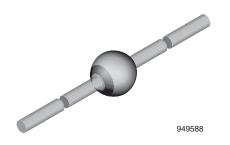


Vishay Semiconductors

Fast Avalanche Sinterglass Diode



DESIGN SUPPORT TOOLS

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MECHANICAL DATA

Case: SOD-64

Terminals: plated axial leads, solderable per MIL-STD-750,

method 2026

Polarity: color band denotes cathode end

Mounting position: any Weight: approx. 858 mg

FEATURES

- · Glass passivated junction
- · Hermetically sealed package
- · Low reverse current
- · Soft recovery characteristics
- · Very fast reverse recovery time
- Material categorization: for definitions of compliance please see www.vishay.com/doc?99912





COMPLIANT HALOGEN

APPLICATIONS

Ultrafast rectification diode for switching mode power supplies

ORDERING INFORMATION (Example)						
DEVICE NAME	ORDERING CODE TAPED UNITS MINIMUM ORDER QU					
BYW178	BYW178-TR	2500 per 10" tape and reel	12 500			
BYW178	BYW178-TAP	2500 per ammopack	12 500			

PARTS TABLE						
PART	TYPE DIFFERENTIATION	PACKAGE				
BYW178	V _R = 800 V; I _{F(AV)} = 3 A	SOD-64				

ABSOLUTE MAXIMUM RATINGS (T _{amb} = 25 °C, unless otherwise specified)						
PARAMETER	TEST CONDITION P		SYMBOL	VALUE	UNIT	
Reverse voltage = repetitive peak reverse voltage	See electrical characteristics	BYW178	$V_R = V_{RRM}$	800	V	
Peak forward surge current	$t_p = 10$ ms, half sine wave		I _{FSM}	80		
Repetitive peak forward current			I _{FRM}	15	Α	
Average forward current			I _{F(AV)}	3		
Junction and storage temperature range			$T_j = T_{stg}$	-55 to +175	°C	
Non repetitive reverse avalanche energy	I _{(BR)R} = 1 A		E _R	20	mJ	

MAXIMUM THERMAL RESISTANCE (T _{amb} = 25 °C, unless otherwise specified)					
PARAMETER	TEST CONDITION SYMBOL VALUE		UNIT		
Junction lead	Lead length I = 10 mm, T _L = constant	ad length $I = 10$ mm, $T_L = constant$ R_{thJL}		K/W	
Junction ambient	On PC board with spacing 37.5 mm R _{thJA} 70		K/W		



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ELECTRICAL CHARACTERISTICS (T _{amb} = 25 °C, unless otherwise specified)							
PARAMETER	TEST CONDITION	PART	SYMBOL	MIN.	TYP.	MAX.	UNIT
Forward voltage	I _F = 3 A		V_{F}	-	-	1.9	V
Reverse current	$V_R = V_{RRM}$		I _R	-	-	1	μA
neverse current	$V_R = V_{RRM}, T_j = 100 ^{\circ}C$		I _R	-	-	20	μΑ
Reverse recovery current	I_F = 1 A, $dI_F/dt \le$ - 50 A/ μ s, V_{BATT} = 200 V		I _{RM}	-	2.2	-	ns
Reverse recovery time (JEDEC)	I _F = 0.5 A, I _R = 1 A, i _R = 0.25		t _{rr}	-	-	60	ns
Reverse recovery time	$I_F = 1 \text{ A}, \ dI_F/dt \le -50 \text{ A/}\mu\text{s}, \ V_{BATT} = 200 \text{ V}, \ I_R = 0.25 \text{ x} \ I_{RM}$		t _{rr}	-	50	-	ns

TYPICAL CHARACTERISTICS (T_{amb} = 25 °C, unless otherwise specified)

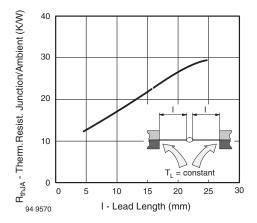


Fig. 1 - Max. Thermal Resistance vs. Lead Length

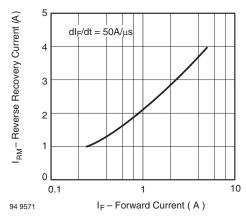


Fig. 2 - Typ. Reverse Recovery Current vs. Forward Voltage

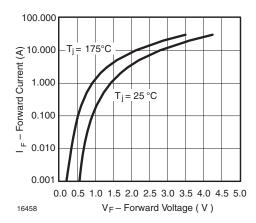


Fig. 3 - Forward Current vs. Forward Voltage

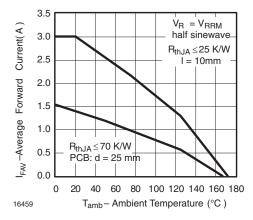
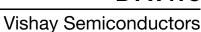


Fig. 4 - Max. Average Forward Current vs. Junction Temperature





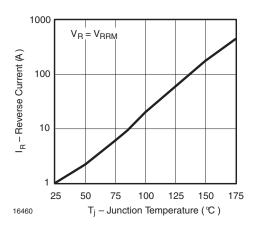


Fig. 5 - Reverse Current vs. Junction Temperature

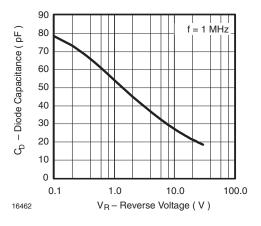


Fig. 7 - Diode Capacitance vs. Reverse Voltage

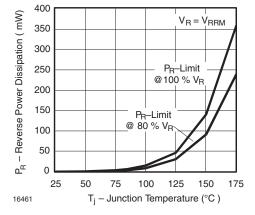


Fig. 6 - Max. Reverse Power Dissipation vs. Junction Temperature

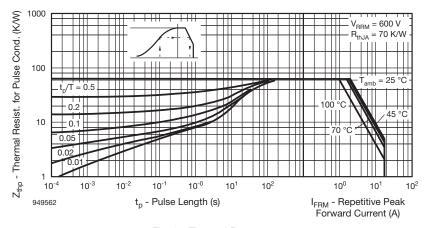
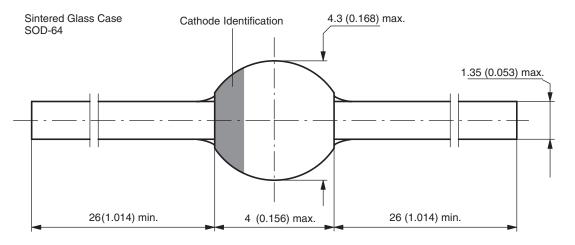


Fig. 8 - Thermal Response

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PACKAGE DIMENSIONS in millimeters (inches): SOD-64



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