

# Transient Voltage Suppressors 6.6KW DO-218AB AEC-Q101

SM8S-A Series

MERITEK

## FEATURE

- Glass passivated chip
- 6.6KW peak pulse power capability with a 10/1000 $\mu$ s waveform repetitive rate (duty cycle):0.01 %
- Excellent clamping capability
- Fast response time
- Molding compound meets UL 94V-0 flamability rating
- IEC 61000-4-2 ESD:  $\pm$ 30KV (Air),  $\pm$ 30KV (Contact)
- Meet ISO 7637-2 5a/5b and ISO 16750 loaddump test
- AEC-Q101 qualified



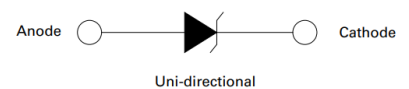
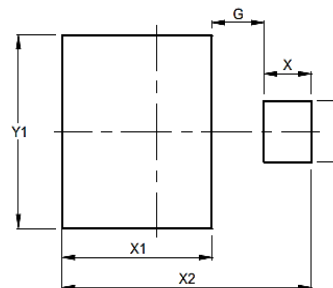
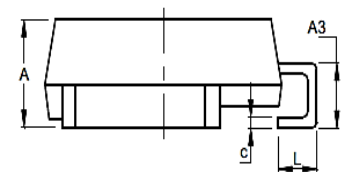
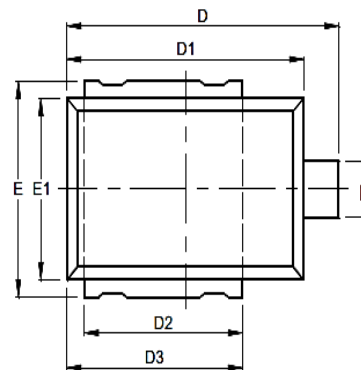
## ELECTRICAL CHARACTERISTICS

Parameter	Symbols	Value	Unit
Peak power dissipation with a 10/1000 $\mu$ s waveform Note 1	$P_{PP}$	6600	W
Peak pulse current with a 10/1000 $\mu$ s waveform Note 1	$I_{PP}$	See Table below	A
Power dissipation on infinite heatsink at $T_L = 25^\circ\text{C}$	$P_D$	8.0	W
Peak forward surge current, 8.3 ms single half sine-wave	$I_{FSM}$	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  $T_A=25^\circ\text{C}$  per Fig.1
  2. Rating at  $25^\circ\text{C}$ , ambient temperature unless otherwise specified. Single phase, half wave, 60 Hz, resistive or inductive load. For capacitive load, derate current by 20%.

## DIMENSIONS

Item	DO-218AB	
	Min. (mm)	Max. (mm)
A	4.80	5.20
A3	2.50	3.50
b	2.50	2.90
c	0.50	0.70
D	15.0	16.0
D1	13.3	13.7
D2	8.70	9.30
D3	9.70	10.3
E	9.50	10.5
E1	8.20	8.60
L	1.70	2.70
G	3.30	-
X	3.00	-
X1	9.50	-
X2	15.8	-
Y	3.00	-
Y1	11.0	-



# Transient Voltage Suppressors 6.6KW DO-218AB AEC-Q101

SM8S-A Series

**MERITEK**

## ELECTRICAL CHARACTERISTICS

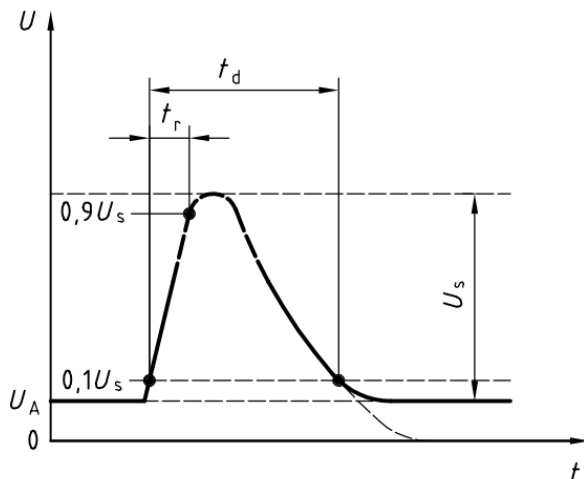
SM8S-A Series (Uni)	Breakdown Voltage @ 5mA I <sub>T</sub>		Working Peak Reverse Voltage V <sub>RWM</sub> (V)	Reverse Leakage Current @ V <sub>RWM</sub> I <sub>R</sub> (uA)max	Reverse Leakage Current T <sub>J</sub> =175°C @ V <sub>RWM</sub> I <sub>R</sub> (uA)max	Maximum Reverse Surge Current I <sub>PP</sub> (A)	Maximum Clamping Voltage @ I <sub>PP</sub> V <sub>C</sub> (V)
	V <sub>BR</sub> Min(V)	V <sub>BR</sub> Max(V)					
SM8S14A	15.6	17.2	14	10.0	150	284.0	23.2
SM8S15A	16.7	18.5	15	10.0	150	270.0	24.4
SM8S16A	17.8	19.7	16	10.0	150	254.0	26.0
SM8S17A	18.9	20.9	17	10.0	150	239.0	27.6
SM8S18A	20.0	22.1	18	10.0	150	226.0	29.2
SM8S20A	22.2	24.5	20	10.0	150	204.0	32.4
SM8S22A	24.4	26.9	22	10.0	150	186.0	35.5
SM8S24A	26.7	29.5	24	10.0	150	170.0	38.9
SM8S26A	28.9	31.9	26	10.0	150	157.0	42.1
SM8S28A	31.1	34.4	28	10.0	150	145.0	45.4
SM8S30A	33.3	36.8	30	10.0	150	136.0	48.4
SM8S33A	36.7	40.6	33	10.0	150	124.0	53.3
SM8S36A	40.0	44.2	36	10.0	150	114.0	58.1
SM8S40A	44.4	49.1	40	10.0	150	102.0	64.5
SM8S43A	47.8	52.8	43	10.0	150	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

## LOAD DUMP TEST WAVE FORM



Parameter	12V system	24V system
U <sub>s</sub>	65V to 87V	123V to 174V
R <sub>i</sub>	0.5Ω to 4Ω	1Ω to 8Ω
t <sub>d</sub>	40 ms to 400 ms	100 ms to 350 ms
t <sub>r</sub>	(10.5)ms	

### CHARACTERISTICS CURVES

Fig.1 Pulse Derating Curve

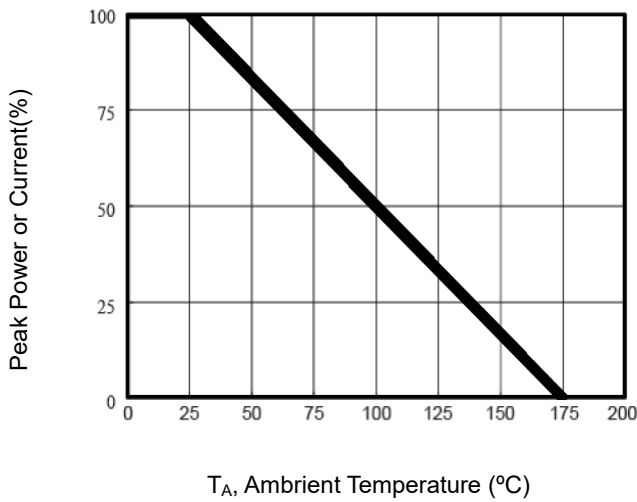


Fig.2 Pulse Waveform

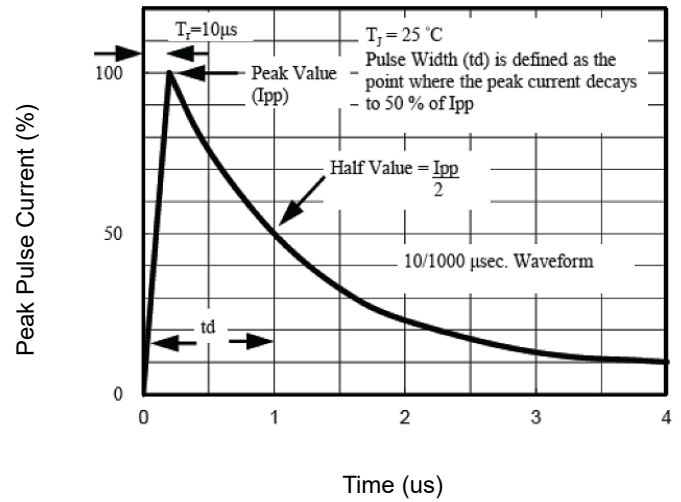


Fig.3 Steady State Power Derating Curve

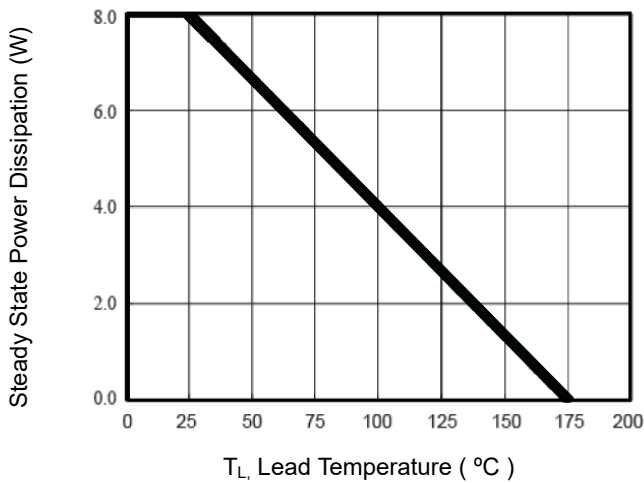
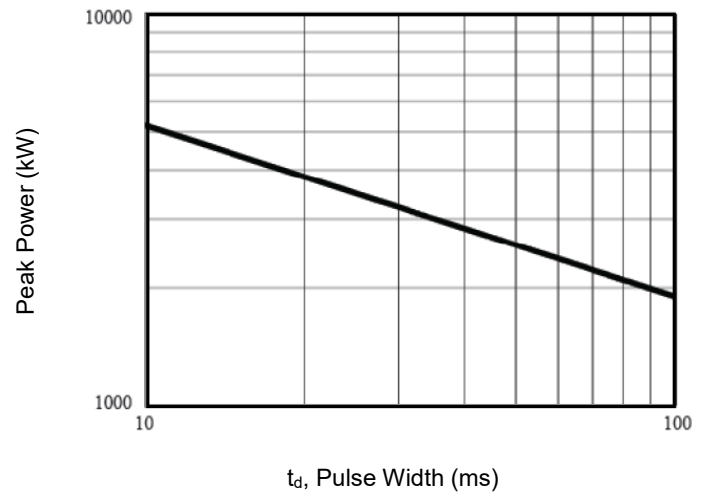
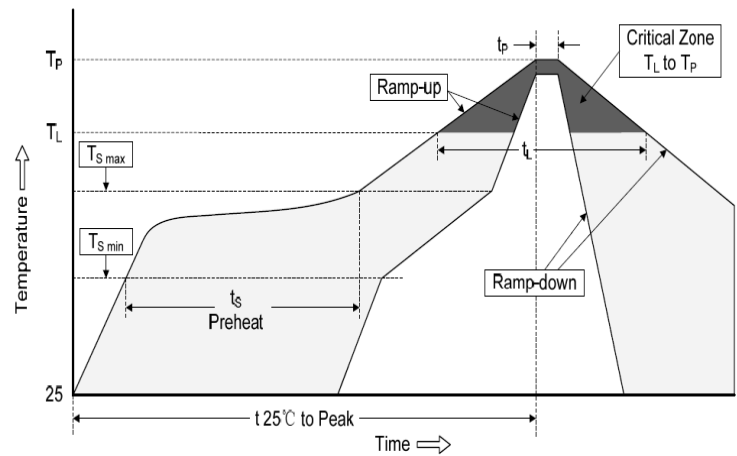


Fig.4 Peak Pulse Power Rating Curve

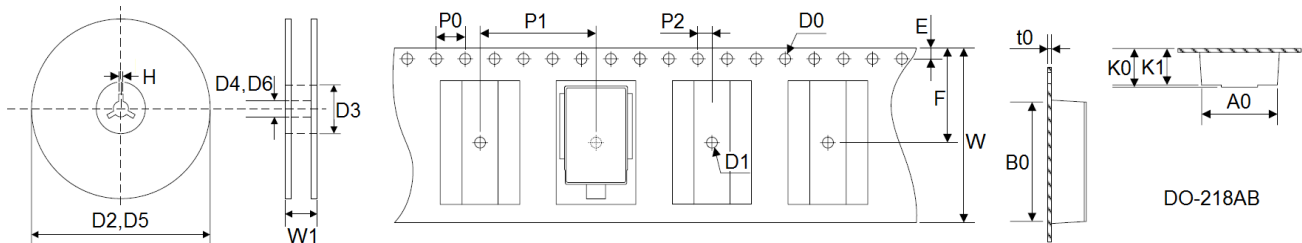


### SOLDERING RECOMMENDATION

Reflow Condition		
Pre Heat	Temp. Min $T_{s(min)}$	150°C
	Temp. Max $T_{s(max)}$	200°C
	Time (min to max) ( $t_s$ )	60s ~ 180s
Average ramp up rate ( $T_L$ to $T_P$ )		3°C/s max
Ramp-up rate ( $T_{s(max)}$ to $T_L$ )		3°C/s max
Reflow	Temp. ( $T_L$ )	217°C
	Time (min to max) ( $t_L$ )	60-150s max
Peak Temperature ( $T_P$ )		260°C
Time within 5°C of $T_P$ ( $t_p$ )		20-40s
Ramp-down Rate		6°C/s max
Time 25°C to Peak Temperature		8 minutes max



### PACKAGING SPECIFICATIONS



Tape Dimension (mm)												
W ±0.20	P0 ±0.10	P1 ±0.10	P2 ±0.10	D0 ±0.05	D1 ±0.25	E ±0.10	F ±0.25	A0 ±0.10	B0 ±0.10	K0 ±0.10	K1 ±0.10	t0 ±0.05
24.00	4.00	16.00	2.00	1.55	1.50	1.75	13.25	11.0	16.7	5.90	5.60	0.40

7in Reel Dimension (mm)					13in Reel Dimension (mm)				
D2 ±2.0	D3 Min	D4 ±0.5	W1 ±2.0	Quantity	D5 ±2.0	D6 ±0.5	H ±1.0	W2 ±2.0	Quantity
178.0	50.0	13.0	29.0	150	330.0	13.5	2.5	29.0	700

\*Specifications subject to change without notice