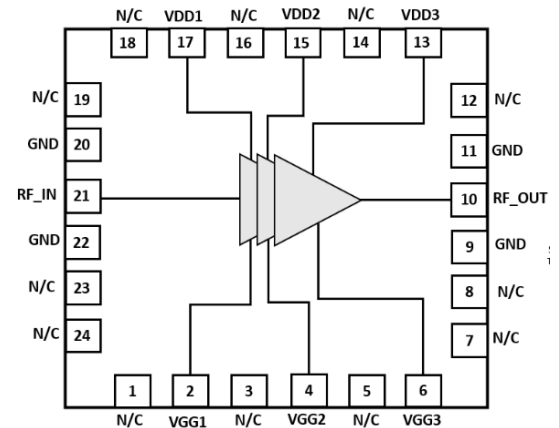


Features:

- RF Frequency: 2-20 GHz
- Small signal gain: 17.27 dB
- Output P1dB: 17.4 dBm
- DC drain bias voltage: 4 V
- DC supply current: 140 mA
- DC Gate Bias Voltage: -0.3 V
- 0.1um GaAs pHEMT Technology
- Die Size: 1.15 mm*2.6 mm

Functional Block Diagram



Description:

RFDA20 is a three-stage driver Amplifier that operates from 2-20 GHz, and it is used to drive the high-power amplifier. The Driver amplifier provides 17.27 dB of small-signal gain; the input and output are matched to 50 ohms with on-chip DC-blocking capacitors.

The device is specifically designed for use in the 2-20 GHz frequency range in Bluetooth, Zigbee, WiFi, IoT, and SATCOM applications.

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

Pin Configuration

Pin No.	Pin Name	Description
9,11,20,22	GND	Ground
2	VGG1	Gate Bias Voltage 1
4	VGG2	Gate Bias Voltage 2
6	VGG3	Gate Bias Voltage 3
17	VDD1	Drain Bias Voltage 1
15	VDD2	Drain Bias Voltage 2
13	VDD3	Drain Bias Voltage 3
21	RF_IN	RF Input
10	RF_OUT	RF Output
1,3,5,7,8,12,14,16,18,19,23,24	N/C	Not Connected

Applications:

- Weather radar
- Long-distance radio telecommunications
- Satellite communications
- Radar
- Automotive radar
- Astronomical observations

Deliverables:

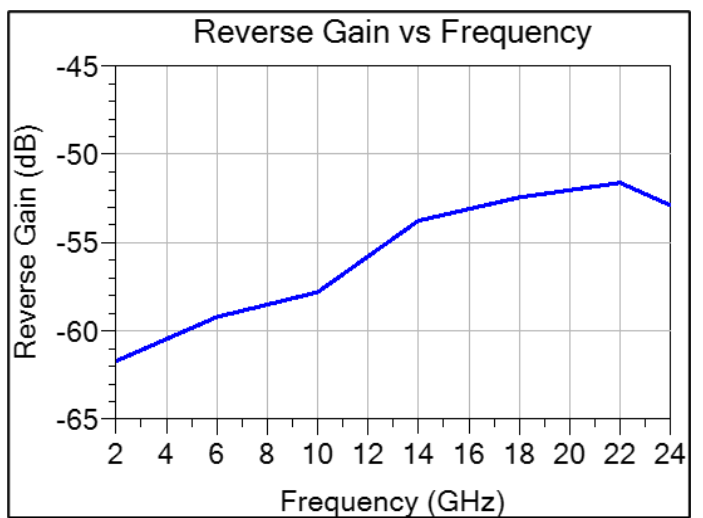
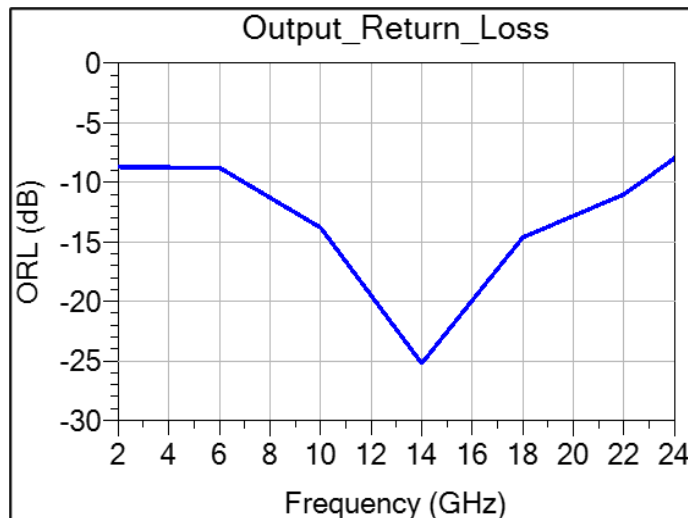
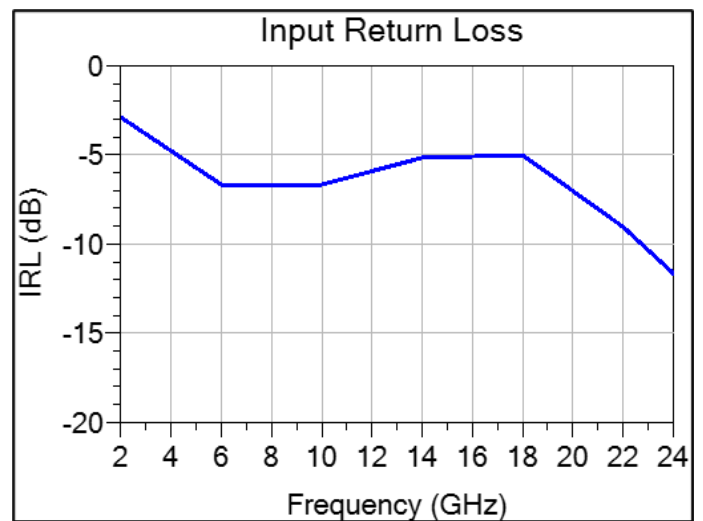
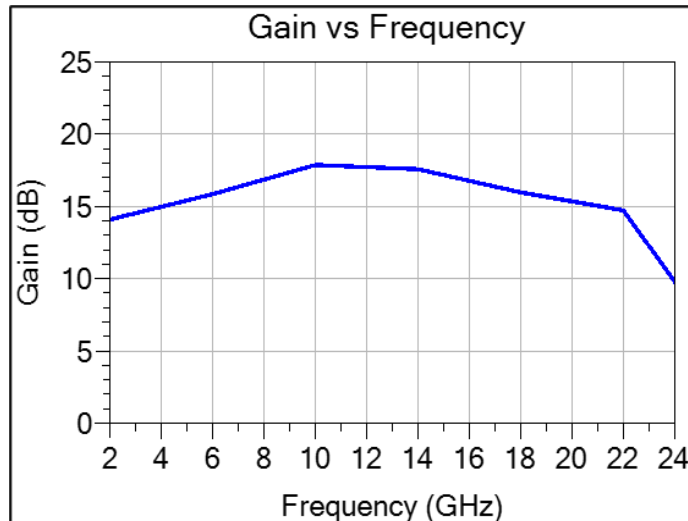
- Packaged ready Die
- Test Results
- Product Datasheet

Electrical Specification:

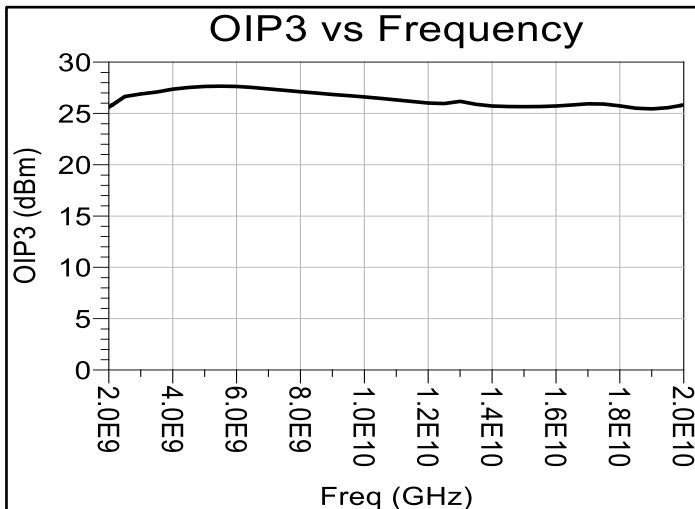
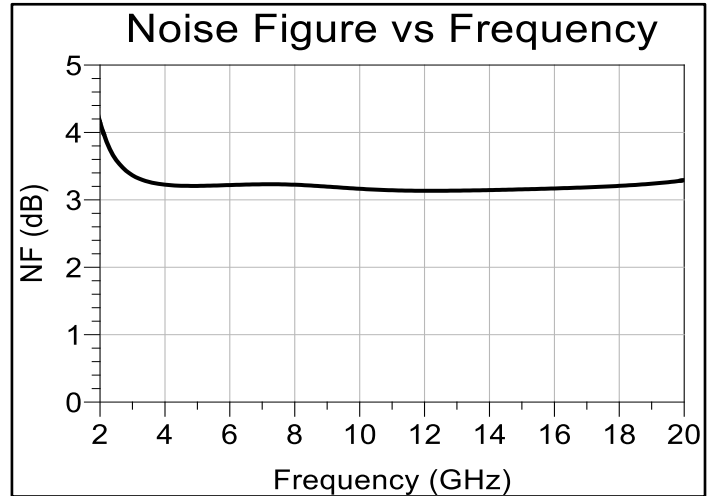
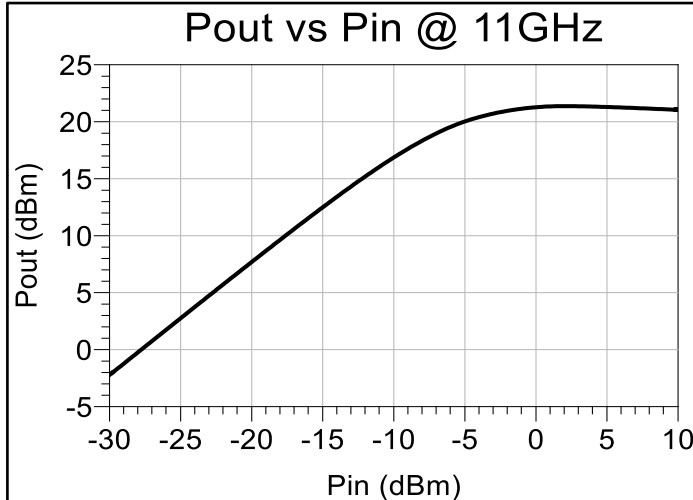
Freq= 2 – 24 GHz, VDD1=VDD2= VDD3= 4V, VGG1=VGG2= VGG3= -0.3 V, ID= 140 mA, Zo=50 Ω

Parameters	Test Condition	Units	Typ
Gain	2 GHz	dB	14.09
	12 GHz		17.81
	24 GHz		12.42
Output P1 dB	2 GHz	dBm	
	12 GHz		17.4
	24 GHz		
OIP3 Pin= 1 dBm Δf = 50MHz	2 GHz	dBm	
	12 GHz		26.7
	24 GHz		
Noise Figure	2 GHz	dB	
	12 GHz		3.14
	24 GHz		
Input Return Loss	2 GHz	dB	2.91
	12 GHz		6.67
	24 GHz		9.7
Output Return Loss	2 GHz	dB	8.73
	12 GHz		13.84
	24 GHz		9.58
Operating Bias Conditions			
Drain Current (Id)	-	mA	140
Drain Voltage (VDD)	-	V	4
Gate Voltage (VGG)	-	V	-0.3

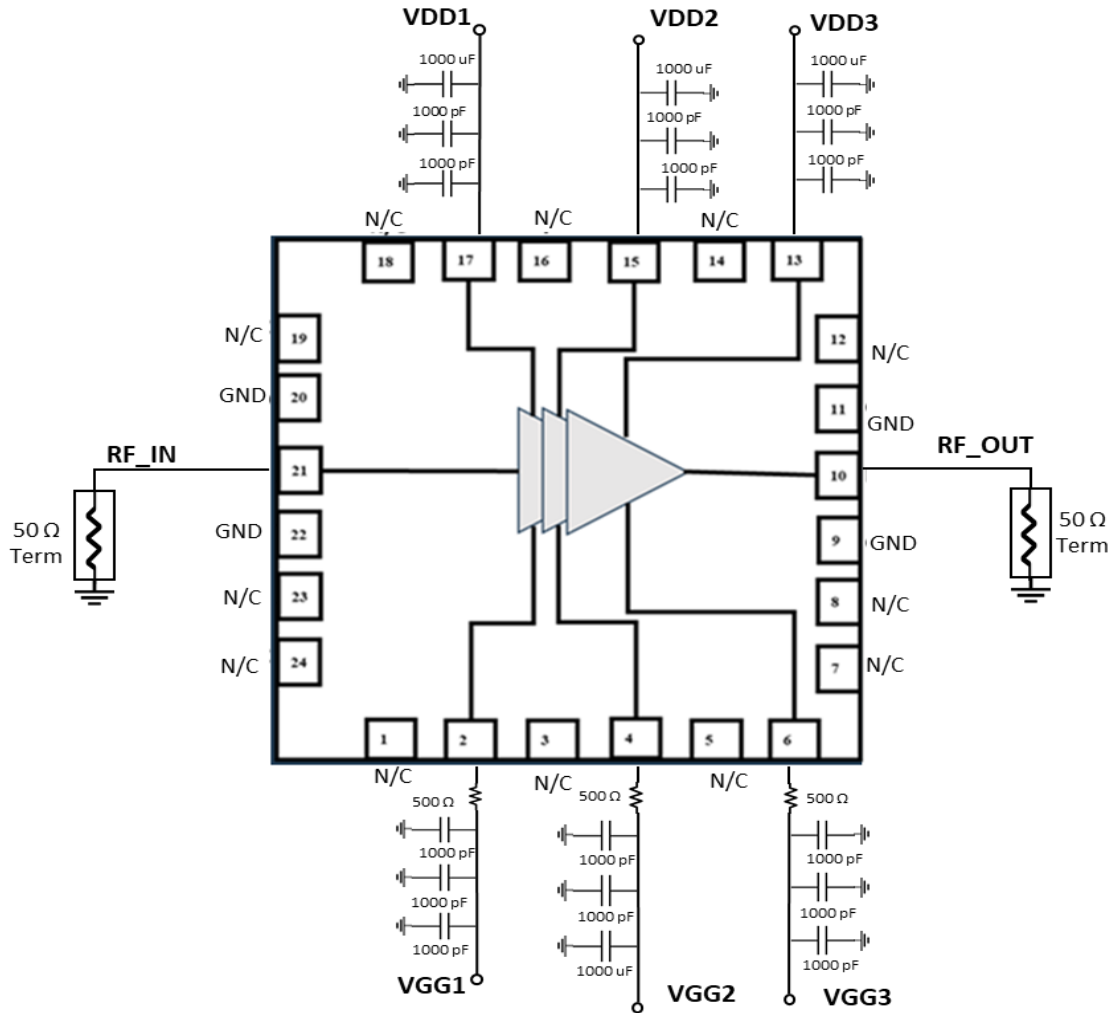
On Wafer Measured Performance Curve:



Typical Performance Curves:



Application Diagram:



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Contact information:

For the latest specifications, additional product information:

Web: www.millimeterchips.co.in

Email: smoghe@rficsolutions.com

Tel: USA - (+1) 840 356 8957,

IND - (+91)9022078131, (+91)8485841789