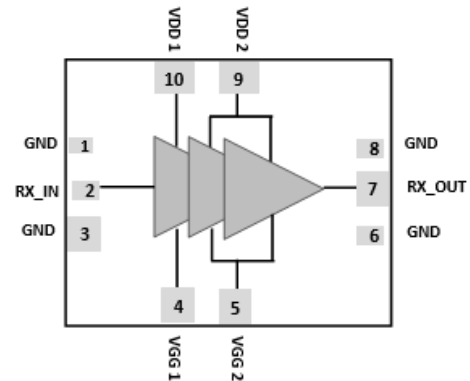


### Features:-

- RF Frequency: 22-30GHz.
- Noise Figure of 2.1dB
- Gain of 21dB.
- Low DC Power Consumption of 0.3W
- Adjustable Gain and Noise Figure by varying Gate bias Voltage
- Bias:- VDD1=VDD2= 4V ,VGG1=VGG2=-0.6V, ID=80mA.
- EM/Co simulated performance by considering all coupling & parasatic effects.

### Functional Block Diagram:-



### Description:-

RFICLN11 (LNA) has three stages, which is used in receive application. This MMIC LNA has excellent linearity and low noise figure designed for operation in Ka band using 0.1um GaAs pHEMT process.

This MMIC is designed for 22-30 GHz and operates at Drain supply voltage of 4V and consumes DC power of 0.3W. The LNA gives flat small signal gain of 21 dB with around 2.3 dB of Noise Figure over wideband. The drain bias current can be adjusted via Vgg which allows the user to customize the current, gain and NF to suit the application.

The low noise figure along with the flexibility of setting current and flat gain make this LNA an ideal amplifier to be used in SATCOM Applications.

### Pin Configuration:-

Pin No.	Pin Name	Description
1	GND	RF Ground
2	RX_IN	RF Input
3	GND	RF Ground
4	VGG1	Gate Bias Voltage1
5	VGG2	Gate Bias Voltage2
6	GND	RF Ground
7	RX_OUT	RF Output
8	GND	RF Ground
9	VDD2	Drain Bias Voltage2
10	VDD1	Drain Bias Voltage1

### Application:-

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

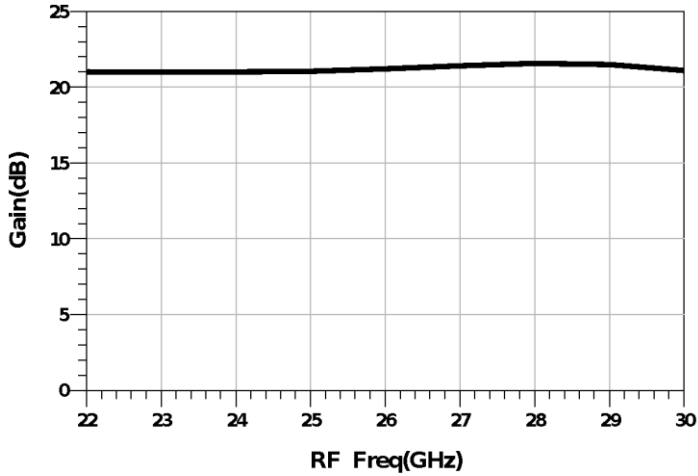
### Electrical Specification:-

Freq = 22-30GHz, VDD1=VDD2=4V, VGG1=VGG2=-0.6V, Id= 80mA, Zo=50Ω

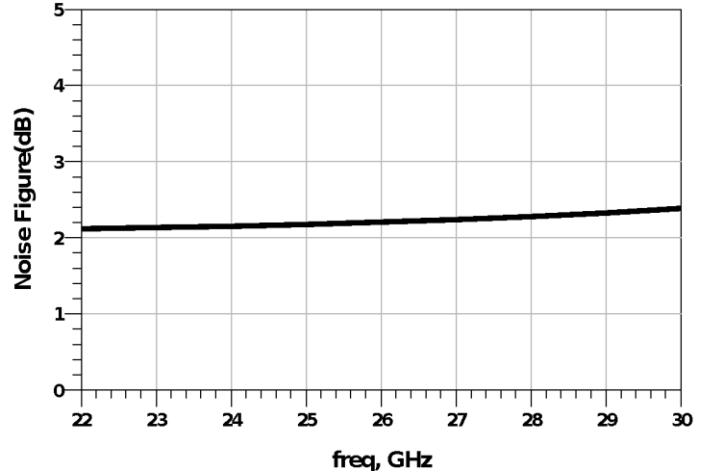
Parameters	Freq (GHz)	Units	Typ.
Gain	22	dB	21
	26		21
	30		21
Noise Figure	22	dB	2
	26		2.1
	30		2.3
OIP3 Pin=-30dBm ΔF=100MHz	22	dBm	23
	26		27
	30		27
OP1 dB	22	dBm	13
	26		18
	30		18
Input Return Loss	22	dB	-8.5
	26		-11.8
	30		-9
Output Return Loss	22	dB	-10
	26		-31
	30		-12
<b>Operating Bias Condition</b>			
Drain Bias Voltage (VDD)			4
Gate Bias Voltage (VGG)	-	V	-0.6
Drain current (Id)			80

EM/Co simulated Performance curve:-

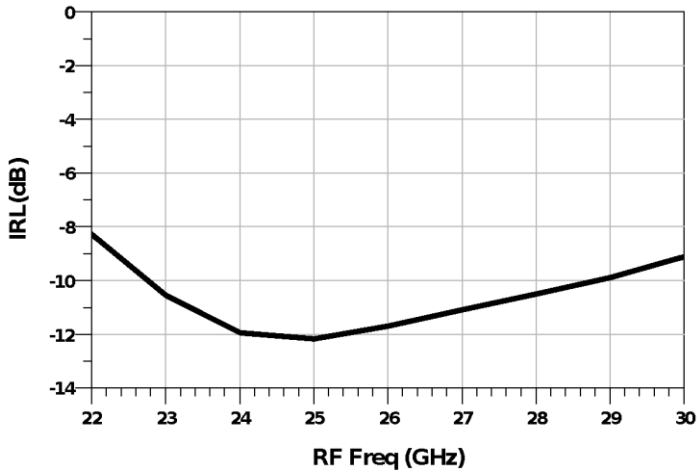
### Gain VS Freq



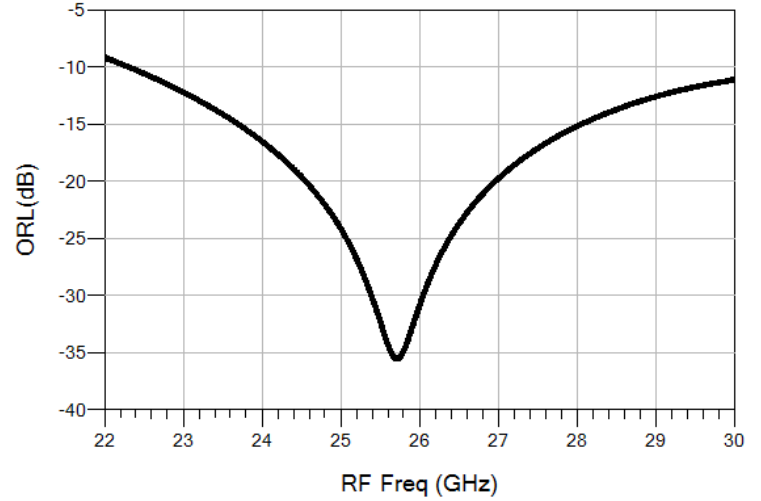
### Noise Figure



### Input Return Loss

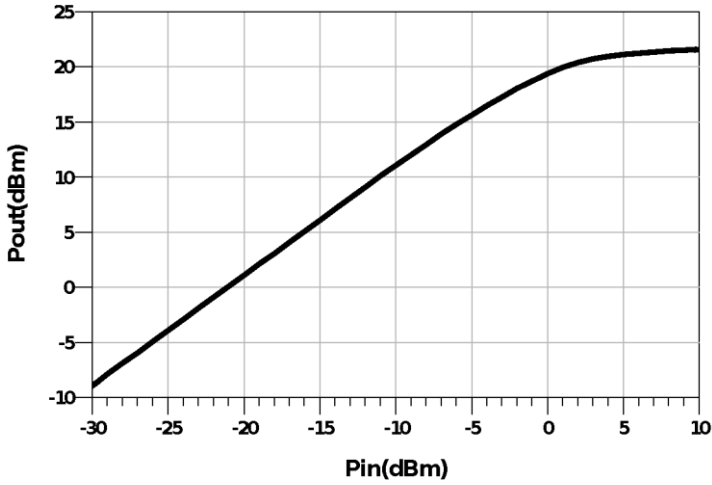


### Output Return Loss

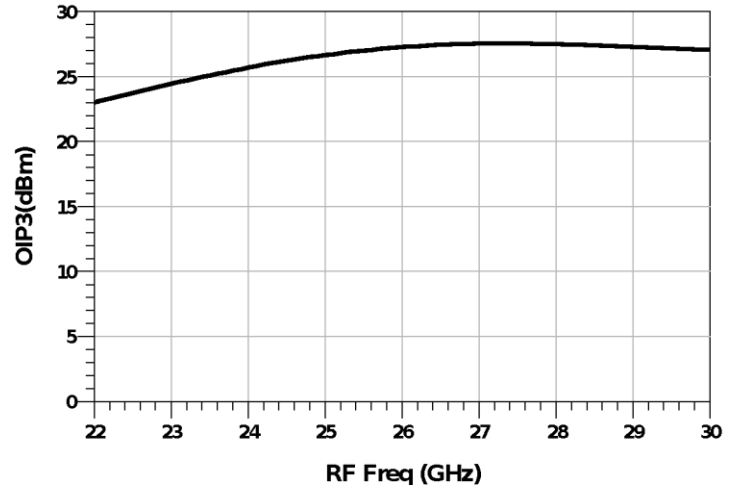


# Low Noise Amplifier

### Pout VS Pin@30 GHz



### OIP3 VS Freq



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