



# Small Signal Fast Switching Diodes



### FEATURES

- Silicon epitaxial planar diodes
- Electrical data identical with the devices 1N4148 and 1N4448 respectively
- QuadroMELF package
- AEC-Q101 qualified
- Material categorization: for definitions of compliance please see [www.vishay.com/doc?99912](http://www.vishay.com/doc?99912)



RoHS COMPLIANT

### APPLICATIONS

- Extremely fast switches

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### MECHANICAL DATA

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

**Weight:** approx. 34 mg

**Cathode band color:** black

**Packaging codes / options:**

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

GS08/2.5K per 7" reel (8 mm tape), 12.5K/box

PARTS TABLE					
PART	TYPE DIFFERENTIATION	ORDERING CODE	TYPE MARKING	CIRCUIT CONFIGURATION	REMARKS
LS4148	$V_F = \text{max. } 1000 \text{ mV at } I_F = 50 \text{ mA}$	LS4148-GS18 or LS4148-GS08	-	Single	Tape and reel
LS4448	$V_F = \text{max. } 1000 \text{ mV at } I_F = 100 \text{ mA}$	LS4448GS18 or LS4448GS08	-	Single	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	$V_R = 0$	$I_{\text{F(AV)}}$	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 1.6 mm	$R_{\text{thJA}}$	300	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 <sub>amb</sub> = 25 °C, unless otherwise specified)							
PARAMETER	TEST CONDITION	PART	SYMBOL	MIN.	TYP.	MAX.	UNIT
Forward voltage	I <sub>F</sub> = 5 mA	LS4448	V <sub>F</sub>	0.620		0.720	V
	I <sub>F</sub> = 50 mA	LS4148	V <sub>F</sub>		0.860	1	V
	I <sub>F</sub> = 100 mA	LS4448	V <sub>F</sub>		0.930	1	V
Reverse current	V <sub>R</sub> = 20 V		I <sub>R</sub>			25	nA
	V <sub>R</sub> = 20 V, T <sub>j</sub> = 150 °C		I <sub>R</sub>			50	μA
	V <sub>R</sub> = 75 V		I <sub>R</sub>			5	μA
Breakdown voltage	I <sub>R</sub> = 100 μA, t <sub>p</sub> /T = 0.01, t <sub>p</sub> = 0.3 ms		V <sub>(BR)</sub>	100			V
Diode capacitance	V <sub>R</sub> = 0, f = 1 MHz, V <sub>HF</sub> = 50 mV		C <sub>D</sub>			4	pF
Reverse recovery time	I <sub>F</sub> = I <sub>R</sub> = 10 mA, i <sub>R</sub> = 1 mA		t <sub>rr</sub>			8	ns
	I <sub>F</sub> = 10 mA, V <sub>R</sub> = 6 V, i <sub>R</sub> = 0.1 x I <sub>R</sub> , R <sub>L</sub> = 100 Ω		t <sub>rr</sub>			4	ns

**TYPICAL CHARACTERISTICS** (T<sub>amb</sub> = 25 °C, unless otherwise specified)

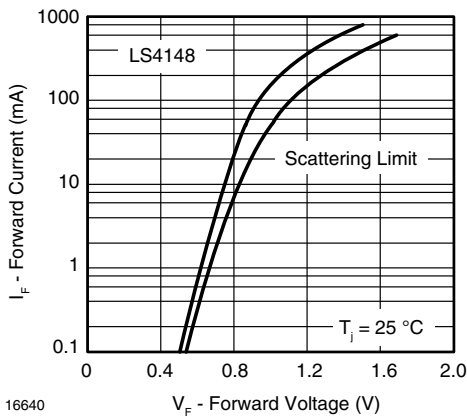


Fig. 1 - Forward Current vs. Forward Voltage

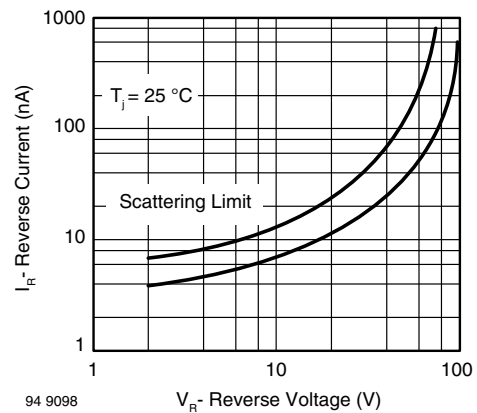


Fig. 3 - Reverse Current vs. Reverse Voltage

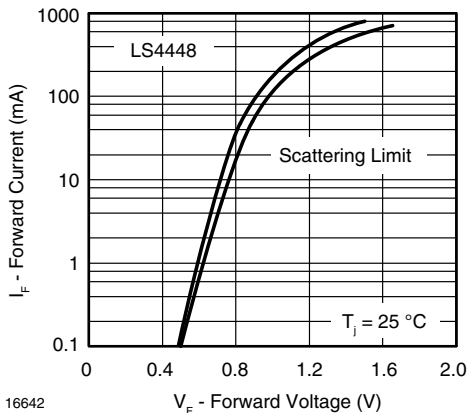


Fig. 2 - Forward Current vs. Forward Voltage

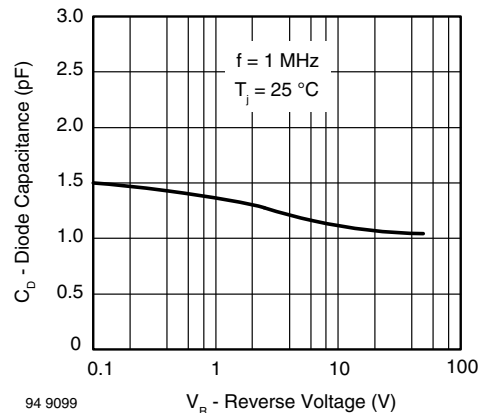
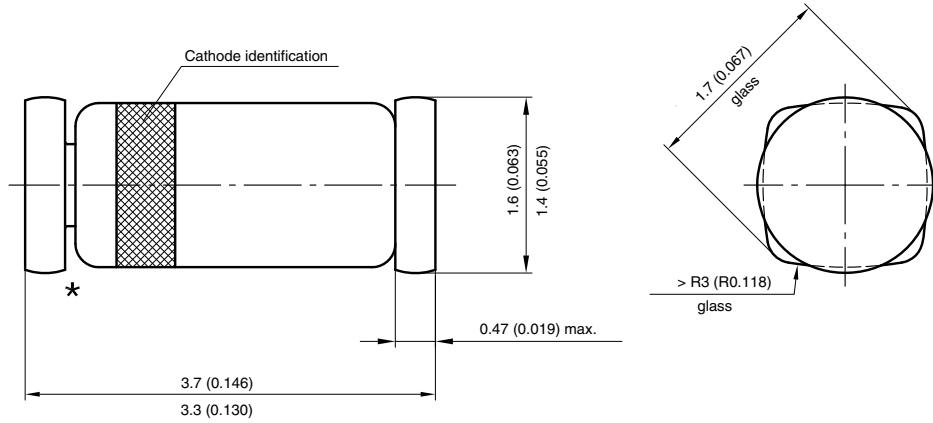
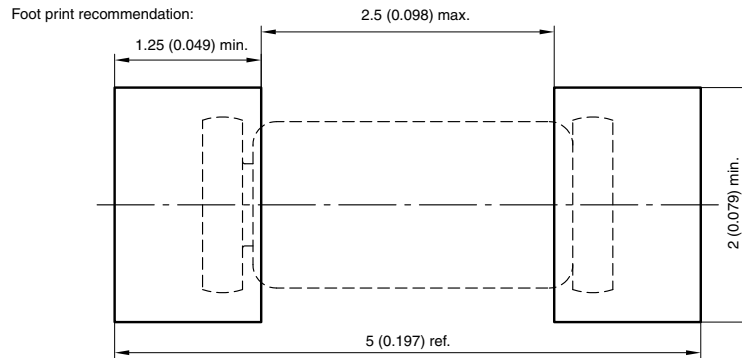


Fig. 4 - Diode Capacitance vs. Reverse Voltage

**PACKAGE DIMENSIONS** in millimeters (inches): **QuadroMELF (SOD-80)**



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



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