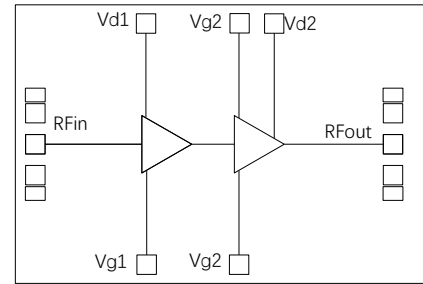


GaN MMIC Power Amplifier Chip, 5.5-6.5 GHz

Performance characteristics

- Frequency range: 5.5~6.5GHz
- Psat: 40.5dBm
- Power gain: 21dB
- Power supply: 28V/200mA
- 50ohm input/output
- Chip size: 2.0mm×1.45mm×0.1mm

Block Diagram



Product Introduction

GPA5.5-6.5-40 is a power amplifier chip manufactured using GaN HEMT technology. Continuous wave working mode, covering a frequency band of 5.5~6.5GHz, can provide 21dB power gain under a 28V supply voltage, with a saturated output power of 40.5dBm. The chip is grounded through the back through-hole. Mainly used in communication systems, high-power transceiver components, and other fields.

DC electrical parameters ($T_A=+25^\circ\text{C}$)

Parameter	Min	Typ	Max	Unit
Gate bias voltage	-3	-2.2	-2	V
Drain working voltage		28		V
Quiescent drain current		200		mA
Dynamic drain current		1000		mA

Microwave electrical parameters ($T_A=+25^\circ\text{C}$, $V_d=+28\text{V}$)

Parameter	Min	Typ	Max	Unit
Frequency range	5.5~6.5			GHz
Psat	40.5	40.5	41.5	dBm
PAE		45		%
Power gain	21	22	22.2	dB
Power gain flatness		± 0.6		dB
Input/output return loss		-10		dB

Absolute maximum ratings^[1]

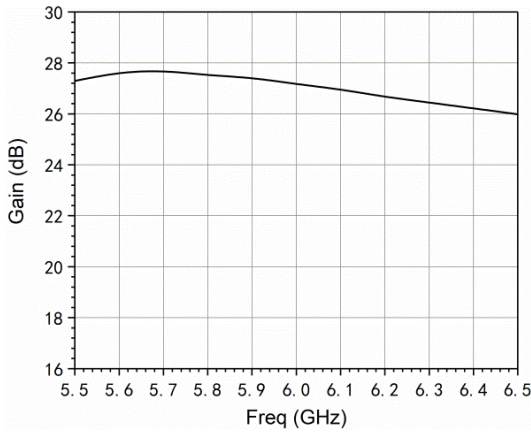
Parameter	Ratings
Drain voltage	+30V
Input power	+30dBm
Operating temperature	-55°C~+85°C
Storage temperature	-65°C~+120°C

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

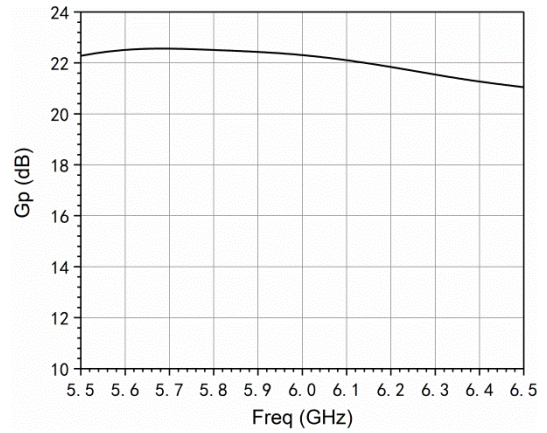
GaN MMIC Power Amplifier Chip, 5.5-6.5 GHz

Typical performance curves (Vd: +28V, quiescent Id=200mA, continuous wave)

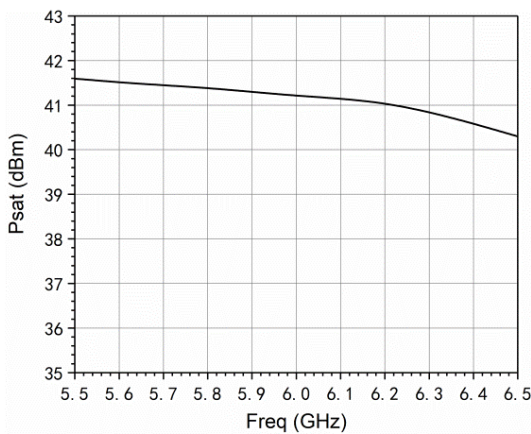
Gain vs. frequency (@Pin=-25dBm)



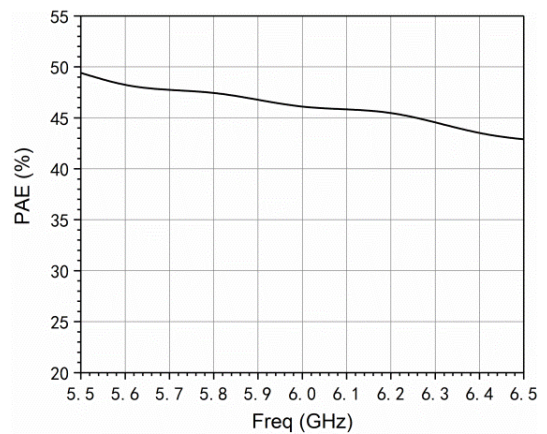
Saturated power gain vs. frequency (Pin=19dBm)



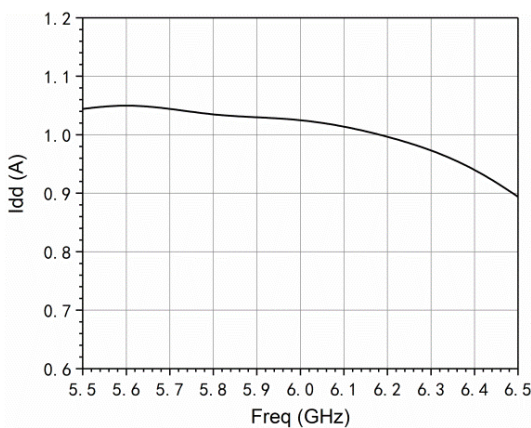
Saturated output power vs. frequency



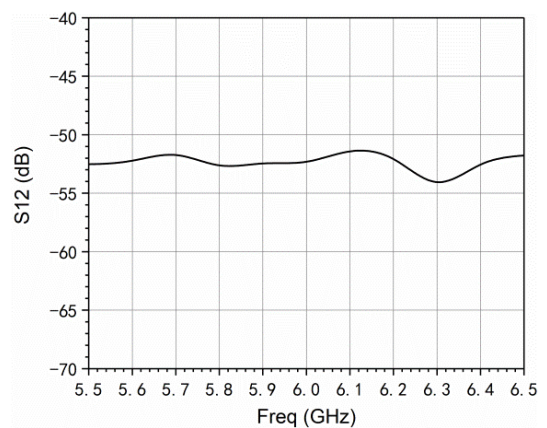
PAE vs. frequency (@Psat)



Idd VS. frequency

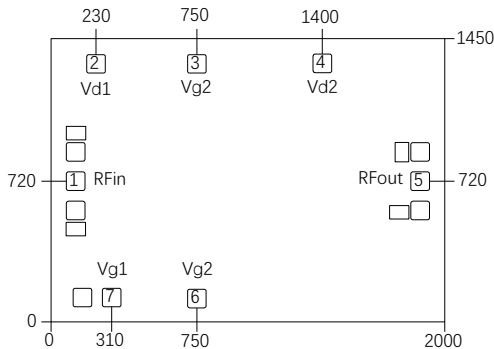


Reverse isolation vs. frequency (@Psat)



GaN MMIC Power Amplifier Chip, 5.5-6.5 GHz

Outline Dimensions



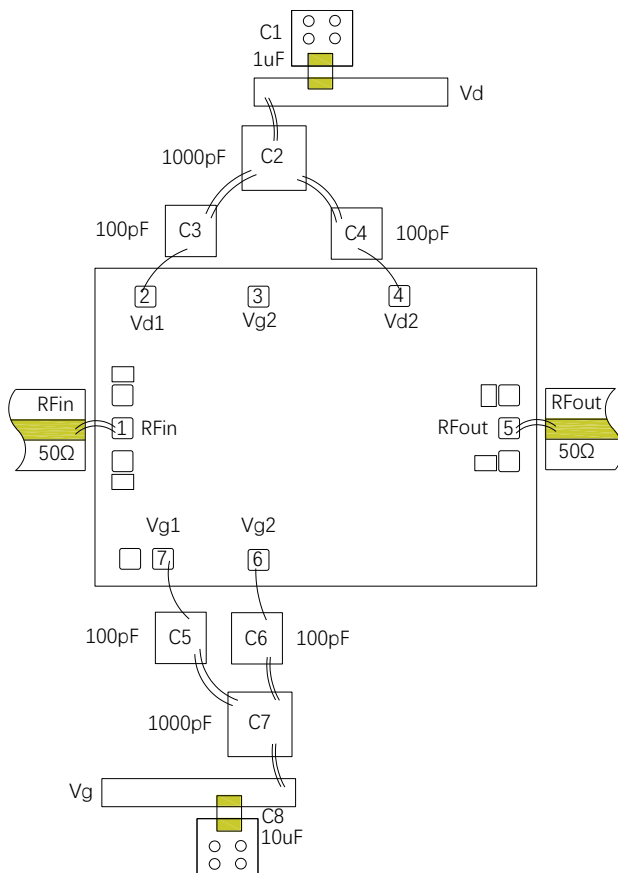
Notes:

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

Pad Definition

Pad Number	Function	Description	Dimensions
1	IN	Signal input terminal, external 50 ohm system, no need for external DC isolation capacitor	100×100 μm
5	OUT	Signal input terminal, external 50 ohm system, no need for external DC isolation capacitor	100×100 μm
2、4	Vd	The chip drain power supply terminal has a supply voltage of 28V	100×100 μm
3、6、7	Vg	The power supply terminal of the chip gate has a voltage of -3V~-2V, which makes the static current reach 200mA	100×100 μm

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.

Note:

1. Please assemble and use in a purified environment, store in anti-static containers, and keep dry
2. The back of the chip is grounded with gold backing. Please ensure that the back is in full contact with the ground and well grounded during use
3. When using conductive silver adhesive for chip bonding, do not use too much conductive silver adhesive and do not touch the upper surface of the chip
4. Sintering with gold tin solder with a ratio of 80/20, sintering temperature Do not exceed 300 °C, sintering time should be as short as possible, not exceeding 20 seconds
5. This product is an electrostatic sensitive device. Please take precautions to prevent static during storage and use
6. Do not attempt to clean the surface of the chip using dry or wet chemical methods
7. If you have any questions, please contact the supplier



This product is sensitive to static electricity. Please pay attention to anti-static measures during use