

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


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 ($T_{\text{amb}} = 25 \text{ }^\circ\text{C}$, 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 | $V_R = 0$ | $I_{\text{F(AV)}}$ | 150 | mA |
| Power dissipation | | P_{tot} | 500 | mW |

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

| PARAMETER | TEST CONDITION | SYMBOL | VALUE | UNIT |
|--|---------------------------------------|-------------------|-------------|------------------|
| Thermal resistance junction to ambient air | On PC board 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 °C, unless otherwise specified) | | | | | | | |
|---|--|--------|-------------------|-------|-------|-------|------|
| PARAMETER | TEST CONDITION | PART | SYMBOL | MIN. | TYP. | MAX. | UNIT |
| Forward voltage | I _F = 5 mA | LS4448 | V _F | 0.620 | | 0.720 | V |
| | I _F = 50 mA | LS4148 | V _F | | 0.860 | 1 | V |
| | I _F = 100 mA | LS4448 | V _F | | 0.930 | 1 | V |
| 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, 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 | | t _{rr} | | | 4 | ns |

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

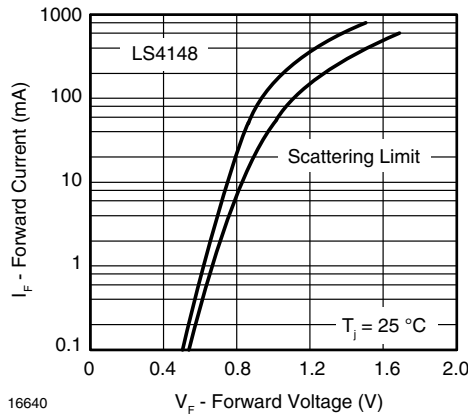


Fig. 1 - Forward Current vs. Forward Voltage

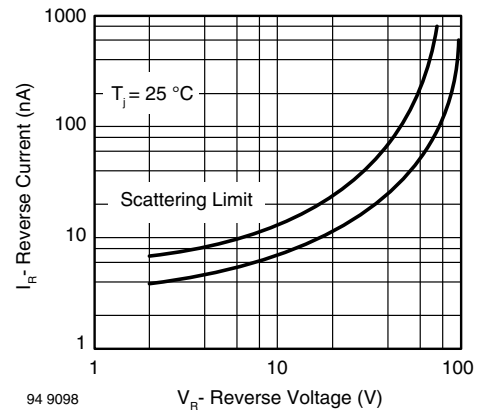


Fig. 3 - Reverse Current vs. Reverse Voltage

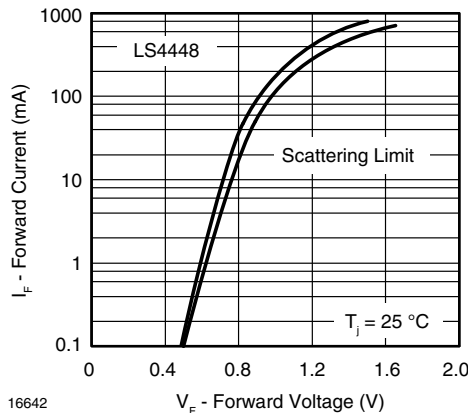


Fig. 2 - Forward Current vs. Forward Voltage

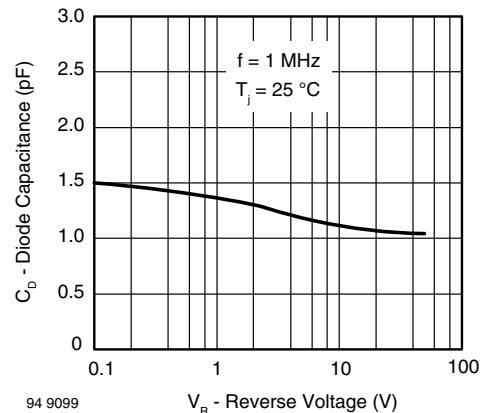
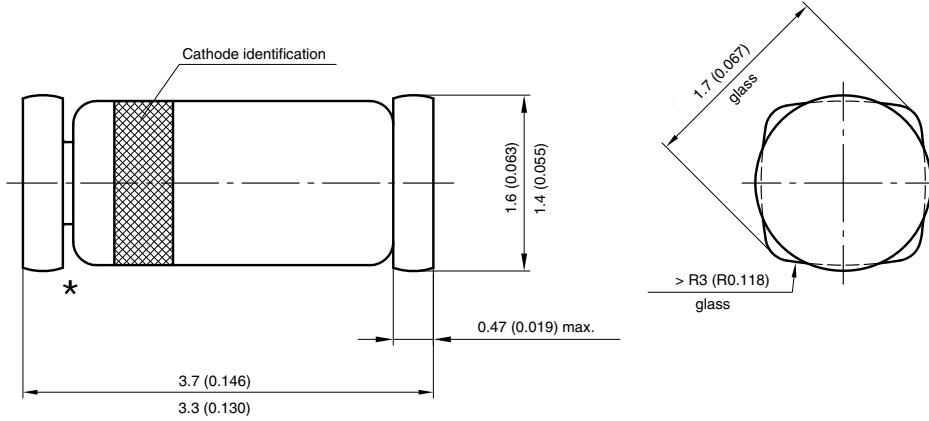


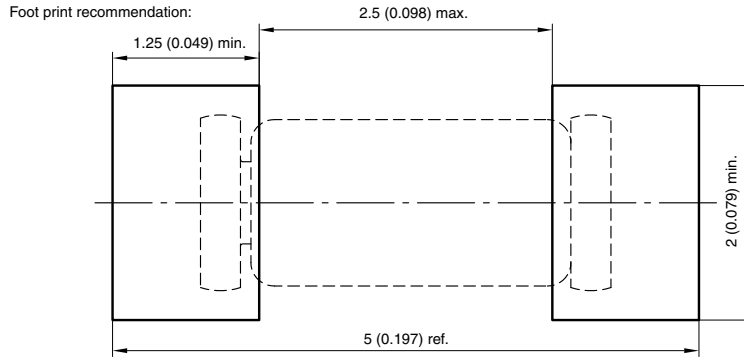
Fig. 4 - Diode Capacitance vs. Reverse Voltage



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



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



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