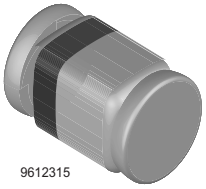
# Small Signal Schottky Diodes

## 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




## Applications

- IHF-Detector
- Protection circuit
- Small battery charger
- AC-DC / DC-DC converters

## Mechanical Data

**Case:** MicroMELF Glass case
**Weight:** approx. 12 mg
**Cathode Band Color:** Black
**Packaging Codes/Options:**
GS18 / 10 k per 13" reel (8 mm tape), 10 k/box
GS08 / 2.5 k per 7" reel (8 mm tape), 12.5 k/box

## Parts Table

| Part | Type differentiation | Ordering code | Remarks |
|---|---|---|---|
| MCL103A | $V_R$ = 40 V, $V_F$ at $I_F$ 20 mA max. 0.37 V | MCL103A-GS18 or MCL103A-GS08 | Tape and Reel |
| MCL103B | $V_R$ = 30 V, $V_F$ at $I_F$ 20 mA max. 0.37 V | MCL103B-GS18 or MCL103B-GS08 | Tape and Reel |
| MCL103C | $V_R$ = 20 V, $V_F$ at $I_F$ 20 mA max. 0.37 V | MCL103C-GS18 or MCL103C-GS08 | Tape and Reel |

## Absolute Maximum Ratings

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

| Parameter | Test condition | Part | Symbol | Value | Unit |
|---|---|---|---|---|---|
| Reverse voltage | | MCL103A | $V_R$ | 40 | V |
| | | MCL103B | $V_R$ | 30 | V |
| | | MCL103C | $V_R$ | 20 | V |
| Peak forward surge current | $t_p$ = 300 µs, square pulse | | $I_{FSM}$ | 15 | A |
| Power dissipation | l = 4 mm, $T_L$ = constant | | $P_{tot}$ | 400 | mW |

## Thermal Characteristics

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

| Parameter | Test condition | Symbol | Value | Unit |
|---|---|---|---|---|
| Junction ambient | l = 4 mm, $T_L$ = constant | $R_{thJA}$ | 250 | K/W |
| Junction temperature | | $T_j$ | 125 | °C |
| Storage temperature range | | $T_{stg}$ | - 65 to + 150 | °C |

## Electrical Characteristics

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

| Parameter | Test condition | Part | Symbol | Min | Typ. | Max | Unit |
|---|---|---|---|---|---|---|---|
| Reverse Breakdown Voltage | $I_R$ = 10 µA | MCL103A | $V_{(BR)R}$ | 40 | | | V |
| | | MCL103B | $V_{(BR)R}$ | 30 | | | V |
| | | MCL103C | $V_{(BR)R}$ | 20 | | | V |
| Leakage current | $V_R$ = 30 V | MCL103A | $I_R$ | | | 5 | µA |
| | $V_R$ = 20 V | MCL103B | $I_R$ | | | 5 | µA |
| | $V_R$ = 10 V | MCL103C | $I_R$ | | | 5 | µA |
| Forward voltage drop | $I_F$ = 20 mA | | $V_F$ | | | 0.37 | V |
| | $I_F$ = 200 mA | | $V_F$ | | | 0.6 | V |
| Diode capacitance | $V_R$ = 0 V, f = 1 MHz | | $C_D$ | | 50 | | pF |
| Reverse recovery time | $I_F$ = $I_R$ = 50 to 200 mA, recover to 0.1 $I_R$ | | $t_{rr}$ | | 10 | | ns |

## Typical Characteristics

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

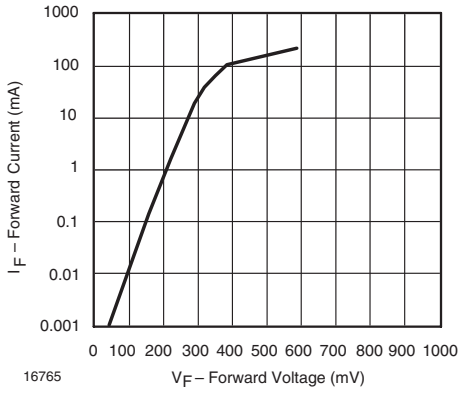



Figure 1. Forward Current vs. Forward Voltage

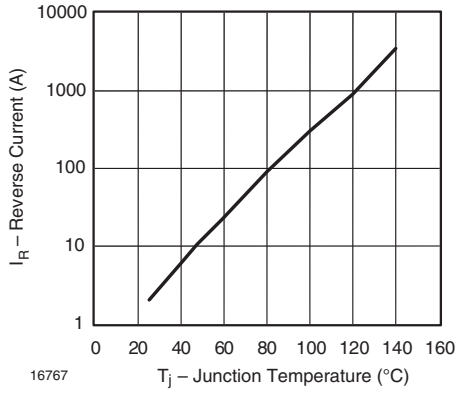



Figure 3. Reverse Current vs. Junction Temperature

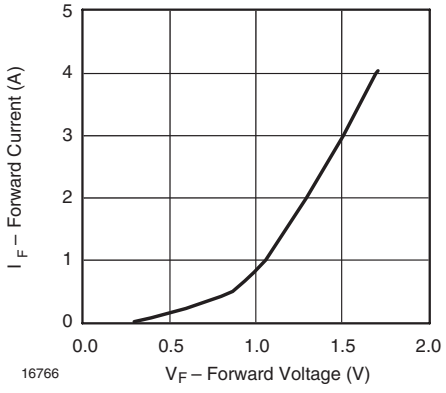



Figure 2. Forward Current vs. Forward Voltage

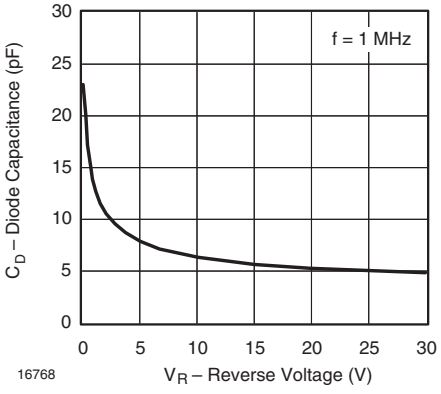



Figure 4. Diode Capacitance vs. Reverse Voltage

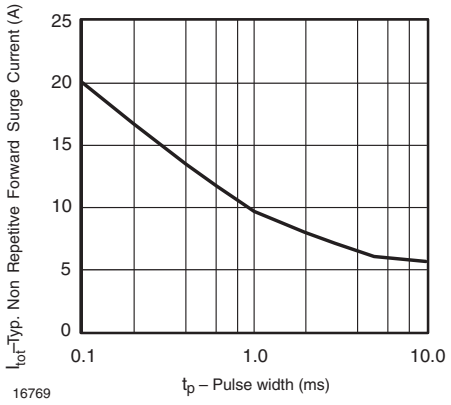
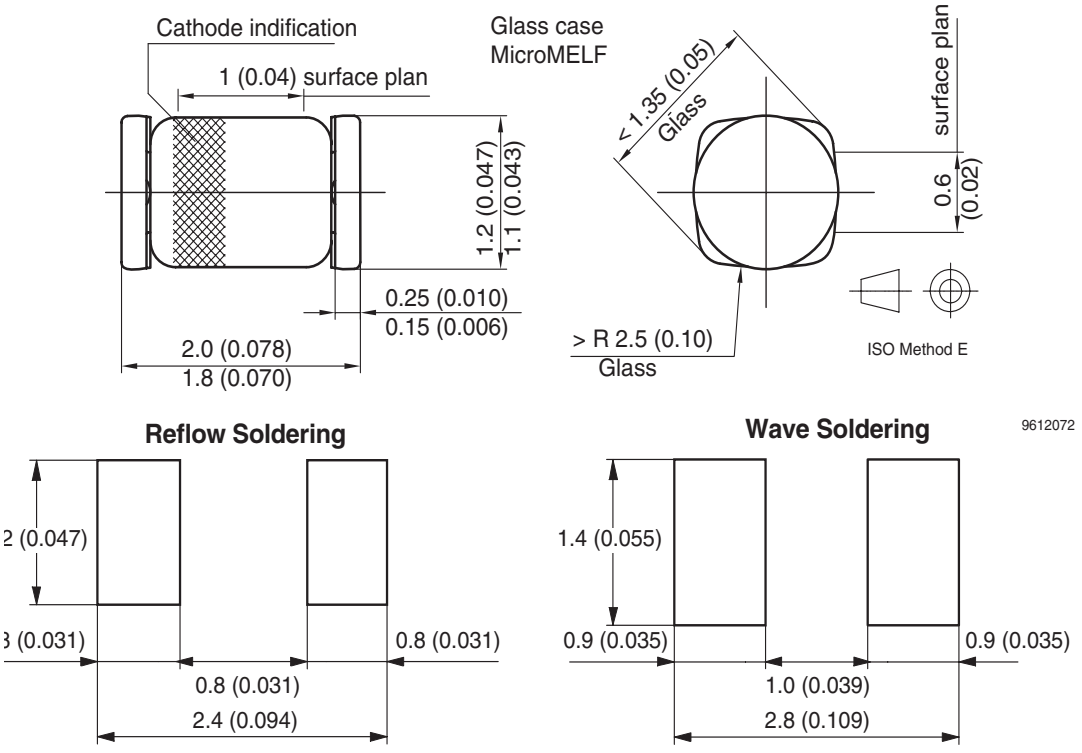



Figure 5. Typ. Non Repetitive Forward Surge Current vs. Pulse width

## Package Dimensions in mm (Inches)



## 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.



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