



Rev: March 7, 2010

Absolute maximum ratings

Parameter	Min	Max
V_{ds}	-0.5 V	2 V
I_{ds}		150 mA
V_{gs}	-10 V	+10 V
RF Input drive level		0 dBm

Product features

- RF bandwidth: 4-8 GHz
- Noise Temperature: 2.6 K typical
- Gain: 40 dB
- DC-power: $V_d=0.60V$ @ 6.5 mA
- One gate and one drain supply only
- RF-connectors: female SMA
- DC-connector: 9-pin female Nano-D

Product description

LNF-LNC4_8A is a cryogenic ultra low noise amplifier operating in the 4-8 GHz frequency range. The LNA is packaged in a coaxial module using industry standard SMA and Nano-D connectors. The lightweight gold plated aluminum module measures $39.2*24.5*7.8 \text{ mm}^3$. InP HEMTs from the Microwave Electronics Laboratory and Nanofabrication Laboratory at Chalmers University of Technology ensure lowest noise and power dissipation in the industry.

Typical RF Characteristics

Parameter	Test Condition	Value	Unit
Gain	4-8 GHz	40	dB
Noise Temperature	4-8 GHz	2.6	K
IRL	4-8 GHz	15	dB
ORL	4-8 GHz	17	dB
P_{1dB}	4-8 GHz	-10	dBm
OIP3	4-8 GHz	≈ 0	dBm

Typical DC Characteristics

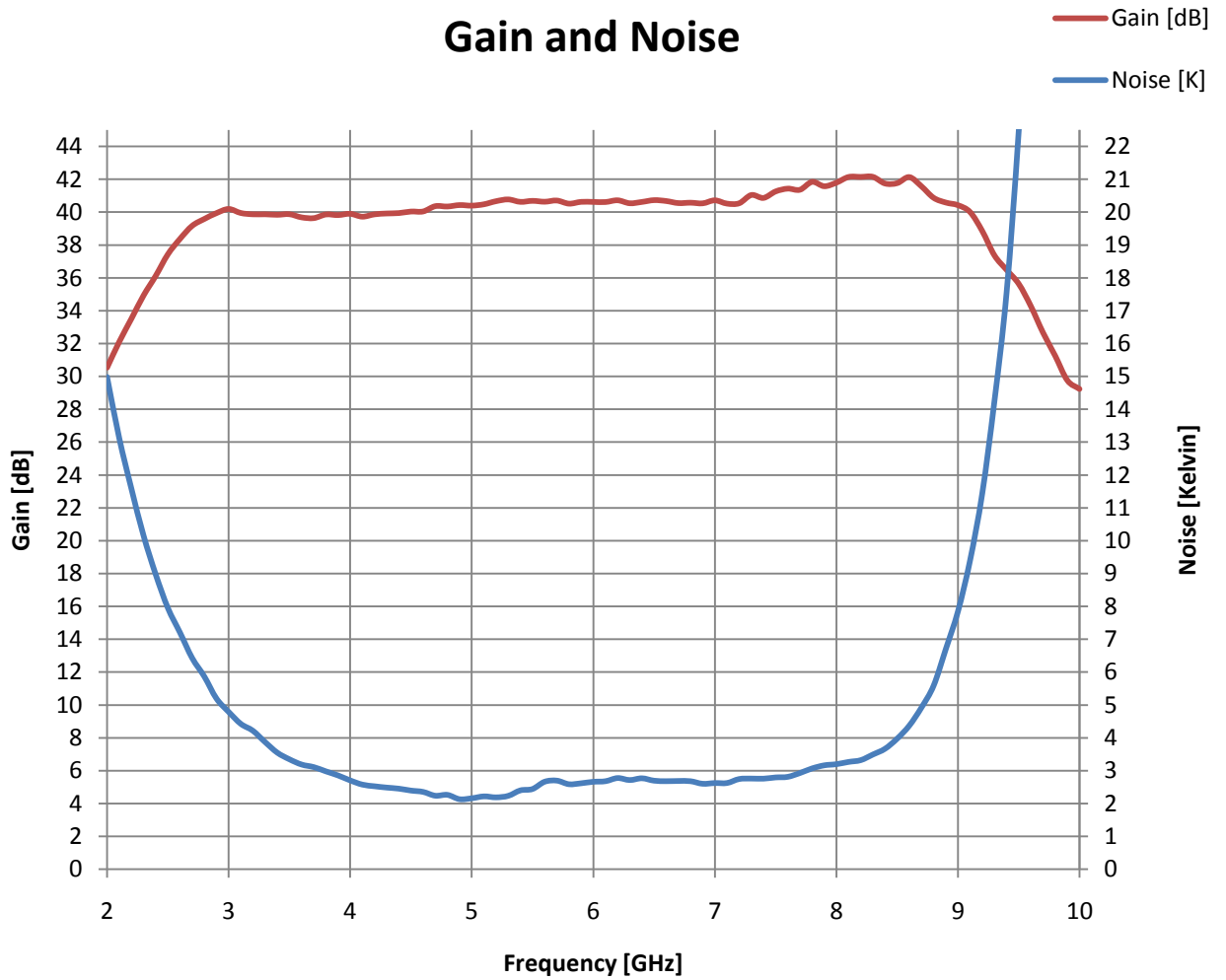
Parameter	Value	Unit
V_{ds}	0.60	V
I_{ds}	6.5	mA
V_{gs}	-1.9 ¹	V
I_{gs}	-190	μA
P_{dc}	3.9	mW

¹ Will vary slightly from unit to unit. Adjust to give $I_{ds}=6.5mA$

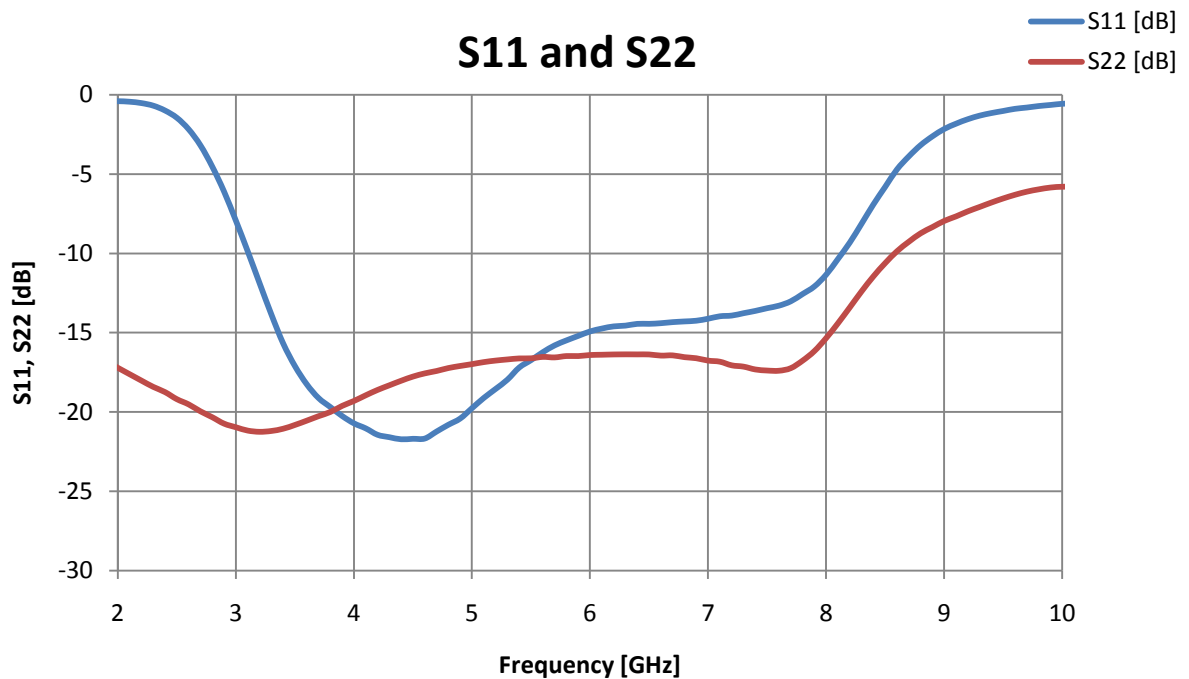
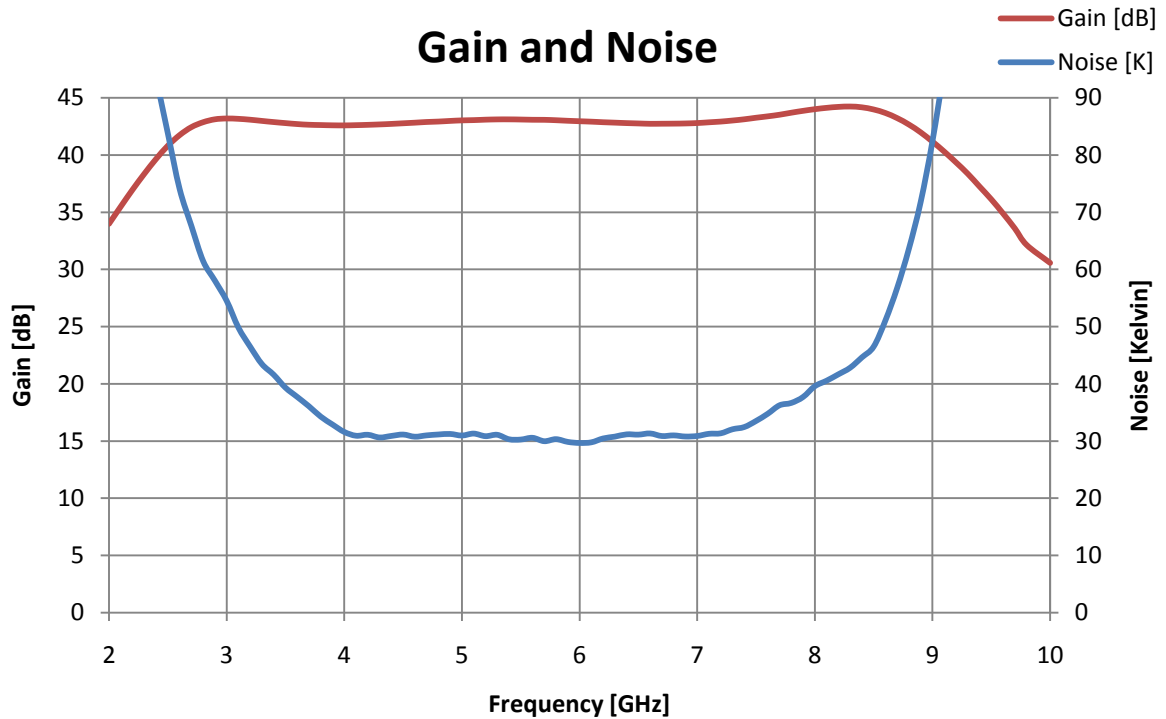


Measured typical data, $T_{amb}=10\text{ K}$

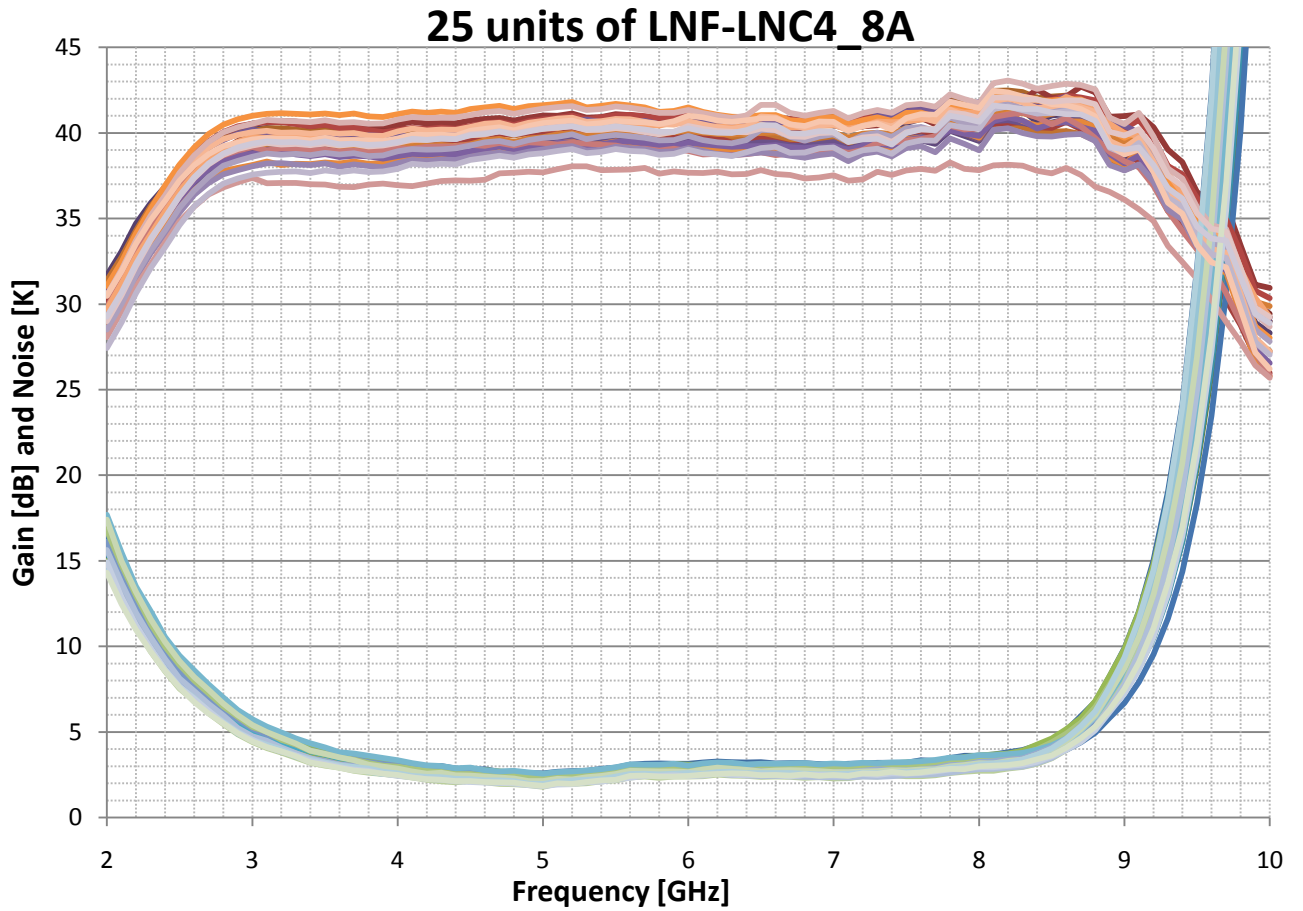
Gain and Noise



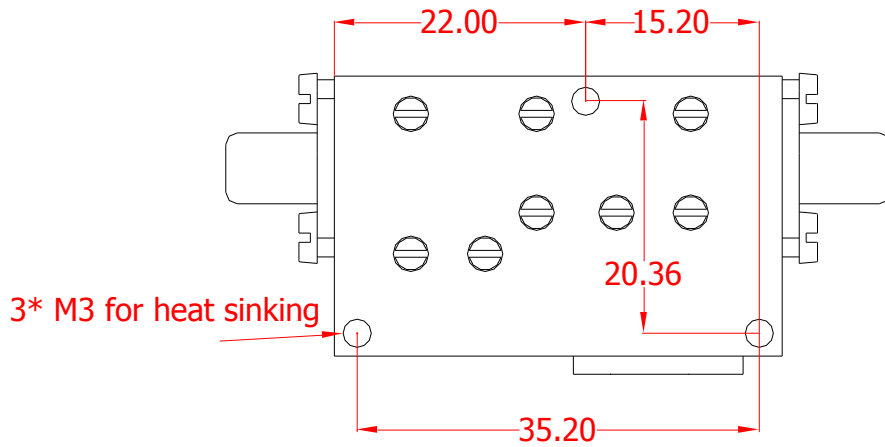
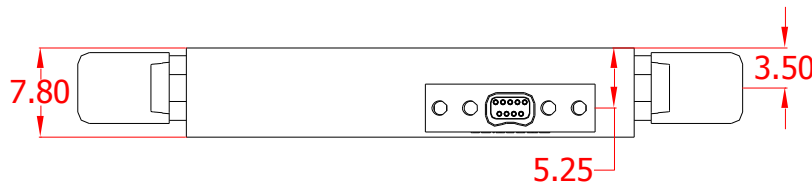
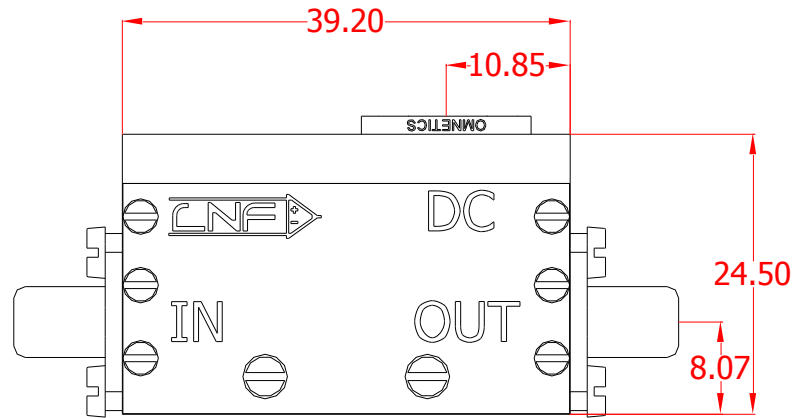
Measured typical data, $T_{amb}=296\text{ K}$



Unit-to-unit variation at 10K



Drawings



Dimensions are in millimeters