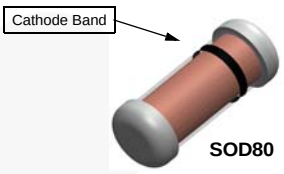
February 2015

# LL4148
# Small Signal Diode




**COLOR BAND MARKING**

**1ST BAND**
Black

The 1st Band indicates the cathode band

## Ordering Information

| Part Number | Device Marking | Package | Packing Method |
|---|---|---|---|
| LL4148 | Color Band Marking | SOD-80 2L | Tape and Reel, 7 inch Reel, 2500 pcs |

## 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°C unless otherwise noted.

| Symbol | Parameter | | Value | Unit |
|---|---|---|---|---|
| $V_{RRM}$ | Maximum Repetitive Reverse Voltage | | 100 | V |
| $I_{F(AV)}$ | Average Rectified Forward Current | | 200 | mA |
| $I_f$ | Recurrent Peak Forward Current | | 500 | mA |
| $I_{FSM}$ | Non-Repetitive Peak Forward Surge Current | Pulse Width = 1.0 s | 1.0 | A |
| | | Pulse Width = 1.0 µs | 2.0 | |
| $T_{STG}$ | Storage Temperature Range | | -65 to +200 | °C |
| $T_J$ | Operating Junction Temperature Range | | -55 to +175 | °C |

**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.

| Symbol | Parameter | Value | Unit |
|---|---|---|---|
| $P_D$ | Power Dissipation | 500 | mW |
| $R_{\theta JA}$ | Thermal Resistance, Junction-to-Ambient | 300 | °C/W |

**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.

| Symbol | Parameter | Conditions | Min. | Max. | Unit |
|---|---|---|---|---|---|
| $V_R$ | Breakdown Voltage | $I_R$ = 100 µA | 100 | | mV |
| | | $I_R$ = 5.0 µA | 75 | | |
| $V_F$ | Forward Voltage | $I_F$ = 10 mA | | 1.0 | V |
| $I_R$ | Reverse Leakage | $V_R$ = 20 V | | 25 | nA |
| | | $V_R$ = 20 V, $T_A$ = 150°C | | 50 | µA |
| $C_T$ | Total Capacitance | $V_R$ = 0, f = 1.0 MHz | | 4.0 | pF |
| $t_{rr}$ | Reverse Recovery Time | $I_F$ = 10 mA, $V_R$ = 6.0 V (60 mA), $I_{rr}$ = 1.0 mA, $R_L$ = 100 Ω | | 4.0 | ns |

## Typical Performance Characteristics

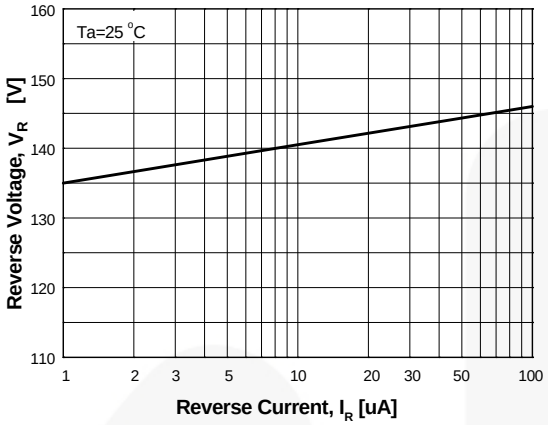



**Figure 1. Reverse Voltage vs. Reverse Current**
**BV - 1.0 to 100 μA**

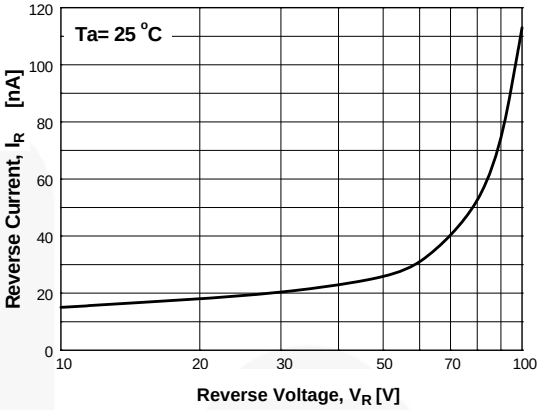



**Figure 2. Reverse Current vs. Reverse Voltage**
**$I_R$ - 10 to 100 V**

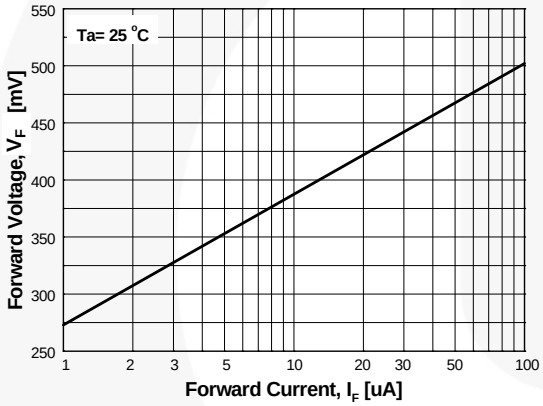



**Figure 3. Forward Voltage vs. Forward Current**
**$V_F$ - 1 to 100 μA**

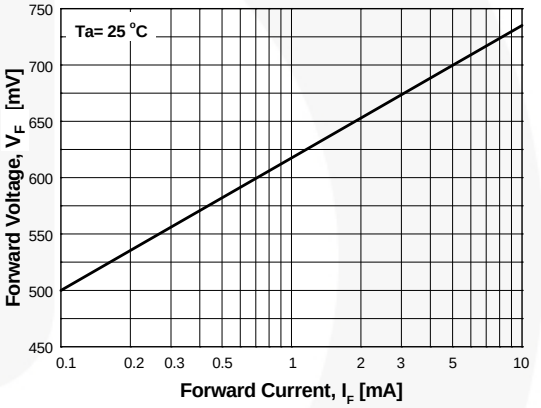



**Figure 4. Forward Voltage vs. Forward Current**
**$V_F$ - 0.1 to 10 mA**

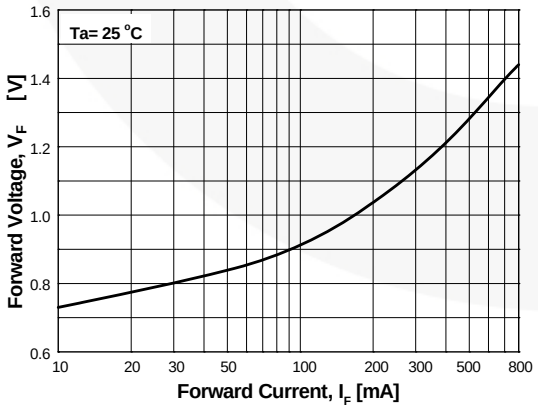



**Figure 5. Forward Voltage vs. Forward Current**
**$V_F$ - 10 to 800 mA**

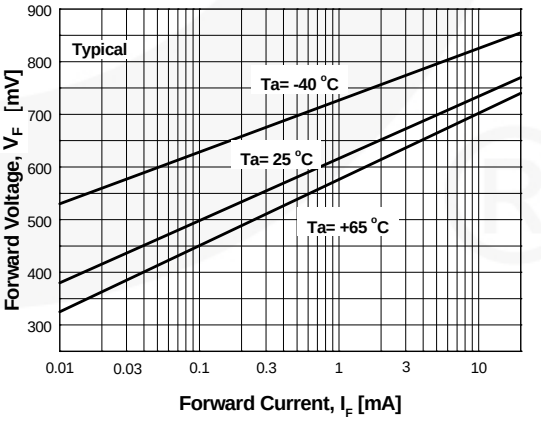



**Figure 6. Forward Voltage vs. Ambient Temperature**
**$V_F$ - 0.01 - 20 mA (-40 to +65 °C)**

## Typical Performance Characteristics (Continued)

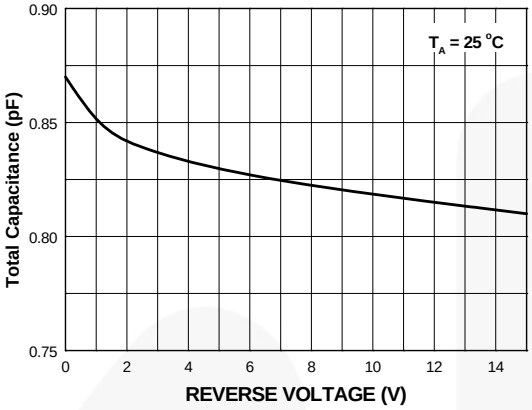



**Figure 7. Total Capacitance**

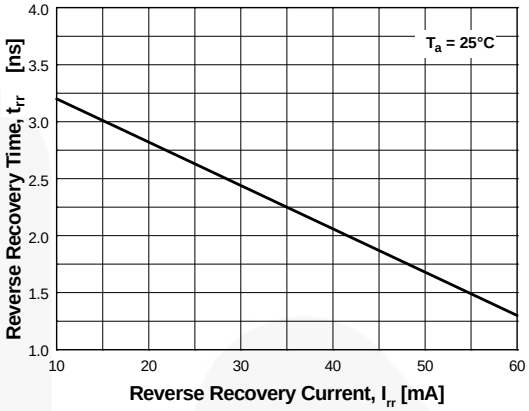



**Figure 8. Reverse Recovery Time vs. Reverse Recovery Current**

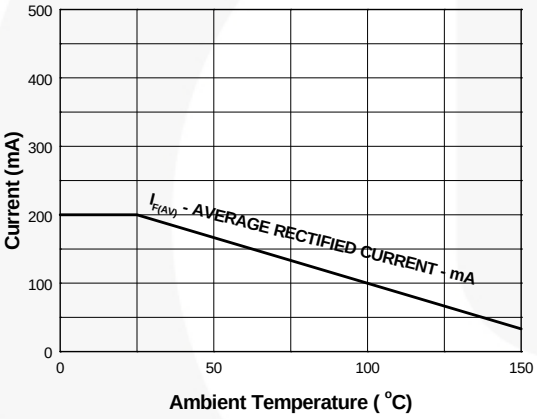



**Figure 9. Average Rectified Current ($I_{F(AV)}$) vs. Ambient Temperature ($T_A$)**

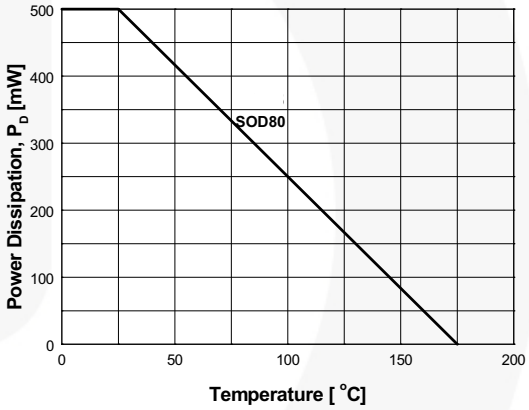
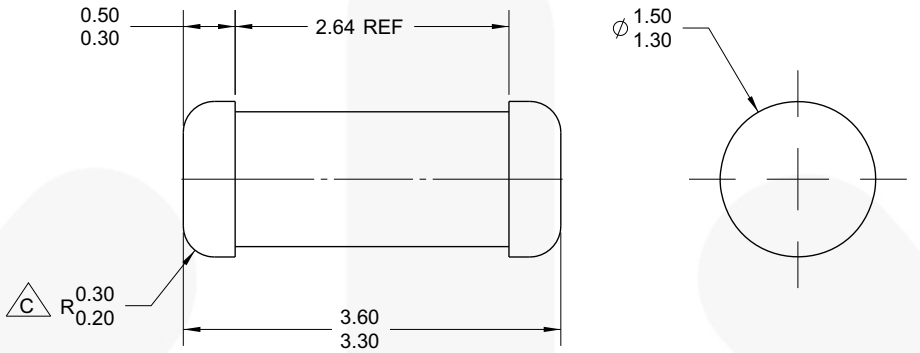



**Figure 10. Power Derating Curve**

## Physical Dimension




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

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

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