# 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

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 V, $V_F$ = max. 1000 mV at $I_F$ = 50 mA | LL4148-GS08 or LL4148-GS18 | - | Single diode | Tape and reel |
| LL4448 | $V_{RRM}$ = 100 V, $V_F$ = max. 1000 mV at $I_F$ = 100 mA | LL4448-GS08 or LL4448-GS18 | - | Single diode | Tape and reel |

**ABSOLUTE MAXIMUM RATINGS** ($T_{amb}$ = 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 | $t_p$ = 1 µs | $I_{FSM}$ | 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 (1) | | $P_{tot}$ | 500 | mW |

**Note**

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

**THERMAL CHARACTERISTICS** ($T_{amb}$ = 25 °C, unless otherwise specified)

| PARAMETER | TEST CONDITION | SYMBOL | VALUE | UNIT |
|---|---|---|---|---|
| Thermal resistance junction to ambient air (1) | | $R_{thJA}$ | 300 | K/W |
| Junction temperature | | $T_J$ | 175 | °C |
| Storage temperature range | | $T_{stg}$ | - 65 to + 175 | °C |

**Note**

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

| ELECTRICAL CHARACTERISTICS ($T_{amb}$ = 25 °C, unless otherwise specified) | | | | | | | |
|---|---|---|---|---|---|---|---|
| **PARAMETER** | **TEST CONDITION** | **PART** | **SYMBOL** | **MIN.** | **TYP.** | **MAX.** | **UNIT** |
| Forward voltage | $I_F$ = 5 mA | LL4448 | $V_F$ | 620 | | 720 | mV |
| | $I_F$ = 50 mA | LL4148 | $V_F$ | | 860 | 1000 | mV |
| | $I_F$ = 100 mA | LL4448 | $V_F$ | | 930 | 1000 | mV |
| Reverse current | $V_R$ = 20 V | | $I_R$ | | | 25 | nA |
| | $V_R$ = 20 V, $T_j$ = 150 °C | | $I_R$ | | | 50 | µA |
| | $V_R$ = 75 V | | $I_R$ | | | 5 | µA |
| Breakdown voltage | $I_R$ = 100 µA, $t_p/T$ = 0.01, $t_p$ = 0.3 ms | | $V_{(BR)}$ | 100 | | | V |
| Diode capacitance | $V_R$ = 0 V, f = 1 MHz, $V_{HF}$ = 50 mV | | $C_D$ | | | 4 | pF |
| Reverse recovery time | $I_F$ = $I_R$ = 10 mA, $i_R$ = 1 mA | | $t_{rr}$ | | | 8 | ns |
| | $I_F$ = 10 mA, $V_R$ = 6 V, $i_R$ = 0.1 x $I_R$, $R_L$ = 100 Ω | | | | | 4 | |

## TYPICAL CHARACTERISTICS ($T_{amb}$ = 25 °C, unless otherwise specified)

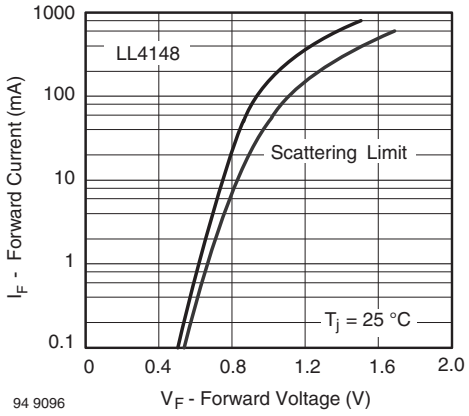



Fig. 1 - Forward Current vs. Forward Voltage

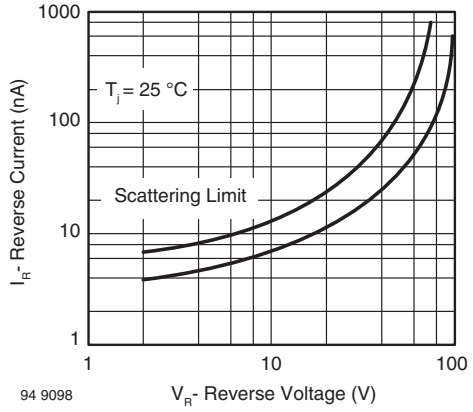



Fig. 3 - Reverse Current vs. Reverse Voltage

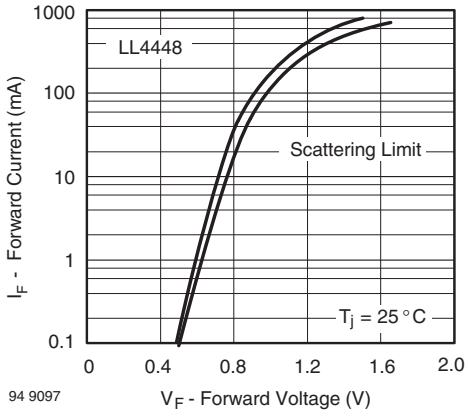



Fig. 2 - Forward Current vs. Forward Voltage

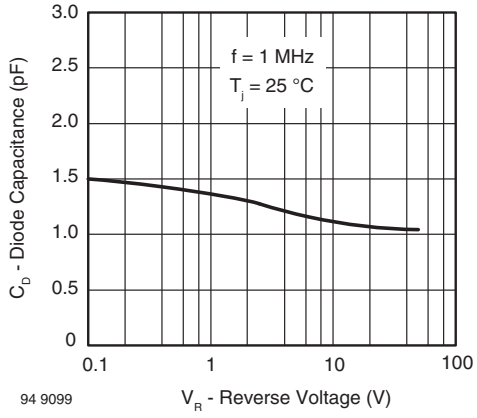
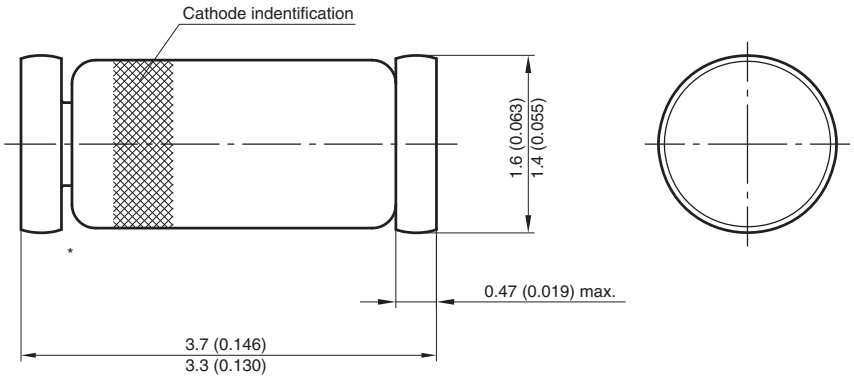


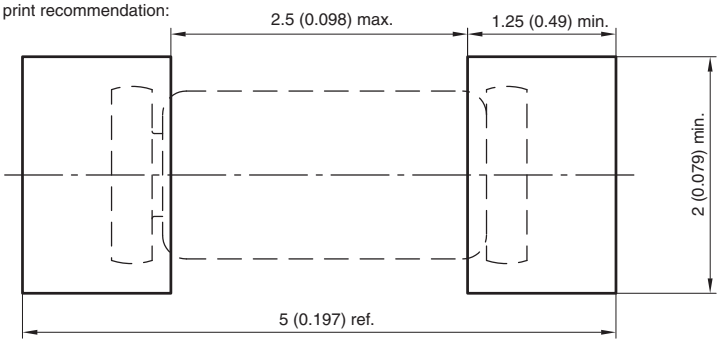

Fig. 4 - Diode Capacitance vs. Reverse Voltage

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




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

Foot print recommendation:

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