

## Small Signal Fast Switching Diodes



### FEATURES

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


**RoHS**  
COMPLIANT

### ADDITIONAL RESOURCES



### 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

### APPLICATIONS

- Extreme fast switches

### PARTS TABLE

| PART   | TYPE DIFFERENTIATION                                                                      | ORDERING CODE              | TYPE MARKING | CIRCUIT CONFIGURATION | 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                | 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                | 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 | $V_F$      | 0.620 |       | 0.720 | V             |
|                                                                                                          | $I_F = 50\text{ mA}$                                                                       | LL4148 | $V_F$      |       | 0.860 | 1     | V             |
|                                                                                                          | $I_F = 100\text{ mA}$                                                                      | LL4448 | $V_F$      |       | 0.930 | 1     | V             |
| 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     |               |

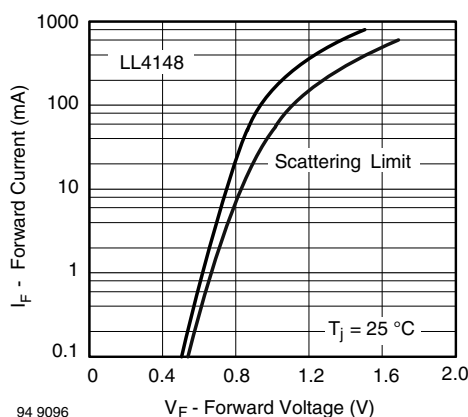
**TYPICAL CHARACTERISTICS** ( $T_{amb} = 25\text{ }^{\circ}\text{C}$ , unless otherwise specified)


Fig. 1 - Forward Current vs. Forward Voltage

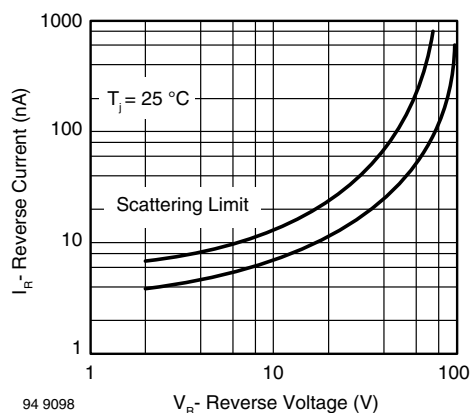


Fig. 3 - Reverse Current vs. Reverse Voltage

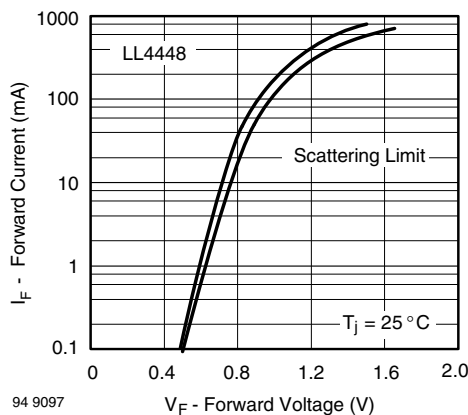


Fig. 2 - Forward Current vs. Forward Voltage

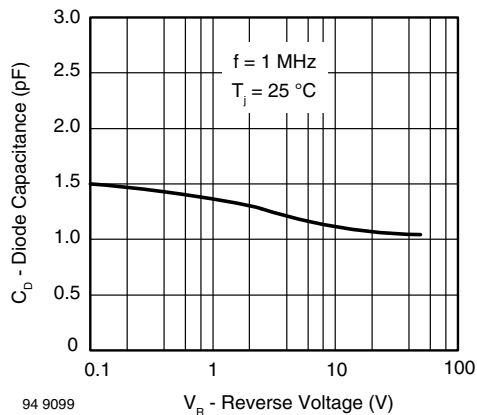
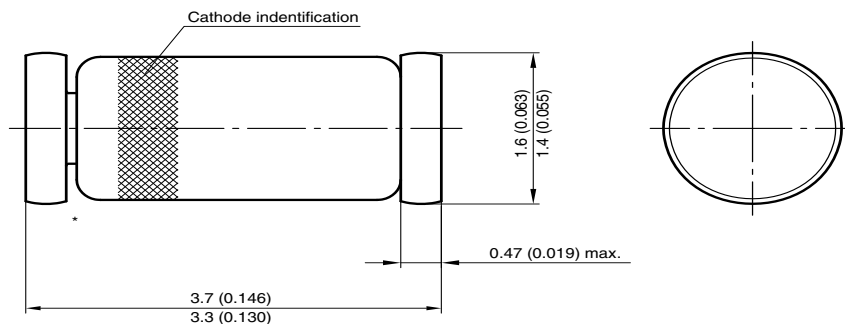


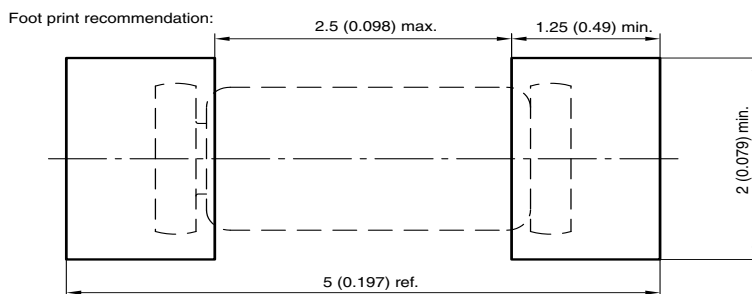
Fig. 4 - Diode Capacitance vs. Reverse Voltage



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



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



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