

### **Vishay Semiconductors**

### Fast Avalanche Sinterglass Diode



949539

#### **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

#### FEATURES

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

#### **APPLICATIONS**

• Fast rectification and switching diode for example for TV-line output circuits and switch mode power supply

ORDERING INFORMATION (Example)					
DEVICE NAME	ORDERING CODE	TAPED UNITS	MINIMUM ORDER QUANTITY		
BYV16	BYV16-TR	5000 per 10" tape and reel	25 000		
BYV16	BYV16-TAP	5000 per ammopack	25 000		

PARTS TABLE					
PART	TYPE DIFFERENTIATION	PACKAGE			
BYV12	V <sub>R</sub> = 100 V; I <sub>F(AV)</sub> = 1.5 A	SOD-57			
BYV13	V <sub>R</sub> = 400 V; I <sub>F(AV)</sub> = 1.5 A	SOD-57			
BYV14	V <sub>R</sub> = 600 V; I <sub>F(AV)</sub> = 1.5 A	SOD-57			
BYV15	V <sub>R</sub> = 800 V; I <sub>F(AV)</sub> = 1.5 A	SOD-57			
BYV16	V <sub>R</sub> = 1000 V; I <sub>F(AV)</sub> = 1.5 A	SOD-57			

<b>ABSOLUTE MAXIMUM RATINGS</b> (T <sub>amb</sub> = 25 °C, unless otherwise specified)						
PARAMETER	TEST CONDITION PART		SYMBOL	VALUE	UNIT	
	See electrical characteristics	BYV12	$V_{R} = V_{RRM}$	100	V	
		BYV13	$V_R = V_{RRM}$	400	V	
Reverse voltage = repetitive peak reverse voltage		BYV14	$V_R = V_{RRM}$	600	V	
Voltage		BYV15	$V_{R} = V_{RRM}$	800	V	
		BYV16	$V_{R} = V_{RRM}$	1000	V	
Peak forward surge current	t <sub>p</sub> = 10 ms, half sine wave		I <sub>FSM</sub>	40	А	
Repetitive peak forward current			I <sub>FRM</sub>	9	А	
Average forward current	φ = 180°		I <sub>F(AV)</sub>	1.5	А	
Non repetitive reverse avalanche energy	$I_{(BR)R} = 0.4 \text{ A}$		E <sub>R</sub>	10	mJ	
Junction and storage temperature range			$T_j = T_{stg}$	- 55 to + 175	°C	

<b>MAXIMUM THERMAL RESISTANCE</b> (T <sub>amb</sub> = 25 °C, unless otherwise specified)				
PARAMETER	TEST CONDITION		VALUE	UNIT
Junction ambient	Lead length I = 10 mm, $T_L$ = constant	R <sub>thJA</sub>	45	K/W
Sunction ambient	On PC board with spacing 25 mm	R <sub>thJA</sub>	100	K/W

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<b>ELECTRICAL CHARACTERISTICS</b> ( $T_{amb} = 25 \text{ °C}$ , unless otherwise specified)							
PARAMETER	TEST CONDITION	PART	SYMBOL	MIN.	TYP.	MAX.	UNIT
Forward voltage	I <sub>F</sub> = 1 A		V <sub>F</sub>	-	-	1.5	V
Reverse current	$V_{R} = V_{RRM}$		I <sub>R</sub>	-	1	5	μA
	V <sub>R</sub> = V <sub>RRM</sub> , T <sub>j</sub> = 150 °C		I <sub>R</sub>	-	60	150	μA
Reverse recovery time	I <sub>F</sub> = 0.5 A, I <sub>R</sub> = 1 A, i <sub>R</sub> = 0.25 A		t <sub>rr</sub>	-	-	300	ns
Reverse recovery charge	I <sub>F</sub> = 1 A, dI/dt = 5 A/μs		Q <sub>rr</sub>	-	-	200	nC

TYPICAL CHARACTERISTICS (T<sub>amb</sub> = 25 °C, unless otherwise specified)

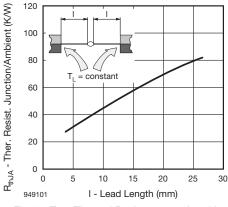


Fig. 1 - Typ. Thermal Resistance vs. Lead Length

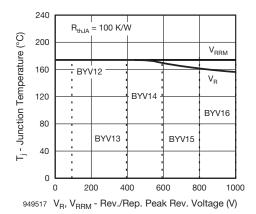
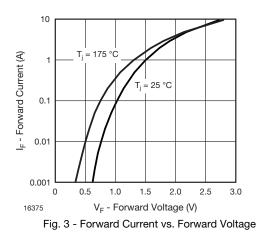


Fig. 2 - Junction Temperature vs. Reverse/Repetitive Peak Reverse Voltage



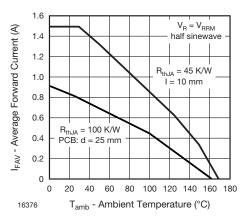


Fig. 4 - Max. Average Forward Current vs. Ambient Temperature

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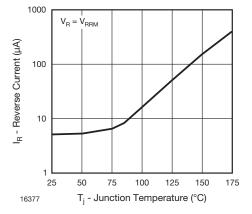


Fig. 5 - Reverse Current vs. Junction Temperature

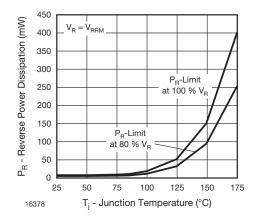


Fig. 6 - Max. Reverse Power Dissipation vs. Junction Temperature

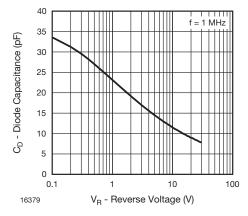


Fig. 7 - Diode Capacitance vs. Reverse Voltage

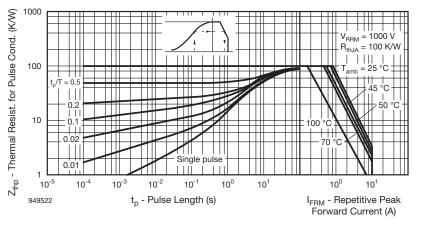


Fig. 8 - Thermal Response

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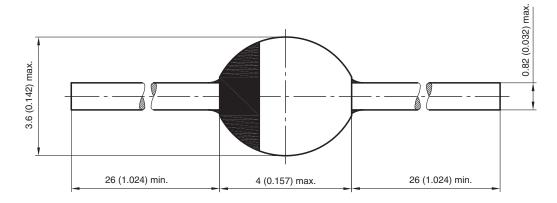
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#### PACKAGE DIMENSIONS in millimeters (inches): SOD-57



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