## **BYV12, BYV13, BYV14, BYV15, BYV16**

Vishay Semiconductors

## **Fast Avalanche Sinterglass Diode**



949539

#### **FEATURES**

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





ROHS COMPLIANT HALOGEN FREE

#### **APPLICATIONS**

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

#### **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			
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	$V_R = 1000 \text{ V}; I_{F(AV)} = 1.5 \text{ A}$	SOD-57			

ABSOLUTE MAXIMUM RATINGS (T <sub>amb</sub> = 25 °C, unless otherwise specified)							
PARAMETER	TEST CONDITION	PART	SYMBOL	VALUE	UNIT		
		BYV12	$V_R = V_{RRM}$	100	V		
December 1911		BYV13	$V_R = V_{RRM}$	400	V		
Reverse voltage = repetitive peak reverse voltage	See electrical characteristics	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	$t_p = 10 \text{ ms}$ , half sine wave		I <sub>FSM</sub>	40	Α		
Repetitive peak forward current			I <sub>FRM</sub>	9	Α		
Average forward current	φ = 180°		I <sub>F(AV)</sub>	1.5	Α		
Non repetitive reverse avalanche energy	I <sub>(BR)R</sub> = 0.4 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	SYMBOL	VALUE	UNIT		
Junction ambient	Lead length I = 10 mm, T <sub>L</sub> = constant	$R_{thJA}$	45	K/W		
Junction ambient	On PC board with spacing 25 mm	$R_{thJA}$	100	K/W		



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<b>ELECTRICAL CHARACTERISTICS</b> (T <sub>amb</sub> = 25 °C, unless otherwise specified)							
PARAMETER	TEST CONDITION	PART	SYMBOL	MIN.	TYP.	MAX.	UNIT
Forward voltage	I <sub>F</sub> = 1 A		$V_{F}$	-	-	1.5	V
Reverse current	$V_R = V_{RRM}$		I <sub>R</sub>	-	1	5	μA
	$V_R = V_{RRM}$ , $T_j = 150  ^{\circ}C$		I <sub>R</sub>	-	60	150	μA
Reverse recovery time	$I_F = 0.5 \text{ A}, I_R = 1 \text{ A}, I_R = 0.25 \text{ A}$		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)

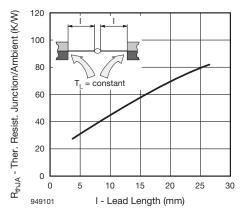


Fig. 1 - Typ. Thermal Resistance vs. Lead Length

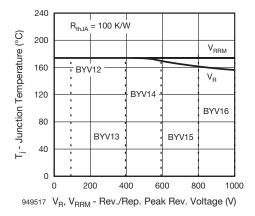


Fig. 2 - Junction Temperature vs. Reverse/Repetitive Peak Reverse Voltage

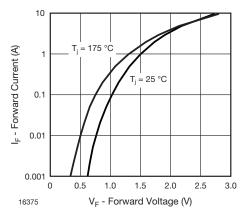


Fig. 3 - Forward Current vs. Forward Voltage

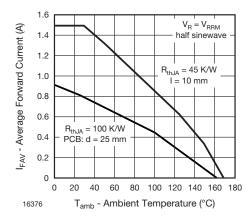
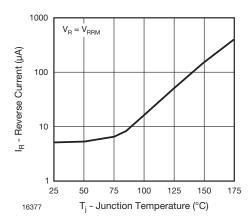
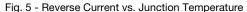


Fig. 4 - Max. Average Forward Current vs. Ambient Temperature

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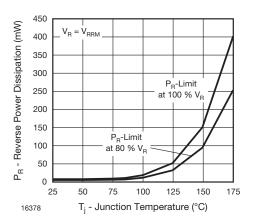


Fig. 6 - Max. Reverse Power Dissipation vs. Junction Temperature

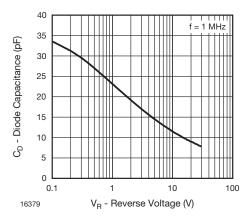


Fig. 7 - Diode Capacitance vs. Reverse Voltage

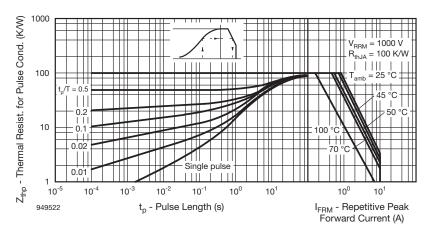
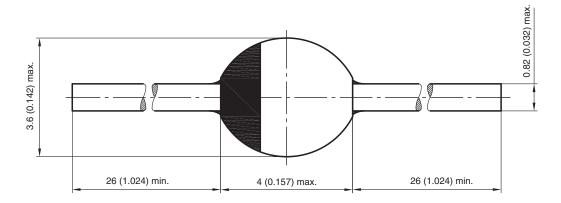


Fig. 8 - Thermal Response

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



20543 Rev. 3 - Date: 09.February 2005 Document no.:6.563-5006.3-4



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