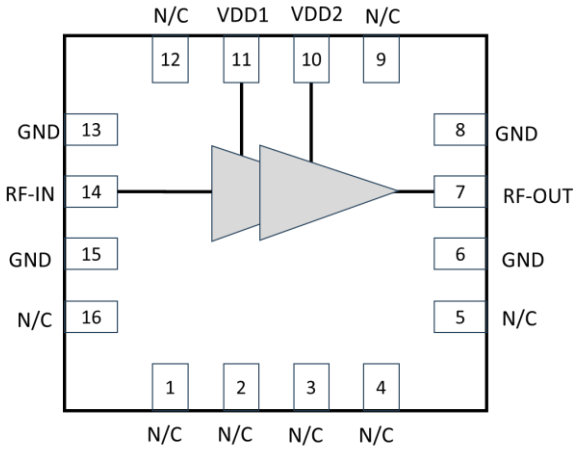
Low Noise Amplifier

PRE-RELEASE 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

Functional Block Diagram



Description: -

RFLN18S is a Two-stage self-biased Low Noise Amplifier that operates from 12 - 18 GHz and it is used to drive the high-power amplifier. The amplifier provides 18.12 dB of small signal gain, and the input and output are matched to 50 ohms with 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.

Pin Configuration

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

Applications

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

Deliverables

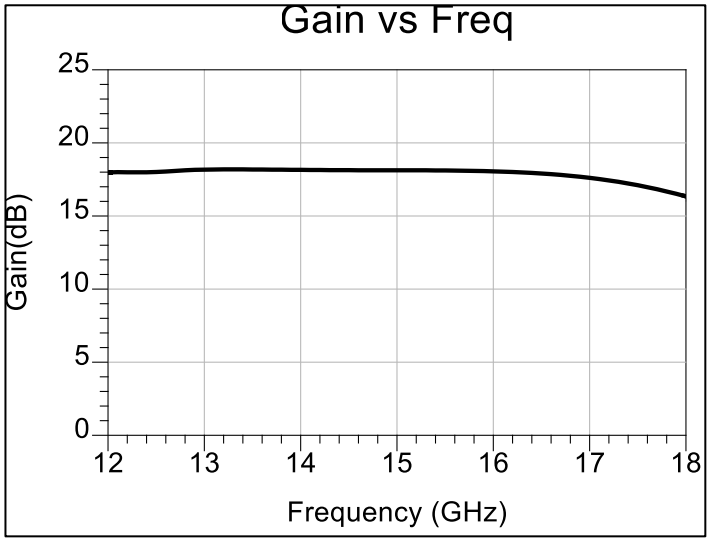
- Sample Ready Die
- Product Datasheet

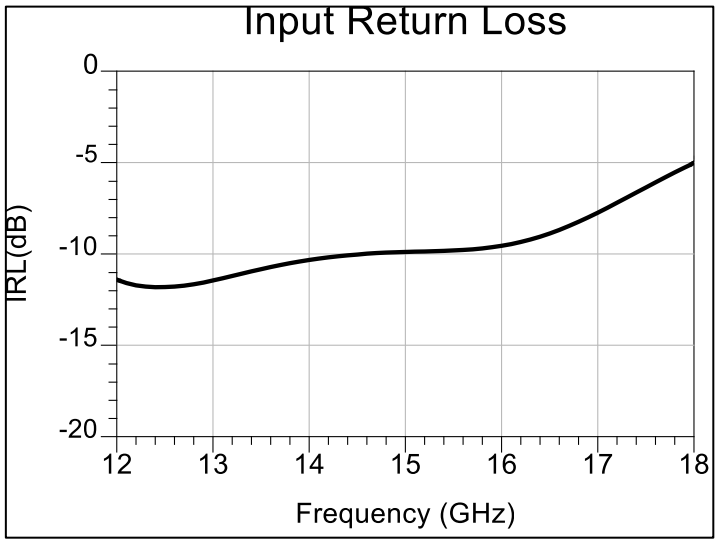
Electrical Specification: -

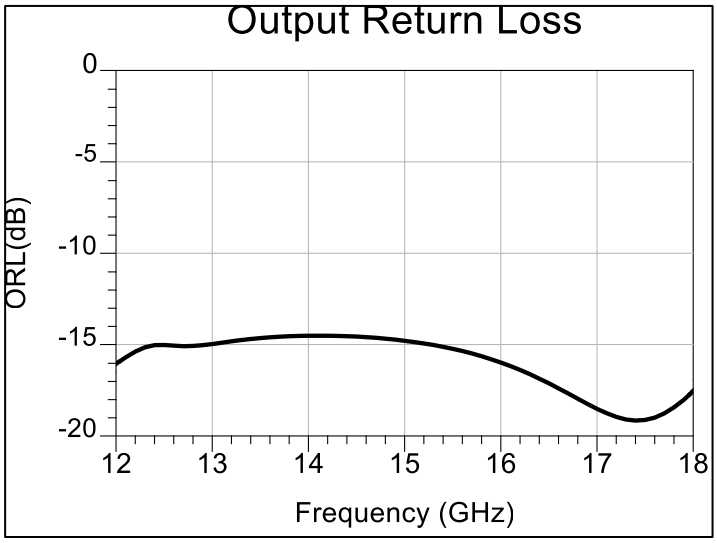
Freq= 12 - 18 GHz, VDD1=VDD2= 4V, ID= 59.8 mA, Zo=50 Ω

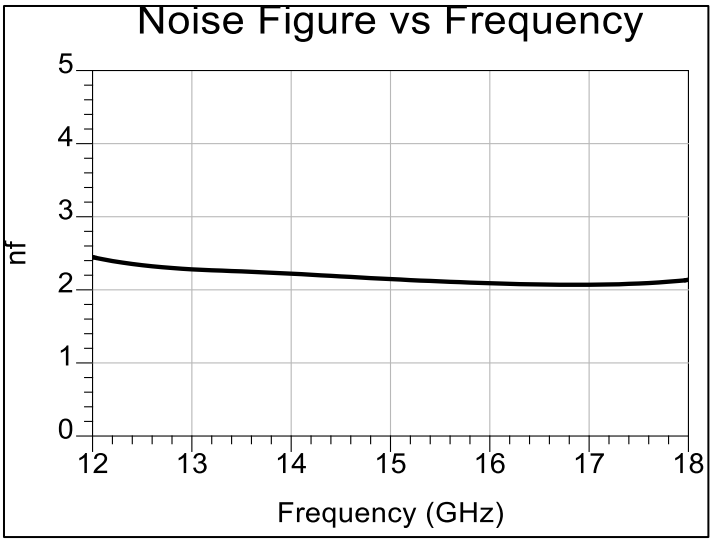
Parameters	Test Condition	Units	Typ
Gain	12 GHz	dB	17.99
	15 GHz		18.12
	18 GHz		16.32
Output P1 dB	12 GHz	dBm	-
	15 GHz		13.16
	18 GHz		-
OIP3 Pin= 1 dBm Δf = 50MHz	12 GHz	dBm	-
	15 GHz		16.4
	18 GHz		-
Noise Figure	12 GHz	dB	2.4
	15 GHz		2
	18 GHz		2.1
Input Return Loss	12 GHz	dB	11.20
	15 GHz		9.89
	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

EVB Measured Performance Curves: -

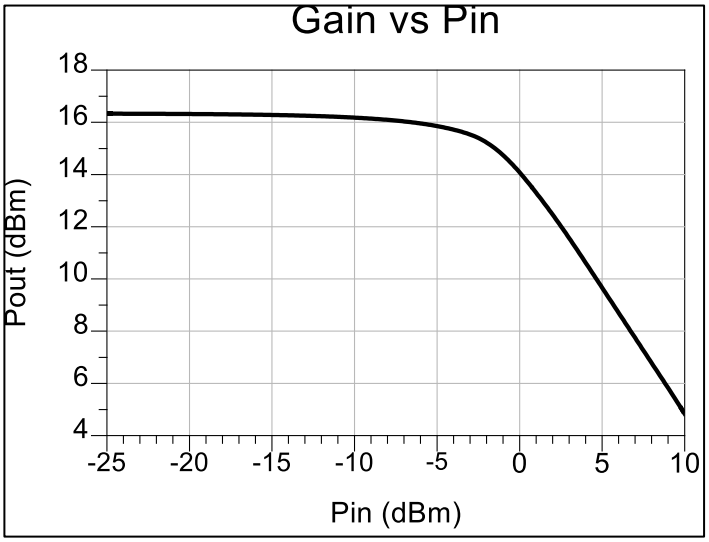


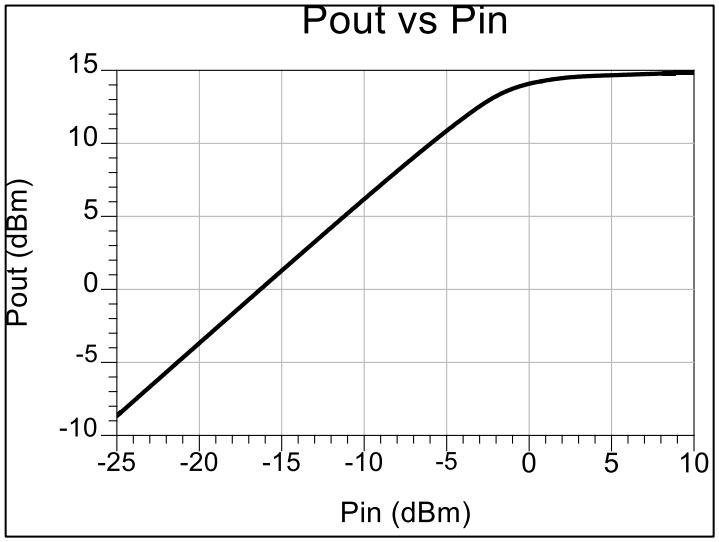


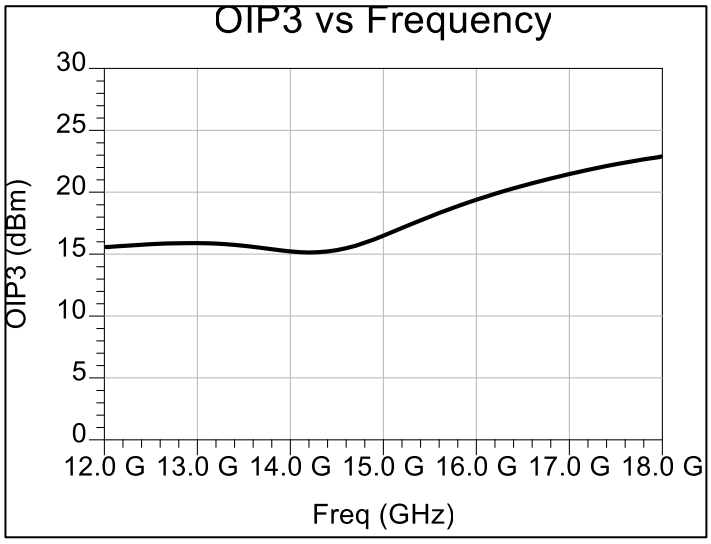




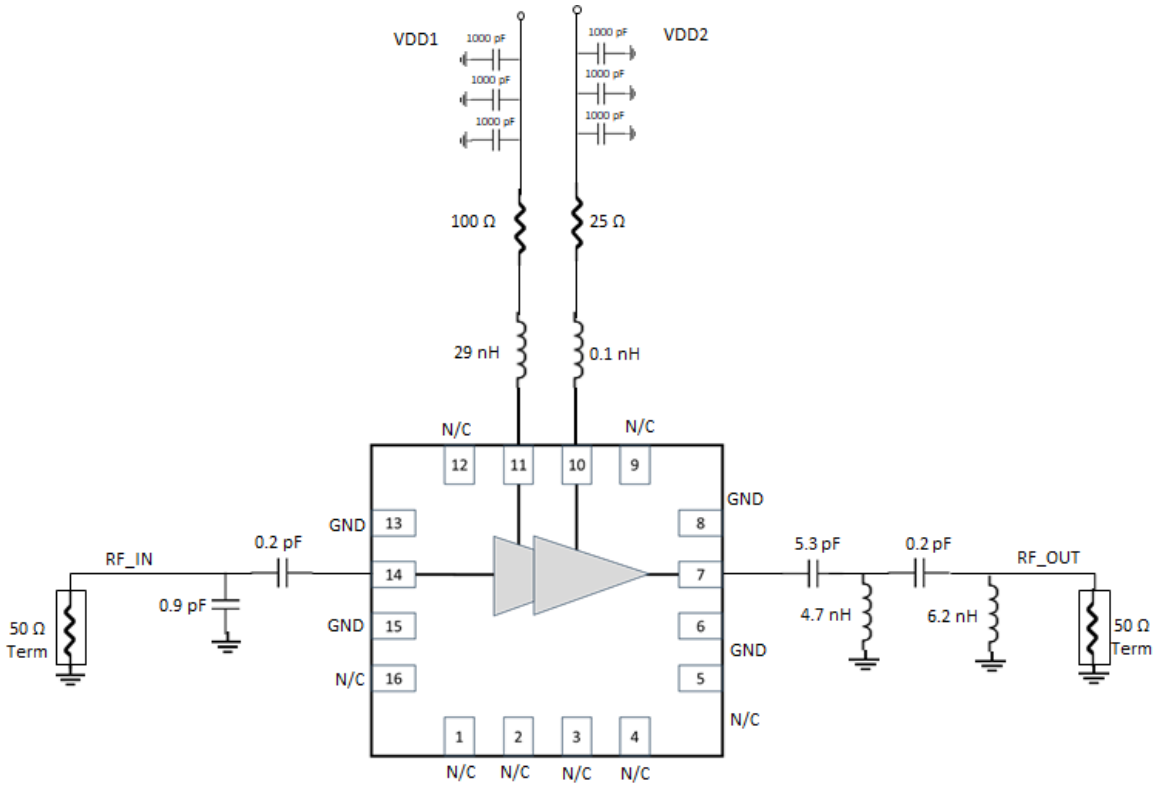
Typical Performance Curves:







Application Diagram:



Disclaimer:

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