



# LS103A / 103B / 103C

Vishay Semiconductors

## Small Signal Schottky Barrier Diodes

### Features

- Integrated protection ring against static discharge
- Low capacitance
- Low leakage current
- Low forward voltage drop

### Applications

HF-Detector

Protection circuit

Small battery charger

AC-DC / DC-DC converters

### Mechanical Data

**Case:**QuadroMELF Glass Case (SOD-80)

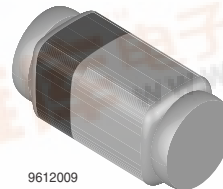
**Weight:** approx. 34 mg

**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



9612009

### Parts Table

| Part   | Type differentiation                                               | Ordering code              | Remarks       |
|--------|--------------------------------------------------------------------|----------------------------|---------------|
| LS103A | $V_R = 40\text{ V}$ , $V_F @ I_F 20\text{ mA max. } 0.37\text{ V}$ | LS103A-GS18 or LS103A-GS08 | Tape and Reel |
| LS103B | $V_R = 30\text{ V}$ , $V_F @ I_F 20\text{ mA max. } 0.37\text{ V}$ | LS103B-GS18 or LS103B-GS08 | Tape and Reel |
| LS103C | $V_R = 20\text{ V}$ , $V_F @ I_F 20\text{ mA max. } 0.37\text{ V}$ | LS103C-GS18 or LS103C-GS08 | Tape and Reel |

### Absolute Maximum Ratings

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

| Parameter                  | Test condition                                | Part   | Symbol    | Value | Unit |
|----------------------------|-----------------------------------------------|--------|-----------|-------|------|
| Reverse voltage            |                                               | LS103A | $V_R$     | 40    | V    |
|                            |                                               | LS103B | $V_R$     | 30    | V    |
|                            |                                               | LS103C | $V_R$     | 20    | V    |
| Peak forward surge current | $t_p = 300\text{ }\mu\text{s}$ , square pulse |        | $I_{FSM}$ | 15    | A    |
| Power dissipation          | $l = 4\text{ mm}$ , $T_L = \text{constant}$   |        | $P_{tot}$ | 400   | mW   |



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## Thermal Characteristics

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

| Parameter                 | Test condition                              | Symbol     | Value         | Unit               |
|---------------------------|---------------------------------------------|------------|---------------|--------------------|
| Junction ambient          | $I = 4\text{ mm}$ , $T_L = \text{constant}$ | $R_{thJA}$ | 250           | 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 | $I_R = 10\text{ }\mu\text{A}$                                             | LS103A | $V_{(BR)R}$ | 40  |      |      | V             |
|                           |                                                                           | LS103B | $V_{(BR)R}$ | 30  |      |      | V             |
|                           |                                                                           | LS103C | $V_{(BR)R}$ | 20  |      |      | V             |
| Leakage current           | $V_R = 30\text{ V}$                                                       | LS103A | $I_R$       |     |      | 5    | $\mu\text{A}$ |
|                           | $V_R = 20\text{ V}$                                                       | LS103B | $I_R$       |     |      | 5    | $\mu\text{A}$ |
|                           | $V_R = 10\text{ V}$                                                       | LS103C | $I_R$       |     |      | 5    | $\mu\text{A}$ |
| Forward voltage drop      | $I_F = 20\text{ mA}$                                                      |        | $V_F$       |     |      | 0.37 | V             |
|                           | $I_F = 200\text{ mA}$                                                     |        | $V_F$       |     |      | 0.6  | V             |
| Diode capacitance         | $V_R = 0\text{ V}$ , $f = 1\text{ MHz}$                                   |        | $C_D$       |     | 50   |      | pF            |
| Reverse recovery time     | $I_F = I_R = 50\text{ to }200\text{ mA}$ ,<br>recover to $0.1\text{ }I_R$ |        | $t_{rr}$    |     | 10   |      | ns            |

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

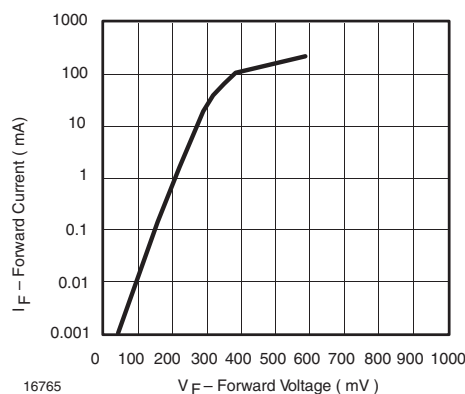


Fig. 1 Forward Current vs. Forward Voltage

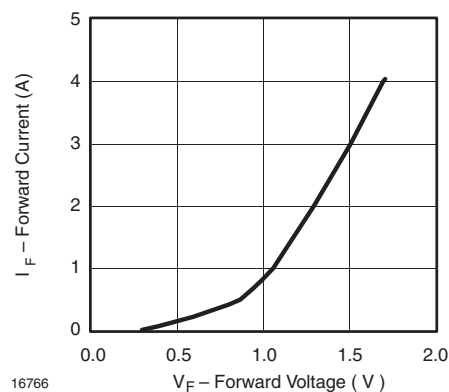


Fig. 2 Forward Current vs. Forward Voltage



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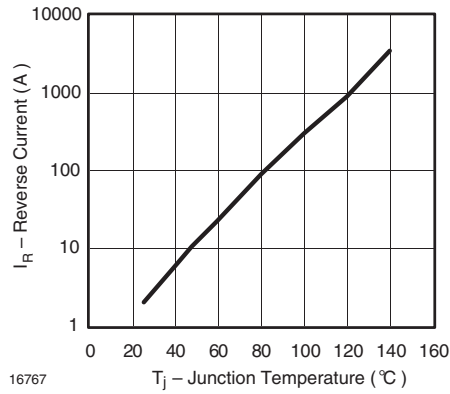


Fig. 3 Reverse Current vs. Junction Temperature

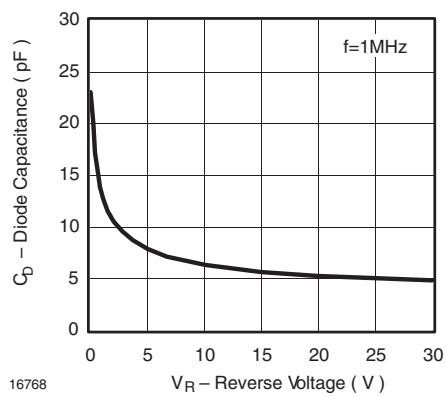


Fig. 4 Diode Capacitance vs. Reverse Voltage

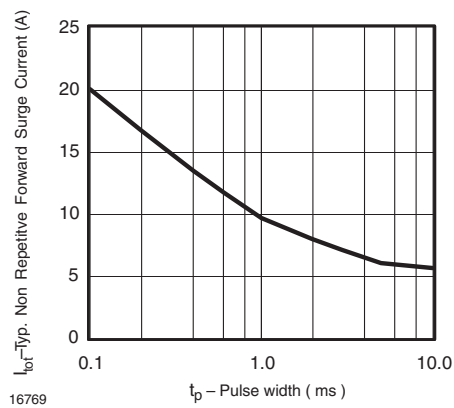


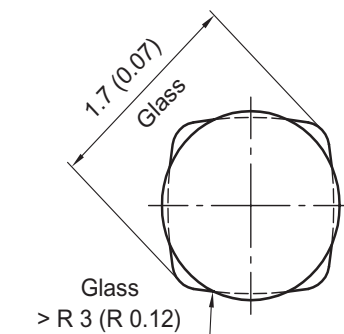
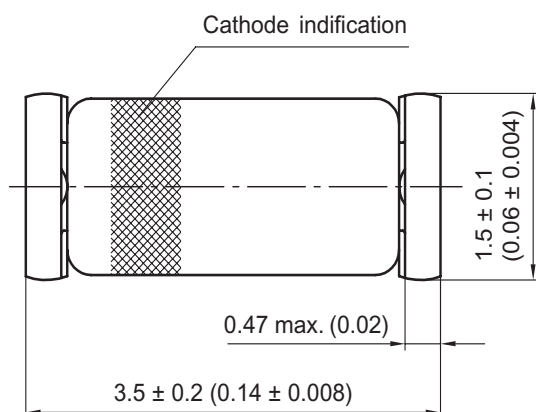
Fig. 5 Typ. Non Repetitive Forward Surge Current vs. Pulse width

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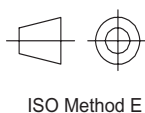
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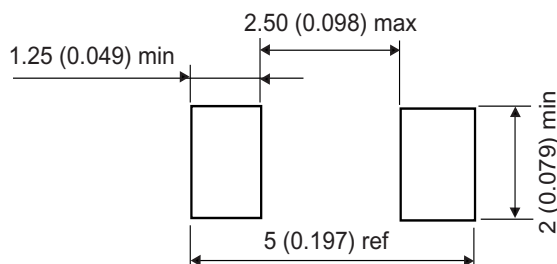
## Package Dimensions in mm (Inches)



## Mounting Pad Layout



ISO Method E



Glass case  
Quadro Melf / SOD 80  
JEDEC DO 213 AA

96 12071



## 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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