

Features

- Glass Passivated Junction technology
- $T_J = 175\text{ }^{\circ}\text{C}$ capability suitable for high reliability and automotive requirement
- 6600 W peak pulse power capability with a 10/1000 μs waveform, repetitive rate (duty cycle):0.01 %
- Meets ISO 7637-2 5a/5b and ISO 16750 load dump test (varied by test condition)
- AEC-Q101 qualified
- Low leakage current
- Low forward voltage drop for uni-directional polarity
- Both available in uni-directional and bi-directional polarity
- Excellent clamping capability
- Very fast response time
- Meets MSL level 1, per J-STD-020, LF maximum peak of $245\text{ }^{\circ}\text{C}$

DO-218AB



Typical Applications

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

Mechanical Data

- Case: DO-218AB
- Molding compound: UL94V-0 flammability
- Polarity: Heatsink is anode
- Terminal: Solderable per MIL-STD-750, Method 2026
- Mounting Position: Any

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

Parameter	Symbol	Value	UNIT
Peak power dissipation with a 10/1000 μs waveform ⁽¹⁾	P_{PP}	6600	W
Peak power dissipation with a 10/10,000 μs waveform for Unidirectional polarity	P_{PP}	5200	W
Peak pulse current with a 10/1000 μs waveform ⁽¹⁾	I_{PP}	See Next Table	A
Power dissipation on infinite heatsink at $T_L = 25\text{ }^{\circ}\text{C}$	P_D	8.0	W
Peak forward surge current 8.3 ms single half sine-wave	I_{FSM}	700	A
Operating junction and storage temperature range	T_J, T_{STG}	-55 to +175	$^{\circ}\text{C}$

Note:

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

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

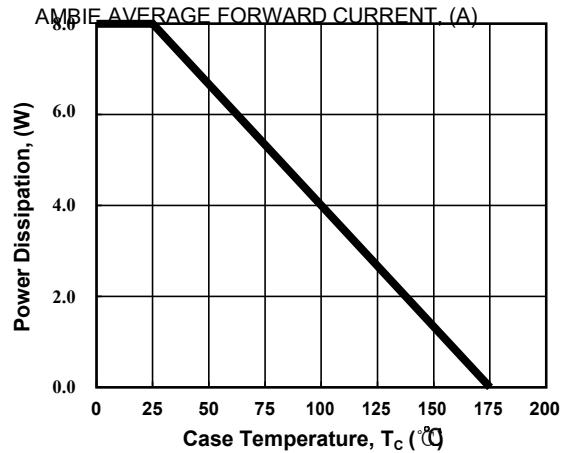


Fig. 1 - Power Derating Curve

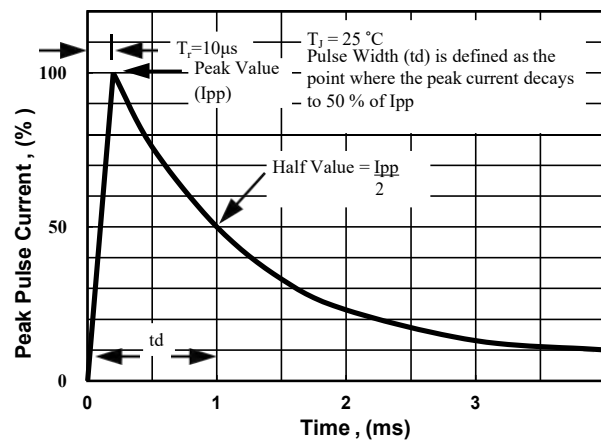


Fig. 2 - Pulse Waveform

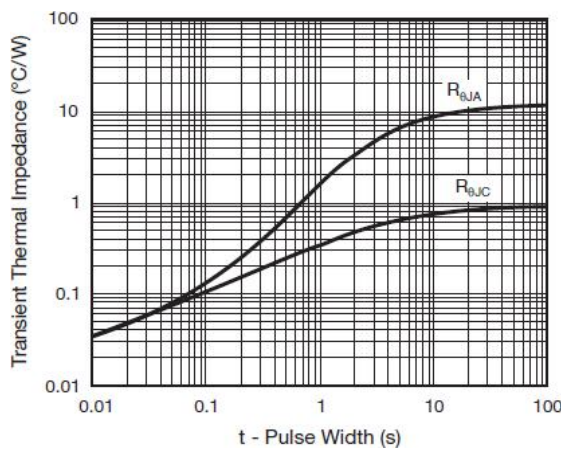


Fig. 3 - Typical Thermal Impedance



Fig. 4 - Peak Pulse Power Rating Curve

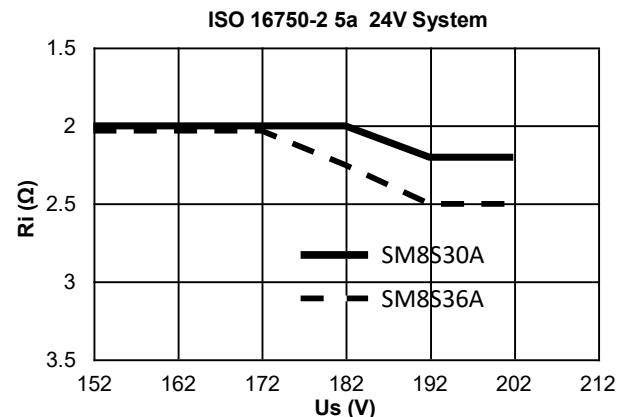
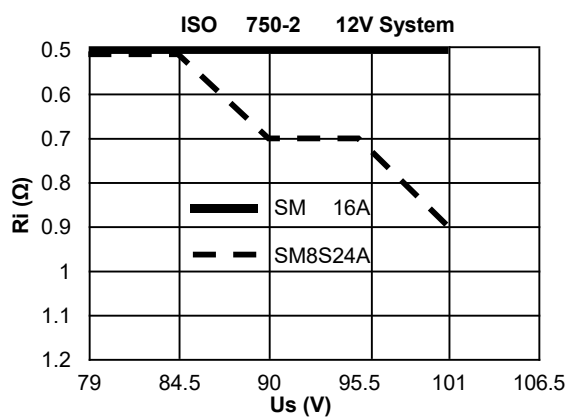
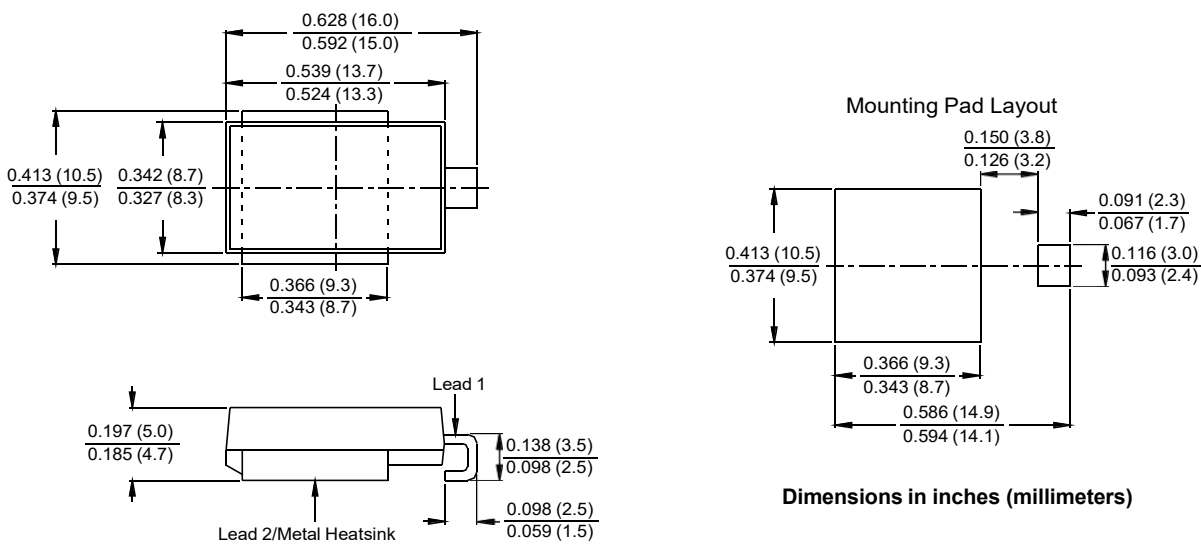


Fig. 5 - Typical SOA Chart

PACKAGE OUTLINE DIMENSIONS

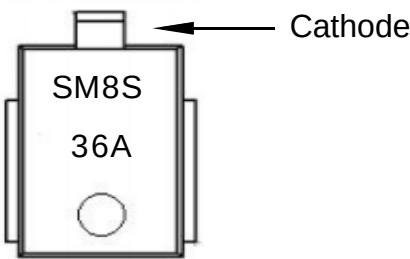


Dimensions in inches (millimeters)

PACKAGING

Part Number	Component Package	Quantity	Packaging Option	Packaging Specification
SM8S36CA	DO-218	500	Tape & Reel - 24mm/13" tape	EIA STD RS-481

Part System



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

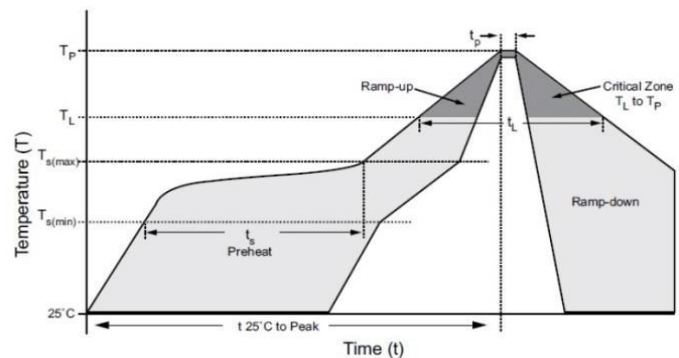
Part Number	Breakdown Voltage V_{BR} @ I_T			Maximum Reverse Leakage I_R @ V_{RWM} (μA)	Maximum I_R @ V_{RWM} $T_J=175$ (μA)	Working Peak Reverse Voltage V_{RWM} (V)	Maximum Reverse Surge Current I_{PP} (A) ⁽¹⁾	Maximum Clamping Voltage V_C @ I_{PP} (V)
Bi	Min (V)	Max (V)	I_T (mA)					
SM8S36CA	40.0	44.2	5.0	10	150	36	114	58.1

NOTE:

- Surge current waveform is defined at 10/1000 μs waveform
- For uni-directional part, the maximum VF = 1.8 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

Recommended Soldering Parameters

IR-Reflow Condition			
Pre Heat	Temp. min	150	$^{\circ}\text{C}$
	Temp. max	200	$^{\circ}\text{C}$
	Time(min to max)	60-120	sec
Ramp up rate (150-200 $^{\circ}\text{C}$)		<3	$^{\circ}\text{C}/\text{sec}$
Reflow	Liquidus Temp.	>217	$^{\circ}\text{C}$
	Peak Temp.	245	$^{\circ}\text{C}$
	Time(Liq. to Peak)	60-150	sec
Ramp up rate (220-200 $^{\circ}\text{C}$)		<3	$^{\circ}\text{C}/\text{sec}$
Time within 5 $^{\circ}\text{C}$ of actual peak temp.		20-40	sec
Ramp down Rate		<6	$^{\circ}\text{C}/\text{sec}$
Time(25 $^{\circ}\text{C}$ to Peak temp.)		<8	min



Note.: Number of reflow cycles allowed 3 times