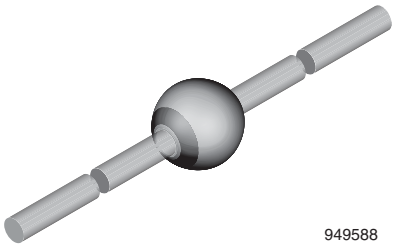
Fast Avalanche Sinterglass Diode



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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

RoHS COMPLIANT

HALOGEN FREE

DESIGN SUPPORT TOOLS

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3D Models Available

APPLICATIONS

- Ultrafast rectification diode for switching mode power supplies

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

ORDERING INFORMATION (Example)			
DEVICE NAME	**ORDERING CODE**	**TAPED UNITS**	**MINIMUM ORDER QUANTITY**
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**	**PART**	**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	A
Repetitive peak forward current			I_{FRM}	15	
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 l = 10 mm, T_L = constant	R_{thJL}	25	K/W
Junction ambient	On PC board with spacing 37.5 mm	R_{thJA}	70	K/W

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
	$V_R = V_{RRM}$, T_j = 100 °C		I_R	-	-	20	µA
Reverse recovery current	I_F = 1 A, $dI_F/dt \leq$ - 50 A/µs, 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 A, $dI_F/dt \leq$ - 50 A/µs, V_{BATT} = 200 V, i_R = 0.25 x I_{RM}		t_{rr}	-	50	-	ns

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

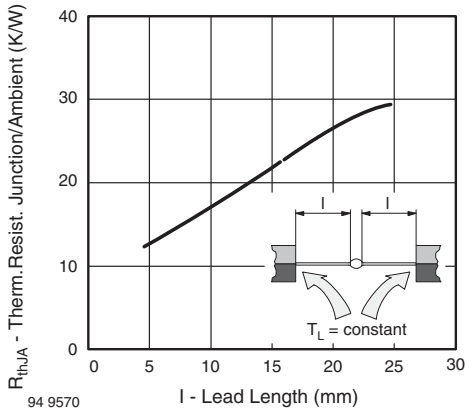


Fig. 1 - Max. Thermal Resistance vs. Lead Length

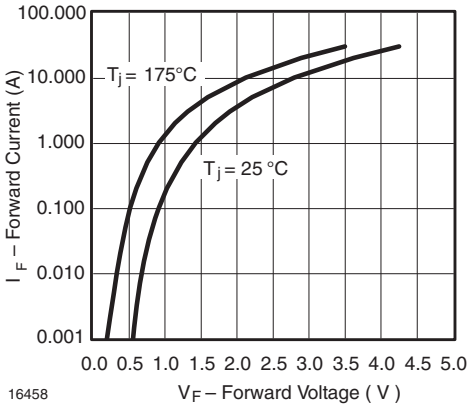


Fig. 3 - Forward Current vs. Forward Voltage

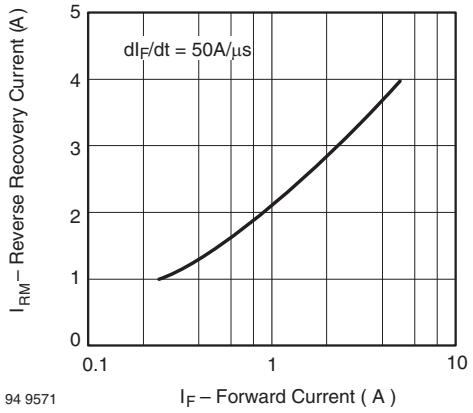


Fig. 2 - Typ. Reverse Recovery Current vs. Forward Voltage

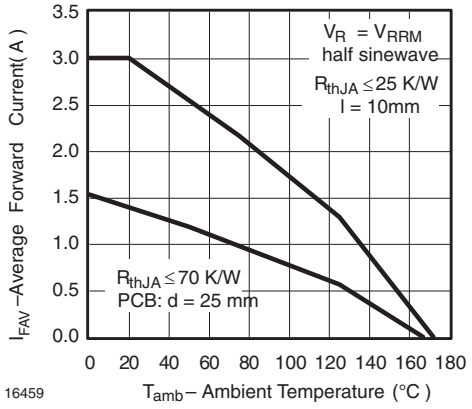


Fig. 4 - Max. Average Forward Current vs. Junction Temperature

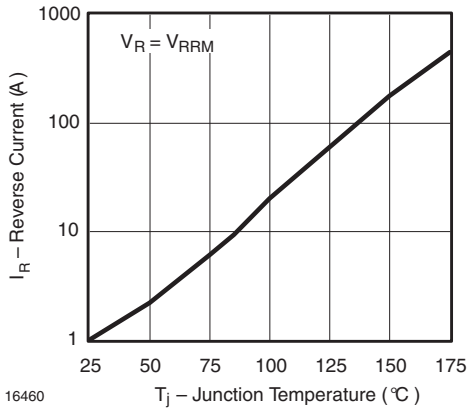


Fig. 5 - Reverse Current vs. Junction Temperature

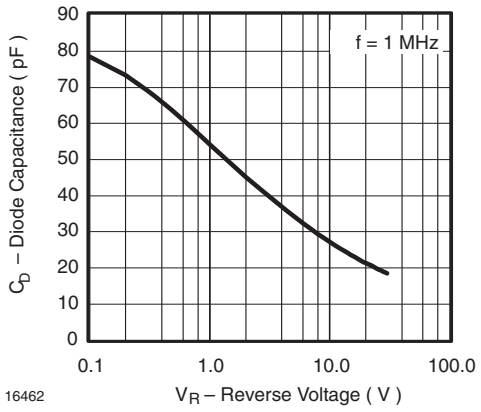


Fig. 7 - Diode Capacitance vs. Reverse Voltage

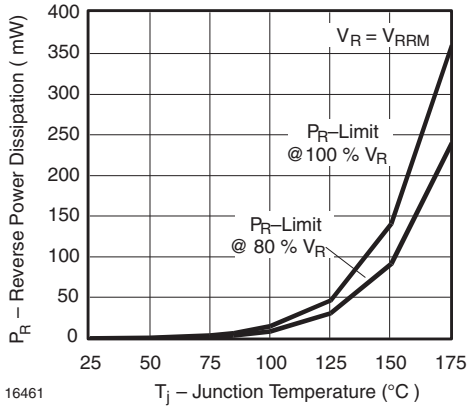


Fig. 6 - Max. Reverse Power Dissipation vs. Junction Temperature

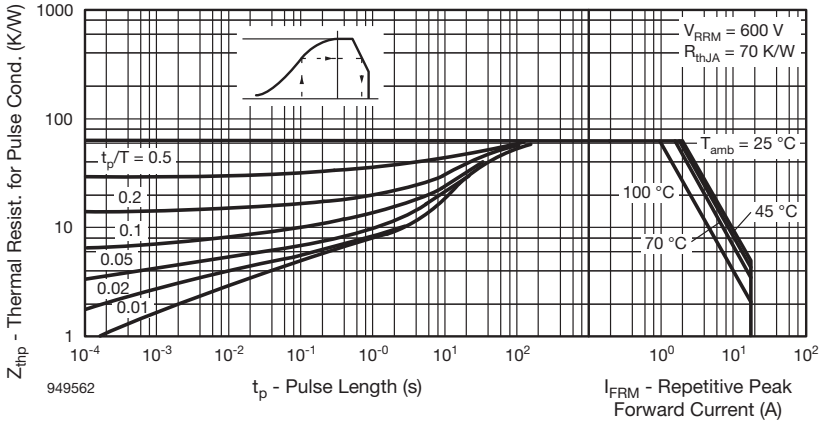
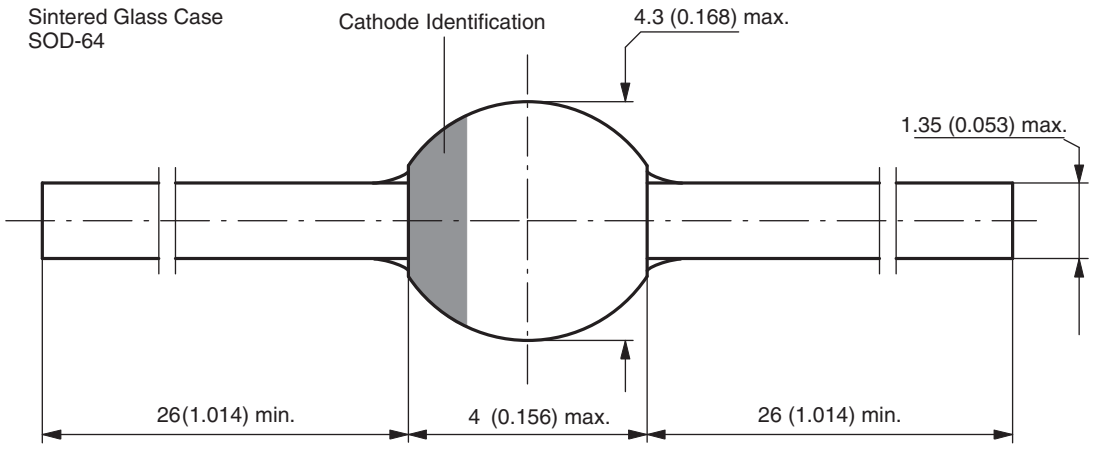


Fig. 8 - Thermal Response

PACKAGE DIMENSIONS in millimeters (inches): **SOD-64**



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