

# Axial-Lead Glass Passivated Standard Recovery Rectifiers

## 1N5400 thru 1N5408

Lead mounted standard recovery rectifiers are designed for use in power supplies and other applications having need of a device with the following features:

### Features

- High Current to Small Size
- High Surge Current Capability
- Low Forward Voltage Drop
- Void-Free Economical Plastic Package
- Available in Volume Quantities
- Plastic Meets UL 94 V-0 for Flammability
- These are Pb-Free Devices

### Mechanical Characteristics:

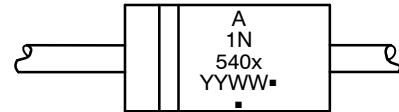
- Case: Epoxy, Molded
- Weight: 1.1 Gram (Approximately)
- Finish: All External Surfaces Corrosion Resistant and Terminal Leads are Readily Solderable
- Lead and Mounting Surface Temperature for Soldering Purposes: 260°C Max. for 10 Seconds
- Polarity: Cathode Indicated by Polarity Band

STANDARD RECOVERY  
 RECTIFIERS  
 50-1000 VOLTS  
 3.0 AMPERES



AXIAL LEAD  
 CASE 267-05  
 STYLE 1

### MARKING DIAGRAM



A = Assembly Location  
 1N540x = Device Number  
 x = 0, 1, 2, 4, 6, 7 or 8  
 YY = Year  
 WW = Work Week  
 ■ = Pb-Free Package

(Note: Microdot may be in either location)

### ORDERING INFORMATION

See detailed ordering and shipping information on page 5 of this data sheet.

\*For additional information on our Pb-Free strategy and soldering details, please download the **onsemi** Soldering and Mounting Techniques Reference Manual, SOLDERRM/D.

# 1N5400 thru 1N5408

## MAXIMUM RATINGS

Rating	Symbol	1N5400	1N5401	1N5402	1N5404	1N5406	1N5407	1N5408	Unit
Peak Repetitive Reverse Voltage Working Peak Reverse Voltage DC Blocking Voltage	$V_{RRM}$ $V_{RWM}$ $V_R$	50	100	200	400	600	800	1000	V
Non-repetitive Peak Reverse Voltage	$V_{RSM}$	100	200	300	525	800	1000	1200	V
Average Rectified Forward Current (Single Phase Resistive Load, 1/2 in. Leads, $T_L = 105^\circ\text{C}$ )	$I_O$	3.0							A
Non-repetitive Peak Surge Current (8 ms Single Half-Sine-Wave)	$I_{FSM}$	200 (one cycle)							A
Operating and Storage Junction Temperature Range	$T_J$ $T_{stg}$	- 65 to +150 - 65 to +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.

## THERMAL CHARACTERISTICS

Characteristic	Symbol	Typ	Unit
Thermal Resistance, Junction-to-Ambient (PC Board Mount, 1/2 in. Leads)	$R_{\theta JA}$	53	$^\circ\text{C}/\text{W}$

## ELECTRICAL CHARACTERISTICS

Characteristic	Symbol	Min	Typ	Max	Unit
Forward Voltage ( $I_F = 3.0\text{ A}$ , $T_A = 25^\circ\text{C}$ )	$V_F$	-	-	1.0	V
Reverse Current (Rated DC Voltage) $T_A = 25^\circ\text{C}$ $T_A = 100^\circ\text{C}$	$I_R$	-	-	10 50	$\mu\text{A}$

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.

Ratings at  $25^\circ\text{C}$  ambient temperature unless otherwise specified.

60 Hz resistive or inductive loads.

For capacitive load, derate current by 20%.

# 1N5400 thru 1N5408

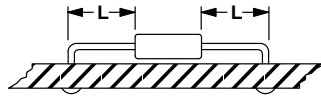
## NOTE 1 — AMBIENT MOUNTING DATA

Data shown for thermal resistance junction-to-ambient ( $R_{\theta JA}$ ) for the mountings shown is to be used as typical guideline values for preliminary engineering or in case the tie point temperature cannot be measured.

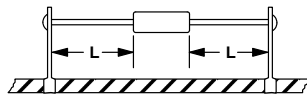
### TYPICAL VALUES FOR $R_{\theta JA}$ IN STILL AIR

Mounting Method	Lead Length, L (IN)				$R_{\theta JA}$
	1/8	1/4	1/2	3/4	
1	50	51	53	55	$^{\circ}\text{C}/\text{W}$
2	58	59	61	63	$^{\circ}\text{C}/\text{W}$
3	28				$^{\circ}\text{C}/\text{W}$

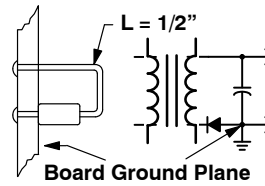
**MOUNTING METHOD 1**  
P.C. Board Where Available  
Copper Surface area is small



**MOUNTING METHOD 2**  
Vector Push-In Terminals T-28



**MOUNTING METHOD 3**  
P.C. Board with  
1-1/2" x 1-1/2" Copper Surface



# 1N5400 thru 1N5408



Figure 1. Forward Voltage



Figure 2. Maximum Nonrepetitive Surge Current

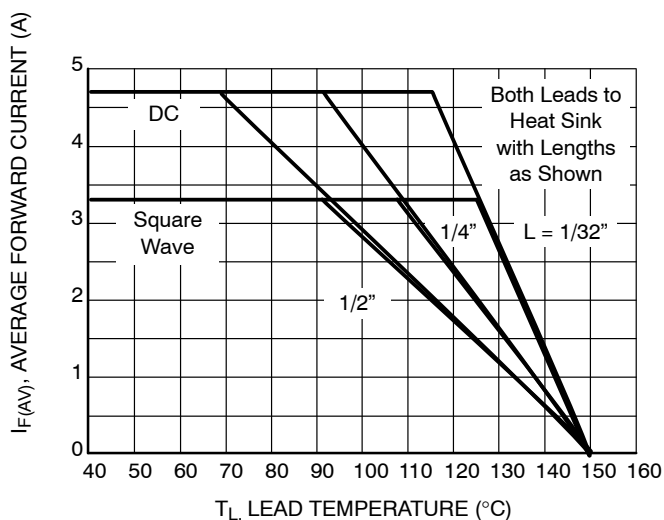


Figure 3. Maximum Current Derating, Lead, Various Lengths



Figure 4. Maximum Current Derating, Ambient, PC Board Mounting

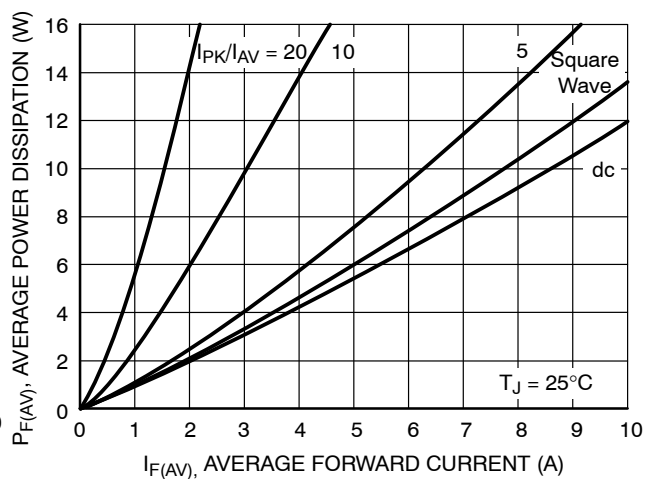


Figure 5. Forward Power Dissipation

# 1N5400 thru 1N5408

## ORDERING INFORMATION

Device	Package	Shipping†
1N5400G	Axial Lead*	500 Units/Box
1N5400RLG	Axial Lead*	1200/Tape & Reel
1N5401G	Axial Lead*	500 Units/Box
1N5401RLG	Axial Lead*	1200/Tape & Reel
1N5402G	Axial Lead*	500 Units/Box
1N5402RLG	Axial Lead*	1200/Tape & Reel
1N5404G	Axial Lead*	500 Units/Box
1N5404RLG	Axial Lead*	1200/Tape & Reel
1N5406G	Axial Lead*	500 Units/Box
1N5406RLG	Axial Lead*	1200/Tape & Reel
1N5407G	Axial Lead*	500 Units/Box
1N5407RLG	Axial Lead*	1200/Tape & Reel
1N5408G	Axial Lead*	500 Units/Box
1N5408RLG	Axial Lead*	1200/Tape & Reel

†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.

\*This package is inherently Pb-Free.

# MECHANICAL CASE OUTLINE

## PACKAGE DIMENSIONS

ON Semiconductor®



### AXIAL LEAD CASE 267-05 ISSUE G

DATE 06/06/2000



SCALE 1:1



- NOTES:
1. DIMENSIONS AND TOLERANCING PER ANSI Y14.5M, 1982.
  2. CONTROLLING DIMENSION: INCH.
  3. 267-04 OBSOLETE, NEW STANDARD 267-05.

DIM	INCHES		MILLIMETERS	
	MIN	MAX	MIN	MAX
A	0.287	0.374	7.30	9.50
B	0.189	0.209	4.80	5.30
D	0.047	0.051	1.20	1.30
K	1.000	---	25.40	---

STYLE 1:  
PIN 1. CATHODE (POLARITY BAND)  
2. ANODE

STYLE 2:  
NO POLARITY

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