

**Working Voltage: 10 to 43 V**

**Peak Pulse Power: 6600 W**

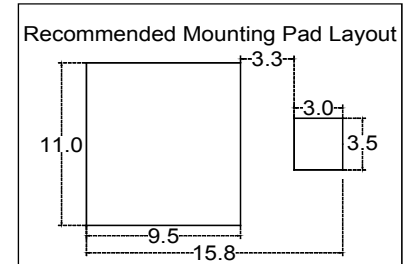
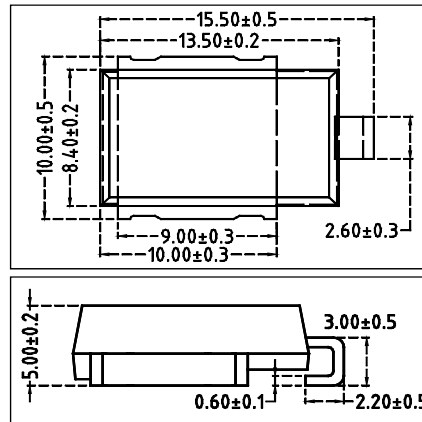
#### Features

- Optimized glass passivated chip
- $T_J = 175\text{ }^\circ\text{C}$  capability suitable for high reliability and automotive requirement
- 6600 W peak pulse power capability with a 10/1000  $\mu\text{s}$  waveform, repetitive rate (duty cycle):0.01 %
- Meet ISO 7637-2 5a/5b and ISO 16750 load dump test (varied by test condition)
- AEC-Q101 qualified
- Low leakage current
- Low forward voltage drop
- Uni-directional polarity
- Excellent clamping capability
- Very fast response time
- RoHS compliant

#### Mechanical Data

- Case: DO-218AB
- Molding compound: UL94V-0 flammability
- Polarity: Heatsink is anode

**PACKAGE OUTLINE DIMENSIONS(millimeters)**



DO-218AB

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

Parameter	Symbol	Value	UNIT
Peak power dissipation with a 10/1000 $\mu\text{s}$ waveform <sup>(1)</sup>	$P_{PP}$	6600	W
Peak power dissipation with a 10/10,000 $\mu\text{s}$ waveform	$P_{PP}$	5200	W
Peak pulse current with a 10/1000 $\mu\text{s}$ waveform <sup>(1)</sup>	$I_{PP}$	See Next Table	A
Power dissipation on infinite heatsink at $T_L = 25\text{ }^\circ\text{C}$	$P_D$	8.0	W
Peak forward surge current 8.3 ms single half sine-	$I_{FSM}$	700	A
Operating junction and storage temperature range	$T_J, T_{STG}$	-55 to +175	$^\circ\text{C}$

#### Note:

(1) Non-repetitive current pulse per Fig.2 and derated above  $T_A = 25\text{ }^\circ\text{C}$  per Fig.1



# SM8S Series

## Automotive Protection

### Surface Mount

### Transient Voltage Suppressors



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

Part Number	Part Number	Breakdown Voltage $V_{BR}$ @ $I_T$			Maximum Reverse Leakage $I_R$ @ $V_{RWM}$ (uA)	Maximum $I_R$ @ $V_{RWM}$ $T_J=175$ (uA)	Working Peak Reverse Voltage $V_{RWM}$ (V)	Maximum Reverse Surge Current $I_{PP}$ (A) <sup>(1)</sup>	Maximum Clamping Voltage $V_C$ @ $I_{PP}$ (V)
		Min (V)	Max (V)	$I_T$ (mA)					
SM8S10A	SM8S10CA	11.1	12.3	5.0	15	250	10	388	17.0
SM8S11A	SM8S11CA	12.2	13.5	5.0	10	150	11	363	18.2
SM8S12A	SM8S12CA	13.3	14.7	5.0	10	150	12	332	19.9
SM8S13A	SM8S13CA	14.4	15.9	5.0	10	150	13	307	21.5
SM8S14A	SM8S14CA	15.6	17.2	5.0	10	150	14	284	23.2
SM8S15A	SM8S15CA	16.7	18.5	5.0	10	150	15	270	24.4
SM8S16A	SM8S16CA	17.8	19.7	5.0	10	150	16	254	26.0
SM8S17A	SM8S17CA	18.9	20.9	5.0	10	150	17	239	27.6
SM8S18A	SM8S18CA	20.0	22.1	5.0	10	150	18	226	29.2
SM8S20A	SM8S20CA	22.2	24.5	5.0	10	150	20	204	32.4
SM8S22A	SM8S22CA	24.4	26.9	5.0	10	150	22	186	35.5
SM8S24A	SM8S24CA	26.7	29.5	5.0	10	150	24	170	38.9
SM8S26A	SM8S26CA	28.9	31.9	5.0	10	150	26	157	42.1
SM8S28A	SM8S28CA	31.1	34.4	5.0	10	150	28	145	45.4
SM8S30A	SM8S30CA	33.3	36.8	5.0	10	150	30	136	48.4
SM8S33A	SM8S33CA	36.7	40.6	5.0	10	150	33	124	53.3
SM8S36A	SM8S36CA	40.0	44.2	5.0	10	150	36	114	58.1
SM8S40A	SM8S40CA	44.4	49.1	5.0	10	150	40	102	64.5
SM8S43A	SM8S43CA	47.8	52.8	5.0	10	150	43	95.1	69.4

**NOTE:**

1. Surge current waveform is defined at 10/1000uS waveform
2. For all types maximum VF = 1.8 V at IF = 100 A measured on 8.3 ms single half sine-wave or equivalent square wave, duty cycle = 4 pulses per minute maximum

#### Ratings and Characteristics Curves ( $T_A=25^\circ\text{C}$ unless otherwise noted)

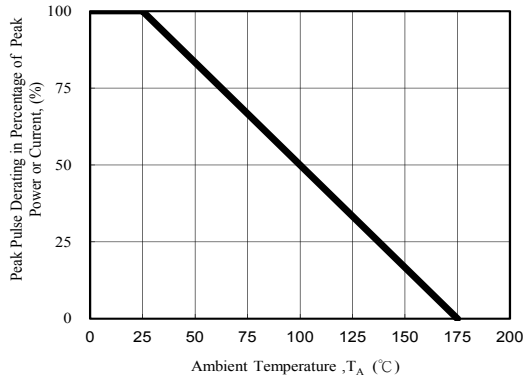


Fig. 1 - Pulse Derating Curve

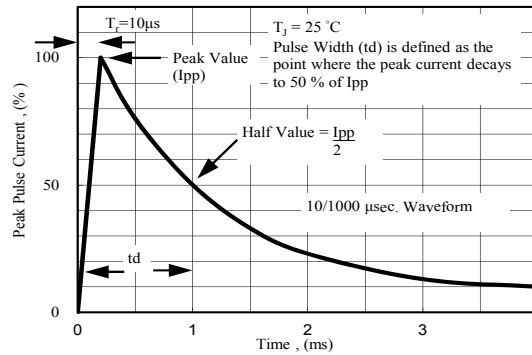


Fig. 2 - Pulse Waveform

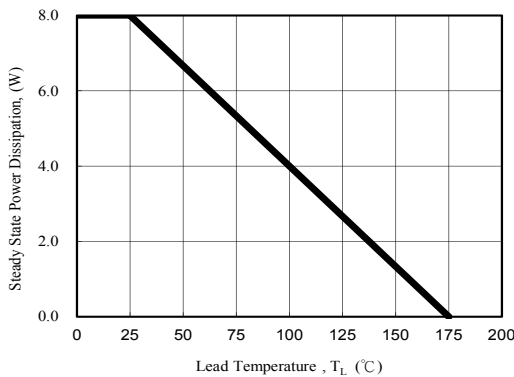


Fig. 3 - Steady State Power Derating Curve

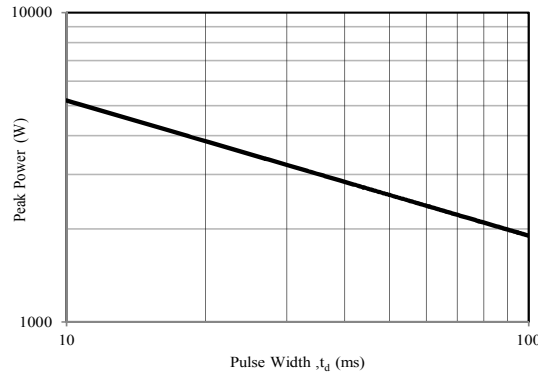


Fig. 4 - Peak Pulse Power Rating Curve

**Ratings and Characteristics Curves ( $T_A=25^{\circ}\text{C}$  unless otherwise noted)**

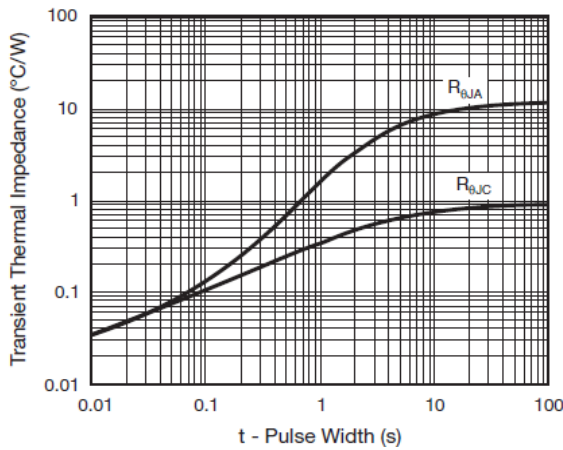


Fig. 5 - Typical Thermal Impedance

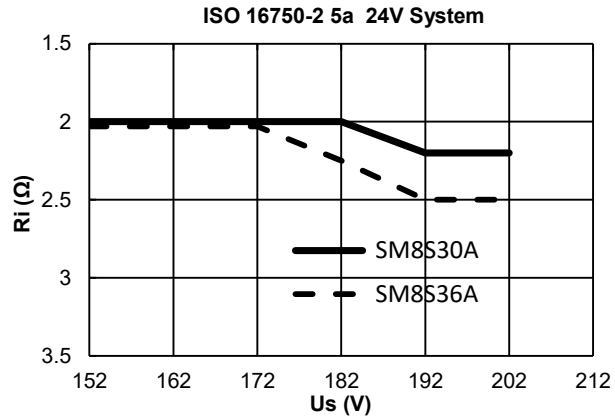
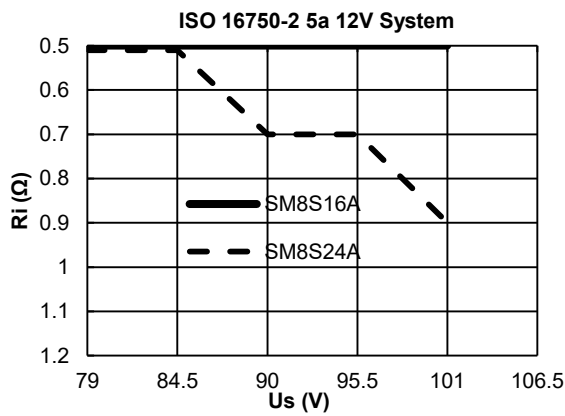
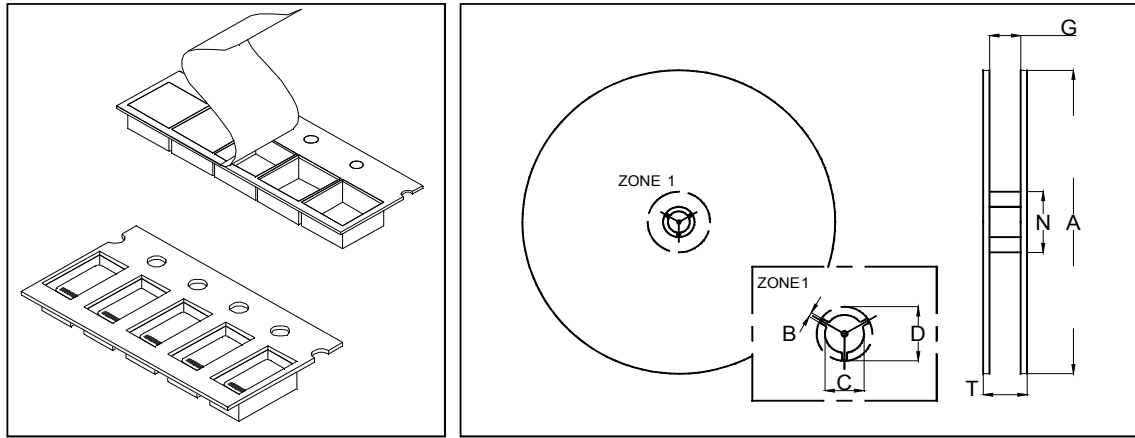


Fig. 6 - Typical SOA Chart

#### SURFACE MOUNT TAPE AND REEL PACKAGING



#### DIMENSIONS in millimeters (inches)

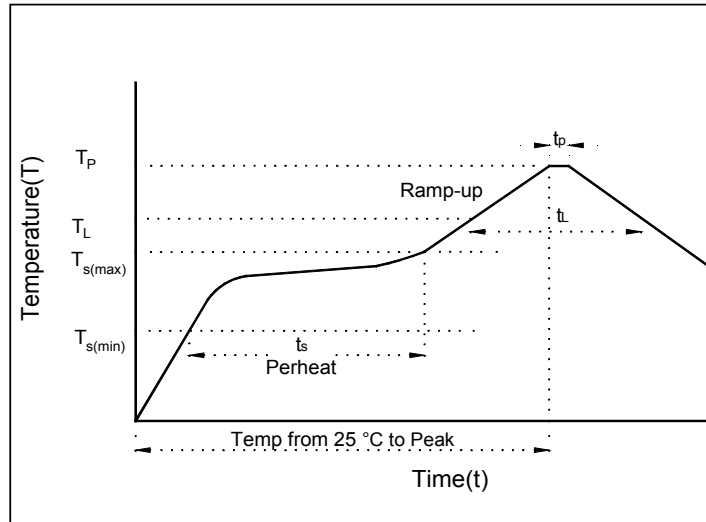
TAPE SIZE	A MAX.	B MIN.	C	D MIN.	N MIN.	G MAX.	T MAX.
24 mm (0.945)	330 ± 2.0 (13.0 ± 0.079) 178 ± 2.0 (7.0 ± 0.079)	1.5 (0.059)	13.5 ± 0.50 (0.53 ± 0.02)	20.2 (0.795)	50 (1.97)	26.4 (1.039)	30.4 (1.197)

#### Recommended Soldering Parameters

IR-Reflow Condition			
Pre Heat	Temp. min	150	°C
	Temp. max	200	°C
	Time(min to max)	60-180	sec
Ramp up rate (150-200°C)		<3	°C/sec

Reflow	Liquidus Temp.	>220	°C
	Peak Temp.	245	°C
	Time(Liq. to Peak)	60-150	sec
Ramp up rate (220-200°C)		<3	°C/sec
Time within actual peak temp.		10-30	sec

Ramp down Rate	<5	°C/sec
Time(25°C to Peak temp.)	<6	min
Do not exceed	280	°C



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