

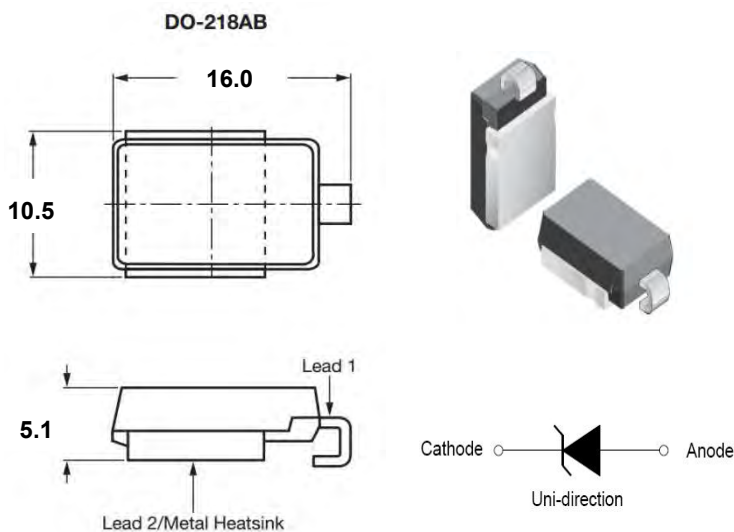
Description

SM8S Series TVS diodes can be used in sensitive electronics protection against voltage transients induced by inductive load switching and lighting, especially for automotive load dump protection application.

Features

- Available in uni/bi-directional polarity.
- Low forward voltage drop & Low leakage current.
- High surge capability.
- Junction passivation optimized design passivated anisotropic rectifier technology.
- $T_J = 175\text{ }^\circ\text{C}$ capability suitable for high reliability and automotive requirement.
- Meets ISO7637-2 surge specification (varied by test condition).
- AEC-Q101 qualified.
- Compliant to ROHS Directive 2002/95/EC and in accordance to WEEE 2002/96/EC.

Dimensions & Symbol (Unit: mm Max)



Mechanical Characteristics

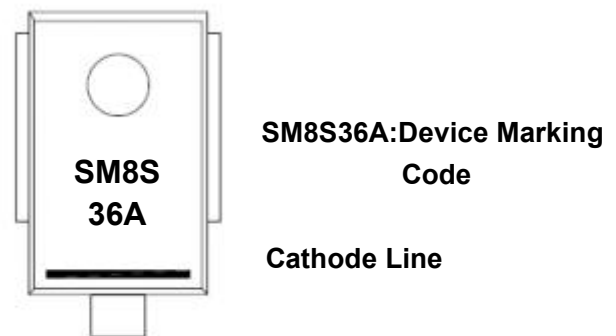
Package: DO-218AB

- Molding compound meets UL 94 V-0 flammability rating Base P/NHE3-RoHS compliant , AEC-Q101 qualified
- Terminals: Matte tin plated leads, solderable per J-STD-002 and JESD 22-B102 HE3 suffix meets JESD 201 class 2 whisker test
- Standard Packaging: EIA RS-481
- Polarity: Heatsink is anode for uni polarity
- Terminal Connections: See Diagram Below
- Marking Information: See Below

Applications

- I/O Interface
- AC/DC Power supply

Marking Information



Ordering Information

Out line	Reel (pcs)	Per carton (pcs)	Reel diameters (mm)
Taping	0.75K	3K	330

Electrical Characteristics (T_A=25°C)

Part Number	V _R	I _R @V _R		V _{BR} @ I _T		I _T	V _C @I _{pp}	I _{pp}
		μA@25°C	μA@175°C	min(V)	max (V)			
SM8S10A	10.0	15	250	11.1	12.3	5	17.0	388
SM8S11A	11.0	10	150	12.2	13.5	5	18.2	363
SM8S12A	12.0	10	150	13.3	14.7	5	19.9	332
SM8S13A	13.0	10	150	14.4	15.9	5	21.5	307
SM8S14A	14.0	10	150	15.6	17.2	5	23.2	284
SM8S15A	15.0	10	150	16.7	18.5	5	24.4	270
SM8S16A	16.0	10	150	17.8	19.7	5	26.0	253
SM8S17A	17.0	10	150	18.9	20.9	5	27.6	239
SM8S18A	18.0	10	150	20.0	22.1	5	29.2	226
SM8S20A	20.0	10	150	22.2	24.5	5	32.4	204
SM8S22A	22.0	10	150	24.4	26.9	5	35.5	186
SM8S24A	24.0	10	150	26.7	29.5	5	38.9	170
SM8S26A	26.0	10	150	28.9	31.9	5	42.1	157
SM8S28A	28.0	10	150	31.1	34.4	5	45.4	145
SM8S30A	30.0	10	150	33.3	36.8	5	48.4	136
SM8S32A	32.0	10	150	35.5	39.4	5	51.4	128.5
SM8S33A	33.0	10	150	36.7	40.6	5	53.3	124
SM8S36A	36.0	10	150	40.0	44.2	5	58.1	114
SM8S40A	40.0	10	150	44.4	49.1	5	64.5	102
SM8S43A	43.0	10	150	47.8	52.8	5	69.4	95.1
SM8S85A	85.0	10	15	93.2	106.3	5	139	47.5

Note:

① For all types maximum VF = 2.0 V at IF = 100 A measured on 8.3 ms single half sine-wave or equivalent square wave, duty cycle = 4 pulses per minute maximum。

②. Surge waveform: 10/1000μs

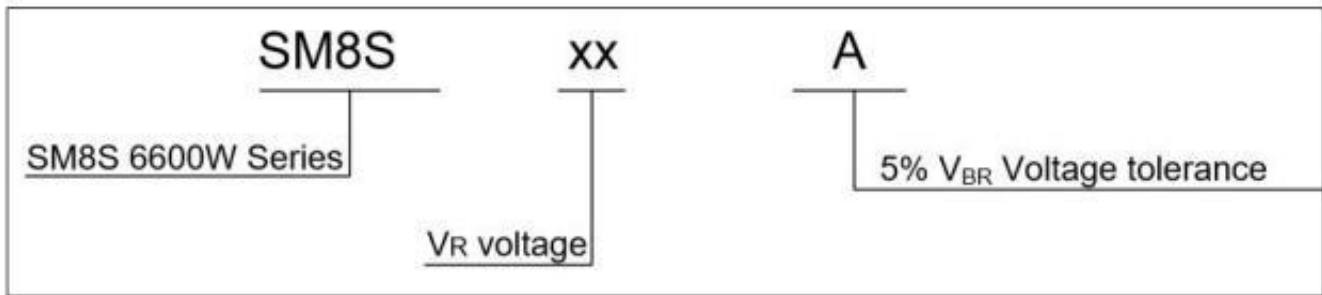
V_R : Stand-off Voltage -- Maximum voltage that can be applied
V_{BR}: Breakdown Voltage

V_C: Clamping Voltage -- Peak voltage measured across the suppressor at a specified I_{pp}

I_R: Reverse Leakage Current

I_T: Test current

Part Number Code



Absolute Maximum Ratings ($T_A=25^\circ\text{C}$, RH=45%-75%, unless otherwise noted)

Parameter	Symbol	Value	Unit
Peak pulse power dissipation on 10/1000us waveform	P_{pp}	6600	Watts
Peak pulse power dissipation on 10/10000us waveform		5200	Watts
Peak pulse current with 10/1000us waveform	I_{pp}	See last table	Amps
Power dissipation on infinite heat Sink at $T_C=25^\circ\text{C}$	P_D	8.0	Watts
Peak forward surge current, 8.3ms single half sine-wave	I_{FSM}	700	Amps
Operating Junction and Storage Temperature Range	T_J, T_{STG}	-55 to +150	$^\circ\text{C}$
Typical thermal resistance, junction to case	$R_{\theta JC}$	0.9	$^\circ\text{C}/\text{Watt}$

Typical Characteristics

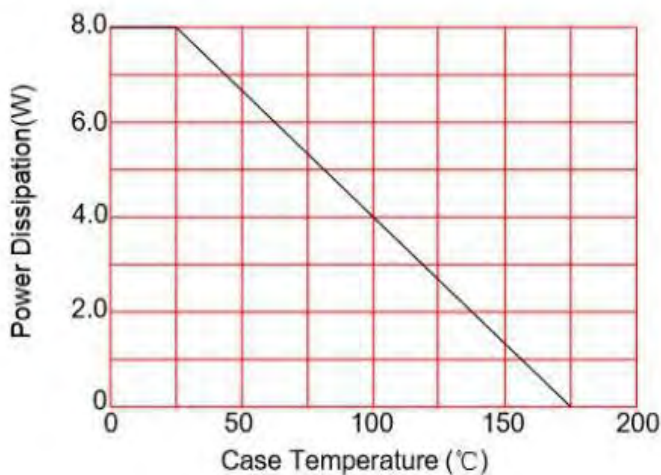


FIG.1: Power Derating Curve

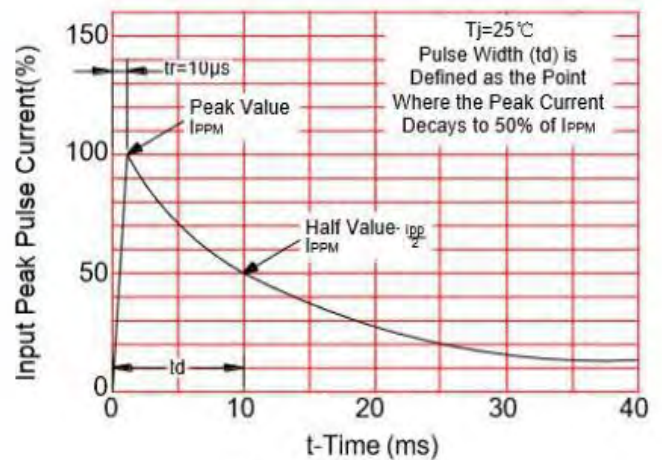


FIG.2: Pulse Waveform

Typical Characteristics

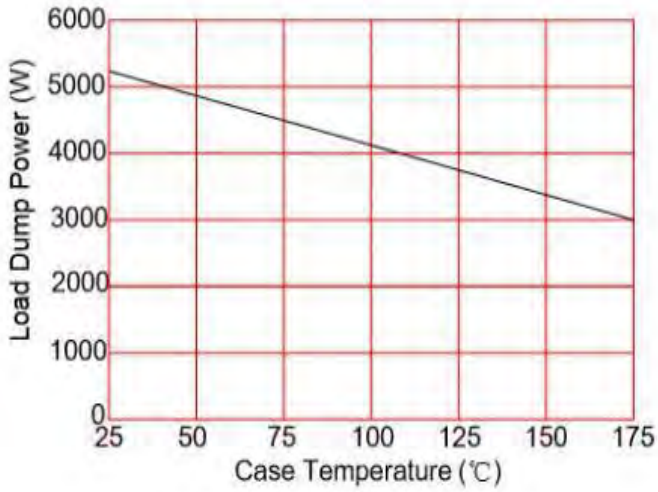


FIG.3: Load Dump Power Characteristics
 (10ms Exponential Waveform)

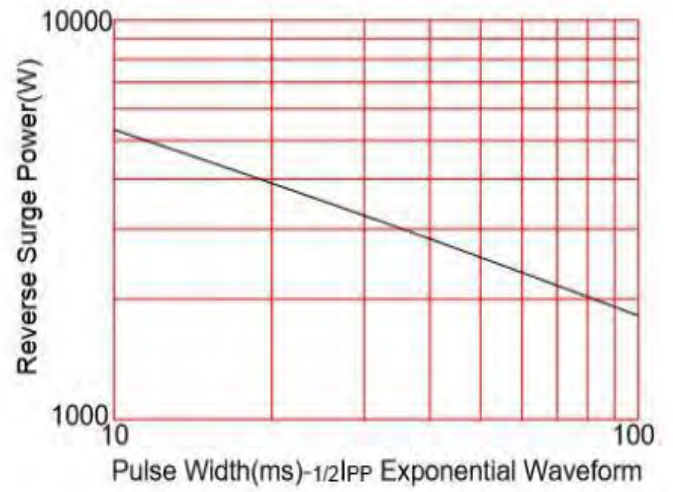


FIG.4: Reverse Power Capability

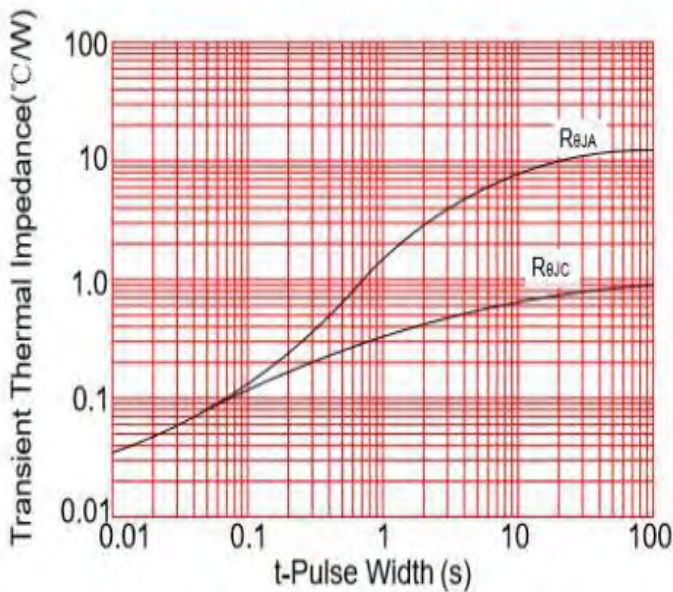


FIG.5: Typical Transient Thermal Impedance

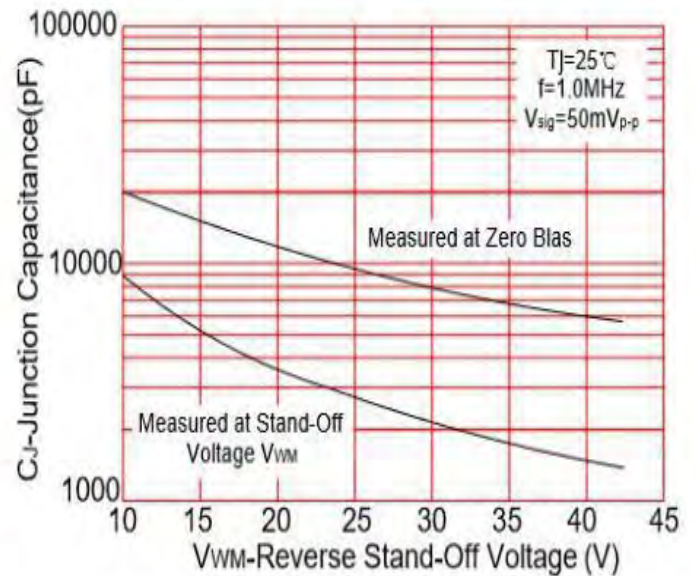
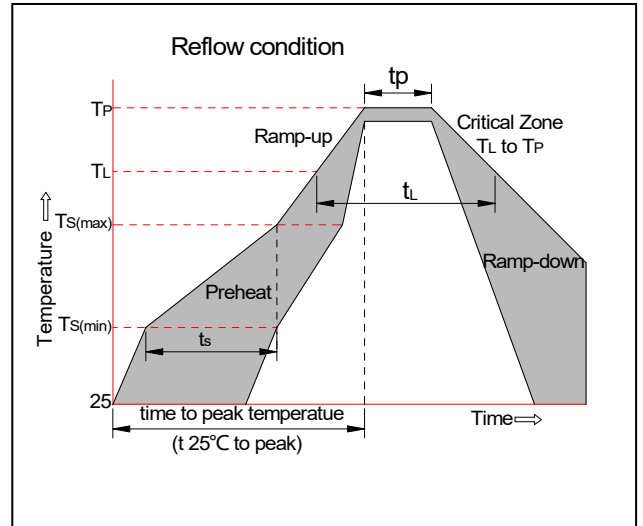


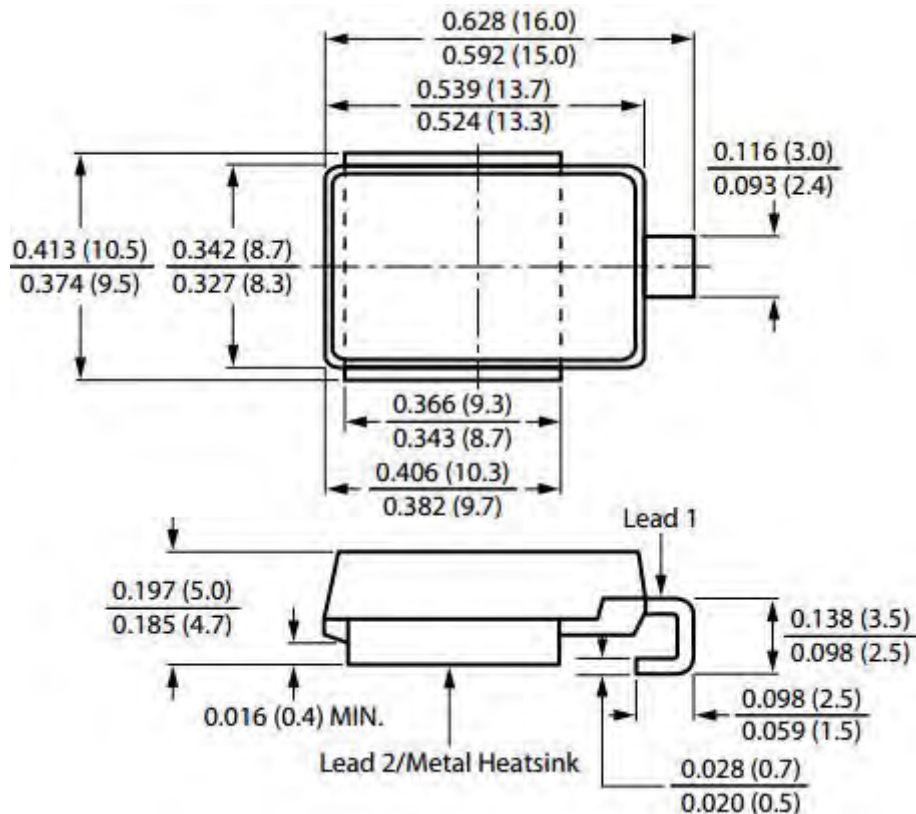
FIG.6: Typical Junction Capacitance

Soldering Parameters

Reflow Condition		Pb-Free assembly (see as below)
Pre Heat	-Temperature Min ($T_{s(min)}$)	+150°C
	-Temperature Max($T_{s(max)}$)	+200°C
	-Time (Min to Max) (ts)	60-180 secs.
Average ramp up rate (Liquid us Temp (T_L) to peak)		3°C/sec. Max
$T_{s(max)}$ to T_L - Ramp-up Rate		3°C/sec. Max
Reflow	-Temperature(T_L)(Liquid us)	+217°C
	-Temperature(t_L)	60-150 secs.
Peak Temp (T_p)		+260(+0/-5)°C
Time within 5°C of actual Peak Temp (t_p)		30 secs. Max
Ramp-down Rate		6°C/sec. Max
Time 25°C to Peak Temp (T_p)		8 min. Max
Do not exceed		+260°C



Package Mechanical Data



Suggested Land Pattern

