

## 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 $\mu$ 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

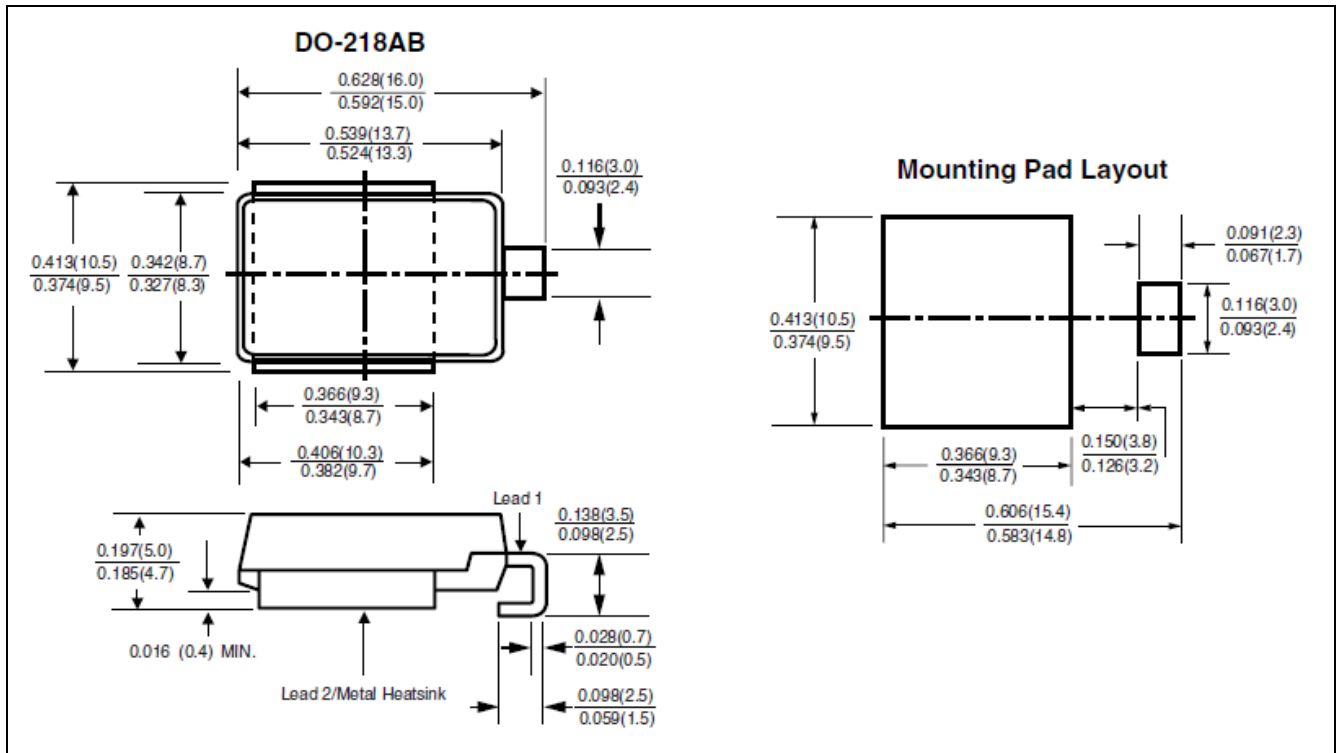
Ratings at 25 $^{\circ}$ C ambient temperature unless otherwise specified.

Rating	Symbol	Value	Units
Peak pulse power dissipation at 10/1000 $\mu$ s waveform (Note1, Fig.1)	$P_{PPM}$	Minimum 6600	Watts
Peak pulse current of at 10/1000 $\mu$ 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.

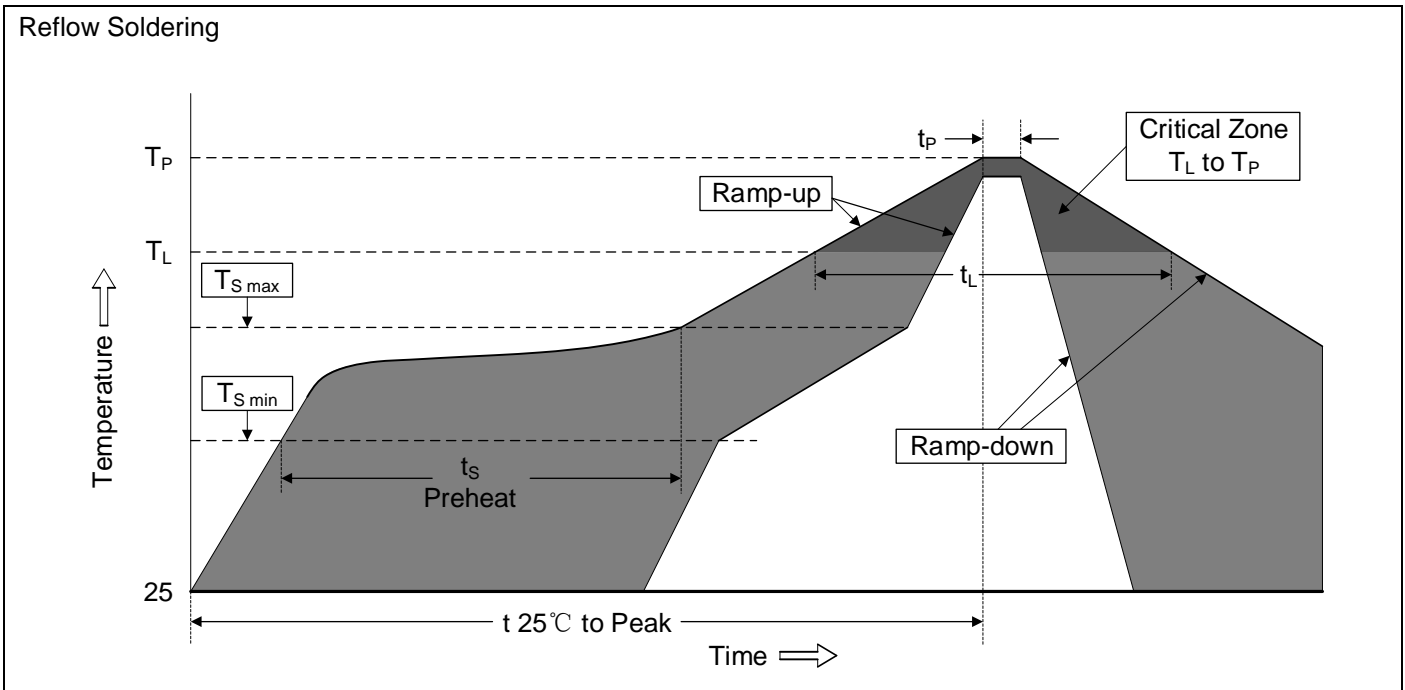
## Dimensions (DO-218AB)



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

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

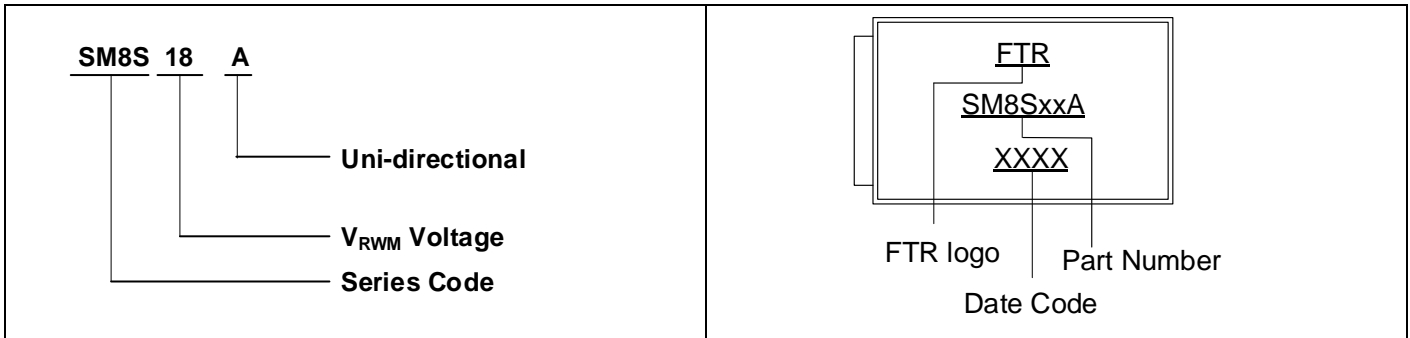
## Recommended Soldering Conditions



### Recommended Conditions

Profile Feature	Pb-Free Assembly
Average ramp-up rate ( $T_L$ to $T_P$ )	3°C/second max.
Preheat	
-Temperature Min ( $T_{S\ min}$ )	150°C
-Temperature Max ( $T_{S\ max}$ )	200°C
-Time (min to max) ( $t_s$ )	60-180 seconds
$T_{S\ max}$ to $T_L$	
-Ramp-up Rate	3°C/second max.
Time maintained above:	
-Temperature ( $T_L$ )	217°C
-Time ( $t_L$ )	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<sub>A</sub>=25°C unless otherwise noted)

Figure 1. Peak Pulse Power Rating Curve

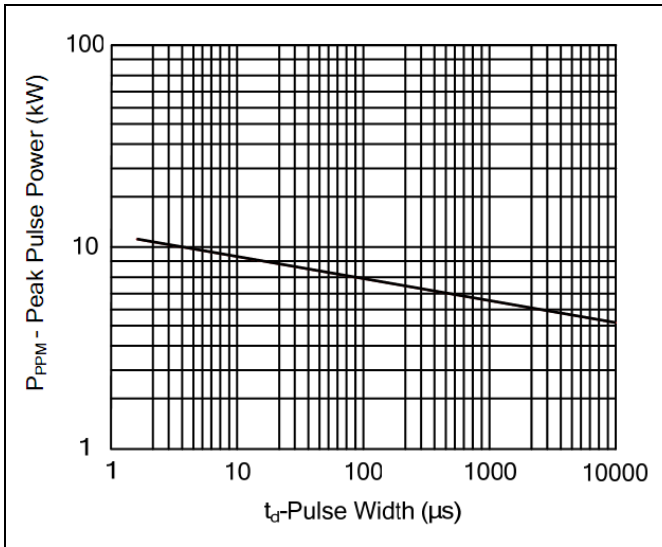


Figure 2. Pulse Derating Curve

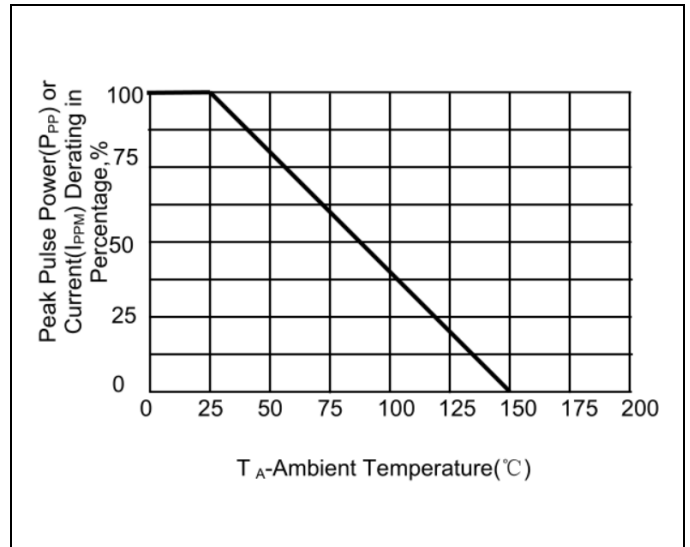


Figure 3. Pulse Waveform

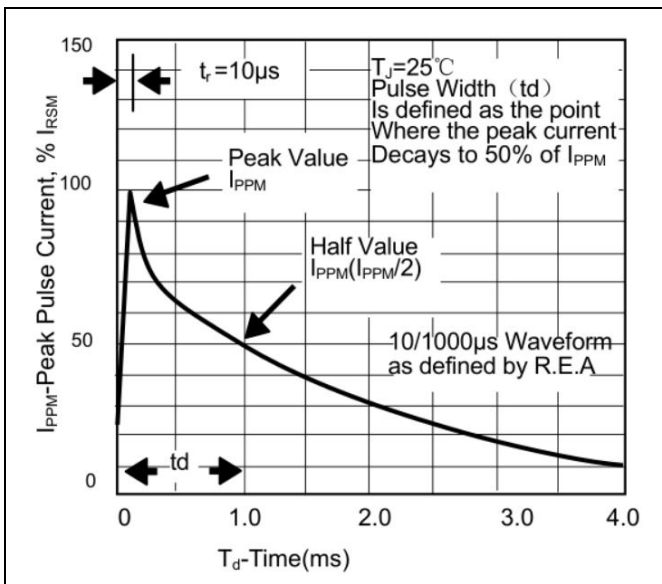
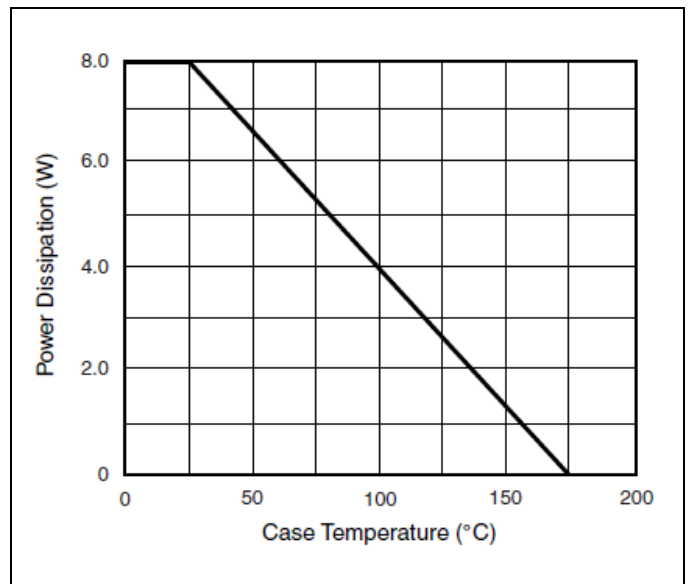


Figure 4. Steady State Power Dissipation Derating Curve



## 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			