



- DEM 14LNA - 1.7-2.2 GHz. Low Noise Amplifier
- DEM 13LNA - 2.1-2.5 GHz. Low Noise Amplifier
- DEM 12LNA - 2.4-2.7 GHz. Low Noise Amplifier

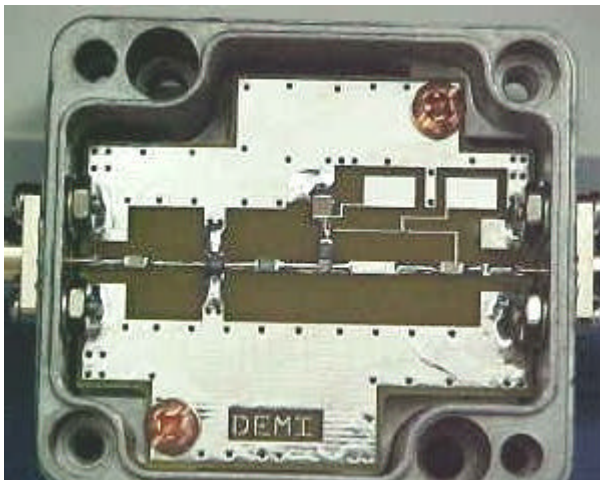
**Specifications:**

Gain:	21dB nominal
Noise Figure:	< 2.0dB
P1dB:	+ 6dBm output
Input VSWR:	> 10dB @ design frequency
Output VSWR:	> 10dB .1 - 3 GHz.
Voltage:	+ 10 - + 16 VDC
Current Drain	< 25 mA



**Product Description:**

This series of low noise amplifiers shares a common design from 1700 MHz. through 2700 MHz. They utilizes a PHEMT GaAs MMIC that has been developed for low noise applications at these frequencies. Standard gains of our 12,13, and 14LNAs are nominally 21 dB but lower gain, higher P1dB models are available in this design configuration. Noise figures for this series are below 2.0dB but the lower gain, higher P1dB models will exhibit a higher noise figure. This series was specifically designed where ultra low noise figure designs are not required. They may be used in wide bandwidth receive applications, used as secondary gain stages, or for laboratory test equipment where stable low noise gain may be required. All of this series LNA's are assembled in weather proof enclosures and are designed for receive only applications.



Since a wide bandwidth 50 ohm MMIC is used in this design, there is no need for impedance matching circuits in the input and output networks. This LNA design incorporates a low loss series inductor input circuit that optimizes the return loss and noise figure. During the test process, the LNA is checked for gain, noise figure and input VSWR. Depending on the characteristics of the MMIC used in this design,( your requirements ) the resistive loaded output circuit is adjusted to control the gain. The resistive loading in conjunction with 50 ohm characteristics of the MMIC will offer a wide band 50 ohm match to all reflections thus producing a stable LNA to use with band pass filters , extended runs of coax, or high Q receiver front ends.

This LNA design is provided with type "N" or SMA connectors that are installed in a weather proof die cast aluminum enclosure that measures 2.5" L x 2.25" W x 1.375" H. This enclosure enhances RF insusceptibility and protects against stray external EMI. DC power is either applied through a Pi-circuit feed through filter connector which is a simple solder connection that



attenuates frequencies through 18 GHz. It also may be applied through the coax. Specify preference at the time of order. Because of this series wide bandwidth characteristics, a higher gain model is not recommended. If more gain is required in your system, further system engineering should be performed before installation of additional gain by cascading other LNA's.

Other Low Noise Amplifiers with operating frequencies, configurations, gains and noise figures not found on our price list or product descriptions can be designed by Down East Microwave Inc. and produced with relatively short delivery times. Please contact us with your specifications and/or requirements.

**Schematic Diagram of the 12, 13 and 14LNA Design:**

