

Driver Amplifier

PRODUCT DATASHEET

RFDA20

Features:

- RF Frequency: 2-20 GHz
- Small Signal Gain : 17.8 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

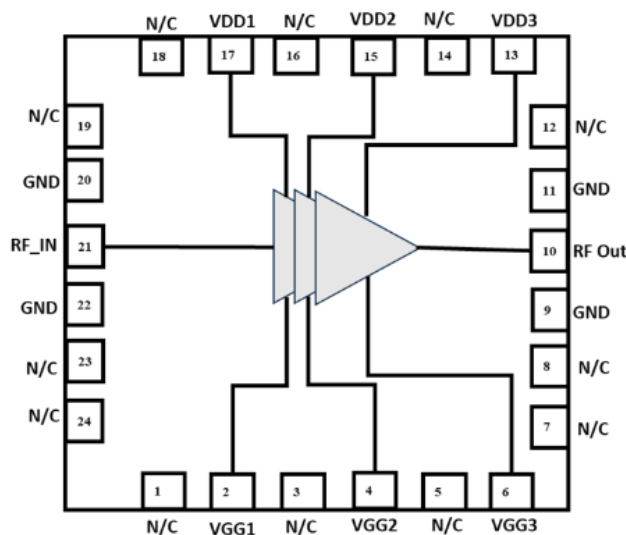
Applications:

- Electronic Warfare
- SATCOM
- RADAR
- 5G/ Microwave Communication

Deliverables:

- Sample Ready Die
- Product Datasheet

Functional Block Diagram:



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

Description:

RFDA20 is Three Stage Driver Amplifier operates from 2-20 GHz, and it is used to drive the high-power amplifier. The Driver amplifier provides 17.8 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 2-20 GHz. frequency in Bluetooth, Zigbee, WiFi, IoT and SATCOM Application.

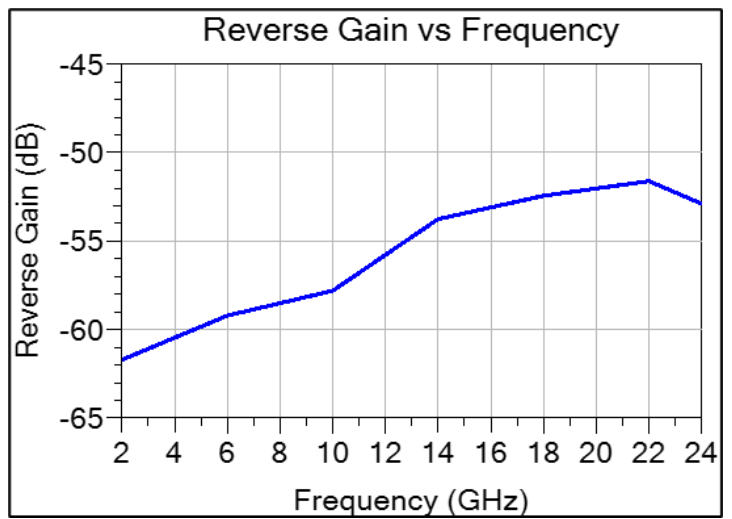
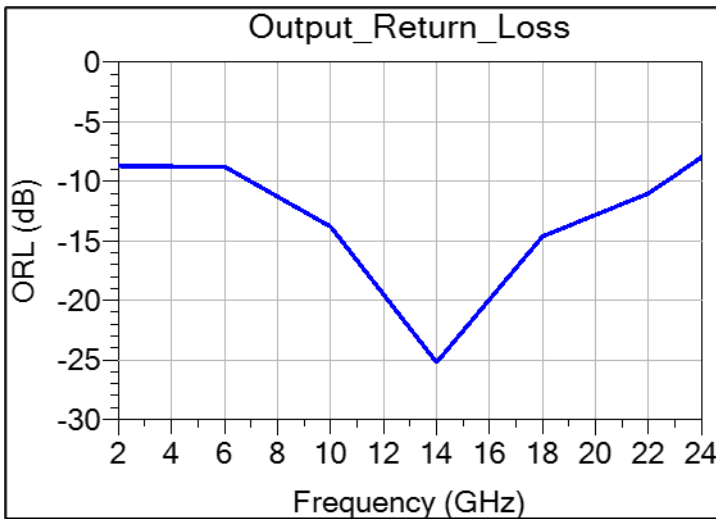
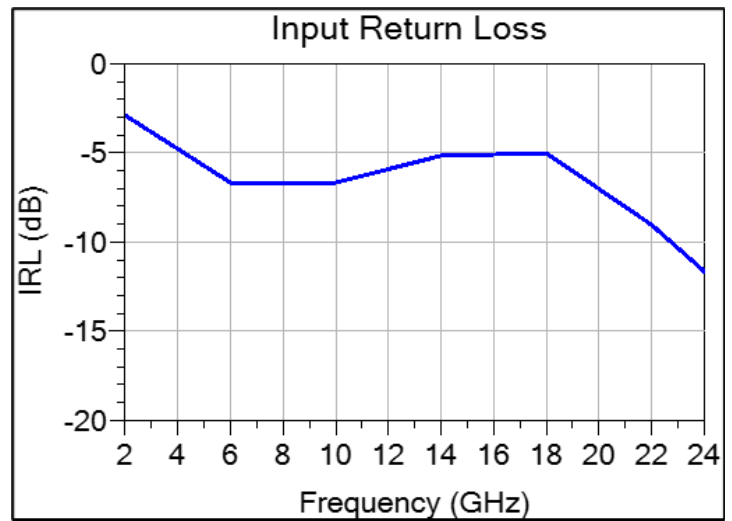
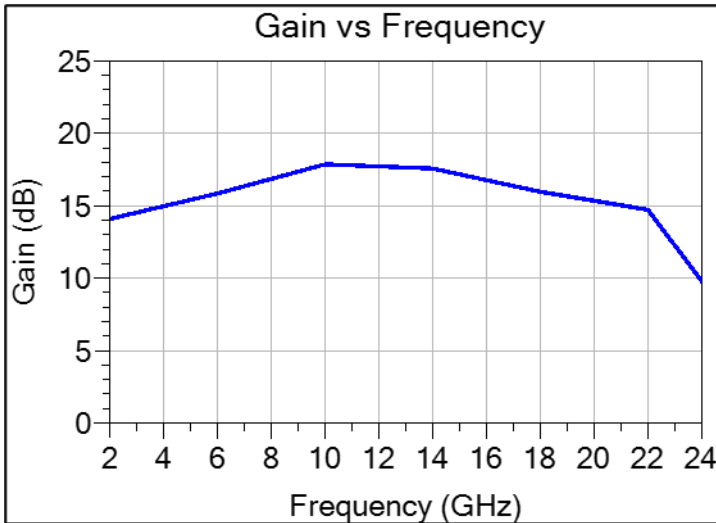
The Technology used to design DA is a 0.1um GaAs pHEMT Process.

Electrical Specification:

Freq= 2-20 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
	12 GHz		17.8
	20 GHz		15
Output P1 dB	2 GHz	dBm	
	12 GHz		17.4
	20 GHz		
OIP3 Pin= 1 dBm Δf = 50MHz	2 GHz	dBm	
	12 GHz		26.7
	20 GHz		
Noise Figure	2 GHz	dB	
	12 GHz		3.14
	20 GHz		
Input Return Loss	2 GHz	dB	2.91
	12 GHz		6.67
	20 GHz		6
Output Return Loss	2 GHz	dB	9
	12 GHz		20
	20 GHz		9.5
Operating Bias Conditions			
Drain Current (Id)	-	mA	140
Drain Voltage (VDD)	-	V	4
Gate Voltage (VGG)	-	V	-0.3

On Wafer Measured Performance Curve:

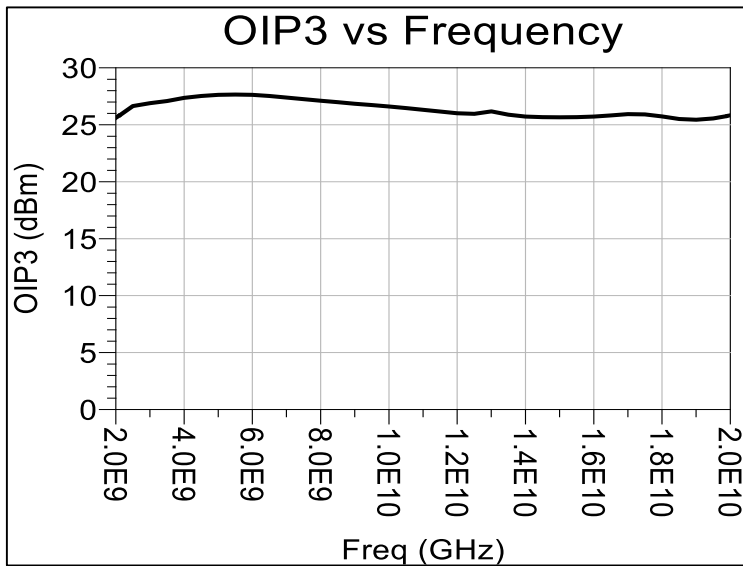
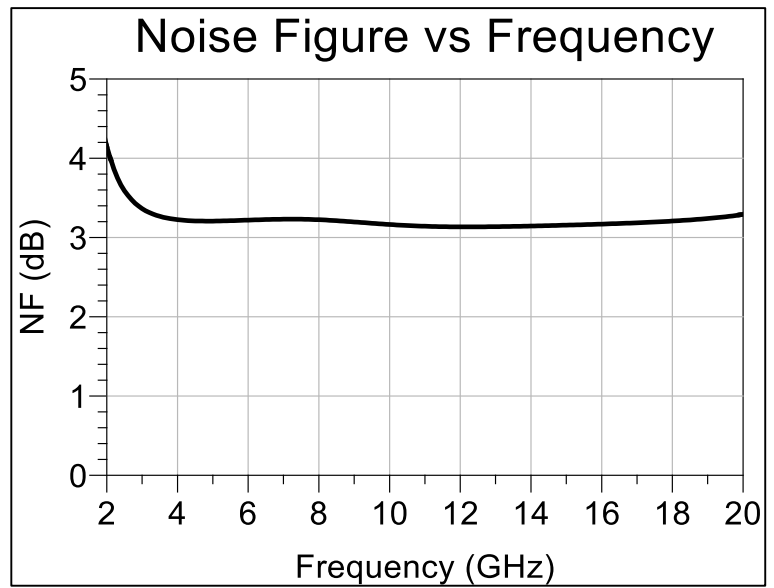
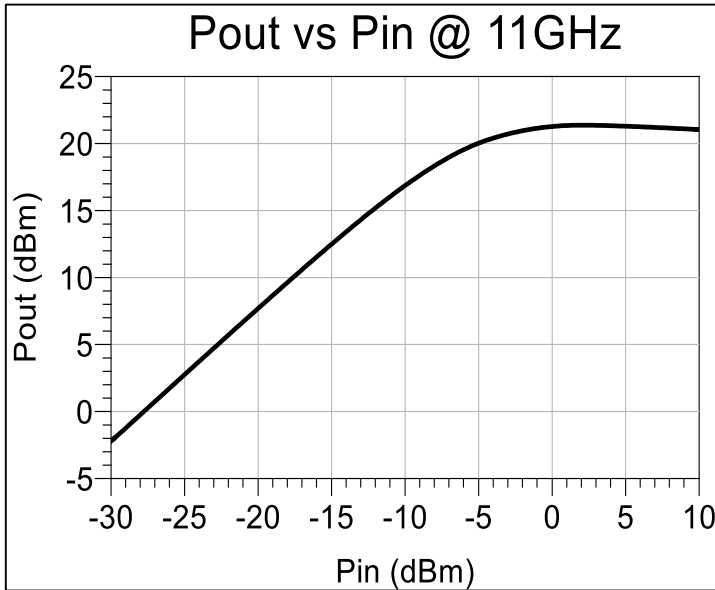


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Typical Performance Curves:



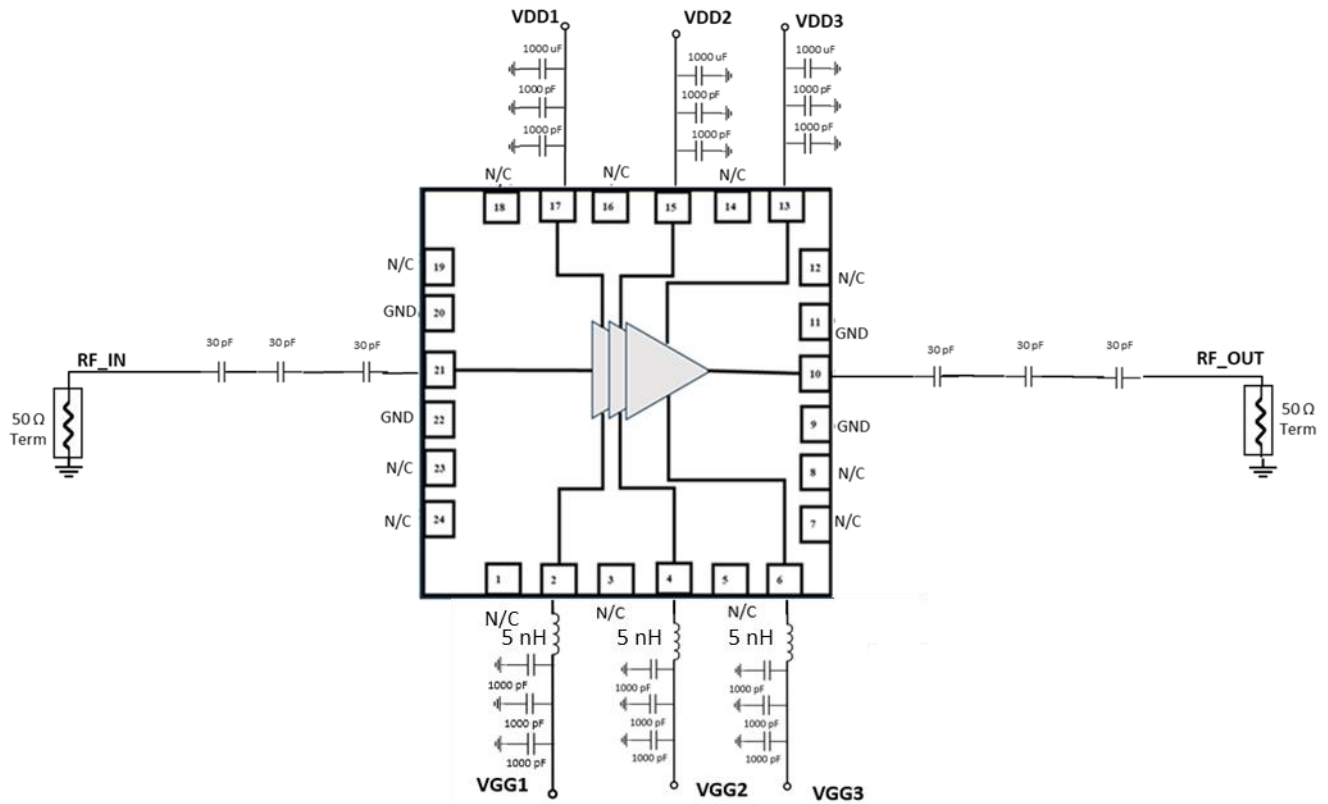


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Application Diagram:



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