



DEM 1691LNA - 1691 MHz. Low Noise Amplifier

Specifications:

Gain:	14dB nominal
Noise Figure:	<0.9dB
P1dB:	+20dBm output
Input VSWR:	>6dB @ design frequency
Output VSWR:	>10dB DC - 3 GHz.
Voltage:	+10 - +16 VDC



Product Description:

The DEM 1691LNA is one of a series of low noise amplifiers that shares a common design produced by Down East Microwave Inc. from 700 MHz. through 1700 MHz. Each LNA is optimized for it's own specified frequency. All LNAs are assembled in standard die cast enclosures and are designed for receive only applications. This design does not offer any RF bypass switching circuitry. Our LNA design utilizes a single gate GaAs FET that has been developed for low noise applications yet it is robust enough to withstand high levels of IMD. Standard gains of our LNAs are frequency dependent and range from 13 to 17 dB. All noise figures for this series of LNAs are below 0.9dB. The LNAs are specifically biased for the highest P1dB (1 dB compression point maximum @ +20 dBm output) which will in turn produce the best 3rd order intercept or IMD performance possible while obtaining the gain and noise figure specified.



Our low noise amplifier design incorporates a low loss series inductor input circuit and a resistive loaded output circuit. During the test process, 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

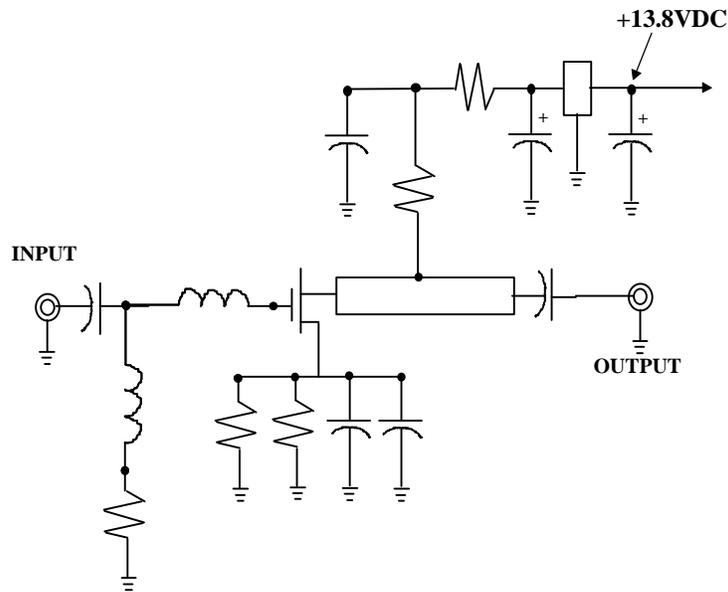
receiver front ends. We do not use tuned output circuits or baluns in our LNA designs. Tuned output circuits and baluns do not offer constant output impedances over wide bandwidths and may cause out of band instabilities from reflected signals. Tuned circuits may also require returning if a cable length or the tuning of a filter that is connected to the output of the LNA is changed.

This LNA design is provided with type "N" or SMA connectors that are installed in a die cast aluminum enclosure that measures 3.5" L x 1.5" W x 1.25" 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. This standard design is offered as a PC board parts kit, the 1691LNAK or a complete kit with enclosure and hardware as the 1691LNACK with complete assembly and test instructions.

LNAs 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. Some designs may not be available in kit form.

Schematic Diagram of LNA Design:



1691LNAK-PC Board Parts Kit



1691LNACK-Contains Parts Kit and Hardware