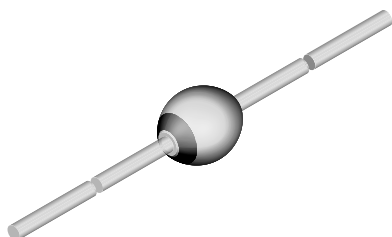


BYW52, BYW53, BYW54, BYW55, BYW56

Vishay Semiconductors



Standard Avalanche Sinterglass Diode



949539

FEATURES

- Controlled avalanche characteristics
- Glass passivated junction
- Hermetically sealed package
- Low reverse current
- High surge current loading
- 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

APPLICATIONS

- Rectification, general purpose

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

PARTS TABLE

PART	TYPE DIFFERENTIATION	PACKAGE
BYW52	$V_R = 200\text{ V}$; $I_{FAV} = 2\text{ A}$	SOD-57
BYW53	$V_R = 400\text{ V}$; $I_{FAV} = 2\text{ A}$	SOD-57
BYW54	$V_R = 600\text{ V}$; $I_{FAV} = 2\text{ A}$	SOD-57
BYW55	$V_R = 800\text{ V}$; $I_{FAV} = 2\text{ A}$	SOD-57
BYW56	$V_R = 1000\text{ V}$; $I_{FAV} = 2\text{ A}$	SOD-57

ABSOLUTE MAXIMUM RATINGS ($T_{amb} = 25\text{ °C}$, unless otherwise specified)

PARAMETER	TEST CONDITION	PART	SYMBOL	VALUE	UNIT
Reverse voltage = repetitive peak reverse voltage	See electrical characteristics	BYW52	$V_R = V_{RRM}$	200	V
		BYW53	$V_R = V_{RRM}$	400	V
		BYW54	$V_R = V_{RRM}$	600	V
		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	A
Repetitive peak forward current			I_{FRM}	12	A
Average forward current	$\phi = 180^\circ$		I_{FAV}	2	A
Pulse avalanche peak power	$t_p = 20\text{ }\mu\text{s}$ half sine wave, $T_j = 175\text{ °C}$		P_R	1000	W
Pulse energy in avalanche mode, non repetitive (inductive load switch off)	$I_{BR} = 1\text{ A}$, $T_j = 175\text{ °C}$		E_R	20	mJ
i^2t -rating			i^2t	8	A ² s
Junction and storage temperature range			$T_j = T_{stg}$	- 55 to + 175	°C

MAXIMUM THERMAL RESISTANCE ($T_{amb} = 25\text{ °C}$, unless otherwise specified)

PARAMETER	TEST CONDITION	SYMBOL	VALUE	UNIT
Junction ambient	Lead length $l = 10\text{ mm}$, $T_L = \text{constant}$	R_{thJA}	45	K/W
	On PC board with spacing 25 mm	R_{thJA}	100	K/W



BYW52, BYW53, BYW54, BYW55, BYW56

Standard Avalanche Sinterglass
Diode

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ELECTRICAL CHARACTERISTICS ($T_{amb} = 25\text{ }^{\circ}\text{C}$, unless otherwise specified)						
PARAMETER	TEST CONDITION	SYMBOL	MIN.	TYP.	MAX	UNIT
Forward voltage	$I_F = 1\text{ A}$	V_F	-	0.9	1	V
Reverse current	$V_R = V_{RRM}$	I_R	-	0.1	1	μA
	$V_R = V_{RRM}, T_j = 100\text{ }^{\circ}\text{C}$	I_R	-	5	10	μA
Breakdown voltage	$I_R = 100\text{ }\mu\text{A}, t_p/T = 0.01, t_p = 0.3\text{ ms}$	$V_{(BR)}$	-	-	1600	V
Diode capacitance	$V_R = 4\text{ V}, f = 1\text{ MHz}$	C_D	-	18	-	pF
Reverse recovery time	$I_F = 0.5\text{ A}, I_R = 1\text{ A}, i_R = 0.25\text{ A}$	t_{rr}	-	-	4	μs
	$I_F = 1\text{ A}, dI/dt = 5\text{ A}/\mu\text{s}, V_R = 50\text{ V}$	t_{rr}	-	-	4	μs
Reverse recovery charge	$I_F = 1\text{ A}, dI/dt = 5\text{ A}/\mu\text{s}$	Q_{rr}	-	-	200	nC

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

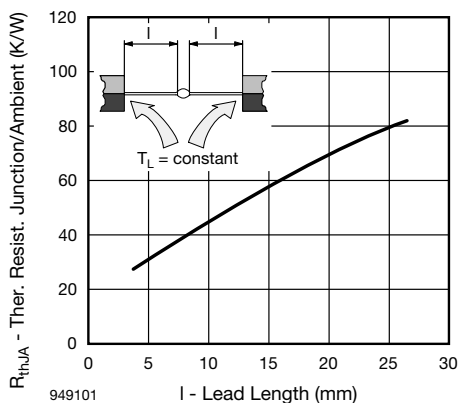


Fig. 1 - Typ. Thermal Resistance vs. Lead Length

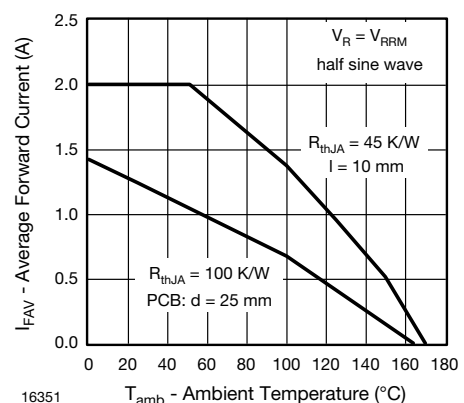


Fig. 3 - Max. Average Forward Current vs. Ambient Temperature

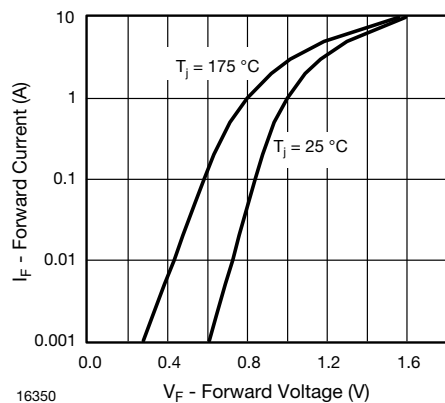


Fig. 2 - Forward Current vs. Forward Voltage

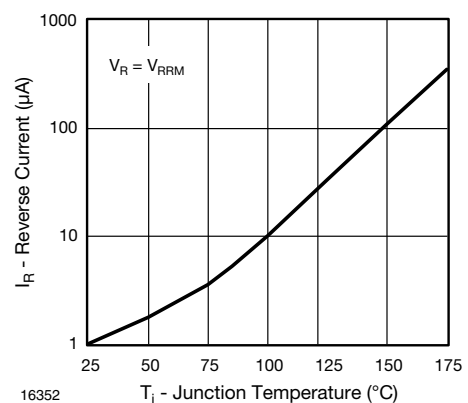


Fig. 4 - Reverse Current vs. Junction Temperature

BYW52, BYW53, BYW54, BYW55, BYW56

Vishay Semiconductors Standard Avalanche Sinterglass Diode

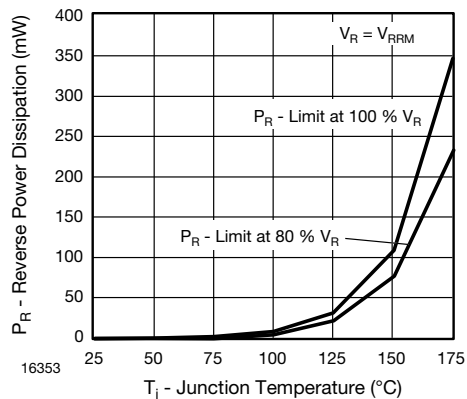


Fig. 5 - Max. Reverse Power Dissipation vs. Junction Temperature

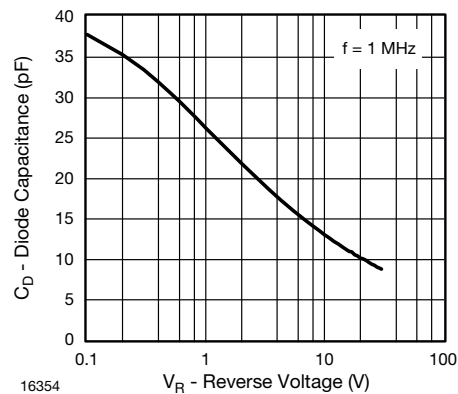


Fig. 6 - Diode Capacitance vs. Reverse Voltage

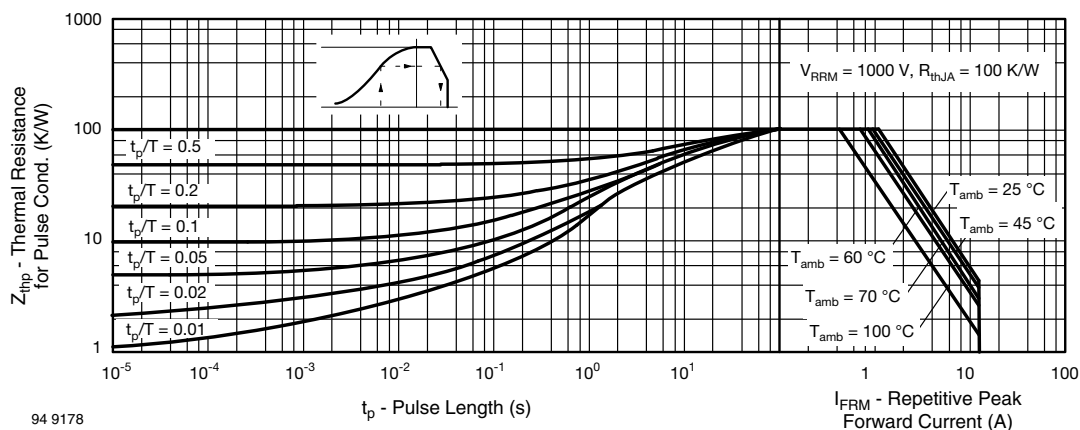
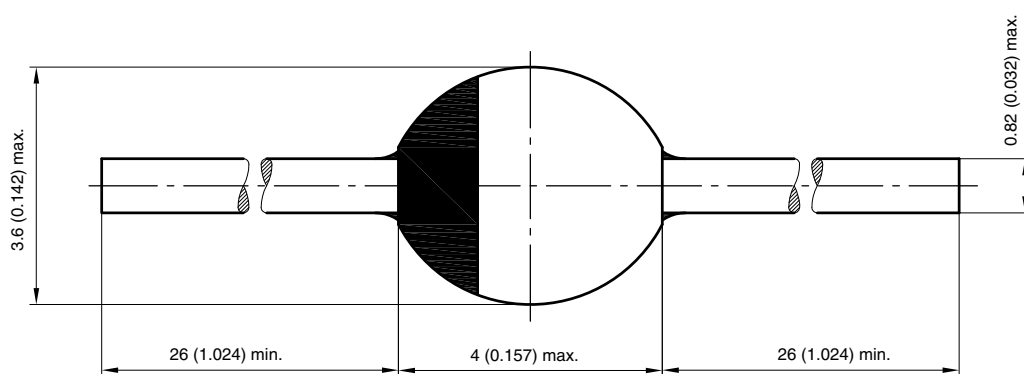


Fig. 7 - Thermal Response

PACKAGE DIMENSIONS in millimeters (inches): SOD-57



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