

BYW82, BYW83, BYW84, BYW85, BYW86

Vishay Semiconductors

Standard Avalanche Sinterglass Diode



DESIGN SUPPORT TOOLS

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



HALOGEN FREE

APPLCIATIONS

· Rectification, general purpose

ORDERING INFORMATION (Example)					
DEVICE NAME ORDERING CODE TAPED UNITS MINIMUM ORDER C		MINIMUM ORDER QUANTITY			
BYW82 or BYW83 or BYW84 and BYW86	BYW86-TR	2500 per 10" tape and reel	12 500		
BYW82 or BYW84 and BYW85	BYW85-TAP	2500 per ammopack	12 500		
BYW85	BYW85TR	2500 per 10" tape and reel	12 500		
BYW83 or BYW86	BYW86TAP	2500 per ammopack	12 500		

PARTS TABLE		
PART	TYPE DIFFERENTIATION	PACKAGE
BYW82	V _R = 200 V, I _{F(AV)} = 3 A	SOD-64
BYW83	V _R = 400 V, I _{F(AV)} = 3 A	SOD-64
BYW84	V _R = 600 V, I _{F(AV)} = 3 A	SOD-64
BYW85	V _R = 800 V, I _{F(AV)} = 3 A	SOD-64
BYW86	$V_R = 1000 \text{ V}, I_{F(AV)} = 3 \text{ A}$	SOD-64

ABSOLUTE MAXIMUM RATINGS (T _{amb} = 25 °C, unless otherwise specified)						
PARAMETER	TEST CONDITION	PART	SYMBOL	VALUE	UNIT	
Reverse voltage = repetitive peak reverse voltage	See electrical characteristics	BYW82	$V_R = V_{RRM}$	200	V	
		BYW83	$V_R = V_{RRM}$	400	V	
		BYW84	$V_R = V_{RRM}$	600	V	
		BYW85	$V_R = V_{RRM}$	800	V	
		BYW86	$V_R = V_{RRM}$	1000	V	
Peak forward surge current	$t_p = 10$ ms, half sine wave		I _{FSM}	100	Α	
Repetitive peak forward current			I _{FRM}	18	Α	
Average forward current			I _{F(AV)}	3	Α	
Pulse avalanche peak power	t_p = 20 μ s, half sine wave, T_j = 175 °C		P _R	1000	W	
Pulse energy in avalanche mode, non repetitive (inductive load switch off)	$I_{(BR)R} = 1 \text{ A, T}_j = 175 \text{ °C}$		E _R	20	mJ	
i ² t-rating			i ² t	40	A2s	
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}	25	K/W	
	On PC board with spacing 25 mm	R _{thJA}	70	K/W	

ELECTRICAL CHARACTERISTICS (T _{amb} = 25 °C, unless otherwise specified)						
PARAMETER	TEST CONDITION	SYMBOL	MIN.	TYP.	MAX.	UNIT
Forward voltage	I _F = 3 A	V _F	-	-	1	V
Reverse current	$V_R = V_{RRM}$	I _R	-	0.1	1	μA
	$V_R = V_{RRM}$, $T_j = 100$ °C	I _R	-	5	10	μA
Breakdown voltage	$I_R = 100 \mu A$, $tp/T = 0.01$, $tp = 0.3 ms$	V _(BR)	-	-	1600	V
Diode capacitance	$V_R = 4 V, f = 1 MHz$	C _D	-	40	60	pF
Reverse recovery time	$I_F = 0.5 \text{ A}, I_R = 1 \text{ A}, i_R = 0.25 \text{ A}$	t _{rr}	-	3.5	5	μs
	$I_F = 1 \text{ A}, \text{ dI/dt} = 5 \text{ A/}\mu\text{s}, V_R = 50 \text{ V}$	t _{rr}	-	4.5	7.5	μs
Reverse recovery charge	$I_F = 1 A$, $dI/dt = 5 A/\mu s$	Q _{rr}	-	8	12	μC

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

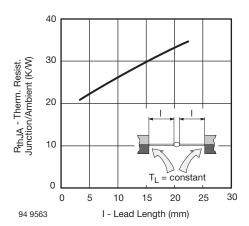


Fig. 1 - Max. Thermal Resistance vs. Lead Length

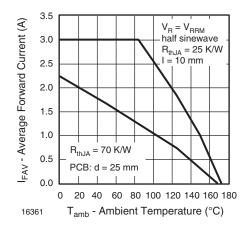


Fig. 2 - Max. Average Forward Current vs. Ambient Temperature

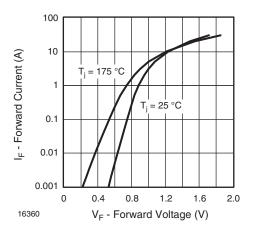


Fig. 3 - Forward Current vs. Forward Voltage

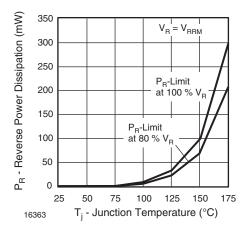


Fig. 4 - Max. Reverse Power Dissipation vs. Junction Temperature

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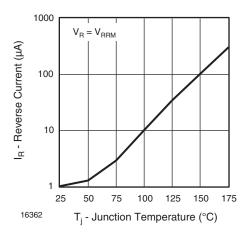


Fig. 5 - Reverse Current vs. Junction Temperature

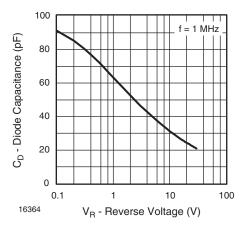


Fig. 6 - Diode Capacitance vs. Reverse Voltage

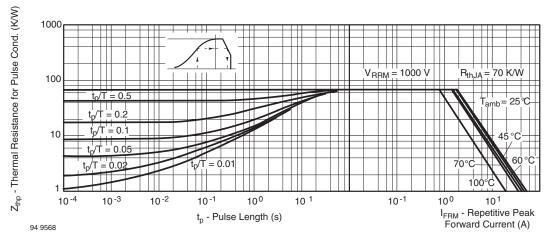
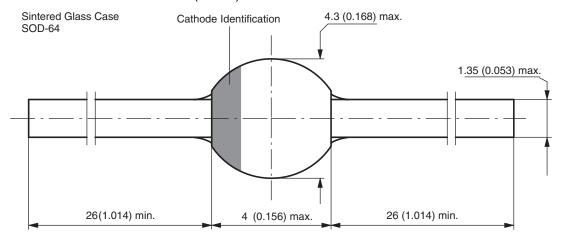


Fig. 7 - Thermal Response

PACKAGE DIMENSIONS in millimeters (inches): SOD-64



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