

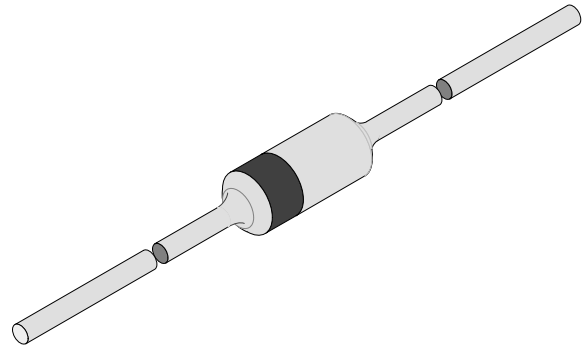
Silicon Epitaxial Planar Diodes

Features

- Electrically equivalent diodes:
1N4148 – 1N914
1N4448 – 1N914B

Applications

Extreme fast switches



94 9367

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 |

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 |

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

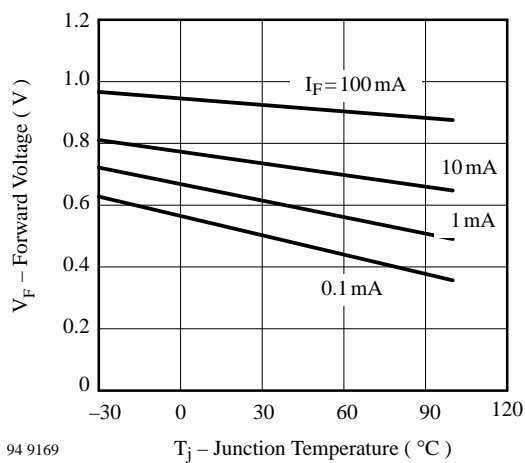


Figure 1. Forward Voltage vs. Junction Temperature

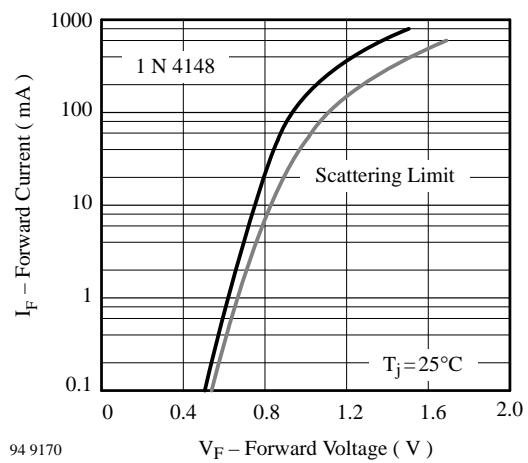


Figure 2. Forward Current vs. Forward Voltage

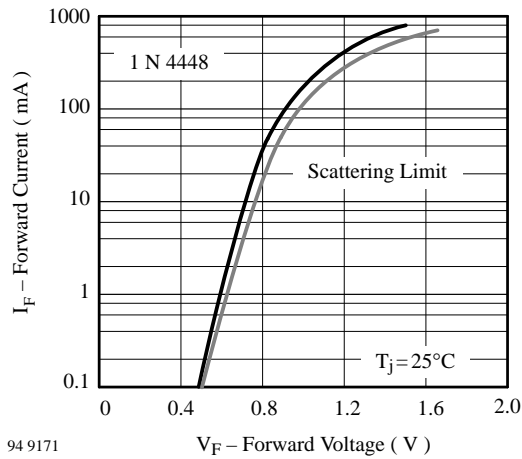


Figure 3. Forward Current vs. Forward Voltage

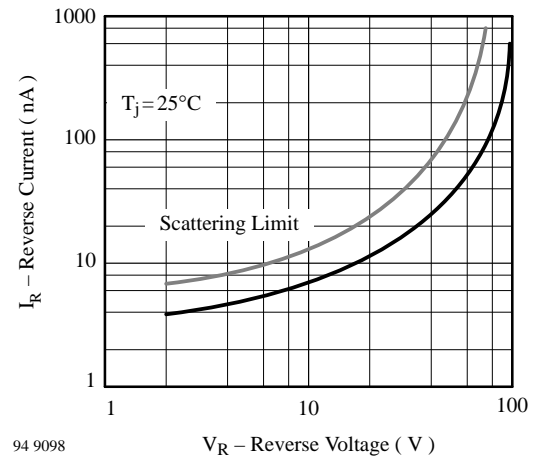


Figure 4. Reverse Current vs. Reverse Voltage

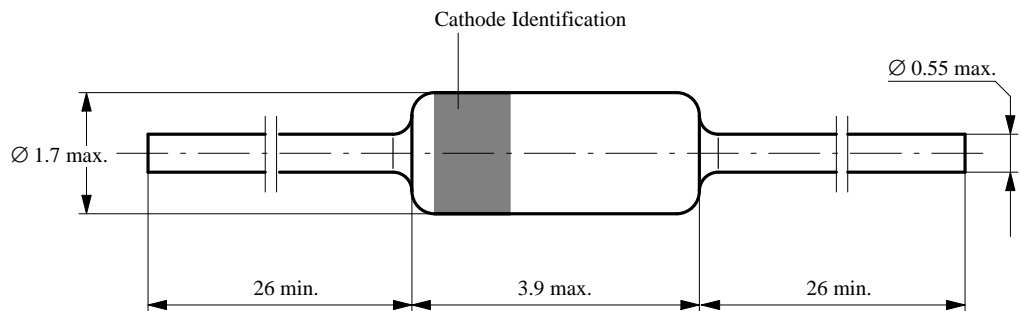
Dimensions in mm



technical drawings
according to DIN
specifications

94 9366

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



Ozone Depleting Substances Policy Statement

It is the policy of **TEMIC TELEFUNKEN microelectronic 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.

TEMIC TELEFUNKEN microelectronic GmbH semiconductor division 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.

TEMIC 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 TEMIC products for any unintended or unauthorized application, the buyer shall indemnify TEMIC 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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