

# Small Signal Diode

## 1N4149



**AXIAL LEAD  
(DO-35)  
CASE 017AG**  
(Color Band Denotes Cathode)

### ABSOLUTE MAXIMUM RATINGS

( $T_A = 25^\circ\text{C}$  unless otherwise noted) (Notes 1, 2, 3)

Symbol	Rating	Value	Unit
$V_{RRM}$	Maximum Repetitive Reverse Voltage	100	V
$I_{F(AV)}$	Average Rectified Forward Current	500	mA
$I_{FSM}$	Non-repetitive Peak Forward Surge Current Pulse Width = 1.0 s Pulse Width = 1.0 $\mu\text{s}$	1.0 4.0	A
$T_{STG}$	Storage Temperature Range	-65 to +200	$^\circ\text{C}$
$T_J$	Operating Junction Temperature	175	$^\circ\text{C}$

Stresses exceeding those listed in the Maximum Ratings table may damage the device. If any of these limits are exceeded, device functionality should not be assumed, damage may occur and reliability may be affected.

- These ratings are limiting values above which the serviceability of the diode may be impaired.
- These ratings are based on a maximum junction temperature of  $200^\circ\text{C}$ .
- These are steady limits. The factory should be consulted on applications involving pulsed or low duty cycle operations.

### THERMAL CHARACTERISTICS

Symbol	Parameter	Max	Unit
$P_D$	Power Dissipation	500	mW
$R_{\theta JA}$	Thermal Resistance, Junction-to-Ambient	300	$^\circ\text{C}$

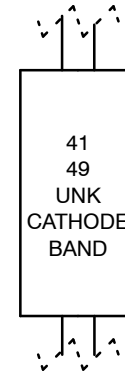
### ELECTRICAL CHARACTERISTICS

( $T_A = 25^\circ\text{C}$  unless otherwise noted)

Symbol	Parameter	Conditions	Min	Max	Unit
$V_R$	Breakdown Voltage	$I_R = 5 \mu\text{A}$ $I_R = 100 \mu\text{A}$	75 100	- -	V
$V_F$	Forward Voltage	$I_F = 10 \text{ mA}$	-	1.0	V
$I_R$	Reverse Leakage	$V_R = 20 \text{ V}$ $V_R = 20 \text{ V}, T_A = 150^\circ\text{C}$	- -	25 50	nA $\mu\text{A}$
$C_T$	Total Capacitance	$V_R = 0, f = 1.0 \text{ MHz}$	-	2	pF
$t_{rr}$	Reverse Recovery Time	$I_F = 10 \text{ mA}, V_R = 6.0 \text{ V}$ $I_{rr} = 1 \text{ mA}, R_L = 100 \Omega$	-	4	ns

Product parametric performance is indicated in the Electrical Characteristics for the listed test conditions, unless otherwise noted. Product performance may not be indicated by the Electrical Characteristics if operated under different conditions.

### MARKING DIAGRAM



4149 = Specific Device Code

### ORDERING INFORMATION

Device	Package	Shipping <sup>†</sup>
1N4149	DO-35 (Pb-Free)	5,000 Units / Bulk
1N4149TR	DO-35 (Pb-Free)	10,000 Units / Tape & Reel

<sup>†</sup>For information on tape and reel specifications, including part orientation and tape sizes, please refer to our Tape and Reel Packaging Specifications Brochure, BRD8011/D.

TYPICAL PERFORMANCE CHARACTERISTICS

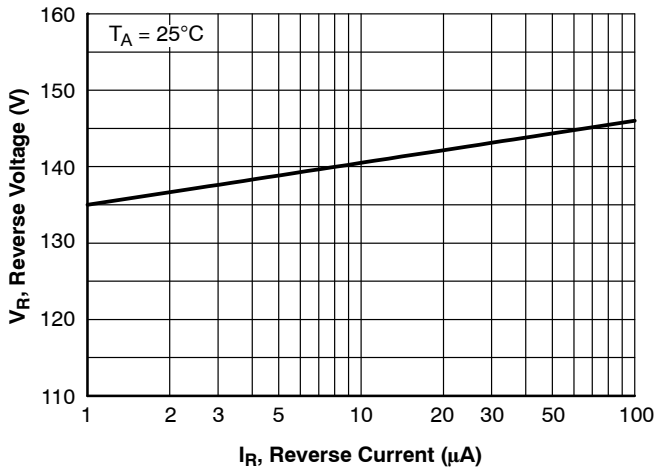


Figure 1. Reverse Voltage vs. Reverse Current  
 $B_V - 1.0$  to  $100 \mu A$

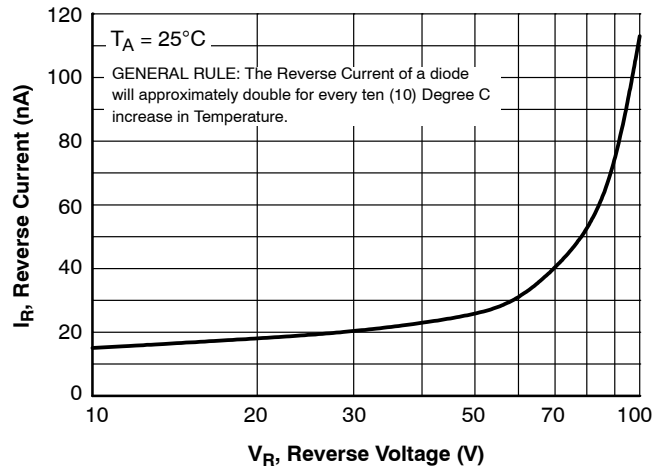


Figure 2. Reverse Current vs. Reverse Voltage  
 $I_R - 10$  to  $100 V$

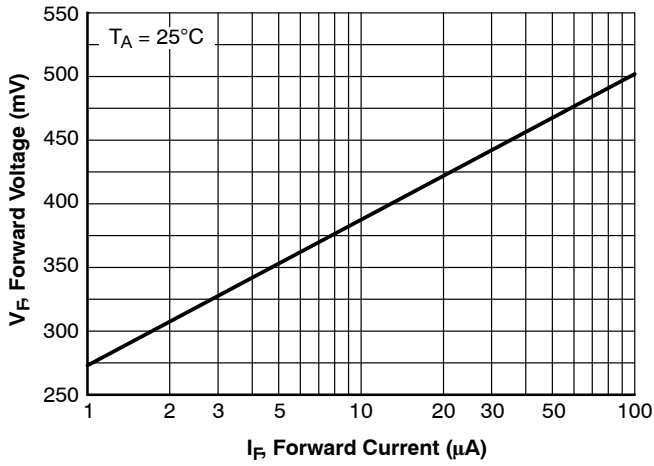


Figure 3. Forward Voltage vs. Forward Current  
 $V_F - 1.0$  to  $100 \mu A$

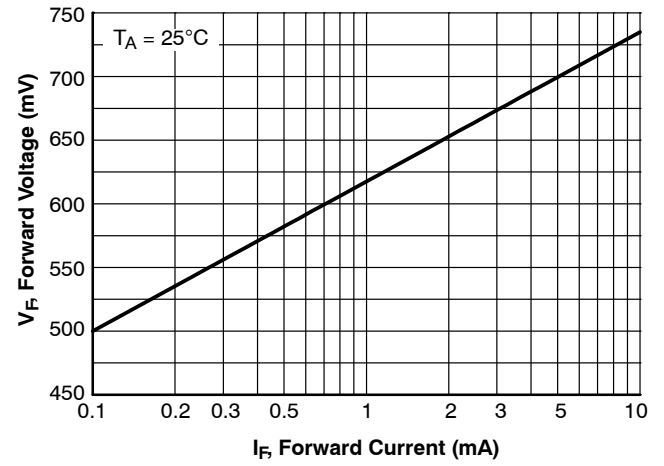


Figure 4. Forward Voltage vs. Forward Current  
 $V_F - 0.1$  to  $10 mA$

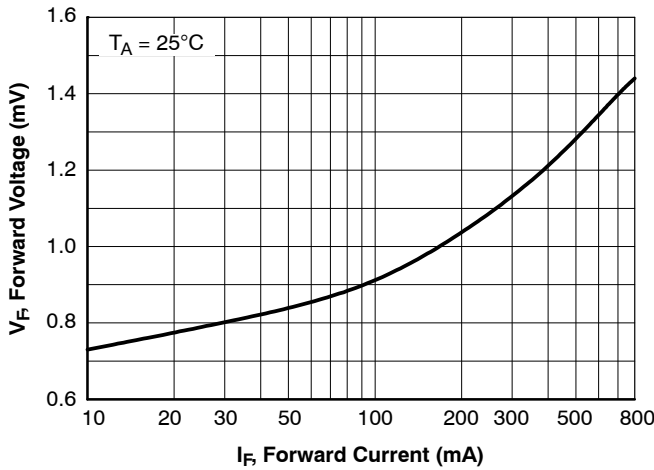


Figure 5. Forward Voltage vs. Forward Current  
 $V_F - 10$  to  $800 mA$

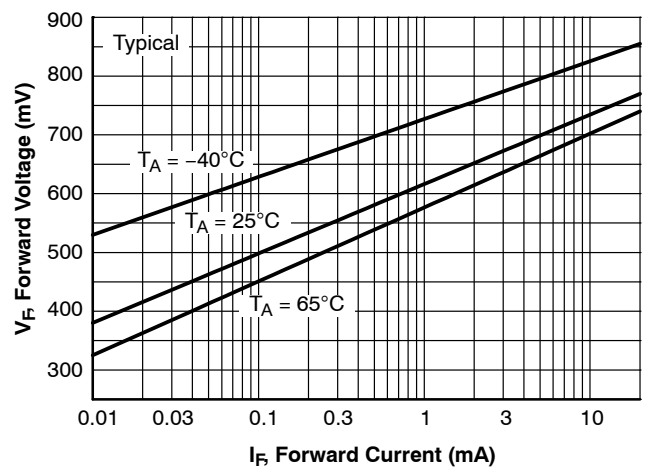


Figure 6. Forward Voltage vs. Ambient Temperature,  $V_F - 0.01$  to  $20 mA (-40$  to  $+65^\circ C)$

TYPICAL PERFORMANCE CHARACTERISTICS (Continued)

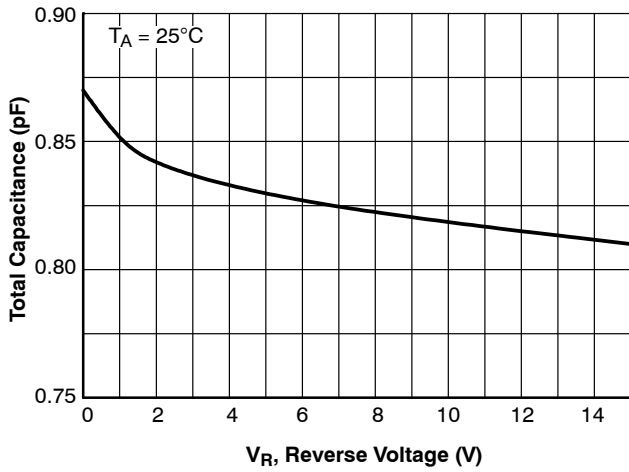


Figure 7. Total Capacitance

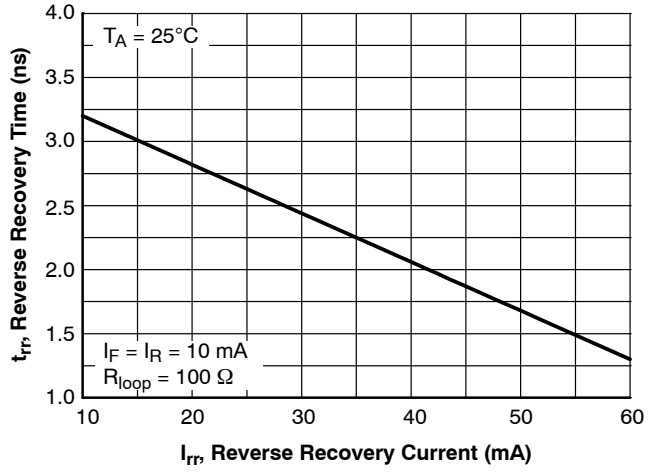


Figure 8. Reverse Recovery Time vs. Reverse Recovery Current

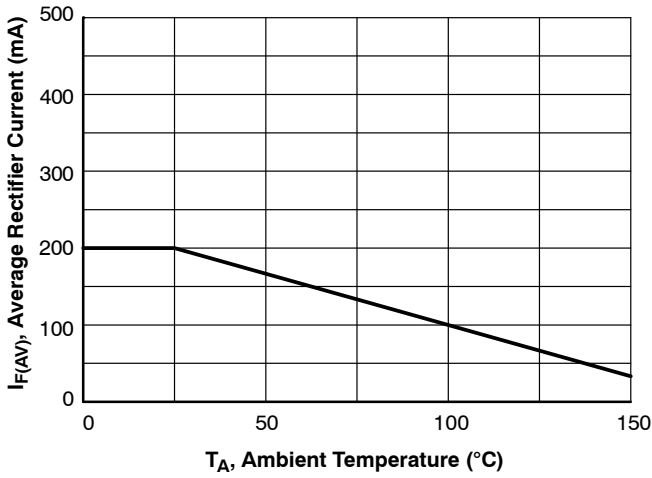


Figure 9. Average Rectified Current ( $I_{F(AV)}$ ) vs. Ambient Temperature ( $T_A$ )

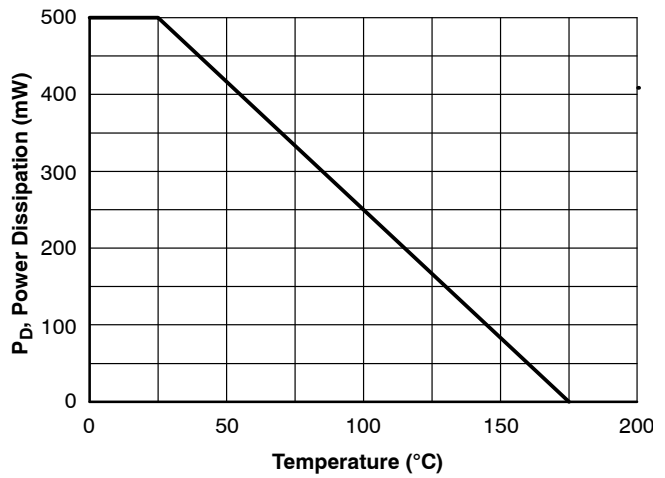
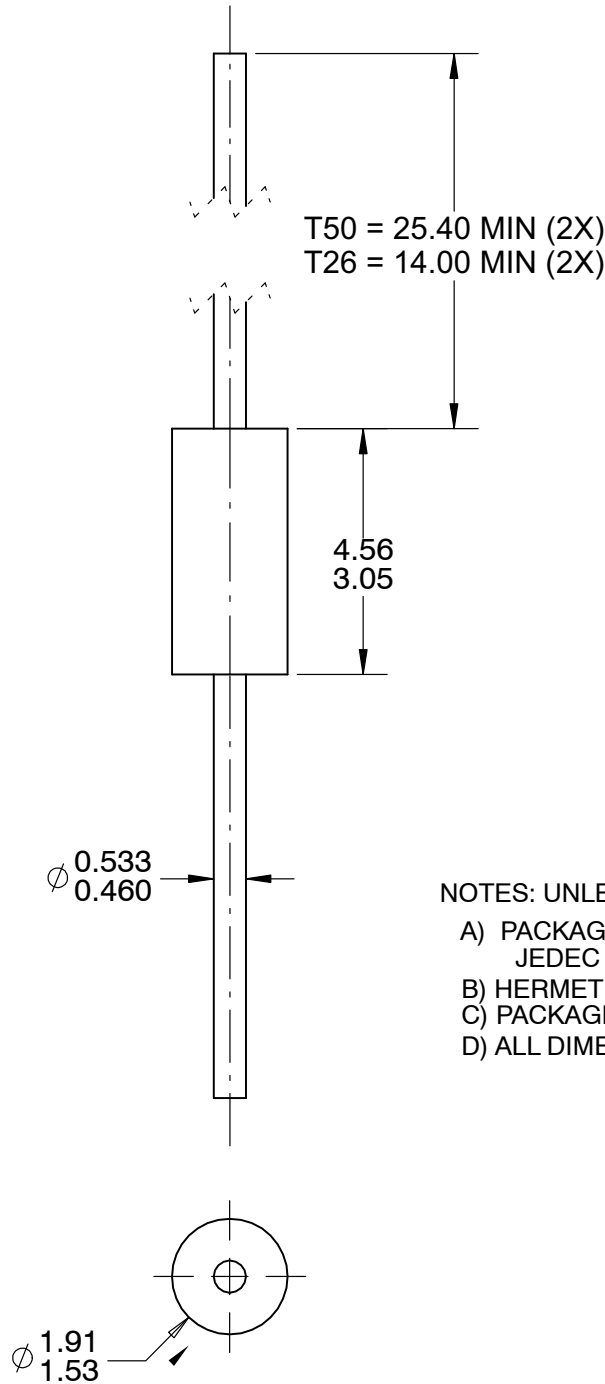


Figure 10. Power Derating Curve


**AXIAL LEAD**  
**CASE 017AG**  
**ISSUE 0**

DATE 31 AUG 2016



- NOTES: UNLESS OTHERWISE SPECIFIED
- A) PACKAGE STANDARD REFERENCE: JEDEC DO-204, VARIATION AH.
  - B) HERMETICALLY SEALED GLASS PACKAGE.
  - C) PACKAGE WEIGHT IS 0.137 GRAM.
  - D) ALL DIMENSIONS ARE IN MILLIMETERS.

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