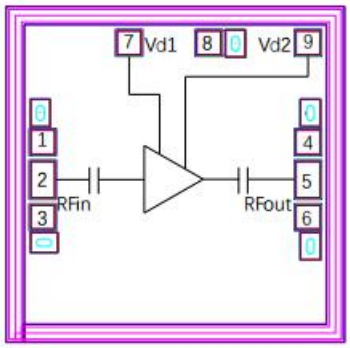
TFPA321-H
6 GHz ~ 18 GHz GaAs MMIC Power Amplifier Chip

★1.Product Features

- Frequency Range: 6 GHz ~ 18 GHz
- Gain: 21 dB
- OP1dB: 21 dBm
- Psat: 22 dBm
- Input Return Loss: -10 dB
- Output Return Loss: -10 dB
- Quiescent Current: 149 mA
- Input/Output Impedance: 50 Ω
- Die Size: 1.27 × 1.27 × 0.100 mm

Functional Block Diagram



★2.Product Introduction

The TFPA321-H is a driver amplifier die operating over the 6 GHz ~ 18 GHz frequency range with a +5 V power supply. It provides 21 dB gain and 22 dBm saturation output power.

The backside of the die is metallized, suitable for conductive adhesive bonding or eutectic sintering. The chip adopts an on-chip metallized via-hole process to ensure good grounding, which makes it simple and convenient to use without additional grounding measures.

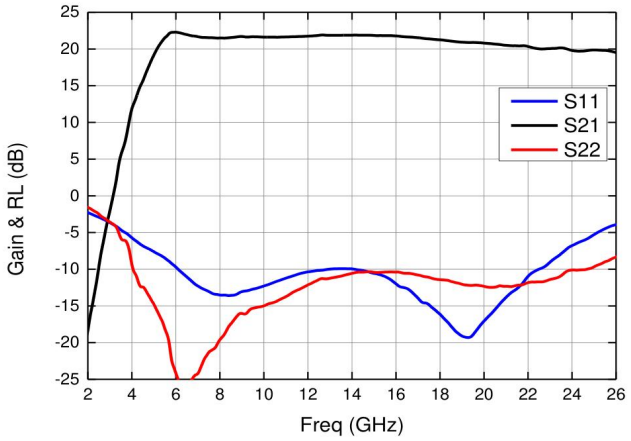
★3.Typical Electrical Characteristics

TA=+25℃, VD=+5V, 50Ω system

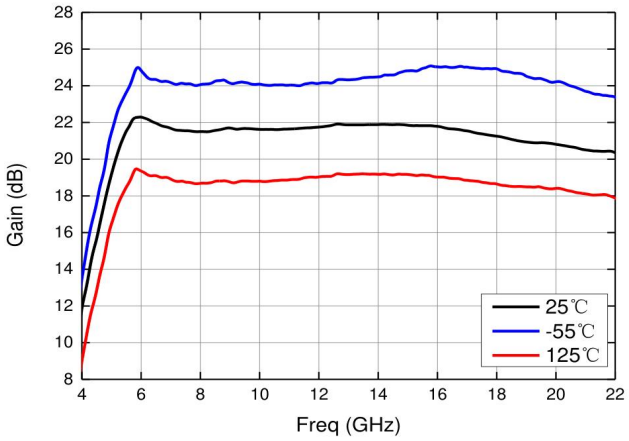
Parameter	Symbol	Min.	Typ.	Max.	Unit
Operating Frequency	Freq	6	-	18	GHz
Gain	Gain	-	21	-	dB
Gain Flatness	δGain	-	±0.5	-	dB
Output 1dB Compression Point Power	OP1dB	-	21	-	dBm
Saturation Output Power	Psat	-	22	-	dBm
Input Return Loss	RL_in	-	-10	-	dB
Output Return Loss	RL_out	-	-10	-	dB
Noise Figure	NF	-	5	-	dB
Quiescent Current	IDQ	-	149	-	mA

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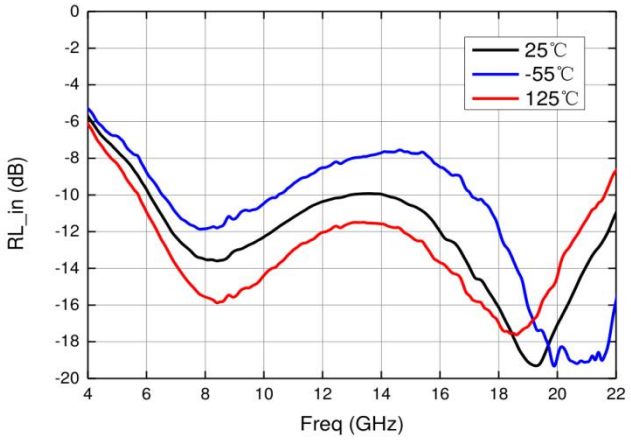
★4.Typical Test Curves



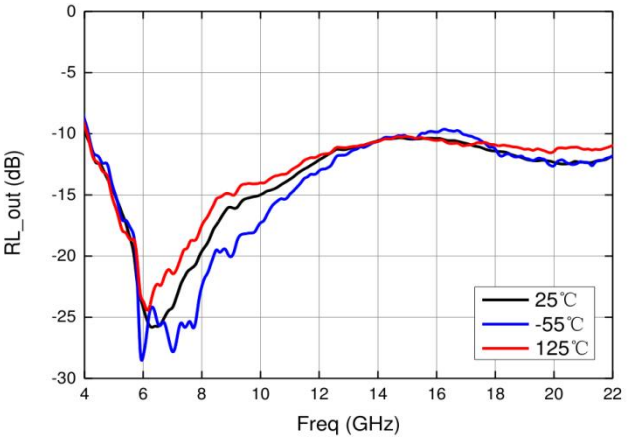
Gain & RL vs. Frequency



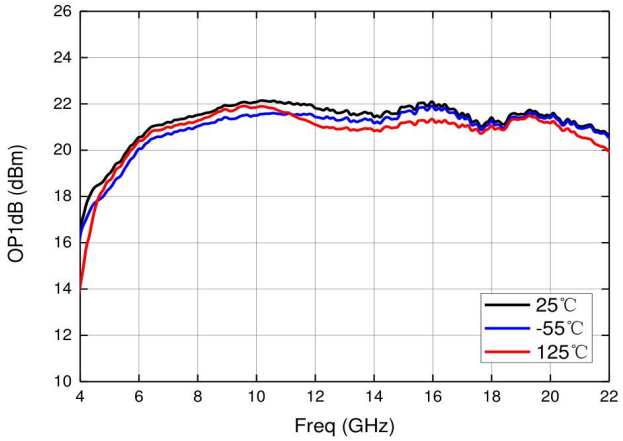
Gain vs. Frequency



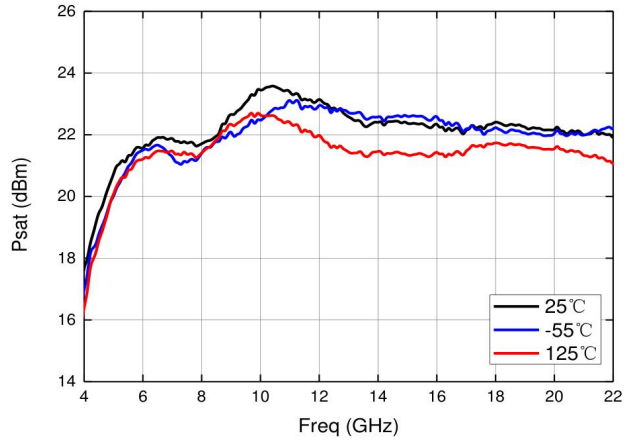
Input Return Loss vs. Frequency



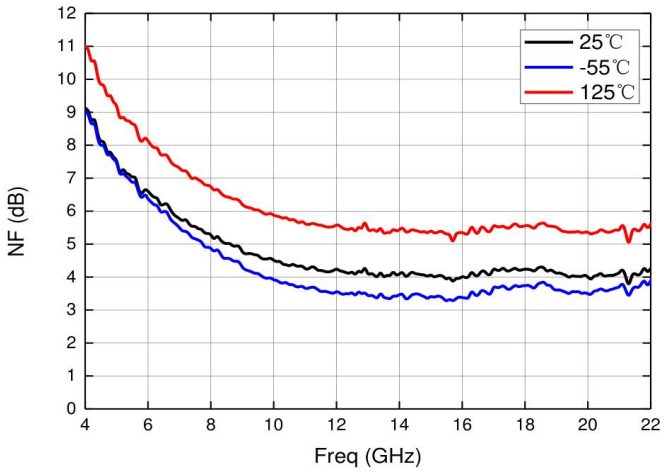
Output Return Loss vs. Frequency



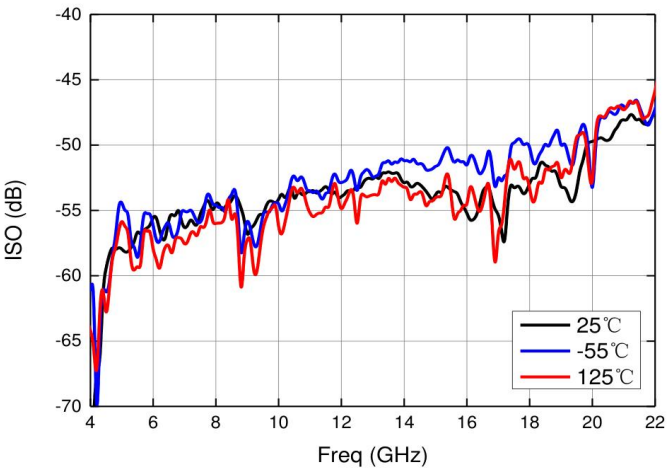
OP1dB vs. Frequency



Psat vs. Frequency

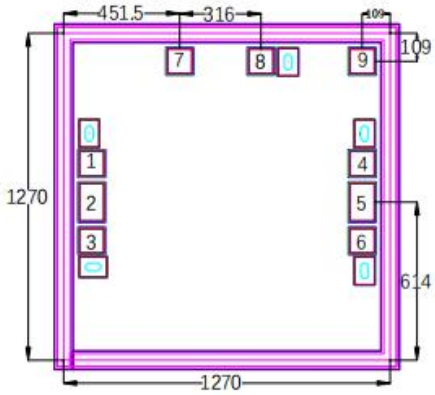


Noise Figure vs. Frequency



Isolation vs. Frequency

★5.Outline Dimensions



Notes:

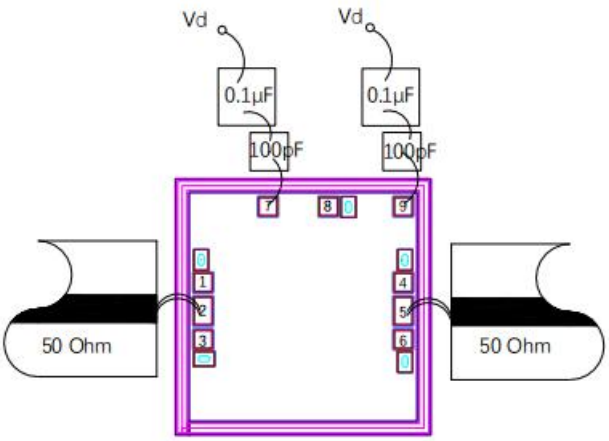
1. Unit: μm
2. The backside of the die is gold-plated and grounded.
3. RF pad size: 150 μm × 100 μm
4. DC pad size: 100 μm × 100 μm
5. Outline dimension tolerance: ±50 μm

★6.Bond Pad Definition

Pressure Point Number	Function Definition	Function Description
2	RFin	RF signal input; connect to 50 Ω system, with on-chip DC blocking
5	RFout	RF signal output; connect to 50 Ω system, with on-chip DC blocking
7/9	Vd	+5 V DC feed terminal
1/3/4/6/8	GND	Ground pad for probe testing

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★7.Application Schematic



★8.Precautions

Absolute Maximum Ratings	Numerical value
Input Power Pin, 50 Ω	10 dBm
Drain Voltage	+6 V
Storage Temperature	-65℃ ~ +150℃
Operating Temperature	-55 ~ +125℃
Sintering Temperature (30 s, N2)	300℃
Exceeding the above conditions may cause permanent damage to the chip.	



This product is sensitive to static electricity.

Please take precautions against static electricity during use.