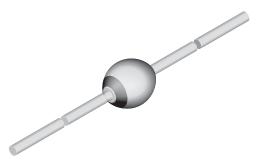


BYW52, BYW53, BYW54, BYW55, BYW56

Vishay Semiconductors

Standard Avalanche Sinterglass Diode



949539

DESIGN SUPPORT TOOLS

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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

- · Controlled avalanche characteristics
- · Glass passivated junction
- · Hermetically sealed package
- Low reverse current
- High surge current loading
- AEC-Q101 qualified
- Material categorization: for definitions of compliance please see www.vishay.com/doc?99912



COMPLIANT HALOGEN FREE

APPLICATIONS

· Rectification, general purpose

ORDERING INFORMATION (Example)						
DEVICE NAME	ORDERING CODE	DERING CODE TAPED UNITS MINIMUM ORDER QUANTITY				
BYW56	BYW56-TR	5000 per 10" tape and reel	25 000			
BYW56	BYW56-TAP	5000 per ammopack	25 000			

PARTS TABLE				
PART	TYPE DIFFERENTIATION	PACKAGE		
BYW52	V _R = 200 V; I _{F(AV)} = 2 A	SOD-57		
BYW53	V _R = 400 V; I _{F(AV)} = 2 A	SOD-57		
BYW54	V _R = 600 V; I _{F(AV)} = 2 A	SOD-57		
BYW55	V _R = 800 V; I _{F(AV)} = 2 A	SOD-57		
BYW56	$V_{R} = 1000 \text{ V}; I_{F(AV)} = 2 \text{ A}$	SOD-57		

ABSOLUTE MAXIMUM RATINGS (T _{amb} = 25 °C, unless otherwise specified)						
PARAMETER	TEST CONDITION	PART	SYMBOL	VALUE	UNIT	
	See electrical characteristics	BYW52	$V_R = V_{RRM}$	200	V	
Be and allowed the second		BYW53	$V_R = V_{RRM}$	400	V	
Reverse voltage = repetitive peak reverse voltage		BYW54	$V_R = V_{RRM}$	600	V	
Tonago		BYW55	$V_R = V_{RRM}$	800	V	
		BYW56	$V_R = V_{RRM}$	1000	V	
Peak forward surge current	$t_p = 10 \text{ ms}$, half sine wave		I _{FSM}	50	Α	
Repetitive peak forward current			I _{FRM}	12	Α	
Average forward current	φ = 180 °		I _{F(AV)}	2	Α	
Pulse avalanche peak power	t_p = 20 µs half sine wave, T_j = 175 °C		P_R	1000	W	
Pulse energy in avalanche mode, non repetitive (inductive load switch off)	$I_{(BR)R} = 1 \text{ A, } T_j = 175 ^{\circ}\text{C}$		E _R	20	mJ	
i ² t-rating			i ² t	8	A ² s	
Junction and storage temperature range			$T_j = T_{stg}$	-55 to +175	°C	



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MAXIMUM THERMAL RESISTANCE (T _{amb} = 25 °C, unless otherwise specified)					
PARAMETER	TEST CONDITION	SYMBOL	VALUE	UNIT	
Junction ambient	Lead length I = 10 mm, T _L = constant	R _{thJA}	45	K/W	
Junction ambient	On PC board with spacing 25 mm	R_{thJA}	100	K/W	

ELECTRICAL CHARACTERISTICS (T _{amb} = 25 °C, unless otherwise specified)						
PARAMETER	TEST CONDITION	SYMBOL	MIN.	TYP.	MAX.	UNIT
Forward voltage	I _F = 1 A	V _F	-	0.9	1	V
Reverse current	$V_R = V_{RRM}$	I _R	-	0.1	1	μA
neverse current	$V_R = V_{RRM}$, $T_j = 100 ^{\circ}C$	I _R	-	5	10	μA
Breakdown voltage	$I_R = 100 \mu A, t_p/T = 0.01, t_p = 0.3 \text{ ms}$	V _(BR)	-	-	1600	V
Diode capacitance	$V_R = 4 V, f = 1 MHz$	C _D	-	18	-	pF
Daviere receiver time	$I_F = 0.5 \text{ A}, I_R = 1 \text{ A}, I_R = 0.25 \text{ A}$	t _{rr}	-	-	4000	ns
Reverse recovery time	$I_F = 1 \text{ A}, \text{ dI/dt} = 5 \text{ A/}\mu\text{s}, V_R = 50 \text{ V}$	t _{rr}	-	-	4000	ns
Reverse recovery charge	I _F = 1 A, dl/dt = 5 A/μs	Q _{rr}	-	-	200	nC

TYPICAL CHARACTERISTICS (T_{amb} = 25 °C, unless otherwise specified)

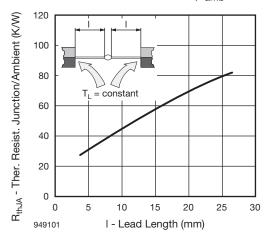


Fig. 1 - Typ. Thermal Resistance vs. Lead Length

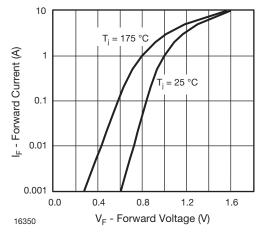


Fig. 2 - Forward Current vs. Forward Voltage

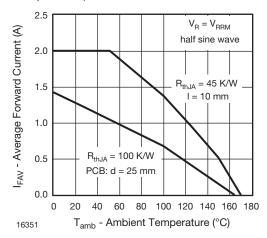


Fig. 3 - Max. Average Forward Current vs.
Ambient Temperature

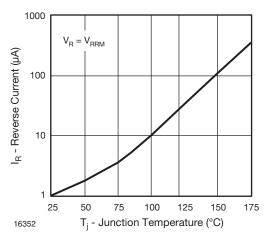
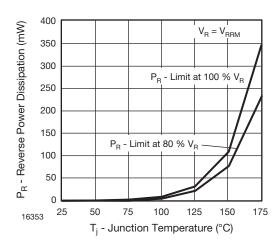


Fig. 4 - Reverse Current vs. Junction Temperature

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40 35 30 30 30 30 20 30 30 20 30 15 0 0.1 1 1 10 100 V_R - Reverse Voltage (V)

Fig. 5 - Max. Reverse Power Dissipation vs. Junction Temperature

Fig. 6 - Diode Capacitance vs. Reverse Voltage

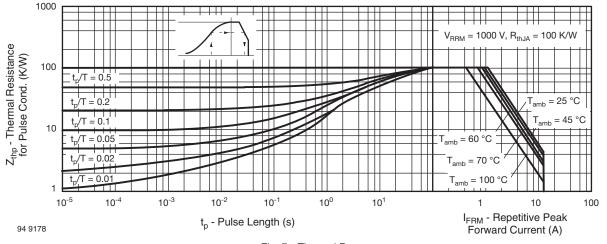
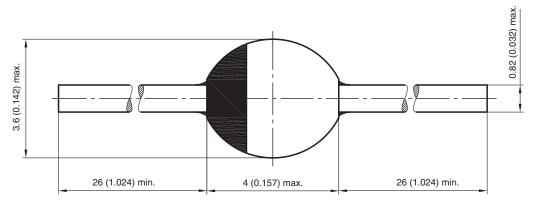


Fig. 7 - Thermal Response

PACKAGE DIMENSIONS in millimeters (inches): SOD-57



20543

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