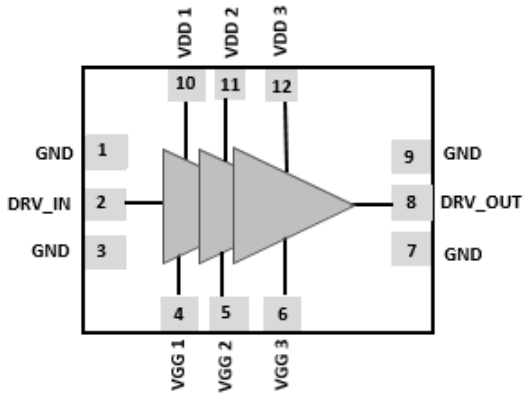
Low Noise Amplifier

PRE-RELEASE DATASHEET RFLN30

Features:-

- RF Frequency: 24-30GHz
- Noise Figure of 1.4dB
- Small Signal Gain of 25dB
- Output P1dB: 16dBm
- Saturated Power: 21dBm
- DC Drain Bias Voltage 4V
- DC supply current 60mA
- 0.1um GaAs pHEMT Technology

Functional Block Diagram:-



Description:-

RFLN30 is a Three stage low noise amplifier for K, KA band with flat gain over wide bandwidth,low Noise Figure, high isolation, stability and high linearity. The LNA is designed to operate from 24-30GHz using 0.1um GaAs pHEMT process.

The designed LNA, bias current and gain can be set with the gate bias to allow the user to customize the current, gain and NF value to fit the application.

The RFLN30 offers 1.4 dB noise figure, 25dB of small signal gain, OP1dB of 16 dBm with low noise figure along with the flexibility of setting current and gain makes this LNA an ideal front end amplifier in 5G and SATCOM Application.

Results are shown with all parasitic & coupling effects at desire frequency.

Pin Configuration:-

Pin No.	Pin Name	Description
1, 3, 7, 9	GND	RF Ground
4	VGG1	Gate Bias Voltage1
5	VGG2	Gate Bias Voltage2
6	VGG3	Gate Bias Voltage3
2	DRV_IN	Driver Input
8	DRV_OUT	Driver Output
10	VDD1	Drain Bias Voltage1
11	VDD2	Drain Bias Voltage2
12	VDD3	Drain Bias Voltage3

Applications:-

- 5G RF transceiver.
- Satellite Communication.
- Point to point communication system.
- Radar Application.

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Electrical Specification:-

Freq =24-30GHz, VDD1=VDD2=VDD3= 4 V, ID= 60 mA, Zo=50 Ω

Parameters	Test Condition	Units	Typ
Gain	24GHz	dB	24.5
	27GHz		25.5
	30GHz		24
Output P1dB	24GHz	dBm	16
	27GHz		
	30GHz		
OIP3 Pin = -15dBm Δf = 200MHz	24GHz	dBm	
	27GHz		
	30GHz		
Noise Figure	24GHz	dB	1.35
	27GHz		1.3
	30GHz		1.4
Input Return Loss	24GHz	dB	-10.5
	27GHz		-12.5
	30GHz		-13.5
Output Return Loss	24GHz	dB	-12
	27GHz		-17.5
	30GHz		-12
Drain Current (Id)	-	mA	60
Drain Voltage (VDD)	-	V	4
Gate Voltage (VGG)	-	V	---

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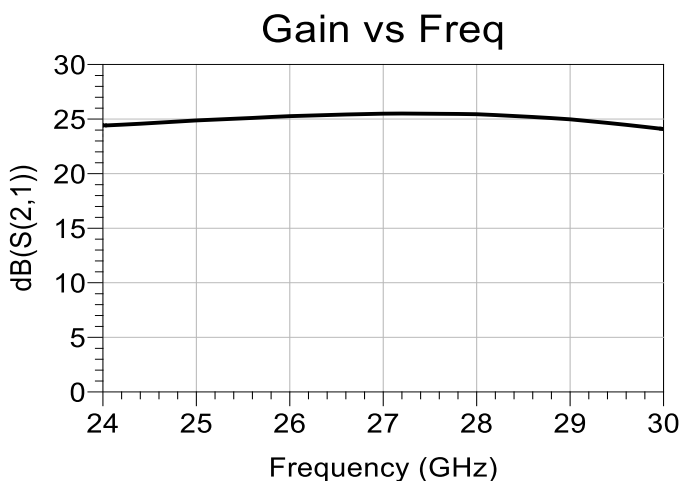
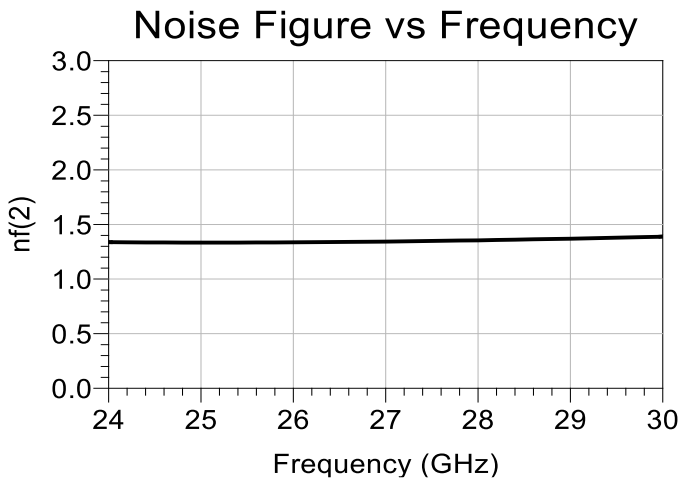
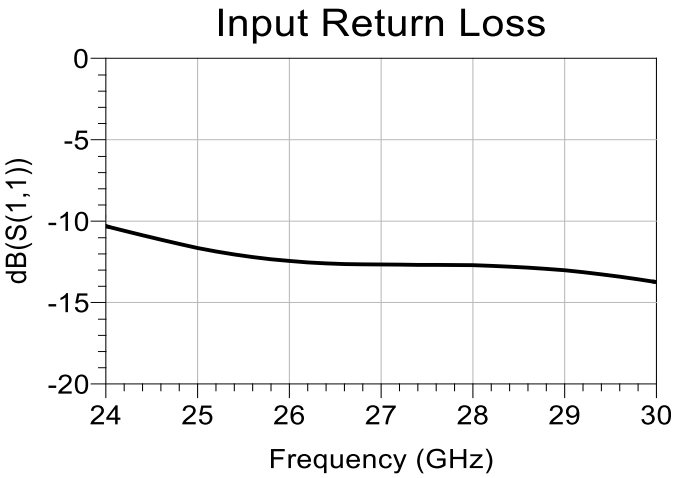
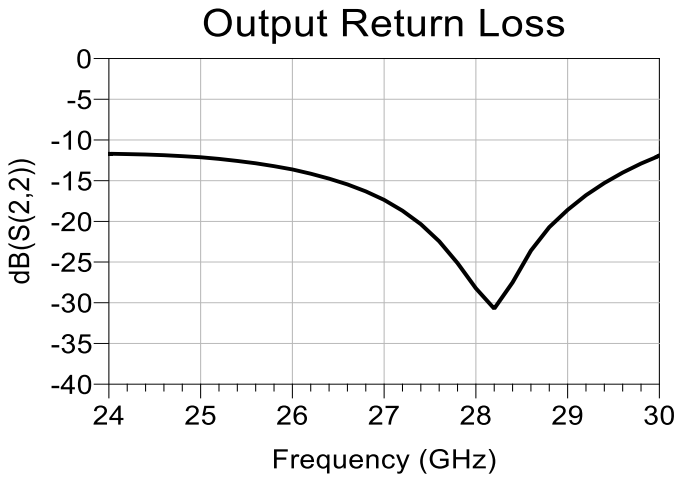
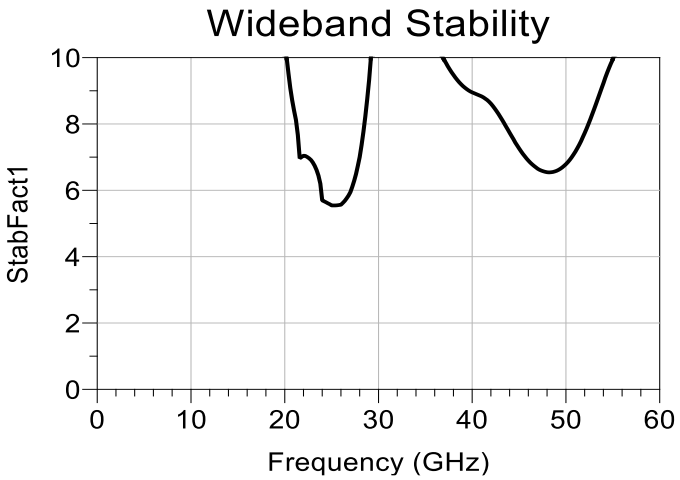
Typical Performance Curve:-

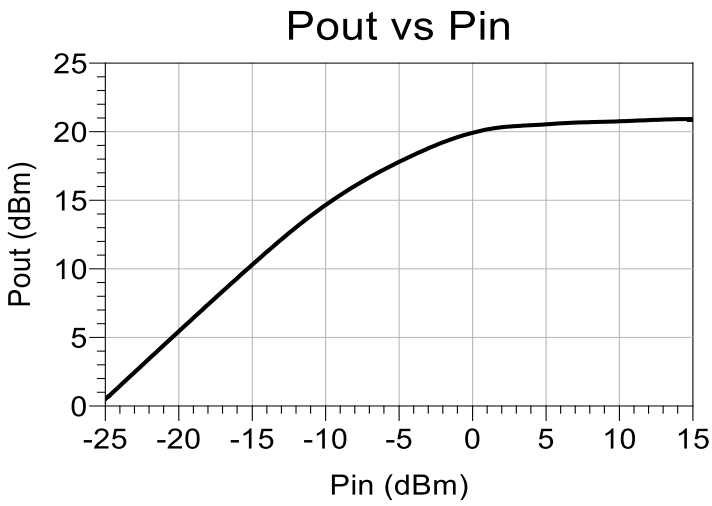




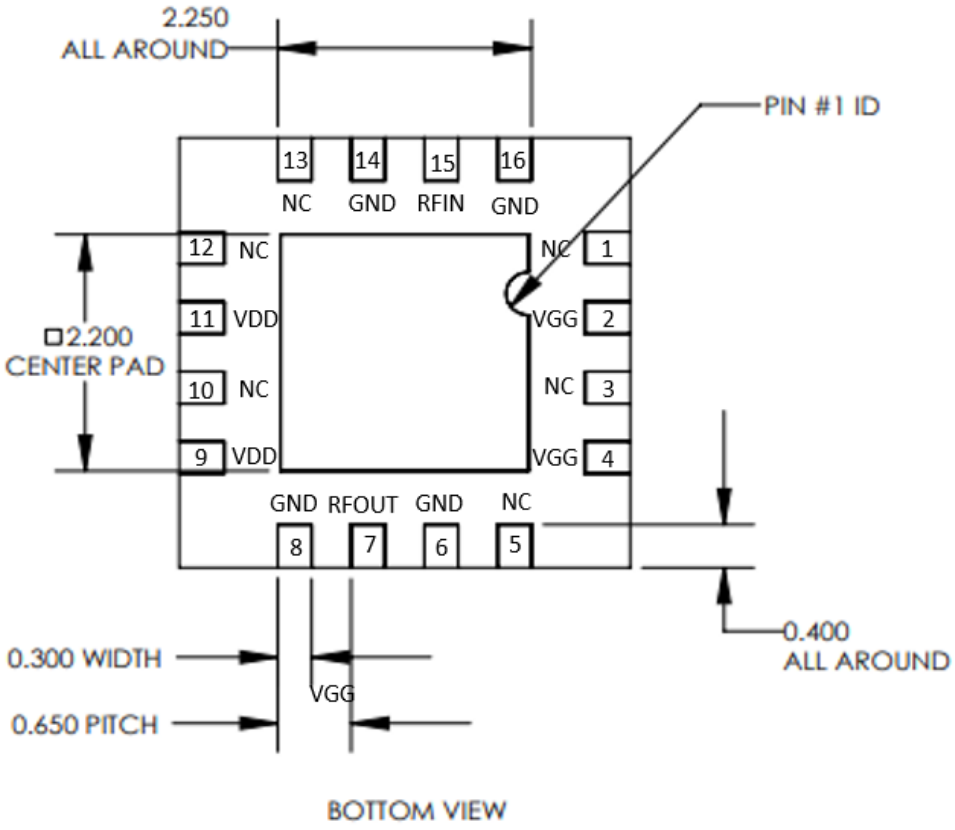








Pin Description:-



Functional Description:-

Pin number	Pin name	Description
1,3,5,10,12,13	NC	Not Connected
6,8,14,16	GND	RF Ground
9,11	VDD	Drain Bias voltage
2,4	VGG	Gate Bias voltage
15	RF_IN	RF Input
7	RF_OUT	RF Output

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Disclaimer

Contact information

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