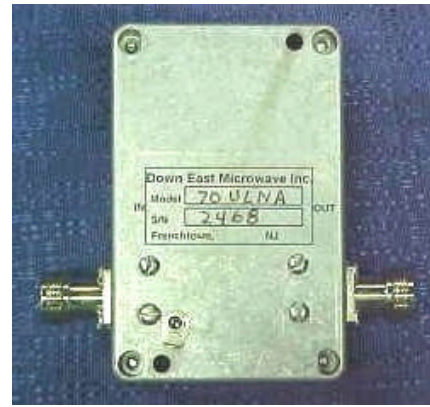




DEM 70ULNA - 432 MHz. Low Noise Amplifier

**Specifications:**

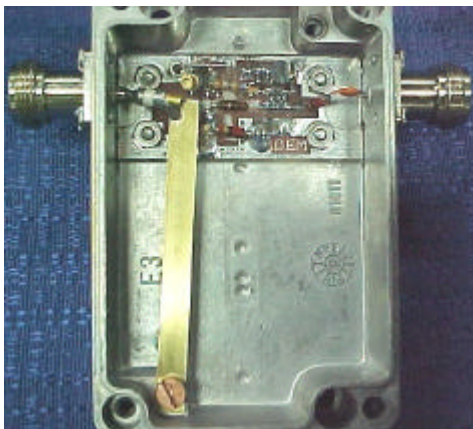
Gain:	17dB nominal
Noise Figure:	<0.4dB
P1dB:	> +15dBm output
Input VSWR:	>6dB @ design frequency
Output VSWR:	>10dB DC - 3 GHz.
Voltage:	+11 - +17 VDC



**Product Description:**

The DEM 70ULNA is custom design, receive only, ultra low noise amplifier that shares a common 30 to 500 MHz design produced by Down East Microwave Inc. The 70ULNA is recommended for EME type applications only. It is custom assembled on a individual basis and then optimized to produce better than the minimum specifications stated. The 70ULNA is produced with single gate GaAs FETs that is designed for low noise operation in the RF microwave frequency region. The inherent low noise feature of this microwave GaAs FET ensures a high gain and low noise design at UHF frequencies. Each 70ULNA has specially selected components chosen for low loss and performance. By hand selecting the GaAs FET and biasing it appropriately, a low noise, high gain LNA with a high immunity to intermod can be developed and produced. This product does not offer any RF bypass switching circuitry within its enclosure.

Standard gains of our 70ULNA are nominally 17 dB. The noise figure of the 70ULNA is below 0.4dB. The 70ULNA is biased for the highest P1dB (1 dB compression point) that's acceptable which will in turn produce the best 3<sup>rd</sup> order intercept or IMD performance possible while obtaining the specified gain and noise figure.



Our 70ULNA incorporates a High Q, low loss L-C input circuit and a resistive loaded output circuit. During testing, the input circuit is optimized for selectivity, 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 70ULNA design. 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 the LNA is modified or changed.

The 70ULNA is provided with type "N" connectors only that are installed on a weather proof die cast aluminum enclosure that measures 3.75" L x 2.5" W x 1.375" H. This enclosure enhances RF insusceptibility, protects against stray external EMI generated by high power EME

operation and provides a rigged attachment to any antenna feed system. DC power is applied through a Pi-circuit feed through filter connector, which is a simple solder connection, that attenuates all frequencies up through 18 GHz. Coax bias is available on request. This is a custom design and is not offered as a kit. Higher gain models are not available in this enclosure. This LNA is recommended for EME type applications only.

Other specialized custom LNAs with operating frequencies, configurations, gains and noise figures not found on our price list or product descriptions can be designed by DEMI and produced with relatively short delivery times. Please contact us with your specifications and/or requirements.

**Schematic Diagram of 70ULNA Design:**

