

## Transient Voltage Suppressors family

### FEATURES

- High current capability
- Low Forward Voltage Drop
- Low reverse current
- Low thermal resistance
- Excellent high temperature stability
- Low power loss and high efficiency
- High forward surge capability
- Meets ISO7637-2 5a surge specification
- Meets MSL level 1, per J-STD-020, LF maximum peak of 260 °C
- P/N suffix V means AEC-Q101 qualified, eg: SM8S10AV
- P/N suffix V means Halogen-free

### APPLICATIONS

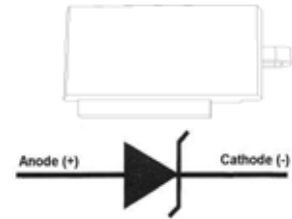
- High peak power
- High-temperature
- Clamping diode
- Load switching and lighting

### MACHANICAL DATA

- Case: DO-218 outline plastic package
- Terminals: Matte tin plated, solderable per MIL-STD-750, Method 2026, J-STD-002 and JESD 22-B102
- Molding Compound Flammability Rating: UL94-0
- High temperature soldering guaranteed: 260°C 10second
- HE3 suffix meets JESD 201 class 2 whisker test
- Polarity : Heatsink is anode
- Corresponds to taping packages. (750PCS/Reel 3000PCS/Carton)

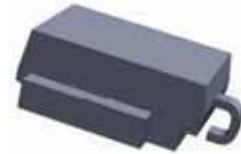
### PIN INFORMATION

Polarity: Heatsink is anode



For Bidirectional use C or CA suffix for types SM8S10 thru SM8S43, Electrical characteristics apply in both direction.

### DO-218



### MARKING INFORMATION



PRIMARY CHARACTERISTICS	
V <sub>WM</sub>	10 to 43 V
V <sub>BR</sub>	11.1 to 52.8 V
PPPM (10 x 1000 uS)	6600 W
PPPM (10 x 10000 uS)	5200 W
P <sub>D</sub>	8 W
I <sub>FSM</sub>	700 A
Diode variation	Single

**Maximum Ratings (TA = 25 °C unless otherwise noted)**

Parameter		Symbol	Value	Units
Peak pulse power dissipation	10/1000 $\mu$ s waveform	PPPM	6600	W
	10/10 000 $\mu$ s waveform		5200	
Power dissipation on infinite heatsink at TC = 25 °C		PD	8.0	W
Peak forward surge current 8.3 ms single half sine-wave		IFSM	700	A
Operating junction and storage temperature range		TJ, TSTG	-55 to +175	°C

**Electrical Characteristics (TA = 25 °C unless otherwise noted)**

Part Number	Breakdown Voltage VBR (V)		Test Current IT (mA)	Stand-OFF Voltage VWM (V)	Maximum Reverse Leakage at VWM ID ( $\mu$ A)	Maximum Leakage at VWM TJ = 175 °C ID ( $\mu$ A)	Max. Peak Pulse Current at 10/1000 us Waveform (A)	Maximum Clamping Voltage at IPPM Vc (V)
	Min.	Max.						
SM8S10	11.1	13.6	5.0	10.0	15	250	351	18.8
SM8S10A		12.3	5.0	10.0	15	250	388	17.0
SM8S11	12.2	14.9	5.0	11.0	10	150	328	20.1
SM8S11A		13.5	5.0	11.0	10	150	363	18.2
SM8S12	13.3	16.3	5.0	12.0	10	150	300	22.0
SM8S12A		14.7	5.0	12.0	10	150	332	19.9
SM8S13	14.4	17.6	5.0	13.0	10	150	277	23.8
SM8S13A		15.9	5.0	13.0	10	150	307	21.5
SM8S14	15.6	19.1	5.0	14.0	10	150	256	25.8
SM8S14A		17.2	5.0	14.0	10	150	284	23.2
SM8S15	16.7	20.4	5.0	15.0	10	150	245	26.9
SM8S15A		18.5	5.0	15.0	10	150	270	24.4
SM8S16	17.8	21.8	5.0	16.0	10	150	229	28.8
SM8S16A		19.7	5.0	16.0	10	150	254	26.0
SM8S17	18.9	23.1	5.0	17.0	10	150	216	30.5
SM8S17A		20.9	5.0	17.0	10	150	239	27.6
SM8S18	20.0	24.4	5.0	18.0	10	150	205	32.2
SM8S18A		22.1	5.0	18.0	10	150	226	29.2
SM8S20	22.2	27.1	5.0	20.0	10	150	184	35.8
SM8S20A		24.5	5.0	20.0	10	150	204	32.4
SM8S22	24.4	29.8	5.0	22.0	10	150	168	39.4
SM8S22A		26.9	5.0	22.0	10	150	186	35.5
SM8S24	26.7	32.6	5.0	24.0	10	150	153	43.0
SM8S24A		29.5	5.0	24.0	10	150	170	38.9
SM8S26	28.9	35.3	5.0	26.0	10	150	142	46.6
SM8S26A		31.9	5.0	26.0	10	150	157	42.1
SM8S28	31.1	38.0	5.0	28.0	10	150	132	50.1
SM8S28A		34.4	5.0	28.0	10	150	145	45.4
SM8S30	33.3	40.7	5.0	30.0	10	150	123	53.5
SM8S30A		36.8	5.0	30.0	10	150	136	48.4
SM8S33	36.7	44.9	5.0	33.0	10	150	112	59.0
SM8S33A		40.6	5.0	33.0	10	150	124	53.3
SM8S36	40.0	48.9	5.0	36.0	10	150	103	64.3
SM8S36A		44.2	5.0	36.0	10	150	114	58.1
SM8S40	44.4	54.3	5.0	40.0	10	150	92.4	71.4
SM8S40A		49.1	5.0	40.0	10	150	102	64.5
SM8S43	47.8	58.4	5.0	43.0	10	150	86	76.7
SM8S43A		52.8	5.0	43.0	10	150	95.1	69.4

### Thermal Characteristics (TA = 25 °C unless otherwise noted)

Parameter	Symbol	Value	Units
Typical thermal resistance, junction to case	$R_{\theta JC}$	0.90	°C/W

### RATING AND CHARACTERISTICS CURVES (SM8S SERIES)

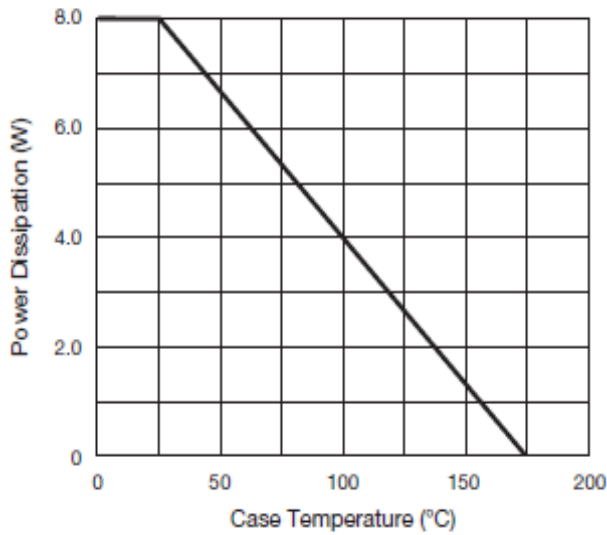


Fig. 1 - Power Derating Curve

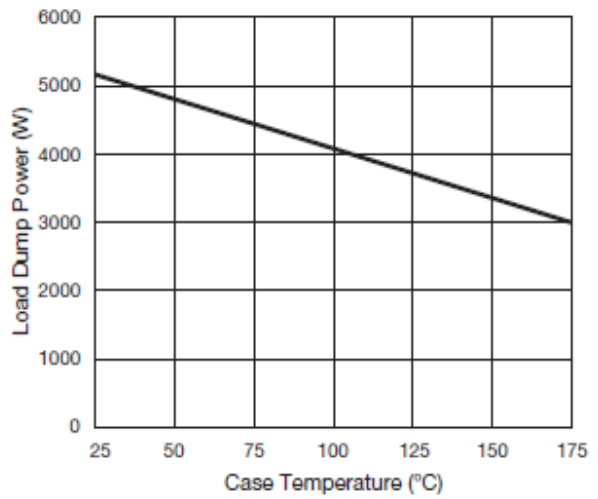


Fig. 2 - Load Dump Power Characteristics (10 ms Exponential Waveform)

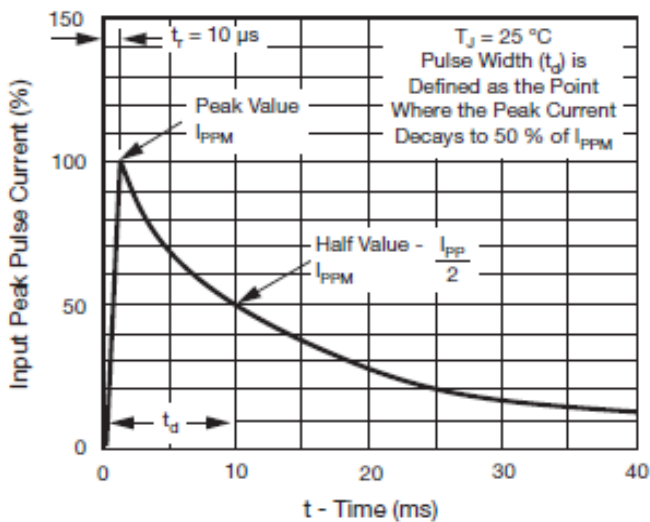


Fig. 3 - Pulse Waveform

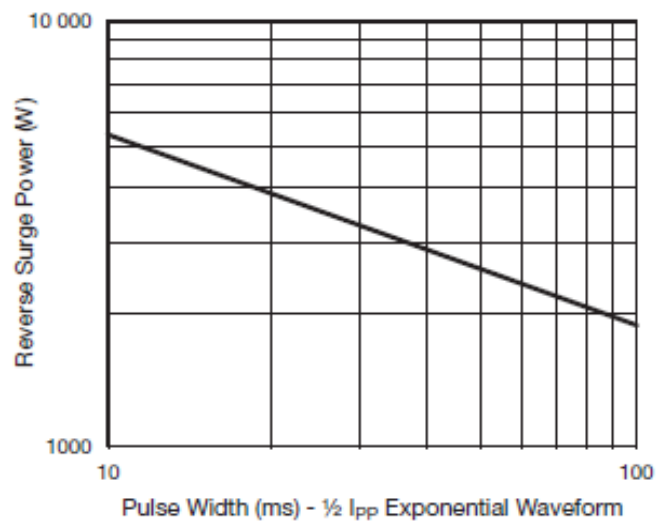


Fig. 4 - Reverse Power Capability

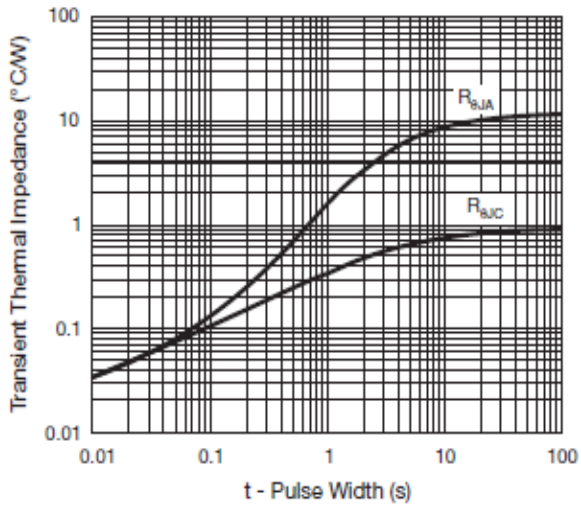


Fig. 5 - Typical Transient Thermal Impedance

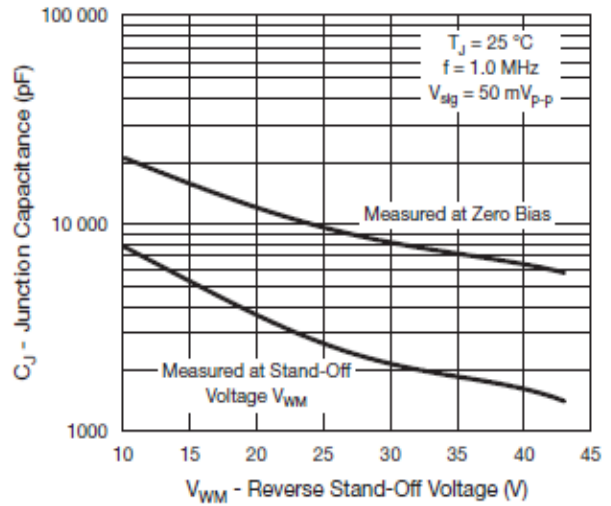
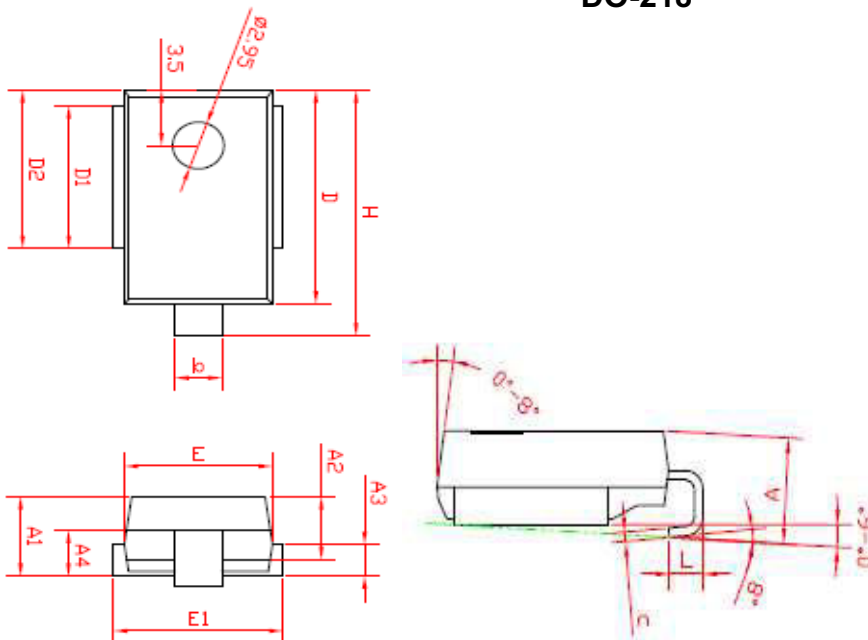


Fig. 6 - Typical Junction Capacitance

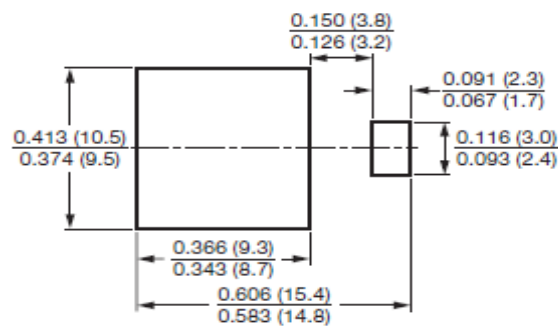
## Physical Dimensions

### DO-218



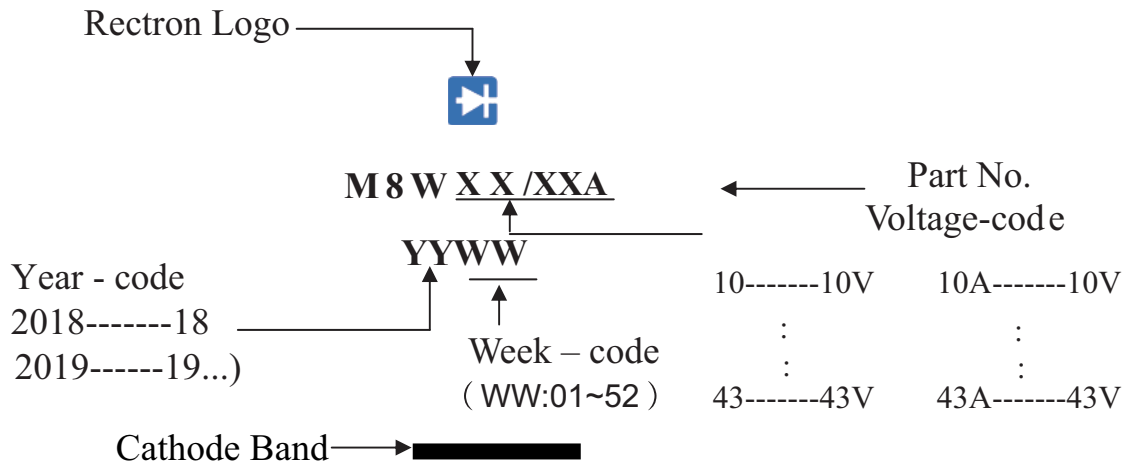
SYMBOLS Unit:mm	DIMENSIONS IN MILLIMETERS	
	MIN	MAX
A	4.70	5.70
A1	4.70	5.25
A2	3.45	4.25
A3	1.70	2.50
A4	2.65	3.55
b	2.30	4.00
c	0.45	0.90
D	13.20	13.80
D1	9.00	11.00
D2	9.70	10.30
E	8.20	8.80
E1	9.50	11.50
H	15.00	16.00
L	1.50	2.50

## Foot Print Recommendation (mm)

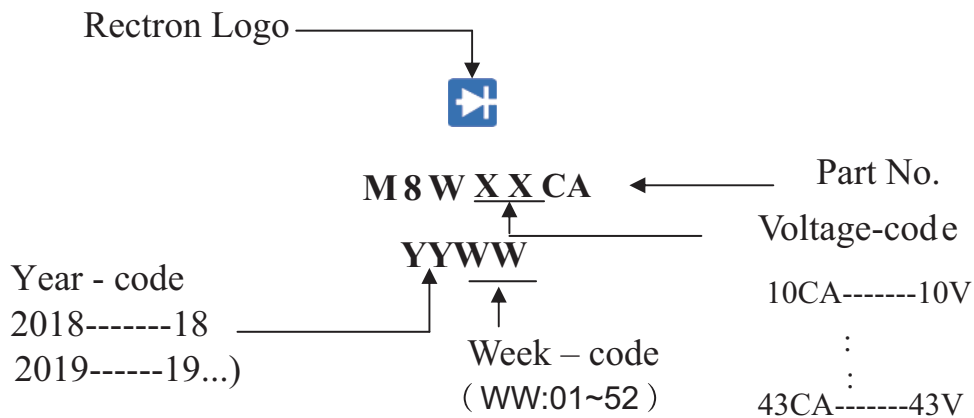


## Marking Description

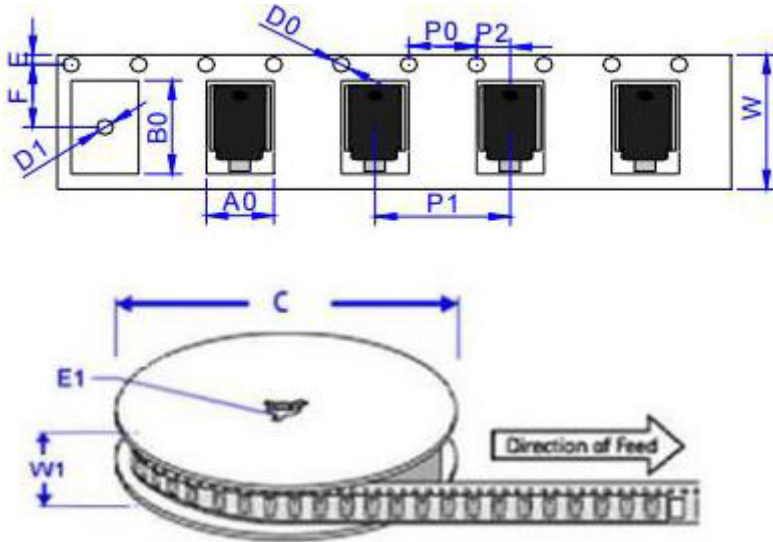
### 1) SM8Sxx/SM8SxxA :



### 2) SM8SxxCA :



# TAPE AND REEL SPECIFICATION



Ref.	Dimensions	
	Millimeters	Inches
A0	10.80 ± 0.3	0.425 ± 0.012
B0	16.13 ± 0.3	0.635 ± 0.012
C	330.0 ± 0.3	13.0 ± 0.012
D0	1.55 ± 0.2	0.061 ± 0.008
D1	1.55 ± 0.2	0.061 ± 0.008
E	1.75 ± 0.2	0.069 ± 0.008
E1	13.30 ± 0.2	0.524 ± 0.008
F	11.50 ± 0.2	0.453 ± 0.008
P0	4.00 ± 0.2	0.157 ± 0.008
P1	16.00 ± 0.2	0.630 ± 0.008
P2	2.00 ± 0.2	0.079 ± 0.008
W	24.00 ± 0.2	0.945 ± 0.008
W1	25.85 ± 0.2	1.018 ± 0.008

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