

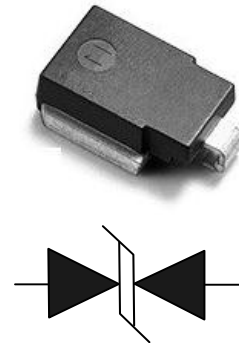


# SM8SxxCA

## Automotive Load Dump Protection TVS

### Features

- 6600 watts Peak Pulse Power (10/1000 $\mu$ s)
- Available in bidirectional polarity
- Junction passivation optimized design passivated anisotropic rectifier technology
- Low leakage current
- High surge capability
- Meets ISO7637-2 surge specification (varied by test condition)
- AEC-Q101 compliant



### Mechanical Characteristics

- JEDEC DO-218AB package
- Molding compound flammability rating: UL 94V-0
- Marking: See Marking Code

### Applications

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

Absolute Maximum Rating			
Rating	Symbol	Value	Units
Peak Pulse Power (tp =10/1000 $\mu$ s) (see Note1,2&3)	P <sub>PPM</sub>	6600	Watts
Peak pulse current (10/1000 $\mu$ s) (see Note2&3)	I <sub>PPM</sub>	See Electrical Characteristics	A
Power dissipation on infinite heat sink T <sub>L</sub> = 25 °C (Fig4)	P <sub>D</sub>	8	W
Operating junction temperature range	T <sub>J</sub>	-55 to + 175	°C
Storage temperature range	T <sub>STG</sub>	-55 to + 175	°C

**Note1:** Peak Pulse Power Rating as Pulse Width ,per Fig1.

**Note2:** Peak Pulse Power or Current Derated above T<sub>A</sub>=25°C Per Fig. 2.

**Note3:** Mounted on 5.0x5.0mm<sup>2</sup> copper pad to each terminal.

## Electrical Characteristics

Part Number	Reverse Stand off Voltage $V_{RWM}$ (Volts)	Breakdown Voltage $V_{BR}$ (Volts) $@I_T$		Test Current $I_T$ (mA)	Maximum Clamping Voltage $V_C@I_{PP}$ (Volts)	Maximum Peak Pulse Current $I_{PP}$ (Amps)	Maximum Reverse Leakage $I_R@V_{RWM}$ ( $\mu$ A)
		MIN	MAX				
SM8S12CA	12	13.3	14.7	5	19.9	332	10
SM8S13CA	13	14.4	15.9	5	21.5	307	10
SM8S14CA	14	15.6	17.2	5	23.2	284	10
SM8S15CA	15	16.7	18.5	5	24.4	270	10
SM8S16CA	16	17.8	19.7	5	26.0	254	10
SM8S17CA	17	18.9	20.9	5	27.6	239	10
SM8S18CA	18	20.0	22.1	5	29.2	226	10
SM8S20CA	20	22.2	24.5	5	32.4	204	10
SM8S22CA	22	24.4	26.9	5	35.5	186	10
SM8S24CA	24	26.7	29.5	5	38.9	170	10
SM8S26CA	26	28.9	31.9	5	42.1	157	10
SM8S28CA	28	31.1	34.4	5	45.4	145	10
SM8S30CA	30	33.3	36.8	5	48.4	136	10
SM8S33CA	33	36.7	40.6	5	53.3	124	10
SM8S36CA	36	40.0	44.2	5	58.1	114	10

Typical Characteristics

Figure 1: Peak Pulse Power Rating Curve

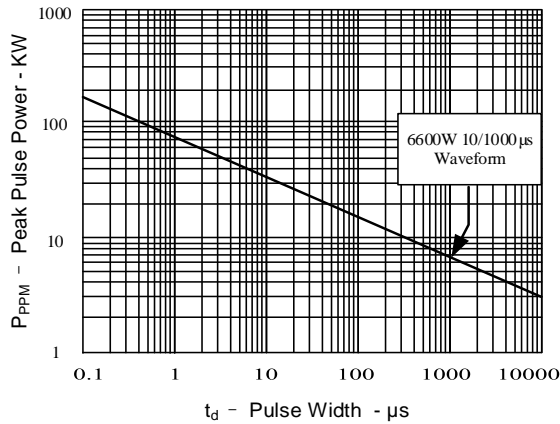


Figure 2: Pulse Derating Curve

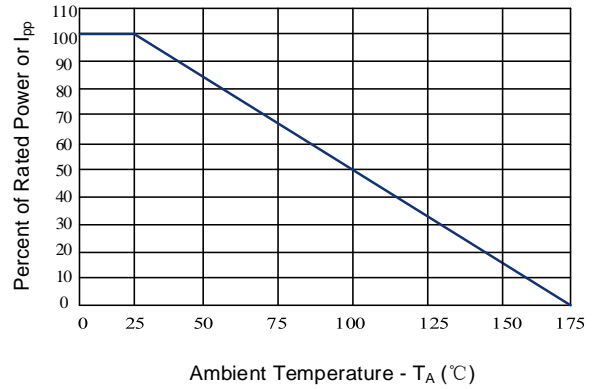


Figure 3: Pulse Waveform

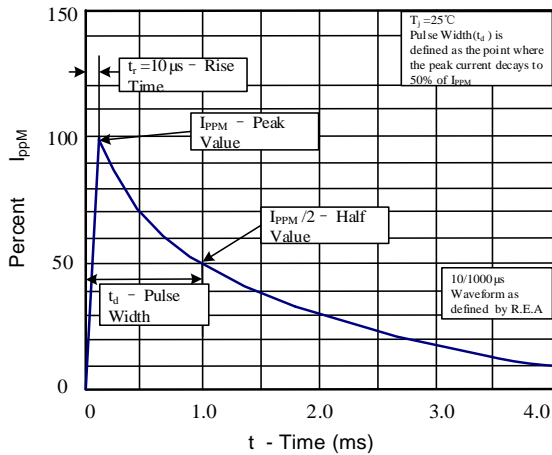
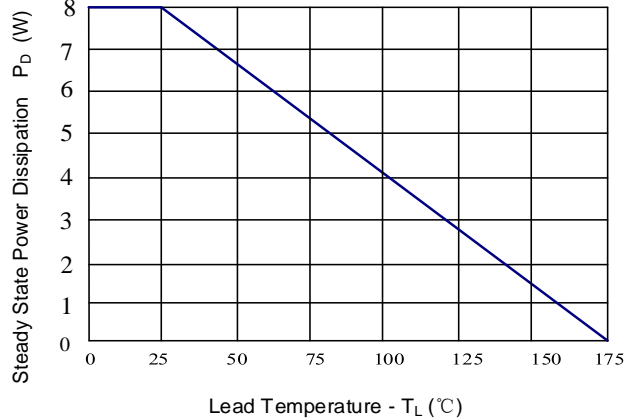
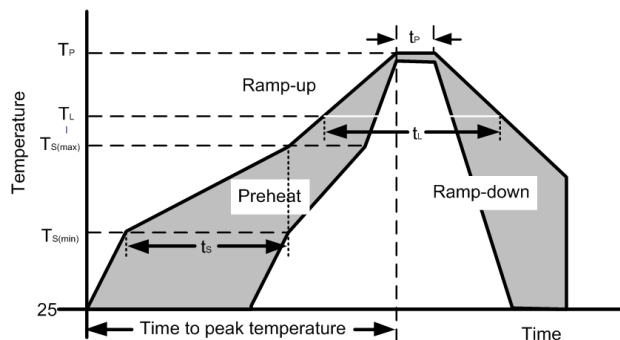


Figure 4: Steady State Power Dissipation Derating Curve



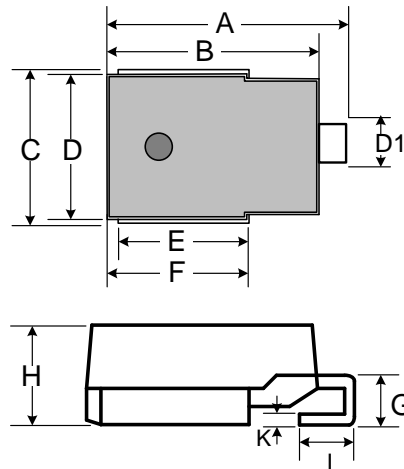
Soldering Parameters

Reflow Condition		
Pre Heat	Temp. min ( $T_{s(min)}$ )	150°C
	Temp. max ( $T_{s(max)}$ )	200°C
	Time (Min to Max) ( $t_s$ )	60-190 s
Average ramp up rate (Liquidus Temp. ( $T_L$ ) to peak)		3°C/s max
$T_{s(max)}$ to $T_L$ - Ramp-up Rate		3°C/s max
Reflow	Temperature ( $T_L$ ) (Liquidus)	217°C
	Temperature ( $t_L$ )	60-150 s
Peak Temperature ( $T_P$ )		260+0/-5 °C
Time within actual peak Temperature ( $t_p$ )		20-40 s
Ramp-down Rate		5°C/s max
Time 25°C to peak Temperature ( $T_P$ )		8 minutes max
Do not exceed		260°C

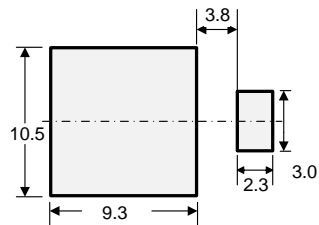


Outline Drawing – (DO-218AB)

Ref. (mm)	Millimeters	
	Min.	Max.
A	15.0	16.0
B	13.3	13.7
C	9.5	10.5
D	8.3	8.7
D1	2.4	3.0
E	8.7	9.3
F	9.7	10.3
G	2.5	3.5
H	4.7	5.0
I	1.5	2.5
K	0.5	0.7

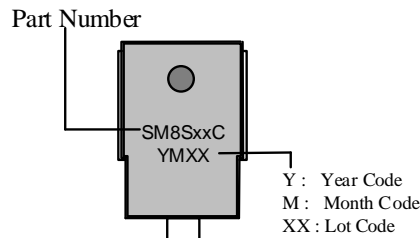


Recommended Solder Pad Layout



Dimensions in mm

Part Marking System



Package Information

750pcs per reel

Contact Information

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The device characteristics and parameters in this data sheet can and do vary in different applications and actual device performance may vary over time.  
Users should verify actual device performance in their specific applications.*

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