Low Noise Amplifier

PRODUCT DATASHEET RFLN40A

Features:

- RF Frequency: 20 - 40 GHz
- Small signal gain: 26 dB
- Output P1dB: 15 dBm
- Saturated Output Power: 20.5 dBm
- DC drain bias voltage: 3 V
- Dc supply current: 255 mA
- 0.1um GaAs pHEMT Technology
- Die Size: 0.9 mm *1.78 mm

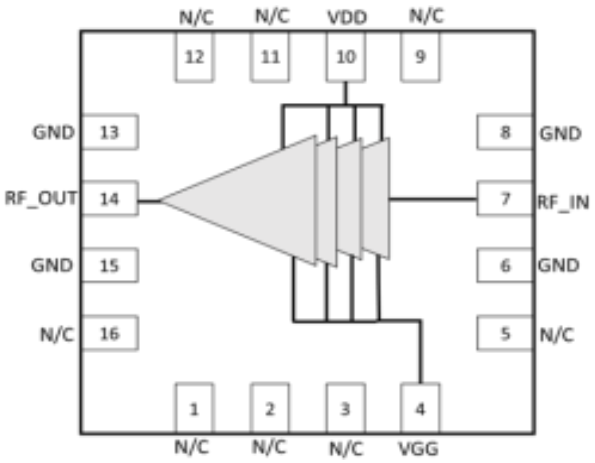
Applications:

- Satellite communication
- Radar Systems
- 5G Wireless Communication
- Automotive Radar

Deliverables:

- Sample Ready Packaged Die
- Product Datasheet

Functional Block Diagram:



Pin Configuration:

Pin No.	Pin Name	Description
1,2,3,5,9,11,12,16	N/C	Not Connected
10	VDD	Drain Bias Voltage
14	RF_OUT	RF Output
4	VGG	Gate Bias Voltage
7	RF_IN	RF Input
6,8,13,15	GND	Ground

Description:

RFLN40A is Four Stage self-biased Low Noise Amplifier operates from 20-40 GHz and it is used to drive the high-power amplifier. The amplifier provides 26 dB of small signal gain, the input and output are matched to 50 ohms with off-chip matching Network.

The device is specifically designed for use in 20-40 GHz frequency in Bluetooth, Zigbee, WiFi, IoT and SATCOM Application.

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

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Electrical Specification:

Freq= 20 - 40 GHz, VDD= 4V, VGG = -0.3V, ID= 330 mA, Zo=50 Ω

Parameters	Test Condition	Units	Typ
Gain	20 GHz	dB	13
	35 GHz		26
	40 GHz		15
Output P1 dB	20 GHz	dBm	
	30 GHz		15
	40 GHz		
OIP3 Pin= 1 dBm Δf = 50MHz	20 GHz	dBm	
	30 GHz		23.37
	40 GHz		
Noise Figure	20 GHz	dB	
	30 GHz		5.7
	40 GHz		
Input Return Loss	20 GHz	dB	
	35 GHz		12
	40 GHz		
Output Return Loss	20 GHz	dB	
	35 GHz		12
	40 GHz		
Operating Bias Conditions			
Drain Current (Id)	-	mA	330
Drain Voltage (VDD)	-	V	4
Gate Voltage (VGG)	-	V	-0.3

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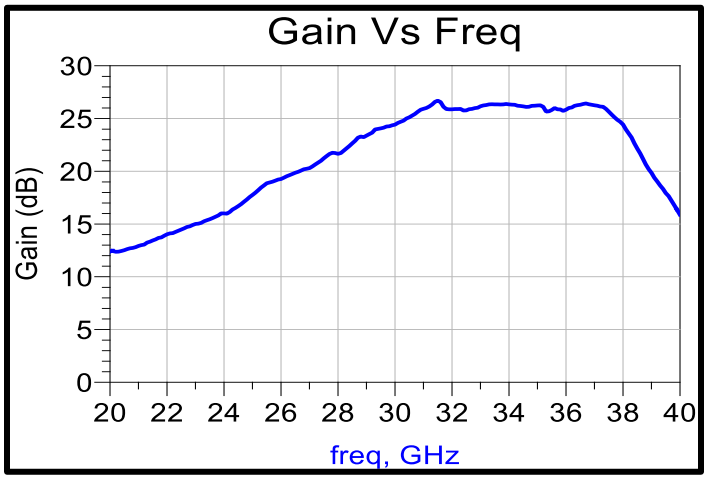
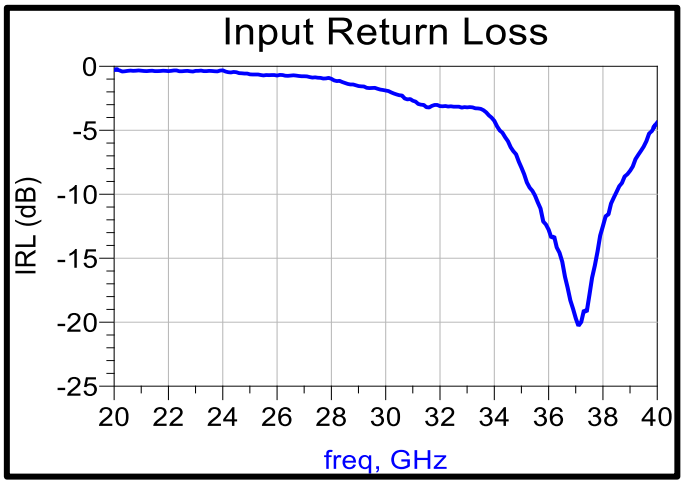
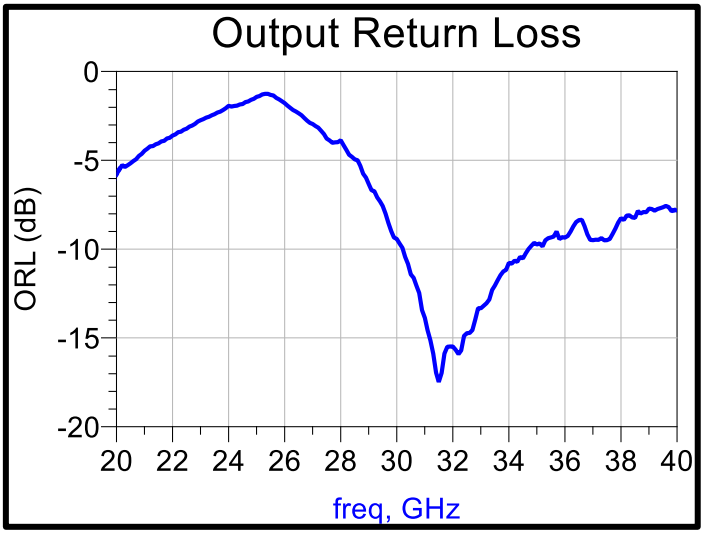
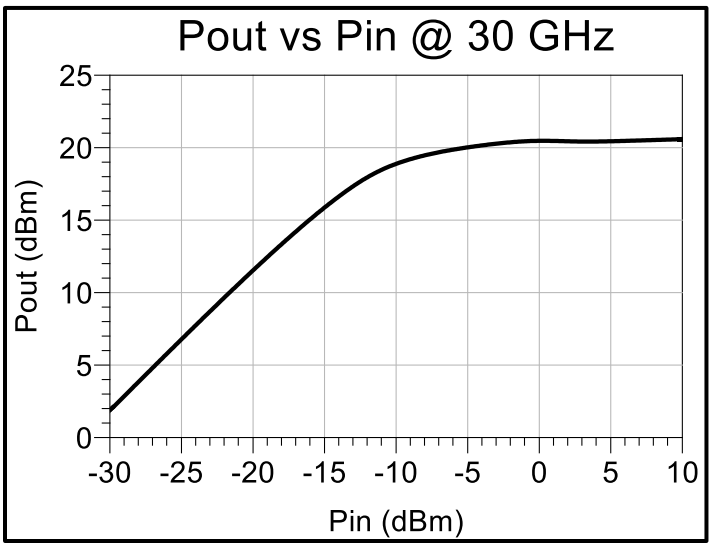
Wafer Level Test Results:

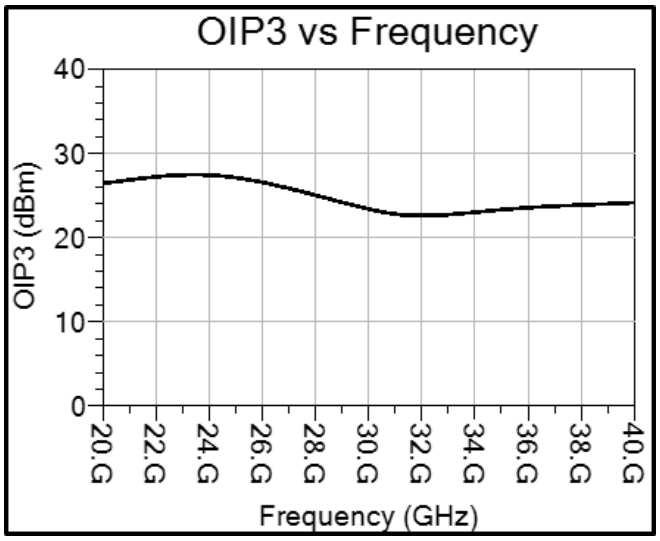




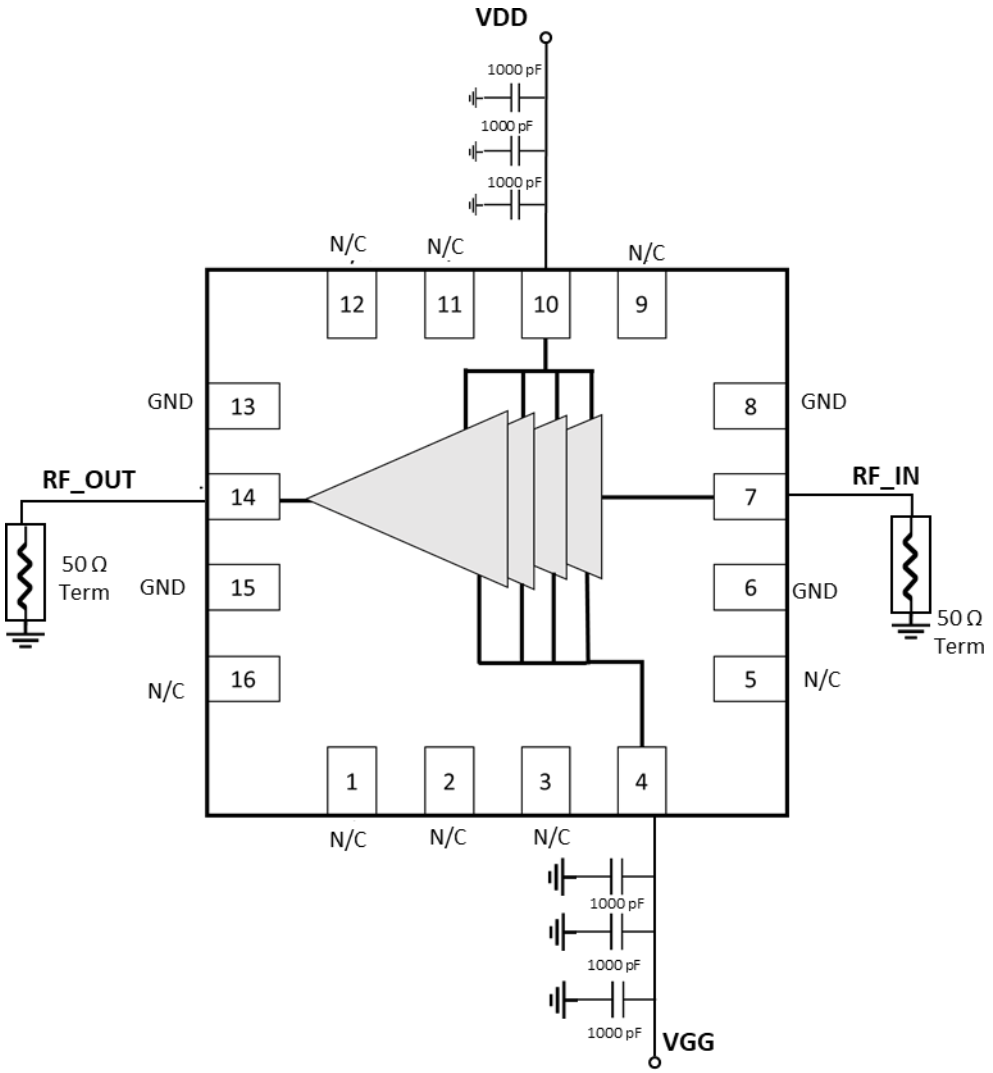


Typical Performance Curves:





Application Diagram:



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