

**Description**

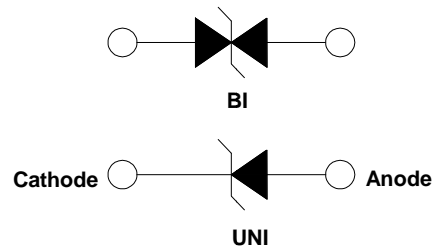
The SM8S series is designed specifically to protect sensitive electronic equipment from voltage transients induced by lightning and other transient voltage events.

**Features**

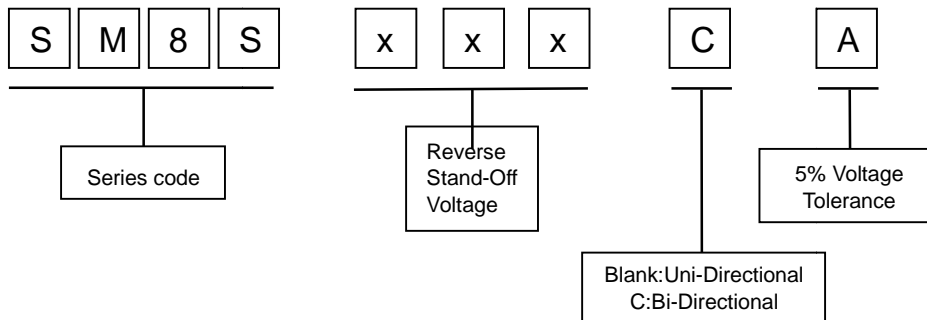
- I Glass passivated chip
- I 6600 W peak pulse power capability with a 10/1000  $\mu$ s waveform, repetitive rate (duty cycle):0.01 %
- I Meet ISO7637-2 5a surge specification
- I Meet AEC-Q101 requirement
- I Low leakage current
- I Bidirectional unit
- I Excellent clamping capability DO-218AB
- I Very fast response time
- I RoHS compliant



**Electrical symbol**



**Part Number Code**



**Mechanical Characteristics**

Rating	Symbol	Value	Units
Peak power dissipation with a 10/1000 $\mu$ s waveform <sup>(1)</sup>	P <sub>PPM</sub>	6600	W
Peak power dissipation with a 10/10000 $\mu$ s waveform	P <sub>PPM</sub>	5200	W
Peak pulse current with a 10/1000 $\mu$ s waveform <sup>(1)</sup>	I <sub>PP</sub>	See Next Table	A
Power dissipation on infinite heatsink at T <sub>L</sub> = 25 °C	P <sub>D</sub>	8.0	W
Storage Temperature Range	T <sub>J</sub> , T <sub>STG</sub>	-55 to 150	°C

(1)Non-repetitive current pulse per Fig.2 and derated above T<sub>A</sub>= 25 °C per Fig.1

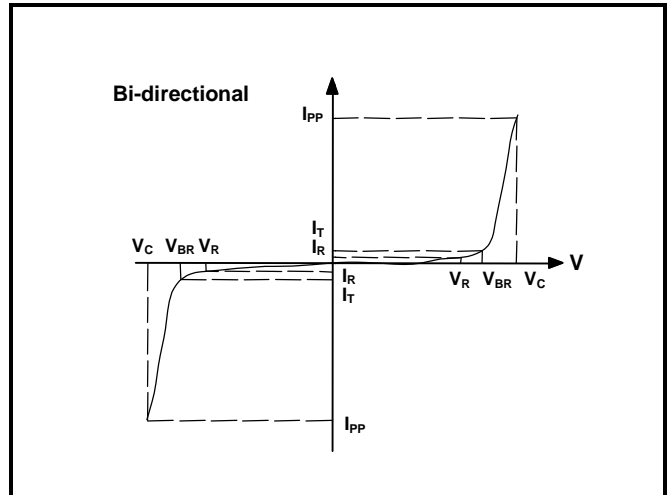
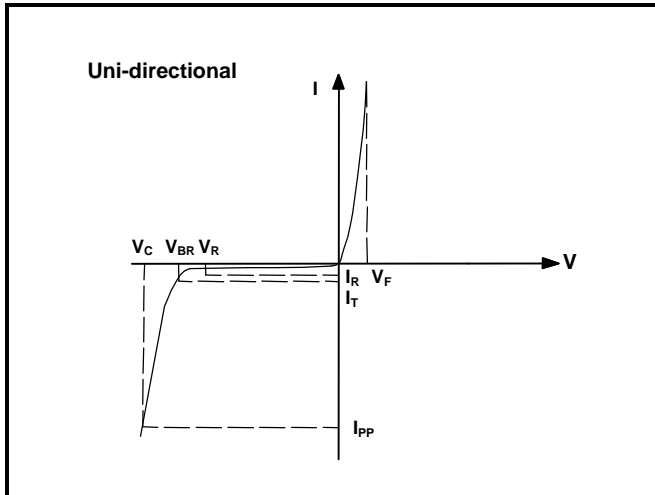


**Electrical Characteristics**

Type Number		Reverse Stand-Off Voltage	Breakdown Voltage		Test Current	Max. Clamping Voltage	Max. Peak Pulse Current	Max. Reverse Leakage	Max. $T_J=150$
			$V_{BR} @ I_T$						
		$V_R$	Min	Max	$I_T$	$V_C @ I_{PP}$	$I_{PP}$	$I_R @ V_R$	$I_R @ V_R$
UNI	BI	V	V	V	mA	V	A	$\mu A$	$\mu A$
SM8S14A	SM8S14CA	14.0	15.60	17.20	5	23.2	284.00	10	150
SM8S15A	SM8S15CA	15.0	16.70	18.50	5	24.4	270.00	10	150
SM8S16A	SM8S16CA	16.0	17.80	19.70	5	26.0	254.00	10	150
SM8S17A	SM8S17CA	17.0	18.90	20.90	5	27.6	239.00	10	150
SM8S18A	SM8S18CA	18.0	20.00	22.10	5	29.2	226.00	10	150
SM8S20A	SM8S20CA	20.0	22.20	24.50	5	32.4	204.00	10	150
SM8S22A	SM8S22CA	22.0	24.40	26.90	5	35.5	186.00	10	150
SM8S24A	SM8S24CA	24.0	26.70	29.50	5	38.9	170.00	10	150
SM8S26A	SM8S26CA	26.0	28.90	31.90	5	42.1	157.00	10	150
SM8S28A	SM8S28CA	28.0	31.10	34.40	5	45.4	145.00	10	150
SM8S30A	SM8S30CA	30.0	33.30	36.80	5	48.4	136.00	10	150
SM8S33A	SM8S33CA	33.0	36.70	40.60	5	53.3	124.00	10	150
SM8S36A	SM8S36CA	36.0	40.00	44.20	5	58.1	114.00	10	150
SM8S40A	SM8S40CA	40.0	44.40	49.10	5	64.5	102.00	10	150
SM8S43A	SM8S43CA	43.0	47.80	52.80	5	69.4	95.10	10	150

NOTE: Surge current waveform is defined at 10/1000uS waveform

**I-V Curve Characteristics**



$P_{PPM}$  Peak Pulse Power Dissipation -- Max power dissipation

$V_R$  Stand-off Voltage -- Maximum voltage that can be applied to the TVS without operation

$V_{BR}$  Breakdown Voltage -- Maximum voltage that flows through the TVS at a specified test current ( $I_T$ )

$V_C$  Clamping Voltage -- Peak voltage measured across the TVS at a specified  $I_{ppm}$  (peak impulse current)

$I_R$  Reverse Leakage Current -- Current measured at  $V_R$

$V_F$  Forward Voltage Drop for Uni-directional



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

Figure 1 - Pulse Derating Curve

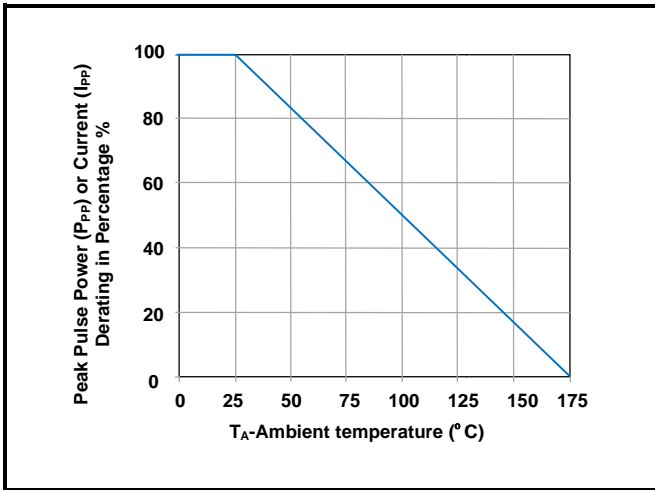


Figure 2 - Pulse Waveform

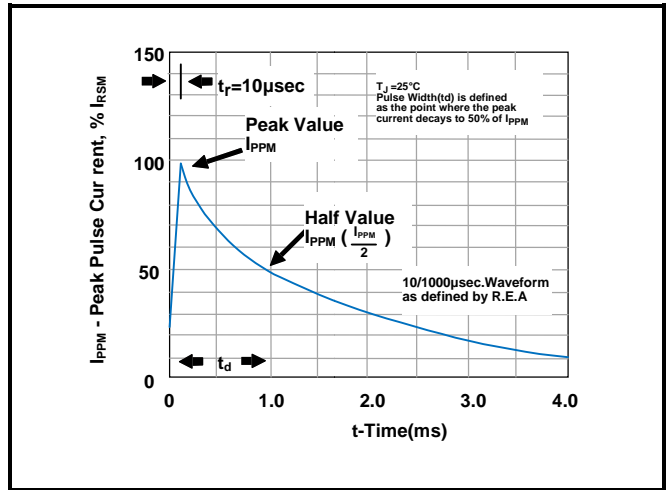


Figure 3 - Steady State Power Derating Curve

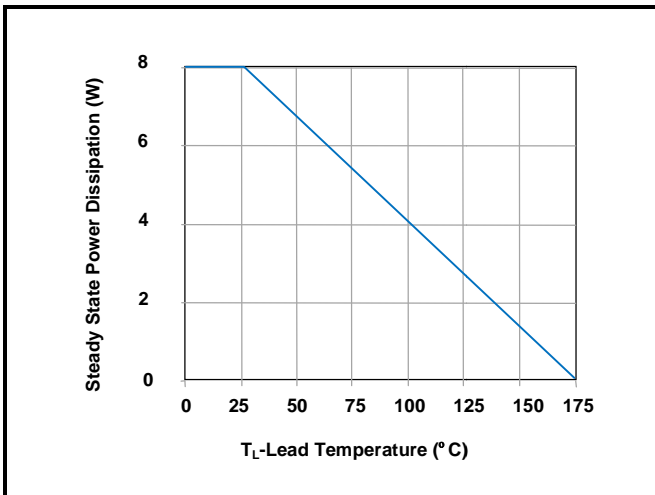
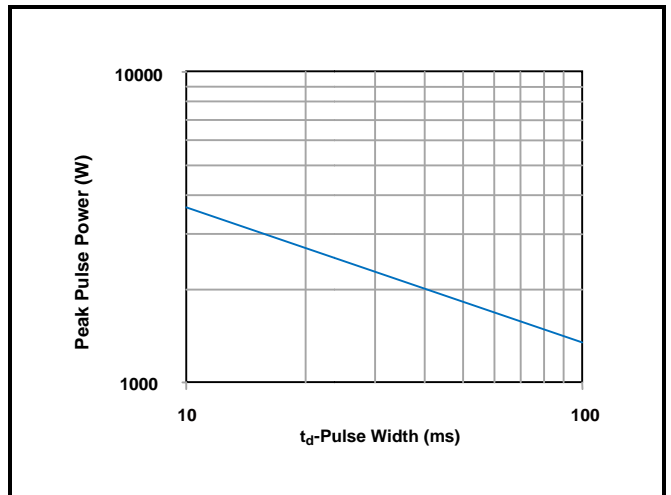
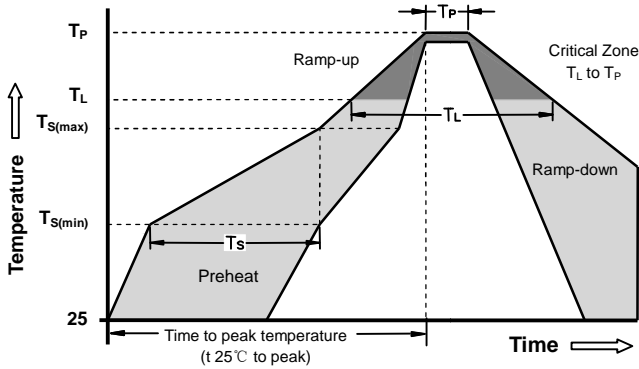


Figure 4 - Peak Pulse Power Rating Curve

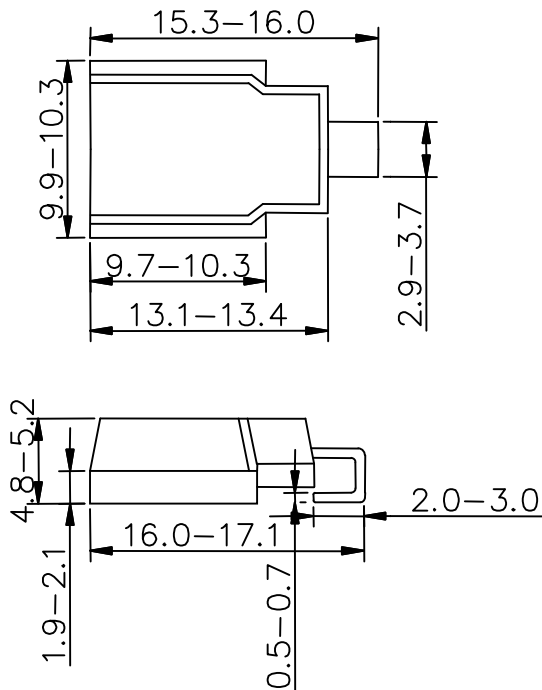


**Soldering Parameters - Reflow Soldering (Surface Mount Devices)**

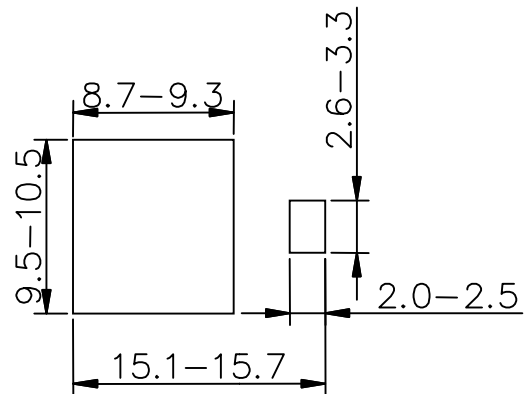


Reflow Condition		Pb - Free assembly
Pre Heat	-Temperature Min ( $T_{s(min)}$ )	150°C
	-Temperature Max ( $T_{s(max)}$ )	200°C
	- Time (min to max) ( $t_s$ )	60 -180 Seconds
Average ramp up rate ( Liquids Temp $T_L$ to peak)		3°C/second max
$T_{s(max)}$ to $T_L$ - Ramp-up Rate		3°C/second max
Reflow	- Temperature ( $T_L$ ) (Liquids)	217°C
	- Time (min to max) ( $t_s$ )	60 -150 Seconds
Peak Temperature ( $T_P$ )		260 +0/-5°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 ( $T_P$ )		8 minutes Max
Do not exceed		260°C

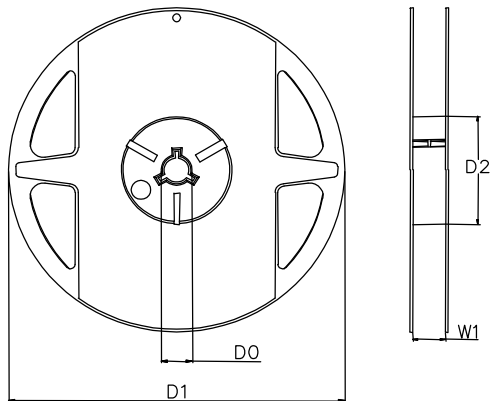
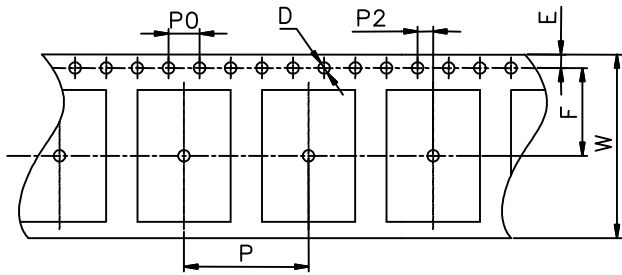
**Dimensions(mm)**



**Recommended Mounting Pad Layout**



Taping and Reel Specifications



Symbol	Millimeters	Inches
W	24±0.3	0.945±0.012
P	16.0±0.1	0.63±0.004
F	11.5±0.1	0.453±0.004
E	1.75±0.1	0.069±0.004
D	1.5+0.1/-0.0	0.059+0.004/-0.0
P0	4±0.1	0.157±0.004
P2	2±0.1	0.079±0.004
D0(MIN.)	20.2	0.795
D1	330±2.0	13.0±0.079
D2(MIN.)	50.0	1.97
W1(MAX.)	26.4	1.039

Part Number	Component package	Quantity	Packaging option
SM8SxxA/CA	DO-218AB	500	Tape&Reel-24mm/13"tape

