

# Low noise amplifier HFC LNA-4000

Rev 1.0  
October 13<sup>th</sup> 2013  
Matthias Bopp

Hello,

Recently I bought a new LNA from HFC ([www.hf-berg.de](http://www.hf-berg.de)) Nachrichtentechnik. The LNA-4000 is a low noise amplifier with a gain of 20dB at 500 MHz and supports a frequency range 25 ... 4000 MHz. It is housed weather sealed in a plastic encasing which can be mounted close to the antenna / directly at the mast. The RF-connectors are N type. The amplifier can be supplied with DC power either directly by a BNC connector (center pin positive) or by using a phantom feed via the coaxial cable to the receiver. In this case an additional bias-T is needed to split RF and DC in front of the receiver. Please note that the LNA-4000 does not feature a built in transmit/receive bypass switch and thus can only be used in front of a receiver. The supply voltage is 12 .. 15V, the supply current is 85 mA. Here is a picture of the LNA:



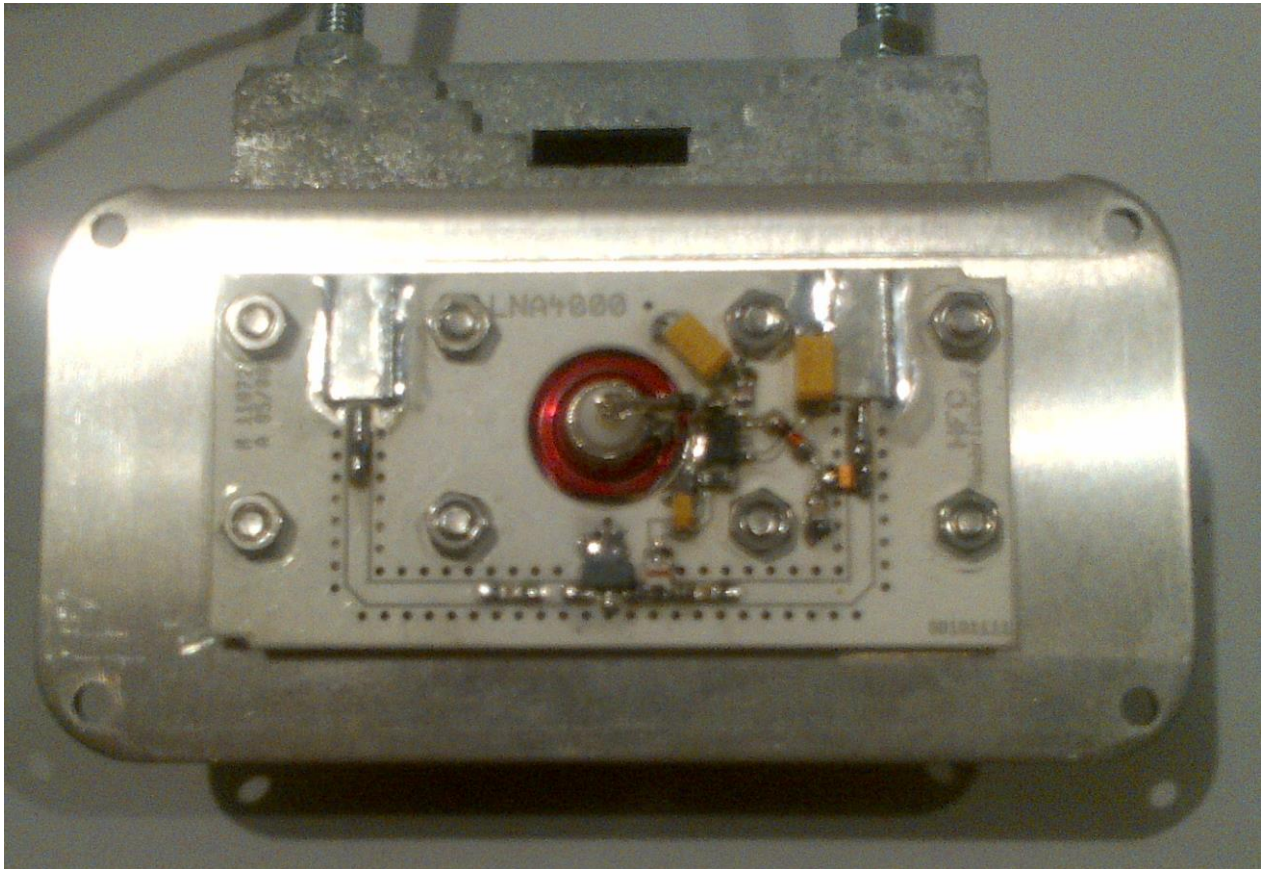
The LNA-4000 features the following specifications:

Frequency /MHz	Gain /dB	Noise Figure /dB
500	22	1.1
900	21.7	1.1
1900	20	1.3
2700	18.4	1.6
4000	15.4	2.5

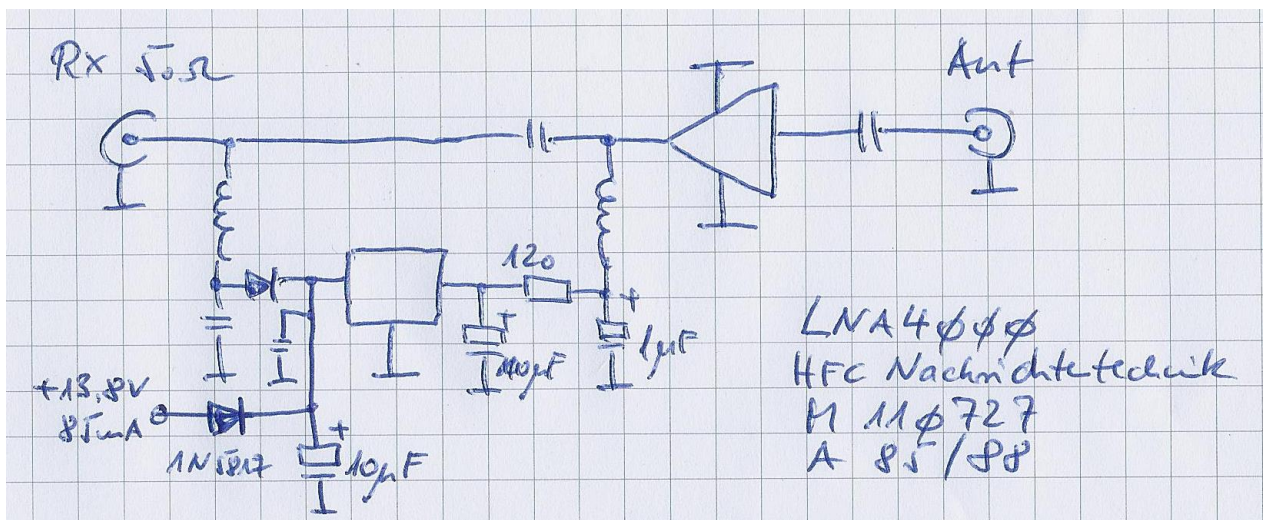
I measured the following values:

Frequency /MHz	Gain /dB	Noise Figure /dB
145	22	1.3
435	21	1.1

Here is a picture of the opened box. As you can see the amplifier is not shielded. It is mounted on a printed circuit board (PCB) which is based on a low loss ceramic substrate.



Here is a basic schematic which I extracted. Please note that in the photograph above the antenna port is left and the receiver port is right but in the schematic it is the opposite.



I always appreciate feedback. Please send it to the Email address below.

Best regards

Matthias DD1US

Email: [DD1US@AMSAT.ORG](mailto:DD1US@AMSAT.ORG)

Homepage: <http://www.dd1us.de>