Smiths Interconnect’s LNA Series of low noise amplifiers utilizes advanced PHEMT MMICs and transistors for state-of-the-art noise performance in the 18 to 120 GHz frequency range.

Each amplifier has internal bias circuitry that generates gate control voltages, provides proper voltage sequencing and bias. The standard amplifier interfaces include coaxial connectors of 2.92 mm (0 to 40 GHz), 2.4 mm (0 to 50 GHz), and 1.85 mm (0 to 65 GHz), as well as waveguide interfaces ranging from WR-42 to WR-10.

Standard products offer sufficient gain for most applications but multiple MMIC amplifier chips can be combined or cascaded for applications that require higher gain or greater output power.

The LNA Series’ broad bandwidth and low noise makes it a perfect choice for a wide range of applications including radiometry, polarimetry, EW systems, instrumentation and radar systems. For applications requiring driver or power amplifications, please refer to Smiths Interconnect’s AMP Series of power amplifiers.
## Technical Characteristics

### Specifications

<table>
<thead>
<tr>
<th>Model Number</th>
<th>FLow (GHz)</th>
<th>FHigh (GHz)</th>
<th>Gain (typ.) (dB)</th>
<th>NF (typ.) (dB)</th>
<th>Connector</th>
<th>Current (A) (typ.)</th>
<th>Input Voltage (V) (minl-max)</th>
<th>Max RF Input Power (dBm)</th>
<th>Outline Drawing</th>
</tr>
</thead>
<tbody>
<tr>
<td>LNA-42-03330</td>
<td>18</td>
<td>26.5</td>
<td>29</td>
<td>2.5 @ 18GHz, 2 @ 22GHz, 1.5 @ 26.5GHz</td>
<td>WR-42</td>
<td>0.08</td>
<td>7.5 - 15</td>
<td>-15</td>
<td>Fig. 2</td>
</tr>
<tr>
<td>LNA-KK-03050</td>
<td>26</td>
<td>34</td>
<td>21</td>
<td>3.8</td>
<td>WR-28</td>
<td>0.08</td>
<td>7.5 - 15</td>
<td>TBA</td>
<td>Fig. 1</td>
</tr>
<tr>
<td>LNA-28-03050</td>
<td>26.5</td>
<td>34</td>
<td>24</td>
<td>3</td>
<td>WR-28</td>
<td>0.08</td>
<td>7.5 - 15</td>
<td>TBA</td>
<td>Fig. 3</td>
</tr>
<tr>
<td>LNA-KK-03330</td>
<td>18</td>
<td>40</td>
<td>27</td>
<td>1.5</td>
<td>WR-28</td>
<td>0.08</td>
<td>7.5 - 15</td>
<td>-15</td>
<td>Fig. 1</td>
</tr>
<tr>
<td>LNA-28-03330</td>
<td>26.5</td>
<td>40</td>
<td>28</td>
<td>5</td>
<td>WR-28</td>
<td>0.065</td>
<td>7.5 - 15</td>
<td>12</td>
<td>Fig. 3</td>
</tr>
<tr>
<td>LNA-KK-03070 ¹</td>
<td>30</td>
<td>40</td>
<td>17</td>
<td>4</td>
<td>WR-28</td>
<td>0.055</td>
<td>7.5 - 15</td>
<td>15</td>
<td>Fig. 1</td>
</tr>
<tr>
<td>LNA-28-03070 ¹</td>
<td>30</td>
<td>40</td>
<td>19</td>
<td>5</td>
<td>WR-28</td>
<td>0.055</td>
<td>7.5 - 15</td>
<td>15</td>
<td>Fig. 3</td>
</tr>
<tr>
<td>LNA-KK-02060 ¹</td>
<td>32</td>
<td>40</td>
<td>18.0 @ 33 GHz</td>
<td>4</td>
<td>WR-28</td>
<td>0.055</td>
<td>7.5 - 15</td>
<td>15</td>
<td>Fig. 3</td>
</tr>
<tr>
<td>LNA-28-02060</td>
<td>32</td>
<td>40</td>
<td>18.8 @ 33 GHz</td>
<td>4</td>
<td>WR-28</td>
<td>0.055</td>
<td>7.5 - 15</td>
<td>15</td>
<td>Fig. 3</td>
</tr>
<tr>
<td>LNA-22-03070</td>
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<td>42</td>
<td>20</td>
<td>4</td>
<td>WR-22</td>
<td>0.065</td>
<td>7.5 - 15</td>
<td>12</td>
<td>Fig. 4</td>
</tr>
<tr>
<td>LNA-22-02060</td>
<td>33</td>
<td>46</td>
<td>18.5 @ 33 GHz</td>
<td>4</td>
<td>WR-22</td>
<td>0.055</td>
<td>7.5 - 15</td>
<td>15</td>
<td>Fig. 4</td>
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<tr>
<td>LNA-22-22060</td>
<td>33</td>
<td>46</td>
<td>31</td>
<td>4.5 @ 33 GHz, 4.0 @ 36 GHz, 3.5 @ 40 GHz, 4.0 @ 43 GHz, 4.8 @ 46 GHz</td>
<td>WR-22</td>
<td>0.1</td>
<td>7.5 - 15</td>
<td>-5</td>
<td></td>
</tr>
<tr>
<td>LNA-19-03320</td>
<td>40</td>
<td>60</td>
<td>22</td>
<td>2.5</td>
<td>WR-19</td>
<td>0.075</td>
<td>7.5 - 15</td>
<td>0</td>
<td>*</td>
</tr>
<tr>
<td>LNA-15-02240</td>
<td>55</td>
<td>65</td>
<td>20</td>
<td>5</td>
<td>WR-15</td>
<td>0.06</td>
<td>7.5 - 15</td>
<td>0</td>
<td>Fig. 5</td>
</tr>
<tr>
<td>LNA-15-03320</td>
<td>50</td>
<td>75</td>
<td>2 (50 - 70GHz), 17 @ 75 GHz</td>
<td>2.5</td>
<td>WR-15</td>
<td>0.075</td>
<td>7.5 - 15</td>
<td>0</td>
<td>Fig. 5</td>
</tr>
<tr>
<td>LNA-12-02280</td>
<td>71</td>
<td>86</td>
<td>21 @ 86 GHz</td>
<td>4.5</td>
<td>WR-12</td>
<td>0.075</td>
<td>7.5 - 15</td>
<td>0</td>
<td>Fig. 6</td>
</tr>
<tr>
<td>LNA-12-02690</td>
<td>71</td>
<td>86</td>
<td>20</td>
<td>4.5</td>
<td>WR-12</td>
<td>0.18</td>
<td>7.5 - 15</td>
<td>3</td>
<td>*</td>
</tr>
<tr>
<td>LNA-10-02280</td>
<td>75</td>
<td>86</td>
<td>19</td>
<td>4.5</td>
<td>WR-10</td>
<td>0.075</td>
<td>7.5 - 15</td>
<td>0</td>
<td>Fig. 7</td>
</tr>
<tr>
<td>LNA-10-03350</td>
<td>75</td>
<td>100</td>
<td>22</td>
<td>3</td>
<td>WR-10</td>
<td>0.08</td>
<td>7.5 - 15</td>
<td>0</td>
<td>Fig. 7</td>
</tr>
<tr>
<td>LNA-10-02580</td>
<td>80</td>
<td>105</td>
<td>16</td>
<td>6</td>
<td>WR-10</td>
<td>0.15</td>
<td>7.5 - 15</td>
<td>0</td>
<td>Fig. 7</td>
</tr>
<tr>
<td>LNA-10-03290</td>
<td>80</td>
<td>105</td>
<td>15</td>
<td>6</td>
<td>WR-10</td>
<td>0.3</td>
<td>7.5 - 15</td>
<td>3</td>
<td>*</td>
</tr>
<tr>
<td>LNA-10-02590</td>
<td>75</td>
<td>110</td>
<td>21 @ 75 GHz</td>
<td>2.8 @ 75 GHz, 3.0 @ 95 GHz, 6.5 @ 110 GHz</td>
<td>WR-10</td>
<td>0.05</td>
<td>7.5 - 15</td>
<td>TBA</td>
<td>Fig. 7</td>
</tr>
</tbody>
</table>

* Please contact our Northampton, MA office for details.

For 2.4 mm, substitute "QQ" for "KK" in the model number.

2 Descends with frequency.

3 Balanced amplifier. Return loss is ~20dB. **Note:** Some model numbers are ITAR controlled.
Technical Characteristics

Specifications

LNA Noise Figure Capabilities

![Graph showing LNA Noise Figure Capabilities over frequency (GHz)]

Outline Drawings

Figure 1

![Outline drawings showing the physical dimensions and features of LNA Series components]

For more information on this product contact our Northampton, MA Office +1 413 582 9620 email: info.northampton@smithsinterconnectinc.com
Outline Drawings

**Figure 6**

**Figure 7**
Outline Drawings

Figure 8

All dimensions are in inches and [mm]

How To Order

Specify Model Number: **LNA-XX-AAAAA**

<table>
<thead>
<tr>
<th>LNA</th>
<th>Series Name</th>
<th>XX</th>
<th>Standard Connector</th>
<th>AAAAA</th>
<th>Standard Model Number</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>LNA</td>
<td>XX</td>
<td>WR-08</td>
<td>WR-10</td>
<td>Choose a standard model number from our product list. If none of these products meet your requirements, please contact our Northampton, MA office for custom design options.</td>
</tr>
</tbody>
</table>
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