Datasheet RLNA01M01GNDC

Hermetically Sealed
Ultra Wide Band Low Noise Amplifier
0.1GHz~1GHz

Key Features
- Gain: 15dB Typical
- Functional Bandwidth: 100MHz to 4GHz
- Noise Figure: 1.0dB Typical
- P1dB Output Power: +20dBm Typical
- Supply Voltage: +5V

Typical Applications
- Wireless Infrastructure
- Military and Aerospace
- Test and Measurement
- Radar and Satellite
- 5G LTE Communications

Electrical Specifications, TA = +25°C, Vcc = +5V

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<tbody>
<tr>
<td>Frequency Range</td>
<td>0.1</td>
<td>1</td>
<td>1</td>
<td>2</td>
<td>2</td>
<td>4</td>
<td></td>
<td></td>
<td></td>
<td>GHz</td>
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<tr>
<td>Gain</td>
<td>13</td>
<td>15</td>
<td>17</td>
<td>13</td>
<td>11</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>dB</td>
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<tr>
<td>Gain Flatness</td>
<td>±0.6</td>
<td>±1.0</td>
<td>±1.0</td>
<td>±1.5</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>dB</td>
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<tr>
<td>Gain Variation Over Temperature (-45 ~ +85)</td>
<td>±0.5</td>
<td>±0.75</td>
<td>±0.5</td>
<td>±0.8</td>
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<td></td>
<td></td>
<td></td>
<td></td>
<td>dB</td>
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<tr>
<td>Noise Figure</td>
<td>1.5</td>
<td>2.0</td>
<td>2.0</td>
<td>2.5</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>dB</td>
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<tr>
<td>Input VSWR</td>
<td>1.5</td>
<td>1.8</td>
<td>2.0</td>
<td>1.8</td>
<td>: 1</td>
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<tr>
<td>Output VSWR</td>
<td>1.5</td>
<td>1.8</td>
<td>2.2</td>
<td>1.8</td>
<td>: 1</td>
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<tr>
<td>Output 1dB Compression Point (P1dB)</td>
<td>19</td>
<td>20</td>
<td>19</td>
<td>17</td>
<td></td>
<td>dBm</td>
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<td>Saturated Output Power (Psat)</td>
<td>23</td>
<td>21</td>
<td>19</td>
<td></td>
<td></td>
<td>dBm</td>
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<td>Output Third Order Intercept (IP3)</td>
<td>31</td>
<td>27</td>
<td>23</td>
<td></td>
<td></td>
<td>dBm</td>
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<tr>
<td>Supply Current (Vcc=+5V)</td>
<td>70</td>
<td>100</td>
<td>70</td>
<td>100</td>
<td></td>
<td>mA</td>
<td></td>
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<td>Isolation S12</td>
<td>-20</td>
<td></td>
<td>-21</td>
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<td>-21</td>
<td>dB</td>
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<tr>
<td>Weight</td>
<td>1.0</td>
<td>Max.</td>
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<td></td>
<td></td>
<td>OZ</td>
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<tr>
<td>Impedance</td>
<td>50</td>
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<td></td>
<td></td>
<td>Ohms</td>
<td></td>
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<tr>
<td>Input / Output Connectors</td>
<td>SMA - Female</td>
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<tr>
<td>Finish</td>
<td>Gold Plated</td>
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<tr>
<td>Material</td>
<td>Aluminum</td>
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<tr>
<td>Sealing</td>
<td>Hermetically Sealed (Laser Welded)</td>
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Absolute Maximum Ratings

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Value</th>
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<tbody>
<tr>
<td>Operating Voltage</td>
<td>+5.5V</td>
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<tr>
<td>RF Input Power</td>
<td>+33dBm</td>
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Biasing Up Procedure

<table>
<thead>
<tr>
<th>Step</th>
<th>Description</th>
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<tbody>
<tr>
<td>1</td>
<td>Connect Ground Pin</td>
</tr>
<tr>
<td>2</td>
<td>Connect input and output</td>
</tr>
<tr>
<td>3</td>
<td>Connect +5V biasing</td>
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Power OFF Procedure

<table>
<thead>
<tr>
<th>Step</th>
<th>Description</th>
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<tbody>
<tr>
<td>1</td>
<td>Turn off +5V biasing</td>
</tr>
<tr>
<td>2</td>
<td>Remove RF connection</td>
</tr>
<tr>
<td>3</td>
<td>Remove Ground.</td>
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Environmental Specifications and Test Standards

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<tr>
<th>Parameter</th>
<th>Description</th>
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<tbody>
<tr>
<td>Operational Temperature</td>
<td>-40°C to +85°C (Case Temperature)</td>
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<tr>
<td>Storage Temperature</td>
<td>-50°C to +105°C</td>
</tr>
<tr>
<td>Thermal Shock</td>
<td>-40°C to +85°C (5 Cycles / 10 hours)</td>
</tr>
<tr>
<td>Random Vibration</td>
<td>MIL-STD-202G Table 214-I, Test Condition Letter C 1.5 Hours Per Axis</td>
</tr>
<tr>
<td>High Temperature Burn In</td>
<td>Temperature +85°C for 72 Hours</td>
</tr>
<tr>
<td>Shock</td>
<td>1. Weight &gt;20g, 50g half sine wave for 11ms, Speed variation 3.44m/s</td>
</tr>
<tr>
<td></td>
<td>2. Weight &lt;=20g, 100g Half sine wave for 6ms, Speed variation 3.75m/s</td>
</tr>
<tr>
<td></td>
<td>3. Total 18 times (6 directions, 3 repetitions per direction).</td>
</tr>
<tr>
<td>Altitude</td>
<td>Standard: 30,000 Ft (Epoxy Sealed Controlled Environment) Optional: Hermetically Sealed (60,000 ft. 1.0 PSI min)</td>
</tr>
<tr>
<td>Hermetically Sealed</td>
<td>MIL-STD-883 (For Hermetically Sealed Units)</td>
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<tr>
<td>(Optional)</td>
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</tbody>
</table>
Datasheet RLNA01M01GNDC

Noise Figure

2nd Harmonic Wave Output Power

3rd Harmonic Wave Output Power

4th Harmonic Wave Output Power
Datasheet

**Part Number Description**

RLNA01M01GNDC 0.1-1GHz Low Noise Amplifier

**Ordering Information**

<table>
<thead>
<tr>
<th>Part Number</th>
<th>Description</th>
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<tbody>
<tr>
<td>RLNA01M01GNDC</td>
<td>0.1-1GHz Low Noise Amplifier</td>
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</tbody>
</table>

**Notes:**
- Heat Sink required during operation (Sold Separately)
- Standard torque wrench must be used to secure RF connectors.

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