

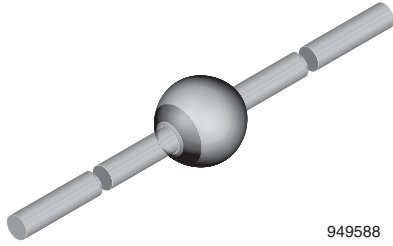


# THE DATASHEET OF BYW86-TR





## Standard Avalanche Sinterglass Diode



949588

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### DESIGN SUPPORT TOOLS



### 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
- Controlled avalanche characteristics
- Low reverse current
- High surge current loading
- AEC-Q101 qualified
- Material categorization: for definitions of compliance please see [www.vishay.com/doc?99912](http://www.vishay.com/doc?99912)



**RoHS**  
COMPLIANT  
HALOGEN  
**FREE**

### APPLCIATIONS

- Rectification, general purpose

ORDERING INFORMATION (Example)			
DEVICE NAME	ORDERING CODE	TAPED UNITS	MINIMUM ORDER QUANTITY
BYW82 or BYW83 or BYW84 and <b>BYW86</b>	BYW86-TR	2500 per 10" tape and reel	12 500
BYW82 or BYW84 and <b>BYW85</b>	BYW85-TAP	2500 per ammpack	12 500
BYW85	BYW85TR	2500 per 10" tape and reel	12 500
BYW83 or <b>BYW86</b>	BYW86TAP	2500 per ammpack	12 500

PARTS TABLE		
PART	TYPE DIFFERENTIATION	PACKAGE
BYW82	$V_R = 200\text{ V}, I_{F(AV)} = 3\text{ A}$	SOD-64
BYW83	$V_R = 400\text{ V}, I_{F(AV)} = 3\text{ A}$	SOD-64
BYW84	$V_R = 600\text{ V}, I_{F(AV)} = 3\text{ A}$	SOD-64
BYW85	$V_R = 800\text{ V}, I_{F(AV)} = 3\text{ A}$	SOD-64
BYW86	$V_R = 1000\text{ V}, I_{F(AV)} = 3\text{ A}$	SOD-64

ABSOLUTE MAXIMUM RATINGS ( $T_{amb} = 25\text{ }^\circ\text{C}$ , unless otherwise specified)					
PARAMETER	TEST CONDITION	PART	SYMBOL	VALUE	UNIT
Reverse voltage = repetitive peak reverse voltage	See electrical characteristics	BYW82	$V_R = V_{RRM}$	200	V
		BYW83	$V_R = V_{RRM}$	400	V
		BYW84	$V_R = V_{RRM}$	600	V
		BYW85	$V_R = V_{RRM}$	800	V
		BYW86	$V_R = V_{RRM}$	1000	V
Peak forward surge current	$t_p = 10\text{ ms}$ , half sine wave		$I_{FSM}$	100	A
Repetitive peak forward current			$I_{FRM}$	18	A
Average forward current			$I_{F(AV)}$	3	A
Pulse avalanche peak power	$t_p = 20\text{ }\mu\text{s}$ , half sine wave, $T_j = 175\text{ }^\circ\text{C}$		$P_R$	1000	W
Pulse energy in avalanche mode, non repetitive (inductive load switch off)	$I_{(BR)R} = 1\text{ A}$ , $T_j = 175\text{ }^\circ\text{C}$		$E_R$	20	mJ
$i^2t$ -rating			$i^2t$	40	A <sup>2</sup> s
Junction and storage temperature range			$T_j = T_{stg}$	-55 to +175	$^\circ\text{C}$

MAXIMUM THERMAL RESISTANCE ( $T_{amb} = 25\text{ }^{\circ}\text{C}$ , unless otherwise specified)				
PARAMETER	TEST CONDITION	SYMBOL	VALUE	UNIT
Junction ambient	Lead length $l = 10\text{ mm}$ , $T_L = \text{constant}$	$R_{thJA}$	25	K/W
	On PC board with spacing 25 mm	$R_{thJA}$	70	K/W

ELECTRICAL CHARACTERISTICS ( $T_{amb} = 25\text{ }^{\circ}\text{C}$ , unless otherwise specified)						
PARAMETER	TEST CONDITION	SYMBOL	MIN.	TYP.	MAX.	UNIT
Forward voltage	$I_F = 3\text{ A}$	$V_F$	-	-	1	V
Reverse current	$V_R = V_{RRM}$	$I_R$	-	0.1	1	$\mu\text{A}$
	$V_R = V_{RRM}$ , $T_j = 100\text{ }^{\circ}\text{C}$	$I_R$	-	5	10	$\mu\text{A}$
Breakdown voltage	$I_R = 100\text{ }\mu\text{A}$ , $tp/T = 0.01$ , $tp = 0.3\text{ ms}$	$V_{(BR)}$	-	-	1600	V
Diode capacitance	$V_R = 4\text{ V}$ , $f = 1\text{ MHz}$	$C_D$	-	40	60	pF
Reverse recovery time	$I_F = 0.5\text{ A}$ , $I_R = 1\text{ A}$ , $I_R = 0.25\text{ A}$	$t_{rr}$	-	3.5	5	$\mu\text{s}$
	$I_F = 1\text{ A}$ , $dI/dt = 5\text{ A}/\mu\text{s}$ , $V_R = 50\text{ V}$	$t_{rr}$	-	4.5	7.5	$\mu\text{s}$
Reverse recovery charge	$I_F = 1\text{ A}$ , $dI/dt = 5\text{ A}/\mu\text{s}$	$Q_{rr}$	-	8	12	$\mu\text{C}$

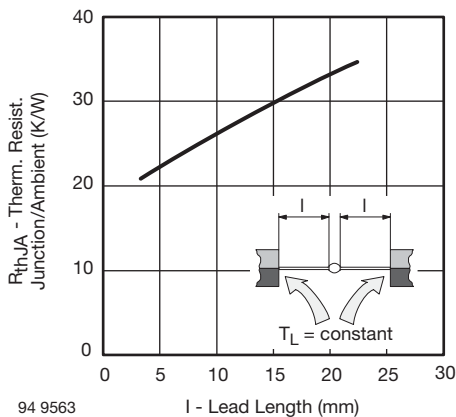
**TYPICAL CHARACTERISTICS** ( $T_{amb} = 25\text{ }^{\circ}\text{C}$ , unless otherwise specified)


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

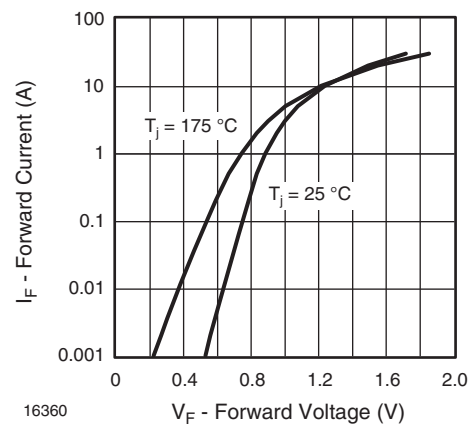


Fig. 3 - Forward Current vs. Forward Voltage

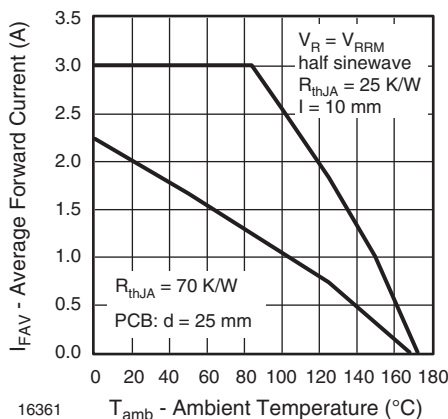


Fig. 2 - Max. Average Forward Current vs. Ambient Temperature

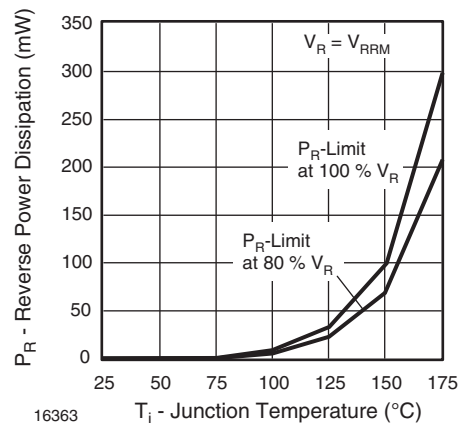


Fig. 4 - Max. Reverse Power Dissipation vs. Junction Temperature

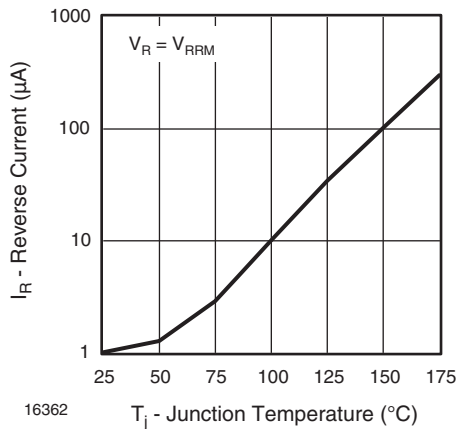


Fig. 5 - Reverse Current vs. Junction Temperature

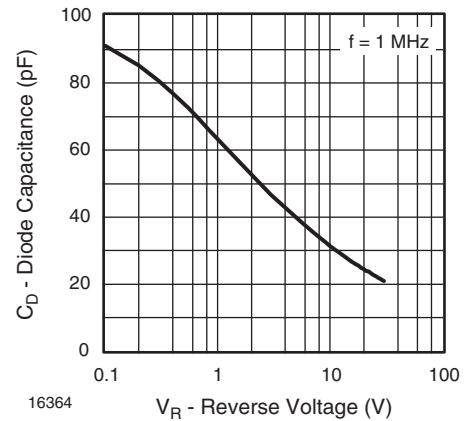


Fig. 6 - Diode Capacitance vs. Reverse Voltage

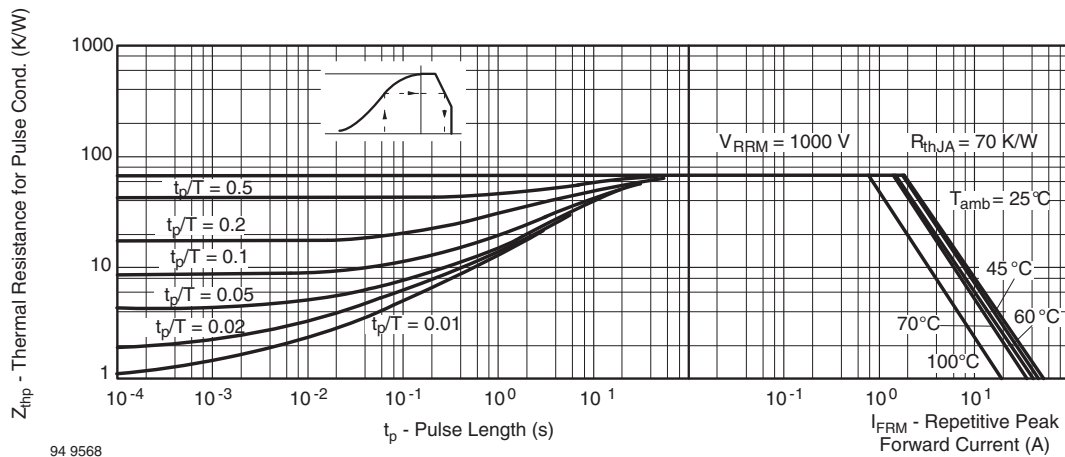
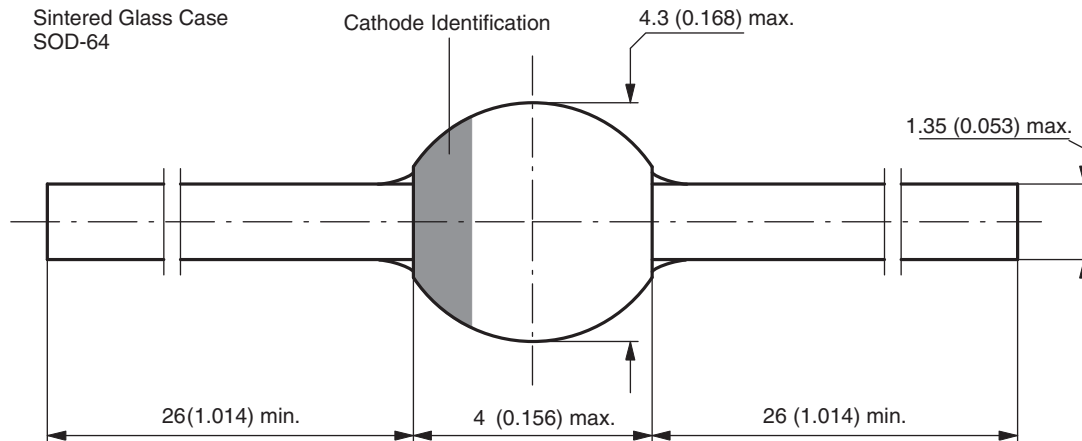


Fig. 7 - Thermal Response

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



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 94 9587



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