

## Standard Avalanche Sinterglass Diode

### Features

- Glass passivated junction
- Hermetically sealed package
- Controlled avalanche characteristics
- Low reverse current
- High surge current loading

### Applications

Rectification, general purpose

### Mechanical Data

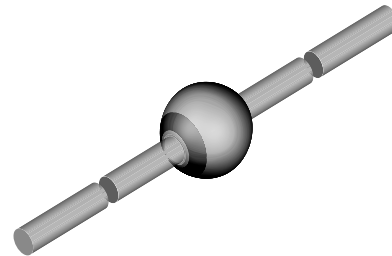
**Case:** Sintered glass case, SOD 64

**Terminals:** Plated axial leads, solderable per MIL-STD-750, Method 2026

**Polarity:** Color band denotes cathode end

**Mounting Position:** Any

**Weight:** 860 mg, (max. 1000 mg)



949588

### Parts Table

Part	Type differentiation	Package
BYW82	$V_R = 200 \text{ V}; I_{FAV} = 3 \text{ A}$	SOD64
BYW83	$V_R = 400 \text{ V}; I_{FAV} = 3 \text{ A}$	SOD64
BYW84	$V_R = 600 \text{ V}; I_{FAV} = 3 \text{ A}$	SOD64
BYW85	$V_R = 800 \text{ V}; I_{FAV} = 3 \text{ A}$	SOD64
BYW86	$V_R = 1000 \text{ V}; I_{FAV} = 3 \text{ A}$	SOD64

### Absolute Maximum Ratings

$T_{amb} = 25 \text{ }^\circ\text{C}$ , unless otherwise specified

Parameter	Test condition	Sub type	Symbol	Value	Unit
Reverse voltage = Repetitive peak reverse voltage	see electrical characteristics	BYW82	$V_R = V_{RRM}$	200	V
	see electrical characteristics	BYW83	$V_R = V_{RRM}$	400	V
	see electrical characteristics	BYW84	$V_R = V_{RRM}$	600	V
	see electrical characteristics	BYW85	$V_R = V_{RRM}$	800	V
	see electrical characteristics	BYW86	$V_R = V_{RRM}$	1000	V
Peak forward surge current	$t_p = 10 \text{ ms}$ , half sinewave		$I_{FSM}$	100	A
Repetitive peak forward current			$I_{FRM}$	18	A
Average forward current			$I_{FAV}$	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

Parameter	Test condition	Sub type	Symbol	Value	Unit
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
$i^2 \cdot t$ -rating			$i^2 \cdot t$	40	$\text{A}^2 \cdot \text{s}$
Junction and storage temperature range			$T_j = T_{\text{stg}}$	- 55 to +175	$^\circ\text{C}$

### Maximum Thermal Resistance

$T_{\text{amb}} = 25 \text{ }^\circ\text{C}$ , unless otherwise specified

Parameter	Test condition	Sub type	Symbol	Value	Unit
Junction ambient	$l = 10 \text{ mm}$ , $T_L = \text{constant}$		$R_{\text{thJA}}$	25	K/W
	on PC board with spacing 25mm		$R_{\text{thJA}}$	70	K/W

### Electrical Characteristics

$T_{\text{amb}} = 25 \text{ }^\circ\text{C}$ , unless otherwise specified

Parameter	Test condition	Sub type	Symbol	Min	Typ.	Max	Unit
Forward voltage	$I_F = 3 \text{ A}$		$V_F$			1.0	V
Reverse current	$V_R = V_{\text{RRM}}$		$I_R$		0.1	1	$\mu\text{A}$
	$V_R = V_{\text{RRM}}$ , $T_j = 100 \text{ }^\circ\text{C}$		$I_R$		5	10	$\mu\text{A}$
Breakdown voltage	$I_R = 100 \text{ } \mu\text{A}$ , $t_p/T = 0.01$ , $t_p = 0.3 \text{ ms}$		$V_{(BR)}$			1600	V
Diode capacitance	$V_R = 4 \text{ V}$ , $f = 1 \text{ MHz}$		$C_D$		40	60	pF
Reverse recovery time	$I_F = 0.5 \text{ A}$ , $I_R = 1 \text{ A}$ , $i_R = 0.25 \text{ A}$		$t_{rr}$		2	4	$\mu\text{s}$
	$I_F = 1 \text{ A}$ , $dI/dt = 5 \text{ A}/\mu\text{s}$ , $V_R = 50 \text{ V}$		$t_{rr}$		3	6	$\mu\text{s}$
Reverse recovery charge	$I_F = 1 \text{ A}$ , $dI/dt = 5 \text{ A}/\mu\text{s}$		$Q_{rr}$		6	10	$\mu\text{C}$

### Typical Characteristics ( $T_{\text{amb}} = 25 \text{ }^\circ\text{C}$ unless otherwise specified)

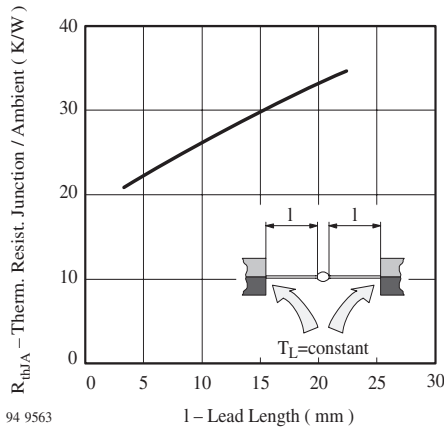


Figure 1. Max. Thermal Resistance vs. Lead Length

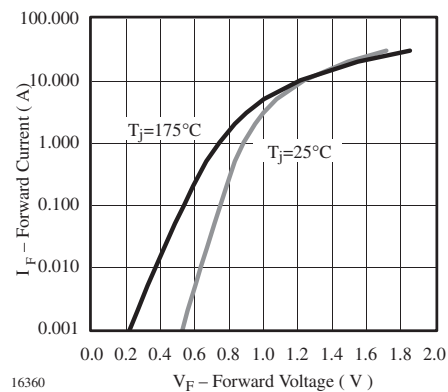


Figure 2. Forward Current vs. Forward Voltage

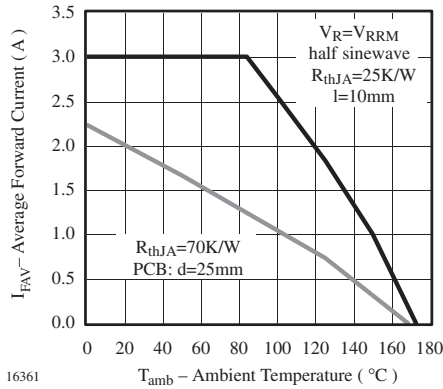


Figure 3. Max. Average Forward Current vs. Ambient Temperature

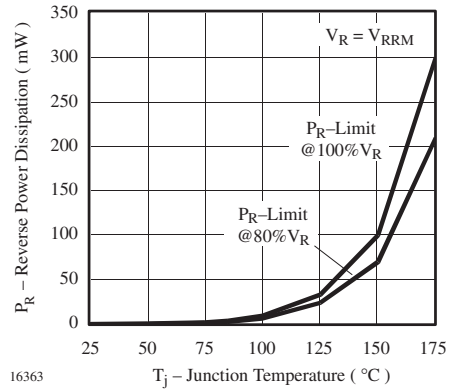


Figure 5. Max. Reverse Power Dissipation vs. Junction Temperature

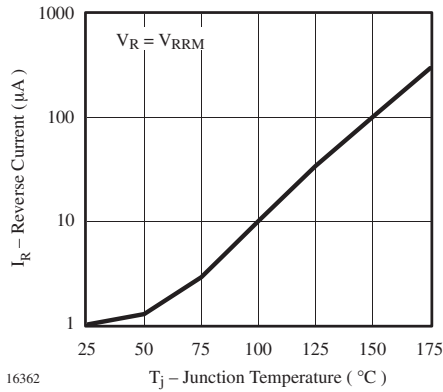


Figure 4. Reverse Current vs. Junction Temperature

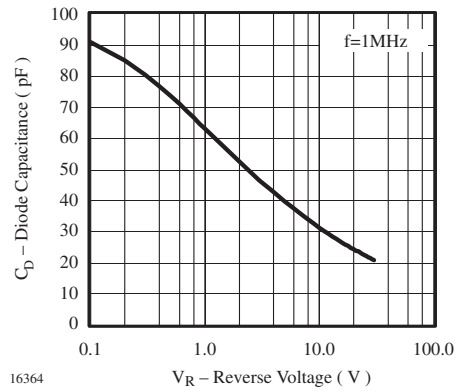


Figure 6. Diode Capacitance vs. Reverse Voltage

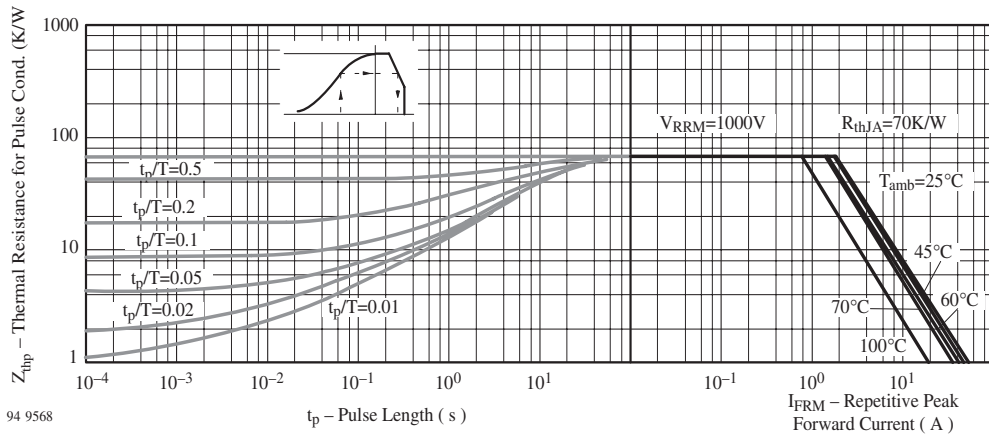


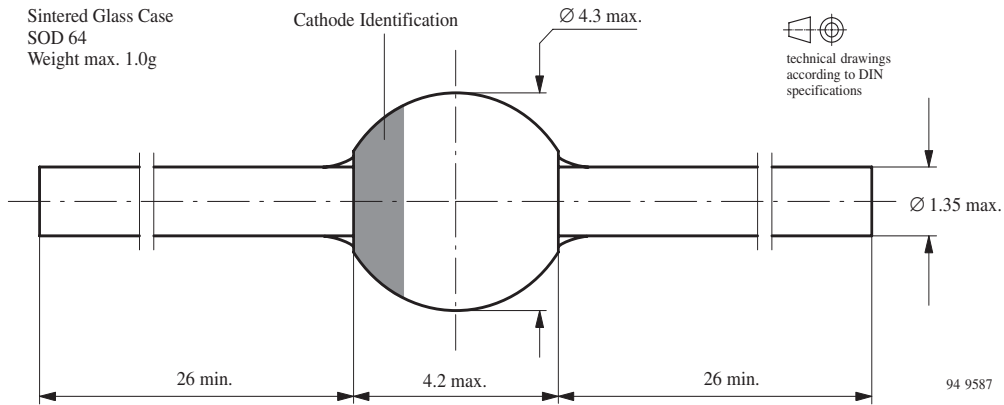
Figure 7. Thermal Response

# BYW82 to BYW86

Vishay Semiconductors



## Package Dimensions in mm





## Ozone Depleting Substances Policy Statement

It is the policy of **Vishay Semiconductor GmbH** to

1. Meet all present and future national and international statutory requirements.
2. Regularly and continuously improve the performance of our products, processes, distribution and operating systems with respect to their impact on the health and safety of our employees and the public, as well as their impact on the environment.

It is particular concern to control or eliminate releases of those substances into the atmosphere which are known as ozone depleting substances (ODSs).

The Montreal Protocol (1987) and its London Amendments (1990) intend to severely restrict the use of ODSs and forbid their use within the next ten years. Various national and international initiatives are pressing for an earlier ban on these substances.

**Vishay Semiconductor GmbH** has been able to use its policy of continuous improvements to eliminate the use of ODSs listed in the following documents.

1. Annex A, B and list of transitional substances of the Montreal Protocol and the London Amendments respectively
2. Class I and II ozone depleting substances in the Clean Air Act Amendments of 1990 by the Environmental Protection Agency (EPA) in the USA
3. Council Decision 88/540/EEC and 91/690/EEC Annex A, B and C (transitional substances) respectively.

**Vishay Semiconductor GmbH** can certify that our semiconductors are not manufactured with ozone depleting substances and do not contain such substances.

**We reserve the right to make changes to improve technical design  
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