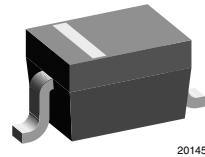




Small Signal Fast Switching Diode

Features

- These diodes are also available in other case styles including the DO35 case with the type designation 1N4148, the MiniMELF case with the type designation LL4148, and the SOT23 case with the type designation IMBD4148-V
- Silicon epitaxial planar diode
- Fast switching diodes
- Lead (Pb)-free component
- Component in accordance to RoHS 2002/95/EC and WEEE 2002/96/EC



Mechanical Data

Case: SOD323 plastic case

Weight: approx. 4.3 mg

Packaging Codes/Options:

GS18/10 k per 13" reel (8 mm tape), 10 k/box

GS08/3 k per 7" reel (8 mm tape), 15 k/box

Parts Table

| Part | Ordering code | Type Marking | Remarks |
|------------|------------------------------------|--------------|---------------|
| 1N4148WS-V | 1N4148WS-V-GS18 or 1N4148WS-V-GS08 | A2 | Tape and Reel |

Absolute Maximum Ratings

T_{amb} = 25 °C, unless otherwise specified

| Parameter | Test condition | Symbol | Value | Unit |
|---|------------------------------------|--------------------|-------------------|------|
| Reverse voltage | | V _R | 75 | V |
| Repetitive peak reverse voltage | | V _{RRM} | 100 | V |
| Average rectified current half wave rectification with resistive load | f ≥ 50 Hz | I _{F(AV)} | 150 ¹⁾ | mA |
| Surge forward current | t < 1 s and T _j = 25 °C | I _{FSM} | 350 | mA |
| Power dissipation | | P _{tot} | 200 ¹⁾ | mW |

Note:

¹⁾ Valid provided that electrodes are kept at ambient temperature.

Thermal Characteristics

$T_{amb} = 25\text{ }^{\circ}\text{C}$, unless otherwise specified

| Parameter | Test condition | Symbol | Value | Unit |
|--|----------------|------------|-------------------|--------------------|
| Thermal resistance junction to ambient air | | R_{thJA} | 650 ¹⁾ | K/W |
| Junction temperature | | T_j | 150 | $^{\circ}\text{C}$ |
| Storage temperature | | T_{stg} | - 65 to + 150 | $^{\circ}\text{C}$ |

Note:

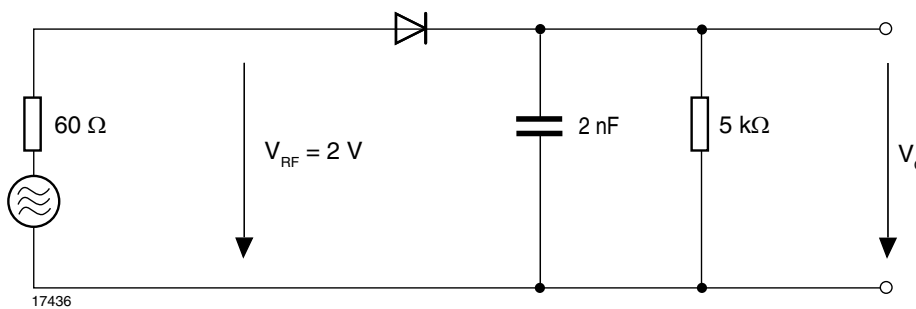
1) Valid provided that electrodes are kept at ambient temperature.

Electrical Characteristics

$T_{amb} = 25\text{ }^{\circ}\text{C}$, unless otherwise specified

| Parameter | Test condition | Symbol | Min | Typ. | Max | Unit |
|--|--|----------|------|------|------|---------------|
| Forward voltage | $I_F = 10\text{ mA}$ | V_F | | | 1000 | mV |
| | $I_F = 100\text{ mA}$ | V_F | | | 1200 | mV |
| Leakage current | $V_R = 20\text{ V}$ | I_R | | | 25 | nA |
| | $V_R = 75\text{ V}$ | I_R | | | 5 | μA |
| | $V_R = 100\text{ V}$ | I_R | | | 100 | μA |
| | $V_R = 20\text{ V}, T_j = 150\text{ }^{\circ}\text{C}$ | I_R | | | 50 | μA |
| Diode capacitance | $V_F = V_R = 0\text{ V}$ | C_D | | | 4 | pF |
| Voltage rise when switching ON (tested with 50 mA pulses) | tested with 50 mA pulses, $t_p = 0.1\text{ }\mu\text{s}$, rise time < 30 ns, $f_p = (5\text{ to }100)\text{ kHz}$ | V_{fr} | | | 2.5 | V |
| Reverse recovery time | $I_F = 10\text{ mA}, I_R = 1\text{ mA}, V_R = 6\text{ V},$ $R_L = 100\text{ }\Omega$ | t_{rr} | | | 4 | ns |
| Rectification efficiency | $f = 100\text{ MHz}, V_{RF} = 2\text{ V}$ | η_V | 0.45 | | | |

Rectification Efficiency Measurement Circuit





Typical Characteristics

$T_{amb} = 25\text{ }^{\circ}\text{C}$, unless otherwise specified

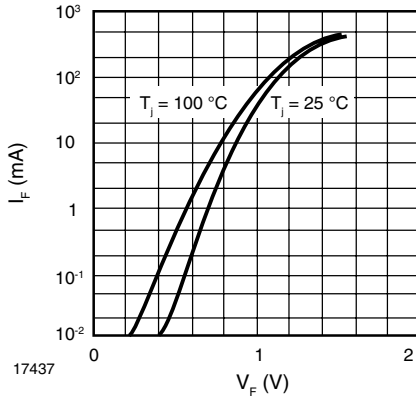


Figure 1. Forward characteristics

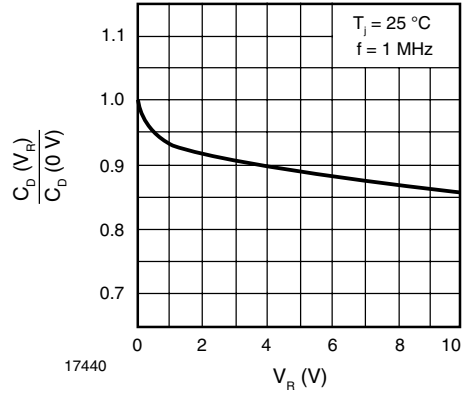


Figure 4. Relative Capacitance vs. Reverse Voltage

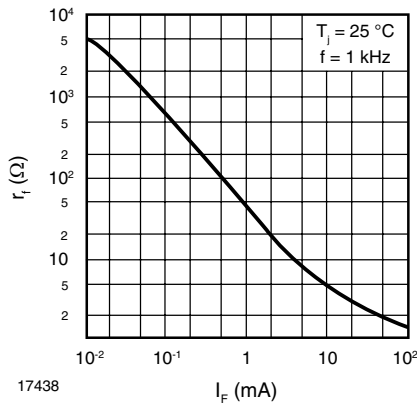


Figure 2. Dynamic Forward Resistance vs. Forward Current

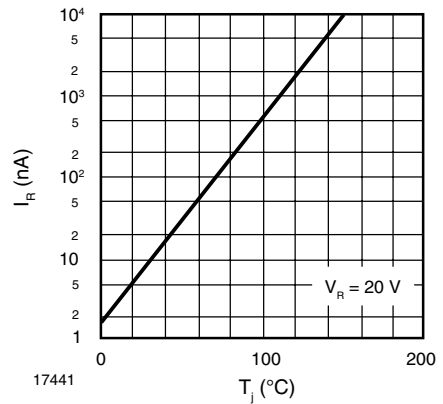


Figure 5. Leakage Current vs. Junction Temperature

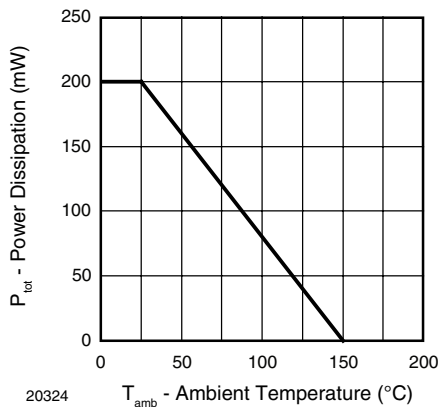


Figure 3. Admissible Power Dissipation vs. Ambient Temperature

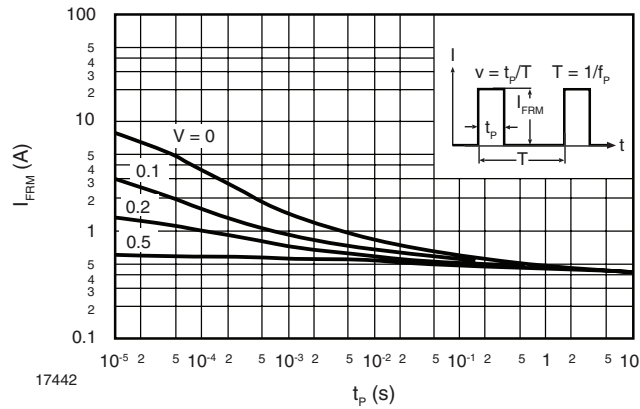
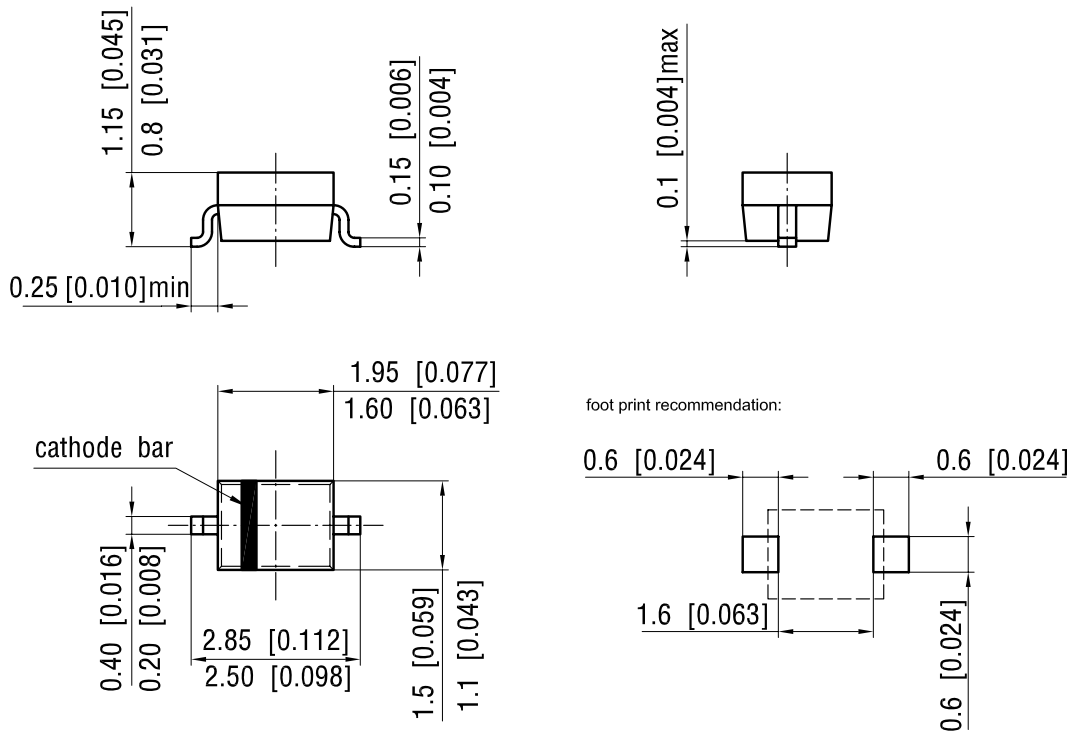


Figure 6. Admissible Repetitive Peak Forward Current vs. Pulse Duration

Package Dimensions in millimeters (inches): SOD323



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 17443



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.

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Vishay Semiconductor GmbH, P.O.B. 3535, D-74025 Heilbronn, Germany

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