Small Signal Diode

Absolute Maximum Ratings *  $T_A = 25^\circ C$ unless otherwise noted

<table>
<thead>
<tr>
<th>Symbol</th>
<th>Parameter</th>
<th>Value</th>
<th>Units</th>
</tr>
</thead>
<tbody>
<tr>
<td>$V_{RRM}$</td>
<td>Maximum Repetitive Reverse Voltage</td>
<td>100</td>
<td>V</td>
</tr>
<tr>
<td>$I_{F(AV)}$</td>
<td>Average Rectified Forward Current</td>
<td>200</td>
<td>mA</td>
</tr>
<tr>
<td>$I_{FSM}$</td>
<td>Non-repetitive Peak Forward Surge Current</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Pulse Width = 1.0 second</td>
<td>1.0</td>
<td>A</td>
</tr>
<tr>
<td></td>
<td>Pulse Width = 1.0 microsecond</td>
<td>4.0</td>
<td>A</td>
</tr>
<tr>
<td>$T_{STG}$</td>
<td>Storage Temperature Range</td>
<td>-65 to +200</td>
<td>°C</td>
</tr>
<tr>
<td>$T_J$</td>
<td>Operating Junction Temperature</td>
<td>175</td>
<td>°C</td>
</tr>
</tbody>
</table>

* These ratings are limiting values above which the serviceability of the diode 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

<table>
<thead>
<tr>
<th>Symbol</th>
<th>Parameter</th>
<th>Max. $1N/FDLL$</th>
<th>Units</th>
</tr>
</thead>
<tbody>
<tr>
<td>$P_D$</td>
<td>Power Dissipation</td>
<td>500</td>
<td>mW</td>
</tr>
<tr>
<td>$R_{JUA}$</td>
<td>Thermal Resistance, Junction to Ambient</td>
<td>300</td>
<td>°C/W</td>
</tr>
</tbody>
</table>
## Electrical Characteristics

$T_a=25^\circ$C unless otherwise noted

<table>
<thead>
<tr>
<th>Symbol</th>
<th>Parameter</th>
<th>Test Conditions</th>
<th>Min.</th>
<th>Max.</th>
<th>Units</th>
</tr>
</thead>
<tbody>
<tr>
<td>$V_R$</td>
<td>Breakdown Voltage</td>
<td>$I_R = 100\mu A$</td>
<td>100</td>
<td>75</td>
<td>V</td>
</tr>
<tr>
<td></td>
<td></td>
<td>$I_R = 5.0\mu A$</td>
<td></td>
<td></td>
<td>V</td>
</tr>
<tr>
<td>$V_F$</td>
<td>Forward Voltage</td>
<td>$I_F = 5.0mA$</td>
<td>620</td>
<td>720</td>
<td>mV</td>
</tr>
<tr>
<td></td>
<td>1N914B/4448</td>
<td>$I_F = 5.0mA$</td>
<td>630</td>
<td>730</td>
<td>mV</td>
</tr>
<tr>
<td></td>
<td>1N916B</td>
<td>$I_F = 10mA$</td>
<td>1.0</td>
<td>1.0</td>
<td>V</td>
</tr>
<tr>
<td></td>
<td>1N914A/916A</td>
<td>$I_F = 20mA$</td>
<td>1.0</td>
<td>1.0</td>
<td>V</td>
</tr>
<tr>
<td></td>
<td>1N916B</td>
<td>$I_F = 100mA$</td>
<td>1.0</td>
<td>1.0</td>
<td>V</td>
</tr>
<tr>
<td>$I_R$</td>
<td>Reverse Leakage</td>
<td>$V_R = 20V$</td>
<td>25</td>
<td>50</td>
<td>nA</td>
</tr>
<tr>
<td></td>
<td></td>
<td>$V_R = 20V, T_a = 150^\circ$</td>
<td>50</td>
<td></td>
<td>µA</td>
</tr>
<tr>
<td>$C_T$</td>
<td>Total Capacitance</td>
<td>1N916A/B/4448</td>
<td>2.0</td>
<td>4.0</td>
<td>pF</td>
</tr>
<tr>
<td></td>
<td>1N914A/B/4148</td>
<td>$V_R = 0, f = 1.0MHz$</td>
<td>5.0</td>
<td></td>
<td>µA</td>
</tr>
<tr>
<td>$t_R$</td>
<td>Reverse Recovery Time</td>
<td>$I_R = 10mA, V_R = 6.0V$</td>
<td>4.0</td>
<td></td>
<td>ns</td>
</tr>
</tbody>
</table>

### Typical Characteristics

**Figure 1. Reverse Voltage vs Reverse Current**

$V_K - 1.0$ to $100\mu A$

**Figure 2. Reverse Current vs Reverse Voltage**

$IR - 10$ to $100V$

**Figure 3. Forward Voltage vs Forward Current**

$V_F - 1$ to $100\mu A$

**Figure 4. Forward Voltage vs Forward Current**

$VF - 0.1$ to $10mA$
Typical Characteristics (Continued)

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

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

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
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<th>Definition</th>
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