

## SM6SA-AM Series

Product Name	ESD TVS (Transient Voltage Suppressor)
Series	SM6SA-AM Series
Package Size	DO-218



## SM6SA-AM Series Engineering Specification

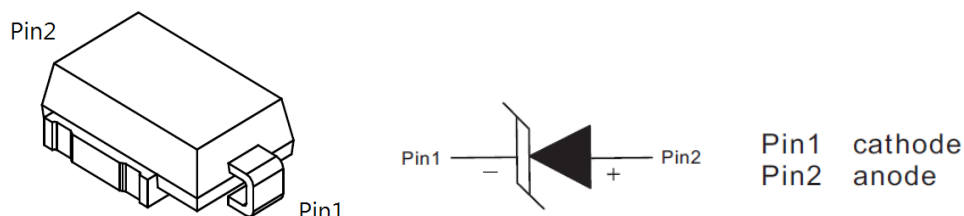
### 1. Features

- 4600 watts peak pulse power
- Junction passivation optimized design passivated anisotropic rectifier technology
- Low leakage current
- Low forward voltage drop
- High surge capability
- Qualified to AEC-Q101 standards for high reliability
- Meet ISO 7637-2 5a/5b and ISO 16750 load dump test (varied by test condition)

### 2. Mechanical Date

- Case: JEDEC DO-218 Molded plastic
- Lead: Solderable per MIL-STD-750, method 2026
- Molding compound: UL94V-0
- Polarity: Heatsink is anode

### 3. Pinning Information



### 4. Maximum Ratings @Ta=25°C unless otherwise noted

Parameter	Symbol	Value	Unit
Peak power dissipation with a 10/1000μs waveform <sup>(1)</sup>	P <sub>PP</sub>	4600	W
Peak power dissipation with a 10/10,000μs waveform	P <sub>PP</sub>	3600	W
Peak pulse current with a 10/1000μs 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>	6.0	W
Peak forward surge current, 8.3 ms single half sine-wave	I <sub>FSM</sub>	600	A
Operating junction and storage temperature range	T <sub>J</sub> , T <sub>STG</sub>	- 55 to +175	°C

(1)Non-repetitive current pulse per Fig.2 and derated above TA= 25 °C per Fig.1

## 5. Electrical characteristics

Part Number (Uni)	Breakdown Voltage VBR @IT			Maximum Reverse Leakage I <sub>R</sub> @V <sub>RWM</sub> (uA)	Maximum I <sub>R</sub> @V <sub>RWM</sub> T <sub>J</sub> =175 (uA)	Working Peak Reverse Voltage V <sub>RWM</sub> (V)	Maximum Reverse Surge Current I <sub>PP</sub> (A)	Maximum Clamping Voltage V <sub>C</sub> @I <sub>PP</sub> (V)	Marking Code
	Min (V)	Max (V)	IT (mA)						
SM6S10A-AM	11.1	12.3	5.0	15	250	10	271	17.0	SM6S10A
SM6S11A-AM	12.2	13.5	5.0	10	150	11	253	18.2	SM6S11A
SM6S12A-AM	13.3	14.7	5.0	10	150	12	231	19.9	SM6S12A
SM6S13A-AM	14.4	15.9	5.0	10	150	13	214	21.5	SM6S13A
SM6S14A-AM	15.6	17.2	5.0	10	150	14	198	23.2	SM6S14A
SM6S15A-AM	16.7	18.5	5.0	10	150	15	189	24.4	SM6S15A
SM6S16A-AM	17.8	19.7	5.0	10	150	16	177	26.0	SM6S16A
SM6S17A-AM	18.9	20.9	5.0	10	150	17	167	27.6	SM6S17A
SM6S18A-AM	20.0	22.1	5.0	10	150	18	158	29.2	SM6S18A
SM6S20A-AM	22.2	24.5	5.0	10	150	20	142	32.4	SM6S20A
SM6S22A-AM	24.4	26.9	5.0	10	150	22	130	35.5	SM6S22A
SM6S24A-AM	26.7	29.5	5.0	10	150	24	118	38.9	SM6S24A
SM6S26A-AM	28.9	31.9	5.0	10	150	26	109	42.1	SM6S26A
SM6S28A-AM	31.1	34.4	5.0	10	150	28	101	45.4	SM6S28A
SM6S30A-AM	33.3	36.8	5.0	10	150	30	95	48.4	SM6S30A
SM6S33A-AM	36.7	40.6	5.0	10	150	33	86	53.3	SM6S33A
SM6S36A-AM	40.0	44.2	5.0	10	150	36	79	58.1	SM6S36A
SM6S40A-AM	44.4	49.1	5.0	10	150	40	71	64.5	SM6S40A
SM6S43A-AM	47.8	52.8	5.0	10	150	43	66	69.4	SM6S43A

(1) Surge current waveform is defined at 10/1000us waveform

(2) For all types maximum VF=1.9V at IF=100A measured on 8.3ms single half sine-wave or equivalent square wave, duty cycle=4 pulses

## 6. Typical Characteristics

Fig. 1 - Pulse Derating Curve

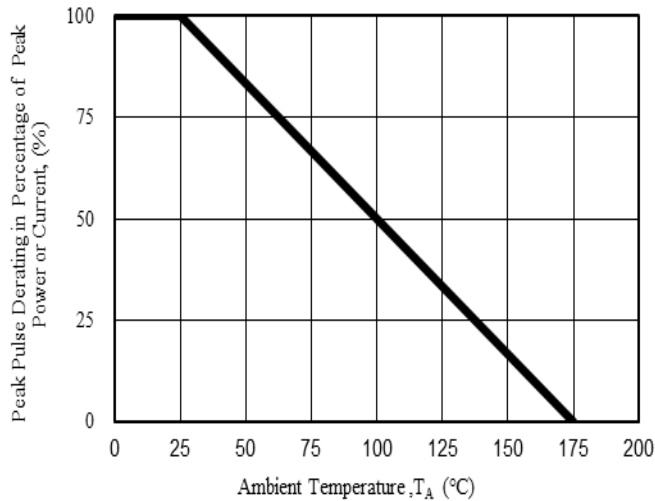


Fig. 2 - Maximum Non-Repetitive Surge Current

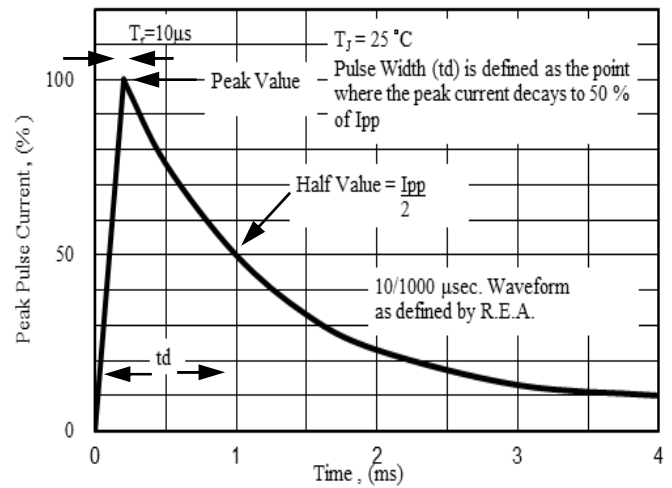


Fig. 3 - Steady State Power Derating Curve

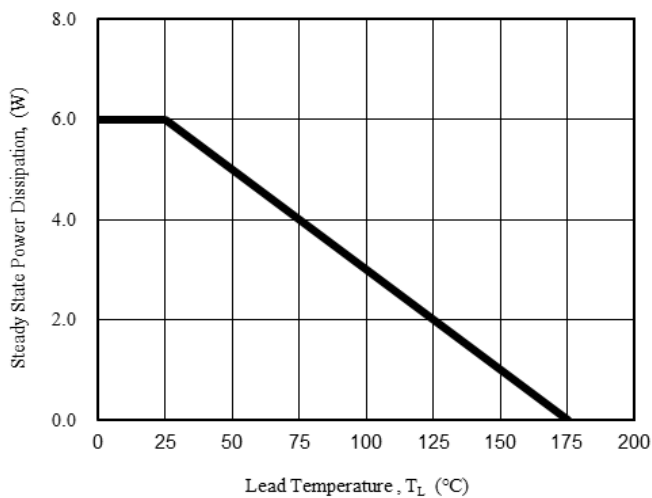
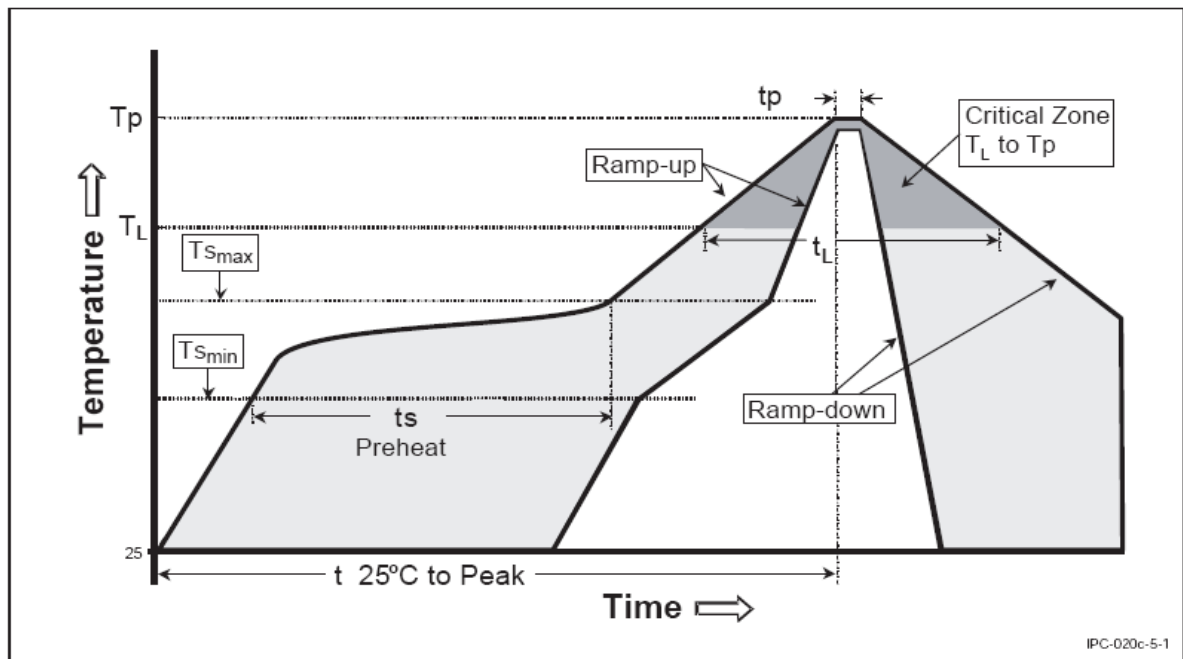


Fig. 4 - Peak Pulse Power Rating Curve



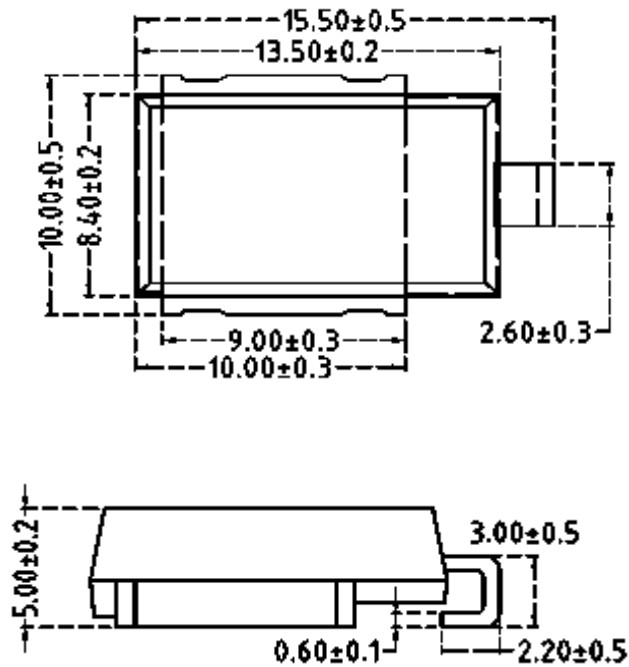
## 7. Reflow Soldering

Profile Feature	Pb-Free Assembly
Average Ramp-Up Rate (T <sub>smax</sub> to T <sub>p</sub> )	3° C/second max.
Preheat <ul style="list-style-type: none"> <li>– Temperature Min (T<sub>smin</sub>)</li> <li>– Temperature Max (T<sub>smax</sub>)</li> <li>– Time (t<sub>smin</sub> to t<sub>smax</sub>)</li> </ul>	150 °C 200 °C 60-120 seconds
Time maintained above: <ul style="list-style-type: none"> <li>– Temperature (T<sub>L</sub>)</li> <li>– Time (t<sub>L</sub>)</li> </ul>	217 °C 60-150 seconds
Peak/Classification Temperature (T <sub>p</sub> )	260 °C
Time within 5 °C of actual Peak Temperature (t <sub>p</sub> )	30 seconds
Ramp-Down Rate	6 °C/second max.
Time 25 °C to Peak Temperature	8 minutes max.



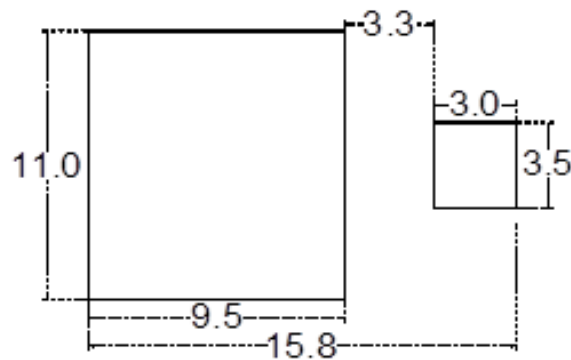
## 8. Outline Dimensions

DO-218



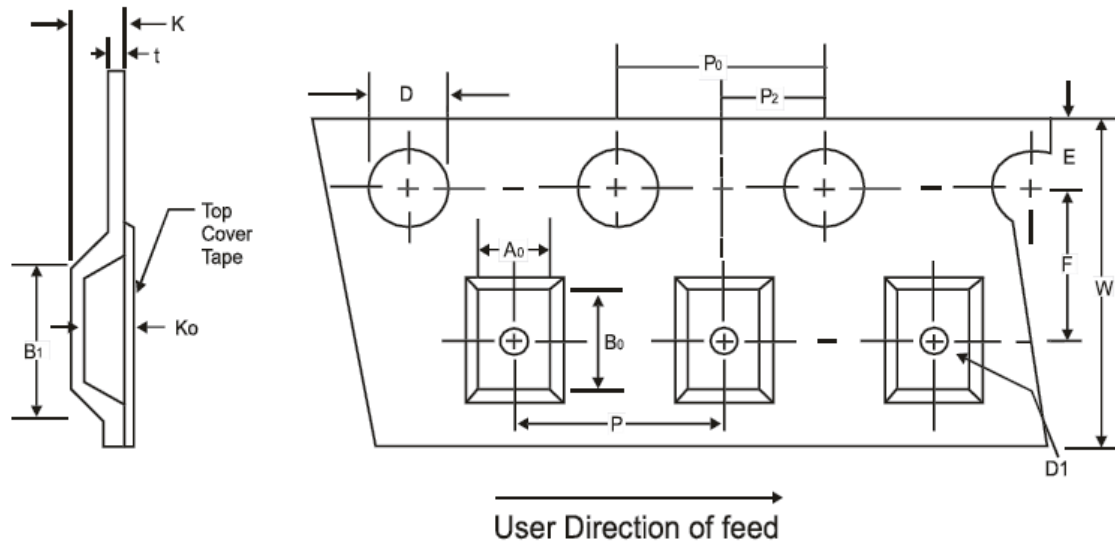
Dimensions in millimeters

## 9. Pad Layout

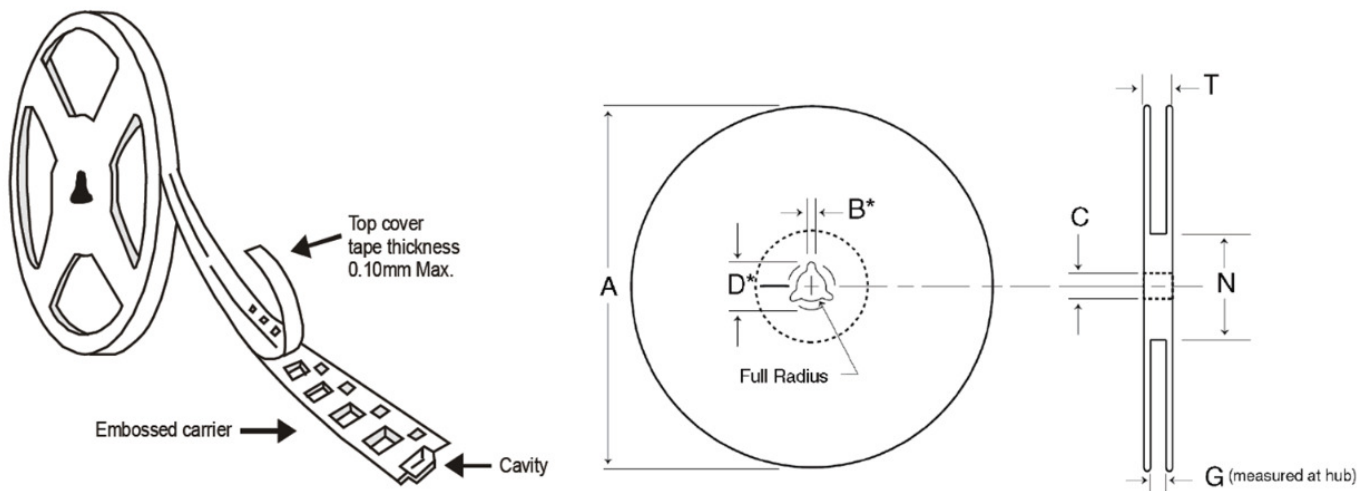


Dimensions in millimeters

## 10. Tape & Reel Information



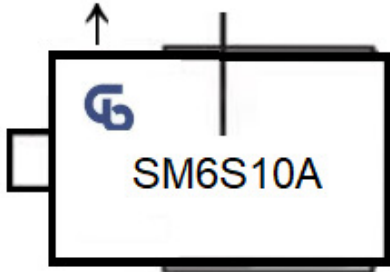
Symbol	W	D	E	P0	t	B1	D1	F	K	P2	P
DO-218	24.3±0.1	1.55±0.05	1.75±0.05	4.0±0.1	0.4	16.33	1.5	11.5±0.1	6.0	2.0±0.05	16.0±0.1
Unit : mm					max	max	min		max		



Symbol	A	B	C	D	N	G	T
DO-218	330±2.0	2.4	13.5±0.50	22	61	25	27.9
Unit : mm	(13inch)	max		max	min	max	max

## 11. Marking Code

① LOGO ② TYPE NAME



## 12. Order Information

Part Number	Quantity	Packaging Option
SM6SA-AM Series	750 /reel	tape/13"reel

## 13. MSL Level

LEVEL 1