LL4148
Small Signal Diode

Ordering Information

<table>
<thead>
<tr>
<th>Part Number</th>
<th>Device Marking</th>
<th>Package</th>
<th>Packing Method</th>
</tr>
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<tbody>
<tr>
<td>LL4148</td>
<td>Color Band Marking</td>
<td>SOD-80 2L</td>
<td>Tape and Reel, 7 inch Reel, 2500 pcs</td>
</tr>
</tbody>
</table>

Absolute Maximum Ratings\(^{(1), (2)}\)

Stresses exceeding the absolute maximum ratings may damage the device. The device may not function or be operable above the recommended operating conditions and stressing the parts to these levels is not recommended. In addition, extended exposure to stresses above the recommended operating conditions may affect device reliability. The absolute maximum ratings are stress ratings only. Values are at \(T_A = 25^\circ\text{C}\) unless otherwise noted.

<table>
<thead>
<tr>
<th>Symbol</th>
<th>Parameter</th>
<th>Value</th>
<th>Unit</th>
</tr>
</thead>
<tbody>
<tr>
<td>(V_{RRM})</td>
<td>Maximum Repetitive Reverse Voltage</td>
<td>100</td>
<td>V</td>
</tr>
<tr>
<td>(I_{F(AV)})</td>
<td>Average Rectified Forward Current</td>
<td>200</td>
<td>mA</td>
</tr>
<tr>
<td>(I_{r})</td>
<td>Recurrent Peak Forward Current</td>
<td>500</td>
<td>mA</td>
</tr>
<tr>
<td>(I_{FSM})</td>
<td>Non-Repetitive Peak Forward Surge Current</td>
<td>Pulse Width = 1.0 s</td>
<td>1.0</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Pulse Width = 1.0 (\mu\text{s})</td>
<td>2.0</td>
</tr>
<tr>
<td>(T_{STG})</td>
<td>Storage Temperature Range</td>
<td>-65 to +200</td>
<td>°C</td>
</tr>
<tr>
<td>(T_J)</td>
<td>Operating Junction Temperature Range</td>
<td>-55 to +175</td>
<td>°C</td>
</tr>
</tbody>
</table>

Notes:
1. These ratings are based on a maximum junction temperature of 200°C.
2. These are steady-state limits. Fairchild Semiconductor should be consulted on applications involving pulsed or low-duty-cycle operations.
### Thermal Characteristics\(^{(3)}\)
Values are at \(T_A = 25°C\) unless otherwise noted.

<table>
<thead>
<tr>
<th>Symbol</th>
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<th>Value</th>
<th>Unit</th>
</tr>
</thead>
<tbody>
<tr>
<td>PD</td>
<td>Power Dissipation</td>
<td>500</td>
<td>mW</td>
</tr>
<tr>
<td>(R_{JA})</td>
<td>Thermal Resistance, Junction-to-Ambient</td>
<td>300</td>
<td>°C/W</td>
</tr>
</tbody>
</table>

**Note:**
3. JEDEC Standard 51-3 method (PCB Board size 76 x 114 x 0.6Tmm\(^3\))

### Electrical Characteristics
Values are at \(T_A = 25°C\) unless otherwise noted.

<table>
<thead>
<tr>
<th>Symbol</th>
<th>Parameter</th>
<th>Conditions</th>
<th>Min.</th>
<th>Max.</th>
<th>Unit</th>
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</thead>
<tbody>
<tr>
<td>(V_R)</td>
<td>Breakdown Voltage</td>
<td>(I_R = 100 \mu A)</td>
<td>100</td>
<td></td>
<td>mV</td>
</tr>
<tr>
<td></td>
<td></td>
<td>(I_R = 5.0 \mu A)</td>
<td>75</td>
<td></td>
<td></td>
</tr>
<tr>
<td>(V_F)</td>
<td>Forward Voltage</td>
<td>(I_F = 10 \text{ mA})</td>
<td>1.0</td>
<td></td>
<td>V</td>
</tr>
<tr>
<td>(I_R)</td>
<td>Reverse Leakage</td>
<td>(V_R = 20 \text{ V})</td>
<td>25</td>
<td></td>
<td>nA</td>
</tr>
<tr>
<td></td>
<td></td>
<td>(V_R = 20 \text{ V}, T_A = 150°C)</td>
<td></td>
<td>50</td>
<td>µA</td>
</tr>
<tr>
<td>(C_T)</td>
<td>Total Capacitance</td>
<td>(V_R = 0, f = 1.0 \text{ MHz})</td>
<td></td>
<td>4.0</td>
<td>pF</td>
</tr>
<tr>
<td>(t_{rr})</td>
<td>Reverse Recovery Time</td>
<td>(I_F = 10 \text{ mA}, V_R = 6.0 \text{ V (60 mA),})</td>
<td>4.0</td>
<td></td>
<td>ns</td>
</tr>
</tbody>
</table>
Typical Performance Characteristics

Figure 1. Reverse Voltage vs. Reverse Current
BV - 1.0 to 100 μA

Figure 2. Reverse Current vs. Reverse Voltage
IR - 10 to 100 V

Figure 3. Forward Voltage vs. Forward Current
VF - 1 to 100 μA

Figure 4. Forward Voltage vs. Forward Current
VF - 0.1 to 10 mA

Figure 5. Forward Voltage vs. Forward Current
VF - 10 to 800 mA

Figure 6. Forward Voltage vs. Ambient Temperature
VF - 0.01 to 20 mA (-40 to +65 °C)
Typical Performance Characteristics (Continued)

Figure 7. Total Capacitance

Figure 8. Reverse Recovery Time vs. Reverse Recovery Current

Figure 9. Average Rectified Current (I_{F_{AV}}) vs. Ambient Temperature (T_A)

Figure 10. Power Derating Curve
Physical Dimension

Figure 11. 2-TERMINAL, SOD-80, JEDEC DO-213AC, MINI-MELF

NOTES: UNLESS OTHERWISE SPECIFIED
A) PACKAGE STANDARD REFERENCE: JEDEC DO-213, VARIATION AC.
B) ALL DIMENSIONS ARE IN MILLIMETERS.
C) CORNER RADIUS IS OPTIONAL.
D) DRAWING FILE NAME: SOD80A REV01
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<th>Product Status</th>
<th>Definition</th>
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<tr>
<td>Advance Information</td>
<td>Formative / In Design</td>
<td>Datasheet contains the design specifications for product development. Specifications may change in any manner without notice.</td>
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<tr>
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