

LNF-LNC0.2_3A

0.2-3 GHz Cryogenic Low Noise Amplifier

Rev: Oct 2018



Product features

- RF bandwidth: 0.2-3 GHz
- Noise Temperature: 1.7 K typical
- Noise Figure: 0.03 dB typical
- Gain: 32 dB
- DC-power: $V_d=1$ V, $I_d=22$ mA
- One gate and one drain supply only
- RF-connectors: female SMA
- DC-connector: 9-pin female Nano-D

Product description

LNF-LNC0.2_3A is an ultra-low noise cryogenic amplifier operating in the 0.2-3 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 22.0*19.6*7.80 mm excluding the connectors.

Absolute maximum ratings

Parameter	Min	Max
V_{ds}	-0.5 V	3 V
I_{ds}		200 mA
V_{gs}	-20 V	+20 V
RF Input drive level		0 dBm
DC voltage on RF input and output	-30V	30V

Typical RF Characteristics

Parameter	Test Condition	Value	Unit
Gain	0.2-0.8 GHz	29	dB
	0.8-3 GHz	32	dB
Noise	0.2-3 GHz	1.7	K
IRL	0.2-1 GHz	2	dB
	1-3 GHz	6	dB
ORL	0.2-0.7 GHz	7	dB
	0.7-3 GHz	15	dB

Typical DC Characteristics

Parameter	Value	Unit
V_{ds}	1	V
I_{ds}	22	mA
V_{gs}	-0.6	V
I_{gs}	50	μ A
P_{dc}	22	mW

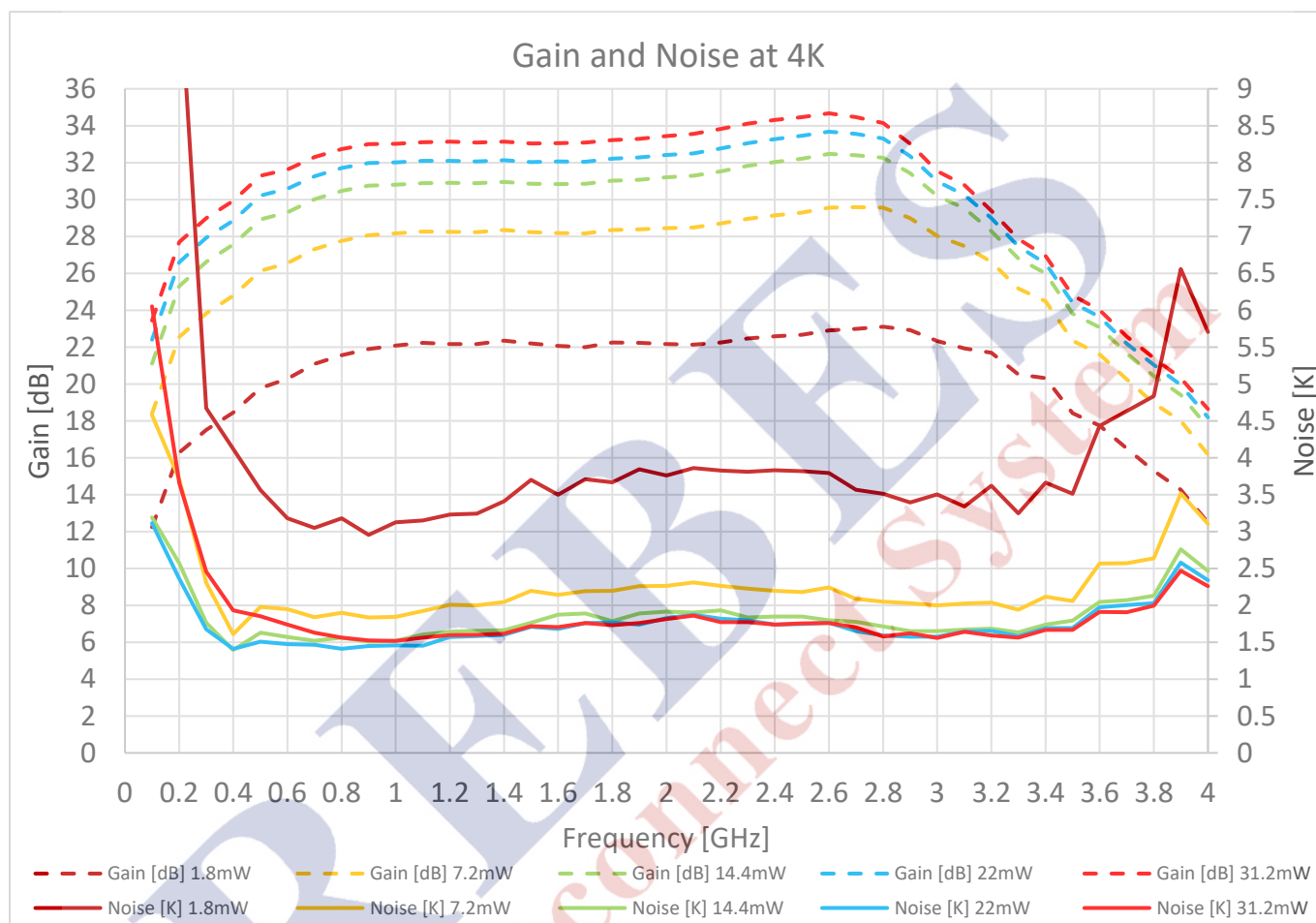
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Measured typical data $T_{amb}=4\text{ K}$

Typical cryo bias: $V_d=1\text{V}$, $I_d=22\text{mA}$



1.8mW: $V_d=0.3\text{V}$, $I_d=6\text{mA}$

7.2 mW: $V_d=0.6\text{V}$, $I_d=12\text{mA}$

14.4 mW: $V_d=0.8\text{V}$, $I_d=18\text{mA}$

22 mW: $V_d=1\text{V}$, $I_d=22\text{mA}$

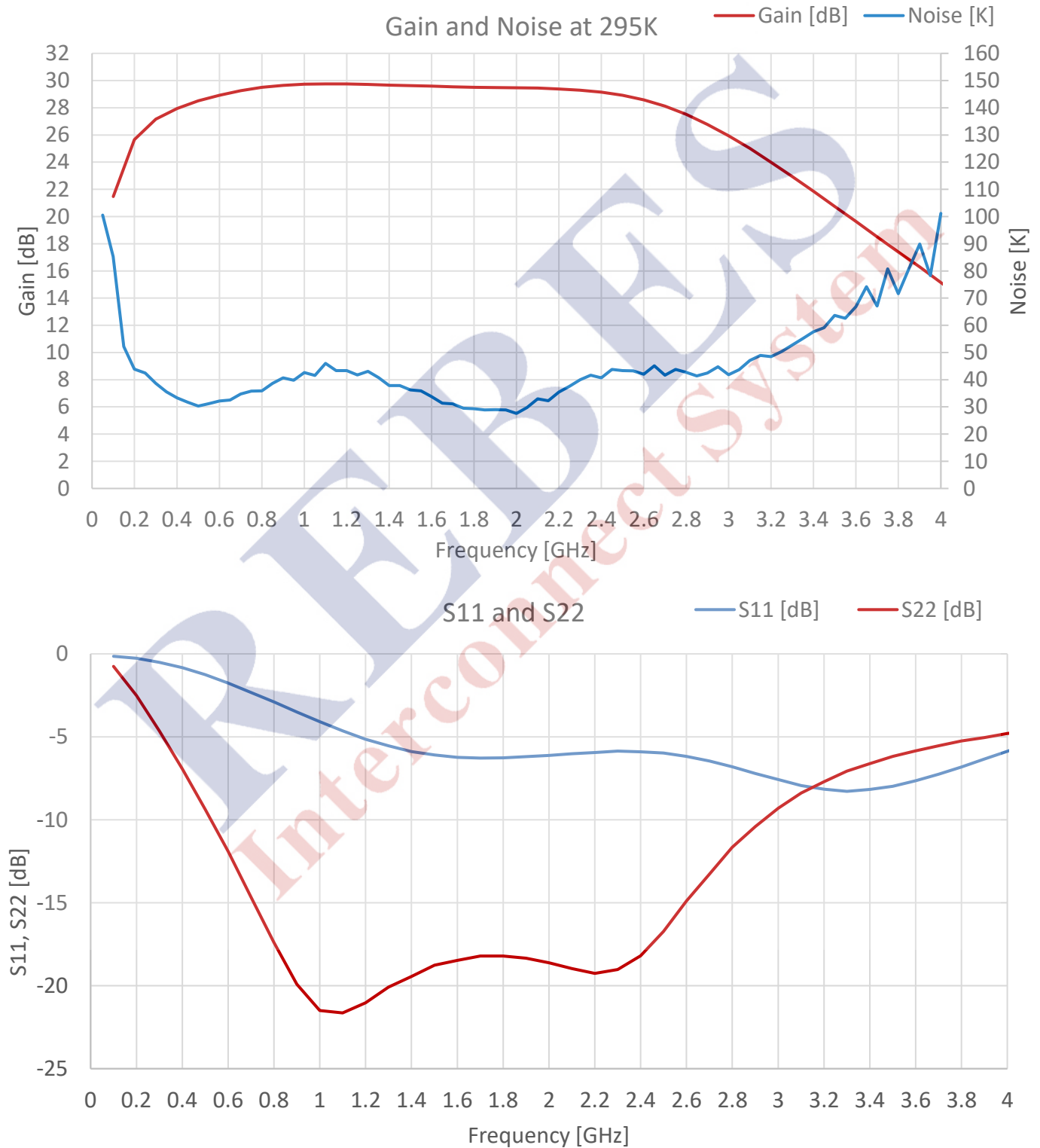
31.2 mW: $V_d=1.2\text{V}$, $I_d=26\text{mA}$

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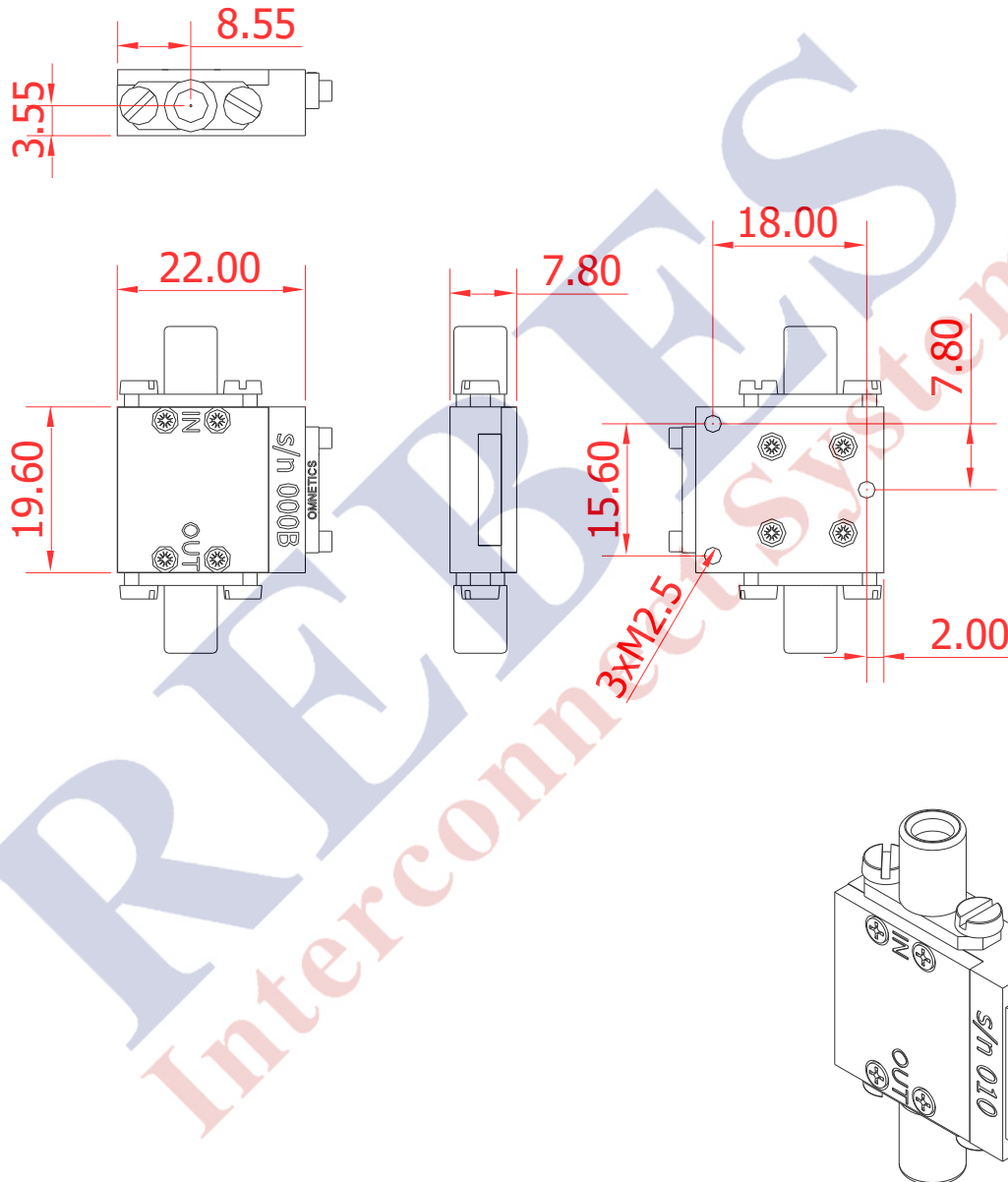
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Measured typical data @ $T_{amb}=296\text{ K}$
Typical room temperature bias: $V_d=1.7\text{ V}$, $I_d=50\text{ mA}$



Drawings



Dimensions are in millimeters