Power Amplifier

PRODUCT DATASHEET RFPA28

Features:

- RF Frequency: 24-28 GHz
- Small signal gain: 21.04 dB
- Output P1dB: 25.8 dBm
- Saturated Output Power: 27.4 dBm
- DC drain bias voltage: 4 V
- DC gate bias voltage: -0.6 V
- DC supply current: 241 mA
- 0.1um GaAs pHEMT Technology
- Die Size: 1.2mm*1.78mm

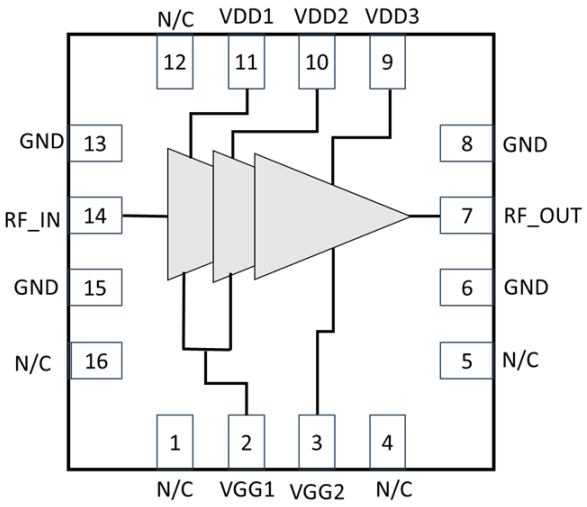
Applications:

- Satellite communication
- Point-to-point microwave links
- Electronic warfare systems

Deliverables:

- Sample Ready Die
- Product Datasheet

Functional Block Diagram:



Pin Configuration:

Pin No.	Pin Name	Description
6,8,13,15	GND	Ground
2	VGG1	Gate Bias Voltage 1
3	VGG2	Gate Bias Voltage 2
11	VDD1	Drain Bias Voltage 1
10	VDD2	Drain Bias Voltage 2
9	VDD3	Drain Bias Voltage 3
14	RF-IN	RF Input
7	RF-OUT	RF Output
1,4,5,12,16	N/C	Not Connected

Description:

RFPA28 is a millimeter-wave power amplifier operating in the 24–28 GHz band, delivering 21 dB small-signal gain. It features integrated 50 Ω input/output matching using on-chip DC-blocking capacitors, enabling easy system integration.

Fabricated in a 0.1 µm GaAs pHEMT process, the device offers strong RF performance, efficiency, and linearity. It is suitable for applications including 5G mmWave, radar, FWA, imaging & sensing, and SATCOM.

Electrical Specification:

Freq= 24 - 28 GHz, VDD1=VDD2= VDD3= 4V, VGG1=VGG2= VGG3= -0.6 V, ID= 241 mA, Zo=50 Ω

Parameters	Test Condition	Units	Typ
Gain	24 GHz	dB	20
	26 GHz		21.04
	28 GHz		20
Output P1 dB	24 GHz	dBm	
	26 GHz		25.8
	28 GHz		
OIP3 Pin= -20 dBm Δf = 100 kHz	24 GHz	dBm	
	26 GHz		30
	28 GHz		
Input Return Loss	24 GHz	dB	6
	26 GHz		7.1
	28 GHz		25.1
Output Return Loss	24 GHz	dB	5.90
	26 GHz		10.84
	28 GHz		20
Drain Current (Id)	-	mA	241
Drain Voltage (VDD)	-	V	4
Gate Voltage (VGG)	-	V	-0.6

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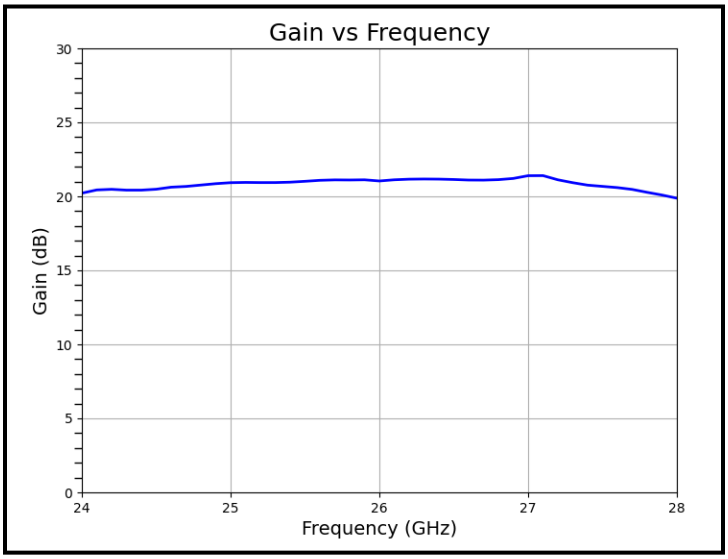
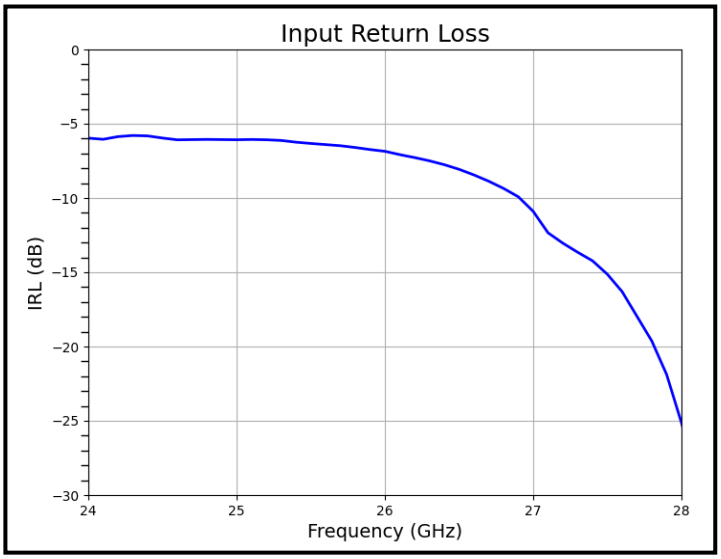
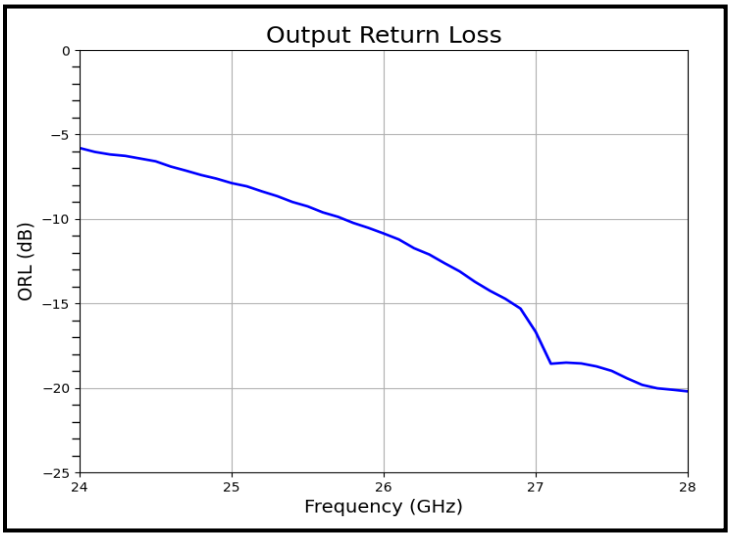
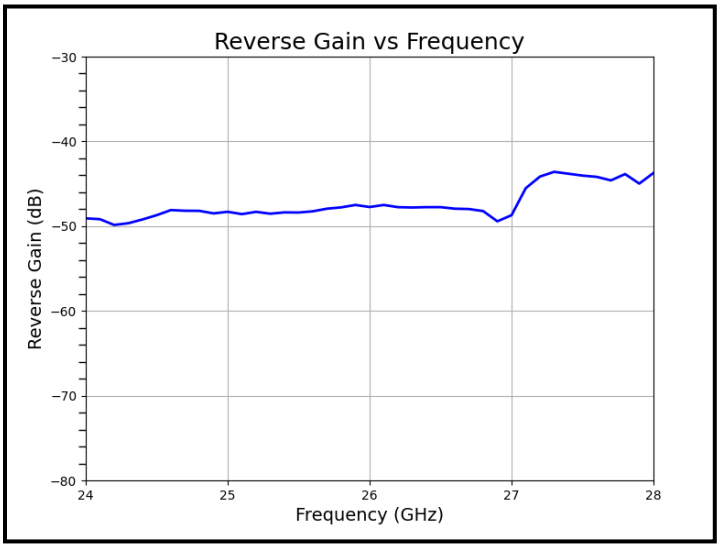
On Wafer Measured Performance Curve:

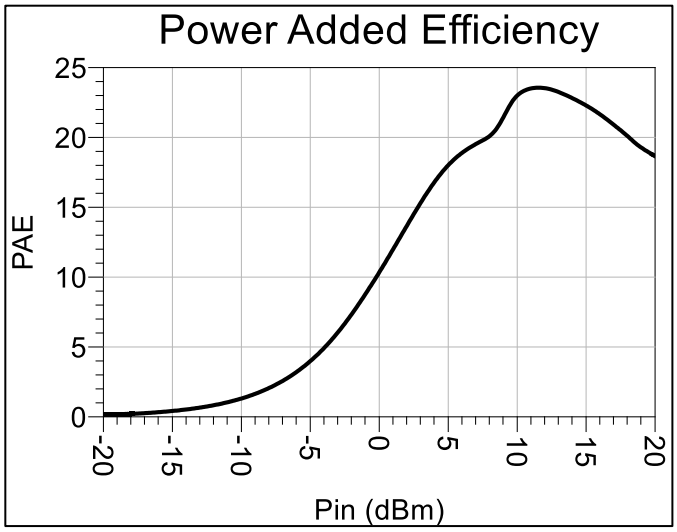


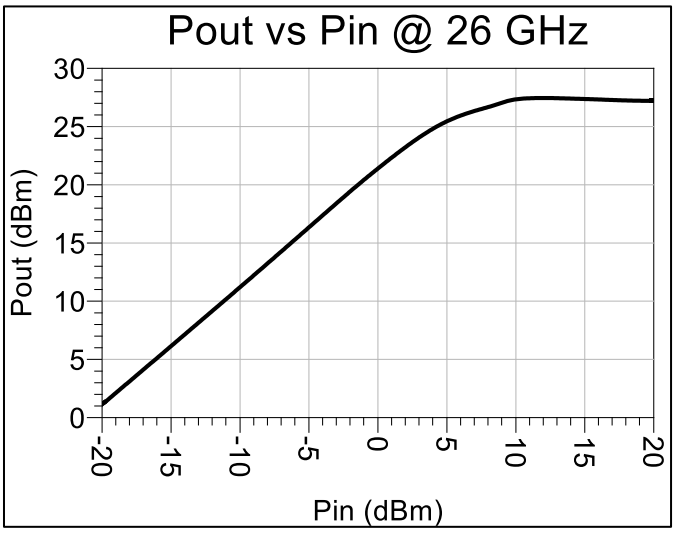


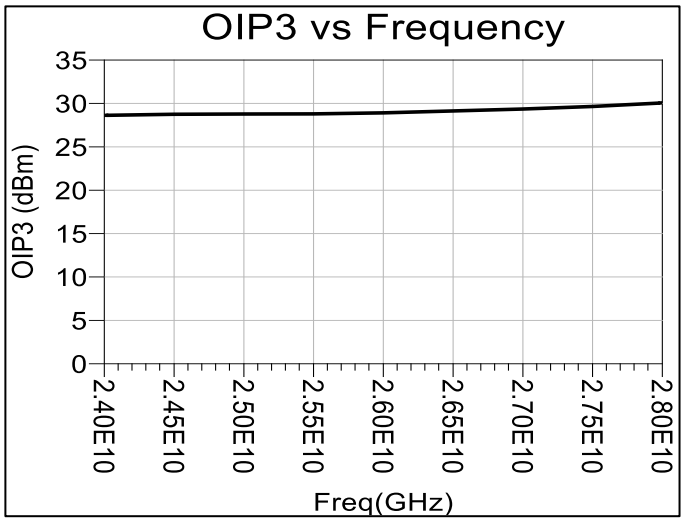




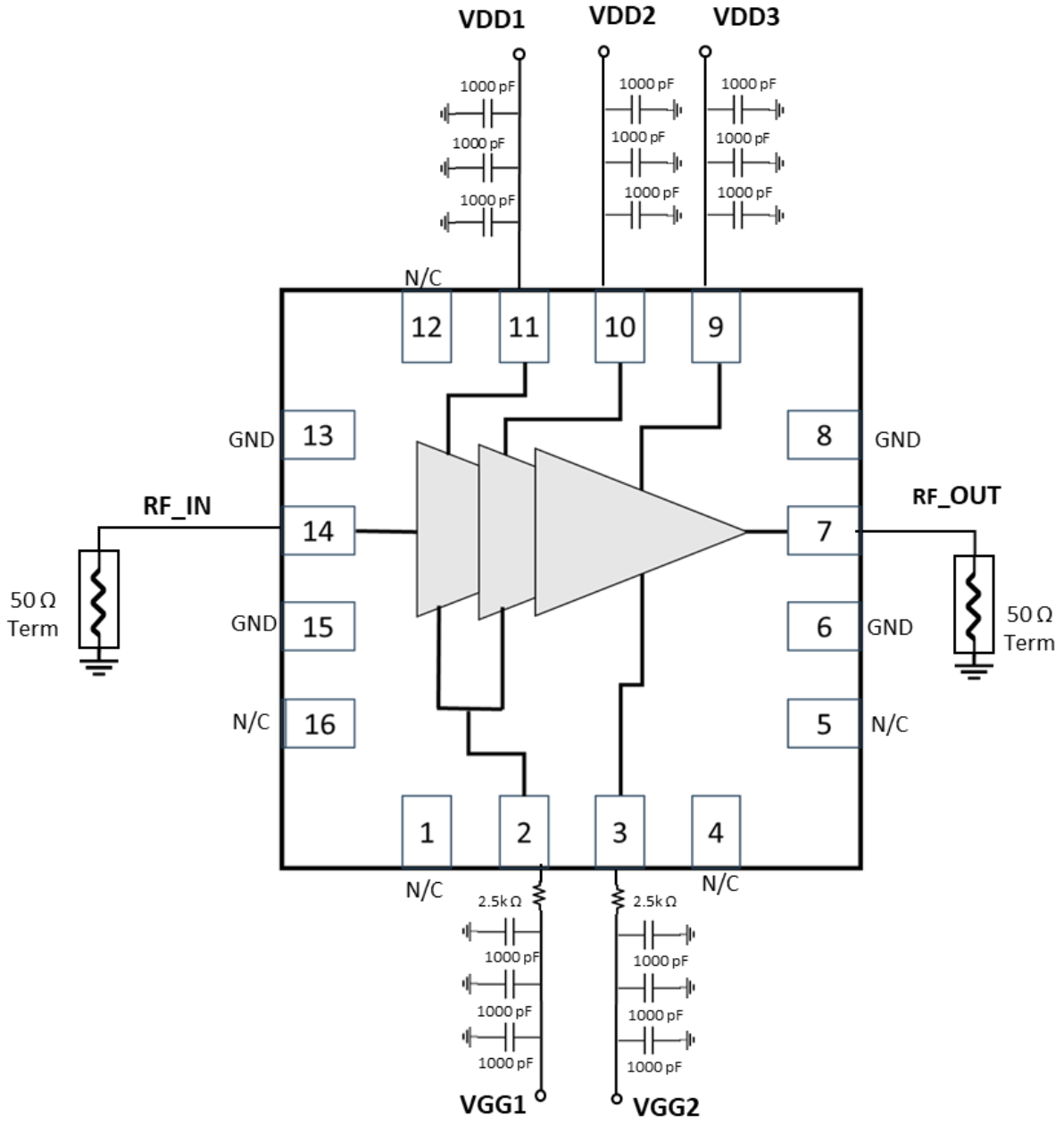
Typical Performance Curves:







Application Diagram:



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