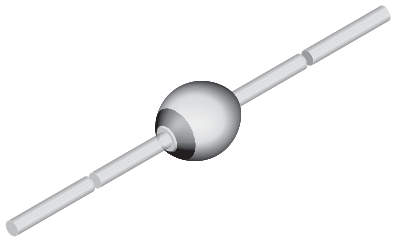
Standard Avalanche Sinterglass Diode



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FEATURES

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

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DESIGN SUPPORT TOOLS

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3D Models Available

APPLICATIONS

- 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

ORDERING INFORMATION (Example)

DEVICE NAME	ORDERING CODE	TAPED UNITS	MINIMUM ORDER QUANTITY
BY527	BY527TR	5000 per 10" tape and reel	25 000
BY527	BY527TAP	5000 per ammopack	25 000

PARTS TABLE

PART	TYPE DIFFERENTIATION	PACKAGE
BY527	V_R = 800 V; $I_{F(AV)}$ = 2 A	SOD-57

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

PARAMETER	TEST CONDITION	PART	SYMBOL	VALUE	UNIT
Reverse voltage	See electrical characteristics	BY527	V_R	800	V
Reverse voltage, non repetitive	I_R = 100 µA	BY527	V_{RSM}	1250	V
Peak forward surge current	t_p = 10 ms, half sine wave		I_{FSM}	50	A
Repetitive peak forward current			I_{FRM}	12	A
Average forward current	φ = 180°		$I_{F(AV)}$	2	A
Pulse avalanche peak power	T_j = 175 °C, t_p = 20 µs, half sinus wave		P_R	1000	W
Pulse energy in avalanche mode, non repetitive (inductive load switch off)	$I_{(BR)R}$ = 1 A, T_j = 175 °C		E_R	20	mJ
i^2t rating			i^2 t	8	A^2 s
Junction and storage temperature range			$T_j = T_{stg}$	-55 to + 175	°C

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

PARAMETER	TEST CONDITION	SYMBOL	VALUE	UNIT
Junction ambient	Lead length l = 10 mm, T_L = constant	R_{thJA}	45	K/W
	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
	I_F = 10 A	V_F	-	-	1.65	V
Reverse current	V_R = 800 V	I_R	-	0.1	1	µA
	V_R = 800 V, T_j = 100 °C	I_R	-	5	10	µA
Breakdown voltage	I_R = 100 µA, t_p/T = 0.01, t_p = 0.3 ms	$V_{(BR)}$	1250	-	-	V
Diode capacitance	V_R = 4 V, f = 1 MHz	C_D	-	16	-	pF
Reverse recovery time	I_F = 0.5 A, I_R = 1 A, i_R = 0.25 A	t_{rr}	-	-	4	µs
	I_F = 1 A, dI/dt = 5 A/µs, V_R = 50 V	t_{rr}	-	-	4	µs
Reverse recovery charge	I_F = 1 A, dI/dt = 5 A/µs	Q_{rr}	-	-	3	µC

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

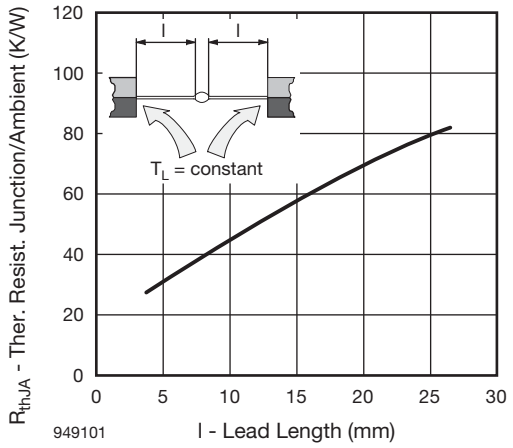


Fig. 1 - Typ. Thermal Resistance vs. Lead Length

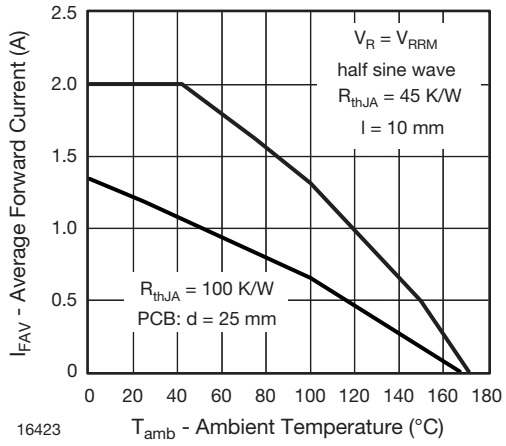


Fig. 3 - Max. Average Forward Current vs. Ambient Temperature

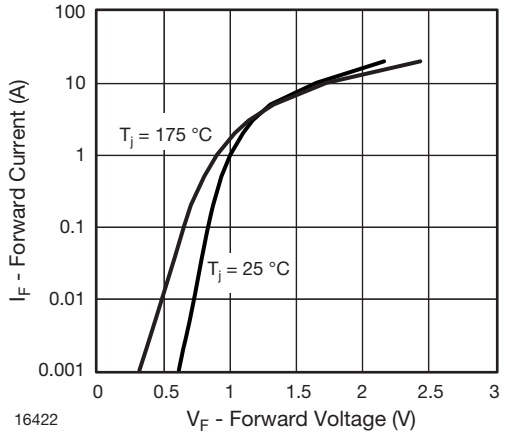


Fig. 2 - Forward Current vs. Forward Voltage

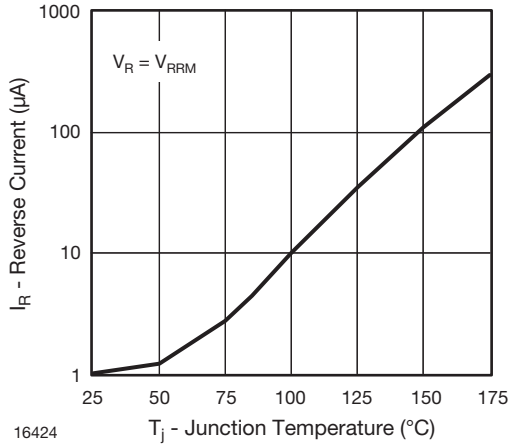


Fig. 4 - Reverse Current vs. Junction Temperature

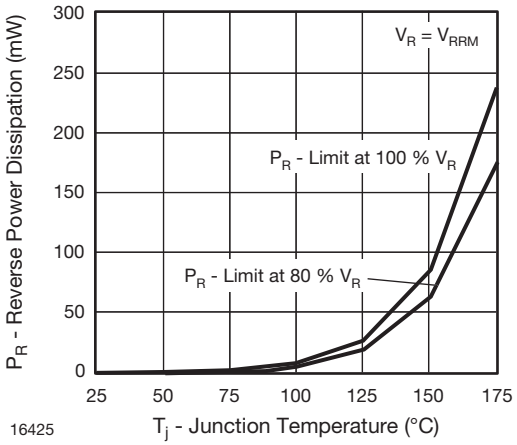


Fig. 5 - Max. Reverse Power Dissipation vs. Junction Temperature

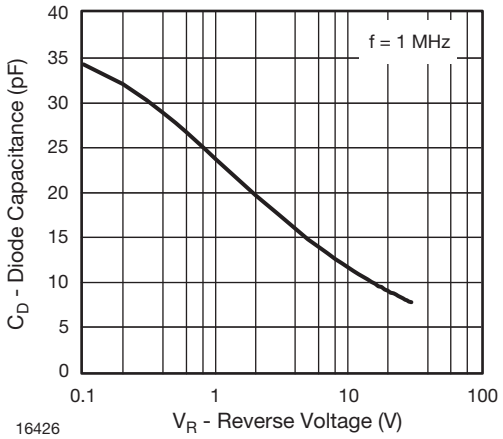


Fig. 6 - Diode Capacitance vs. Reverse Voltage

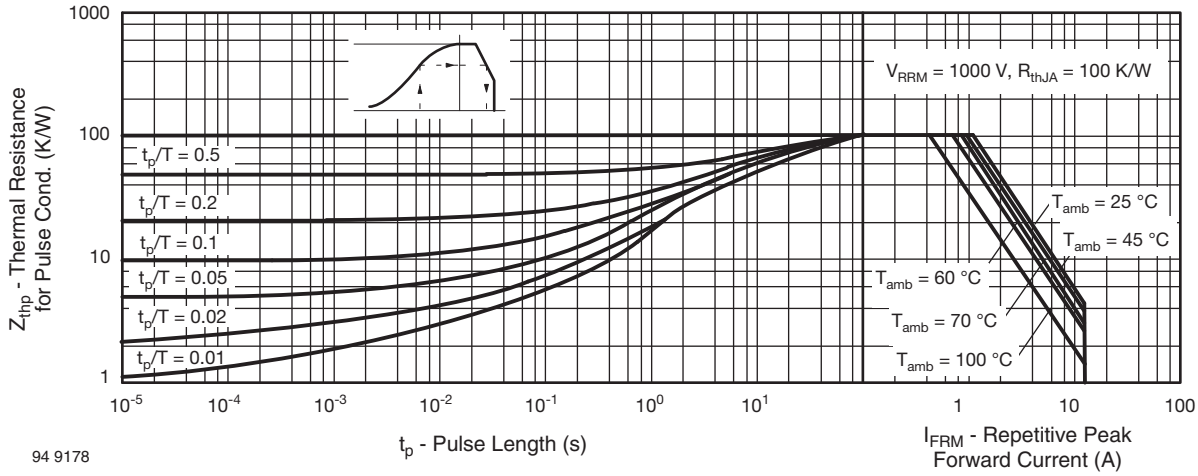
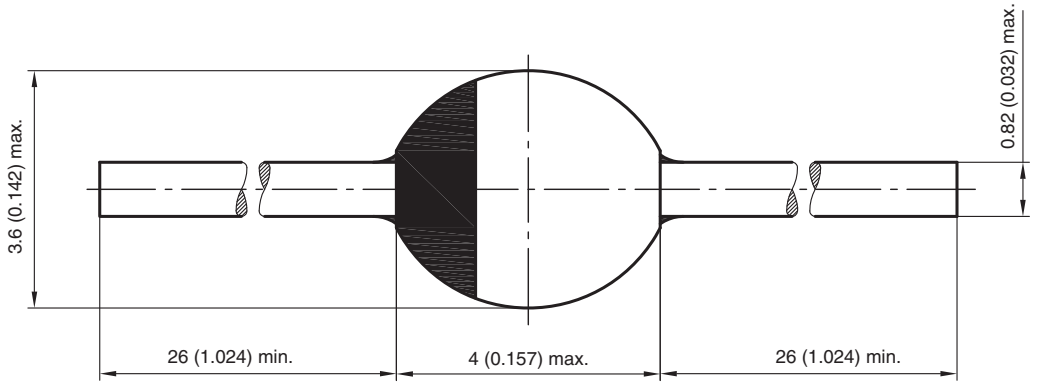


Fig. 7 - Thermal Response

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



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