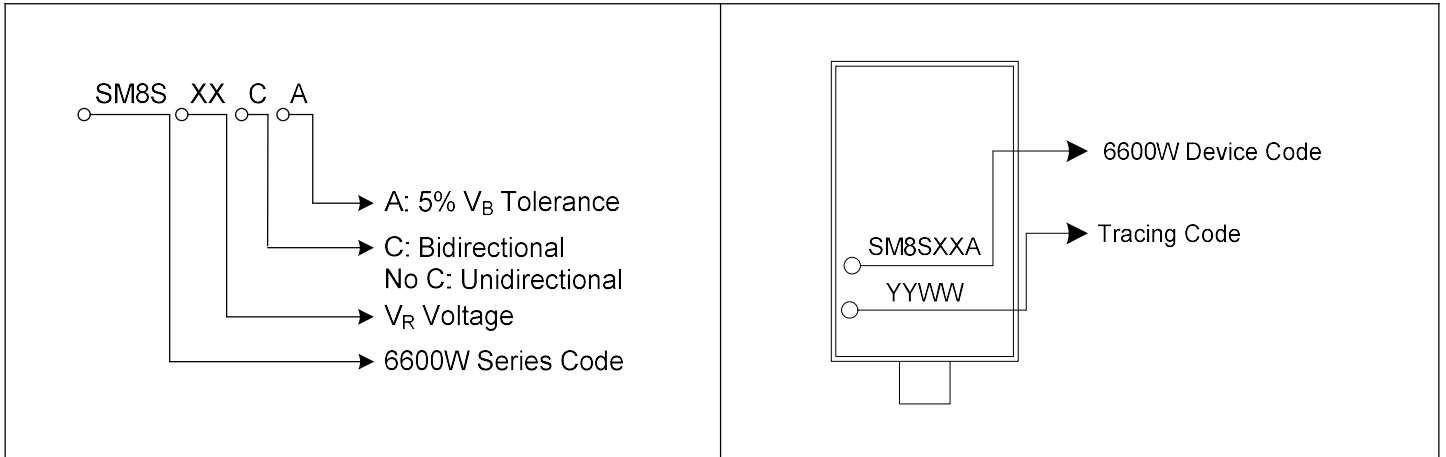


Soldering Parameters



Profile Feature	Pb-Free Assembly
Average ramp-up rate (T_L to T_P)	3°C/second max.
Preheat -Temperature Min ($T_{S\ min}$) -Temperature Max ($T_{S\ max}$) -Time (min to max) (t_s)	150°C 200°C 60-180 seconds
$T_{S\ max}$ to T_L -Ramp-up Rate	3°C/second max.
Time maintained above: -Temperature (T_L) -Time (t_L)	217°C 60-150 seconds
Peak Temperature (T_P)	260°C
Time within 5°C of actual Peak Temperature (t_p)	20-40 seconds
Ramp-down Rate	6°C/second max.
Time 25°C to Peak Temperature	8 minutes max.

Part Number Code and Marking Code



Dimensions (DO-218AB)

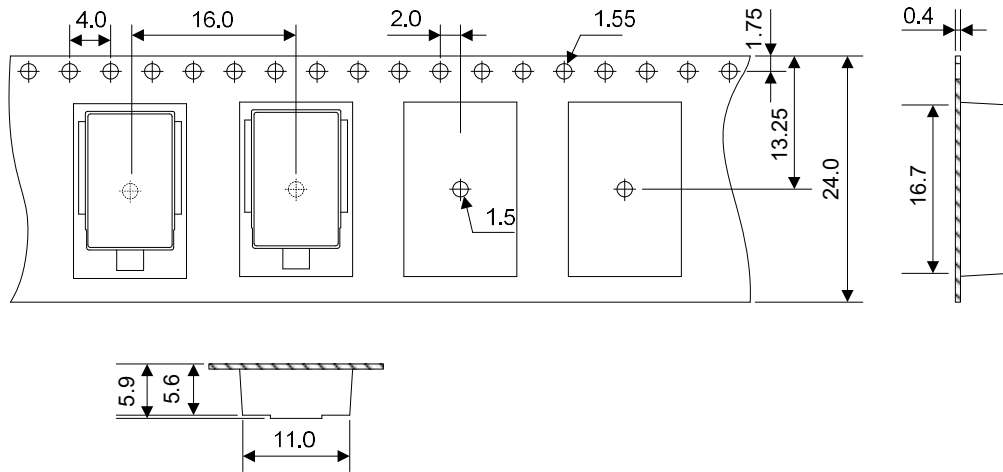
The mechanical drawing shows the dimensions of the DO-218AB package. The dimensions are defined as follows:

- A**: Cathode lead height
- B**: Package body length
- C**: Cathode lead thickness
- D**: Package body height
- d**: Cathode lead diameter
- G**: Cathode lead width
- H**: Package body width
- I**: Cathode lead length
- J**: Cathode lead length from body
- L**: Package body length
- S**: Cathode lead width at base
- W**: Package body width

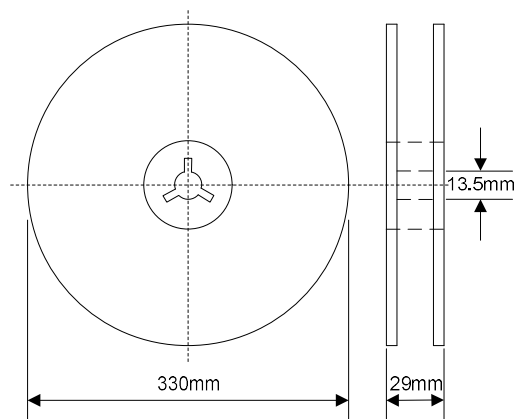
Symbol	Millimeters		Inches	
	Min.	Max.	Min.	Max.
A	4.8	5.8	0.189	0.228
B	13.3	13.7	0.524	0.539
C	1.7	2.3	0.067	0.091
D	8.3	8.7	0.327	0.343
d	2.3	3.1	0.091	0.122
G	0.5	0.7	0.020	0.028
H	4.9	5.2	0.193	0.205
h	2.5	3.9	0.098	0.154
I	8.7	9.3	0.343	0.366
J	9.7	10.3	0.382	0.406
W	9.5	10.5	0.374	0.414
S	1.5	2.5	0.059	0.099
L	15.0	16.0	0.591	0.630

Packaging Specification

Tape



13 Inches Reel



Quantity: 750pcs/reel