



# 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](http://www.vishay.com/doc?99912)



RoHS COMPLIANT

### APPLICATIONS

- Extremely fast switches

### ADDITIONAL RESOURCES



### 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 | $V_F = \text{max. } 1000 \text{ mV at } I_F = 50 \text{ mA}$  | LS4148-GS18 or LS4148-GS08 | -            | Single                | Tape and reel |
| LS4448 | $V_F = \text{max. } 1000 \text{ mV at } I_F = 100 \text{ mA}$ | LS4448GS18 or LS4448GS08   | -            | 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               |                                | $P_{tot}$   | 500   | mW   |

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

| PARAMETER                                  | TEST CONDITION                        | SYMBOL     | VALUE       | UNIT             |
|--|---------------------------------------|------------|-------------|------------------|
| Thermal resistance junction to ambient air | On PC board<br>50 mm x 50 mm x 1.6 mm | $R_{thJA}$ | 300         | K/W              |
| Junction temperature                       |                                       | $T_j$      | 175         | $^\circ\text{C}$ |
| Storage temperature range                  |                                       | $T_{stg}$  | -65 to +175 | $^\circ\text{C}$ |



| ELECTRICAL CHARACTERISTICS ( $T_{amb} = 25\text{ }^{\circ}\text{C}$ , unless otherwise specified) |  |        |            |       |       |       |               |
|---|--|--------|------------|-------|-------|-------|---------------|
| PARAMETER   | TEST CONDITION   | PART   | SYMBOL     | MIN.  | TYP.  | MAX.  | UNIT          |
| Forward voltage   | $I_F = 5\text{ mA}$  | LS4448 | $V_F$      | 0.620 |       | 0.720 | V             |
|   | $I_F = 50\text{ mA}$   | LS4148 | $V_F$      |       | 0.860 | 1     | V             |
|   | $I_F = 100\text{ mA}$  | LS4448 | $V_F$      |       | 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   | $V_R = 0, f = 1\text{ MHz}, V_{HF} = 50\text{ mV}$   |        | $C_D$      |       |       | 4     | pF            |
| Reverse recovery time   | $I_F = I_R = 10\text{ mA}, i_R = 1\text{ mA}$  |        | $t_{rr}$   |       |       | 8     | ns            |
|   | $I_F = 10\text{ mA}, V_R = 6\text{ V},$<br>$i_R = 0.1 \times I_R, R_L = 100\text{ }\Omega$ |        | $t_{rr}$   |       |       | 4     | ns            |

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

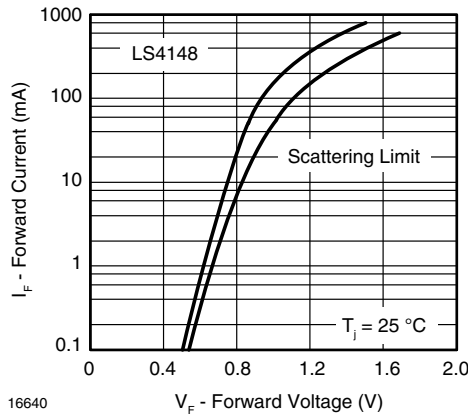


Fig. 1 - Forward Current vs. Forward Voltage

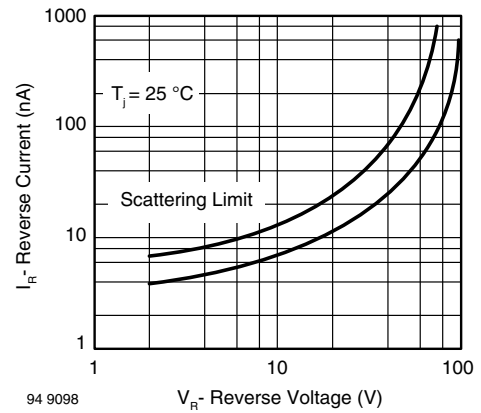


Fig. 3 - Reverse Current vs. Reverse Voltage

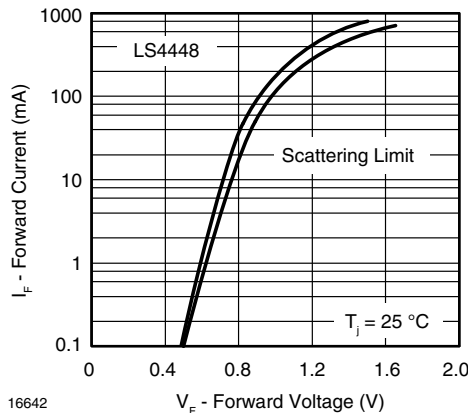


Fig. 2 - Forward Current vs. Forward Voltage

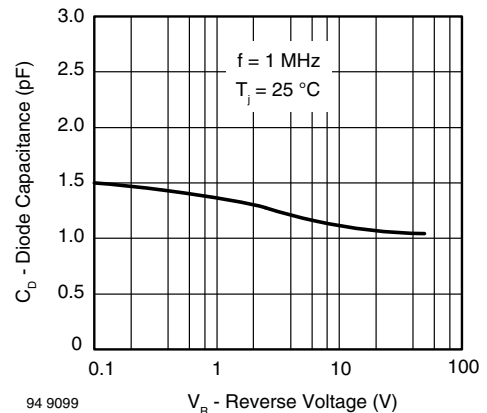
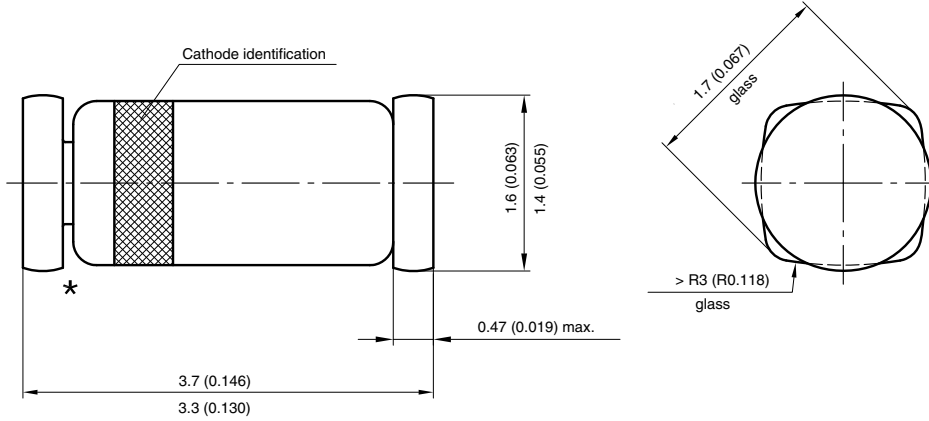
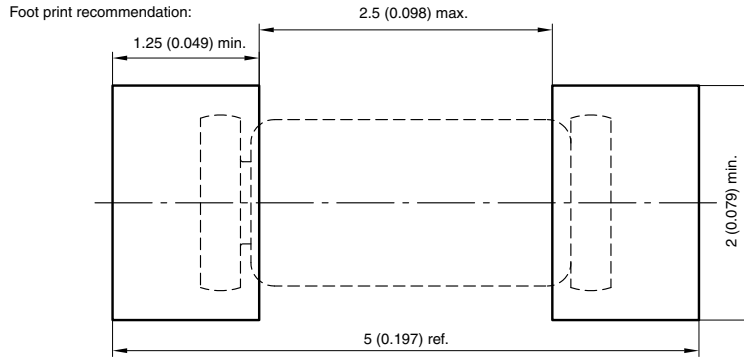


Fig. 4 - Diode Capacitance vs. Reverse Voltage

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



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



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