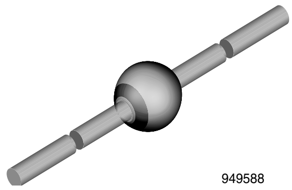
Ultra Fast Avalanche Sinterglass Diode

Features

- Glass passivated junction
- Hermetically sealed package
- Low reverse current
- Soft recovery characteristics
- Very fast reverse recovery time
- Low reverse recovery peak current
- Lead (Pb)-free component
- Component in accordance to RoHS 2002/95/EC and WEEE 2002/96/EC



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Applications

Ultra fast rectification diode for switching mode power supplies

Mechanical Data

Case: SOD-64 Sintered glass case

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

Polarity: Color band denotes cathode end

Mounting Position: Any

Weight: approx. 858 mg

Parts Table

Part	Type differentiation	Package
BYW178	V_R = 800 V; I_{FAV} = 3 A	SOD-64

Absolute Maximum Ratings

T_{amb} = 25 °C, unless otherwise specified

Parameter	Test condition	Symbol	Value	Unit
Reverse voltage = Repetitive peak reverse voltage	see electrical characteristics	$V_R = V_{RRM}$	800	V
Peak forward surge current	t_p = 10 ms, half sinewave	I_{FSM}	80	A
Repetitive peak forward current		I_{FRM}	15	A
Average forward current		I_{FAV}	3	A
Junction and storage temperature range		$T_j = T_{stg}$	- 55 to + 175	°C
Non repetitive reverse	$I_{(BR)R}$ = 0.4 A	E_R	20	mJ

Maximum Thermal Resistance

T_{amb} = 25 °C, unless otherwise specified

Parameter	Test condition	Symbol	Value	Unit
Junction lead	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	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, $di_F/dt \le$ - 50 A/µs, V_{Batt} = 200 V	I_{RM}		2.2		A
Reverse recovery time	I_F = 1 A, $di_F/dt \le$ - 50 A/µs, V_{Batt} = 200 V, i_R = 0.25 x I_{RM}	t_{rr}		50		ns
Reverse recovery time (JEDEC)	I_F = 0.5 A, I_R = 1 A, i_R = 0.25 A	t_{rr}			60	ns

Typical Characteristics (Tamb = 25 °C unless otherwise specified)

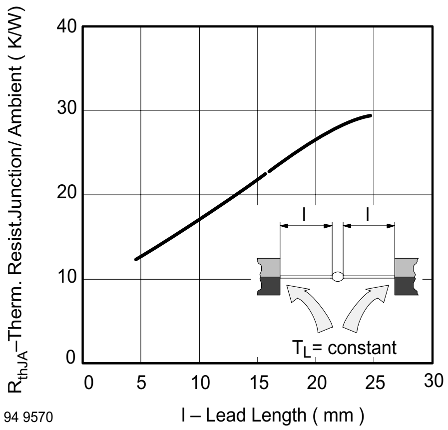


Figure 1. Typ. Thermal Resistance vs. Lead Length

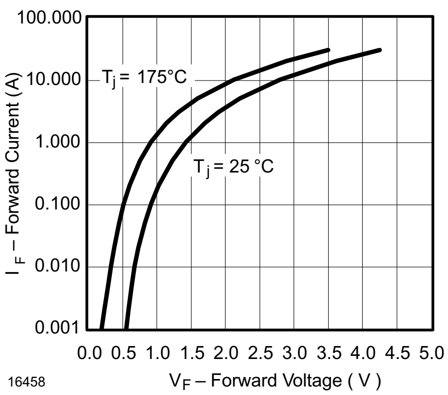


Figure 3. Forward Current vs. Forward Voltage

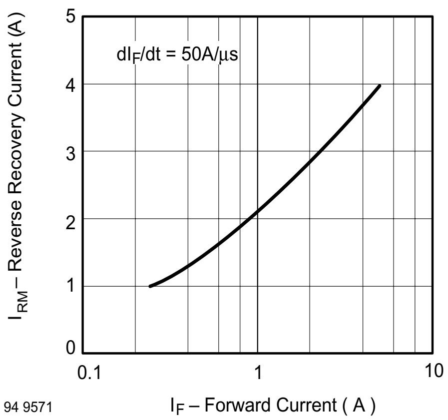


Figure 2. Typ. Reverse Recovery Current vs. Forward Current

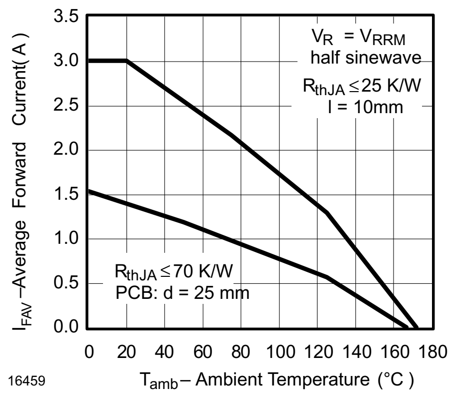


Figure 4. Max. Average Forward Current vs. Ambient Temperature

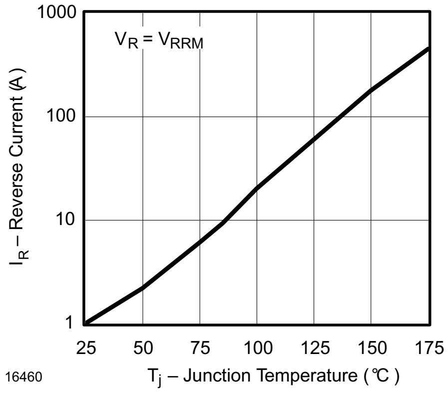


Figure 5. Reverse Current vs. Junction Temperature

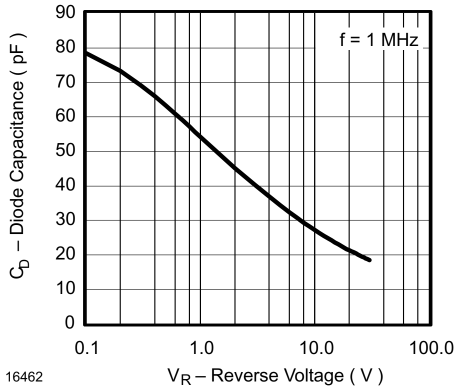


Figure 7. Diode Capacitance vs. Reverse Voltage

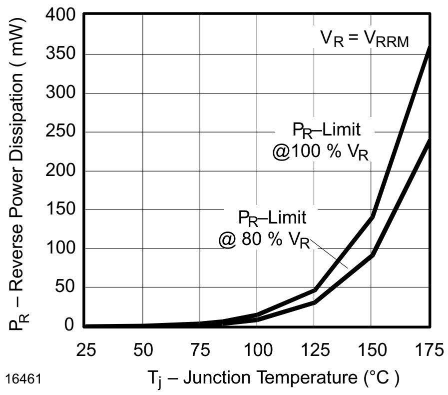


Figure 6. Max. Reverse Power Dissipation vs. Junction Temperature

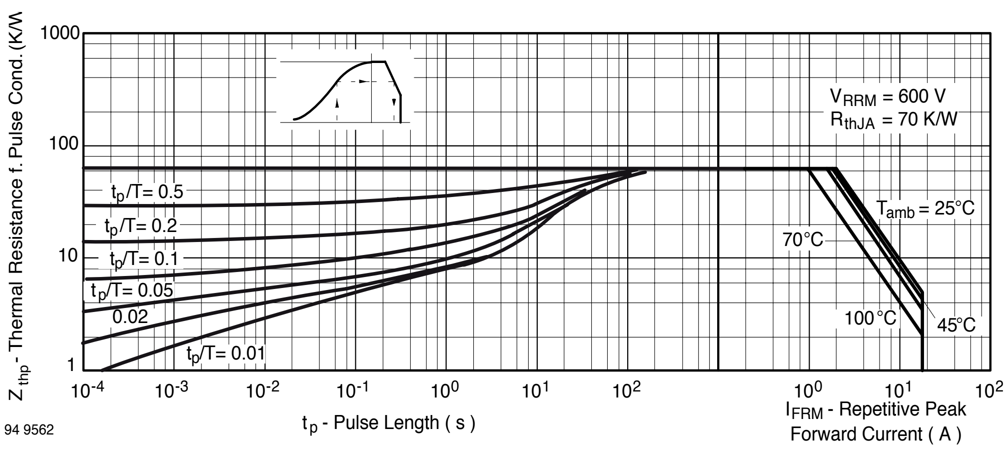
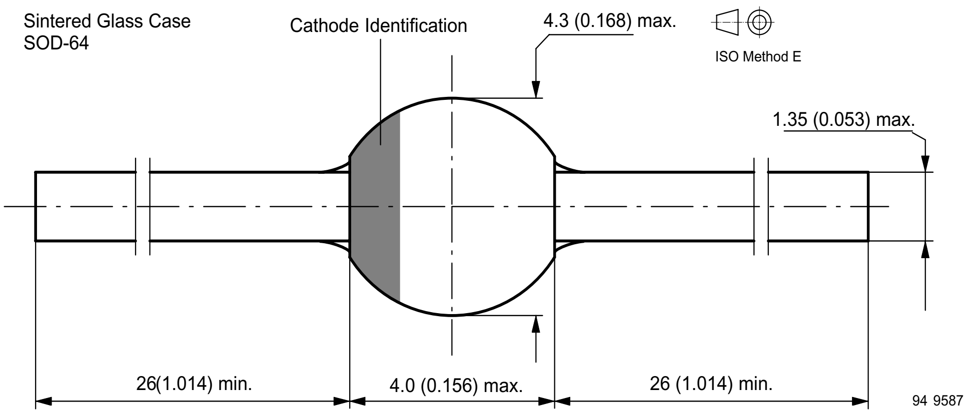


Figure 8. Thermal Response

Package Dimensions in mm (Inches)



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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.

Vishay Semiconductor GmbH, P.O.B. 3535, D-74025 Heilbronn, Germany

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