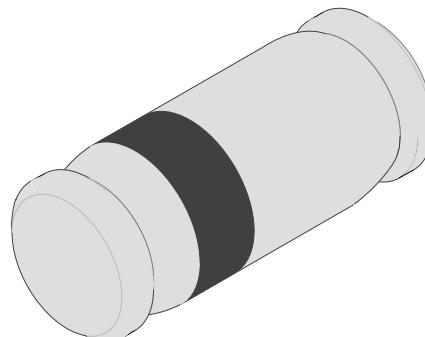




## Fast Switching Diode

### Features

- Silicon Epitaxial Planar Diodes
- Electrical data identical with the devices 1N4148 and 1N4448 respectively



94 9371

### Applications

Extreme fast switches

### Order Instruction

| Type   | Type Differentiation   | Ordering Code | Remarks       |
|--------|--|---------------|---------------|
| LL4148 | $V_{RRM} = 100\text{ V}$ , $V_F@I_F 50\text{mA} = 1\text{ V}$  | LL4148 – GS08 | Tape and Reel |
| LL4448 | $V_{RRM} = 100\text{ V}$ , $V_F@I_F 100\text{mA} = 1\text{ V}$ | LL4448 – GS08 | 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               |                    |      | $P_V$     | 500        | mW               |
| Junction temperature            |                    |      | $T_j$     | 175        | $^\circ\text{C}$ |
| Storage temperature range       |                    |      | $T_{stg}$ | -65...+175 | $^\circ\text{C}$ |

### Maximum Thermal Resistance

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

| Parameter        | Test Conditions             | Symbol     | Value | Unit |
|------------------|-----------------------------|------------|-------|------|
| Junction ambient | on PC board 50mmx50mmx1.6mm | $R_{thJA}$ | 500   | K/W  |

## Electrical Characteristics

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

| Parameter                | Test Conditions   | Type   | Symbol     | Min  | Typ  | Max  | Unit          |
|--------------------------|---|--------|------------|------|------|------|---------------|
| Forward voltage          | $I_F=5\text{mA}$  | LL4448 | $V_F$      | 0.62 |      | 0.72 | V             |
|                          | $I_F=50\text{mA}$   | LL4148 | $V_F$      |      | 0.86 | 1    | V             |
|                          | $I_F=100\text{mA}$  | LL4448 | $V_F$      |      | 0.93 | 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   | $\mu\text{A}$ |
|                          | $V_R=75\text{V}$  |        | $I_R$      |      |      | 5    | $\mu\text{A}$ |
| 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 | $V_{HF}=2\text{V}, f=100\text{MHz}$                         |        | $\eta_r$   | 45   |      |      | %             |
| Reverse recovery time    | $I_F=I_R=10\text{mA}, i_R=1\text{mA}$                       |        | $t_{rr}$   |      |      | 8    | ns            |
|                          | $I_F=10\text{mA}, V_R=6\text{V}, i_R=0.1I_R, R_L=100\Omega$ |        | $t_{rr}$   |      |      | 4    | ns            |

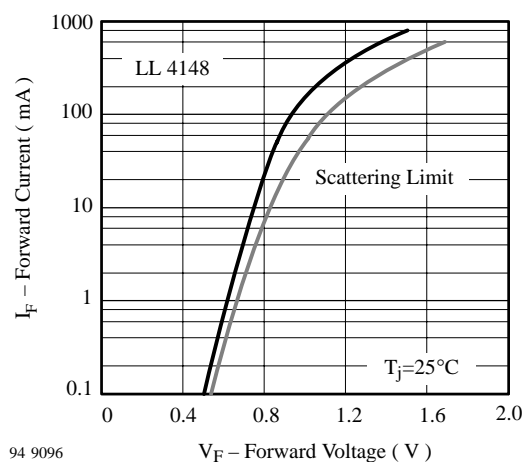
Characteristics ( $T_j = 25^\circ\text{C}$  unless otherwise specified)

Figure 1. Forward Current vs. Forward Voltage

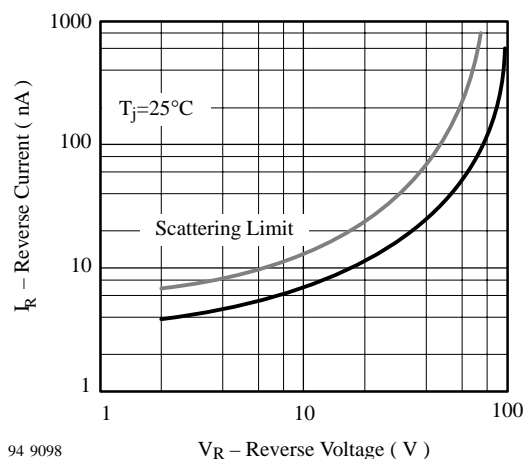


Figure 3. Reverse Current vs. Reverse Voltage

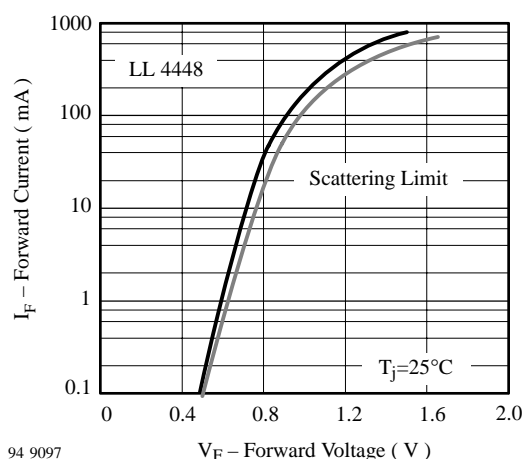


Figure 2. Forward Current vs. Forward Voltage

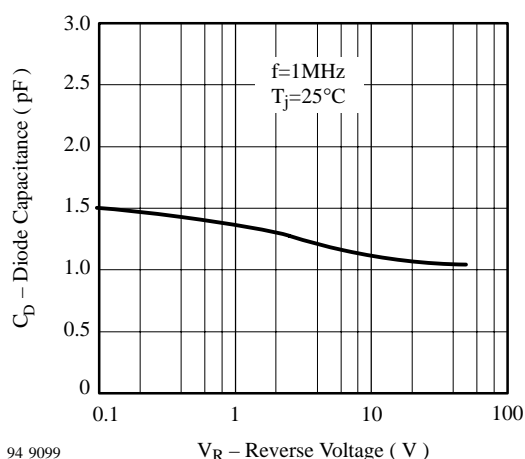
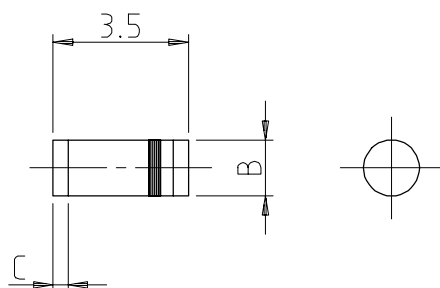


Figure 4. Diode Capacitance vs. Reverse Voltage

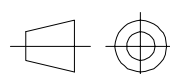


Dimensions in mm



| MiniMELF             |      |      |
|----------------------|------|------|
| Dim                  | Min  | Max  |
| A                    | 3.30 | 3.70 |
| B                    | 1.30 | 1.60 |
| C                    | 0.28 | 0.50 |
| All Dimensions in mm |      |      |

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technical drawings  
according to DIN  
specifications

## **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-Semiconductors 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.

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