Low Noise Amplifier

PRODUCT DATASHEET RFLN12S

Features:

- RF Frequency: 8 - 12 GHz
- Small signal gain: 22.07 dB
- Noise Figure: 1.83 dB
- Output P1dB: 11.04 dBm
- Saturated Output Power: 14 dBm
- DC drain bias voltage: 4 V
- DC supply current: 150 mA
- 0.1um GaAs pHEMT Technology
- Die Size: 1.15 mm * 1.02 mm

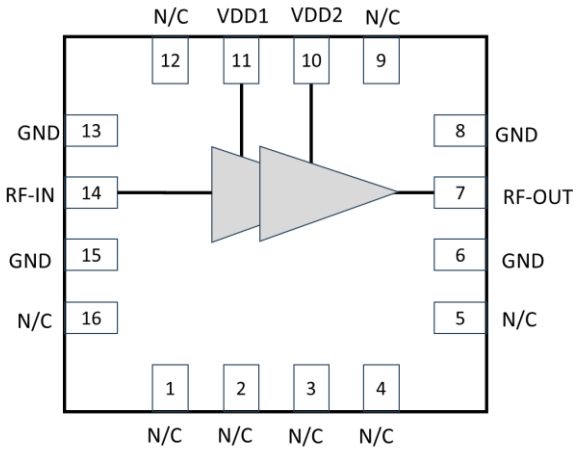
Applications:

- Fixed Wireless Broadband
- Microwave Links
- SATCOM
- IoT
- Wi-Fi
- Radar Systems

Deliverables:

- Sample Ready Die
- Product Datasheet

Functional Block Diagram



Pin Configuration

Pin No.	Pin Name	Description
6,8,13,15	GND	Ground
11	VDD1	Drain Bias Voltage 1
10	VDD2	Drain Bias Voltage 2
14	RF-IN	RF Input
7	RF-OUT	RF Output
1,2,3,4,5,9,12,16	N/C	Not Connected

Description:

RFLN12S is a two-stage self-biased Low Noise Amplifier operating from 8–12 GHz, intended for front-end signal amplification in RF receiver systems. The amplifier provides 22.07 dB of small-signal gain, with input and output matched to 50 ohms using an off-chip matching network.

The device is specifically designed for use at 8-12 GHz frequency in fixed wireless broadband, microwave links, WiFi, IoT, and SATCOM, and Radar Systems applications.

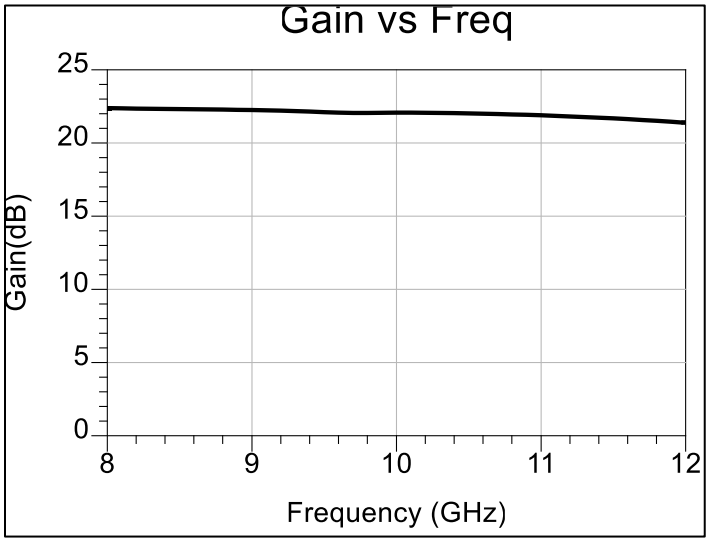
The Technology used to design the LNA is a 0.1um GaAs pHEMT Process.

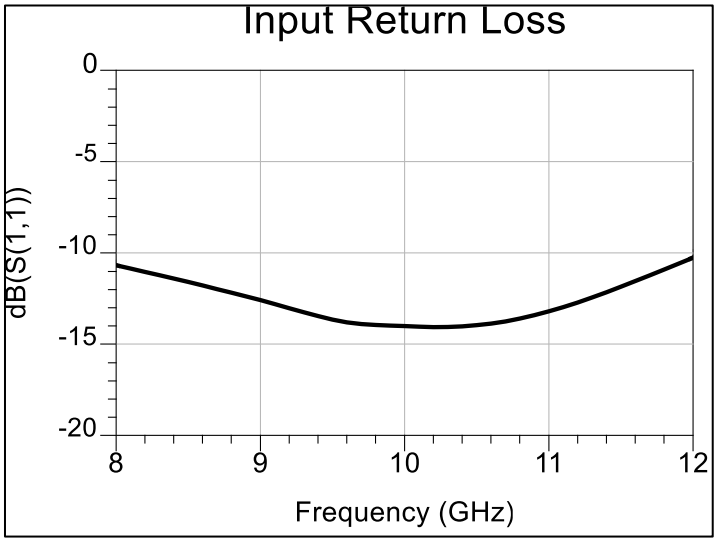
Electrical Specification:

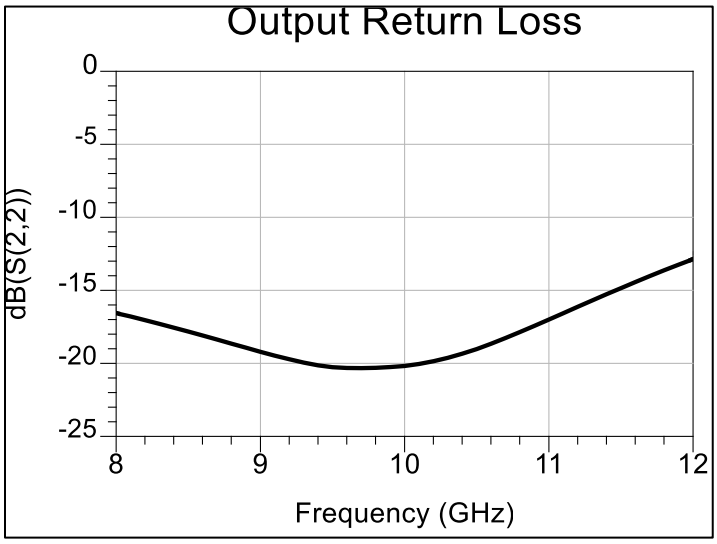
Freq= 8 - 12 GHz,VDD1=VDD2= 4 V, ID= 150 mA, Zo=50 Ω

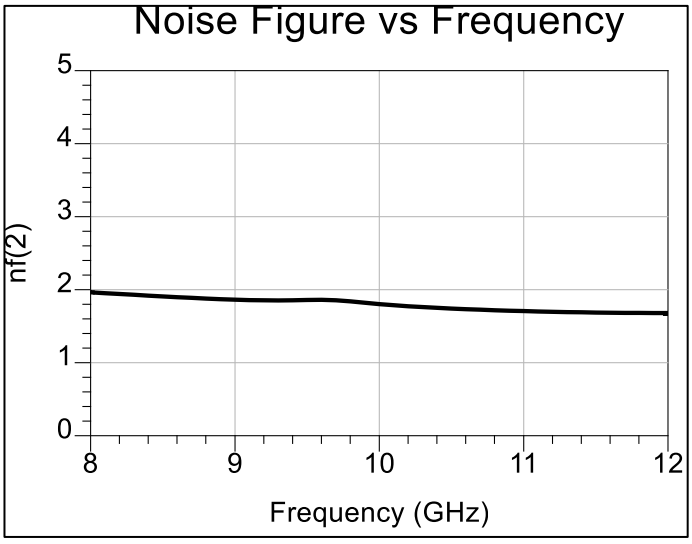
Parameters	Test Condition	Units	Typ
Gain	8 GHz	dB	22.38
	10 GHz		22.07
	12 GHz		21.38
Output P1 dB	8 GHz	dBm	-
	10 GHz		11.04
	12 GHz		-
OIP3 Pin= 1 dBm Δf = 50MHz	8 GHz	dBm	-
	10 GHz		23.7
	12 GHz		-
Noise Figure	8 GHz	dB	-
	10 GHz		1.83
	12 GHz		-
Input Return Loss	8 GHz	dB	10.48
	10 GHz		14.01
	12 GHz		10.27
Output Return Loss	8 GHz	dB	16.55
	10 GHz		20.18
	12 GHz		12.87
Operating Bias Conditions			
Drain Current (Id)	-	mA	150
Drain Voltage (VDD)	-	V	4

Typical Performance Curves:









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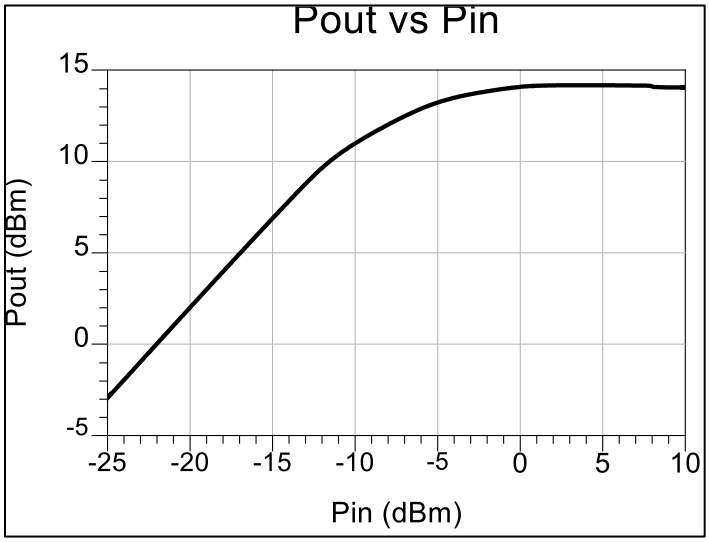
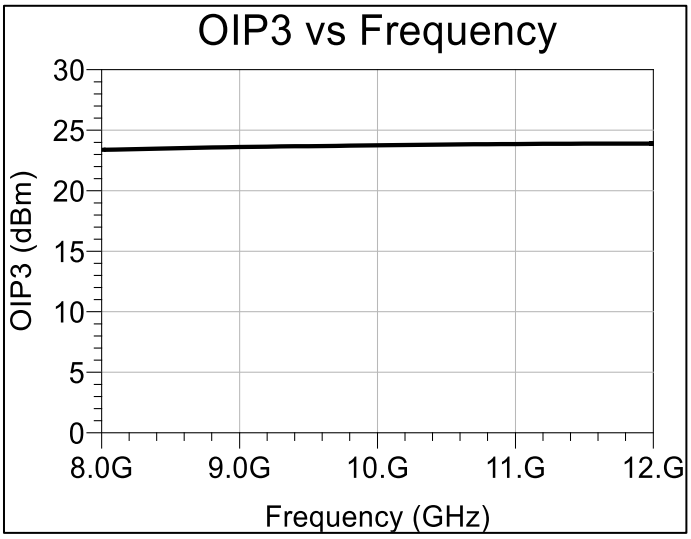
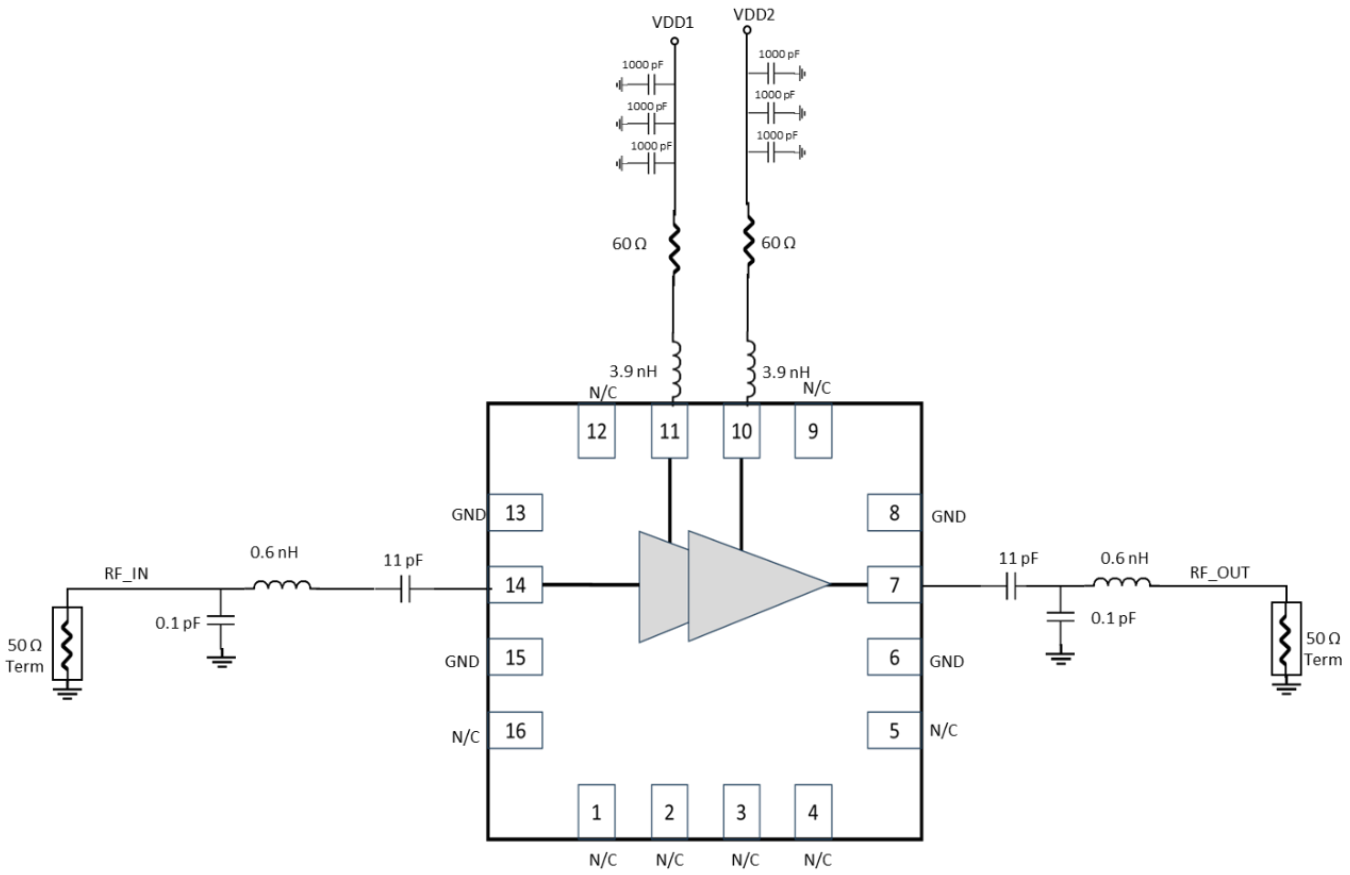




Application Diagram:



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