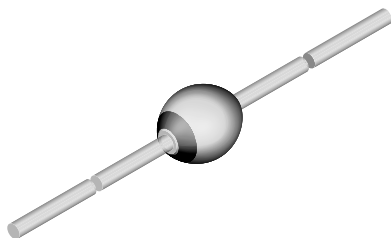


Ultra-Fast Avalanche Sinterglass Diode



949539

FEATURES

- Glass passivated
- Hermetically sealed axial leaded glass envelope
- Low reverse current
- High reverse voltage
- Compliant to RoHS directive 2002/95/EC and in accordance to WEEE 2002/96/EC
- Halogen-free according to IEC 61249-2-21 definition



RoHS
COMPLIANT
HALOGEN
FREE

MECHANICAL DATA

Case: SOD-57

Terminals: plated axial leads, solderable per MIL-STD-750, method 2026

Polarity: color band denotes cathode end

Mounting position: any

Weight: approx. 369 mg

APPLICATIONS

- Switched mode power supplies
- High-frequency inverter circuits

PARTS TABLE

PART	TYPE DIFFERENTIATION	PACKAGE
SF4001	$V_R = 50 \text{ V}$; $I_{FAV} = 1 \text{ A}$	SOD-57
SF4002	$V_R = 100 \text{ V}$; $I_{FAV} = 1 \text{ A}$	SOD-57
SF4003	$V_R = 200 \text{ V}$; $I_{FAV} = 1 \text{ A}$	SOD-57
SF4004	$V_R = 400 \text{ V}$; $I_{FAV} = 1 \text{ A}$	SOD-57
SF4005	$V_R = 600 \text{ V}$; $I_{FAV} = 1 \text{ A}$	SOD-57
SF4006	$V_R = 800 \text{ V}$; $I_{FAV} = 1 \text{ A}$	SOD-57
SF4007	$V_R = 1000 \text{ V}$; $I_{FAV} = 1 \text{ A}$	SOD-57

ABSOLUTE MAXIMUM RATINGS ($T_{amb} = 25^\circ\text{C}$, unless otherwise specified)

PARAMETER	TEST CONDITION	PART	SYMBOL	VALUE	UNIT
Reverse voltage = repetitive peak reverse voltage	See electrical characteristics	SF4001	$V_R = V_{RRM}$	50	V
		SF4002	$V_R = V_{RRM}$	100	V
		SF4003	$V_R = V_{RRM}$	200	V
		SF4004	$V_R = V_{RRM}$	400	V
		SF4005	$V_R = V_{RRM}$	600	V
		SF4006	$V_R = V_{RRM}$	800	V
		SF4007	$V_R = V_{RRM}$	1000	V
Peak forward surge current	$t_p = 10 \text{ ms}$, half sine wave		I_{FSM}	30	A
Average forward current	Lead length $l = 10 \text{ mm}$		I_{FAV}	1	A
Junction and storage temperature range			$T_j = T_{stg}$	- 55 to + 175	$^\circ\text{C}$
Non repetitive reverse avalanche energy	$I_{(BR)R} = 0.4 \text{ A}$		E_R	10	mJ

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}	45	K/W
	On PC board with spacing 25 mm	R_{thJA}	100	K/W

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

PARAMETER	TEST CONDITION	PART	SYMBOL	MIN.	TYP.	MAX.	UNIT
Forward voltage	$I_F = 1\text{ A}$	SF4001	V_F	-	-	1	V
		SF4002	V_F	-	-	1	V
		SF4003	V_F	-	-	1	V
		SF4004	V_F	-	-	1	V
		SF4005	V_F	-	-	1.7	V
		SF4006	V_F	-	-	1.7	V
		SF4007	V_F	-	-	1.7	V
Reverse current	$V_R = V_{RRM}$		I_R	-	-	5	μA
	$V_R = V_{RRM}$, $T_j = 125\text{ }^{\circ}\text{C}$		I_R	-	-	50	μA
Reverse breakdown voltage	$I_R = 100\text{ }\mu\text{A}$	SF4001	$V_{(BR)R}$	50	-	-	V
		SF4002	$V_{(BR)R}$	100	-	-	V
		SF4003	$V_{(BR)R}$	200	-	-	V
		SF4004	$V_{(BR)R}$	400	-	-	V
		SF4005	$V_{(BR)R}$	600	-	-	V
		SF4006	$V_{(BR)R}$	800	-	-	V
		SF4007	$V_{(BR)R}$	1000	-	-	V
Reverse recovery time	$I_F = 0.5\text{ A}$, $I_R = 1\text{ A}$, $i_R = 0.25\text{ A}$	SF4001	t_{rr}	-	-	50	ns
		SF4002	t_{rr}	-	-	50	ns
		SF4003	t_{rr}	-	-	50	ns
		SF4004	t_{rr}	-	-	50	ns
		SF4005	t_{rr}	-	-	75	ns
		SF4006	t_{rr}	-	-	75	ns
		SF4007	t_{rr}	-	-	75	ns

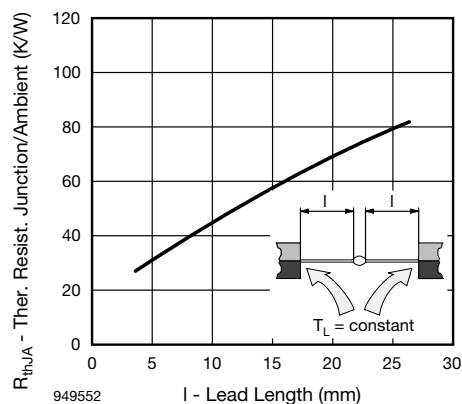
TYPICAL CHARACTERISTICS ($T_{amb} = 25\text{ }^{\circ}\text{C}$, unless otherwise specified)

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

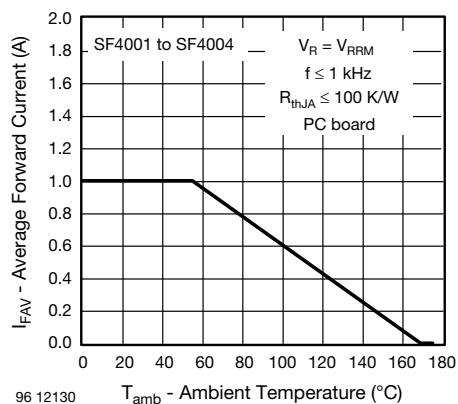


Fig. 2 - Max. Average Forward Current vs. Ambient Temperature



SF4001, SF4002, SF4003, SF4004, SF4005, SF4006, SF4007

Ultra-Fast Avalanche Sinterglass Diode Vishay Semiconductors

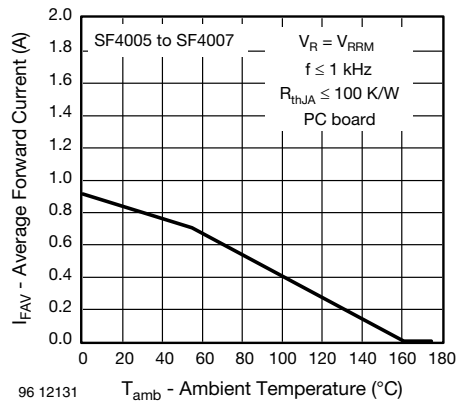


Fig. 3 - Max. Average Forward Current vs. Ambient Temperature

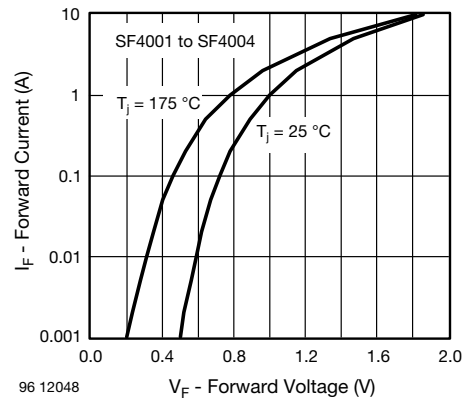


Fig. 6 - Max. Forward Current vs. Forward Voltage

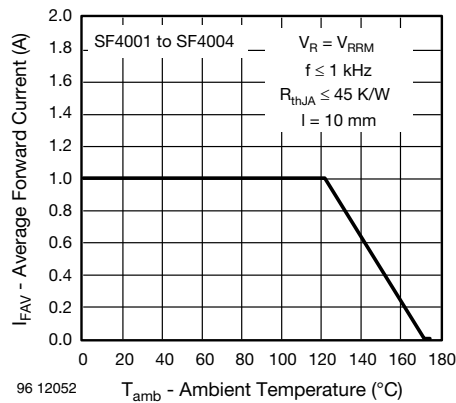


Fig. 4 - Max. Average Forward Current vs. Ambient Temperature

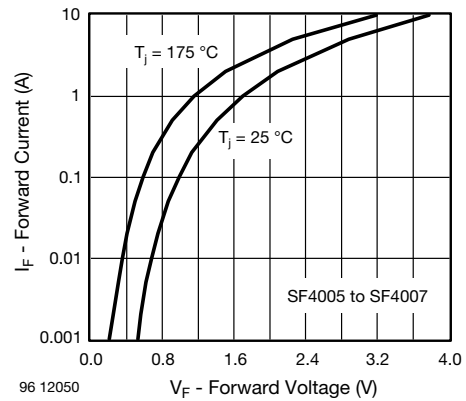


Fig. 7 - Max. Forward Current vs. Forward Voltage

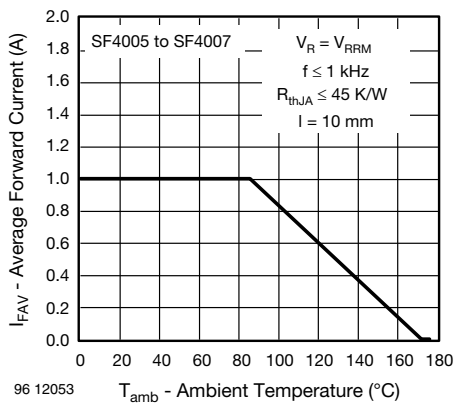


Fig. 5 - Max. Average Forward Current vs. Ambient Temperature

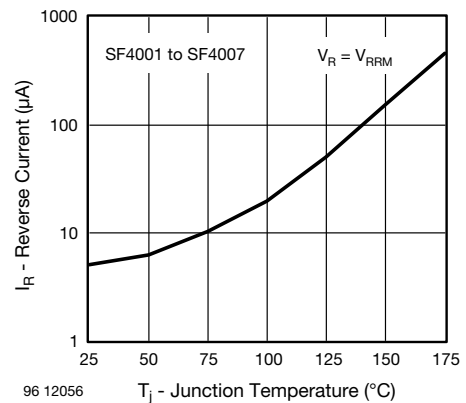


Fig. 8 - Max. Reverse Current vs. Junction Temperature

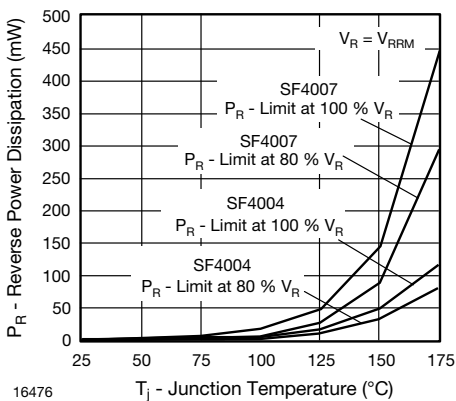


Fig. 9 - Max. Reverse Power Dissipation vs. Junction Temperature

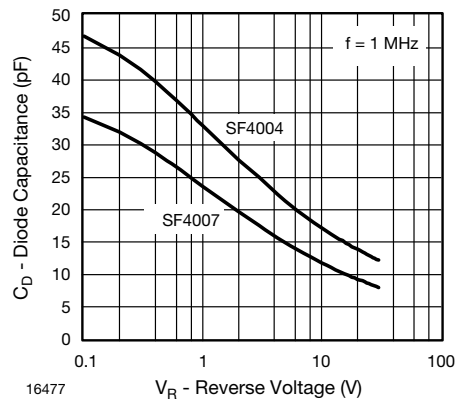
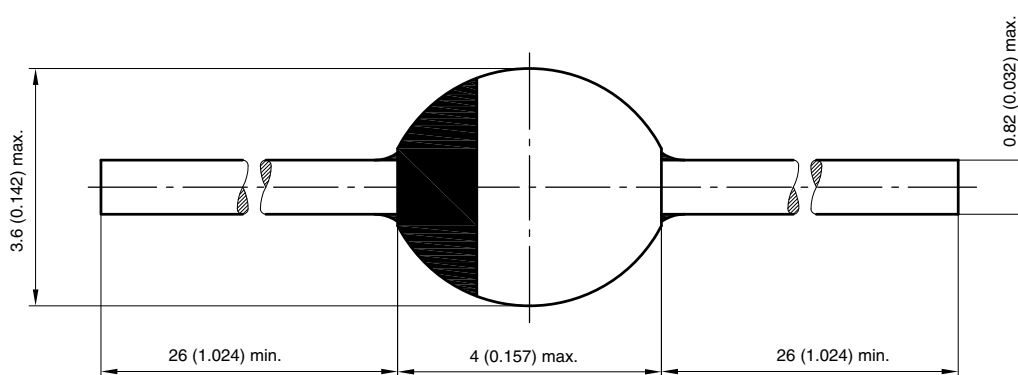


Fig. 10 - Diode Capacitance vs. Reverse Voltage

PACKAGE DIMENSIONS in millimeters (inches): SOD-57



20543
Rev. 3 - Date: 09.February 2005
Document no.:6.563-5006.3-4



Disclaimer

All product specifications and data are subject to change without notice.

Vishay Intertechnology, Inc., its affiliates, agents, and employees, and all persons acting on its or their behalf (collectively, "Vishay"), disclaim any and all liability for any errors, inaccuracies or incompleteness contained herein or in any other disclosure relating to any product.

Vishay disclaims any and all liability arising out of the use or application of any product described herein or of any information provided herein to the maximum extent permitted by law. The product specifications do not expand or otherwise modify Vishay's terms and conditions of purchase, including but not limited to the warranty expressed therein, which apply to these products.

No license, express or implied, by estoppel or otherwise, to any intellectual property rights is granted by this document or by any conduct of Vishay.

The products shown herein are not designed for use in medical, life-saving, or life-sustaining applications unless otherwise expressly indicated. Customers using or selling Vishay products not expressly indicated for use in such applications do so entirely at their own risk and agree to fully indemnify Vishay for any damages arising or resulting from such use or sale. Please contact authorized Vishay personnel to obtain written terms and conditions regarding products designed for such applications.

Product names and markings noted herein may be trademarks of their respective owners.