

Surface Mount Automotive Transient Voltage Suppressors (TVS) Data Sheet

Features

- Glass passivated junction
- High Surge Capability
- Excellent clamping capability
- 6600W peak pulse power capability at 10/1000 μ s waveform, repetition rate (duty cycle):0.01%
- Low Leakage Current
- Fast response time
- Meets ISO16750-2 Surge Specification
- Meets MSL level 1, per J-STD-020.
- AEC-Q101 Qualified

Mechanical Data

- Case: JEDEC DO-218AB Moulded plastic
- Molding compound meets UL94V-0 flammability rating
- Matte tin plated leads, solderable per J-STD-002
- Headsink is anode

Applications

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

Maximum Ratings and Characteristics

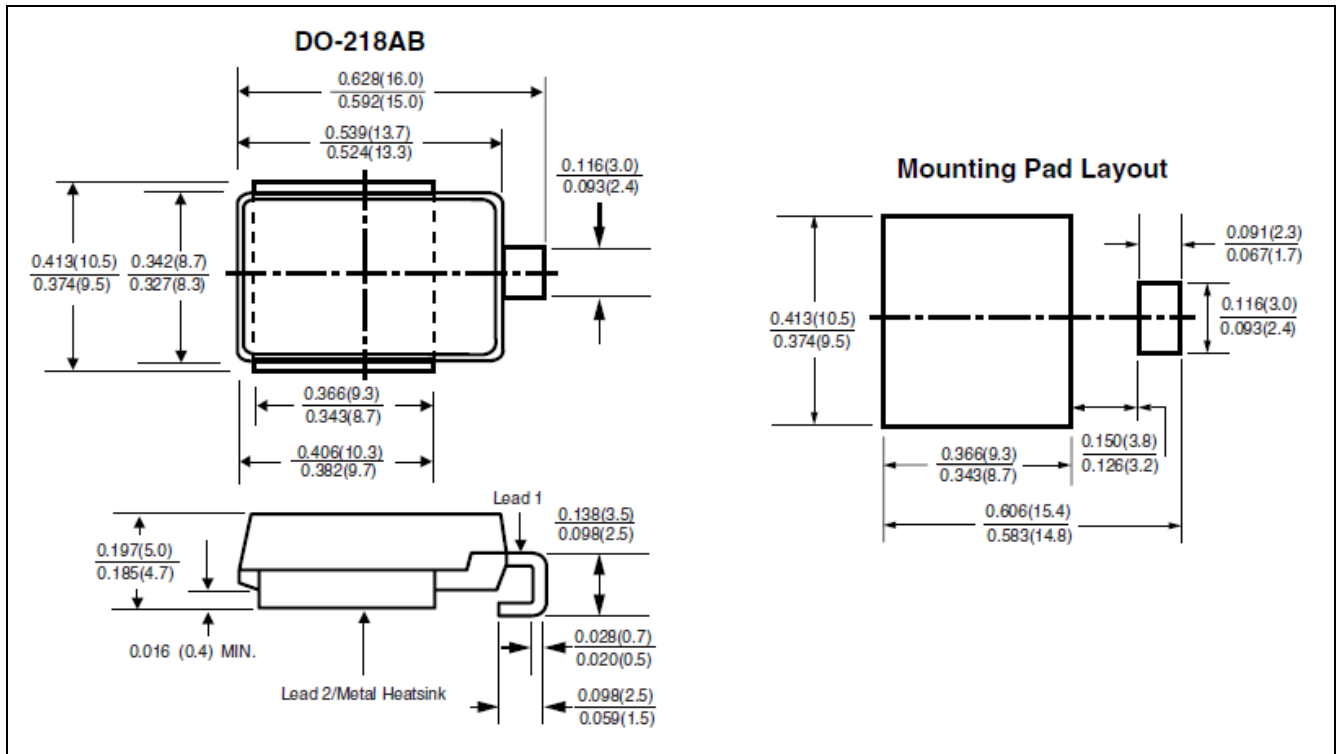
Ratings at 25 $^{\circ}$ C ambient temperature unless otherwise specified.

Rating	Symbol	Value	Units
Peak pulse power dissipation at 10/1000 μ s waveform (Note1, Fig.1)	P_{PPM}	Minimum 6600	Watts
Peak pulse current of at 10/1000 μ s waveform (Note 1, Fig.3)	I_{PPM}	See Table	Amps
Steady state power dissipation at $T_L=75^{\circ}$ C (Fig.4)	$P_{M(AV)}$	8.0	Watts
Peak forward surge current, 8.3ms single half sine-wave superimposed on rated load, (JEDEC Method) (Note2)	I_{FSM}	700	Amps
Operating junction and Storage Temperature Range.	T_J, T_{STG}	-55 to +175	$^{\circ}$ C

Notes: 1. Non-repetitive current pulse, per Fig.3 and derated above $T_A=25^{\circ}$ C per Fig.2.

2. 8.3ms single half sine-wave, or equivalent square wave, duty cycle=4 pulses per minutes maximum.

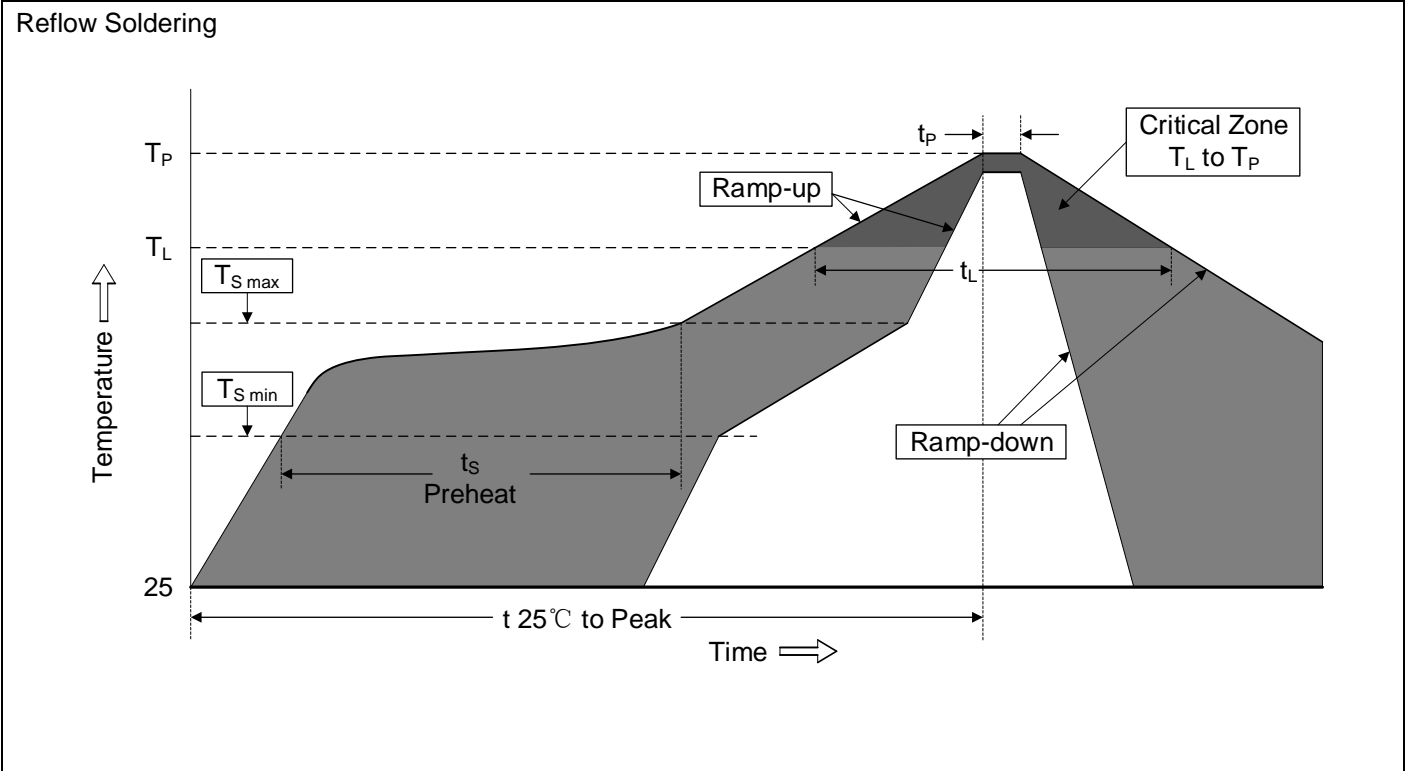
Dimensions (DO-218AB)



Electrical Characteristics (T_A=25°C)

Part Number		Reverse Stand-Off Voltage	Breakdown Voltage @ I _T	Test Current	Maximum Clamping Voltage @ I _{PP}	Peak Pulse Current	Reverse Leakage @ V _{RWM}
Unidirectional	Bidirectional	V _{RWM} (V)	V _{BR} (V)	I _T (mA)	V _C (V)	I _{PP} (A)	I _R (μA)
SM8S18A	SM8S18CA	18.0	20.0~22.1	5	29.2	226	10
SM8S20A	SM8S20CA	20.0	22.2~24.5	5	32.4	204	10
SM8S22A	SM8S22CA	22.0	24.4~26.9	5	35.5	186	10
SM8S24A	SM8S24CA	24.0	26.7~29.5	5	38.9	170	10
SM8S26A	SM8S26CA	26.0	28.9~31.9	5	42.1	157	10
SM8S28A	SM8S28CA	28.0	31.1~34.4	5	45.4	145	10
SM8S30A	SM8S30CA	30.0	33.3~36.8	5	48.4	136	10
SM8S33A	SM8S33CA	33.0	36.7~40.6	5	53.3	124	10
SM8S36A	SM8S36CA	36.0	40.0~44.2	5	58.1	114	10
SM8S40A	SM8S40CA	40.0	44.4~49.1	5	64.5	102	10
SM8S43A	SM8S43CA	43.0	47.8~52.8	5	69.4	95	10
SM8S48A	SM8S48CA	48.0	53.3~58.9	5	77.4	85	10

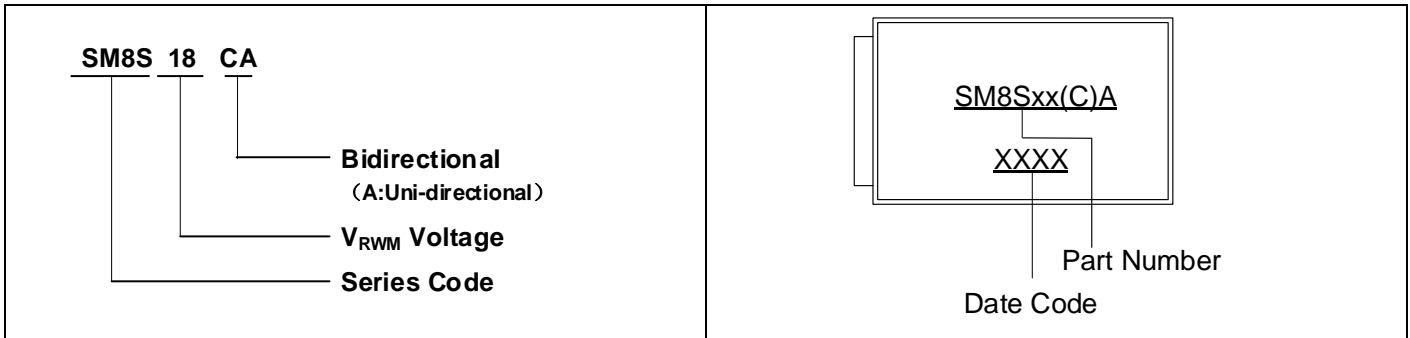
Recommended Soldering Conditions



Recommended Conditions

Profile Feature	Pb-Free Assembly
Average ramp-up rate (T_L to T_P)	3°C/second max.
Preheat -Temperature Min ($T_{S\ min}$) -Temperature Max ($T_{S\ max}$) -Time (min to max) (t_s)	150°C 200°C 60-180 seconds
$T_{S\ max}$ to T_L -Ramp-up Rate	3°C/second max.
Time maintained above: -Temperature (T_L) -Time (t_L)	217°C 60-150 seconds
Peak Temperature (T_P)	260°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	8 minutes max.

Partnumbercode



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

Figure 1. Peak Pulse Power Rating Curve

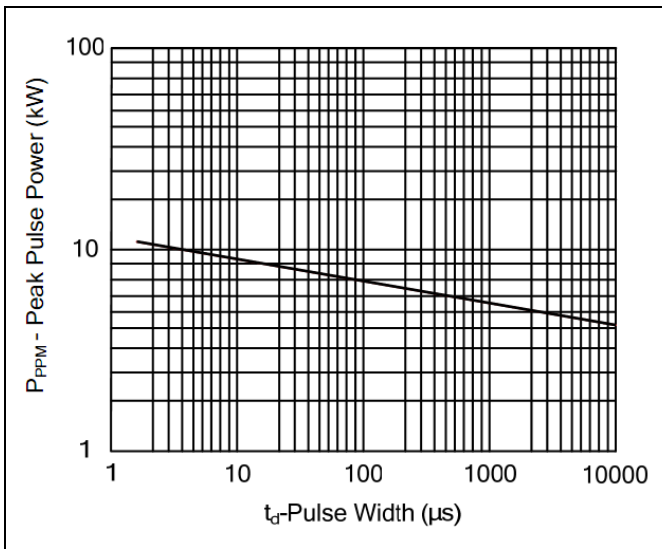


Figure 2. Pulse Derating Curve

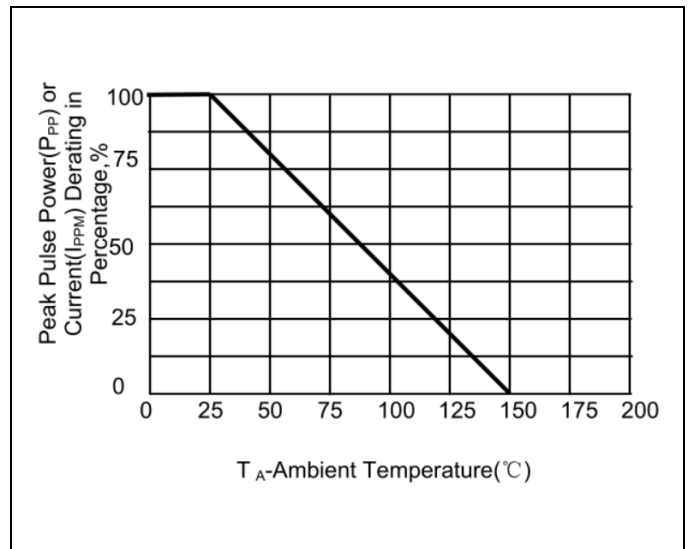


Figure 3. Pulse Waveform

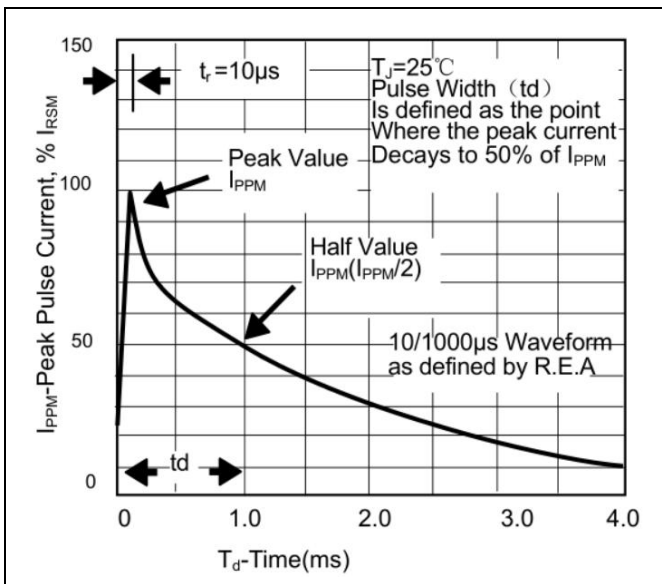
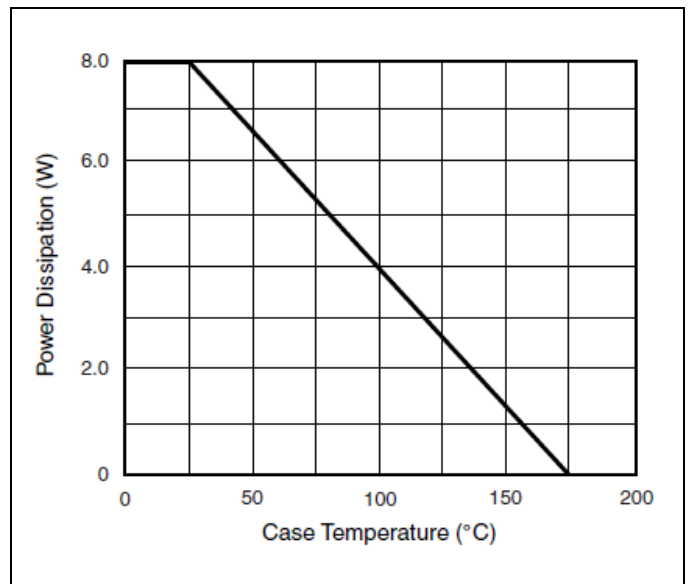
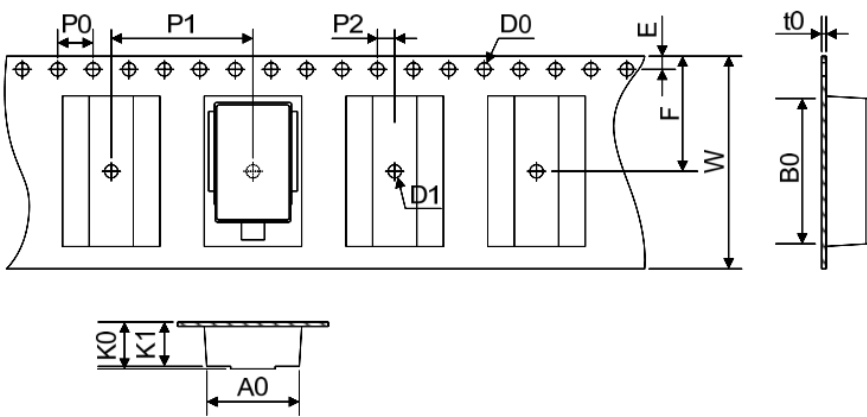
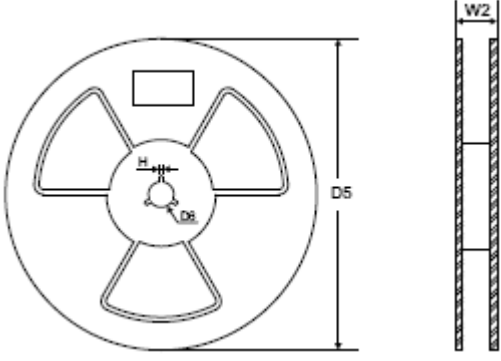


Figure 4. Steady State Power Dissipation Derating Curve



Packaging

Tape		Symbol	Dimension (mm)
		W	24.00±0.20
		P0	4.00±0.10
		P1	16.00±0.10
		P2	2.00±0.10
		D0	Φ1.55±0.05
		D1	Φ1.50±0.25
		E	1.75±0.10
		F	13.25±0.25
		A0	11.00±0.10
		B0	16.70±0.10
		K0	5.90±0.10
		K1	5.60±0.10
		t0	0.40±0.05
Reel		D5	Φ330.0±2.0
		D6	Φ13.5±0.50
		W2	29.0±2.0
		H	2.5±1.0
		Quantity: 700pcs	