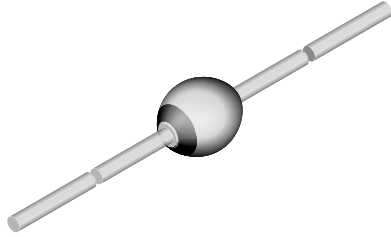




## Ultra-Fast Avalanche Sinterglass Diode



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 ( $T_{amb} = 25 \text{ }^\circ\text{C}$ , 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	$\mu\text{A}$
	$V_R = V_{RRM}$ , $T_j = 125\text{ }^{\circ}\text{C}$		$I_R$	-	-	50	$\mu\text{A}$
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)

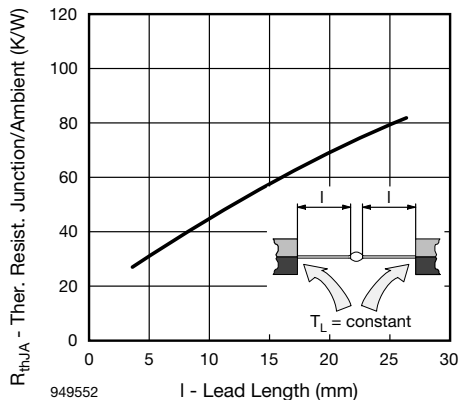


Fig. 1 - Max. Thermal Resistance vs. Lead Length

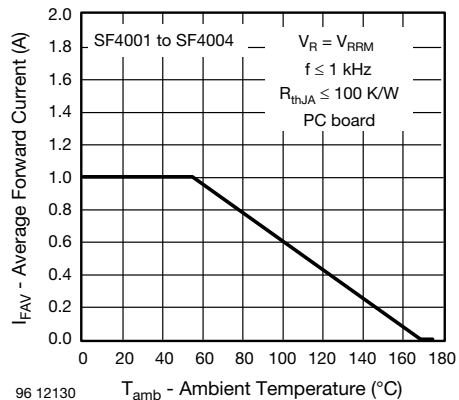


Fig. 2 - Max. Average Forward Current vs. Ambient Temperature



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

Ultra-Fast Avalanche Sinterglass Diode Vishay Semiconductors

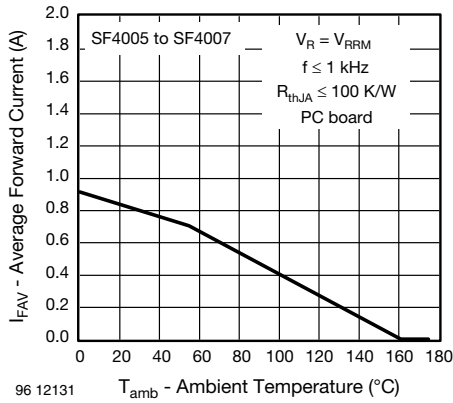


Fig. 3 - Max. Average Forward Current vs. Ambient Temperature

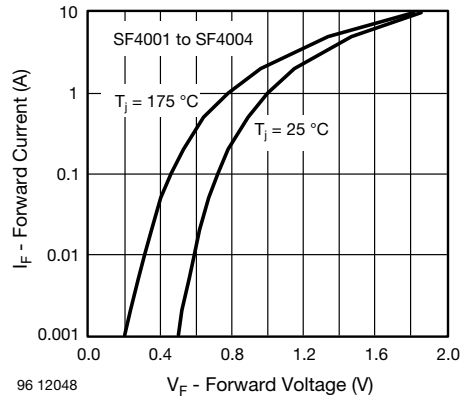


Fig. 6 - Max. Forward Current vs. Forward Voltage

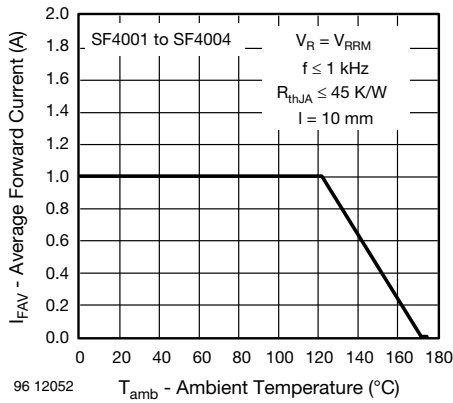


Fig. 4 - Max. Average Forward Current vs. Ambient Temperature

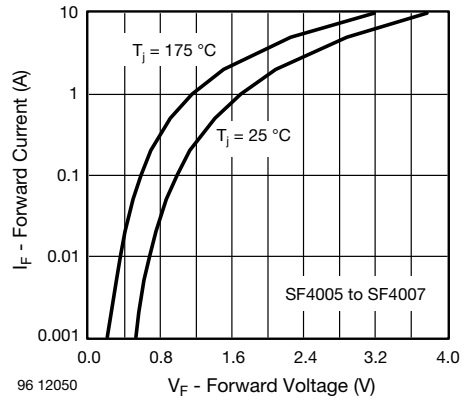


Fig. 7 - Max. Forward Current vs. Forward Voltage

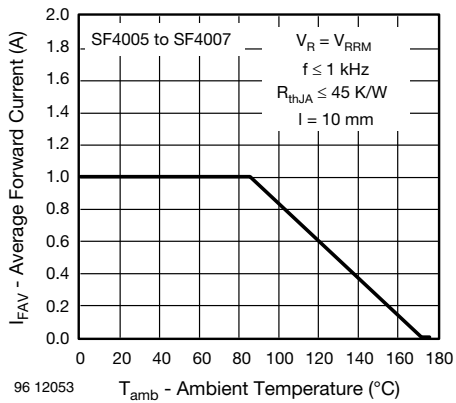


Fig. 5 - Max. Average Forward Current vs. Ambient Temperature

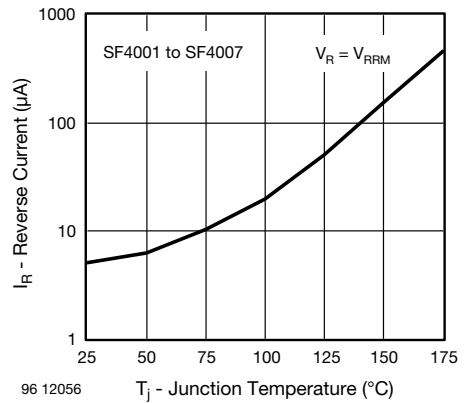


Fig. 8 - Max. Reverse Current vs. Junction Temperature

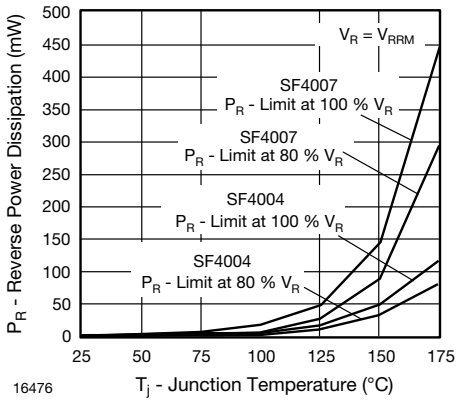


Fig. 9 - Max. Reverse Power Dissipation vs. Junction Temperature

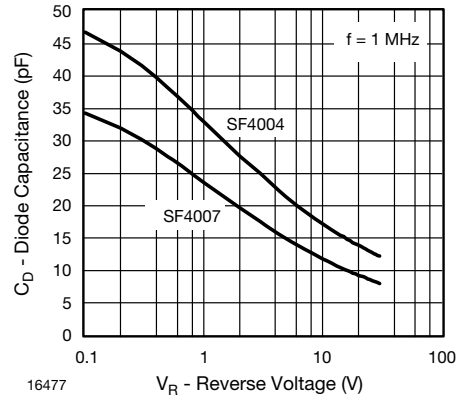
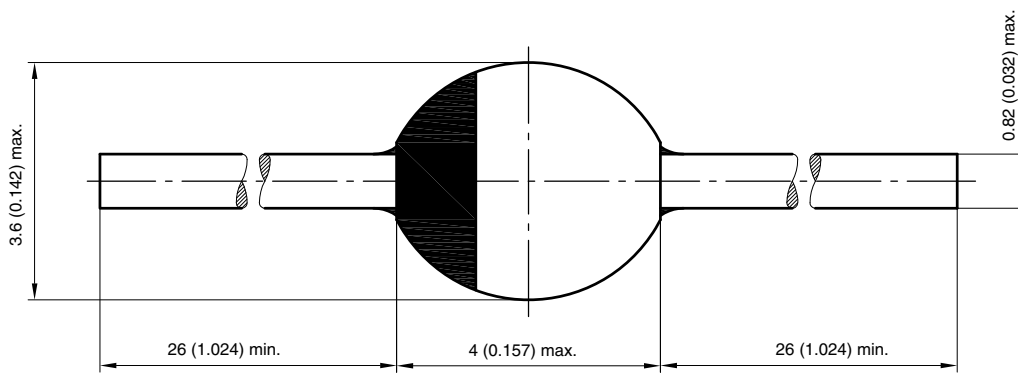


Fig. 10 - Diode Capacitance vs. Reverse Voltage

**PACKAGE DIMENSIONS** in millimeters (inches): **SOD-57**



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