



June 2015

# 1N/FDLL 914/A/B / 916/A/B / 4148 / 4448 Small Signal Diode



**SOD-80 COLOR BAND MARKING**

| DEVICE   | 1ST BAND |
|----------|----------|
| FDLL914  | BLACK    |
| FDLL914A | BLACK    |
| FDLL914B | BLACK    |
| FDLL4148 | BLACK    |
| FDLL4448 | BLACK    |

-1st band denotes cathode terminal and has wider width

## Ordering Information

| Part Number   | Marking | Package          | Packing Method |
|---------------|---------|------------------|----------------|
| 1N914         | 914     | DO-204AH (DO-35) | Bulk           |
| 1N914_T50A    | 914     | DO-204AH (DO-35) | Ammo           |
| 1N914TR       | 914     | DO-204AH (DO-35) | Tape and Reel  |
| 1N914ATR      | 914A    | DO-204AH (DO-35) | Tape and Reel  |
| 1N914B        | 914B    | DO-204AH (DO-35) | Bulk           |
| 1N914BTR      | 914B    | DO-204AH (DO-35) | Tape and Reel  |
| 1N916         | 916     | DO-204AH (DO-35) | Bulk           |
| 1N916A        | 916A    | DO-204AH (DO-35) | Bulk           |
| 1N916B        | 916B    | DO-204AH (DO-35) | Bulk           |
| 1N4148        | 4148    | DO-204AH (DO-35) | Bulk           |
| 1N4148TA      | 4148    | DO-204AH (DO-35) | Ammo           |
| 1N4148_T26A   | 4148    | DO-204AH (DO-35) | Ammo           |
| 1N4148_T50A   | 4148    | DO-204AH (DO-35) | Ammo           |
| 1N4148TR      | 4148    | DO-204AH (DO-35) | Tape and Reel  |
| 1N4148_T50R   | 4148    | DO-204AH (DO-35) | Tape and Reel  |
| 1N4448        | 4448    | DO-204AH (DO-35) | Bulk           |
| 1N4448TR      | 4448    | DO-204AH (DO-35) | Tape and Reel  |
| FDLL914       | Black   | SOD-80           | Tape and Reel  |
| FDLL914A      | Black   | SOD-80           | Tape and Reel  |
| FDLL914B      | Black   | SOD-80           | Tape and Reel  |
| FDLL4148      | Black   | SOD-80           | Tape and Reel  |
| FDLL4148_D87Z | Black   | SOD-80           | Tape and Reel  |
| FDLL4448      | Black   | SOD-80           | Tape and Reel  |
| FDLL4448_D87Z | Black   | SOD-80           | Tape and Reel  |

1N/FDLL 914/A/B / 916/A/B / 4148 / 4448 — Small Signal Diode

## Absolute Maximum Ratings<sup>(1)</sup>

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.

| Symbol    | Parameter                                 | Value                           | Unit             |   |
|-----------|---|---------------------------------|------------------|---|
| $V_{RRM}$ | Maximum Repetitive Reverse Voltage        | 100                             | V                |   |
| $I_O$     | Average Rectified Forward Current         | 200                             | mA               |   |
| $I_F$     | DC Forward Current                        | 300                             | mA               |   |
| $I_f$     | Recurrent Peak Forward Current            | 400                             | mA               |   |
| $I_{FSM}$ | Non-repetitive Peak Forward Surge Current | Pulse Width = 1.0 s             | 1.0              | A |
|           |   | Pulse Width = 1.0 $\mu\text{s}$ | 4.0              | A |
| $T_{STG}$ | Storage Temperature Range                 | -65 to +200                     | $^\circ\text{C}$ |   |
| $T_J$     | Operating Junction Temperature Range      | -55 to +175                     | $^\circ\text{C}$ |   |

### Note:

1. These ratings are limiting values above which the serviceability of the diode may be impaired.

## Thermal Characteristics

| Symbol          | Parameter                               | Max.                                    | Unit                      |
|-----------------|---|---|---------------------------|
|                 |   | 1N/FDLL 914/A/B / 916/A/B / 4148 / 4448 |                           |
| $P_D$           | Power Dissipation                       | 500                                     | mW                        |
| $R_{\theta JA}$ | Thermal Resistance, Junction-to-Ambient | 300                                     | $^\circ\text{C}/\text{W}$ |

## Electrical Characteristics<sup>(2)</sup>

Values are at  $T_A = 25^\circ\text{C}$  unless otherwise noted.

| Symbol   | Parameter             | Conditions   | Min.                           | Max.  | Unit          |   |
|----------|-----------------------|--|--------------------------------|-------|---------------|---|
| $V_R$    | Breakdown Voltage     | $I_R = 100 \mu\text{A}$  | 100                            |       | V             |   |
|          |                       | $I_R = 5.0 \mu\text{A}$  | 75                             |       | V             |   |
| $V_F$    | Forward Voltage       | 914B / 4448  | $I_F = 5.0 \text{ mA}$         | 0.62  | 0.72          | V |
|          |                       | 916B   | $I_F = 5.0 \text{ mA}$         | 0.63  | 0.73          | V |
|          |                       | 914 / 916 / 4148   | $I_F = 10 \text{ mA}$          |       | 1.0           | V |
|          |                       | 914A / 916A  | $I_F = 20 \text{ mA}$          |       | 1.0           | V |
|          |                       | 916B   | $I_F = 20 \text{ mA}$          |       | 1.0           | V |
|          |                       | 914B / 4448  | $I_F = 100 \text{ mA}$         |       | 1.0           | V |
| $I_R$    | Reverse Leakage       | $V_R = 20 \text{ V}$   |                                | 0.025 | $\mu\text{A}$ |   |
|          |                       | $V_R = 20 \text{ V}, T_A = 150^\circ\text{C}$  |                                | 50    | $\mu\text{A}$ |   |
|          |                       | $V_R = 75 \text{ V}$   |                                | 5.0   | $\mu\text{A}$ |   |
| $C_T$    | Total Capacitance     | 916/916A/916B/4448   | $V_R = 0, f = 1.0 \text{ MHz}$ | 2.0   | pF            |   |
|          |                       | 914/914A/914B/4148   | $V_R = 0, f = 1.0 \text{ MHz}$ | 4.0   | pF            |   |
| $t_{rr}$ | Reverse Recovery Time | $I_F = 10 \text{ mA}, V_R = 6.0 \text{ V} (600 \text{ mA})$<br>$I_{rr} = 1.0 \text{ mA}, R_L = 100 \Omega$ |                                | 4.0   | ns            |   |

### Note:

2. Non-recurrent square wave  $P_W = 8.3 \text{ ms}$ .

## Typical Performance Characteristics



Figure 1. Reverse Voltage vs. Reverse Current  
 $V_R$  - 1.0 to 100  $\mu$ A



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  $\mu$ A



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

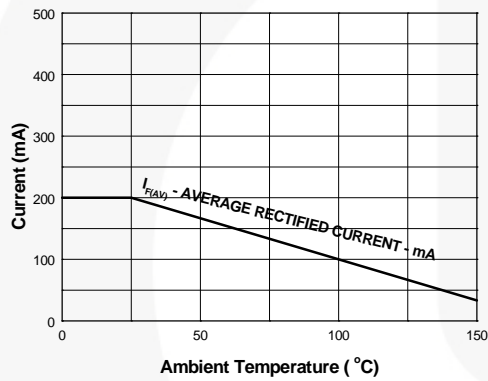


Figure 9. Average Rectified Current ( $I_{F(AV)}$ ) vs. Ambient Temperature ( $T_A$ )



Figure 10. Power Derating Curve

Physical Dimensions



NOTES: UNLESS OTHERWISE SPECIFIED

- A) PACKAGE STANDARD REFERENCE: JEDEC DO-204, VARIATION AH.
- B) HERMETICALLY SEALED GLASS PACKAGE.
- C) PACKAGE WEIGHT IS 0.137 GRAM.
- D) ALL DIMENSIONS ARE IN MILLIMETERS.
- E) DRAWING FILE NAME:DO35AREV02

Figure 11. AXIAL LEADED, GLASS, JEDEC DO204, VARIATION AH, DO-204AH (DO-35)

Physical Dimensions (Continued)



LAND PATTERN RECOMMENDATION

NOTES: UNLESS OTHERWISE SPECIFIED


- A) PACKAGE STANDARD REFERENCE:  
JEDEC DO-213, VARIATION AC.
- B) ALL DIMENSIONS ARE IN MILLIMETERS.
-  CORNER RADIUS IS OPTIONAL.
- D) LAND PATTERN RECOMMENDATION PER IPC DIOMELF3414N
- E) DRAWING FILE NAME: SOD80A REV3








Figure 12. 2-TERMINAL, SOD-80, JEDEC DO-213AC, MINI-MELF



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