

## Vishay Semiconductors

# **Small Signal Fast Switching Diodes**

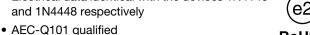


#### **FEATURES**

**APPLICATIONS** 

· Extreme fast switches

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



Single

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



Tape and reel

#### **DESIGN SUPPORT TOOLS** click logo to get started



#### **MECHANICAL DATA**

Case: MiniMELF (SOD-80) Weight: approx. 31 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

> $V_F = max. 1000 \text{ mV} \text{ at } I_F = 50 \text{ mA}$  $V_{RRM} = 100 V$

 $V_F = \text{max. } 1000 \text{ mV at } I_F = 100 \text{ mA}$ 

PARTS TABLE							
PART	TYPE DIFFERENTIATION	ORDERING CODE	TYPE MARKING	CIRCUIT CONFIGURATION	REMARKS		
LL4148	V <sub>RRM</sub> = 100 V,	LL4148-GS08 or LL4148-GS18	-	Single	Tape and reel		

LL4448-GS08 or LL4448-GS18

<b>ABSOLUTE MAXIMUM RATINGS</b> (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 <sub>R</sub>	75	V		
Peak forward surge current	t <sub>p</sub> = 1 μs	I <sub>FSM</sub>	2	Α		
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 (1)		P <sub>tot</sub>	500	mW		

LL4448

(1) Valid provided that electrodes are kept at ambient temperature

THERMAL CHARACTERISTICS (T <sub>amb</sub> = 25 °C, unless otherwise specified)						
PARAMETER	TEST CONDITION	SYMBOL	VALUE	UNIT		
Thermal resistance junction to ambient air (1)		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		

#### Note

(1) Valid provided that electrodes are kept at ambient temperature



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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	LL4448	$V_{F}$	0.620		0.720	V
Forward voltage	I <sub>F</sub> = 50 mA	LL4148	$V_{F}$		0.860	1	V
	I <sub>F</sub> = 100 mA	LL4448	V <sub>F</sub>		0.930	1	V
	V <sub>R</sub> = 20 V		I <sub>R</sub>			25	nA
Reverse current	$V_R = 20 \text{ V}, T_j = 150 ^{\circ}\text{C}$		I <sub>R</sub>			50	μΑ
	V <sub>R</sub> = 75 V		I <sub>R</sub>			5	μA
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	$V_R = 0 \text{ V, f} = 1 \text{ MHz,}$ $V_{HF} = 50 \text{ mV}$		C <sub>D</sub>			4	pF
Povorco rocovoru timo	$I_F = I_R = 10 \text{ mA},$ $i_R = 1 \text{ mA}$		t <sub>rr</sub>			8	- ns
Reverse recovery time	$I_F = 10 \text{ mA}, V_R = 6 \text{ V},$ $i_R = 0.1 \text{ x } I_R, R_L = 100 \Omega$					4	

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

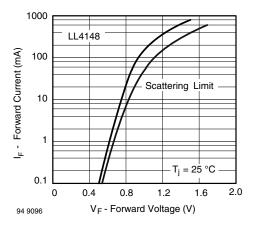


Fig. 1 - Forward Current vs. Forward Voltage

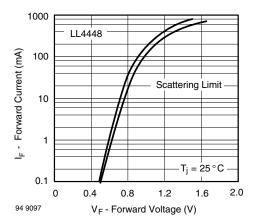


Fig. 2 - Forward Current vs. Forward Voltage

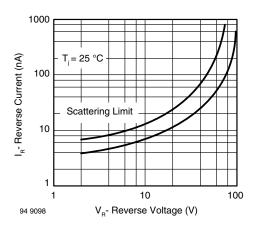


Fig. 3 - Reverse Current vs. Reverse Voltage

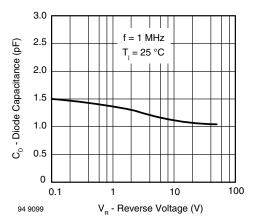
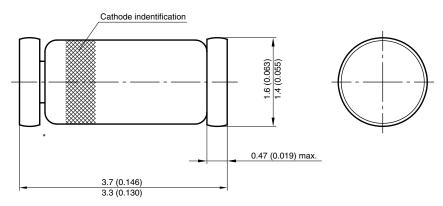


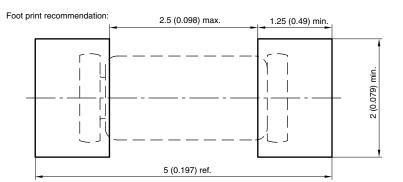
Fig. 4 - Diode Capacitance vs. Reverse Voltage

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#### PACKAGE DIMENSIONS in millimeters (inches): MiniMELF (SOD-80)



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



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