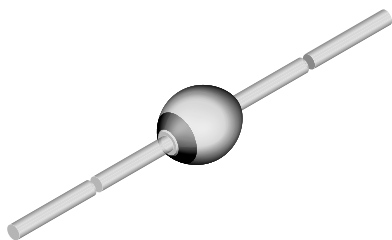




## Ultra-Fast Avalanche Sinterglass Diode



949539

## FEATURES

- Glass passivated
- Hermetically sealed axial leaded glass envelope
- Low reverse current
- High reverse voltage
- Material categorization:  
For definitions of compliance please see [www.vishay.com/doc?99912](http://www.vishay.com/doc?99912)



RoHS  
COMPLIANT  
HALOGEN  
FREE

## APPLICATIONS

- Switched mode power supplies
- High-frequency inverter circuits

## 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

## ORDERING INFORMATION (Example)

| DEVICE NAME | ORDERING CODE | TAPED UNITS                | MINIMUM ORDER QUANTITY |
|-------------|---------------|----------------------------|------------------------|
| SF4007      | SF4007-TR     | 5000 per 10" tape and reel | 25 000                 |
| SF4007      | SF4007-TAP    | 5000 per ammpack           | 25 000                 |

## PARTS TABLE

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


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

| PARAMETER                               | TEST CONDITION                 | PART | SYMBOL          | VALUE         | UNIT               |
|-----------------------------------------|--------------------------------|------|-----------------|---------------|--------------------|
| 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)

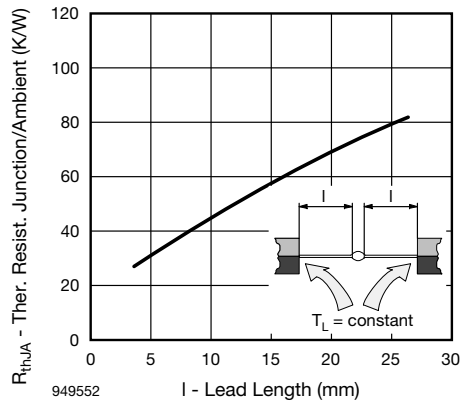


Fig. 1 - Max. Thermal Resistance vs. Lead Length

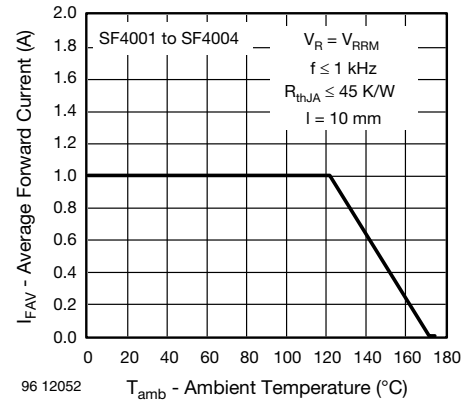


Fig. 4 - Max. Average Forward Current vs. Ambient Temperature

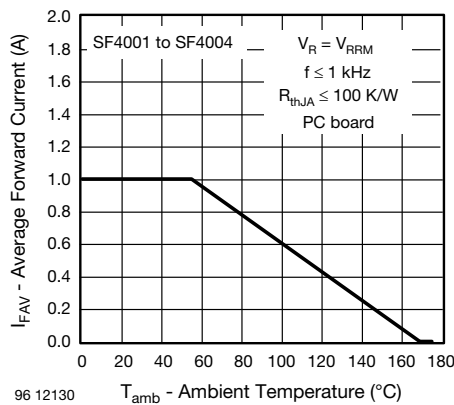


Fig. 2 - Max. Average Forward Current vs. Ambient Temperature

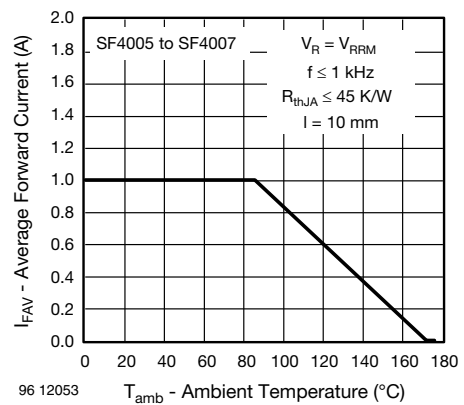


Fig. 5 - Max. Average Forward Current vs. Ambient Temperature

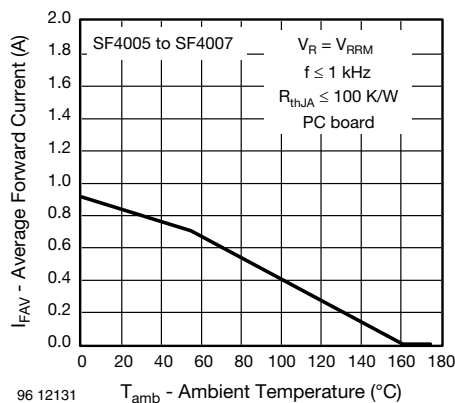


Fig. 3 - Max. Average Forward Current vs. Ambient Temperature

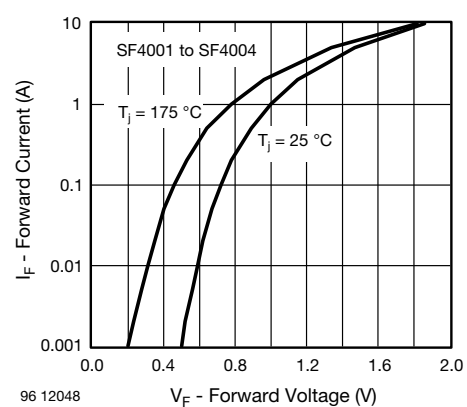
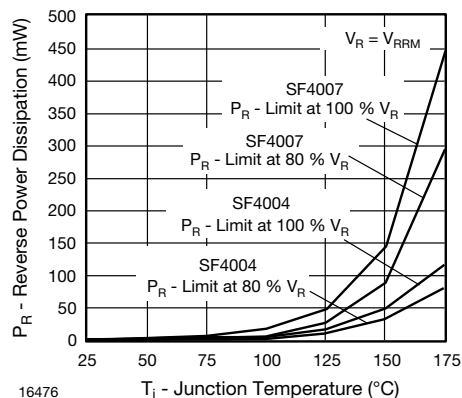
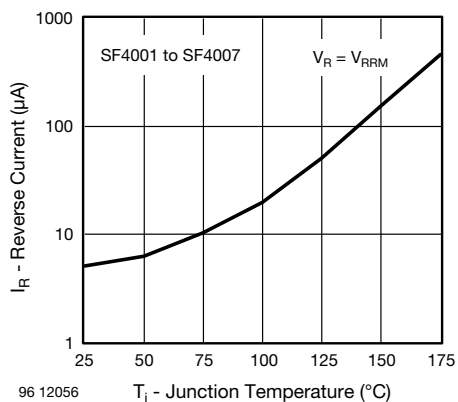
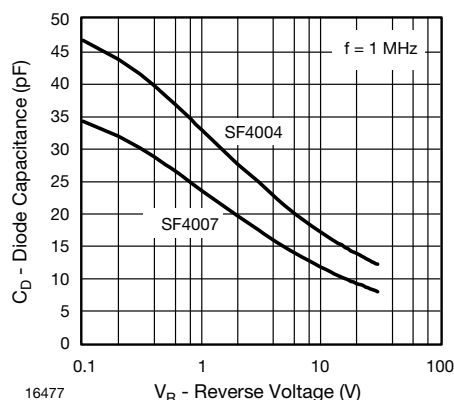
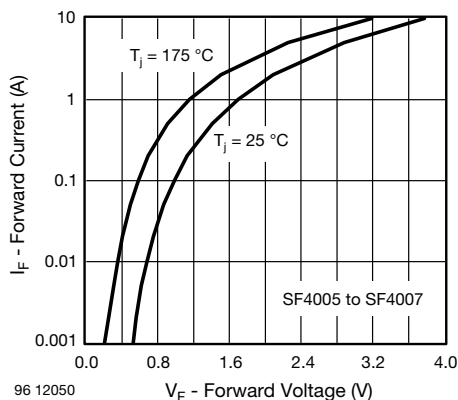
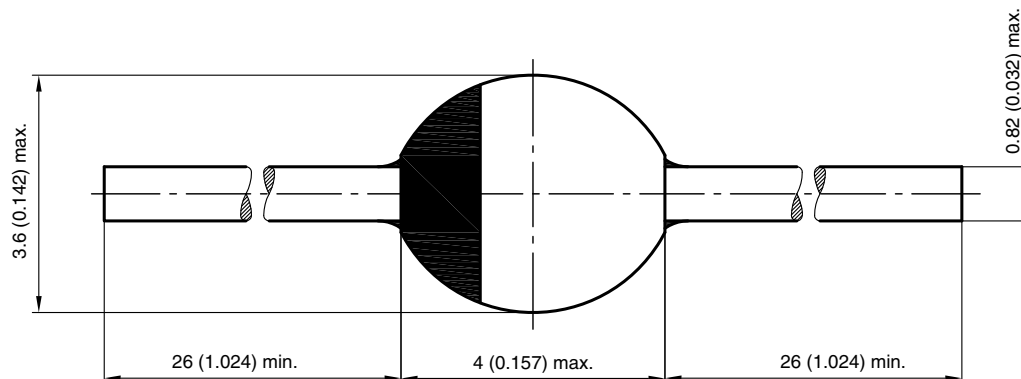


Fig. 6 - Max. Forward Current vs. Forward Voltage





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



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