

Distributed by:



www.Jameco.com ♦ 1-800-831-4242

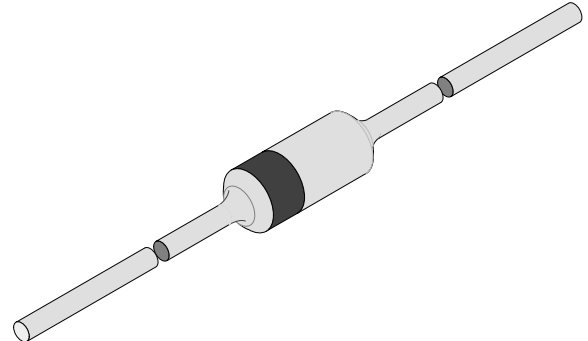
The content and copyrights of the attached material are the property of its owner.



Fast Switching Diodes

Features

- Silicon Epitaxial Planar Diodes
- Electrically equivalent diodes:
1N4148 – 1N914
1N4448 – 1N914B



94 9367

Applications

Extreme fast switches

Order Instruction

| Type | Type Differentiation | Ordering Code | Remarks |
|--------|--|---------------|---------------|
| 1N4148 | $V_{RRM} = 100 \text{ V}$, $V_F@I_F 10\text{mA} = 1 \text{ V}$ | 1N4148-TAP | Ammopack |
| | | 1N4148-TR | Tape and Reel |
| 1N4448 | $V_{RRM} = 100 \text{ V}$, $V_F@I_F 100\text{mA} = 1 \text{ V}$ | 1N4448-TAP | Ammopack |
| | | 1N4448-TR | Tape and Reel |

Absolute Maximum Ratings

 $T_j = 25^\circ\text{C}$

| Parameter | Test Conditions | Type | Symbol | Value | Unit |
|---------------------------------|--|------|-----------|------------|------------------|
| Repetitive peak reverse voltage | | | V_{RRM} | 100 | V |
| Reverse voltage | | | V_R | 75 | V |
| Peak forward surge current | $t_p=1\mu\text{s}$ | | I_{FSM} | 2 | A |
| Repetitive peak forward current | | | I_{FRM} | 500 | mA |
| Forward current | | | I_F | 300 | mA |
| Average forward current | $V_R=0$ | | I_{FAV} | 150 | mA |
| Power dissipation | $l=4 \text{ mm}$, $T_L=45^\circ\text{C}$ | | P_V | 440 | mW |
| | $l=4 \text{ mm}$, $T_L \leq 25^\circ\text{C}$ | | P_V | 500 | mW |
| Junction temperature | | | T_j | 200 | $^\circ\text{C}$ |
| Storage temperature range | | | T_{stg} | -65...+200 | $^\circ\text{C}$ |

Maximum Thermal Resistance

 $T_j = 25^\circ\text{C}$

| Parameter | Test Conditions | Symbol | Value | Unit |
|------------------|--|------------|-------|------|
| Junction ambient | $l=4 \text{ mm}$, $T_L=\text{constant}$ | R_{thJA} | 350 | K/W |

Electrical Characteristics

$T_j = 25^\circ\text{C}$

| Parameter | Test Conditions | Type | Symbol | Min | Typ | Max | Unit |
|--------------------------|---|--------|------------|------|-----|------|---------------|
| Forward voltage | $I_F=5\text{mA}$ | 1N4448 | V_F | 0.62 | | 0.72 | V |
| | $I_F=10\text{mA}$ | 1N4148 | V_F | | | 1 | V |
| | $I_F=100\text{mA}$ | 1N4448 | V_F | | | 1 | V |
| Reverse current | $V_R=20\text{ V}$ | | I_R | | | 25 | nA |
| | $V_R=20\text{ V}, T_j=150^\circ\text{C}$ | | I_R | | | 50 | μA |
| | $V_R=75\text{ V}$ | | I_R | | | 5 | μA |
| Breakdown voltage | $I_R=100\mu\text{A}, t_p/T=0.01, t_p=0.3\text{ms}$ | | $V_{(BR)}$ | 100 | | | V |
| Diode capacitance | $V_R=0, f=1\text{MHz}, V_{HF}=50\text{mV}$ | | C_D | | | 4 | pF |
| Rectification efficiency | $V_{HF}=2\text{V}, f=100\text{MHz}$ | | η_r | 45 | | | % |
| Reverse recovery time | $I_F=I_R=10\text{mA}, i_R=1\text{mA}$ | | t_{rr} | | | 8 | ns |
| | $I_F=10\text{mA}, V_R=6\text{V}, i_R=0.1 \times I_R, R_L=100\Omega$ | | t_{rr} | | | 4 | ns |

Characteristics ($T_j = 25^\circ\text{C}$ unless otherwise specified)

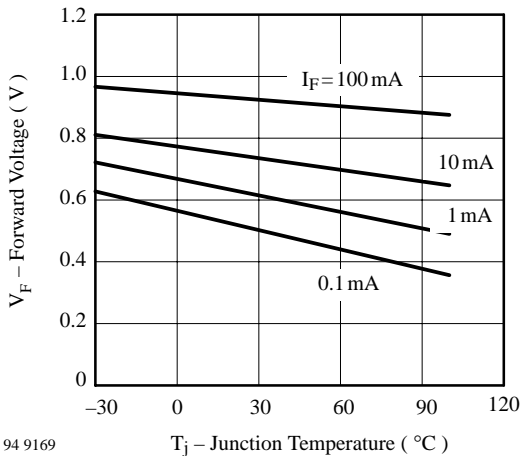


Figure 1. Forward Voltage vs. Junction Temperature

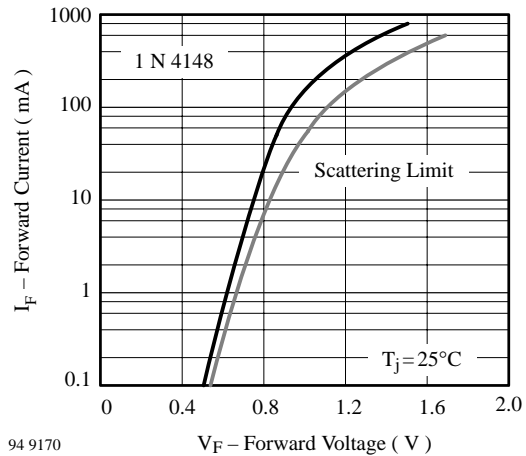


Figure 2. Forward Current vs. Forward Voltage

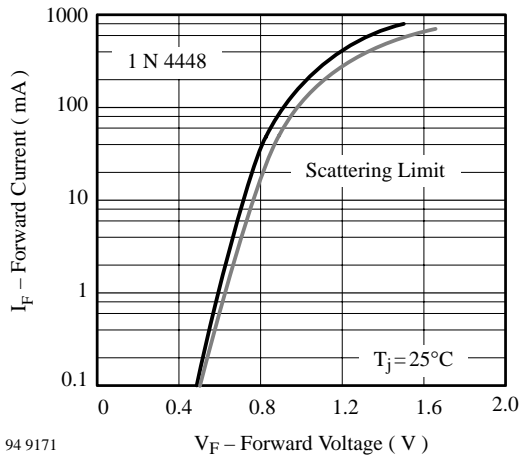


Figure 3. Forward Current vs. Forward Voltage

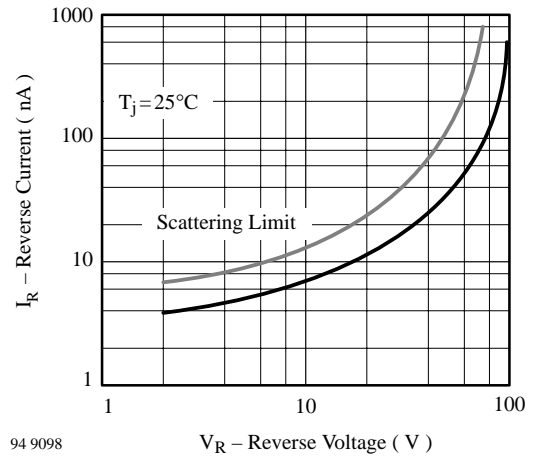


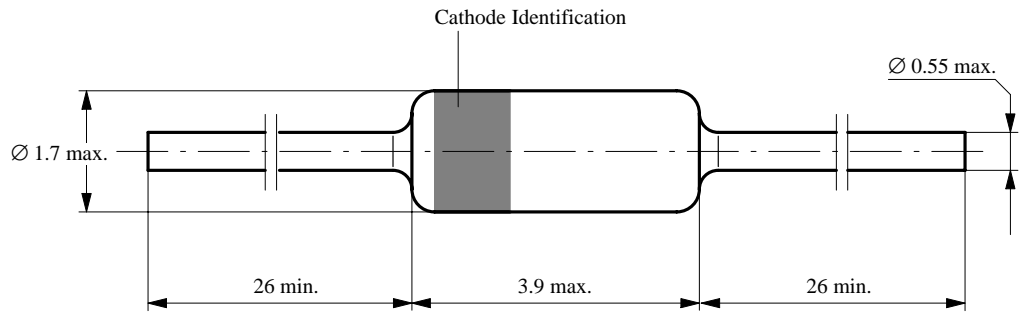
Figure 4. Reverse Current vs. Reverse Voltage

Dimensions in mm

technical drawings
 according to DIN
 specifications

 94 9366

Standard Glass Case
 54 A 2 DIN 41880
 JEDEC DO 35
 Weight max. 0.3g



Ozone Depleting Substances Policy Statement

It is the policy of **Vishay Semiconductor GmbH** to

1. Meet all present and future national and international statutory requirements.
2. Regularly and continuously improve the performance of our products, processes, distribution and operating systems with respect to their impact on the health and safety of our employees and the public, as well as their impact on the environment.

It is particular concern to control or eliminate releases of those substances into the atmosphere which are known as ozone depleting substances (ODSs).

The Montreal Protocol (1987) and its London Amendments (1990) intend to severely restrict the use of ODSs and forbid their use within the next ten years. Various national and international initiatives are pressing for an earlier ban on these substances.

Vishay Semiconductor GmbH has been able to use its policy of continuous improvements to eliminate the use of ODSs listed in the following documents.

1. Annex A, B and list of transitional substances of the Montreal Protocol and the London Amendments respectively
2. Class I and II ozone depleting substances in the Clean Air Act Amendments of 1990 by the Environmental Protection Agency (EPA) in the USA
3. Council Decision 88/540/EEC and 91/690/EEC Annex A, B and C (transitional substances) respectively.

Vishay Semiconductor GmbH can certify that our semiconductors are not manufactured with ozone depleting substances and do not contain such substances.

We reserve the right to make changes to improve technical design and may do so without further notice.

Parameters can vary in different applications. All operating parameters must be validated for each customer application by the customer. Should the buyer use Vishay-Semiconductors products for any unintended or unauthorized application, the buyer shall indemnify Vishay-Telefunken against all claims, costs, damages, and expenses, arising out of, directly or indirectly, any claim of personal damage, injury or death associated with such unintended or unauthorized use.

Vishay Semiconductor GmbH, P.O.B. 3535, D-74025 Heilbronn, Germany
Telephone: 49 (0) 7131 67 2831, Fax number: 49 (0) 7131 67 2423