

## Vishay Semiconductors

# **Small Signal Fast Switching Diodes**



#### **FEATURES**

- Silicon epitaxial planar diodes
- Electrical data identical with the devices 1N4148 and 1N4448 respectively



QuadroMELF package

 Material categorization: for definitions of compliance please see www.vishay.com/doc?99912

# RoHS

#### **LINKS TO ADDITIONAL RESOURCES**









#### **APPLICATIONS**

Extremely fast switches

### **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	$V_F = max. 1000 \text{ mV}$ at $I_F = 50 \text{ mA}$	LS4148-GS18 or LS4148-GS08	-	Single	Tape and reel	
LS4448	$V_F = max. 1000 \text{ mV} \text{ at } I_F = 100 \text{ mA}$	LS4448GS18 or LS4448GS08	-	Single	Tape and reel	

ABSOLUTE MAXIMUM RATINGS (T <sub>amb</sub> = 25 °C, unless otherwise specified)						
PARAMETER	TEST CONDITION	SYMBOL	VALUE	UNIT		
Repetitive peak reverse voltage		$V_{RRM}$	100	V		
Reverse voltage		$V_R$	75	V		
Peak forward surge current	t <sub>p</sub> = 1 μs	I <sub>FSM</sub>	2	A		
Repetitive peak forward current		I <sub>FRM</sub>	500	mA		
Forward continuous current		I <sub>F</sub>	300	mA		
Average forward current	V <sub>R</sub> = 0	I <sub>F(AV)</sub>	150	mA		
Power dissipation		P <sub>tot</sub>	500	mW		

THERMAL CHARACTERISTICS (T <sub>amb</sub> = 25 °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 <sub>thJA</sub>	300	K/W		
Junction temperature		T <sub>j</sub>	175	°C		
Storage temperature range		T <sub>stg</sub>	-65 to +175	°C		



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<b>ELECTRICAL CHARACTERISTICS</b> (T <sub>amb</sub> = 25 °C, unless otherwise specified)							
PARAMETER	TEST CONDITION	PART	SYMBOL	MIN.	TYP.	MAX.	UNIT
	I <sub>F</sub> = 5 mA	LS4448	V <sub>F</sub>	0.620		0.720	V
Forward voltage	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
	V <sub>R</sub> = 20 V		I <sub>R</sub>			25	nA
Reverse current	V <sub>R</sub> = 20 V, T <sub>j</sub> = 150 °C		I <sub>R</sub>			50	μΑ
	V <sub>R</sub> = 75 V		I <sub>R</sub>			5	μΑ
Breakdown voltage	$I_R = 100 \mu A, t_p/T = 0.01,$ $t_p = 0.3 \text{ ms}$		V <sub>(BR)</sub>	100			V
Diode capacitance	$V_R = 0$ , $f = 1$ MHz, $V_{HF} = 50$ mV		C <sub>D</sub>			4	pF
	$I_F = I_R = 10 \text{ mA}, i_R = 1 \text{ mA}$		t <sub>rr</sub>			8	ns
Reverse recovery time	$I_F = 10 \text{ mA}, V_R = 6 \text{ V},$ $I_R = 0.1 \text{ x } I_R, R_L = 100 \Omega$		t <sub>rr</sub>			4	ns

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

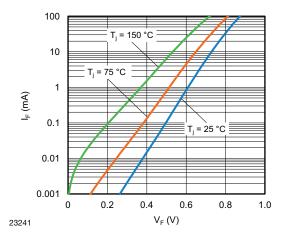


Fig. 1 - Forward Current vs. Forward Voltage

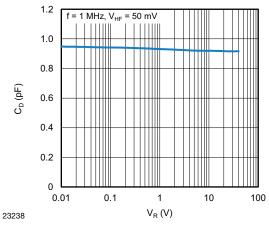


Fig. 3 - Typical Capacitance vs. Reverse Voltage

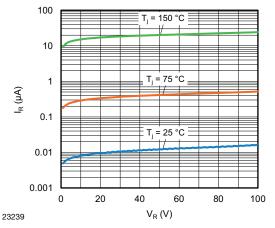
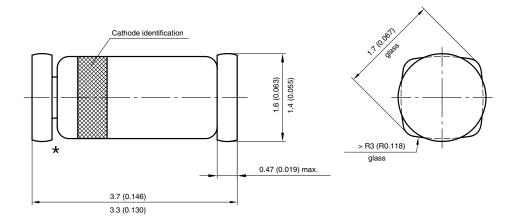


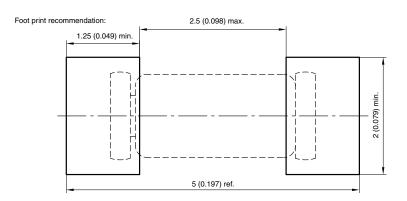
Fig. 2 - Typical Reverse Leakage Current vs. Reverse Voltage

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### 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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