

1N4001, 1N4002, 1N4003, 1N4004, 1N4005, 1N4006, 1N4007

1N4004 and 1N4007 are Preferred Devices

Axial Lead Standard Recovery Rectifiers

This data sheet provides information on subminiature size, axial lead mounted rectifiers for general-purpose low-power applications.

Features

- Shipped in plastic bags, 1000 per bag
- Available Tape and Reeled, 5000 per reel, by adding a "RL" suffix to the part number
- Available in Fan-Fold Packaging, 3000 per box, by adding a "FF" suffix to the part number
- These devices are manufactured with a Pb-Free external lead finish only*

Mechanical Characteristics

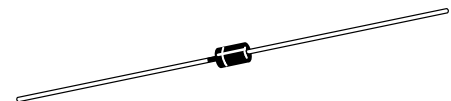
- Case: Epoxy, Molded
- Weight: 0.4 gram (approximately)
- Finish: All External Surfaces Corrosion Resistant and Terminal Leads are Readily Solderable
- Lead and Mounting Surface Temperature for Soldering Purposes: 220°C Max. for 10 Seconds, 1/16 in. from case
- Polarity: Cathode Indicated by Polarity Band



ON Semiconductor®

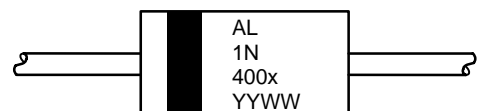
<http://onsemi.com>

LEAD MOUNTED RECTIFIERS 50–1000 VOLTS DIFFUSED JUNCTION



**CASE 59–10
AXIAL LEAD
PLASTIC**

MARKING DIAGRAM



AL = Assembly Location
1N400x = Device Number
x = 1, 2, 3, 4, 5, 6 or 7
YY = Year
WW = Work Week

ORDERING INFORMATION

See detailed ordering and shipping information on page 3 of this data sheet.

Preferred devices are recommended choices for future use and best overall value.

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

1N4001, 1N4002, 1N4003, 1N4004, 1N4005, 1N4006, 1N4007

MAXIMUM RATINGS

| Rating | Symbol | 1N4001 | 1N4002 | 1N4003 | 1N4004 | 1N4005 | 1N4006 | 1N4007 | 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 (halfwave, single phase, 60 Hz) | V_{RSM} | 60 | 120 | 240 | 480 | 720 | 1000 | 1200 | V |
| *RMS Reverse Voltage | $V_{R(RMS)}$ | 35 | 70 | 140 | 280 | 420 | 560 | 700 | V |
| *Average Rectified Forward Current (single phase, resistive load, 60 Hz, $T_A = 75^\circ\text{C}$) | I_O | 1.0 | | | | | | | A |
| *Non-Repetitive Peak Surge Current (surge applied at rated load conditions) | I_{FSM} | 30 (for 1 cycle) | | | | | | | A |
| Operating and Storage Junction Temperature Range | T_J T_{stg} | -65 to +175 | | | | | | | $^\circ\text{C}$ |

Maximum ratings are those values beyond which device damage can occur. Maximum ratings applied to the device are individual stress limit values (not normal operating conditions) and are not valid simultaneously. If these limits are exceeded, device functional operation is not implied, damage may occur and reliability may be affected.

ELECTRICAL CHARACTERISTICS*

| Rating | Symbol | Typ | Max | Unit |
|--|-------------|-------------|----------|---------------|
| Maximum Instantaneous Forward Voltage Drop, ($I_F = 1.0$ Amp, $T_J = 25^\circ\text{C}$) | V_F | 0.93 | 1.1 | V |
| Maximum Full-Cycle Average Forward Voltage Drop, ($I_O = 1.0$ Amp, $T_L = 75^\circ\text{C}$, 1 inch leads) | $V_{F(AV)}$ | – | 0.8 | V |
| Maximum Reverse Current (rated DC voltage) ($T_J = 25^\circ\text{C}$) ($T_J = 100^\circ\text{C}$) | I_R | 0.05 1.0 | 10 50 | μA |
| Maximum Full-Cycle Average Reverse Current, ($I_O = 1.0$ Amp, $T_L = 75^\circ\text{C}$, 1 inch leads) | $I_{R(AV)}$ | – | 30 | μA |

*Indicates JEDEC Registered Data

1N4001, 1N4002, 1N4003, 1N4004, 1N4005, 1N4006, 1N4007

ORDERING INFORMATION

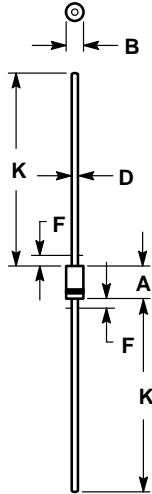
| Device | Package | Shipping† |
|----------|------------|------------------|
| 1N4001 | Axial Lead | 1000 Units/Bag |
| 1N4001FF | Axial Lead | 3000 Units/Box |
| 1N4001RL | Axial Lead | 5000/Tape & Reel |
| 1N4002 | Axial Lead | 1000 Units/Bag |
| 1N4002FF | Axial Lead | 3000 Units/Box |
| 1N4002RL | Axial Lead | 5000/Tape & Reel |
| 1N4003 | Axial Lead | 1000 Units/Bag |
| 1N4003FF | Axial Lead | 3000 Units/Box |
| 1N4003RL | Axial Lead | 5000/Tape & Reel |
| 1N4004 | Axial Lead | 1000 Units/Bag |
| 1N4004FF | Axial Lead | 3000 Units/Box |
| 1N4004RL | Axial Lead | 5000/Tape & Reel |
| 1N4005 | Axial Lead | 1000 Units/Bag |
| 1N4005FF | Axial Lead | 3000 Units/Box |
| 1N4005RL | Axial Lead | 5000/Tape & Reel |
| 1N4006 | Axial Lead | 1000 Units/Bag |
| 1N4006FF | Axial Lead | 3000 Units/Box |
| 1N4006RL | Axial Lead | 5000/Tape & Reel |
| 1N4007 | Axial Lead | 1000 Units/Bag |
| 1N4007FF | Axial Lead | 3000 Units/Box |
| 1N4007RL | Axial Lead | 5000/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.

1N4001, 1N4002, 1N4003, 1N4004, 1N4005, 1N4006, 1N4007

PACKAGE DIMENSIONS


AXIAL LEAD CASE 59-10 ISSUE S



NOTES:

1. DIMENSIONING AND TOLERANCING PER ANSI Y14.5M, 1982.
2. CONTROLLING DIMENSION: INCH.
3. 59-04 OBSOLETE, NEW STANDARD 59-09.
4. 59-03 OBSOLETE, NEW STANDARD 59-10.
5. ALL RULES AND NOTES ASSOCIATED WITH JEDEC DO-41 OUTLINE SHALL APPLY.
6. POLARITY DENOTED BY CATHODE BAND.
7. LEAD DIAMETER NOT CONTROLLED WITHIN F DIMENSION.

| DIM | INCHES | | MILLIMETERS | |
|-----|--------|-------|-------------|------|
| | MIN | MAX | MIN | MAX |
| A | 0.161 | 0.205 | 4.10 | 5.20 |
| B | 0.079 | 0.106 | 2.00 | 2.70 |
| D | 0.028 | 0.034 | 0.71 | 0.86 |
| F | --- | 0.050 | --- | 1.27 |
| K | 1.000 | --- | 25.40 | --- |

ON Semiconductor and  are registered trademarks of Semiconductor Components Industries, LLC (SCILLC). SCILLC reserves the right to make changes without further notice to any products herein. SCILLC makes no warranty, representation or guarantee regarding the suitability of its products for any particular purpose, nor does SCILLC assume any liability arising out of the application or use of any product or circuit, and specifically disclaims any and all liability, including without limitation special, consequential or incidental damages. "Typical" parameters which may be provided in SCILLC data sheets and/or specifications can and do vary in different applications and actual performance may vary over time. All operating parameters, including "Typicals" must be validated for each customer application by customer's technical experts. SCILLC does not convey any license under its patent rights nor the rights of others. SCILLC products are not designed, intended, or authorized for use as components in systems intended for surgical implant into the body, or other applications intended to support or sustain life, or for any other application in which the failure of the SCILLC product could create a situation where personal injury or death may occur. Should Buyer purchase or use SCILLC products for any such unintended or unauthorized application, Buyer shall indemnify and hold SCILLC and its officers, employees, subsidiaries, affiliates, and distributors harmless against all claims, costs, damages, and expenses, and reasonable attorney fees arising out of, directly or indirectly, any claim of personal injury or death associated with such unintended or unauthorized use, even if such claim alleges that SCILLC was negligent regarding the design or manufacture of the part. SCILLC is an Equal Opportunity/Affirmative Action Employer. This literature is subject to all applicable copyright laws and is not for resale in any manner.

PUBLICATION ORDERING INFORMATION

LITERATURE FULFILLMENT:

Literature Distribution Center for ON Semiconductor
P.O. Box 61312, Phoenix, Arizona 85082-1312 USA
Phone: 480-829-7710 or 800-344-3860 Toll Free USA/Canada
Fax: 480-829-7709 or 800-344-3867 Toll Free USA/Canada
Email: orderlit@onsemi.com

N. American Technical Support: 800-282-9855 Toll Free
USA/Canada

Japan: ON Semiconductor, Japan Customer Focus Center
2-9-1 Kamimeguro, Meguro-ku, Tokyo, Japan 153-0051
Phone: 81-3-5773-3850

ON Semiconductor Website: <http://onsemi.com>

Order Literature: <http://www.onsemi.com/litorder>

For additional information, please contact your
local Sales Representative.

This datasheet has been download from:

www.datasheetcatalog.com

Datasheets for electronics components.