



5GHz WLAN Low Noise Amplifier

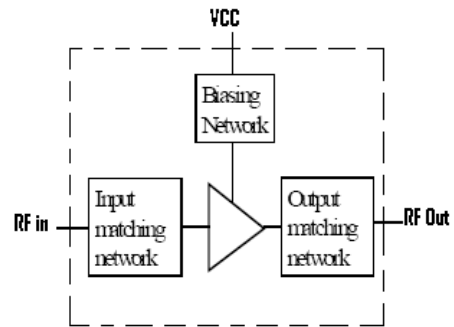
RLN301

Description

The **RLN301** is a 4.8 to 6 GHz high efficiency GaAs Enhancement mode pseudomorphic high electron mobility transistor MMIC low noise amplifier. The device is designed for 802.11a WLAN system.

The part is matched at the input and output so no additional RF matching components are required. The LNA has high gain and good noise figure at very low currents while maintain good IP3 performance. The part is biased by a single +3 V supply.

Functional Diagram



Applications

- IEEE 802.11 a WLAN
- WLAN mobiles
- WLAN access points

Key Features

- Low Noise Figure
- High Gain
- Low Current
- Complete on chip 50Ω input, output match
- On chip ESD protection

Electrical Specification

Conditions: Vcc = 3 V & T_A=25 °C, Test frequency= 5800MHz

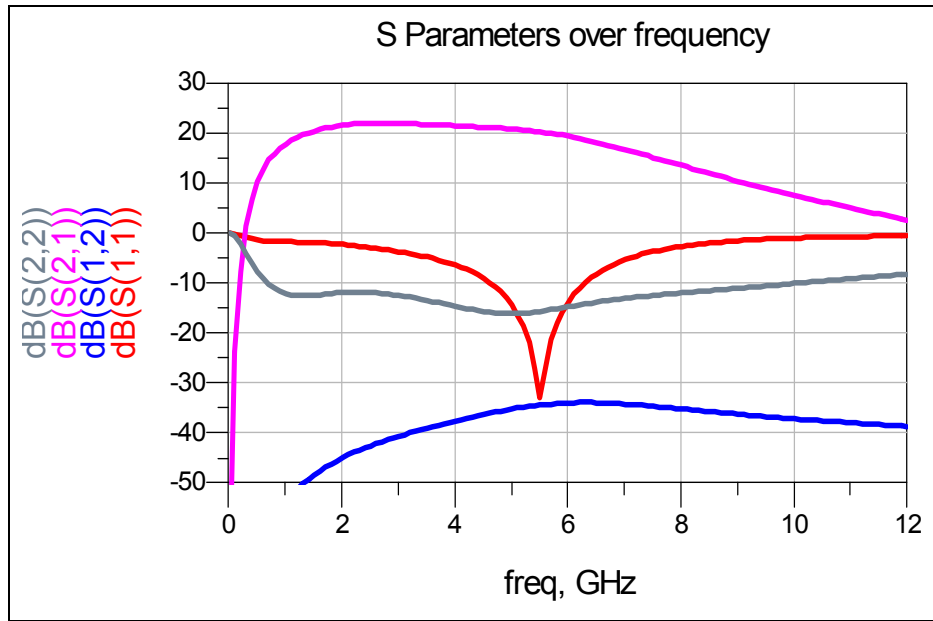
Parameter	Min	Typical	Max	Units
Frequency Range	4.8		6	GHz
Gain		20		dB
Noise Figure		1.28		dB
Input Return Loss		18		dB
Output Return Loss		15		dB
Input P1dB power		-13.2		dBm
OIP3 (1MHz spacing, -30dBm input tone)		+5		dBm
Isolation		30		dB
Third Harmonics		30		dBc
Stability		>1 10MHz to 12 GHz		
Supply Current		7.1		mA
DC Voltage		3		V



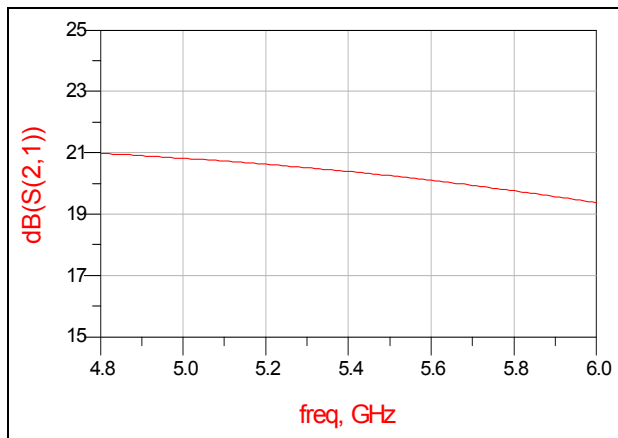
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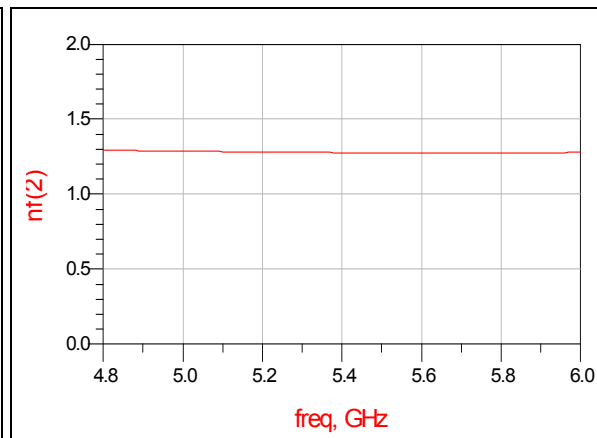
Simulation Data:



Gain Vs Frequency



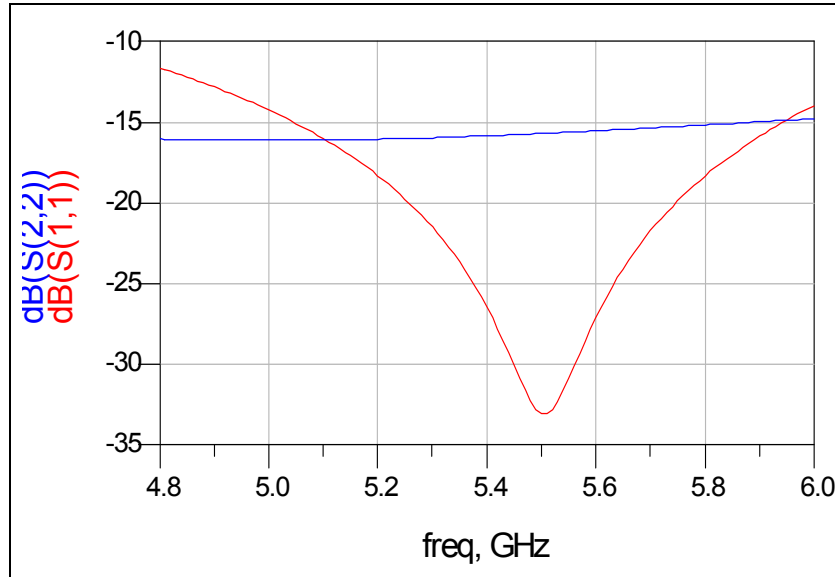
Noise figure Vs Frequency



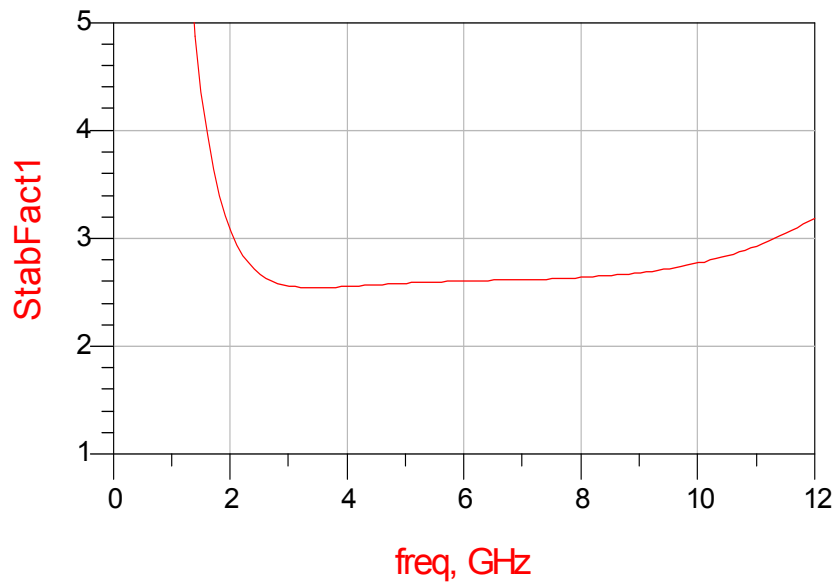


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Input and Output Return Losses

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Stability Factor over Frequency

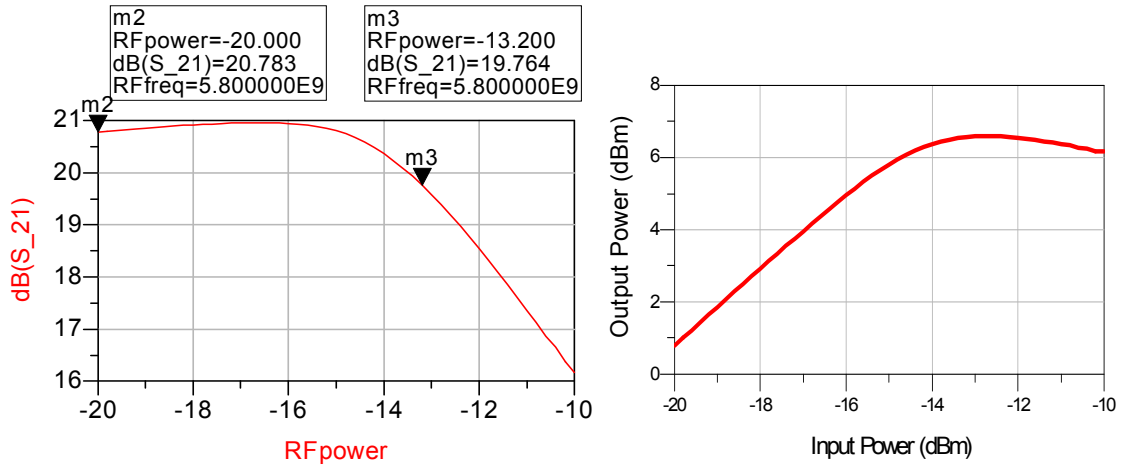




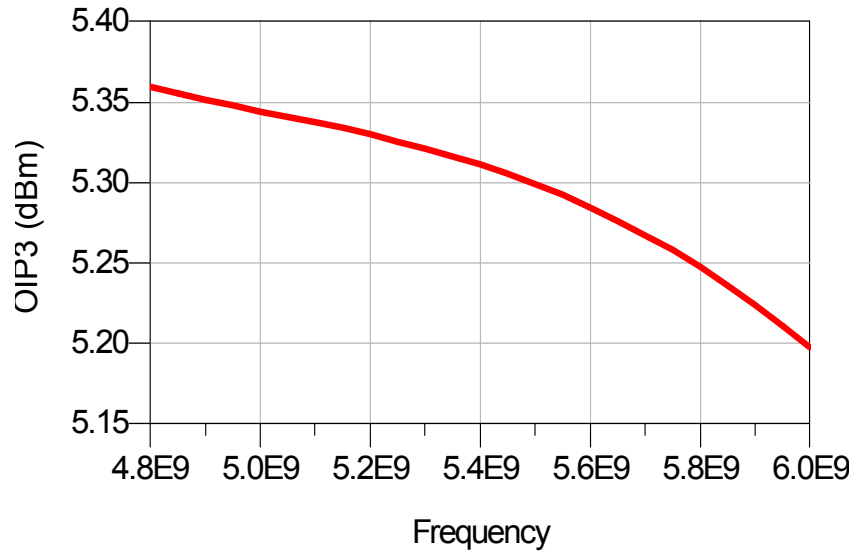
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P1dB power Output



OIP3 over Frequency
(1MHz spacing, -30dBm input power tone)





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MMIC Layout (1mm X 0.85mm):



Package Information:

12 lead, 3x3 QFN package (Micro Lead frame (MLF type))