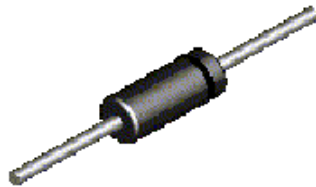




# 1N/FDLL 914/A/B / 916/A/B / 4148 / 4448



DO-35



LL-34

THE PLACEMENT OF THE EXPANSION GAP  
HAS NO RELATIONSHIP TO THE LOCATION  
OF THE CATHODE TERMINAL

## COLOR BAND MARKING

| DEVICE   | 1ST BAND | 2ND BAND |
|----------|----------|----------|
| FDLL914  | BLACK    | BROWN    |
| FDLL914A | BLACK    | GRAY     |
| FDLL914B | BROWN    | BLACK    |
| FDLL916  | BLACK    | RED      |
| FDLL916A | BLACK    | WHITE    |
| FDLL916B | BROWN    | BROWN    |
| FDLL4148 | BLACK    | BROWN    |
| FDLL4448 | BROWN    | BLACK    |

## Small Signal Diode

### Absolute Maximum Ratings\*

$T_A = 25^\circ\text{C}$  unless otherwise noted

| Symbol      | Parameter                                                                                              | Value       | Units            |
|-------------|--------------------------------------------------------------------------------------------------------|-------------|------------------|
| $V_{RRM}$   | Maximum Repetitive Reverse Voltage                                                                     | 100         | V                |
| $I_{F(AV)}$ | Average Rectified Forward Current                                                                      | 200         | mA               |
| $I_{FSM}$   | Non-repetitive Peak Forward Surge Current<br>Pulse Width = 1.0 second<br>Pulse Width = 1.0 microsecond | 1.0<br>4.0  | A<br>A           |
| $T_{stg}$   | Storage Temperature Range                                                                              | -65 to +200 | $^\circ\text{C}$ |
| $T_J$       | Operating Junction Temperature                                                                         | 175         | $^\circ\text{C}$ |

\*These ratings are limiting values above which the serviceability of any semiconductor device may be impaired.

#### NOTES:

- 1) These ratings are based on a maximum junction temperature of 200 degrees C.
- 2) These are steady state limits. The factory should be consulted on applications involving pulsed or low duty cycle operations.

## Thermal Characteristics

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

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Small Signal Diode  
(continued)

Electrical Characteristics  $T_A = 25^\circ\text{C}$  unless otherwise noted

| Symbol   | Parameter                                                                                                                                    | Test Conditions                                                                                                                                       | Min        | Max                                    | Units                                |
|----------|----------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------|------------|----------------------------------------|--------------------------------------|
| $V_R$    | Breakdown Voltage                                                                                                                            | $I_R = 100\ \mu\text{A}$<br>$I_R = 5.0\ \mu\text{A}$                                                                                                  | 100<br>75  |                                        | V<br>V                               |
| $V_F$    | Forward Voltage<br><b>1N914B/4448</b><br><b>1N916B</b><br><b>1N914/916/4148</b><br><b>1N914A/916A</b><br><b>1N916B</b><br><b>1N914B/4448</b> | $I_F = 5.0\ \text{mA}$<br>$I_F = 5.0\ \text{mA}$<br>$I_F = 10\ \text{mA}$<br>$I_F = 20\ \text{mA}$<br>$I_F = 20\ \text{mA}$<br>$I_F = 100\ \text{mA}$ | 620<br>630 | 720<br>730<br>1.0<br>1.0<br>1.0<br>1.0 | mV<br>mV<br>V<br>V<br>V<br>V         |
| $I_R$    | Reverse Current                                                                                                                              | $V_R = 20\ \text{V}$<br>$V_R = 20\ \text{V}, T_A = 150^\circ\text{C}$<br>$V_R = 75\ \text{V}$                                                         |            | 25<br>50<br>5.0                        | nA<br>$\mu\text{A}$<br>$\mu\text{A}$ |
| $C_T$    | Total Capacitance<br><b>1N916A/B/4448</b><br><b>1N914A/B/4148</b>                                                                            | $V_R = 0, f = 1.0\ \text{MHz}$<br>$V_R = 0, f = 1.0\ \text{MHz}$                                                                                      |            | 2.0<br>4.0                             | pF<br>pF                             |
| $t_{rr}$ | Reverse Recovery Time                                                                                                                        | $I_F = 10\ \text{mA}, V_R = 6.0\ \text{V} (60\text{mA}),$<br>$I_{rr} = 1.0\ \text{mA}, R_L = 100\ \Omega$                                             |            | 4.0                                    | ns                                   |

Typical Characteristics

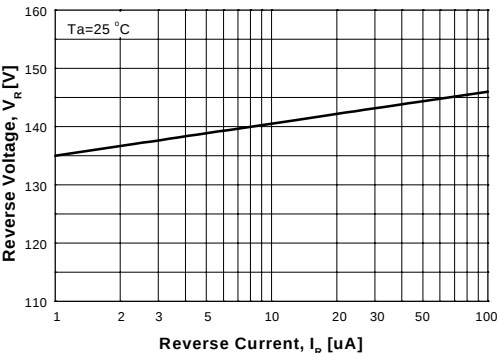


Figure 1. Reverse Voltage vs Reverse Current  
BV - 1.0 to 100  $\mu\text{A}$

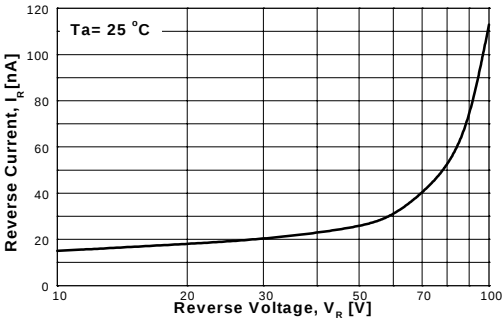


Figure 2. Reverse Current vs Reverse Voltage  
IR - 10 to 100 V  
GENERAL RULE: The Reverse Current of a diode will approximately double for every ten (10) Degree C increase in Temperature

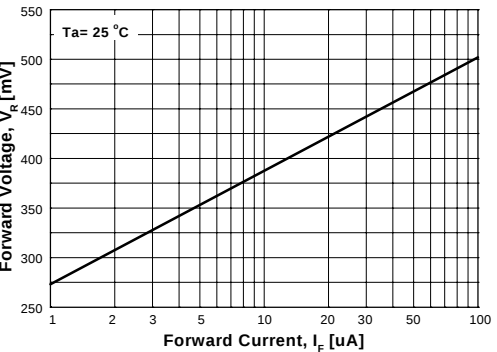


Figure 3. Forward Voltage vs Forward Current  
VF - 1 to 100  $\mu\text{A}$

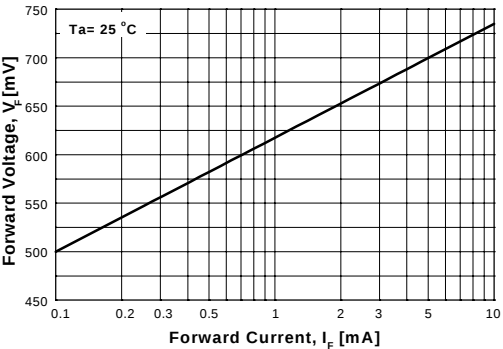


Figure 4. Forward Voltage vs Forward Current  
VF - 0.1 to 10 mA

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Typical Characteristics (continued)

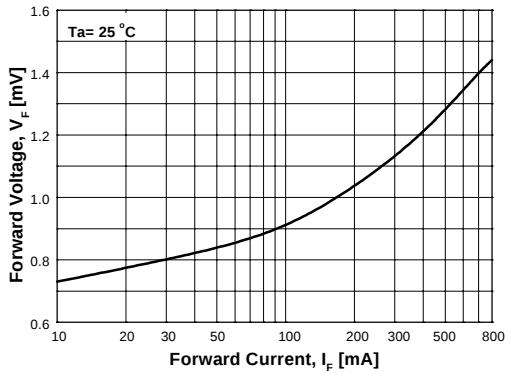


Figure 5. Forward Voltage vs Forward Current  
VF - 10 to 800 mA

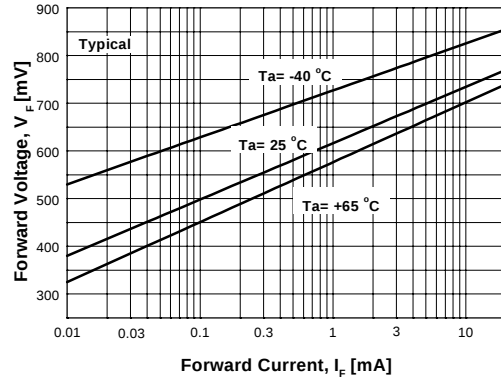


Figure 6. Forward Voltage  
vs Ambient Temperature  
VF - 0.01 - 20 mA (-40 to +65 Deg C)

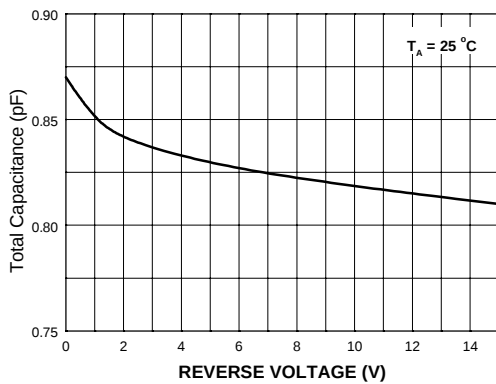


Figure 7. Total Capacitance

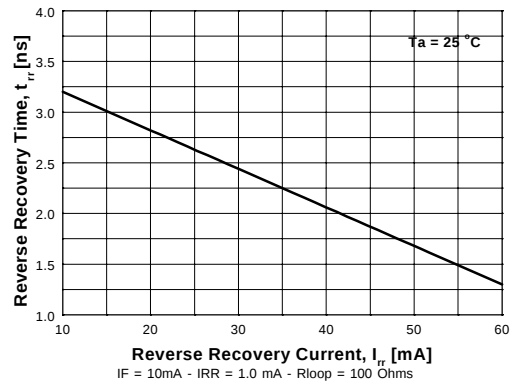


Figure 8. Reverse Recovery Time vs  
Reverse Recovery Current

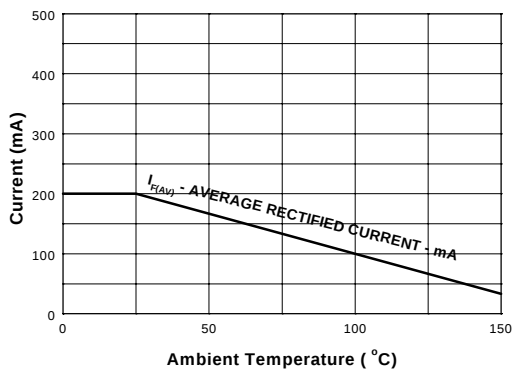


Figure 9. Average Rectified Current ( $I_{F(AV)}$ )  
versus Ambient Temperature ( $T_A$ )

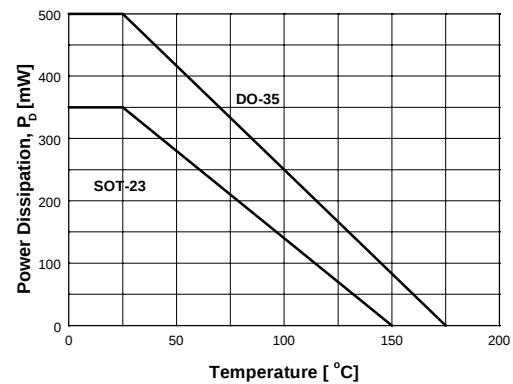


Figure 10. Power Derating Curve

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| CROSSVOLT™           | GlobalOptoisolator™ | PACMAN™             | STAR*POWER™      |           |
| DenseTrench™         | GTO™                | POP™                | Stealth™         |           |
| DOME™                | HiSeC™              | Power247™           | SuperSOT™-3      |           |
| EcoSPARK™            | I <sup>2</sup> C™   | PowerTrench®        | SuperSOT™-6      |           |
| E <sup>2</sup> CMOS™ | ISOPPLANAR™         | QFET™               | SuperSOT™-8      |           |
| EnSigna™             | LittleFET™          | QS™                 | SyncFET™         |           |
| FACT™                | MicroFET™           | QT Optoelectronics™ | TinyLogic™       |           |
| FACT Quiet Series™   | MicroPak™           | Quiet Series™       | TruTranslation™  |           |

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