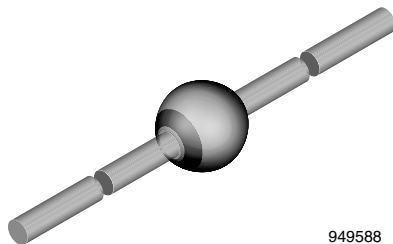


Fast Avalanche Sinterglass Diode



949588

MECHANICAL DATA

Case: SOD-64

Terminals: plated axial leads, solderable per MIL-STD-750, method 2026

Polarity: color band denotes cathode end

Mounting position: any

Weight: approx. 858 mg

FEATURES

- Glass passivated junction
- Hermetically sealed package
- Low reverse current
- Soft recovery characteristics
- Very fast reverse recovery time
- Material categorization:
For definitions of compliance please see www.vishay.com/doc?99912


RoHS
COMPLIANT
HALOGEN
FREE

APPLICATIONS

- Ultrafast rectification diode for switching mode power supplies

ORDERING INFORMATION (Example)

| DEVICE NAME | ORDERING CODE | TAPED UNITS | MINIMUM ORDER QUANTITY |
|-------------|---------------|----------------------------|------------------------|
| BYW178 | BYW178-TR | 2500 per 10" tape and reel | 12 500 |
| BYW178 | BYW178-TAP | 2500 per ammpack | 12 500 |

PARTS TABLE

| PART | TYPE DIFFERENTIATION | PACKAGE |
|--------|---|---------|
| BYW178 | $V_R = 800\text{ V}$; $I_{F(AV)} = 3\text{ A}$ | SOD-64 |

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 | BYW178 | $V_R = V_{RRM}$ | 800 | V |
| Peak forward surge current | $t_p = 10\text{ ms}$, half sine wave | | I_{FSM} | 80 | A |
| Repetitive peak forward current | | | I_{FRM} | 15 | |
| Average forward current | | | $I_{F(AV)}$ | 3 | |
| Junction and storage temperature range | | | $T_J = T_{stg}$ | - 55 to + 175 | $^{\circ}\text{C}$ |
| Non repetitive reverse avalanche energy | $I_{(BR)R} = 1\text{ A}$ | | E_R | 20 | mJ |

MAXIMUM THERMAL RESISTANCE ($T_{amb} = 25\text{ }^{\circ}\text{C}$, unless otherwise specified)

| PARAMETER | TEST CONDITION | SYMBOL | VALUE | UNIT |
|------------------|--|------------|-------|------|
| Junction lead | Lead length $l = 10\text{ mm}$, $T_L = \text{constant}$ | R_{thJL} | 25 | K/W |
| Junction ambient | On PC board with spacing 37.5 mm | R_{thJA} | 70 | 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 | $I_F = 3\text{ A}$ | | V_F | - | - | 1.9 | V |
| Reverse current | $V_R = V_{RRM}$ | | I_R | - | - | 1 | μA |
| | $V_R = V_{RRM}$, $T_j = 100\text{ }^{\circ}\text{C}$ | | I_R | - | - | 20 | μA |
| Reverse recovery current | $I_F = 1\text{ A}$, $dI_F/dt \leq -50\text{ A}/\mu\text{s}$, $V_{BATT} = 200\text{ V}$ | | I_{RM} | - | 2.2 | - | ns |
| Reverse recovery time | $I_F = 1\text{ A}$, $dI_F/dt \leq -50\text{ A}/\mu\text{s}$, $V_{BATT} = 200\text{ V}$, $i_R = 0.25 \times I_{RM}$ | | t_{rr} | - | 50 | - | |
| Reverse recovery time (JEDEC) | $I_F = 0.5\text{ A}$, $I_R = 1\text{ A}$, $i_R = 0.25$ | | t_{rr} | - | - | 60 | |

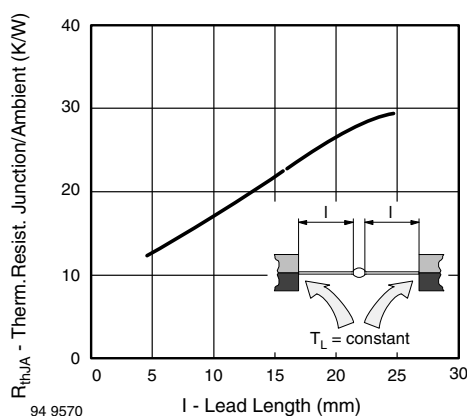
TYPICAL CHARACTERISTICS ($T_{amb} = 25\text{ }^{\circ}\text{C}$, unless otherwise specified)


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

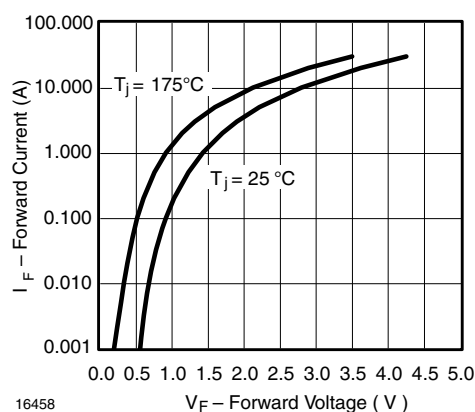


Fig. 3 - Forward Current vs. Forward Voltage

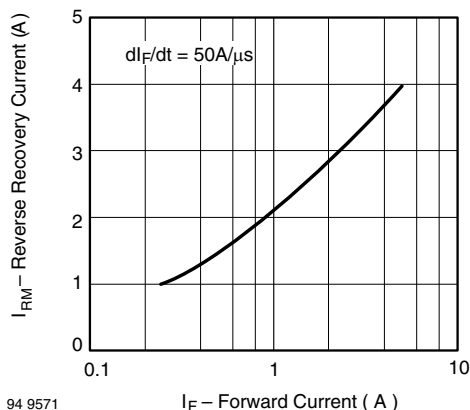


Fig. 2 - Typ. Reverse Recovery Current vs. Forward Current

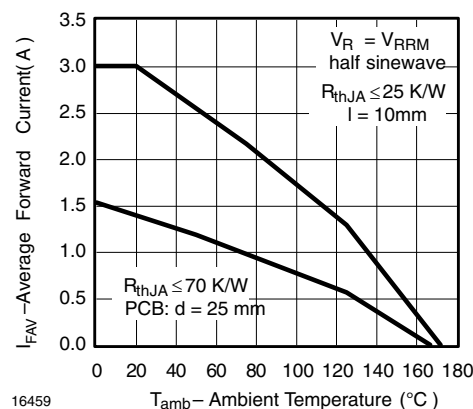


Fig. 4 - Max. Average Forward Current vs. Junction Temperature

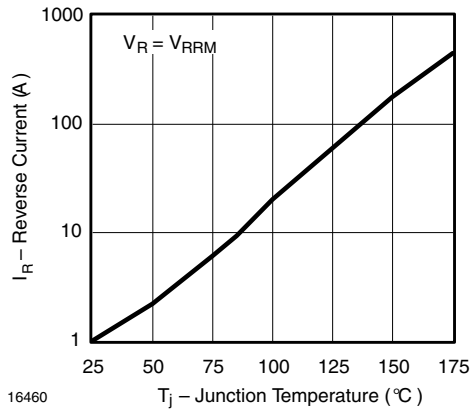


Fig. 5 - Reverse Current vs. Junction Temperature

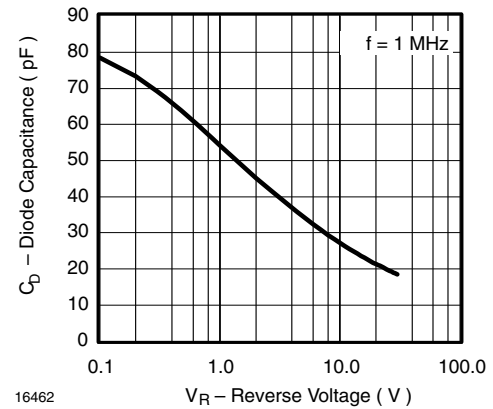


Fig. 7 - Diode Capacitance vs. Reverse Voltage

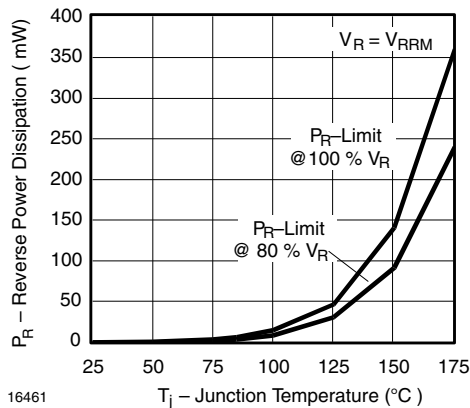


Fig. 6 - Max. Reverse Power Dissipation vs. Junction Temperature

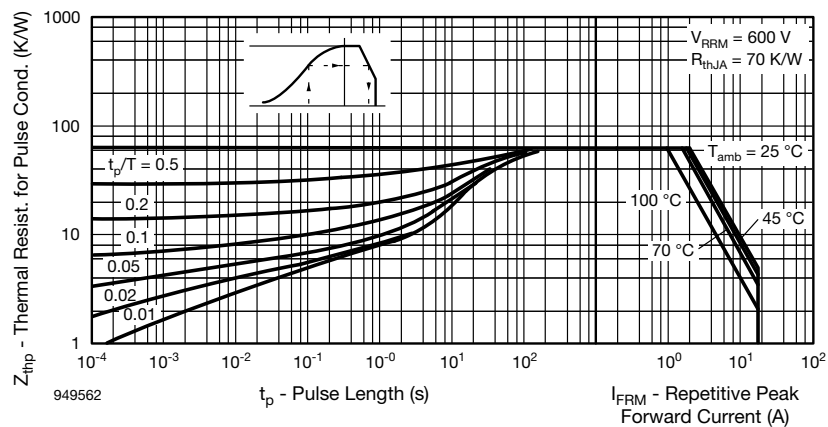
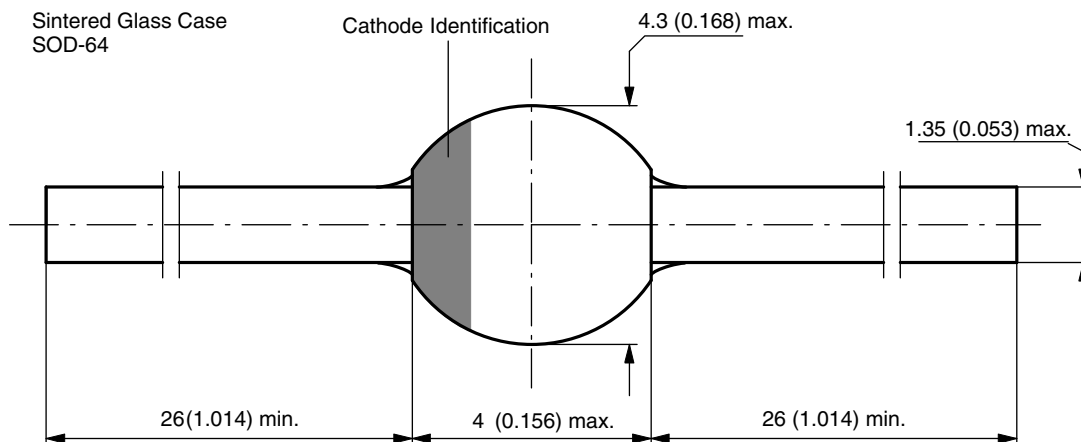


Fig. 8 - Thermal Response

PACKAGE DIMENSIONS in millimeters (inches): **SOD-64**


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