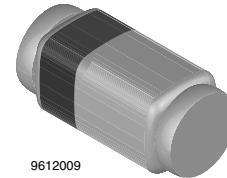


## Small Signal Fast Switching Diodes

### Features

- Silicon Epitaxial Planar Diodes
- Electrical data identical with the devices 1N4148 and 1N4448 respectively
- Quadro Melf package
- Lead (Pb)-free component
- Component in accordance to RoHS 2002/95/EC and WEEE 2002/96/EC



### Applications

- Extremely fast switches

### Mechanical Data

**Case:** QuadroMELF Glass case (SOD80)

**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

### Parts Table

Part	Type differentiation	Ordering code	Type Marking	Remarks
LS4148	$V_F = \text{max. } 1000 \text{ mV at } I_F = 50 \text{ mA}$	LS4148-GS18 or LS4148-GS08	-	Tape and Reel
LS4448	$V_F = \text{max. } 1000 \text{ mV at } I_F = 100 \text{ mA}$	LS4448-GS18 or LS4448-GS08	-	Tape and Reel

### Absolute Maximum Ratings

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

Parameter	Test condition	Symbol	Value	Unit
Repetitive peak reverse voltage		$V_{\text{RRM}}$	100	V
Reverse voltage		$V_R$	75	V
Peak forward surge current	$t_p = 1 \text{ } \mu\text{s}$	$I_{\text{FSM}}$	2	A
Repetitive peak forward current		$I_{\text{FRM}}$	500	mA
Forward continuous current		$I_F$	300	mA
Average forward current	$V_R = 0$	$I_{\text{FAV}}$	150	mA
Power dissipation		$P_{\text{tot}}$	500	mW

### Thermal Characteristics

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

Parameter	Test condition	Symbol	Value	Unit
Thermal resistance junction to ambient air	on PC board 50 mm x 50 mm x 1.6mm	$R_{\text{thJA}}$	500	K/W
Junction temperature		$T_j$	175	$^\circ\text{C}$
Storage temperature range		$T_{\text{stg}}$	- 65 to + 175	$^\circ\text{C}$

### Electrical Characteristics

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

Parameter	Test condition	Part	Symbol	Min	Typ.	Max	Unit
Forward voltage	$I_F = 5\text{ mA}$	LS4448	$V_F$	620		720	mV
	$I_F = 50\text{ mA}$	LS4148	$V_F$		860	1000	mV
	$I_F = 100\text{ mA}$	LS4448	$V_F$		930	1000	mV
Reverse current	$V_R = 20\text{ V}$		$I_R$			25	nA
	$V_R = 20\text{ V}, T_j = 150\text{ }^{\circ}\text{C}$		$I_R$			50	$\mu\text{A}$
	$V_R = 75\text{ V}$		$I_R$			5	$\mu\text{A}$
Breakdown voltage	$I_R = 100\text{ }\mu\text{A}, t_p/T = 0.01,$ $t_p = 0.3\text{ ms}$		$V_{(BR)}$	100			V
Diode capacitance	$V_R = 0, f = 1\text{ MHz}, V_{HF} = 50\text{ mV}$		$C_D$			4	pF
Rectification efficiency	$V_{HF} = 2\text{ V}, f = 100\text{ MHz}$		$\eta_r$	45			%
Reverse recovery time	$I_F = I_R = 10\text{ mA}, i_R = 1\text{ mA}$		$t_{rr}$			8	ns
	$I_F = 10\text{ mA}, V_R = 6\text{ V},$ $i_R = 0.1 \times I_R, R_L = 100\text{ }\Omega$		$t_{rr}$			4	ns

### Typical Characteristics

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

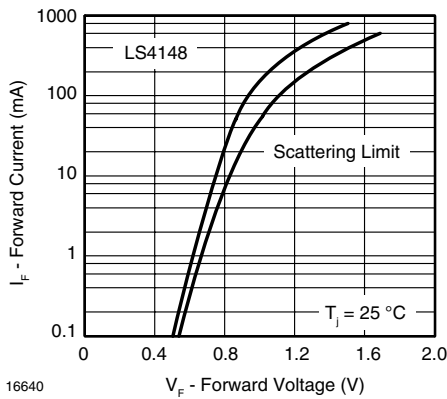


Figure 1. Forward Current vs. Forward Voltage

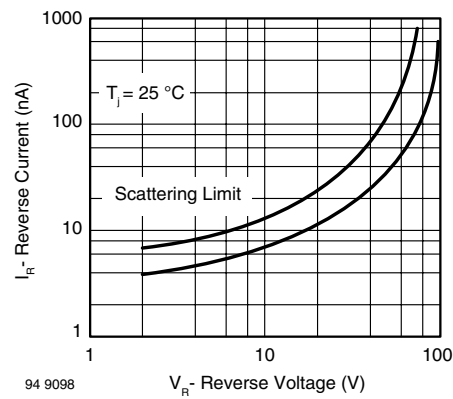


Figure 3. Reverse Current vs. Reverse Voltage

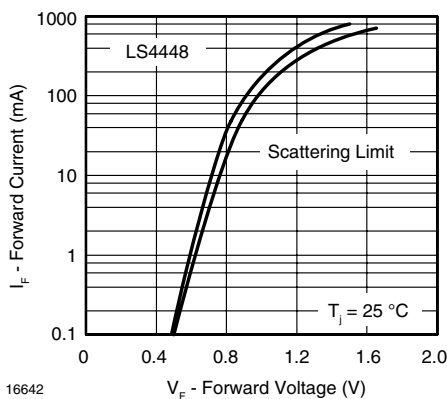


Figure 2. Forward Current vs. Forward Voltage

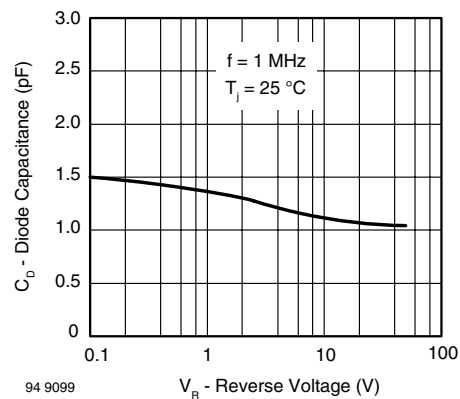
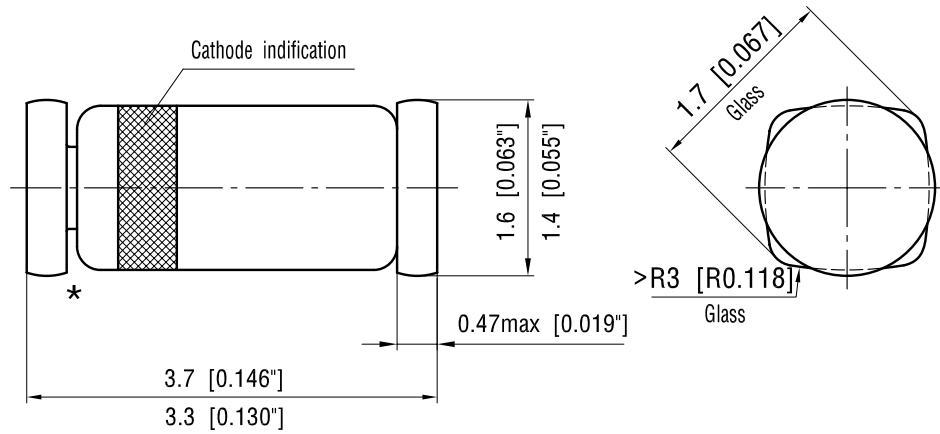
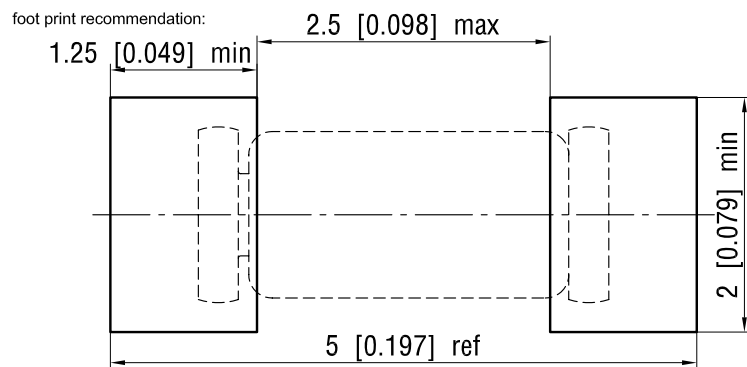


Figure 4. Diode Capacitance vs. Reverse Voltage

## Package Dimensions in millimeters (inches): Quadro MELF SOD80



★ The gap between plug and glass can be either on cathode or anode side



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### 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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