

Features

- 4600W 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

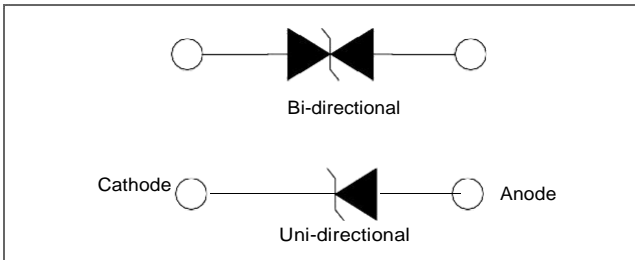
RoHS
Compliant



Applications

Use in sensitive electronics protection against voltage transients induced by inductive load switching and lighting, especially for automotive load dump protection application.

Function Diagram



Maximum Ratings and Thermal Characteristics (T _A =25°C unless otherwise noted)			
Parameter	Symbol	Value	Unit
Peak Pulse Power Dissipation at T _A =25°C by 10/1000µs Waveform	P _{PPM}	4600	W
Power Dissipation on Infinite Heat Sink at T _C =25°C	P _D	8	W
Peak Forward Surge Current, 8.3ms Single Half Sine Wave (Note 1)	I _{FSM}	700	A
Maximum Instantaneous Forward Voltage at 50A for Unidirectional Only	V _F	3.5	V
Operating Temperature Range	T _J	-55 to 150	°C
Storage Temperature Range	T _{STG}	-55 to 150	°C


AGENCY	AGENCY FILE NUMBER
	Pending

Notes:

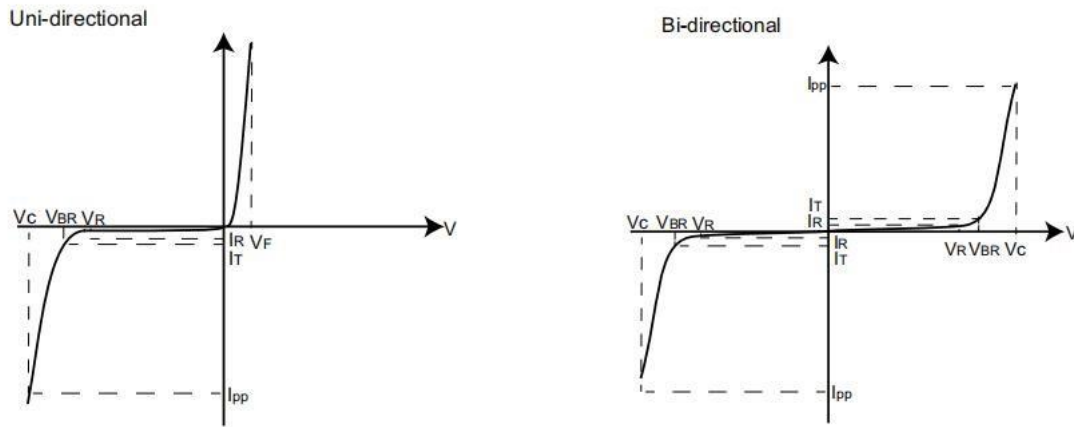
1. Measured on 8.3ms single half sine wave or equivalent square wave for unidirectional device only, duty cycle=4 per minute maximum.



Characteristics (T = 25°C unless otherwise noted)

Part Number (Uni)	Part Number (Bi)	Reverse Stand off Voltage V _R (Volts)	Breakdown Voltage V _{BR} (Volts) @ I _T		Test Current I _T (mA)	Maximum Clamping Voltage V _C @ I _{pp} (V)	Maximum Peak Pulse Current I _{pp} (A)	Maximum Reverse Leakage I _R @ V _R (μA)	Agency Approval 
			MIN	MAX					
SM6S10A	SM6S10CA	10.0	11.10	12.30	5	17.0	270	15	
SM6S11A	SM6S11CA	11.0	12.20	13.50	5	18.2	252	10	
SM6S12A	SM6S12CA	12.0	13.30	14.70	5	19.9	231	5	
SM6S13A	SM6S13CA	13.0	14.40	15.90	5	21.5	213	5	
SM6S14A	SM6S14CA	14.0	15.60	17.20	5	23.2	198	5	
SM6S15A	SM6S15CA	15.0	16.70	18.50	5	24.4	188	5	
SM6S16A	SM6S16CA	16.0	17.80	19.70	5	26.0	177	5	
SM6S17A	SM6S17CA	17.0	18.90	20.90	5	27.6	166	5	
SM6S18A	SM6S18CA	18.0	20.00	22.10	5	29.2	157	5	
SM6S20A	SM6S20CA	20.0	22.20	24.50	5	32.4	142	5	
SM6S22A	SM6S22CA	22.0	24.40	26.90	5	35.5	129	5	
SM6S24A	SM6S24CA	24.0	26.70	29.50	5	38.9	118	5	
SM6S26A	SM6S26CA	26.0	28.90	31.90	5	42.1	109	5	
SM6S28A	SM6S28CA	28.0	31.10	34.40	5	45.4	101	5	
SM6S30A	SM6S30CA	30.0	33.30	36.80	5	48.4	95	5	
SM6S33A	SM6S33CA	33.0	36.70	40.60	5	53.3	86	5	
SM6S36A	SM6S36CA	36.0	40.00	44.20	5	58.1	79	5	
SM6S40A	SM6S40CA	40.0	44.40	49.10	5	64.5	71	5	
SM6S43A	SM6S43CA	43.0	47.80	52.80	5	69.4	66	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 through the TVS at a specified test current (I_T)

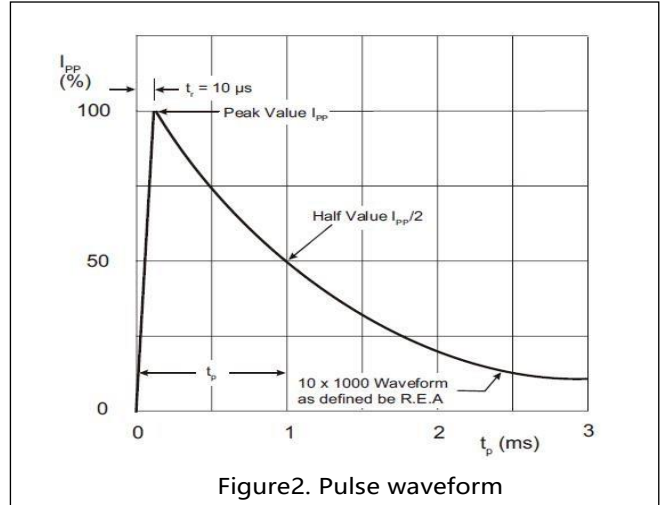
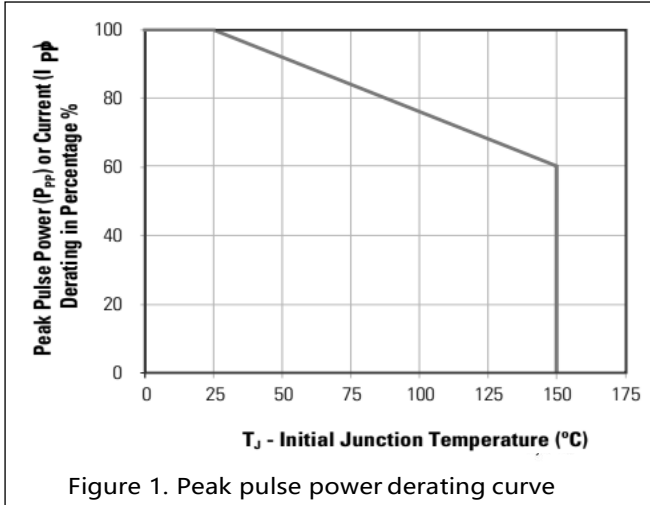
V_C Clamping Voltage -- Peak voltage measured across the TVS at a specified I_{PPM} (peak impulse current)

I_R Reverse Leakage Current -- Current measured at V_R

V_F Forward Voltage Drop for Uni-directional



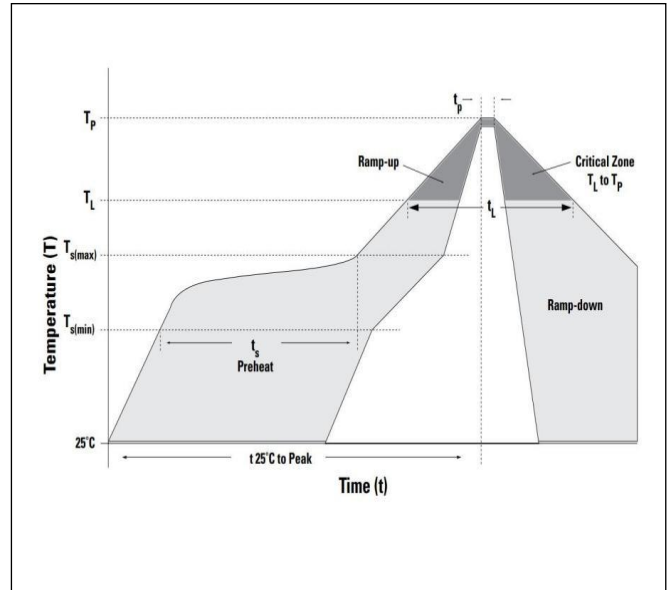
Ratings and Characteristic Curves (T = 25°C unless otherwise noted)



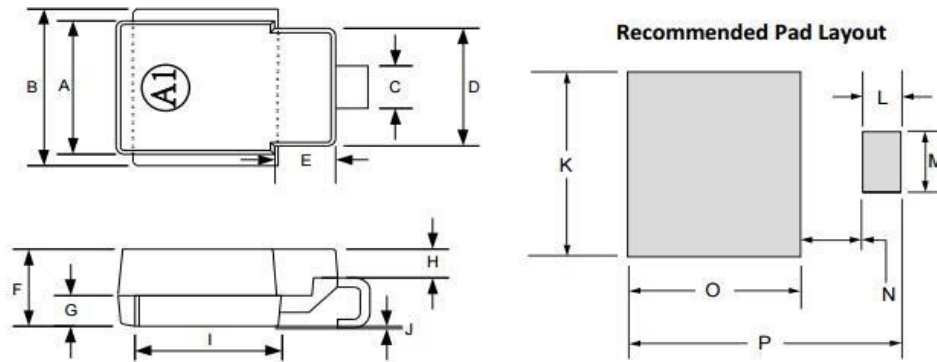
Soldering Parameters

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



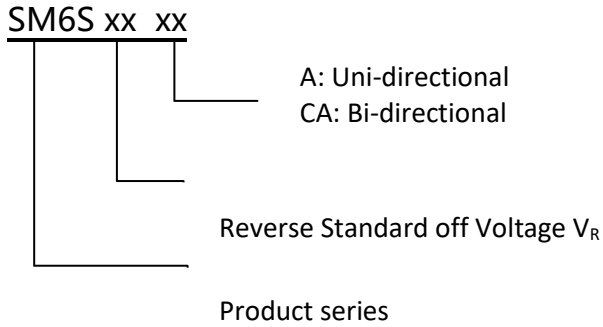
Dimensions



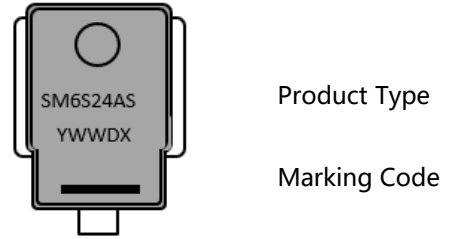
DO-218AB

DIM	Millimeters		Inch	
	Min	Max	Min	Max
A	8.300	8.700	0.3268	0.3425
B	9.500	10.500	0.3740	0.4134
C	2.400	3.000	0.0945	0.1181
D	7.000	8.000	0.2756	0.3150
E	3.200	3.800	0.1260	0.1496
F	4.600	5.200	0.1811	0.2047
G	1.700	2.300	0.0669	0.0906
H	1.500	2.100	0.0591	0.0827
I	8.500	9.500	0.3346	0.3740
J	-	0.160	-	0.0063
K	9.500	10.500	0.3740	0.4134
L	1.700	2.300	0.0669	0.0906
M	2.400	3.000	0.0945	0.1181
N	3.200	3.800	0.1260	0.1496
O	8.700	9.300	0.3425	0.3661
P	14.800	15.400	0.5827	0.6063

Part Numbering



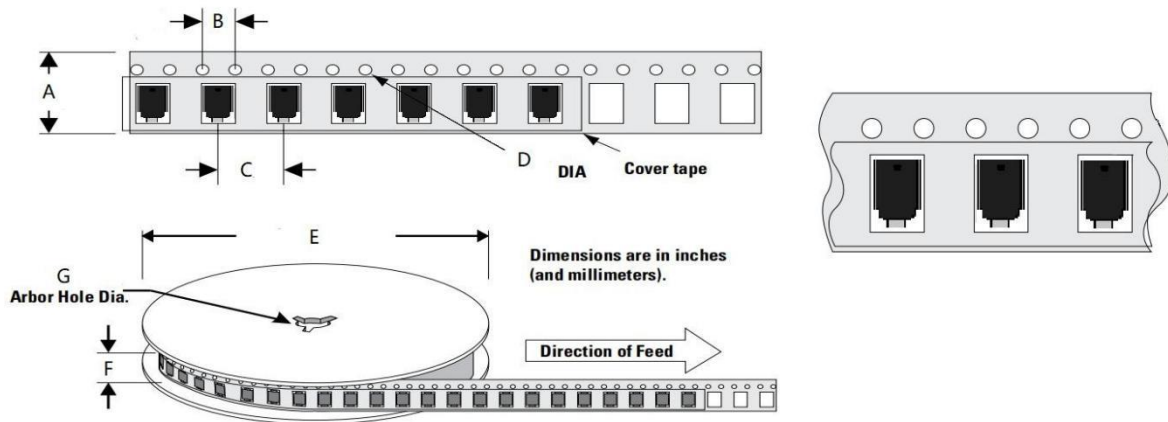
Part Marking



Packing

Part number	Package name	Small packing quantity	Packing method
SM6SXXXX	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-July-2021