



### Small Signal Fast Switching Diodes



#### FEATURES

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

- Extreme fast switches

#### 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

| PARTS TABLE |   |                            |              |                       |               |
|-------------|---|----------------------------|--------------|-----------------------|---------------|
| PART        | TYPE DIFFERENTIATION  | ORDERING CODE              | TYPE MARKING | INTERNAL CONSTRUCTION | REMARKS       |
| LL4148      | $V_{RRM} = 100\text{ V}$ ,<br>$V_F = \text{max. } 1000\text{ mV at } I_F = 50\text{ mA}$  | LL4148-GS08 or LL4148-GS18 | -            | Single diode          | Tape and reel |
| LL4448      | $V_{RRM} = 100\text{ V}$ ,<br>$V_F = \text{max. } 1000\text{ mV at } I_F = 100\text{ mA}$ | LL4448-GS08 or LL4448-GS18 | -            | Single diode          | Tape and reel |

| ABSOLUTE MAXIMUM RATINGS ( $T_{amb} = 25\text{ }^\circ\text{C}$ , 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  | $t_p = 1\text{ }\mu\text{s}$ | $I_{FSM}$   | 2     | A    |
| Repetitive peak forward current   |                              | $I_{FRM}$   | 500   | mA   |
| Forward continuous current  |                              | $I_F$       | 300   | mA   |
| Average forward current   | $V_R = 0$                    | $I_{F(AV)}$ | 150   | mA   |
| Power dissipation <sup>(1)</sup>  |                              | $P_{tot}$   | 500   | mW   |

#### Note

<sup>(1)</sup> Valid provided that electrodes are kept at ambient temperature

| THERMAL CHARACTERISTICS ( $T_{amb} = 25\text{ }^\circ\text{C}$ , unless otherwise specified) |                |            |               |                  |
|--|----------------|------------|---------------|------------------|
| PARAMETER  | TEST CONDITION | SYMBOL     | VALUE         | UNIT             |
| Thermal resistance junction to ambient air <sup>(1)</sup>                                    |                | $R_{thJA}$ | 300           | K/W              |
| Junction temperature   |                | $T_J$      | 175           | $^\circ\text{C}$ |
| Storage temperature range  |                | $T_{stg}$  | - 65 to + 175 | $^\circ\text{C}$ |

#### Note

<sup>(1)</sup> Valid provided that electrodes are kept at ambient temperature

| <b>ELECTRICAL CHARACTERISTICS</b> ( $T_{amb} = 25\text{ }^{\circ}\text{C}$ , unless otherwise specified) |  |        |            |      |      |      |               |
|--|--|--------|------------|------|------|------|---------------|
| PARAMETER  | TEST CONDITION   | PART   | SYMBOL     | MIN. | TYP. | MAX. | UNIT          |
| Forward voltage  | $I_F = 5\text{ mA}$  | LL4448 | $V_F$      | 620  |      | 720  | mV            |
|  | $I_F = 50\text{ mA}$   | LL4148 | $V_F$      |      | 860  | 1000 | mV            |
|  | $I_F = 100\text{ mA}$  | LL4448 | $V_F$      |      | 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  | $I_R = 100\text{ }\mu\text{A}, t_p/T = 0.01,$<br>$t_p = 0.3\text{ ms}$                     |        | $V_{(BR)}$ | 100  |      |      | V             |
| Diode capacitance  | $V_R = 0\text{ V}, f = 1\text{ MHz},$<br>$V_{HF} = 50\text{ mV}$                           |        | $C_D$      |      |      | 4    | pF            |
| Reverse recovery time  | $I_F = I_R = 10\text{ mA},$<br>$i_R = 1\text{ mA}$   |        | $t_{rr}$   |      |      | 8    | ns            |
|  | $I_F = 10\text{ mA}, V_R = 6\text{ V},$<br>$i_R = 0.1 \times I_R, R_L = 100\text{ }\Omega$ |        |            |      |      | 4    |               |

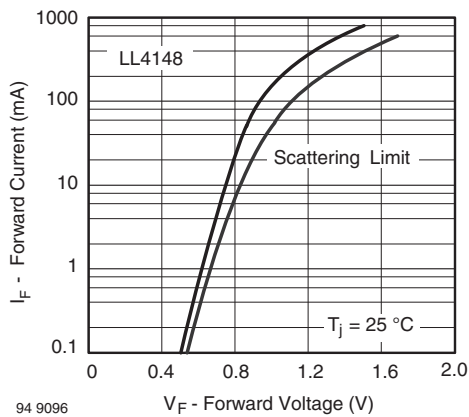
**TYPICAL CHARACTERISTICS** ( $T_{amb} = 25\text{ }^{\circ}\text{C}$ , unless otherwise specified)


Fig. 1 - Forward Current vs. Forward Voltage

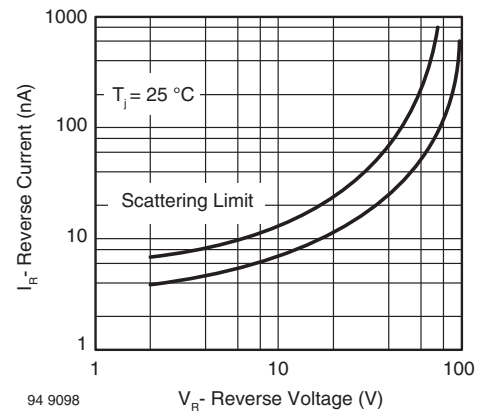


Fig. 3 - Reverse Current vs. Reverse Voltage

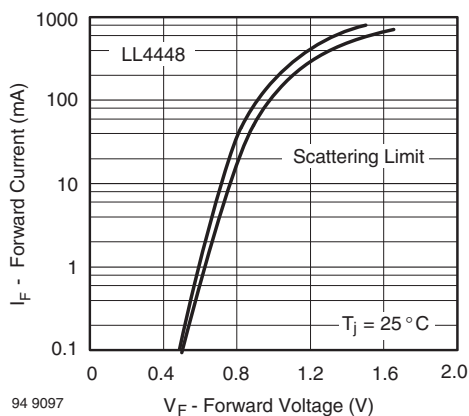


Fig. 2 - Forward Current vs. Forward Voltage

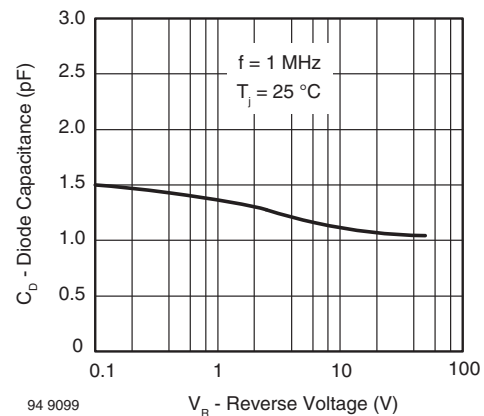
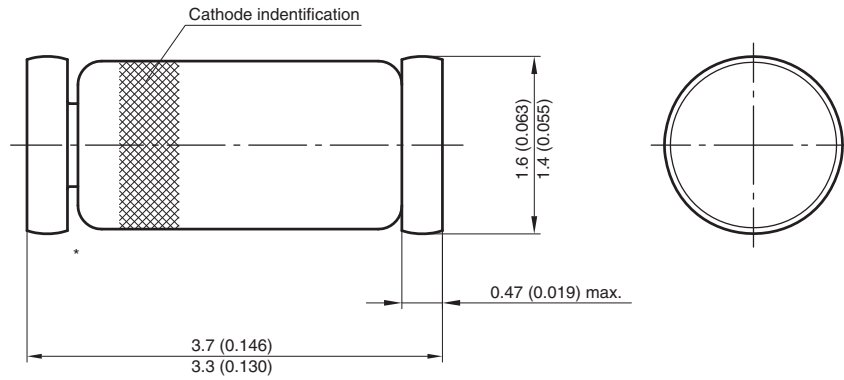


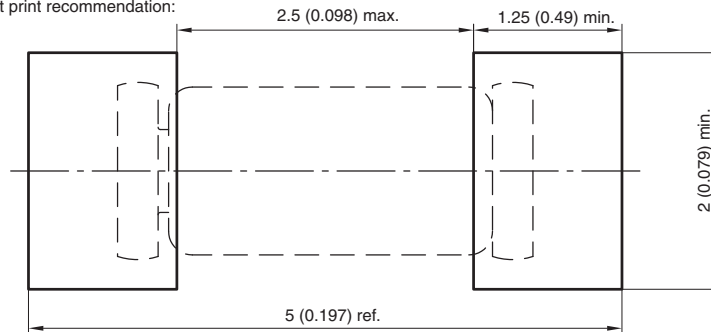
Fig. 4 - Diode Capacitance vs. Reverse Voltage



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



Foot print recommendation:



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96 12070



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