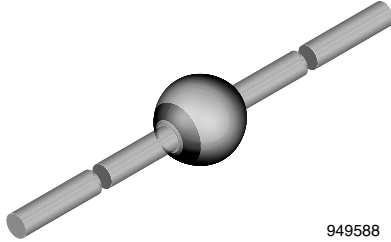


## Ultra Fast Avalanche Sinterglass Diode



949588

### FEATURES

- Glass passivated junction
- Hermetically sealed package
- Low reverse current
- Soft recovery characteristics
- Very fast reverse recovery time
- Low reverse recovery peak current
- Compliant to RoHS directive 2002/95/EC and in accordance to WEEE 2002/96/EC
- Halogen-free according to IEC 61249-2-21 definition


**RoHS**  
 COMPLIANT  
 HALOGEN  
**FREE**

### 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

### APPLICATIONS

- Ultra fast rectification diode for switching mode power supplies

### PARTS TABLE

PART	TYPE DIFFERENTIATION	PACKAGE
BYW178	$V_R = 800\text{ V}; I_{FAV} = 3\text{ A}$	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	A
Average forward current			$I_{FAV}$	3	A
Junction and storage temperature range			$T_j = T_{stg}$	- 55 to + 175	$^\circ\text{C}$
Non repetitive reverse	$I_{(BR)R} = 0.4\text{ A}$		$E_R$	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	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	$\mu\text{A}$
	$V_R = V_{RRM}$ , $T_j = 100\text{ }^\circ\text{C}$	$I_R$	-	-	20	$\mu\text{A}$
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	-	A
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	-	ns
Reverse recovery time (JEDEC)	$I_F = 0.5\text{ A}$ , $I_R = 1\text{ A}$ , $i_R = 0.25\text{ A}$	$t_{rr}$	-	-	60	ns

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

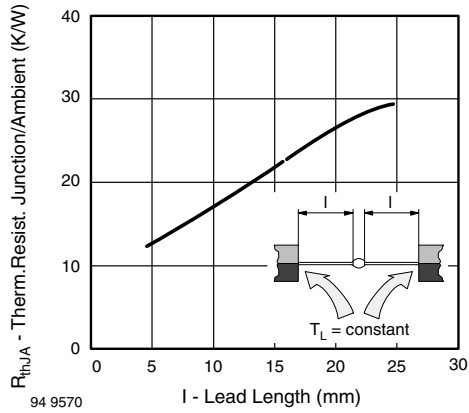


Fig. 1 - Typ. Thermal Resistance vs. Lead Length

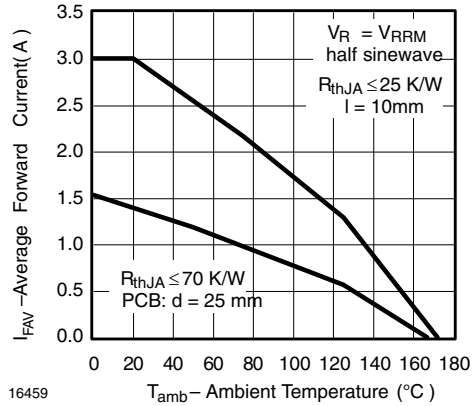


Fig. 4 - Max. Average Forward Current vs. Ambient Temperature

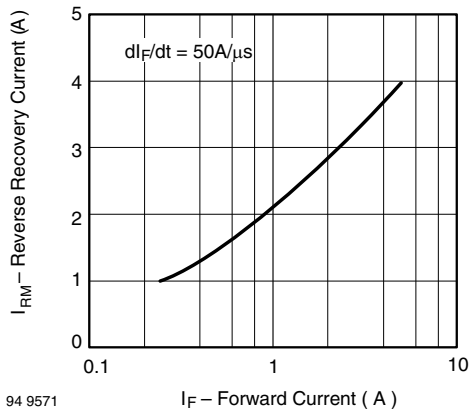


Fig. 2 - Typ. Reverse Recovery Current vs. Forward Current

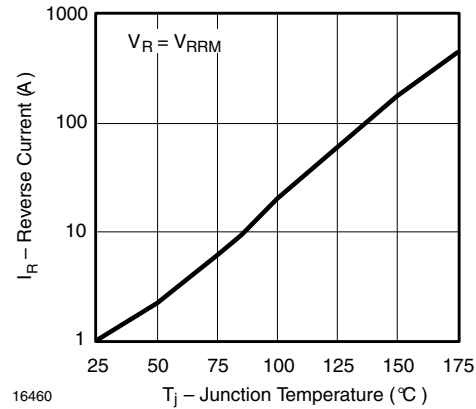


Fig. 5 - Reverse Current vs. Junction Temperature

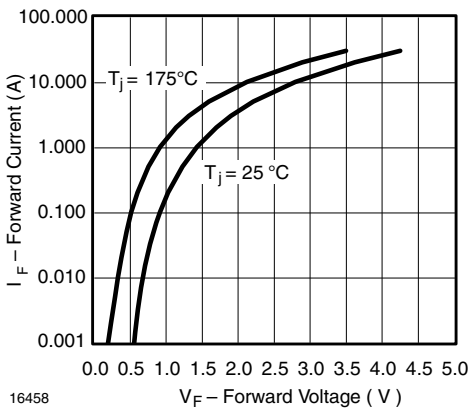


Fig. 3 - Forward Current vs. Forward Voltage

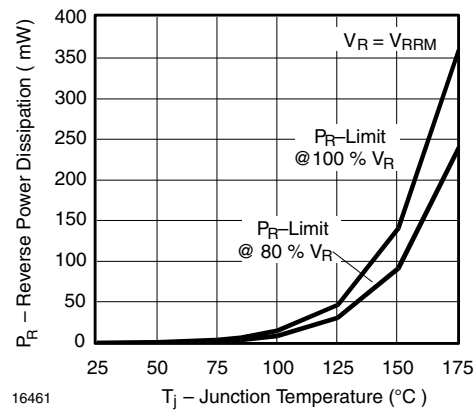
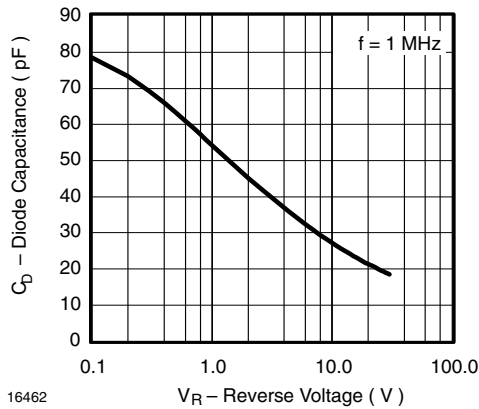
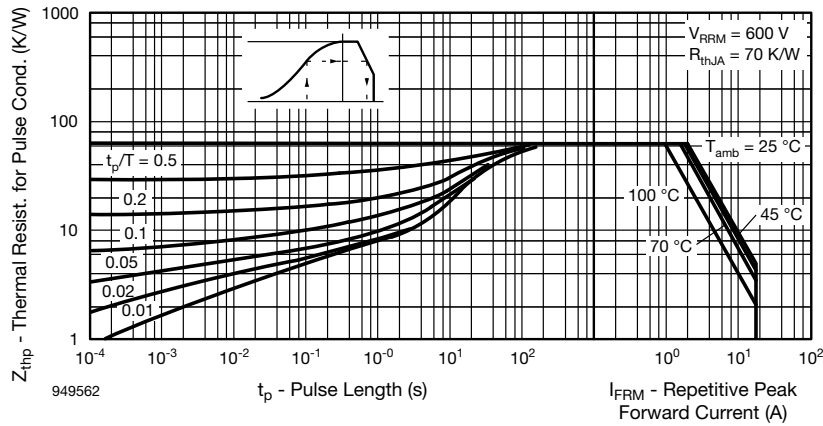


Fig. 6 - Max Reverse Power Dissipation vs. Junction Temperature



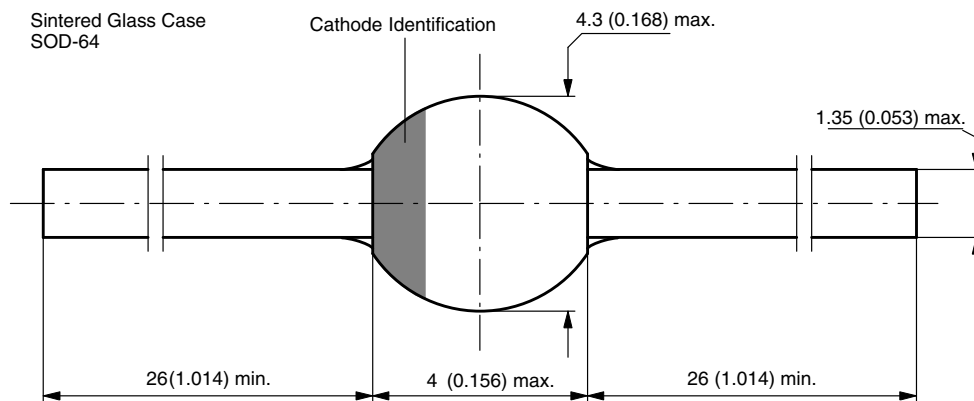
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Fig. 7 - Diode Capacitance vs. Reverse Voltage



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Fig. 8 - Thermal Response

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

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 Rev. 3 - Date: 09.February.2005  
 94 9587



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