Low Noise Amplifier

PRODUCT DATASHEET RFLN18S

Features:

- RF Frequency: 12 - 18 GHz
- Small signal gain: 18.12dB
- Noise Figure: 2 dB
- Output P1dB: 13.1 dBm
- Saturated Output Power: 14.6 dBm
- DC drain bias voltage: 4 V
- Dc supply current: 59.8 mA
- 0.1um GaAs pHEMT Technology
- Die Size: 1.2 mm * 1.02 mm

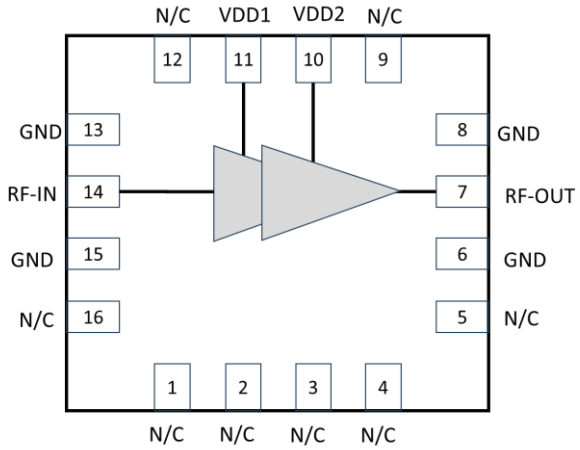
Applications:

- 5G Wireless Communication.
- SATCOM
- Radar Systems
- Fixed Wireless Access (FWA)
- Imaging and Sensing

Deliverables:

- Sample Ready Die
- Product Datasheet

Functional Block Diagram



Pin Configuration

Pin No.	Pin Name	Description
6,8,1315	GND	Ground
11	VDD1	Drain Bias Voltage 1
10	VDD2	Drain Bias Voltage 2
14	RF-IN	RF Input
7	RF-OUT	RF Output
1,2,3,4,5,9,16	N/C	Not Connected

Description:

RFLN18S is a two-stage self-biased Low Noise Amplifier operating from 12–18 GHz, intended for front-end signal amplification in RF receiver systems. The amplifier provides 18.12 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 in 12 – 18 GHz frequency in 5G Wireless Communication, Radar Systems, Fixed Wireless Access (FWA), Imaging and Sensing, and SATCOM Applications.

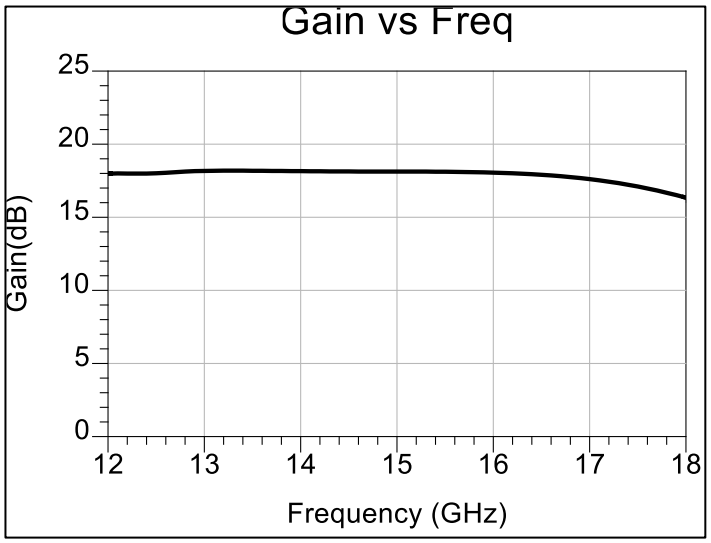
The Technology used to design LNA is 0.1um GaAs pHEMT Process.

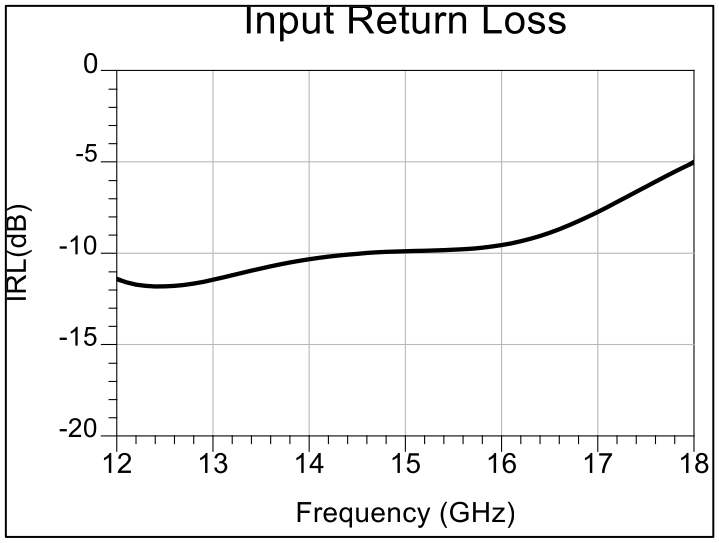
Electrical Specification:

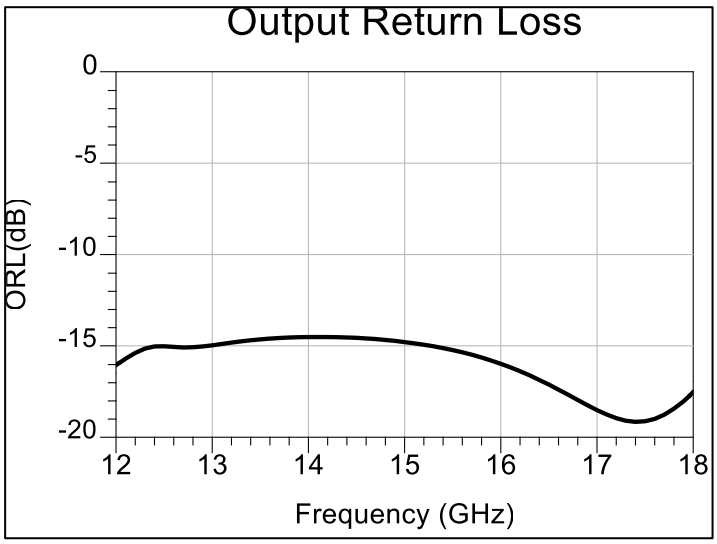
Freq= 12 - 18 GHz, VDD1=VDD2= 4 V, ID= 59.8 mA, Zo=50 Ω

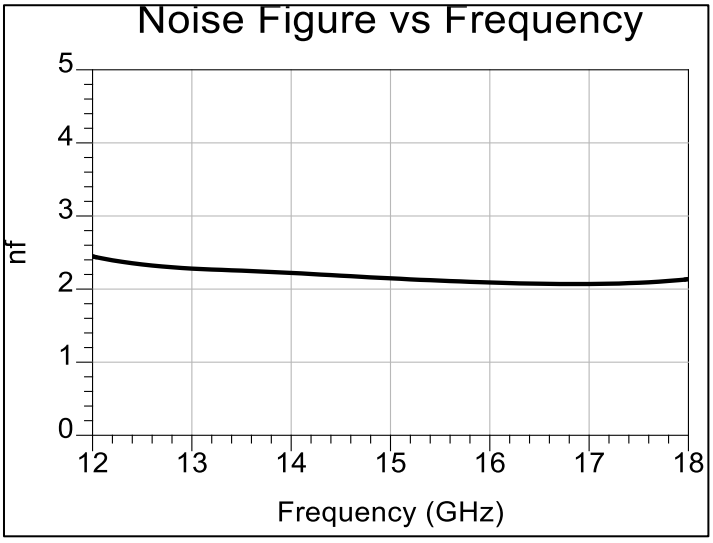
Parameters	Test Condition	Units	Typ
Gain	12 GHz	dB	17.99
	15 GHz		18.12
	18 GHz		16.32
Output P1 dB	12 GHz	dBm	-
	15 GHz		13.16
	18 GHz		-
OIP3 Pin= 1 dBm Δf = 50MHz	12 GHz	dBm	-
	15 GHz		16.4
	18 GHz		-
Noise Figure	12 GHz	dB	2.4
	15 GHz		2
	18 GHz		2.1
Input Return Loss	12 GHz	dB	11.20
	15 GHz		9.89
	18 GHz		5.02
Output Return Loss	12 GHz	dB	16.05
	15 GHz		14.79
	18 GHz		17.55
Operating Bias Conditions			
Drain Current (Id)	-	mA	59.8
Drain Voltage (VDD)	-	V	4

Typical Performance Curves:









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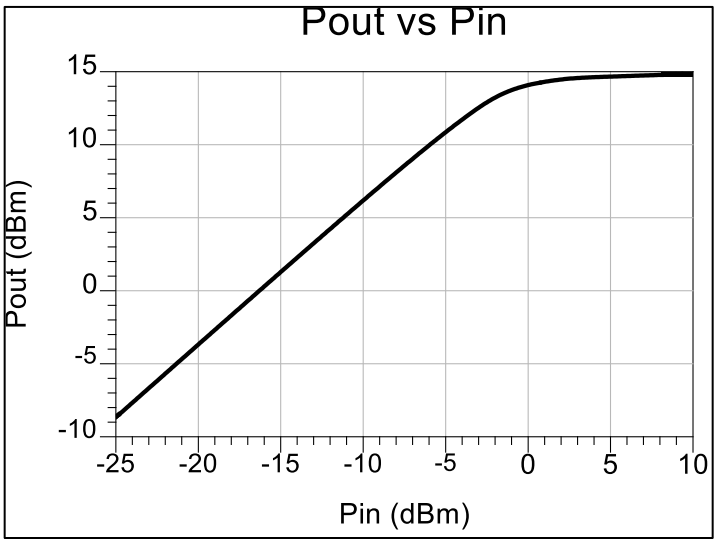
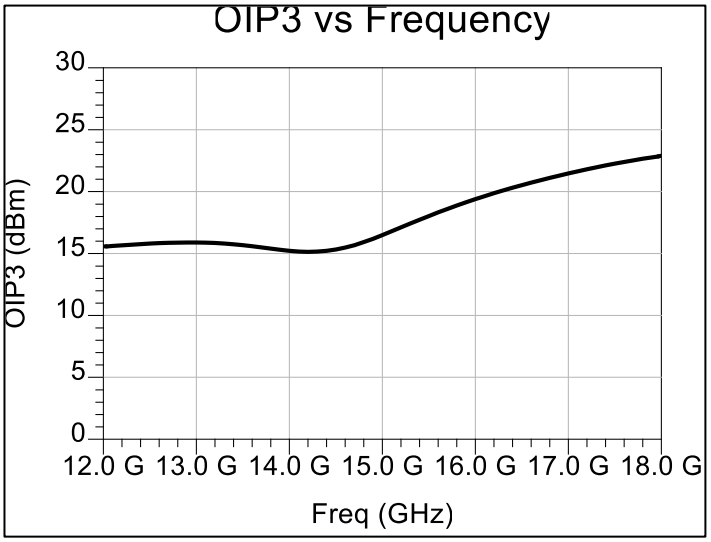
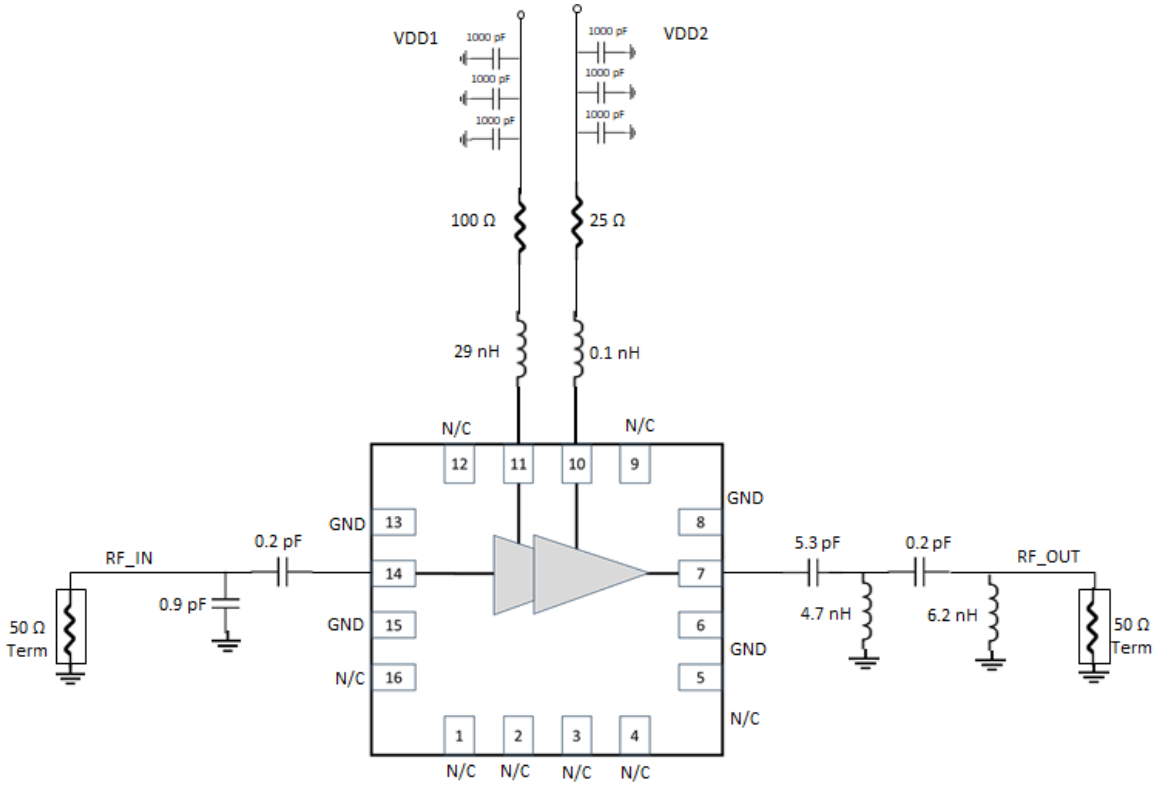




Application Diagram:



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