The Low Noise Factory Power Supply

September 5, 2012

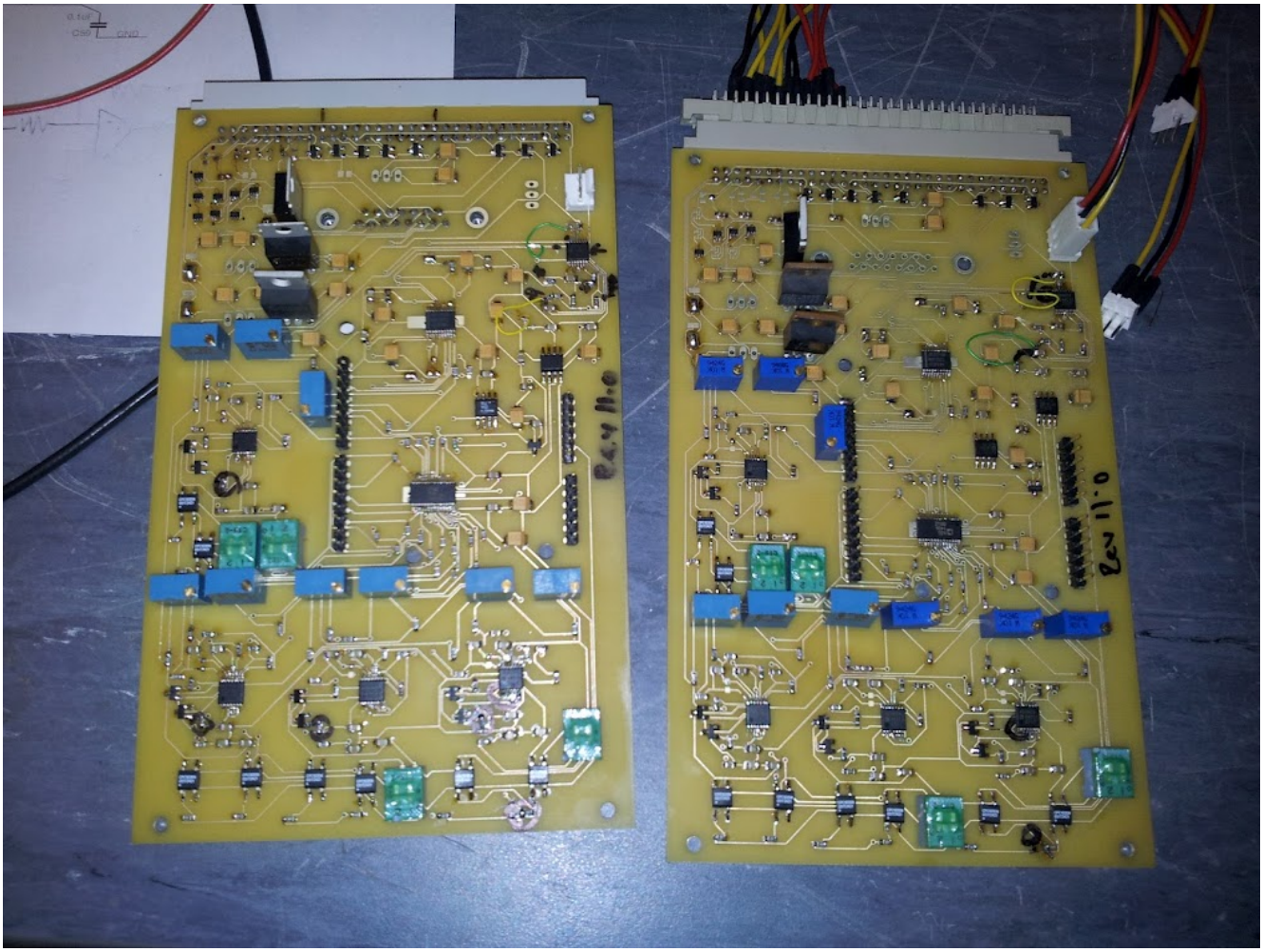


Figure 1: Photograph of the LNF Power Supply

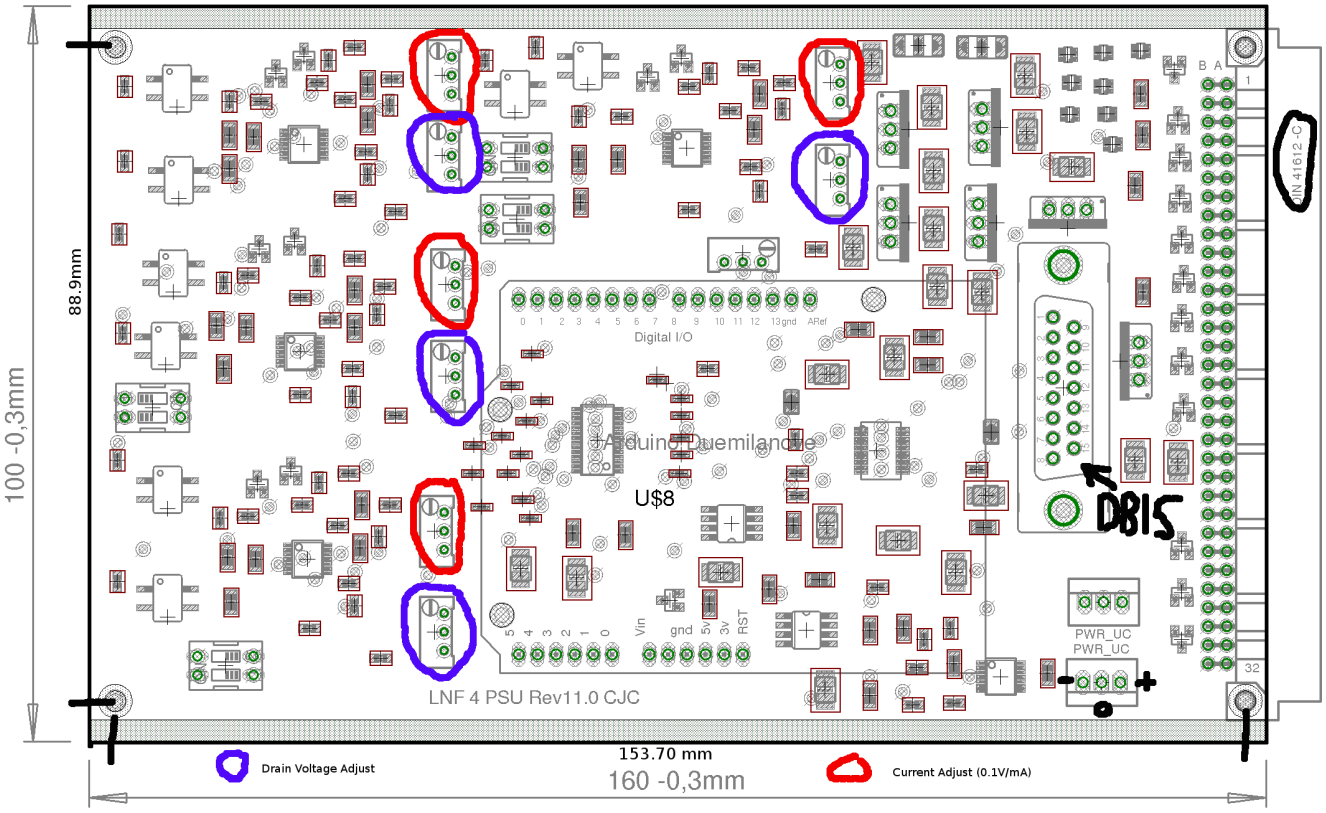


Figure 2: Board layout of LNF Power Supply

0.1 Output Pins

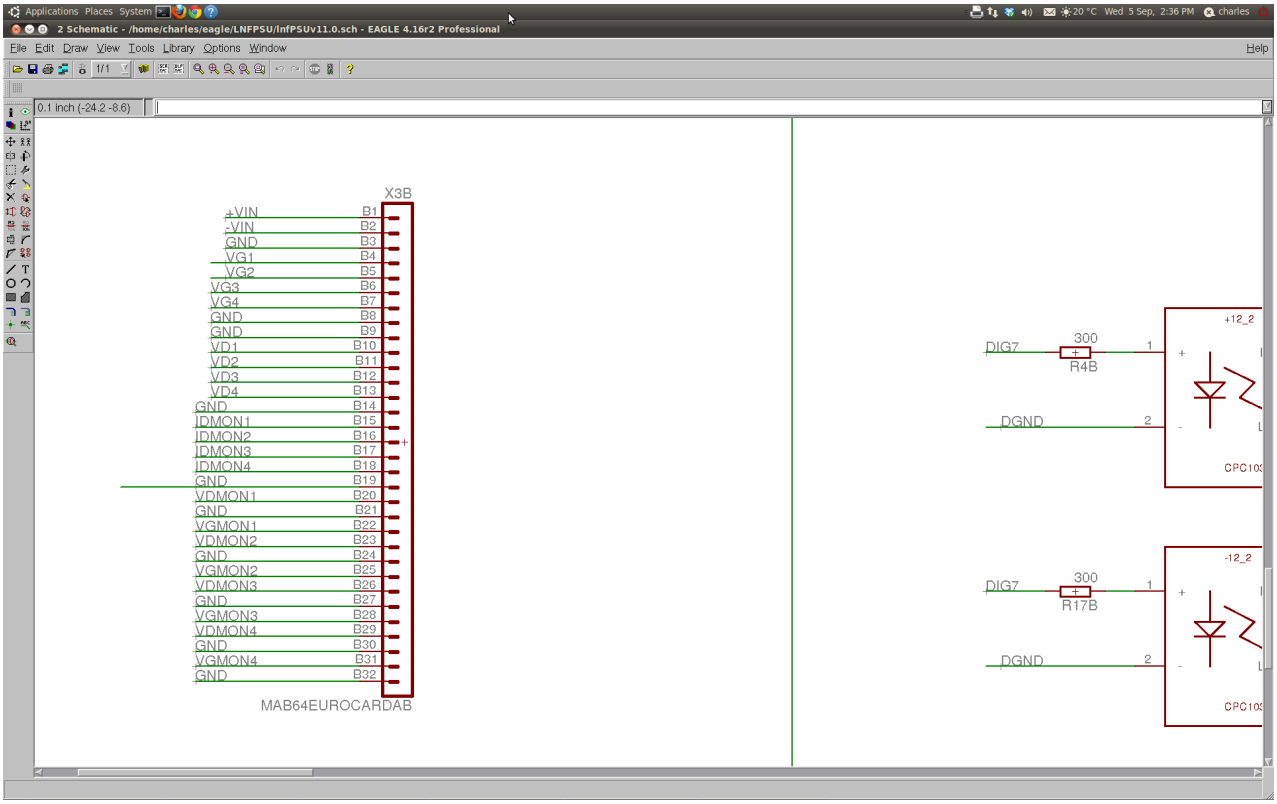


Figure 3: The DIN41612 Pin out configuration

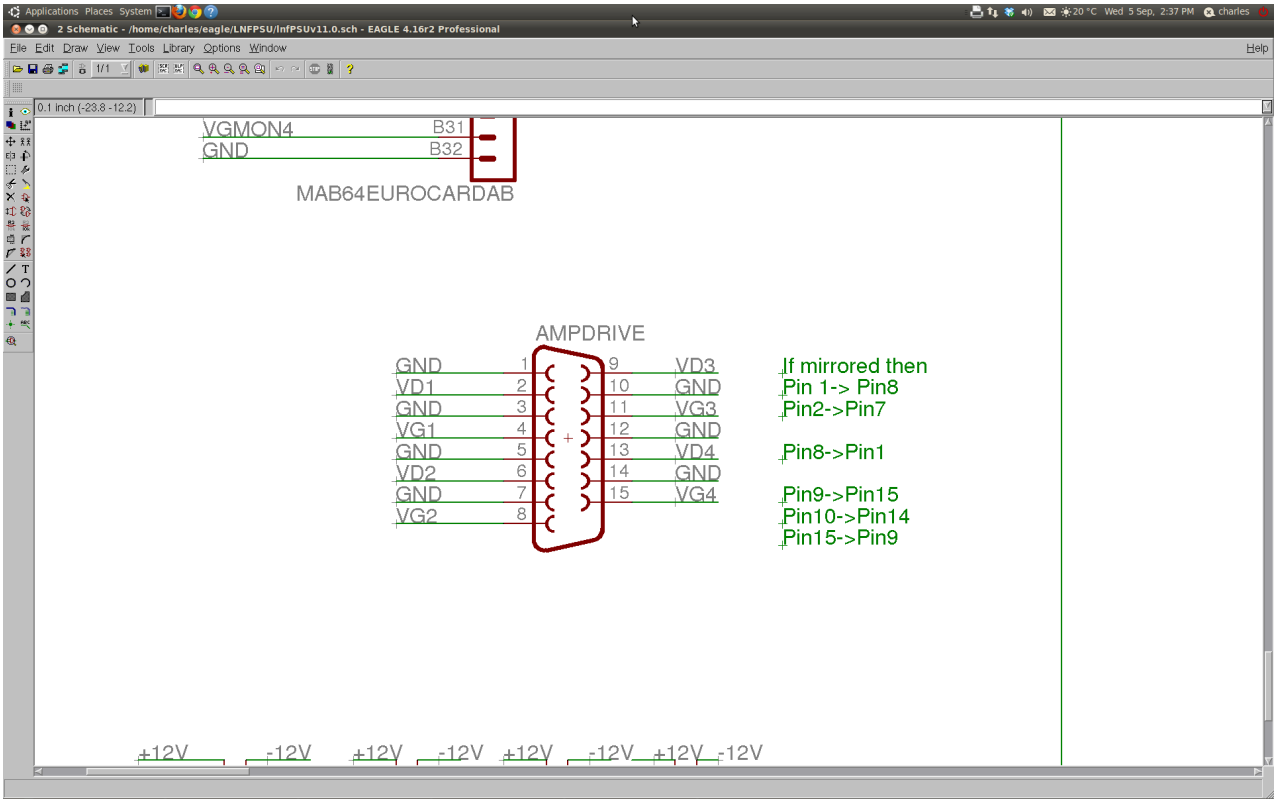


Figure 4: The DB15 Connector pins

LNF-LNC4_8A s/n 120

4-8 GHz Cryogenic Low Noise Amplifier

June 28, 2012

Absolute maximum ratings

Parameter	Min	Max
V_{ds}	-0.5 V	2 V
I_{ds}		100 mA
V_{gs}	-12 V	+12 V
RF Input drive level		0 dBm

Nominal bias @ 296 K

Parameter	Value
V_{ds}	1.25 V
I_{ds}	45 mA
V_{gs}	-1.91 V

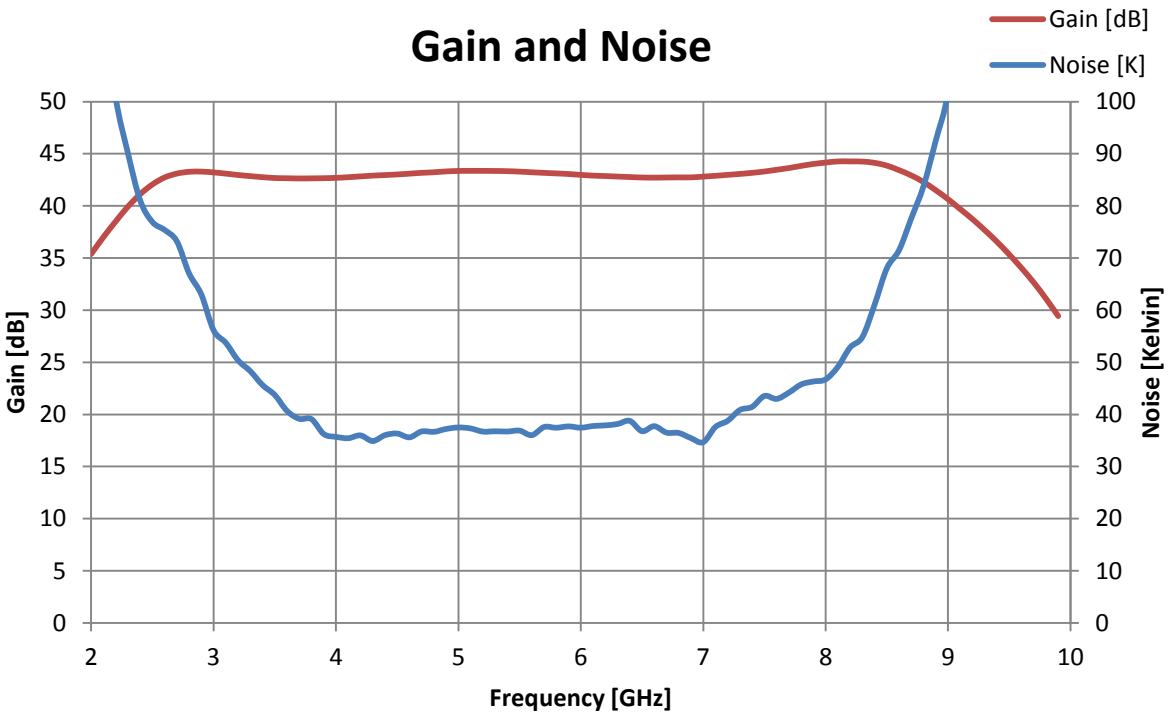
Nominal bias @ 10 K

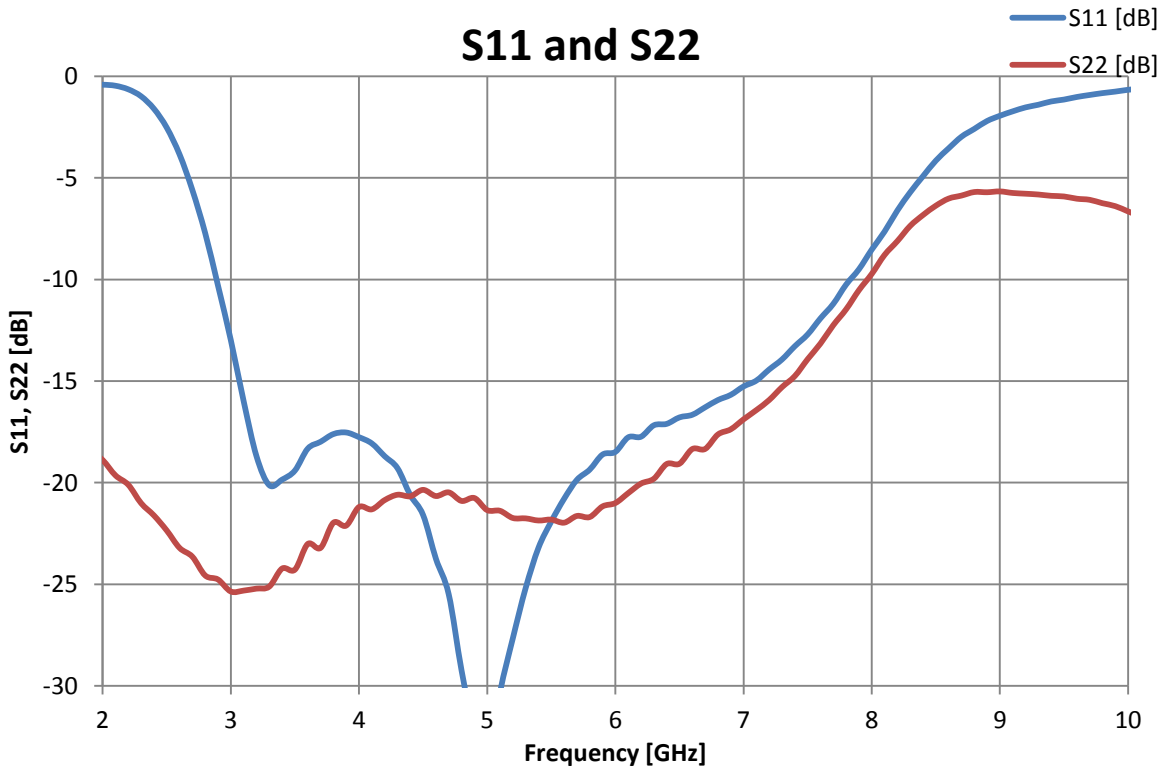
Parameter	Value
V_{ds}	0.50 V
I_{ds}	5 mA
V_{gs}	-2.06 V

LNF-LNC4_8A s/n 120

4-8 GHz Cryogenic Low Noise Amplifier

Measured data, Tamb=296 K

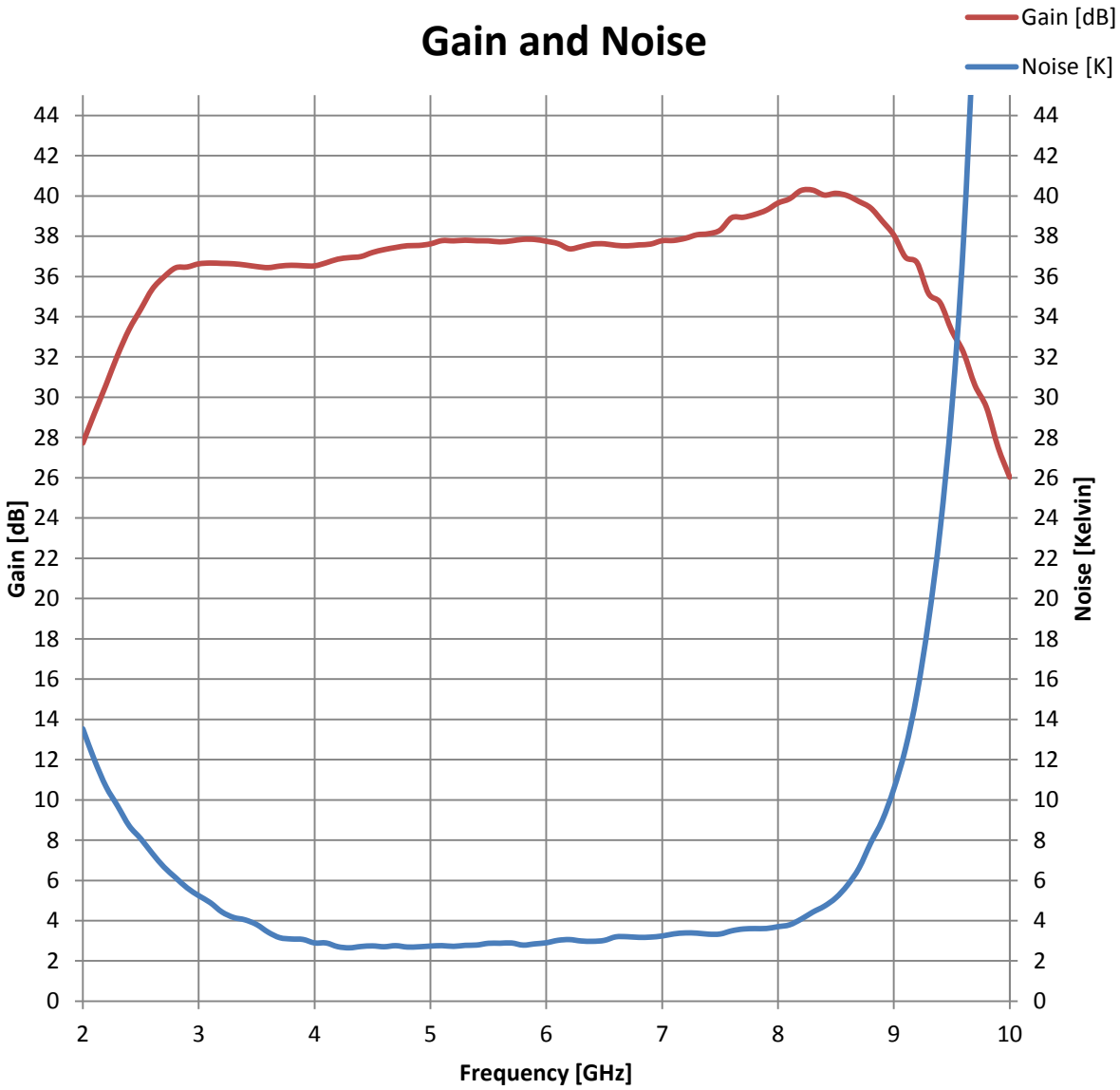




LNF-LNC4_8A s/n 120

4-8 GHz Cryogenic Low Noise Amplifier

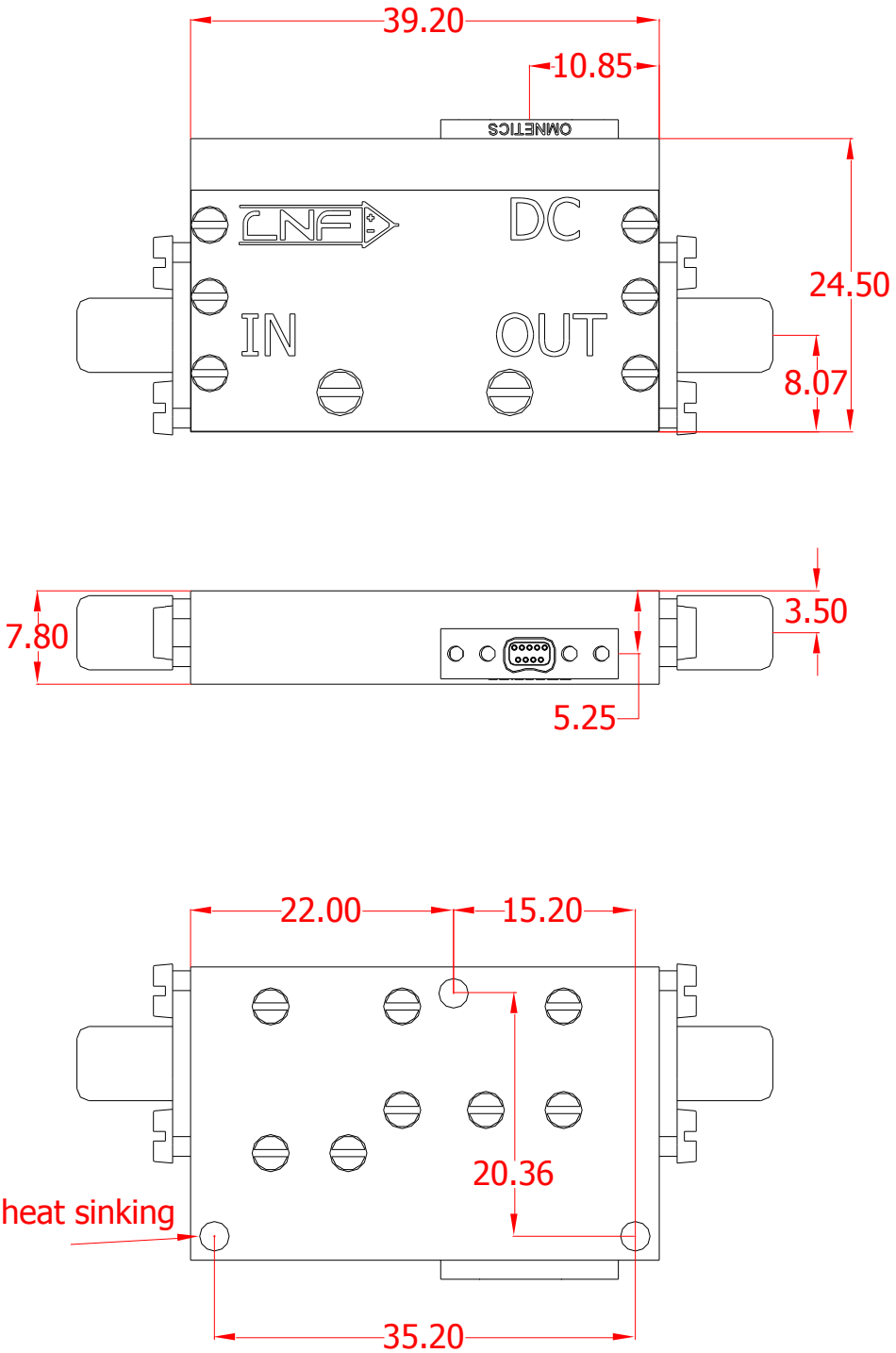
Measured data, Tamb=8 K



LNF-LNC4_8A s/n 120

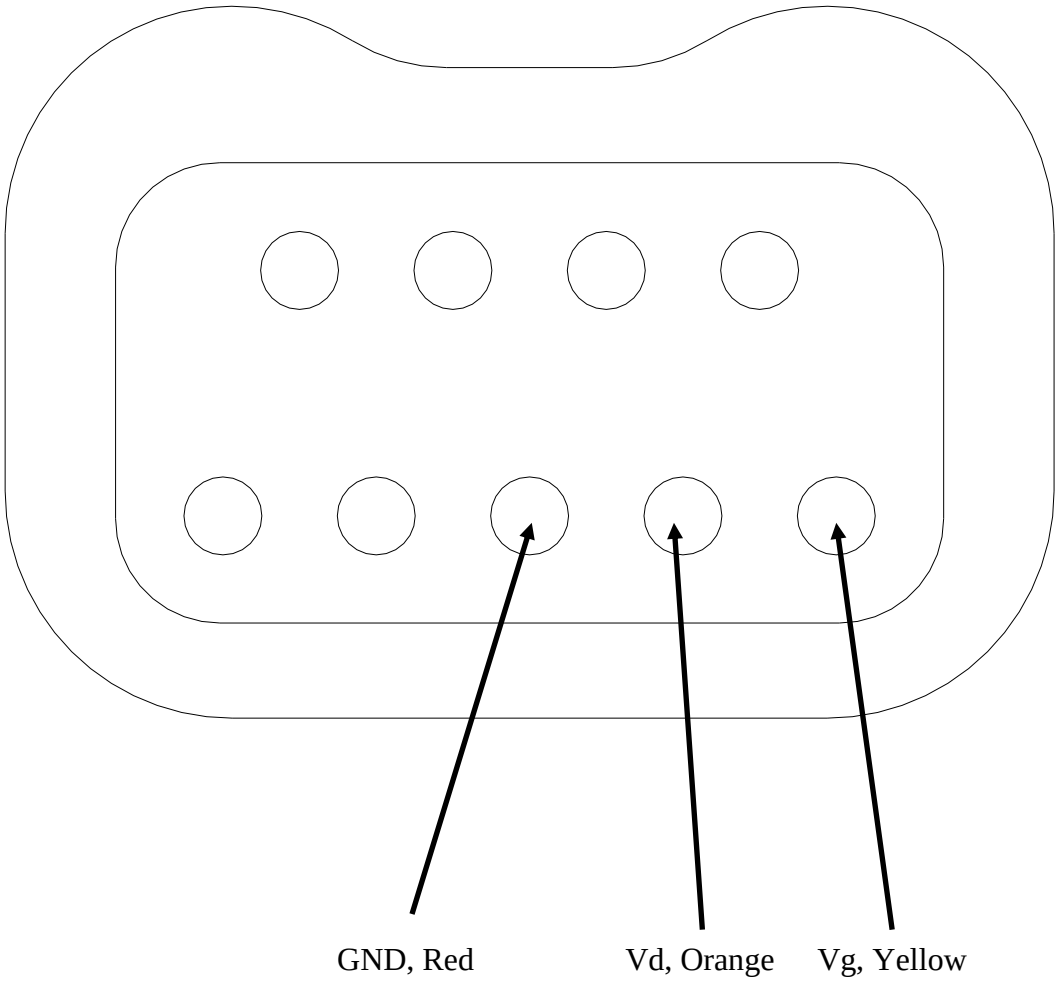
4-8 GHz Cryogenic Low Noise Amplifier

Drawings



Dimensions are in millimeters

Nano-D panel connector seen from outside the LNA



Biasing procedure
For safe operation of the LNA, please carefully follow the instructions below. Always honor the maximum ratings stated in the datasheet.

With constant current supply, e.g. LNF-PS_2 and LNF-PS_EU

LNF-PS_2 is pre-tuned to the nominal bias of your LNA at cryogenic temperatures.

Power up:
1. Switch on the power supply
2. Double check that V_d is set to the nominal voltage in the datasheet
3. Connect the LNA's RF input and output to your grounded test set-up
4. Connect the power supply to the LNA
5. Check that the measured I_{ds} is equal to the nominal value in this datasheet. Tune to the correct value if necessary.
6. Before starting a cool down, make sure that the power supply is set to the stated values at 10K. Do not cool down with the power supply set to the room temperature values.

Power down:
1. Disconnect the power supply from the LNA
2. Disconnect the LNA's RF input and output
3. Switch off the power supply

With constant voltage supply, e.g. LNF-PS_1

LNF-PS_1 is pre-tuned to the nominal bias of your LNA at cryogenic temperatures.

Power up:
1. Switch on the power supply
2. Set V_d and V_g to the nominal voltages stated in this datasheet
3. Connect the LNA's RF input and output to your grounded test set-up
4. Connect the power supply to the LNA
5. Fine tune V_g to get the nominal I_{ds} stated in this datasheet. The actual Vg can deviate a bit from the value in the datasheet depending on ground wire resistance in your set-up.
6. Before starting a cool down, make sure that the power supply is set to the stated values at 10K. Do not cool down with the power supply set to the room temperature values.

Power down:
1. Disconnect the power supply from the LNA
2. Disconnect the LNA's RF input and output
3. Switch off the power supply