Distributed Amplifier

PRODUCT DATASHEET RFDBA26

Features:

- RF Frequency: DC to 26 GHz
- Small signal gain: 15.7 dB
- Input return loss: 15 dB
- Output return loss: 15.7 dB
- Noise figure: 2.3 dB
- Output P1 dB: 11.65 dBm
- Saturated output power: 19 dBm
- DC drain bias voltage: 4 V
- Dc supply current: 110 mA
- 100 nm GaAs pHEMT Technology.
- Die Size: 0.9mm * 2.6mm

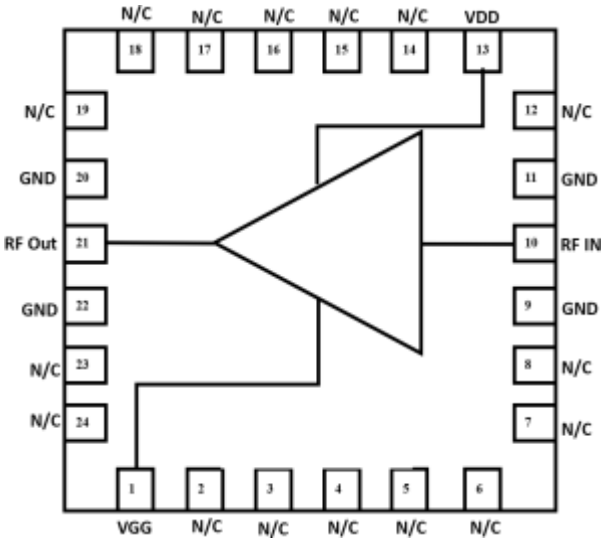
Applications:

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

Deliverables:

- Sample Ready Die
- Product Datasheet

Functional Block Diagram:



Pin Configuration:

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

Description:

The RFDBA26 is a wideband GaAs MMIC distributed amplifier designed using 0.1 µm GaAs pHEMT technology, operating from DC to 26 GHz. The amplifier provides 15.7 dB small-signal gain, with a corresponding output 1 dB compression point (P1dB) of 11.65 dBm and a noise figure of 2.3 dB at 13 GHz.

The presented results include all parasitic and coupling effects at the desired operating frequencies.

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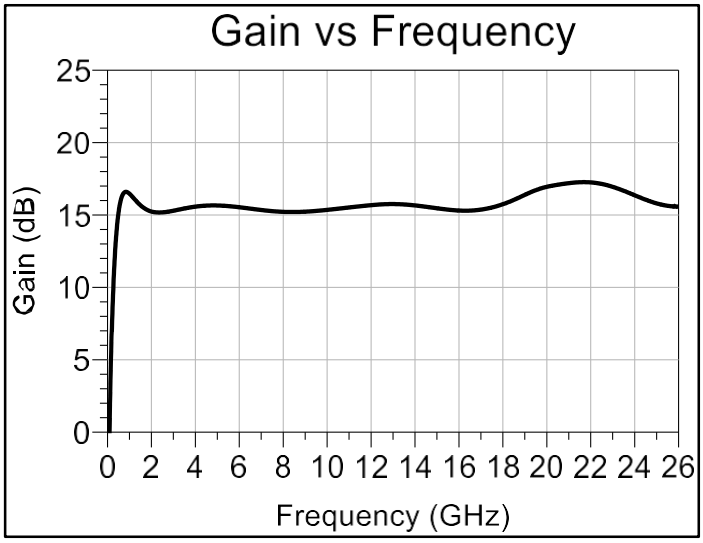
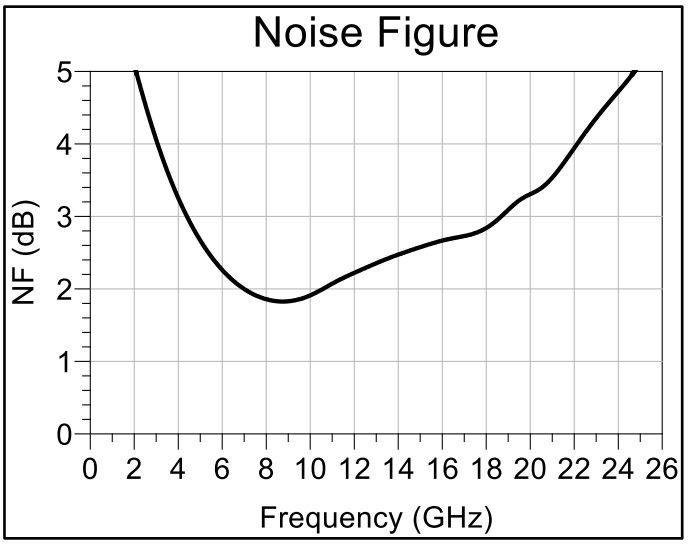
Electrical Specification:

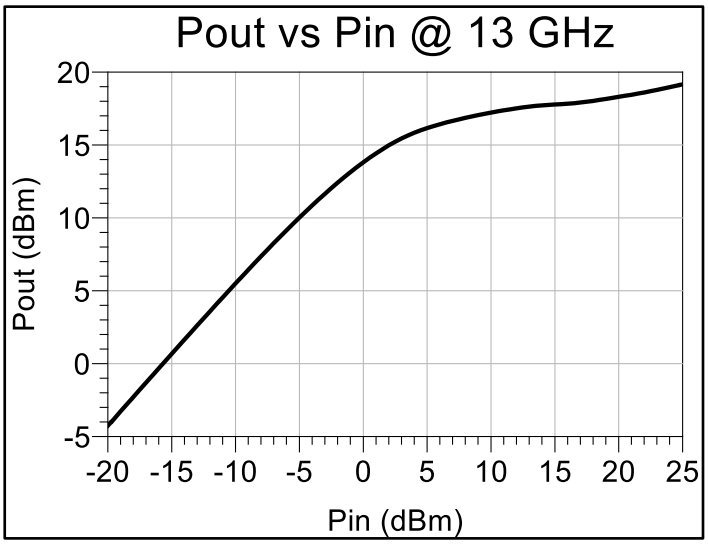
Freq=DC-26 GHz, VDD =4V, VGG = -0.4V, ID= 110mA, Zo=50 Ω

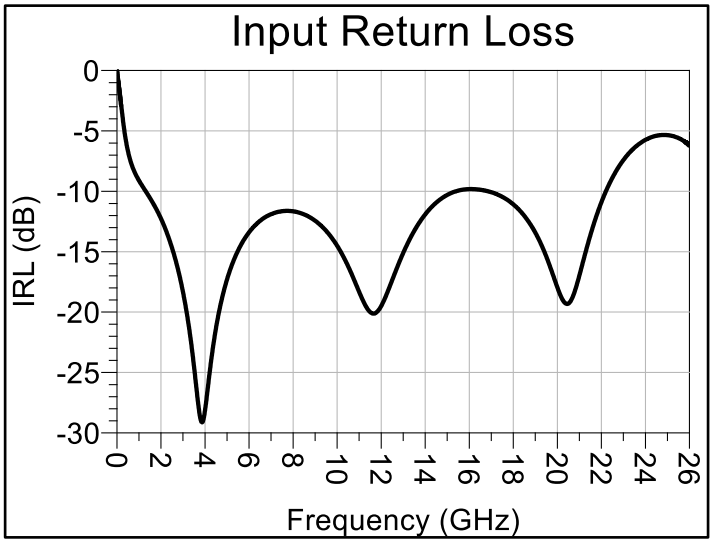
Parameters	Test Condition	Units	Typ
Gain	500 MHz	dB	15.1
	13 GHz		15.7
	26GHz		16
Output P1 dBm Pin= -1 dBm	500 MHz	dBm	
	13 GHz		11.65
	26GHz		
OIP3 Pin= -10 dBm Δf = 50MHz	500 MHz	dBm	
	13 GHz		20.95
	26GHz		
Noise Figure	500 MHz	dB	6.4
	13 GHz		2.3
	26GHz		5
Input Return Loss	500 MHz	dB	6.7
	13 GHz		15
	26GHz		6
Output Return Loss	500 MHz	dB	10.1
	13 GHz		15.7
	26GHz		9
Operating Bias Conditions			
Drain Current (Id)	-	mA	110
Drain Voltage (VDD)		V	4
Gate Voltage (VGG)	-	V	-0.4

Typical Performance Curves:









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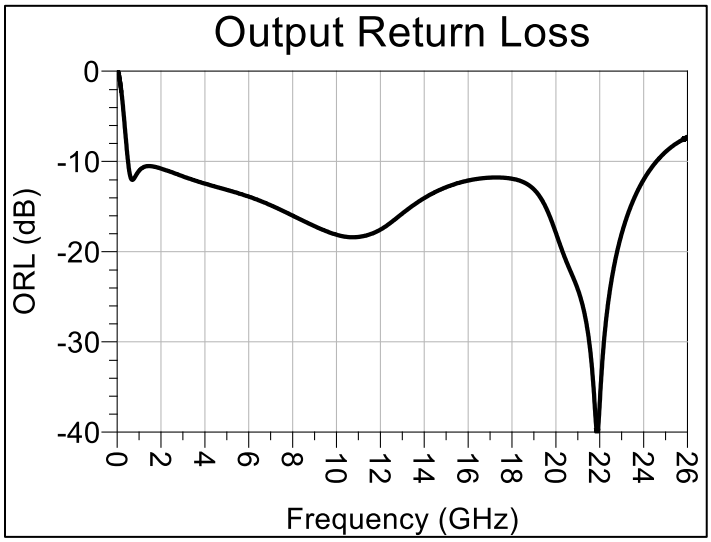
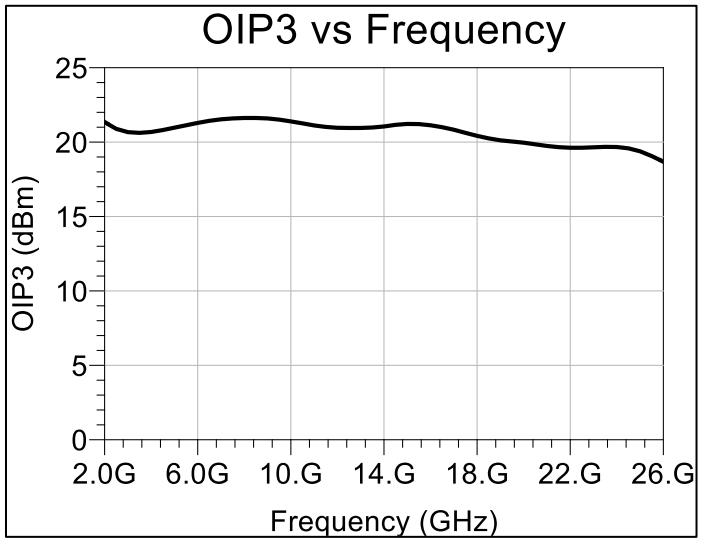
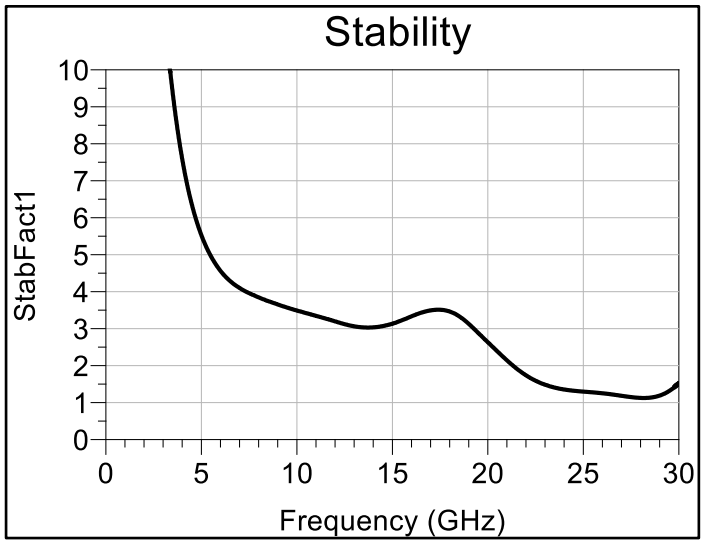
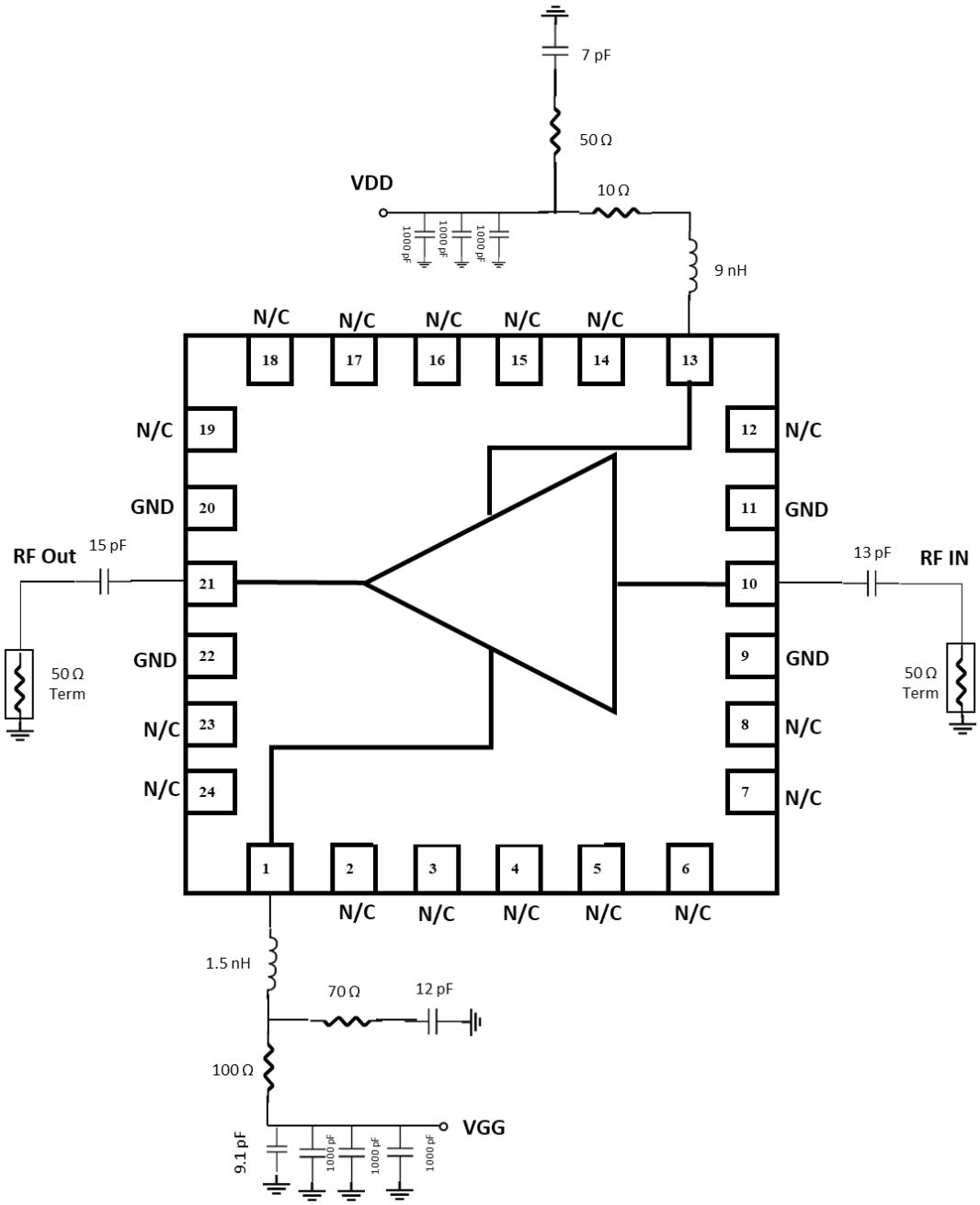






Application Diagram:



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