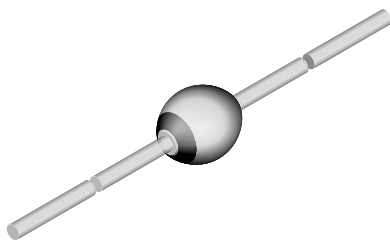


## Ultrafast Avalanche Sinterglass Diode



949539

### 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](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 |
|-------------|---------------|----------------------------|------------------------|
| 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  |

| <b>ELECTRICAL CHARACTERISTICS</b> ( $T_{amb} = 25\text{ }^{\circ}\text{C}$ , 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    | $\mu\text{A}$ |
|                                                                                                          | $V_R = V_{RRM}, T_j = 125\text{ }^{\circ}\text{C}$          |        | $I_R$       | -    | -    | 50   | $\mu\text{A}$ |
| Reverse breakdown voltage                                                                                | $I_R = 100\text{ }\mu\text{A}$                              | SF1200 | $V_{(BR)R}$ | 1250 | -    | -    | V             |
|                                                                                                          |                                                             | SF1600 | $V_{(BR)R}$ | 1650 | -    | -    | V             |
| Reverse recovery time                                                                                    | $I_F = 0.5\text{ A}, I_R = 1\text{ A}, t_R = 0.25\text{ A}$ |        | $t_{rr}$    | -    | -    | 75   | ns            |

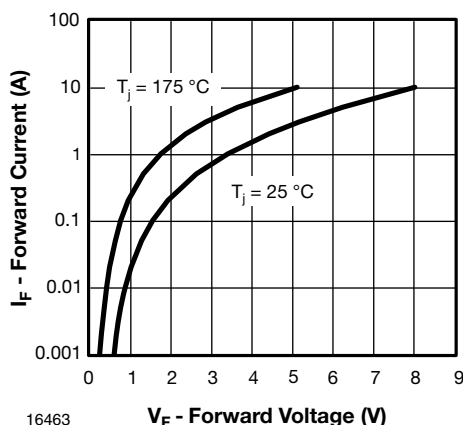
**TYPICAL CHARACTERISTICS** ( $T_{amb} = 25\text{ }^{\circ}\text{C}$ , unless otherwise specified)


Fig. 1 - Forward Current vs. Forward Voltage

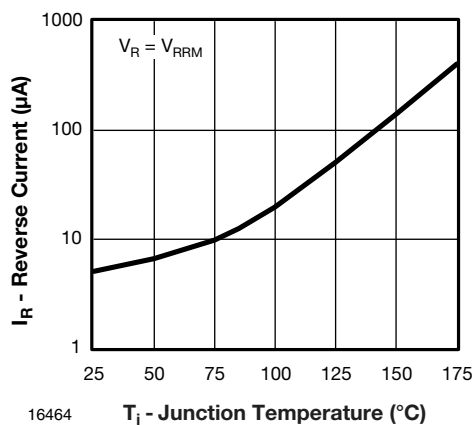


Fig. 3 - Reverse Current vs. Junction Temperature

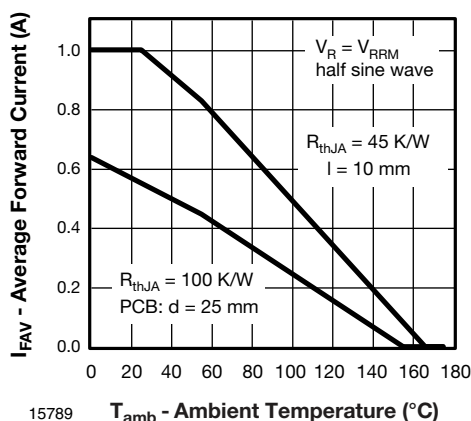


Fig. 2 - Max. Average Forward Current vs. Ambient Temperature

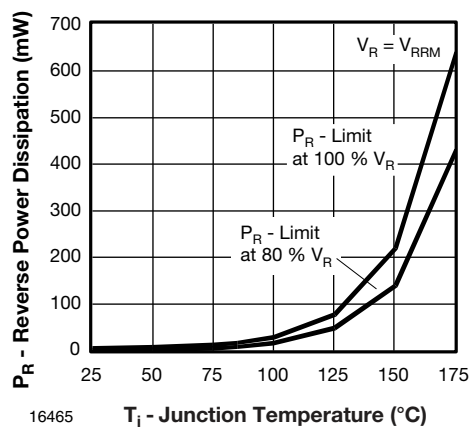


Fig. 4 - Max. Reverse Power Dissipation vs. Junction Temperature

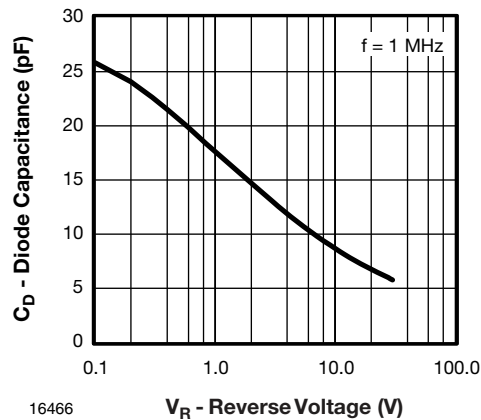
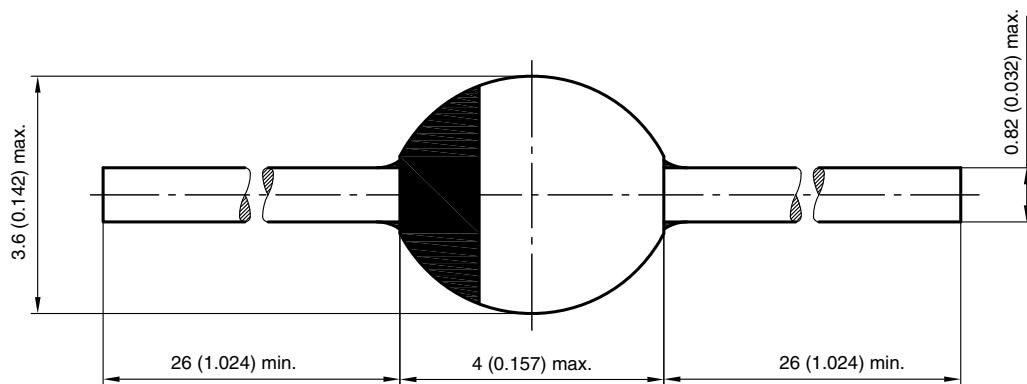


Fig. 5 - Diode Capacitance vs. Reverse Voltage

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



20543  
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Document no.: 6.563-5006.3-4



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