



DEM 1420ULNA - 1420 MHz. Ultra Low Noise Amplifier

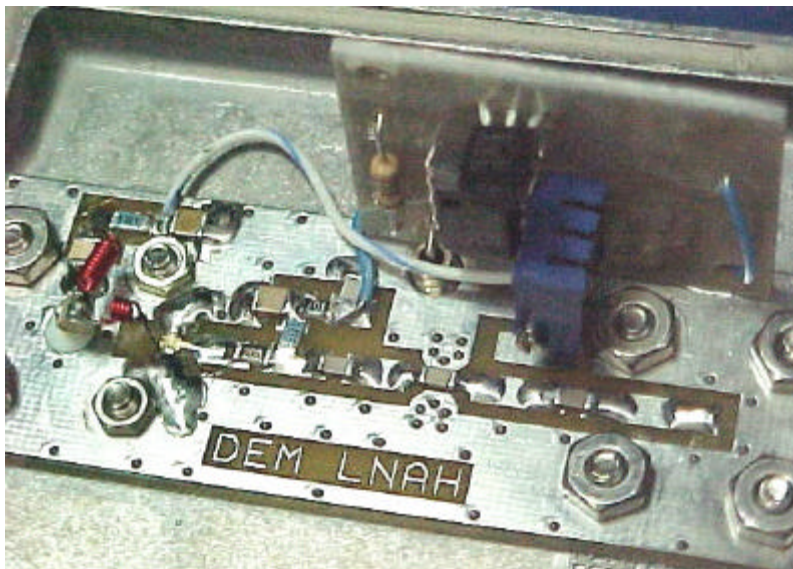
Specifications:

| | |
|---------------|--------------------------|
| Gain: | 17dB nominal |
| Noise Figure: | < .4dB |
| P1dB: | +5dBm output |
| Input VSWR: | > 6dB @ design frequency |
| Output VSWR: | > 10dB DC - 3 GHz. |
| Voltage: | +7 - +16 VDC |



Product Description:

The DEM1420ULNA is one of a series of **Ultra Low Noise Amplifiers** that shares a common design produced by Down East Microwave Inc. from 900 MHz. through 1700 MHz. Each model is optimized for it's own specified frequency. The ULNAs utilizes the latest in PHEMT technology and is designed for receive systems such as EME stations and weak signal satellite reception requiring the lowest noise figure as possible. All of the ULNAs are receive only and do not provide any RF bypass switching circuitry. Standard gains of our ULNAs range from 15 - 18 dB. All noise figures for this series of ULNAs are below 0.4dB. The ULNAs are adjusted on an individual basis for the best performance possible. This is accomplished with an internal negative voltage power supply that is separate from the RF circuit and provides power supply isolation for the FET.



Our ULNA design incorporates a low loss series inductor input circuit and a resistive loaded output circuit. During testing, the input circuit is optimized for gain and noise figure. The resistive loaded output circuit, is adjusted to control the gain and is tested for a constant wide bandwidth output impedance. This resistive load impedance absorbs products caused by reflections from band pass filters or high Q receiver front ends. We do not use tuned output circuits or baluns in our ULNA designs. Tuned output circuits and baluns do not offer

constant output impedances over wide bandwidths and may cause out of band instabilities from reflected signals. Tuned circuits may also require returning if a cable length or the tuning of a filter that is connected to the output of a tuned circuit LNA is changed.

This ULNA design is provided with type "N" connectors that are mounted on a weather proof die cast aluminum enclosure that measures 3.75" L x 2.5" W x 1.375" H. It is also available in a standard die cast enclosure if desired. Both of these enclosures 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. A higher gain model at all design frequencies is also available. Please consult DEMI with your requirements. The ULNA design is not offered in kit form.

ULNAs 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 33, 23, 1420, 1500, and 1691ULNA Design:

