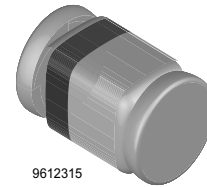


Small Signal Schottky Diodes

Features

- Integrated protection ring against static discharge
- Low capacitance
- Low leakage current
- Low forward voltage drop
- Lead (Pb)-free component
- Component in accordance to RoHS 2002/95/EC and WEEE 2002/96/EC



9612315

Applications

- HF-Detector
- Protection circuit
- Diode for low currents with a low supply voltage
- Small battery charger
- Power supplies
- DC / DC converter for notebooks

Mechanical Data

Case: MicroMELF Glass case

Weight: approx. 12 mg

Cathode Band Color: Black

Packaging Codes/Options:

TR3 / 10 k per 13" reel (8 mm tape), 10 k/box

TR / 2.5 k per 7" reel (8 mm tape), 12.5 k/box

Parts Table

| Part | Type differentiation | Ordering code | Remarks |
|---------|--|---------------------------|---------------|
| MCL101A | $V_R = 60\text{ V}$, V_F at $I_F 1\text{ mA}$ max. 410 mV | MCL101A-TR3 or MCL101A-TR | Tape and Reel |
| MCL101B | $V_R = 50\text{ V}$, V_F at $I_F 1\text{ mA}$ max. 400 mV | MCL101B-TR3 or MCL101B-TR | Tape and Reel |
| MCL101C | $V_R = 40\text{ V}$, V_F at $I_F 1\text{ mA}$ max. 390 mV | MCL101C-TR3 or MCL101C-TR | Tape and Reel |

Absolute Maximum Ratings

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

| Parameter | Test condition | Part | Symbol | Value | Unit |
|---------------------------------|-------------------------------|---------|-----------|-------|------|
| Reverse voltage | | MCL101A | V_R | 60 | V |
| | | MCL101B | V_R | 50 | V |
| | | MCL101C | V_R | 40 | V |
| Peak forward surge current | $t_p = 10\text{ }\mu\text{s}$ | | I_{FSM} | 2 | A |
| Repetitive peak forward current | | | I_{FRM} | 150 | mA |
| Forward continuous current | | | I_F | 30 | mA |

Thermal Characteristics

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

| Parameter | Test condition | Symbol | Value | Unit |
|---------------------------|---------------------------------------|------------|---------------|--------------------|
| Junction to ambient air | on PC board 50 mm x 50 mm x 1.6 mm | R_{thJA} | 320 | K/W |
| Junction temperature | | T_j | 125 | $^{\circ}\text{C}$ |
| Storage temperature range | | T_{stg} | - 65 to + 150 | $^{\circ}\text{C}$ |

Electrical Characteristics

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

| Parameter | Test condition | Part | Symbol | Min | Typ. | Max | Unit |
|---------------------------|--------------------------------------|---------|-------------|-----|------|------|------|
| Reverse Breakdown Voltage | $I_R = 10\text{ }\mu\text{A}$ | MCL101A | $V_{(BR)R}$ | 60 | | | V |
| | | MCL101B | $V_{(BR)R}$ | 50 | | | V |
| | | MCL101C | $V_{(BR)R}$ | 40 | | | V |
| Leakage current | $V_R = 50\text{ V}$ | MCL101A | I_R | | | 200 | nA |
| | $V_R = 40\text{ V}$ | MCL101B | I_R | | | 200 | nA |
| | $V_R = 30\text{ V}$ | MCL101C | I_R | | | 200 | nA |
| Forward voltage drop | $I_F = 1\text{ mA}$ | MCL101A | V_F | | | 410 | mV |
| | | MCL101B | V_F | | | 400 | mV |
| | | MCL101C | V_F | | | 390 | mV |
| | $I_F = 15\text{ mA}$ | MCL101A | V_F | | | 1000 | mV |
| | | MCL101B | V_F | | | 950 | mV |
| | | MCL101C | V_F | | | 900 | mV |
| Diode capacitance | $V_R = 0\text{ V}, f = 1\text{ MHz}$ | MCL101A | C_D | | | 2.0 | pF |
| | | MCL101B | C_D | | | 2.1 | pF |
| | | MCL101C | C_D | | | 2.2 | pF |

Typical Characteristics

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

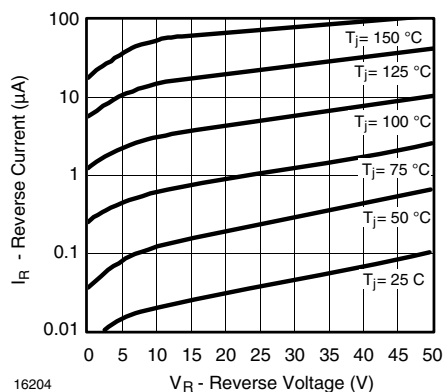


Figure 1. Reverse Current vs. Reverse Voltage

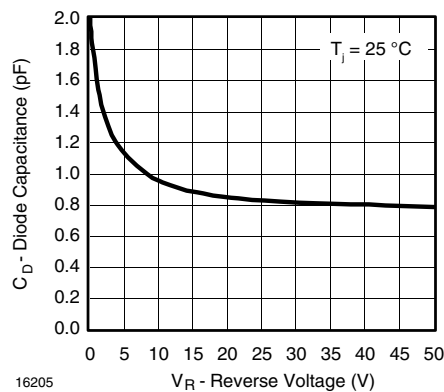


Figure 2. Diode Capacitance vs. Reverse Voltage

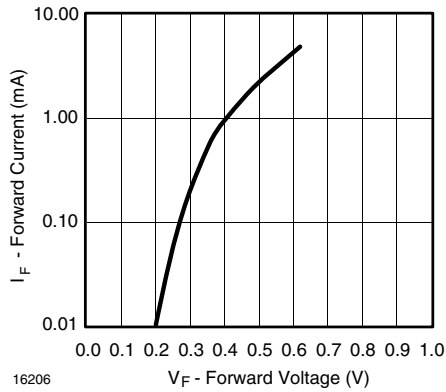
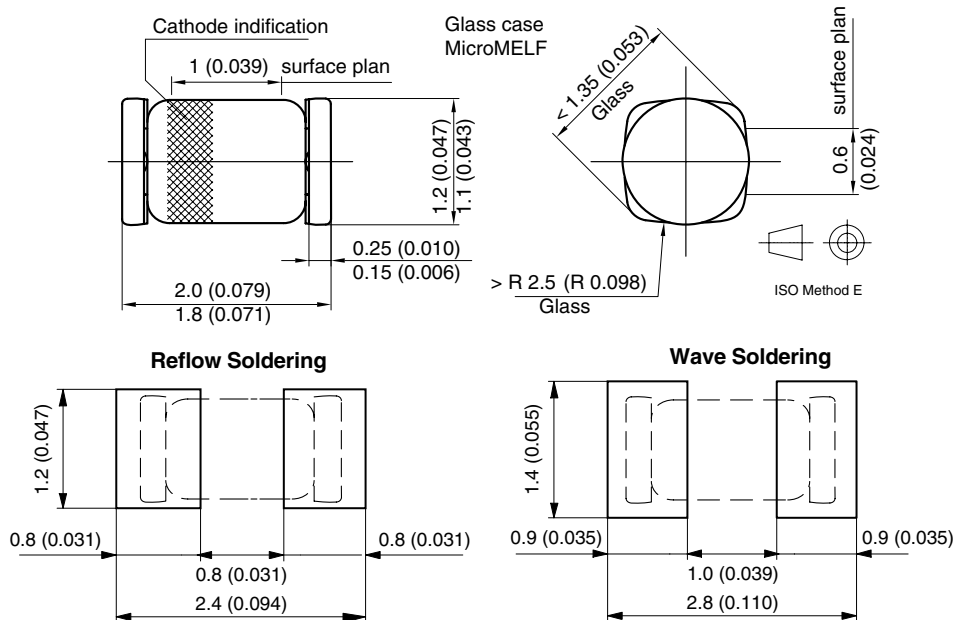


Figure 3. Forward Current vs. Forward Voltage

Package Dimensions in mm (Inches)



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 9612072

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.

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



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