

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 10/1000μs 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

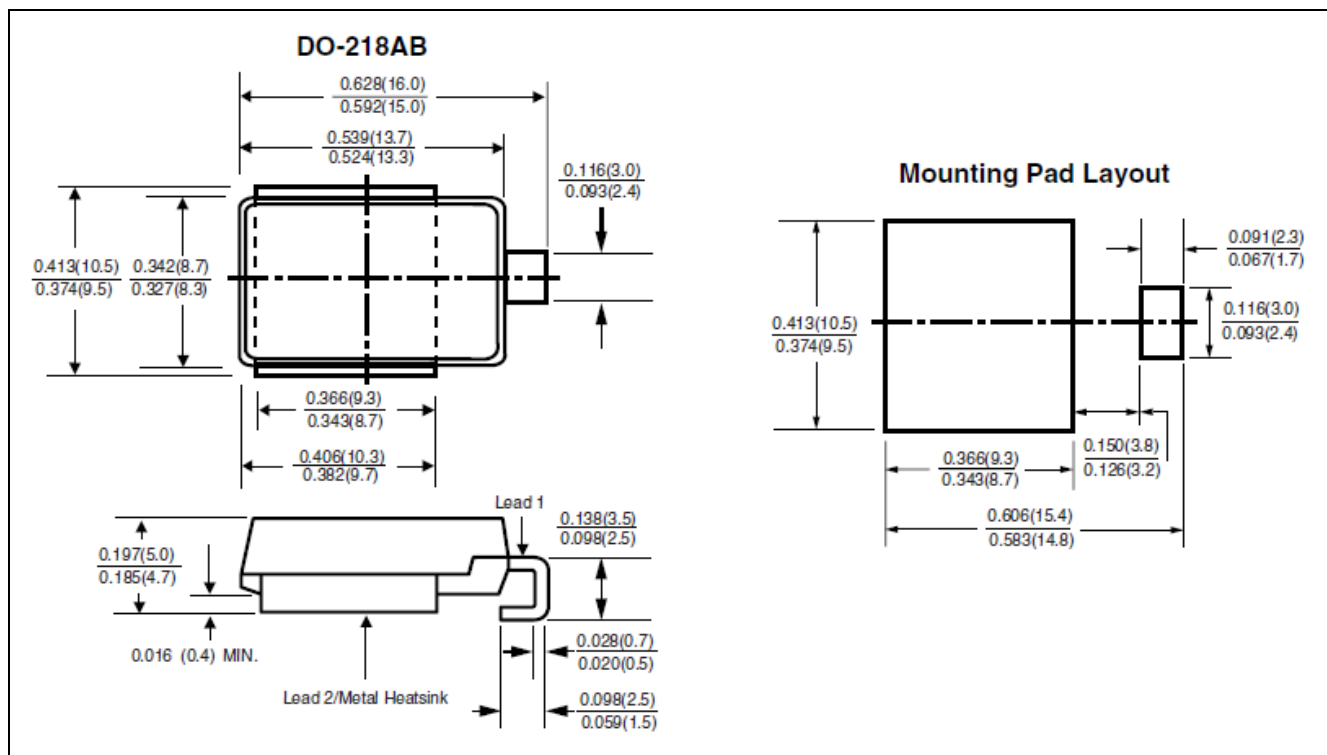
Ratings at 25°C ambient temperature unless otherwise specified.

Rating	Symbol	Value	Units
Peak pulse power dissipation at 10/1000μs waveform (Note1, Fig.1)	P_{PPM}	Minimum 6600	Watts
Peak pulse current of at 10/1000μs waveform (Note 1, Fig.3)	I_{PPM}	See Table	Amps
Steady state power dissipation at $T_L=75^{\circ}\text{C}$ (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	°C

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

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

Dimensions (DO-218AB)

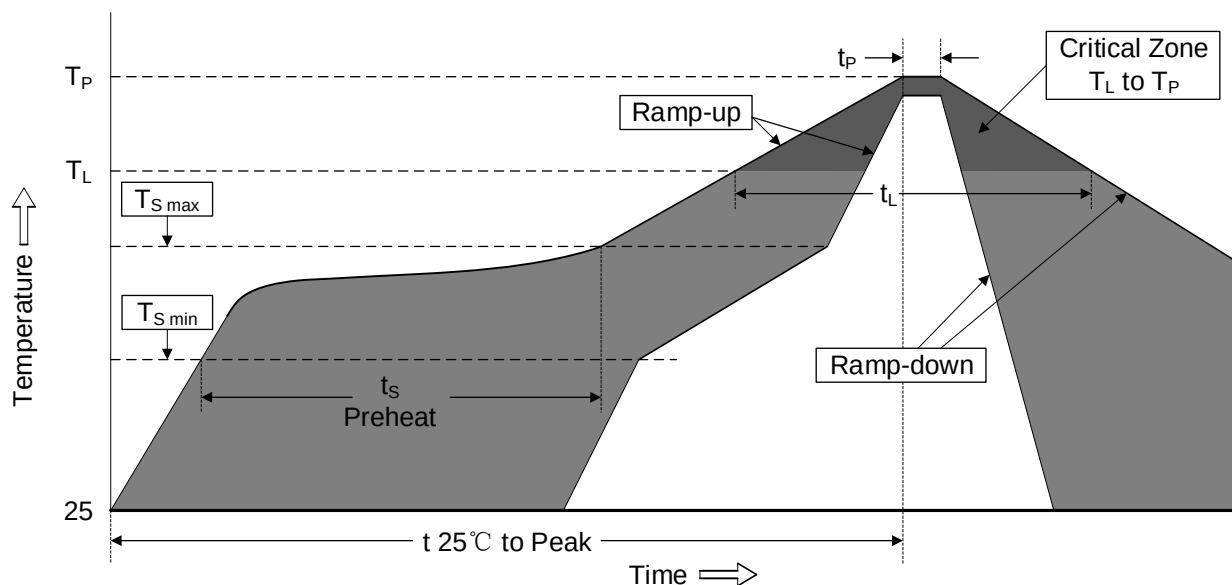


Electrical Characteristics ($T_A=25^{\circ}\text{C}$)

Part Number	Reverse Stand-Off Voltage	Breakdown Voltage @ I_T	Test Current	Maximum Clamping Voltage@ I_{PP}	Peak Pulse Current	Reverse Leakage @ V_{RWM}
	$V_{RWM}(V)$	$V_{BR}(V)$	$I_T(mA)$	$V_C(V)$	$I_{PP}(A)$	$I_R(\mu A)$
SM8S18A	18.0	20.0~22.1	5	29.2	226	10
SM8S20A	20.0	22.2~24.5	5	32.4	204	10
SM8S22A	22.0	24.4~26.9	5	35.5	186	10
SM8S24A	24.0	26.7~29.5	5	38.9	170	10
SM8S26A	26.0	28.9~31.9	5	42.1	157	10
SM8S28A	28.0	31.1~34.4	5	45.4	145	10
SM8S30A	30.0	33.3~36.8	5	48.4	136	10
SM8S33A	33.0	36.7~40.6	5	53.3	124	10
SM8S36A	36.0	40.0~44.2	5	58.1	114	10
SM8S40A	40.0	44.4~49.1	5	64.5	102	10
SM8S43A	43.0	47.8~52.8	5	69.4	95	10
SM8S48A	48.0	53.3~58.9	5	77.4	85	10

Recommended Soldering Conditions

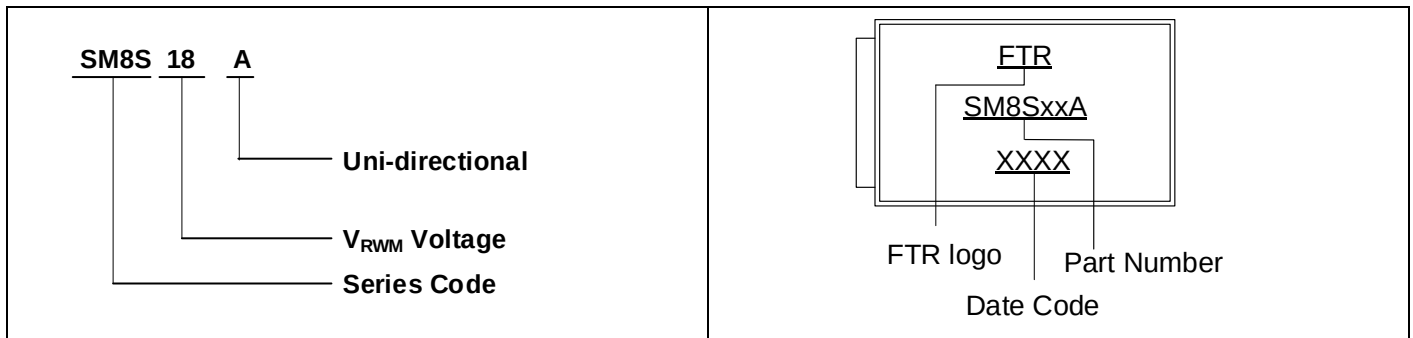
Reflow Soldering



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 ($T_A=25^\circ\text{C}$ unless otherwise noted)

Figure 1. Peak Pulse Power Rating Curve

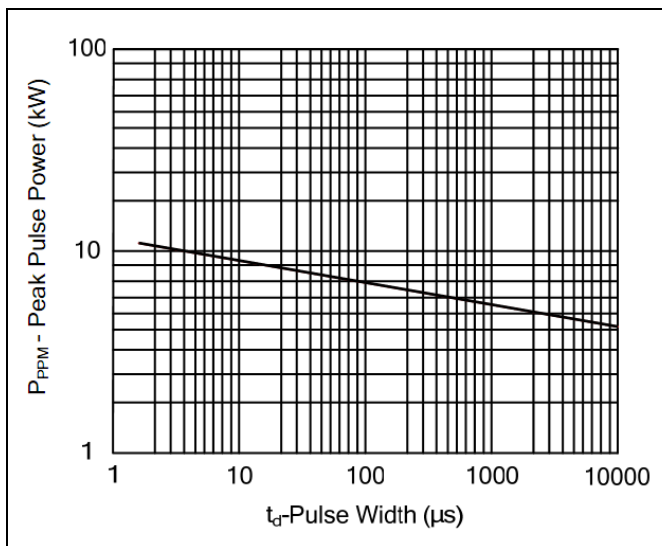


Figure 2. Pulse Derating Curve

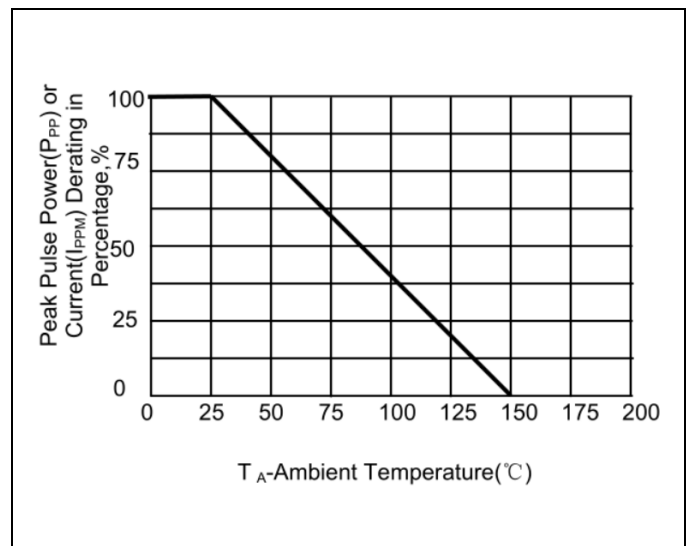


Figure 3. Pulse Waveform

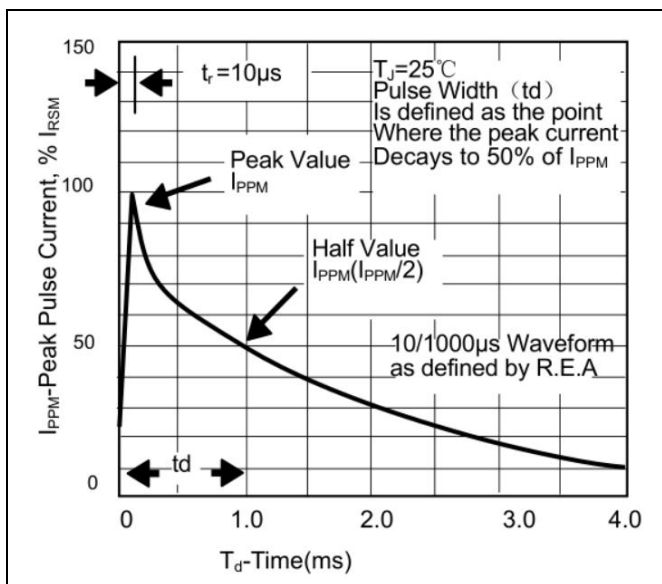
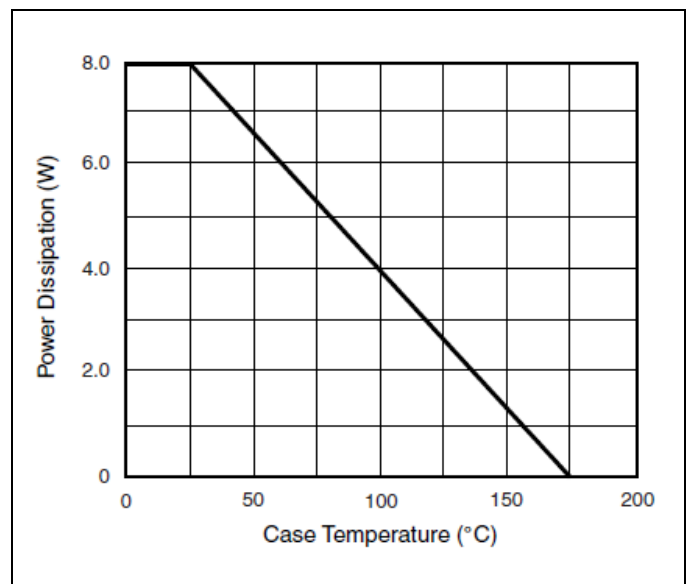


Figure 4. Steady State Power Dissipation Derating Curve



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	