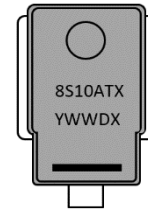


**Features**

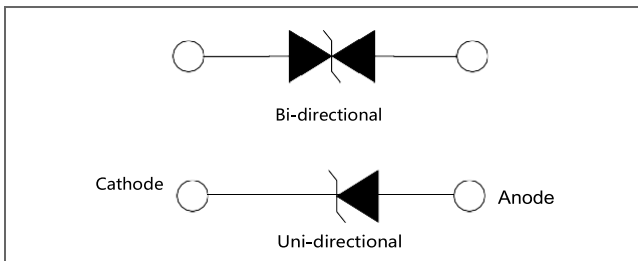
- 8000W peak pulse power capability at 10/1000µs waveform, repetition rate (duty cycles):0.01%
- Excellent clamping capability
- Typical failure mode is a short circuit condition for current events exceeding component rating
- Plastic package is flammability rated V-0 per UL-94
- Meet MSL level1, per J-STD-020, lead-frame maximum peak of 245°C
- AEC-Q101 qualified



**Applications**

Typically use in sensitive electronics protection against voltage load dump induced by Automotive generator during current interruption.

**Function Diagram**




Maximum Ratings and Thermal Characteristics (T <sub>A</sub> =25°C unless otherwise noted)			
Parameter	Symbol	Value	Unit
Peak Pulse Power Dissipation at T <sub>A</sub> =25°C by 10/1000µs Waveform (Fig.4)-- single die	P <sub>PPM</sub>	8000	W
Power Dissipation on Infinite Heat Sink at T <sub>L</sub> =25°C	P <sub>D</sub>	8	W
Peak Forward Surge Current, 8.3ms Single Half Sine Wave (Note 1)	I <sub>FSM</sub>	700	A
Maximum Instantaneous Forward Voltage at 50A for Unidirectional Only	V <sub>F</sub>	3.5	V
Operating Temperature Range	T <sub>J</sub>	-55 to 175	°C
Storage Temperature Range	T <sub>STG</sub>	-55 to 175	°C

AGENCY	AGENCY FILE NUMBER
	Pending

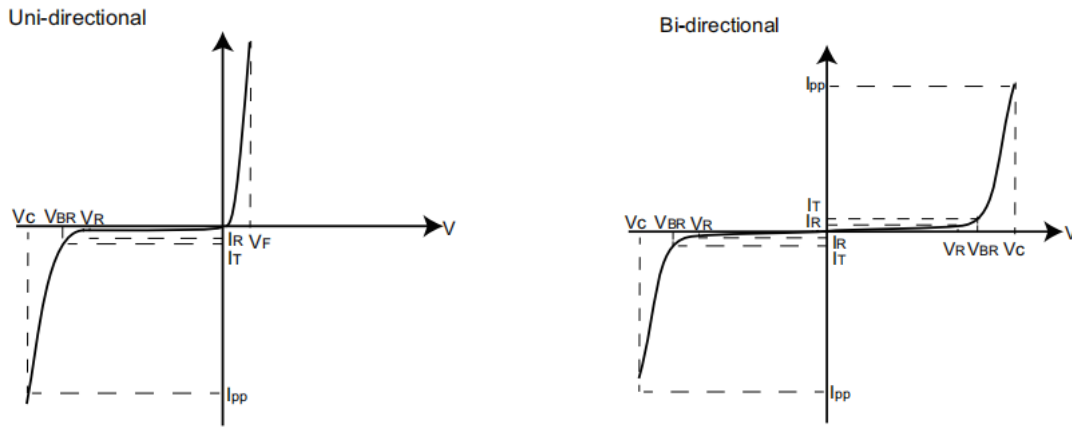
**Notes:**

1. Measured on 8.3ms single half sine wave or equivalent square wave for unidirectional device only, duty cycle=4 per minute maximum.
2. 3.5V for single die, 5V for stack die

**Characteristics (T =25°C unless otherwise noted)**

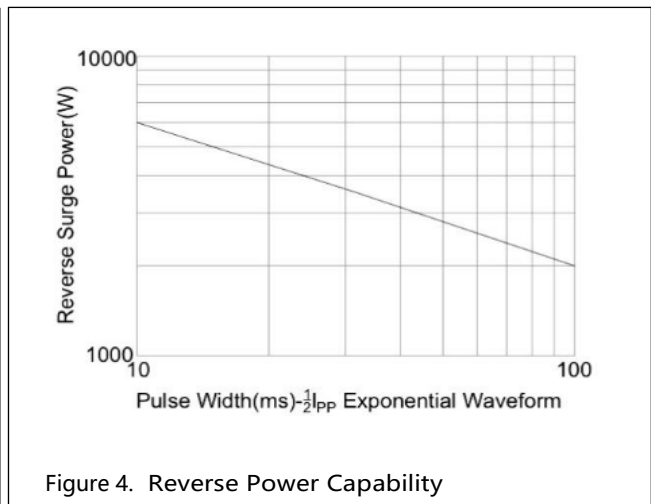
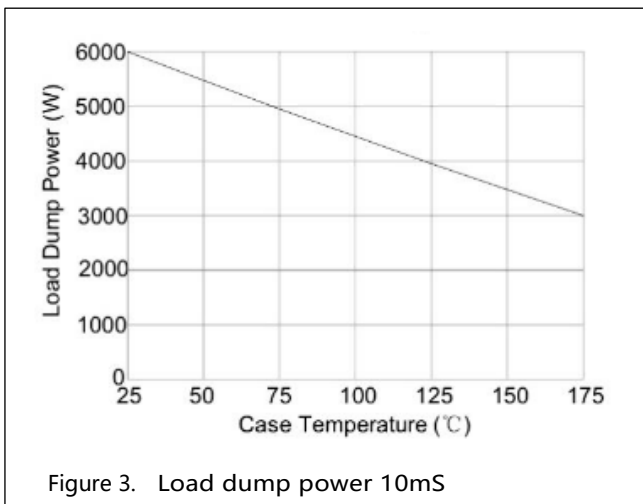
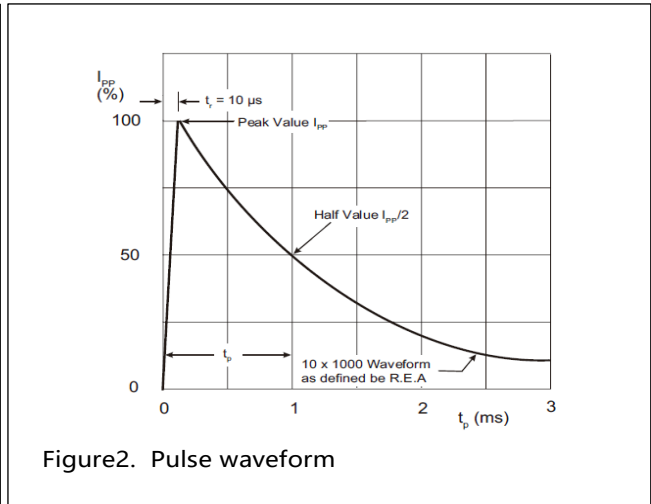
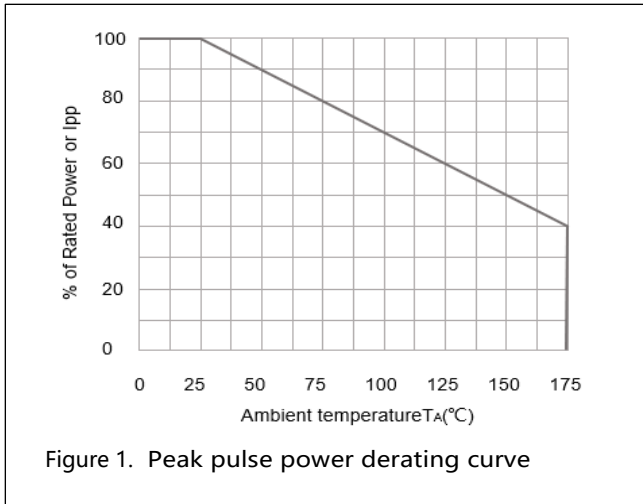
Part Number (Uni)	Part Number (Bi)	Key Marking		Reverse Stand off Voltage V <sub>R</sub> (Volts)	Breakdown Voltage V <sub>BR</sub> (Volts) @ I <sub>T</sub>		Test Current I <sub>T</sub> (mA)	Maximum Clamping Voltage V <sub>C</sub> @ I <sub>DD</sub> (V)	Maximum Peak Pulse Current I <sub>pp</sub> (A)	Maximum Reverse Leakage I <sub>R</sub> @ V <sub>R</sub> (μA)	Agency Approval 
		Uni	Bi		MIN	MAX					
SM8S10A-T	SM8S10CA-T	8S10AT	8S10CT	10.0	11.10	12.30	5	17.0	470.6	20	
SM8S11A-T	SM8S11CA-T	8S11AT	8S11CT	11.0	12.20	13.50	5	18.2	439.6	15	
SM8S12A-T	SM8S12CA-T	8S12AT	8S12CT	12.0	13.30	14.70	5	19.9	402	10	
SM8S13A-T	SM8S13CA-T	8S13AT	8S13CT	13.0	14.40	15.90	5	21.5	372.1	5	
SM8S14A-T	SM8S14CA-T	8S14AT	8S14CT	14.0	15.60	17.20	5	23.2	344.8	5	
SM8S15A-T	SM8S15CA-T	8S15AT	8S15CT	15.0	16.70	18.50	5	24.4	327.9	5	
SM8S16A-T	SM8S16CA-T	8S16AT	8S16CT	16.0	17.80	19.70	5	26.0	307.7	5	
SM8S17A-T	SM8S17CA-T	8S17AT	8S17CT	17.0	18.90	20.90	5	27.6	289.9	5	
SM8S18A-T	SM8S18CA-T	8S18AT	8S18CT	18.0	20.00	22.10	5	29.2	274	5	
SM8S20A-T	SM8S20CA-T	8S20AT	8S20CT	20.0	22.20	24.50	5	32.4	246.9	5	
SM8S22A-T	SM8S22CA-T	8S22AT	8S22CT	22.0	24.40	26.90	5	35.5	225.4	5	
SM8S24A-T	SM8S24CA-T	8S24AT	8S24CT	24.0	26.70	29.50	5	38.9	205.7	5	
SM8S26A-T	SM8S26CA-T	8S26AT	8S26CT	26.0	28.90	31.90	5	42.1	190	5	
SM8S28A-T	SM8S28CA-T	8S28AT	8S28CT	28.0	31.10	34.40	5	45.4	176.2	5	
SM8S30A-T	SM8S30CA-T	8S30AT	8S30CT	30.0	33.30	36.80	5	48.4	165.3	5	
SM8S33A-T	SM8S33CA-T	8S33AT	8S33CT	33.0	36.70	40.60	5	53.3	150.1	5	
SM8S36A-T	SM8S36CA-T	8S36AT	8S36CT	36.0	40.00	44.20	5	58.1	137.7	5	
SM8S40A-T	SM8S40CA-T	8S40AT	8S40CT	40.0	44.40	49.10	5	64.5	124	5	
SM8S43A-T	SM8S43CA-T	8S43AT	8S43CT	43.0	47.80	52.80	5	69.4	115.3	5	
SM8S45A-T	SM8S45CA-T	8S45AT	8S45CT	45.0	50.0	55.30	5	72.7	110	5	
SM8S48A-T	SM8S48CA-T	8S48AT	8S48CT	48.0	53.30	58.90	5	77.4	103	5	
SM8S51A-T	SM8S51CA-T	8S51AT	8S51CT	51.0	56.70	62.70	5	82.4	97	5	
SM8S54A-T	SM8S54CA-T	8S54AT	8S54CT	54.0	60.00	66.30	5	87.1	91.8	5	
SM8S58A-T	SM8S58CA-T	8S58AT	8S58CT	58.0	64.40	71.20	5	93.6	85.5	5	
SM8S60A-T	SM8S60CA-T	8S60AT	8S60CT	60.0	66.70	73.70	5	96.8	82.6	5	

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 though 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

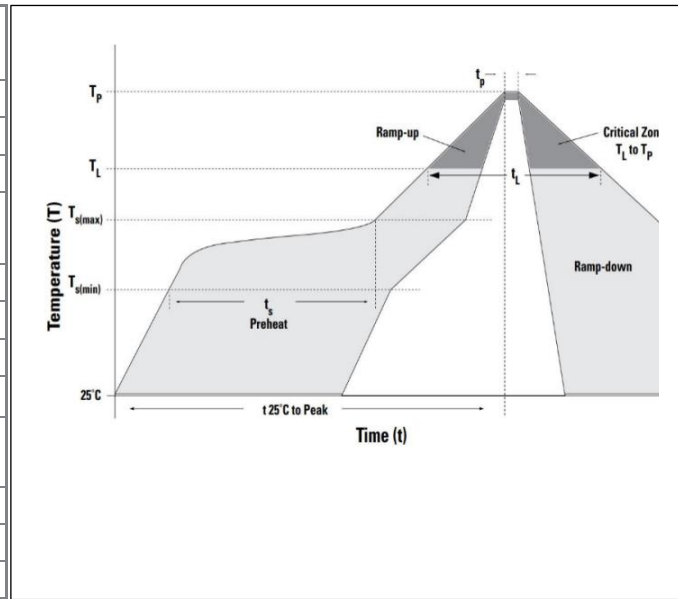
Ratings and Characteristic Curves (T = 25°C unless otherwise noted)



Soldering Parameters

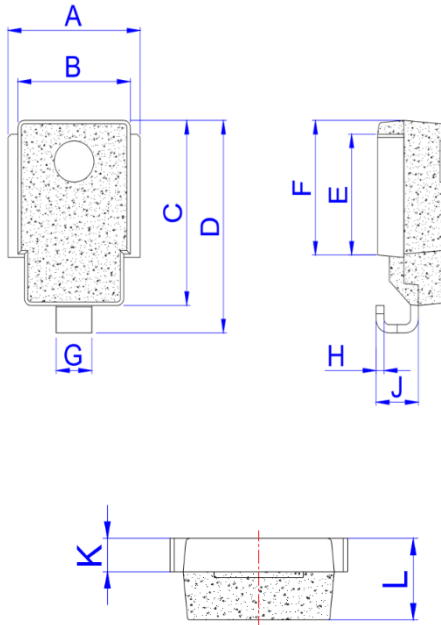
Soldering profile

Reflow Condition		Lead-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 secs
Average ramp up rate (Liquidus Temp ( $T_A$ ) to peak)		3°C/second max
$T_{S(max)}$ to $T_A$ - Ramp-up Rate		3°C/second max
Reflow	- Temperature ( $T_A$ ) (Liquidus)	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



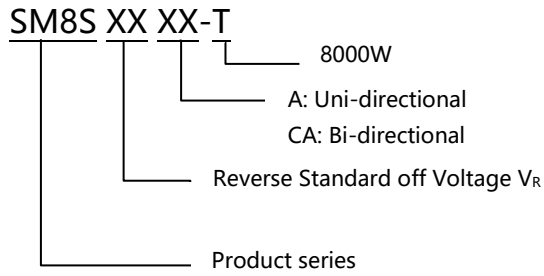


Dimensions

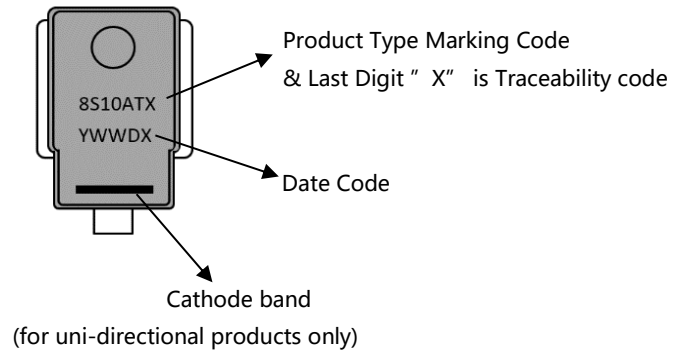


Ref.	Dimensions	
	Millimeters	
	Min.	Max.
A	9.50	10.50
B	8.30	8.70
C	13.30	13.70
D	15.00	16.20
E	8.50	9.50
F	9.70	10.30
G	2.40	3.00
H	0.50	0.70
J	2.50	3.50
K	1.70	2.30
L	4.60	5.20

Part Numbering



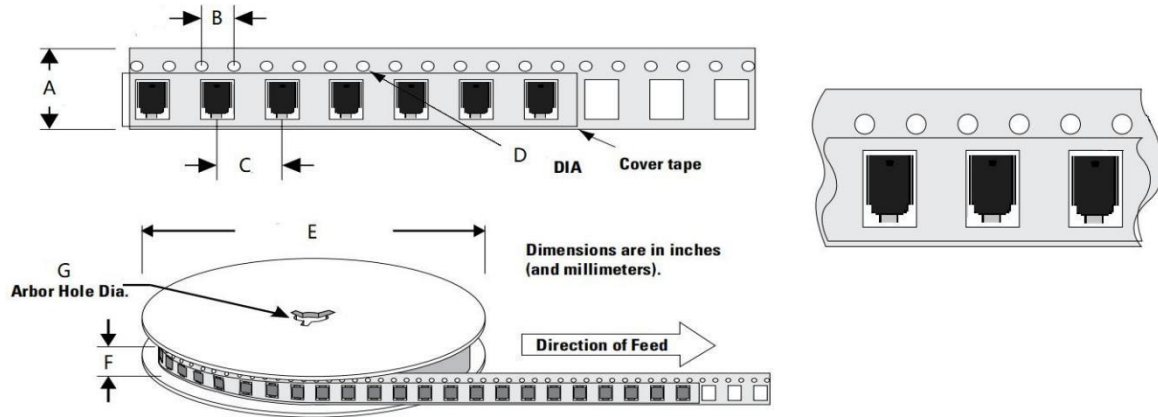
Part Marking



Packing

Part number	Package name	Small packing quantity	Packing method
SM8SXXXX-T	DO-218AB	750PCS	Tape & Reel

Tape and Reel Specification



Symbol	Millimeter
A	24.00 ± 0.2
B	4.00 ± 0.2
C	16.00 ± 0.2
D	1.55 ± 0.2
E	330.0 ± 0.3
F	25.85 ± 0.2
G	13.30 ± 0.2

Revision history of Specification

Version	Change Items	Effective Date
1.0	Initial Release	13-Jul-2021
1.1	Update Marking	15-May-2024