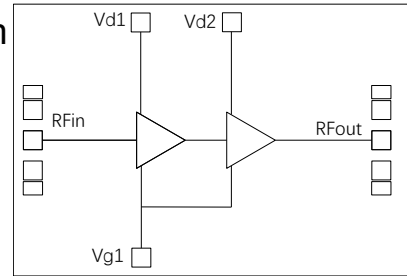


## GaN MMIC Power Amplifier Chip, 5.3-7.5 GHz

### Performance characteristics

- Frequency range: 5.3~7.5GHz
- Psat: 43.5dBm
- Power gain: 17dB
- Power supply: 28V/400mA
- 50ohm input/output
- Chip size: 2.0mm×1.5mm×0.1mm

### Block Diagram



### Product Introduction

GPA5.3-7.5-43 is a power amplifier chip manufactured using GaN HEMT technology. Continuous wave working mode, with a frequency band coverage of 5.0~8.0GHz, can provide 17dB power gain under a supply voltage of 28V, and a saturated output power of 43.5dBm. The chip is grounded through the back through-hole. Mainly used in communication systems, high-power transceiver components, and other fields.

### DC electrical parameters (T<sub>A</sub>=+25°C)

Parameter	Min	Typ	Max	Unit
Gate bias voltage		-2.7		V
Drain working voltage		28		V
Quiescent drain current		0.4		A
Dynamic drain current		1.6		A

### Microwave electrical parameters (T<sub>A</sub>=+25°C, V<sub>d</sub>=+28V, quiescent I<sub>d</sub>=400mA, Continuous wave)

Parameter	Min	Typ	Max	Unit
Frequency range	5.3~7.5			GHz
Psat	43.2	43.5	44	dBm
PAE	50	55	59	%
Power gain		17		dB
Power gain flatness		±0.2		dB
Input/output return loss	-30	-15	-13	dB

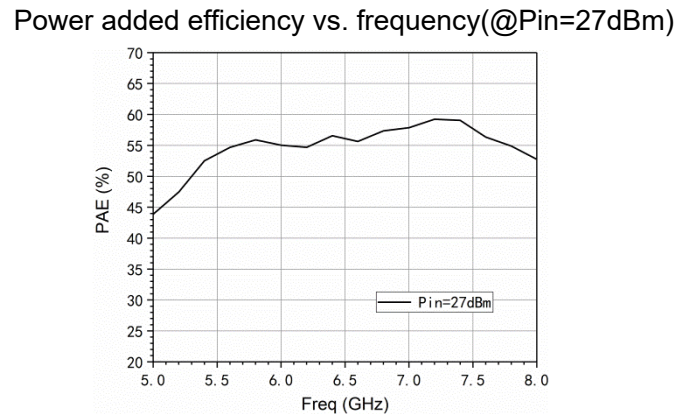
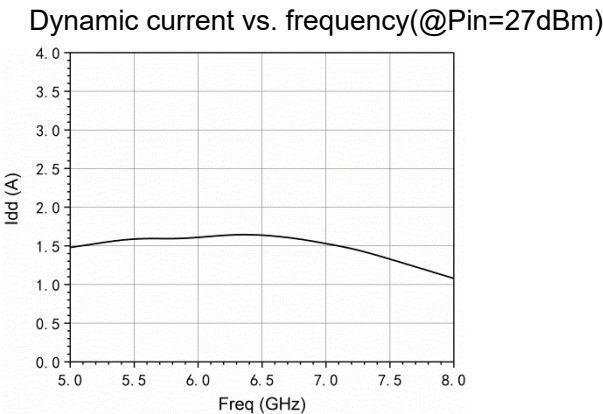
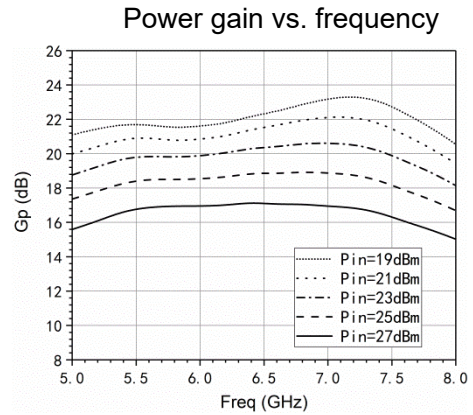
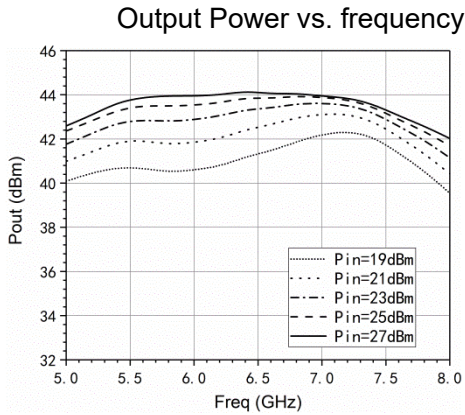
### Absolute maximum ratings<sup>[1]</sup>

Parameter	Ratings
Drain voltage	+30V
Input power	30dBm
Operating temperature	-55°C~+85°C
Storage temperature	-65°C~+120°C

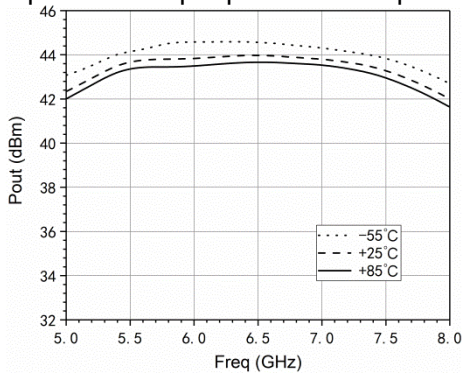
[1] Exceeding any of these limits may cause permanent damage.

## GaN MMIC Power Amplifier Chip, 5.3-7.5 GHz

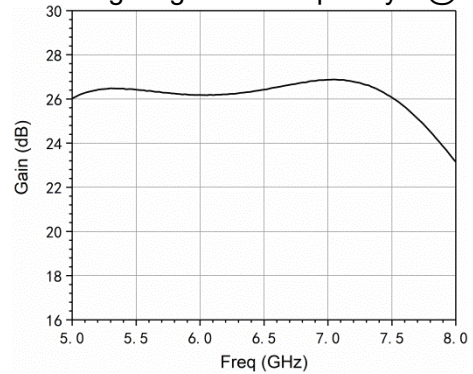
Typical performance curve (TA=+25°C, Vd=+28V, quiescent Id=400mA, continuous wave)



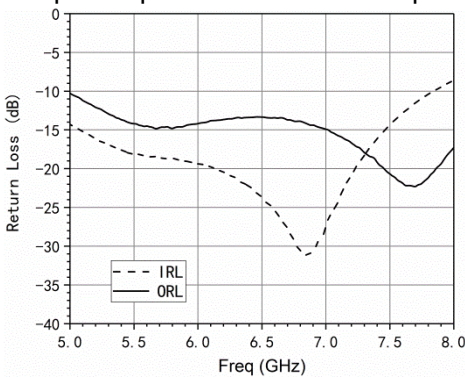
Three temperature output power vs. frequency (@Pin=27dBm)



Small signal gain vs. frequency (@Pin=-25dBm)

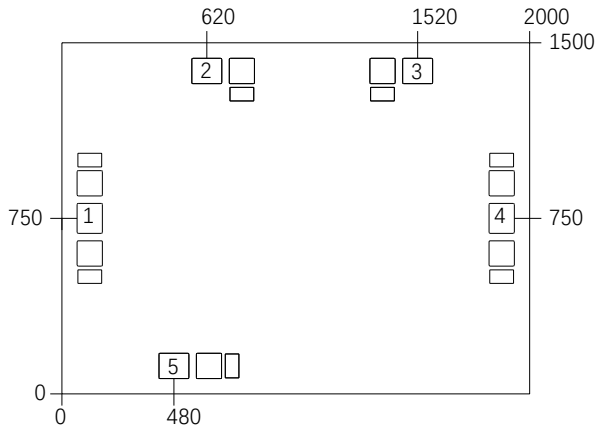


Input/output return loss vs. frequency



## GaN MMIC Power Amplifier Chip, 5.3-7.5 GHz

### Outline Dimensions



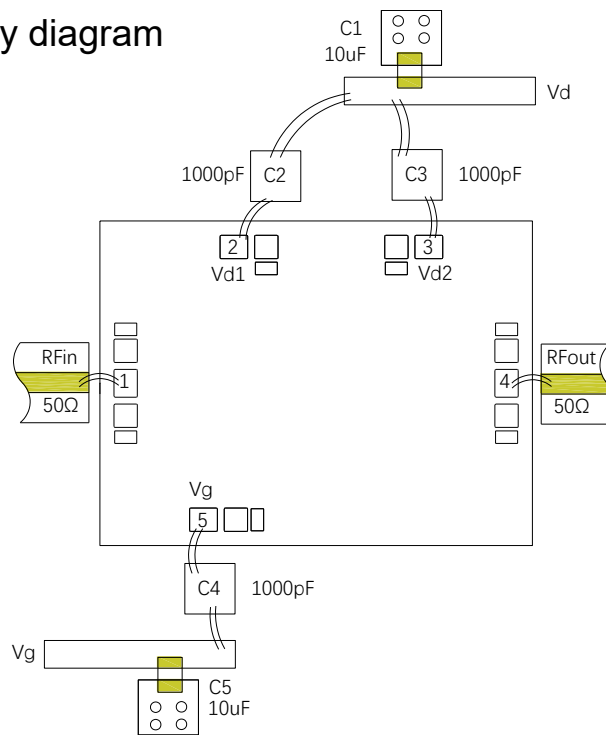
**Notes:**

1. Unit:  $\mu\text{m}$
2. Gold plating on bonding pads
3. Dimensional tolerance:  $\pm 20 \mu\text{m}$

### Pad Definition

Pad Number	Function	Description	Dimensions
1	IN	RF input, external 50 ohm system, no need for external blocking capacitor	100 × 120 $\mu\text{m}$
4	OUT	RF output, external 50 ohm system, no need for external blocking capacitor	100 × 120 $\mu\text{m}$
2、3	Vd	Drain power supply, 28V	120 × 100 $\mu\text{m}$
5	Vg	Gate power supply, -3V~-2V, quiescent current reach 40mA	120 × 100 $\mu\text{m}$

### Suggested assembly diagram



Note: To ensure more stable performance of the amplifier, it is recommended to weld ceramic capacitors with the recommended capacitance values in the above assembly diagram at the feeding end for filtering. The number of filtering capacitors can also be increased or different capacitance values can be combined according to actual needs.