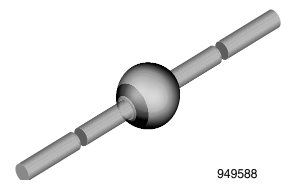
Ultra Fast Avalanche Sinterglass Diode

Features

- Glass passivated
- Hermetically sealed axial leaded glass envelope
- Low reverse current
- High reverse voltage
- Lead (Pb)-free component
- Component in accordance to RoHS 2002/95/EC and WEEE 2002/96/EC

Applications

Switched mode power supplies
High-frequency inverter circuits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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
SF5400	V_R = 50 V; I_{FAV} = 3 A	SOD-64
SF5401	V_R = 100 V; I_{FAV} = 3 A	SOD-64
SF5402	V_R = 200 V; I_{FAV} = 3 A	SOD-64
SF5403	V_R = 300 V; I_{FAV} = 3 A	SOD-64
SF5404	V_R = 400 V; I_{FAV} = 3 A	SOD-64
SF5405	V_R = 500 V; I_{FAV} = 3 A	SOD-64
SF5406	V_R = 600 V; I_{FAV} = 3 A	SOD-64
SF5407	V_R = 800 V; I_{FAV} = 3 A	SOD-64
SF5408	V_R = 1000 V; I_{FAV} = 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	SF5400	$V_R = V_{RRM}$	50	V
		SF5401	$V_R = V_{RRM}$	100	V
		SF5402	$V_R = V_{RRM}$	200	V
		SF5403	$V_R = V_{RRM}$	300	V
		SF5404	$V_R = V_{RRM}$	400	V
		SF5405	$V_R = V_{RRM}$	500	V
		SF5406	$V_R = V_{RRM}$	600	V
		SF5407	$V_R = V_{RRM}$	800	V
		SF5408	$V_R = V_{RRM}$	1000	V
Peak forward surge current	t_p = 10 ms, half sinewave		I_{FSM}	150	A

Parameter	Test condition	Part	Symbol	Value	Unit
Average forward current			I_{FAV}	3	A
Junction and storage temperature range			$T_j = T_{stg}$	- 55 to + 175	°C
Non repetitive reverse avalanche energy	$I_{(BR)R}$ = 0.4 A		E_R	10	mJ

Maximum Thermal Resistance

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

Parameter	Test condition	Symbol	Value	Unit
Junction ambient	Lead length l = 10 mm, T_L = constant	R_{thJA}	25	K/W
	on PC Board with spacing 25 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	SF5400-SF5404	V_F			1.1	V
		SF5405-SF5408	V_F			1.7	V
Reverse current	$V_R = V_{RRM}$		I_R			5	µA
	$V_R = V_{RRM}$, T_j = 125 °C		I_R			50	µA
Reverse breakdown voltage	I_R = 100 µA	SF5400	$V_{(BR)R}$	60			V
		SF5401	$V_{(BR)R}$	110			V
		SF5402	$V_{(BR)R}$	220			V
		SF5403	$V_{(BR)R}$	330			V
		SF5404	$V_{(BR)R}$	440			V
		SF5405	$V_{(BR)R}$	550			V
		SF5406	$V_{(BR)R}$	660			V
		SF5407	$V_{(BR)R}$	880			V
		SF5408	$V_{(BR)R}$	1100			V
Reverse recovery time	I_F = 0.5 A, I_R = 1 A, i_R = 0.25 A	SF5400-SF5404	t_{rr}			50	ns
		SF5405-SF5408	t_{rr}			75	ns

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

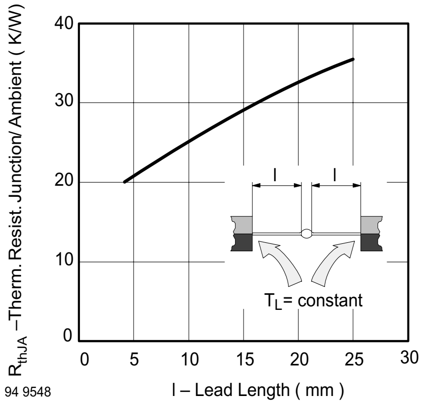


Figure 1. Max. Thermal Resistance vs. Lead Length

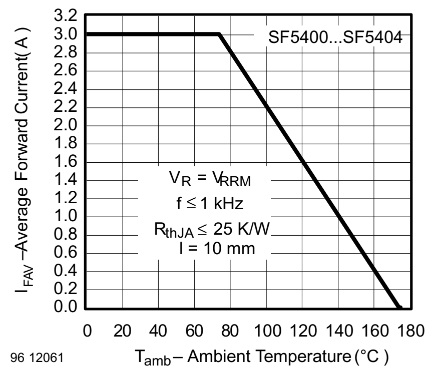


Figure 4. Max. Average Forward Current vs. Ambient Temperature

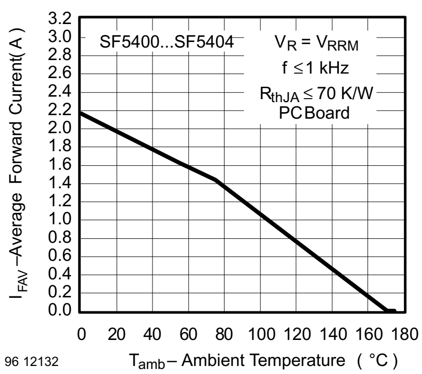


Figure 2. Max. Average Forward Current vs. Ambient Temperature

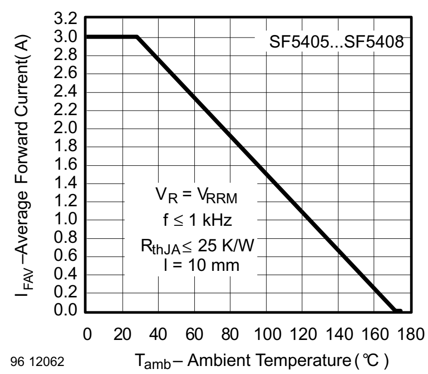


Figure 5. Max. Average Forward Current vs. Ambient Temperature

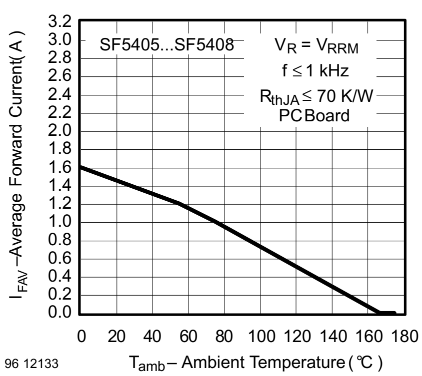


Figure 3. Max. Average Forward Current vs. Ambient Temperature

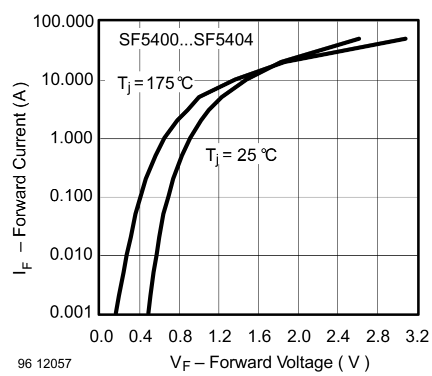


Figure 6. Max. Forward Current vs. Forward Voltage

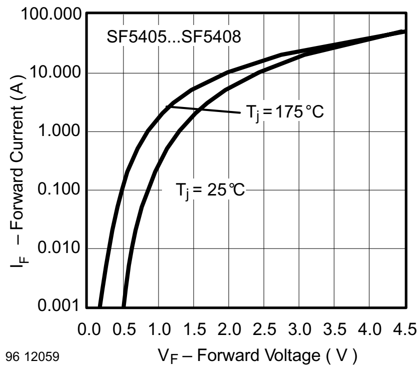


Figure 7. Max. Forward Current vs. Forward Voltage

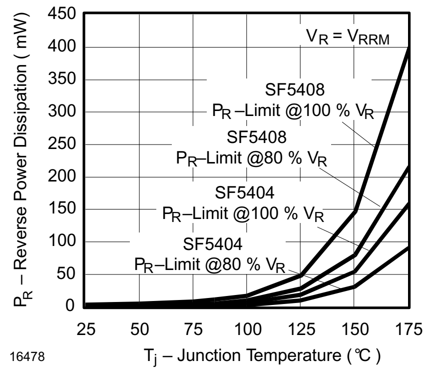


Figure 9. Max. Reverse Power Dissipation vs. Junction Temperature

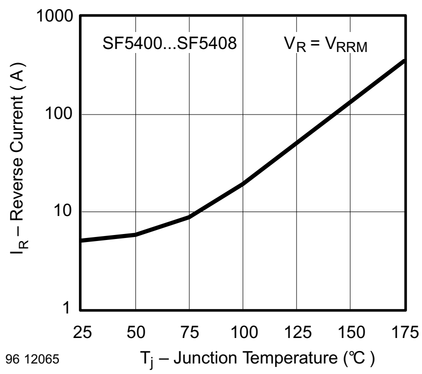


Figure 8. Max. Reverse Current vs. Junction Temperature

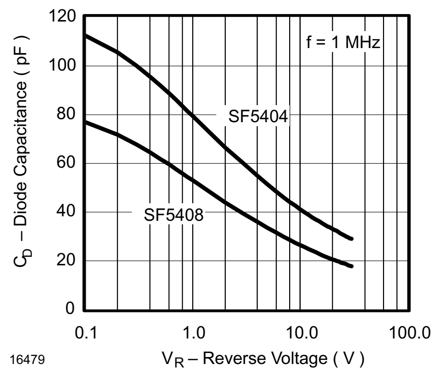
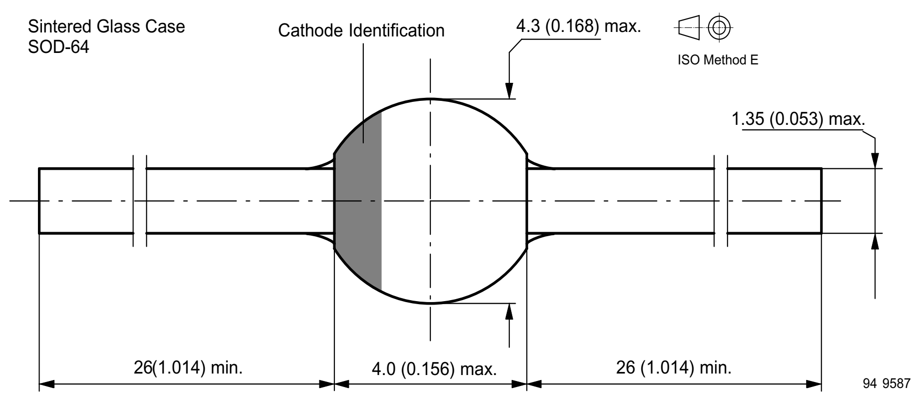


Figure 10. Diode Capacitance vs. Reverse Voltage

Package Dimensions in mm (Inches)



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.

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

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