DEM WBLNAU Wide Band Low Noise Amplifier

Specifications:

Frequency Range:	50- 500MHz	500 – 1500 MHz	1500 - 2500MHz
Noise Figure:	<0.5dB	<0.5dB	<0.7dB
Gain:	22 dB nominal	20dB Nominal	15dB nominal
P1dB without Damage	+17dBm output	+17dBm output	+17dBm output
Input VSWR:	> 10 dB	> 10 dB	> 10 dB
Output VSWR:	> 13 dB	> 13 dB	> 12 dB
Voltage:	+7 - +22 VDC	+7 - +22 VDC	+7 - +22 VDC
Current Drain	70 mA nominal	70 mA nominal	70 mA nominal

Description:

The DEM WBLNAU is our NBLNA design without a SAW filter installed. The active component is the QORVO QPL9547 MMIC amplifier. This LNA is available to be utilized with wide band receivers. It does not offer any RF bypass switching for transceiver operation and therefore may only be utilized in receive only applications. It is offered with a robust machined enclosure and various types of RF connectors and connector combinations to allow any LNA to be “dropped in” to any pre-existing system or is ready to be component in a newly developed receive system. A bias through the coax option is available.

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 **IN** (Input)**,** is to be connected to the antenna side of the system. The **OUT** (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 Ultra wide. This will result in the passing of strong undesired signals that may cause the overloading of your receiver resulting in increased inter-modulation.

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. Because of the dissipation factor of the active component do not apply more than -10dBm to the input if testing linear response. At levels above -10dBm, depending on frequency expect some gain compression. 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.

Schematic Diagram :