

DEM NBLNA70cm 428-438 MHz.

Specifications:

Gain:	18dB nominal in band
Noise Figure:	<0.5dB Nominal
P1dB:	+21dBm output
Input VSWR:	>12dB
Output VSWR:	>6dB @ Design Frequency
Voltage:	+7 - +22 VDC
Current Drain	70mA nominal



Description:

Our new NBLNA-70cm **N**arrow **B**and 70 Centimeter LNA low noise amplifier shares a common design that is utilized by all LNA's between 144 and 1300 MHz. Each LNA utilizes the ultra low noise QORVO QPL9547 MMMIC coupled with the latest in SAW filter technology optimized to the specific frequency band of operation. This new design technology produces a LNA that is more selective and more robust in reducing out of band interference.

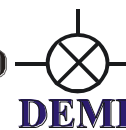
This new design employs a higher linear output active device that exceeds all other DEMI LNA products. Because of this, the filtering is on the output circuit. The NBLNA is housed in a 1.75" L x 1" square machined enclosure. Only the difference in connector selection will alter the length measurement. Any combination of Type "N", BNC or SMA connectors is provided as ordered.

This new LNA design is a Receive only device and does not offer any RF bypass switching for transceiver operation. This LNA is ready to be "dropped in" to any pre-existing receive system or to be a component in a newly developed receive system.

Installation and Operation:

Depending on your application, the LNA may be installed anywhere in your system to increase gain. To maintain or improve the systems noise figure requires the LNA to be installed as close to the systems antenna as possible. If you plan to utilize this LNA in a transceiver system with transmit bypass relays, be sure of their isolation characteristics and transmit power handling capabilities before transmitting. Use only interconnecting cables and/or adapters that are rated for use at or above the intended frequency of use. Inadequate cabling or cables with poor shielding may cause system instabilities, signal loss, or undesirable intermittent operation. Test any sequenced scheme before applying transmit power to avoid mishaps.

The connector marked **INPUT**, is to be connected to the antenna side of the system. The **OUTPUT** is connected to the receiver side of the system. Expected performance with the LNA correctly installed should be overall improvement in gain and system noise figure of the receive system. The proper installation of an LNA becomes more important if you make this installation in a harsh RF environment. The gain bandwidth of the LNA is wide and depends on the filter for the operating frequency to obtain a low noise figure. This may result in the passing of strong but very close in frequency out of band signals that may cause the overloading of your receiver resulting in increased inter-modulation. With any receive installation, practice system gain management by not



cascading amplifiers to solve system noise problems without adequate extra filtering. Too much system gain will degrade the receive systems dynamic range.

Be sure both input and output ports are terminated before applying DC voltage to the LNA. If you desire to pre-test the LNA in a test bench environment before installation, do not apply more than -10dBm to the input and expect some gain compression at levels above -20dBm. The input is protected with a DC path to ground to eliminate static build up from rain or wind but may not survive levels of EMP developed by lightning. Please use standard lightning protection for all installations. Blow is a chart showing the approximate gain roll off of the LNA/Filter combination.

Frequency in MHz.	Gain in dB	Noise Figure in dB
425 and below	< -15	> 6.0
426-427	<0	>3.0
428	<5	>2.0
429	<10	>1.0
430	<15	<1.0
431-440	>18	<0.5 Nominal
441	<15	<0.8
442	<10	<1.0
443	<5	>2.0
444 and above	<0	>3.0

Schematic Diagram of Standard NBLNA-70cm Design:

