

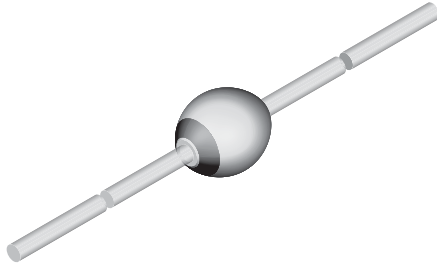


THE DATASHEET OF SF4004-TR





Ultra-Fast Avalanche Sinterglass Diode



949539

DESIGN SUPPORT TOOLS

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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



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 |
| 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)

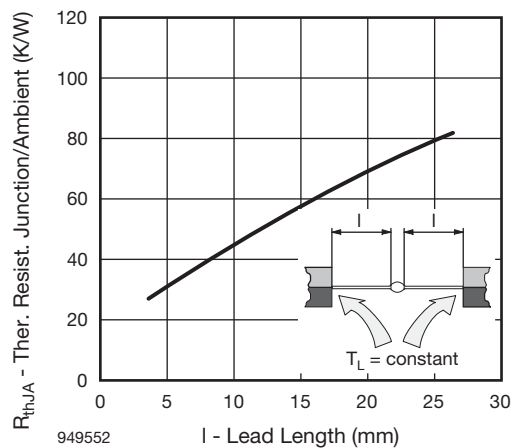


Fig. 1 - Max. Thermal Resistance vs. Lead Length

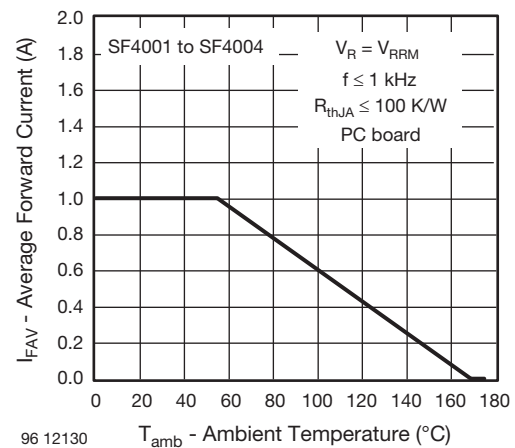


Fig. 2 - Max. Average Forward Current vs. Ambient Temperature

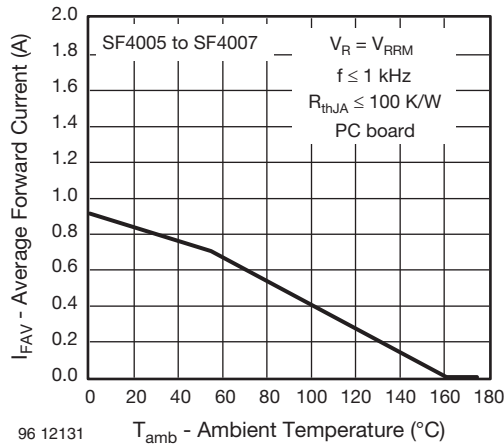


Fig. 3 - Max. Average Forward Current vs. Ambient Temperature

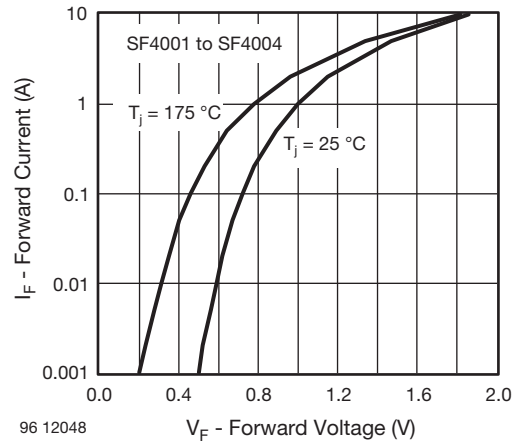


Fig. 6 - Max. Forward Current vs. Forward Voltage

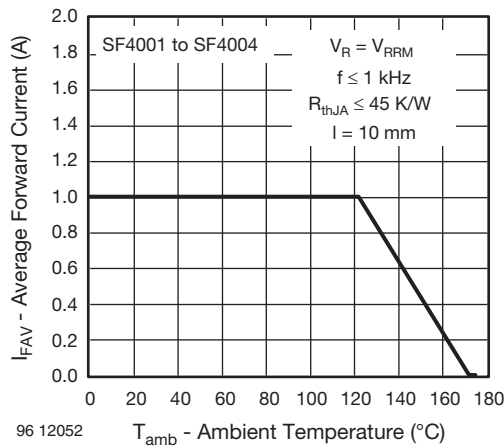


Fig. 4 - Max. Average Forward Current vs. Ambient Temperature

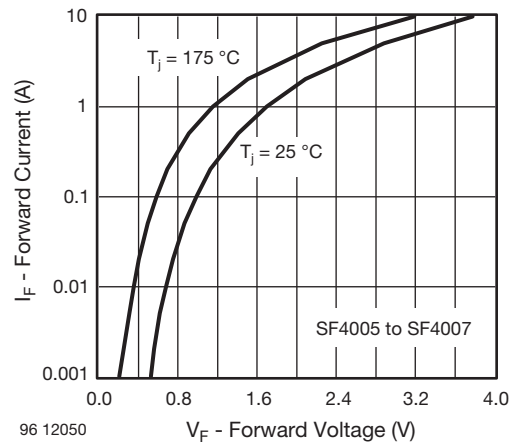


Fig. 7 - Max. Forward Current vs. Forward Voltage

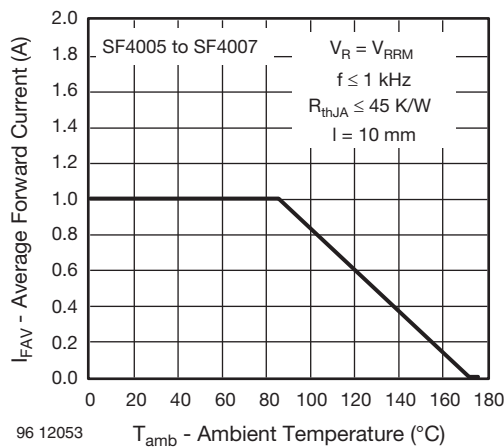


Fig. 5 - Max. Average Forward Current vs. Ambient Temperature

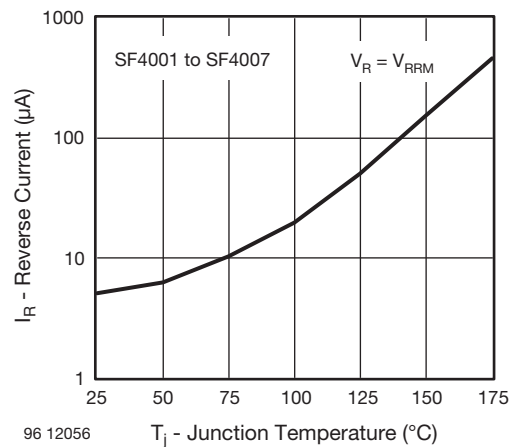


Fig. 8 - Max. Reverse Current vs. Junction Temperature

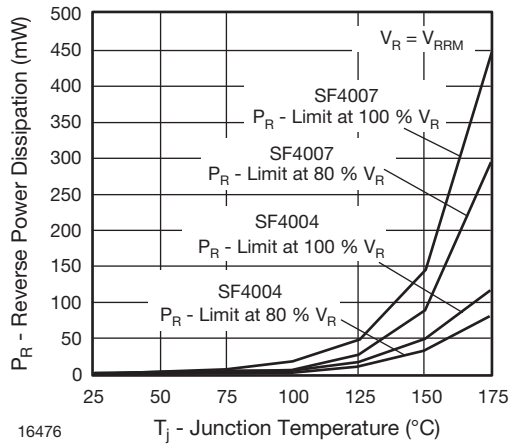


Fig. 9 - Max. Reverse Power Dissipation vs. Junction Temperature

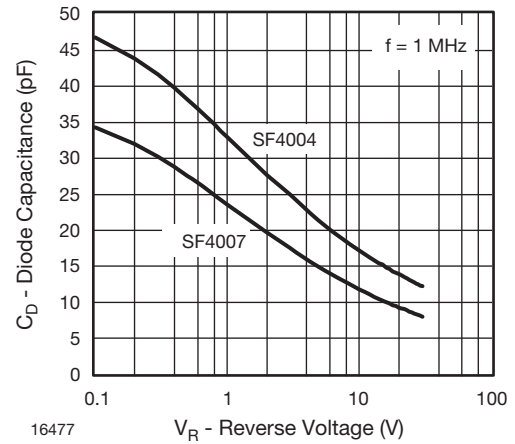
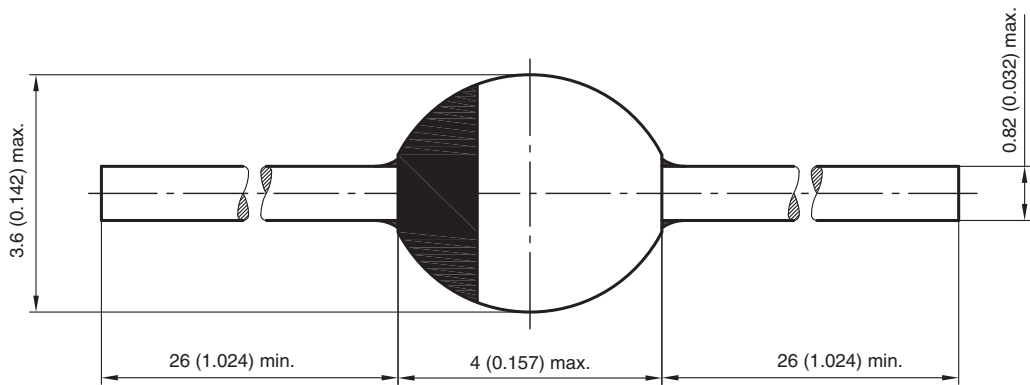


Fig. 10 - Diode Capacitance vs. Reverse Voltage

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



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