

## Small Signal Fast Switching Diode



### FEATURES

- Silicon epitaxial planar diodes
- Low forward voltage drop
- High forward current capability
- Material categorization:  
for definitions of compliance please see  
[www.vishay.com/doc?99912](http://www.vishay.com/doc?99912)



**RoHS**  
COMPLIANT  
HALOGEN  
**FREE**

### APPLICATIONS

- High speed switch and general purpose use in computer and industrial applications

### LINKS TO ADDITIONAL RESOURCES



### MECHANICAL DATA

**Case:** MiniMELF (SOD-80)

**Weight:** approx. 31 mg

**Cathode band color:** black

**Packaging codes / options:**

08/2.5K per 7" reel (8 mm tape), 12.5K/box

18/10K per 13" reel (8 mm tape), 10K/box

### PARTS TABLE

| PART     | ORDERING CODE              | TYPE MARKING | CIRCUIT CONFIGURATION | REMARKS       |
|----------|----------------------------|--------------|-----------------------|---------------|
| LL4150-M | LL4150-M-08 or LL4150-M-18 | -            | Single                | Tape and reel |

### ABSOLUTE MAXIMUM RATINGS ( $T_{amb} = 25^{\circ}\text{C}$ , unless otherwise specified)

| PARAMETER                       | TEST CONDITION        | SYMBOL      | VALUE | UNIT |
|---------------------------------|-----------------------|-------------|-------|------|
| Repetitive peak reverse voltage |                       | $V_{RRM}$   | 50    | V    |
| Reverse voltage                 |                       | $V_R$       | 50    | V    |
| Peak forward surge current      | $t_p = 1 \mu\text{s}$ | $I_{FSM}$   | 4     | A    |
| Forward continuous current      |                       | $I_F$       | 600   | mA   |
| Average forward current         | $V_R = 0$             | $I_{F(AV)}$ | 300   | mA   |
| Power dissipation               |                       | $P_{tot}$   | 500   | mW   |

### THERMAL CHARACTERISTICS ( $T_{amb} = 25^{\circ}\text{C}$ , 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 | $^{\circ}\text{C}$ |
| Operating temperature range                |                                       | $T_{op}$   | -55 to +175 | $^{\circ}\text{C}$ |

| <b>ELECTRICAL CHARACTERISTICS</b> ( $T_{amb} = 25\text{ }^{\circ}\text{C}$ , unless otherwise specified) |                                                                                                       |          |       |      |       |               |
|----------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------|----------|-------|------|-------|---------------|
| PARAMETER                                                                                                | TEST CONDITION                                                                                        | SYMBOL   | MIN.  | TYP. | MAX.  | UNIT          |
| Forward voltage                                                                                          | $I_F = 1\text{ mA}$                                                                                   | $V_F$    | 0.540 |      | 0.620 | V             |
|                                                                                                          | $I_F = 10\text{ mA}$                                                                                  | $V_F$    | 0.660 |      | 0.740 | V             |
|                                                                                                          | $I_F = 50\text{ mA}$                                                                                  | $V_F$    | 0.760 |      | 0.860 | V             |
|                                                                                                          | $I_F = 100\text{ mA}$                                                                                 | $V_F$    | 0.820 |      | 0.920 | V             |
|                                                                                                          | $I_F = 200\text{ mA}$                                                                                 | $V_F$    | 0.870 |      | 1     | V             |
| Reverse current                                                                                          | $V_R = 50\text{ V}$                                                                                   | $I_R$    |       |      | 100   | nA            |
|                                                                                                          | $V_R = 50\text{ V}$ , $T_J = 150\text{ }^{\circ}\text{C}$                                             | $I_R$    |       |      | 100   | $\mu\text{A}$ |
| Diode capacitance                                                                                        | $V_R = 0$ , $f = 1\text{ MHz}$ , $V_{HF} = 50\text{ mV}$                                              | $C_D$    |       |      | 2.5   | pF            |
| Reverse recovery time                                                                                    | $I_F = I_R = 10\text{ mA}$ to $100\text{ mA}$ ,<br>$i_R = 0.1 \times I_R$ , $R_L = 100\text{ }\Omega$ | $t_{rr}$ |       |      | 4     | ns            |

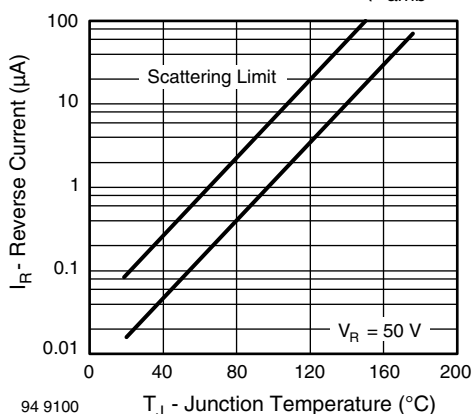
**TYPICAL CHARACTERISTICS** ( $T_{amb} = 25\text{ }^{\circ}\text{C}$ , unless otherwise specified)


Fig. 1 - Reverse Current vs. Junction Temperature

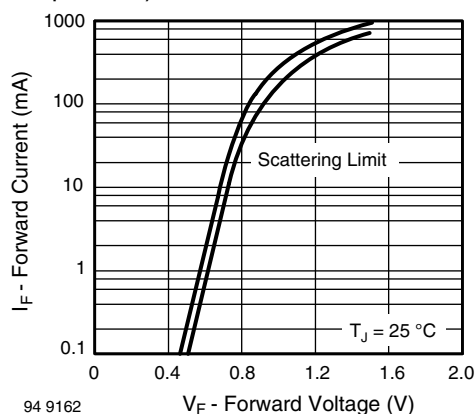
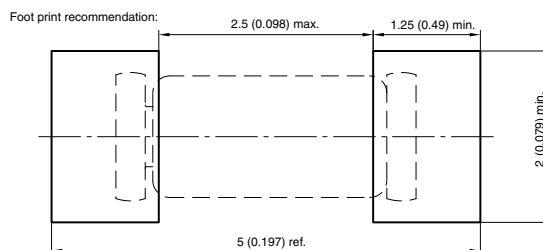
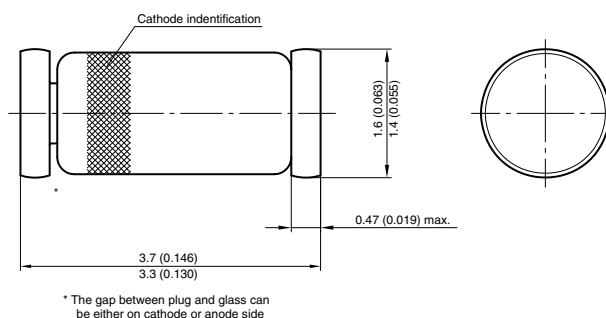


Fig. 2 - Forward Current vs. Forward Voltage

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


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