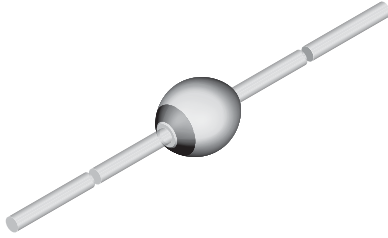




# THE DATASHEET OF BY527TAP



## Standard Avalanche Sinterglass Diode



949539

### DESIGN SUPPORT TOOLS

[click logo to get started](#)


### 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 capability
- Material categorization:  
for definitions of compliance please see [www.vishay.com/doc?99912](http://www.vishay.com/doc?99912)


**RoHS**  
COMPLIANT  
HALOGEN  
**FREE**

### APPLICATIONS

- General purpose

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 ammpack	25 000

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

ABSOLUTE MAXIMUM RATINGS ( $T_{amb} = 25 \text{ }^\circ\text{C}$ , unless otherwise specified)					
PARAMETER	TEST CONDITION	PART	SYMBOL	VALUE	UNIT
Reverse voltage	See electrical characteristics	BY527	$V_R$	800	V
Reverse voltage, non repetitive	$I_R = 100 \text{ } \mu\text{A}$	BY527	$V_{RSM}$	1250	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	$\phi = 180^\circ$		$I_{F(AV)}$	2	A
Pulse avalanche peak power	$T_j = 175 \text{ }^\circ\text{C}$ , $t_p = 20 \text{ } \mu\text{s}$ , half sinus wave		$P_R$	1000	W
Pulse energy in avalanche mode, non repetitive (inductive load switch off)	$I_{(BR)R} = 1 \text{ A}$ , $T_j = 175 \text{ }^\circ\text{C}$		$E_R$	20	mJ
$i^2t$ rating			$i^2t$	8	$\text{A}^2 \text{ s}$
Junction and storage temperature range			$T_j = T_{stg}$	-55 to + 175	$^\circ\text{C}$

MAXIMUM THERMAL RESISTANCE ( $T_{amb} = 25 \text{ }^\circ\text{C}$ , 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

<b>ELECTRICAL CHARACTERISTICS</b> ( $T_{amb} = 25\text{ }^{\circ}\text{C}$ , unless otherwise specified)						
PARAMETER	TEST CONDITION	SYMBOL	MIN.	TYP.	MAX.	UNIT
Forward voltage	$I_F = 1\text{ A}$	$V_F$	-	0.9	1	V
	$I_F = 10\text{ A}$	$V_F$	-	-	1.65	V
Reverse current	$V_R = 800\text{ V}$	$I_R$	-	0.1	1	$\mu\text{A}$
	$V_R = 800\text{ V}, T_j = 100\text{ }^{\circ}\text{C}$	$I_R$	-	5	10	$\mu\text{A}$
Breakdown voltage	$I_R = 100\text{ }\mu\text{A}, t_p/T = 0.01, t_p = 0.3\text{ ms}$	$V_{(BR)}$	1250	-	-	V
Diode capacitance	$V_R = 4\text{ V}, f = 1\text{ MHz}$	$C_D$	-	16	-	pF
Reverse recovery time	$I_F = 0.5\text{ A}, I_R = 1\text{ A}, i_R = 0.25\text{ A}$	$t_{rr}$	-	-	4	$\mu\text{s}$
	$I_F = 1\text{ A}, di/dt = 5\text{ A}/\mu\text{s}, V_R = 50\text{ V}$	$t_{rr}$	-	-	4	$\mu\text{s}$
Reverse recovery charge	$I_F = 1\text{ A}, di/dt = 5\text{ A}/\mu\text{s}$	$Q_{rr}$	-	-	3	$\mu\text{C}$

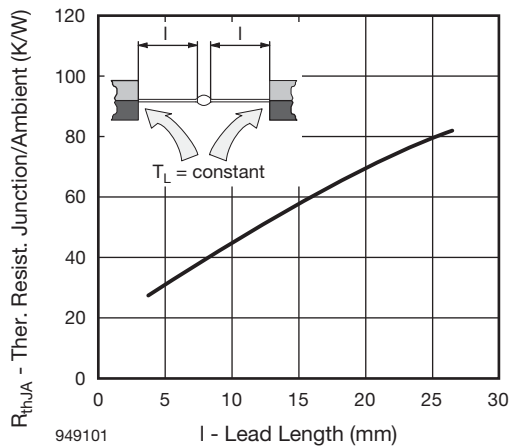
**TYPICAL CHARACTERISTICS** ( $T_{amb} = 25\text{ }^{\circ}\text{C}$ , unless otherwise specified)


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

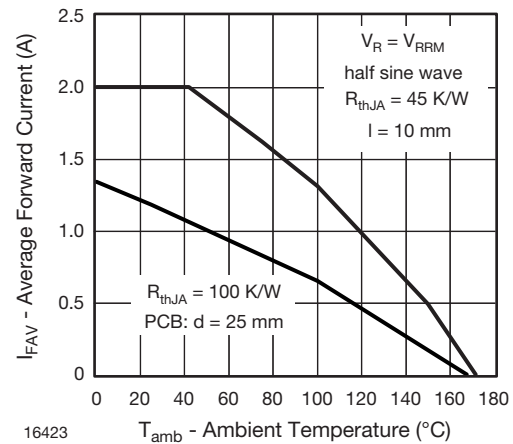


Fig. 3 - Max. Average Forward Current vs. Ambient Temperature

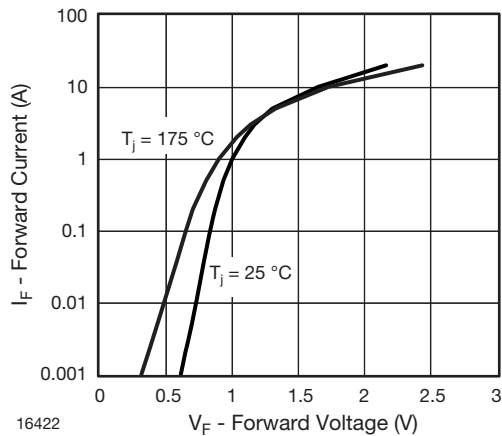


Fig. 2 - Forward Current vs. Forward Voltage

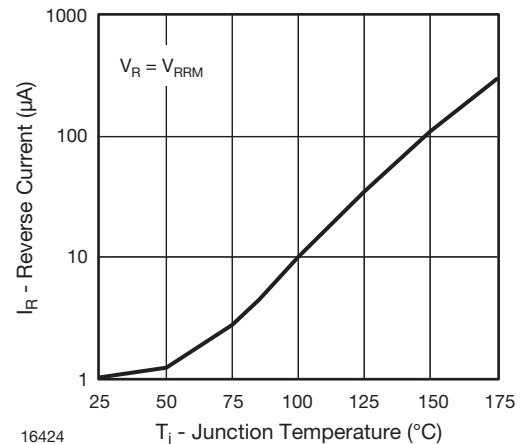


Fig. 4 - Reverse Current vs. Junction Temperature

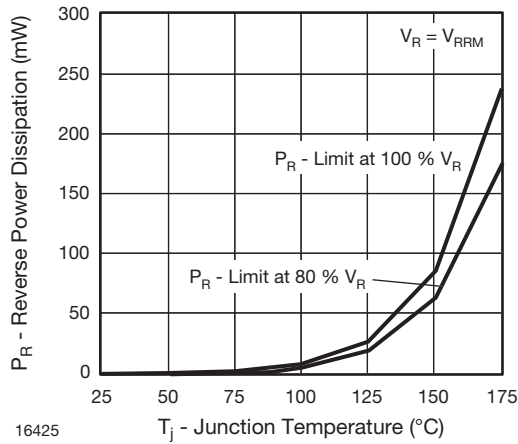


Fig. 5 - Max. Reverse Power Dissipation vs. Junction Temperature

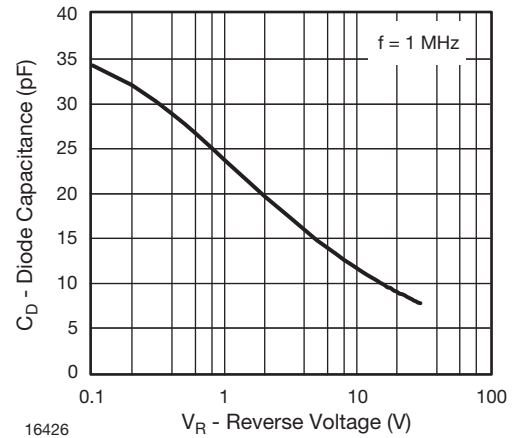


Fig. 6 - Diode Capacitance vs. Reverse Voltage

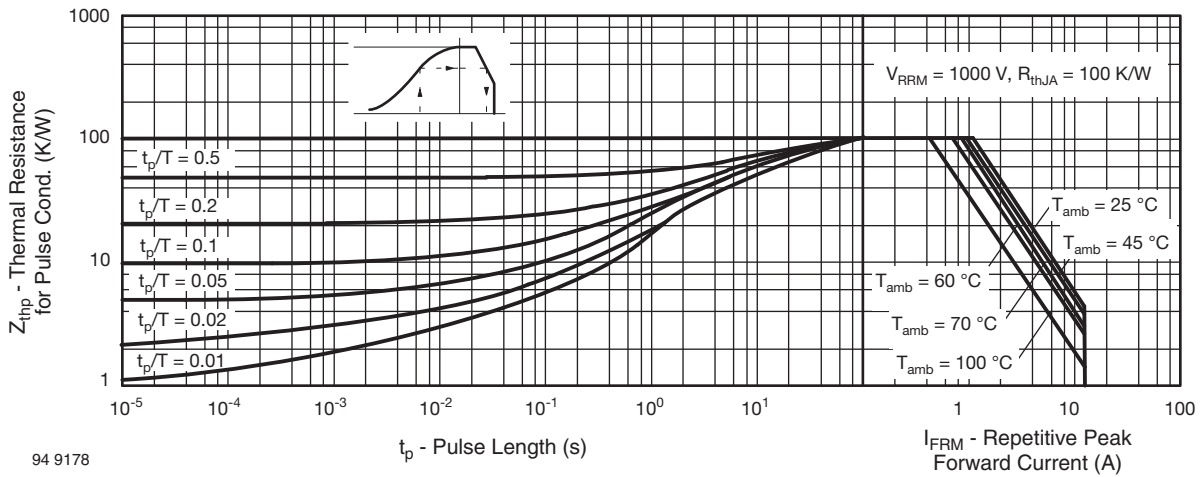
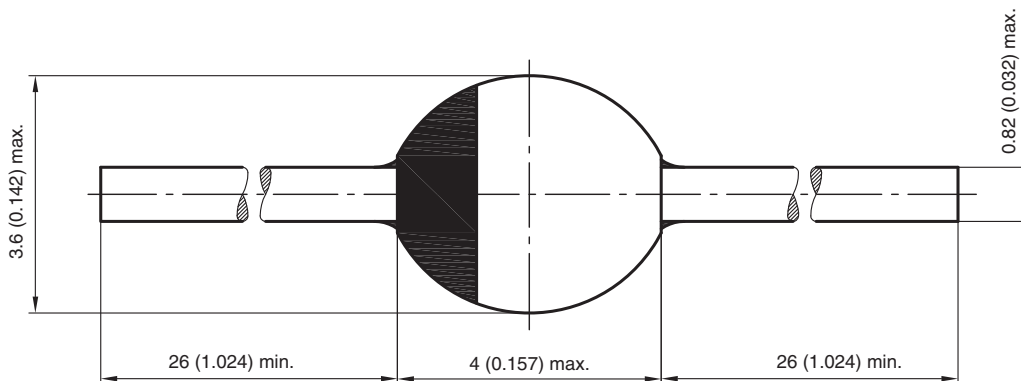


Fig. 7 - Thermal Response

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



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