



## 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<sub>A</sub> = 25°C unless otherwise noted

| Symbol             | Parameter                                 | Value       | Units |
|--------------------|-------------------------------------------|-------------|-------|
| V <sub>RRM</sub>   | Maximum Repetitive Reverse Voltage        | 100         | V     |
| I <sub>F(AV)</sub> | Average Rectified Forward Current         | 200         | mA    |
| I <sub>FSM</sub>   | Non-repetitive Peak Forward Surge Current |             |       |
|                    | Pulse Width = 1.0 second                  | 1.0         | A     |
|                    | Pulse Width = 1.0 microsecond             | 4.0         | A     |
| T <sub>stg</sub>   | Storage Temperature Range                 | -65 to +200 | °C    |
| T <sub>J</sub>     | Operating Junction Temperature            | 175         | °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 <sub>D</sub>   | Power Dissipation                       | 500                           | mW    |
| R <sub>θJA</sub> | Thermal Resistance, Junction to Ambient | 300                           | °C/W  |

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

Typical Characteristics

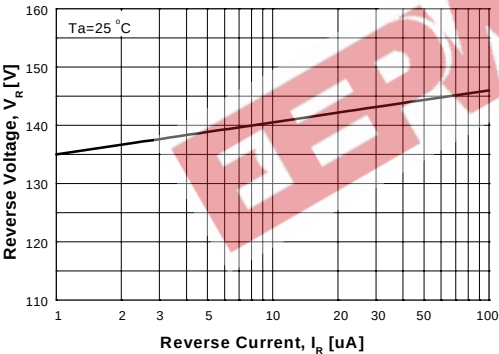


Figure 1. Reverse Voltage vs Reverse Current  
BV - 1.0 to 100 uA

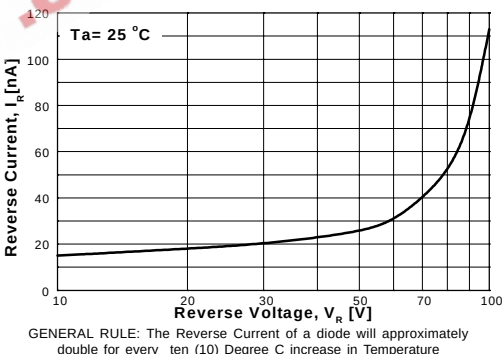


Figure 2. Reverse Current vs Reverse Voltage  
IR - 10 to 100 V

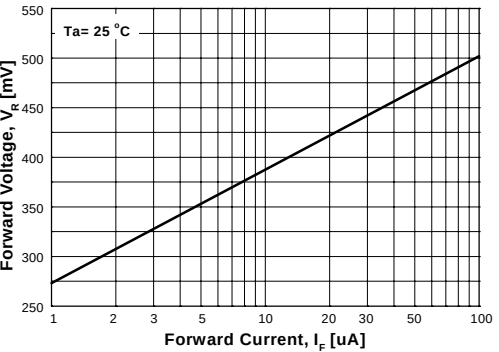


Figure 3. Forward Voltage vs Forward Current  
VF - 1 to 100 uA

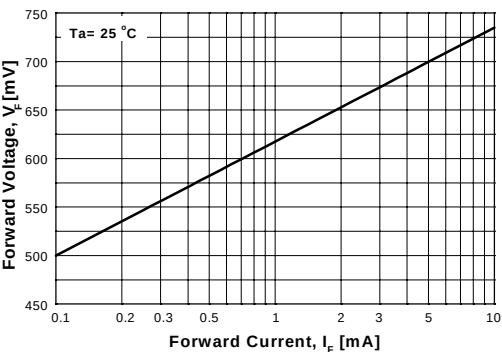


Figure 4. Forward Voltage vs Forward Current  
VF - 0.1 to 10 mA

## Small Signal Diode (continued)

### Typical Characteristics (continued)

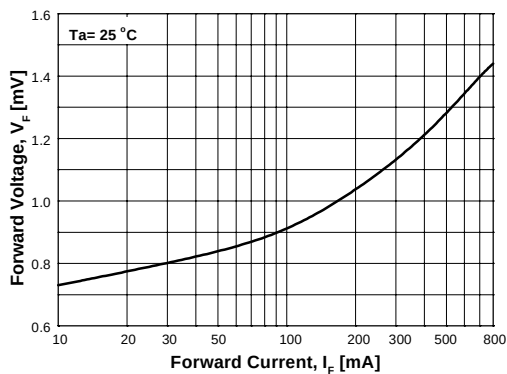


Figure 5. Forward Voltage vs Forward Current  
VF - 10 to 800 mA

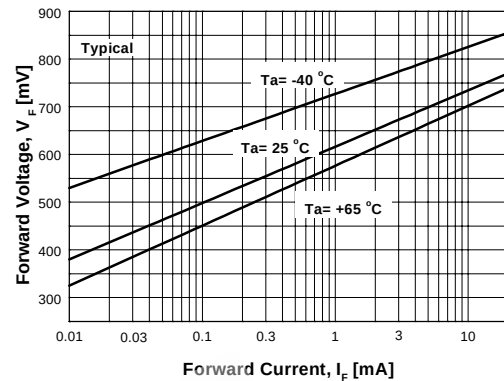


Figure 6. Forward Voltage  
vs Ambient Temperature  
VF - 0.01 - 20 mA (-40 to +65 Deg C)

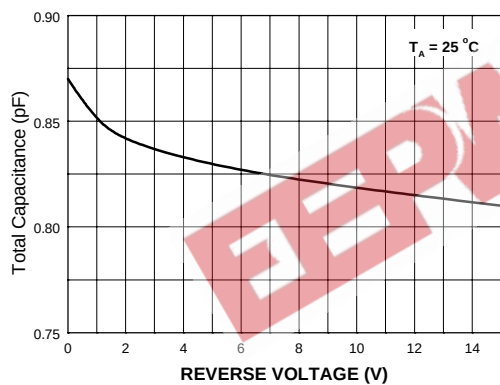


Figure 7. Total Capacitance

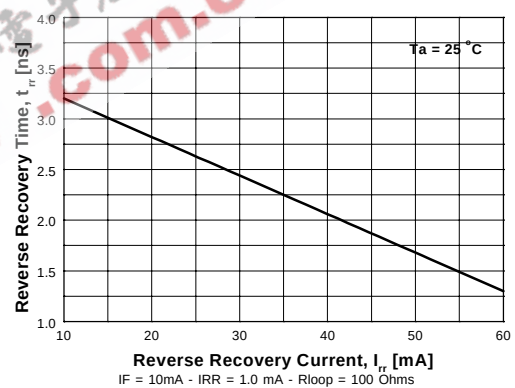


Figure 8. Reverse Recovery Time vs  
Reverse Recovery Current

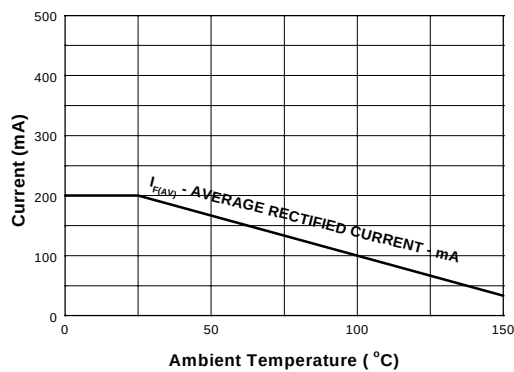


Figure 9. Average Rectified Current ( $I_{F(AV)}$ )  
versus Ambient Temperature ( $T_A$ )

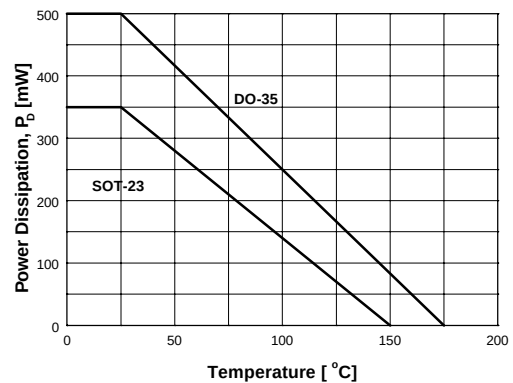


Figure 10. Power Derating Curve

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| CoolFET™             | FRFET™              | OPTOPLANAR™         | SPM™             | VCX™      |
| 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™         |           |
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