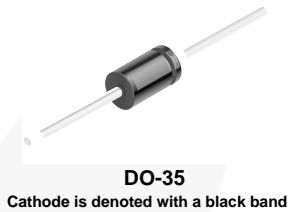


# 1N/FDLL 914A/B / 916/A/B / 4148 / 4448

## Small Signal Diode



| LL-34 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

### 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                           | Units            |   |
|-----------|---|---------------------------------|------------------|---|
| $V_{RRM}$ | 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            | 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.                         | Units                     |
|-----------------|---|------------------------------|---------------------------|
|                 |   | 1N/FDLL 914A/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             | Test Conditions         | Min.   | Max. | Units |               |
|----------|-----------------------|-------------------------|--|------|-------|---------------|
| $V_R$    | Breakdown Voltage     | $I_R = 100 \mu\text{A}$ | 100  |      | V     |               |
|          |                       | $I_R = 5.0 \mu\text{A}$ | 75   |      | V     |               |
| $V_F$    | Forward Voltage       | 1N914B/4448             | $I_F = 5.0 \text{ mA}$   | 0.62 | 0.72  | V             |
|          |                       | 1N916B                  | $I_F = 5.0 \text{ mA}$   | 0.63 | 0.73  | V             |
|          |                       | 1N914 / 916 / 4148      | $I_F = 10 \text{ mA}$  |      | 1.0   | V             |
|          |                       | 1N914A/916A             | $I_F = 20 \text{ mA}$  |      | 1.0   | V             |
|          |                       | 1N916B                  | $I_F = 20 \text{ mA}$  |      | 1.0   | V             |
|          |                       | 1N914B / 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     | 1N916A/B/4448           | $V_R = 0, f = 1.0 \text{ MHz}$   |      | 2.0   | pF            |
|          |                       | 1N914A/B/4148           | $V_R = 0, f = 1.0 \text{ MHz}$   |      | 4.0   | pF            |
| $t_{rr}$ | Reverse Recovery Time |                         | $I_F = 10 \text{ mA}, V_R = 6.0 \text{ V (600 mA)}$<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

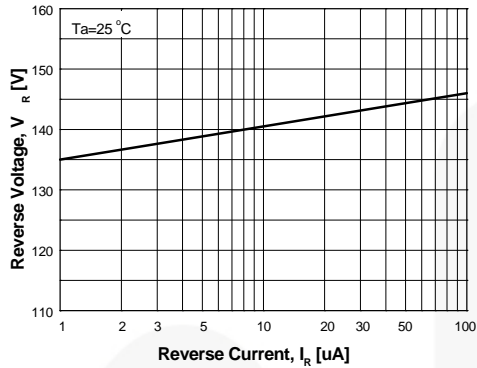


Figure 1. Reverse Voltage vs. Reverse Current  
 $V_R$  - 1.0 to 100  $\mu$ A

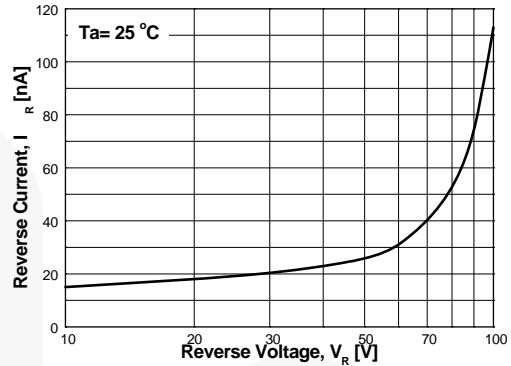


Figure 2. Reverse Current vs. Reverse Voltage  
 $I_R$  - 10 to 100 V

GENERAL RULE: The Reverse Current of a diode will approximately double for every ten (10) Degree C increase in Temperature

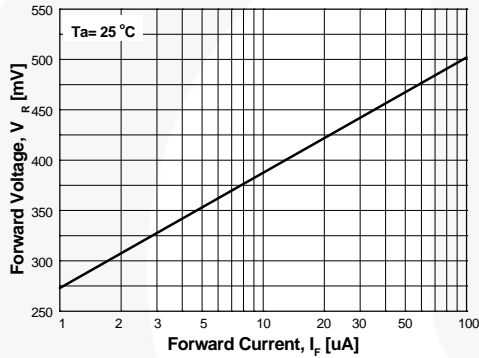


Figure 3. Forward Voltage vs. Forward Current  
 $V_F$  - 1 to 100  $\mu$ A

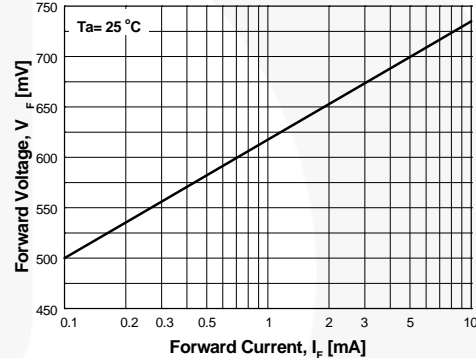


Figure 4. Forward Voltage vs. Forward Current  
 $V_F$  - 0.1 to 10 mA

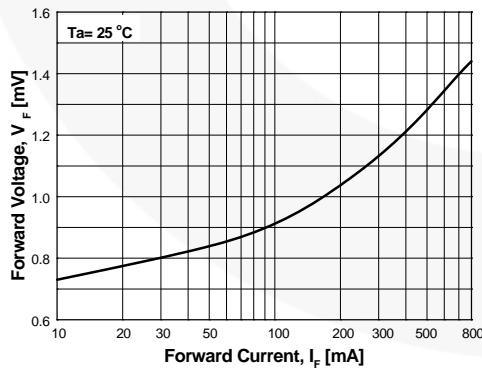


Figure 5. Forward Voltage vs. Forward Current  
 $V_F$  - 10 to 800 mA

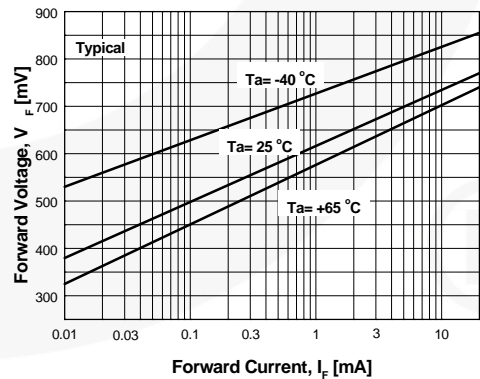
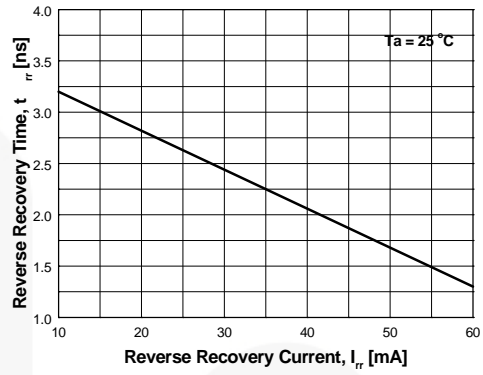


Figure 6. Forward Voltage vs. Ambient Temperature  
 $V_F$  - 0.01 - 20 mA (- 40 to +65°C)

Typical Performance Characteristics (Continued)



Figure 7. Total Capacitance



IF = 10mA , IRR = 1.0 mA , Rloop = 100 Ohms  
 Figure 8. Reverse Recovery Time vs. Reverse Recovery Current

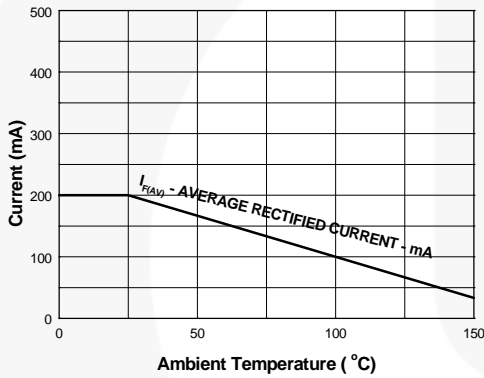


Figure 9. Average Rectified Current ( $I_{F(AV)}$ ) vs. Ambient Temperature ( $T_A$ )

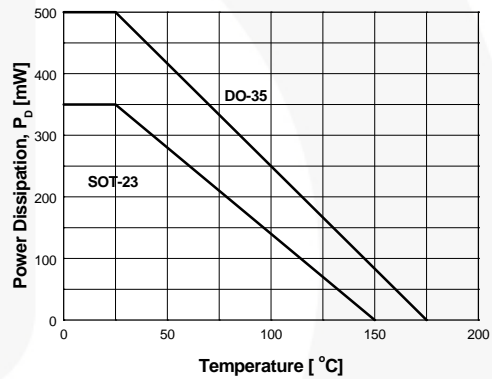


Figure 10. Power Derating Curve

## Physical Dimensions

### SOD-80



NOTES: UNLESS OTHERWISE SPECIFIED

A) PACKAGE STANDARD REFERENCE:  
JEDEC DO-213, VARIATION AC.

B) ALL DIMENSIONS ARE IN MILLIMETERS.

 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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| AccuPower™  | F-PFS™   | PowerTrench®  |  |
| AX-CAP®*  | FRFET®   | PowerXS™  | TinyBoost™  |
| BitSiC™   | Global Power Resource <sup>SM</sup>            | Programmable Active Droop™  | TinyBuck™   |
| Build it Now™   | GreenBridge™                                   | QFET®   | TinyCalc™   |
| CorePLUS™   | Green FPS™                                     | QS™   | TinyLogic®  |
| CorePOWER™  | Green FPS™ e-Series™                           | Quiet Series™   | TINYOPTO™   |
| CROSSVOLT™  | Gmax™  | RapidConfigure™   | TinyPower™  |
| CTL™  | GTO™   |  | TinyPWM™  |
| Current Transfer Logic™   | IntelliMAX™                                    | Saving our world, 1mW/W/kW at a time™   | TinyWire™   |
| DEUXPEED®   | ISOPLANAR™                                     | SignalWise™   | TranSiC™  |
| Dual Cool™  | Making Small Speakers Sound Louder and Better™ | SmartMax™   | TriFault Detect™  |
| EcoSPARK®   | MegaBuck™                                      | SMART START™  | TRUECURRENT®*   |
| EfficientMax™   | MICROCOUPLER™                                  | Solutions for Your Success™   | μSerDes™  |
| ESBC™   | MicroFET™                                      | SPM®  |  |
|  | MicroPak™                                      | STEALTH™  | UHC®  |
| Fairchild®  | MicroPak2™                                     | SuperFET®   | Ultra FRFET™  |
| Fairchild Semiconductor®  | MillerDrive™                                   | SuperSOT™-3   | UniFET™   |
| FACT Quiet Series™  | MotionMax™                                     | SuperSOT™-6   | VXC™  |
| FACT®   | mWSaver™                                       | SuperSOT™-8   | VisualMax™  |
| FAST®   | OptoHi™  | SupreMOS®   | VoltagePlus™  |
| FastvCore™  | OPTOLOGIC®                                     | SyncFET™  | XS™   |
| FETBench™   | OPTOPLANAR®                                    |   |   |

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Телефон: 8 (812) 309-75-97 (многоканальный)

Факс: 8 (812) 320-03-32

Электронная почта: [ocean@oceanchips.ru](mailto:ocean@oceanchips.ru)

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Адрес: 198099, г. Санкт-Петербург, ул. Калинина, д. 2, корп. 4, лит. А