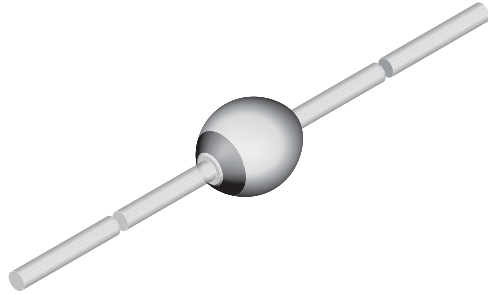




Ultrafast Avalanche Sinterglass Diode



949539

DESIGN SUPPORT TOOLS

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FEATURES

- Very low switching losses
- Glass passivated
- High reverse voltage
- Hermetically sealed axial-leaded glass envelope
- 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 |
| SF1600 | SF1600-TR | 5000 per 10" tape and reel | 25 000 |
| SF1600 | SF1600-TAP | 5000 per ammpack | 25 000 |

| PARTS TABLE | | |
|-------------|---|---------|
| PART | TYPE DIFFERENTIATION | PACKAGE |
| SF1200 | $V_R = 1200\text{ V}; I_{F(AV)} = 1\text{ A}$ | SOD-57 |
| SF1600 | $V_R = 1600\text{ V}; I_{F(AV)} = 1\text{ A}$ | 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 | SF1200 | $V_R = V_{RRM}$ | 1200 | V |
| | | SF1600 | $V_R = V_{RRM}$ | 1600 | V |
| Peak forward surge current | $t_p = 10\text{ ms}$, half sine wave | | I_{FSM} | 30 | A |
| Average forward current | Half sine wave, $V_R = V_{RRM}$, $R_{thJA} = 45\text{ K/W}$ | | $I_{F(AV)}$ | 1 | A |
| Max. pulse energy in avalanche mode, non repetitive (inductive load switch off) | $I_{(BR)R} = 400\text{ mA}$, inductive load | | E_R | 10 | mJ |
| Junction and storage temperature range | | | $T_j = T_{stg}$ | -55 to +175 | $^\circ\text{C}$ |

| 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 |

| ELECTRICAL CHARACTERISTICS ($T_{amb} = 25\text{ }^{\circ}\text{C}$, unless otherwise specified) | | | | | | | |
|---|---|--------|-------------|------|------|------|---------------|
| PARAMETER | TEST CONDITION | PART | SYMBOL | MIN. | TYP. | MAX. | UNIT |
| Forward voltage | $I_F = 1\text{ A}$ | | V_F | - | - | 3.4 | 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 | $I_R = 100\text{ }\mu\text{A}$ | SF1200 | $V_{(BR)R}$ | 1250 | - | - | V |
| | | SF1600 | $V_{(BR)R}$ | 1650 | - | - | V |
| Reverse recovery time | $I_F = 0.5\text{ A}$, $I_R = 1\text{ A}$, $i_R = 0.25\text{ A}$ | | t_{rr} | - | - | 75 | ns |

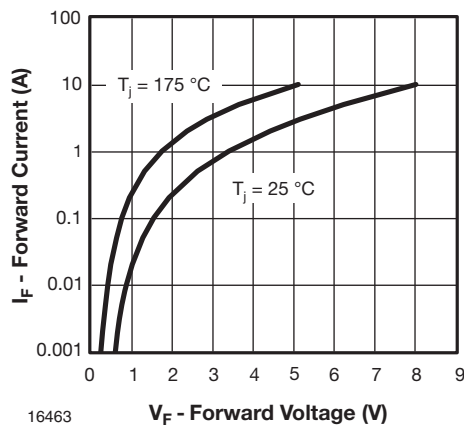
TYPICAL CHARACTERISTICS ($T_{amb} = 25\text{ }^{\circ}\text{C}$, unless otherwise specified)


Fig. 1 - Forward Current vs. Forward Voltage

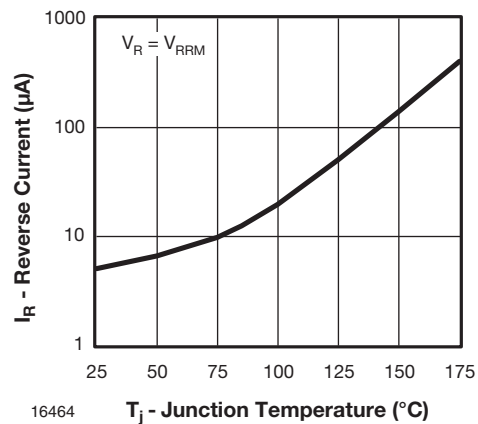


Fig. 3 - Reverse Current vs. Junction Temperature

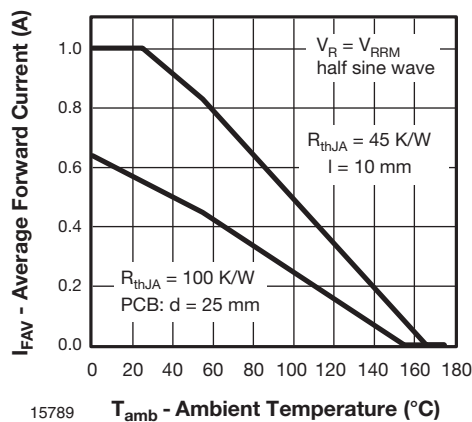


Fig. 2 - Max. Average Forward Current vs. Ambient Temperature

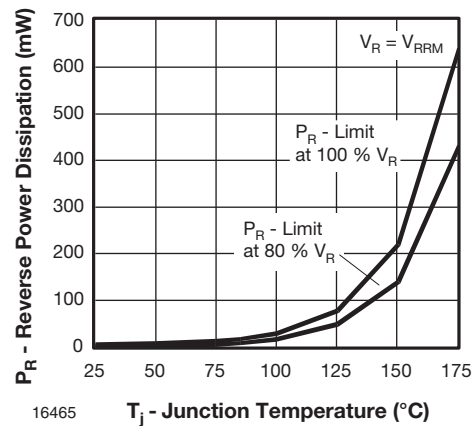
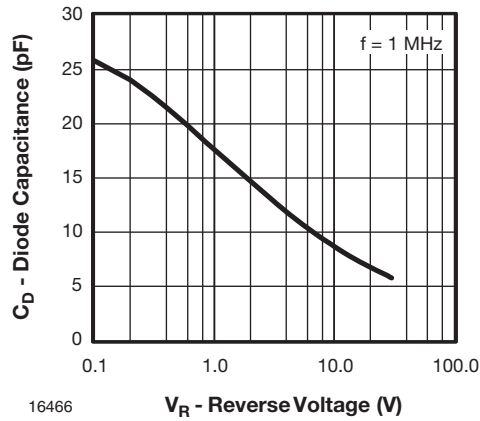


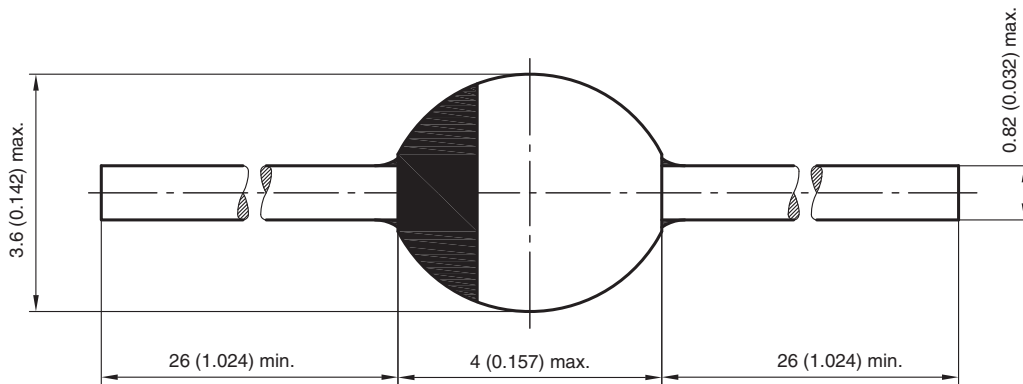
Fig. 4 - Max. Reverse Power Dissipation vs. Junction Temperature



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Fig. 5 - Diode Capacitance vs. Reverse Voltage

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



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