



L3-2ULNA

SPECIFICATIONS

Noise Figure:	0.8 dB nominal
Gain:	22 dB nominal
Frequency Range:	10-10.5 GHz
Input Voltage:	7 - 16 VDC
Current Drain:	< 50 mA.



DESCRIPTION:

The L3-2ULNA is a low noise amplifier designed by W5LUA and Down East Microwave Inc. using the latest PHEMPT technology. This LNA was designed for receive only purposes including, EME, and other standard weak signal reception between 10 and 10.5 GHz. The LNA is assembled in a machined chemical etched enclosure with SMA connectors only. It is biased through the external DC feed through connector. This model is available as a board or complete kit but not recommended unless you have suitable gain and noise figure measuring equipment.

INSTALLATION and USE:

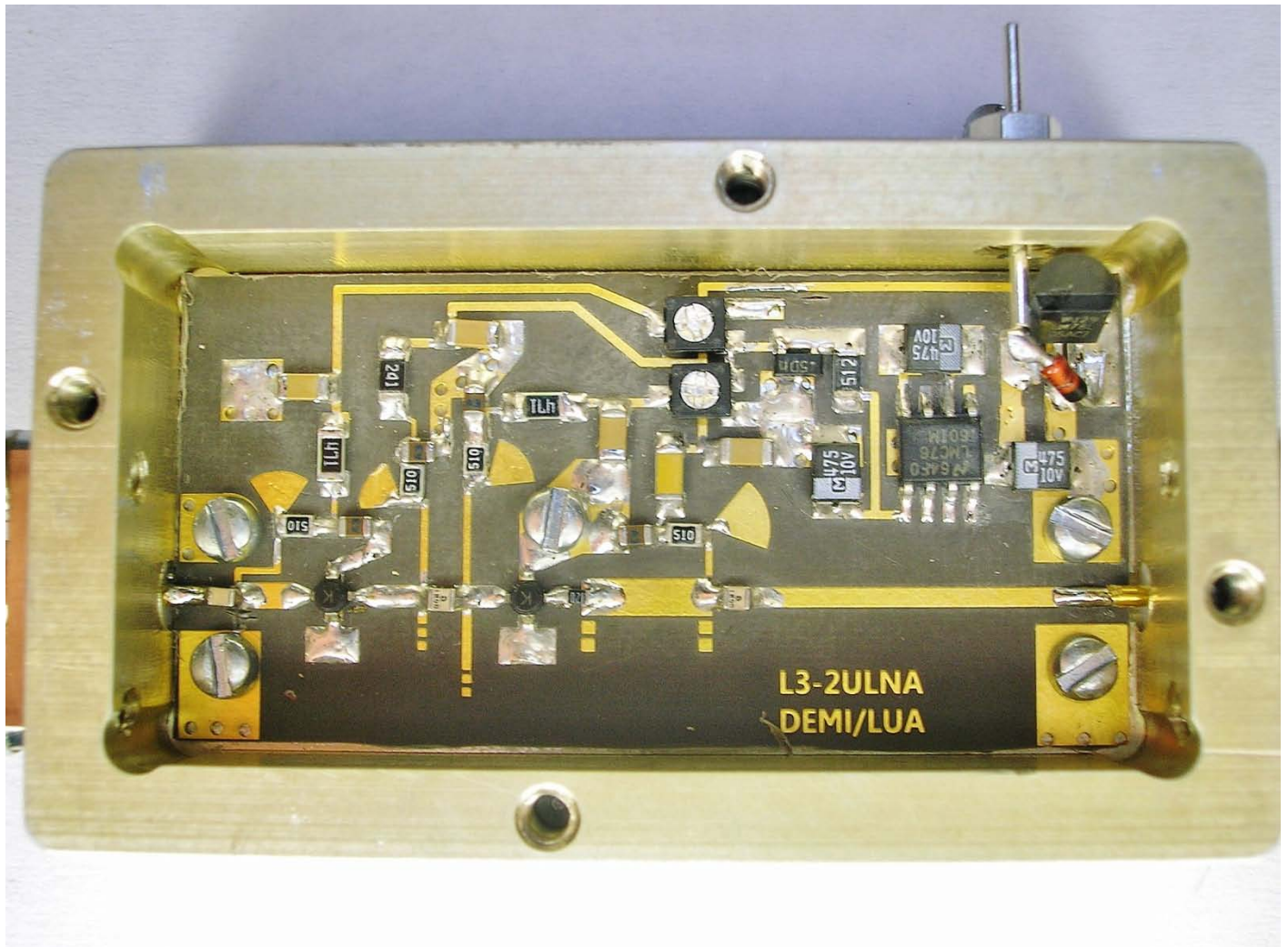
Depending on your application, the LNA may be installed anywhere in your system to increase gain. To maintain or improve the systems noise figure requires the LNA to be installed as close to the systems antenna as possible. If you are using this LNA in a transceive system with transmit bypass relays, be sure of their isolation characteristics and transmit power handling capabilities before transmitting. Use only interconnecting cables and adapters that are rated for use at or above 10 GHz. Inadequate cabling or cables with poor shielding may cause system instabilities, signal loss, or undesirable intermittent operation.

The connector marked **INPUT**, is to be connected to the antenna. The **OUTPUT** is connected to the receiver. The LNA requires protection from lightning or high static discharges. The LNA will withstand input RF levels of up to 20 mW. Other precautions will need to be made such as sequencing or protection against voltage spikes on the +DC line.



OPERATING:

Expected performance should be overall improvement in gain and noise figure of the receive system with the LNA correctly installed. The proper installation of a LNA becomes more and more important at these frequencies and because of out of band interference and high insertion loss of all connection cables and connectors. The gain bandwidth of the LNA design is wide to obtain a low noise figure. Therefore, certain conditions may cause overloading of your receiver producing intermodulation. It is always suggested to use adequate filtering between gain stages and to practice gain management by not cascading amplifiers to solve system noise problems. Use of directional antennas will also increase desired signals and aid in elimination of undesired signals.

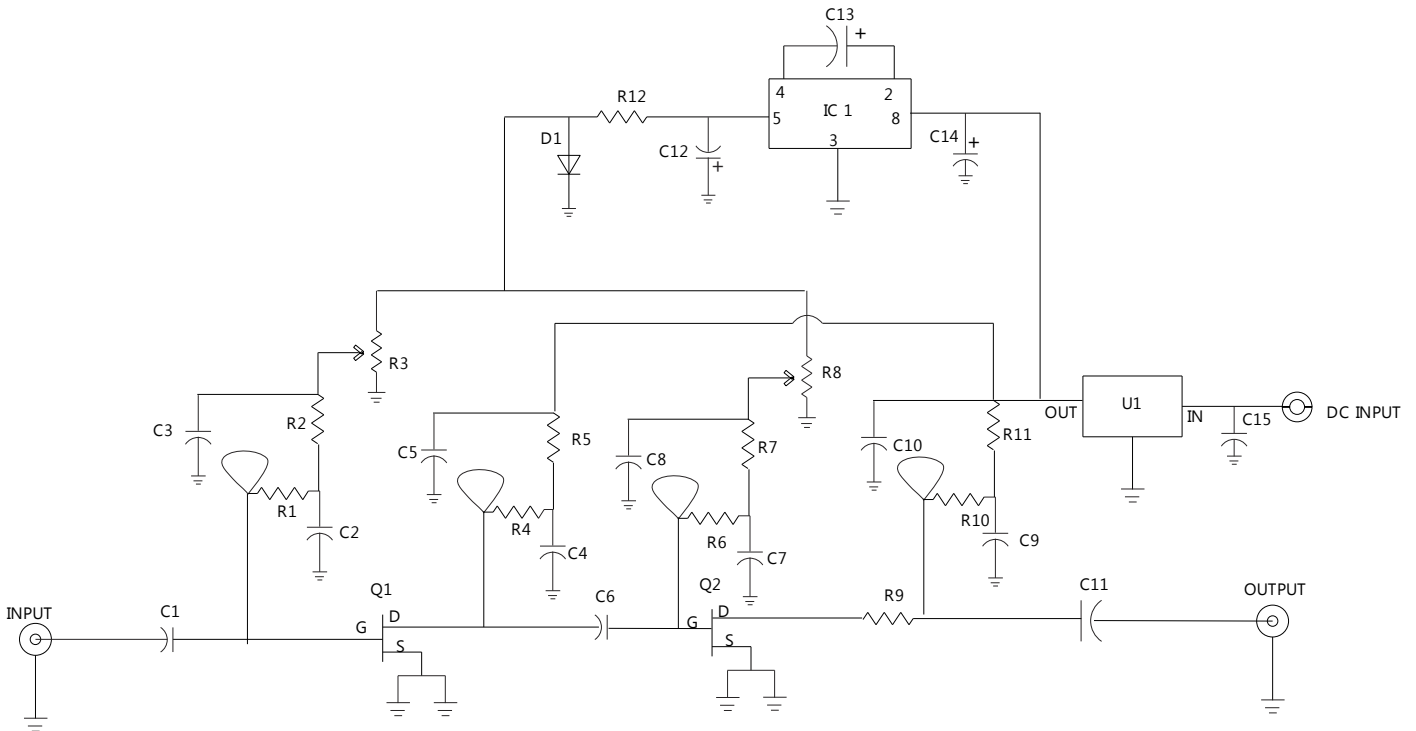




COMPONENT LIST

All resistors are 1206 size chips unless indicated. The white band is positive on the Tantalum chip capacitors. All other capacitors are various sizes.

C1 1.0pF 50 mil ATC	C9 1000pF (0805)	IC1 7660 SMD	R6 51Ω (0805)
C2 1000pF (0805)	C10 0.1μF	Q1 CE351K2	R7 470 Ω
C3 0.1μF	C11 1.0pF 50 mil ATC	Q1 CE351K2	R8 1K pot SMD
C4 1000pF (0805)	C12 4.7 μF Tant	R1 51Ω (0805)	R9 12Ω (0805)
C5 0.1μF	C13 4.7 μF Tant	R2 470Ω	R10 51Ω (0805)
C6 1.0pF 50 mil ATC	C14 4.7 μF Tant	R3 1K pot SMD	R11 220Ω
C7 1000pF (0805)	C15 0.1μF	R4 51Ω (0805)	R12 5.1KΩ
C8 0.1μF	D1 MMBD914	R5 240 Ω	U1 78L05



L3-2ULNA SCHEMATIC