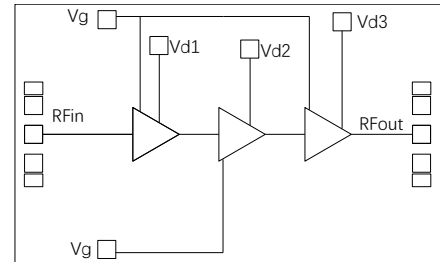


## GaN MMIC Power Amplifier Chip, 13.0-16.0 GHz

### Performance characteristics

- Frequency range: 13~16GHz
- Psat: 35.5dBm
- Power gain: 20dB
- Power supply: 28V
- 50ohm input/output
- Chip size: 2.05mm×1.6mm×0.1mm

### Block Diagram



### Product Introduction

GPA13-16-35 is a power amplifier chip manufactured using GaN HEMT technology. The working frequency band covers 13.0-16.0GHz and can provide a power gain of 20dB at a supply voltage of 28V, with a saturated output power greater than 35.5dBm. 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		-2.7		V
Drain working voltage		28		V
Quiescent drain current		142		mA
Dynamic drain current		150		mA

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

Parameter	Min	Typ	Max	Unit
Frequency range		13.0~16.0		GHz
Psat		36		dBm
PAE		30		%
Power gain		20		dB
Power gain flatness		$\pm 0.3$		dB
Input/output return loss		-15/-10		dB

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

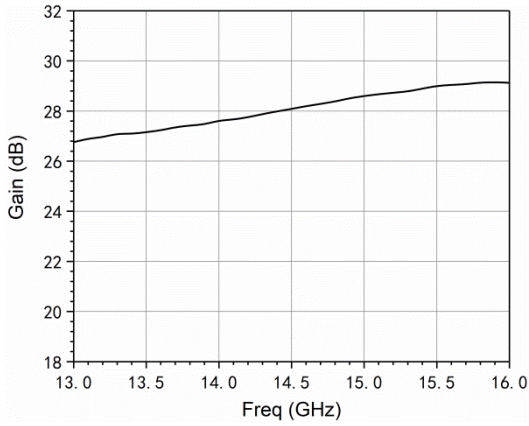
Parameter	Ratings
Drain voltage	+30V
Input power	+30dBm
Operating temperature	-55°C~+85°C
Storage temperature	-65°C~+120°C

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

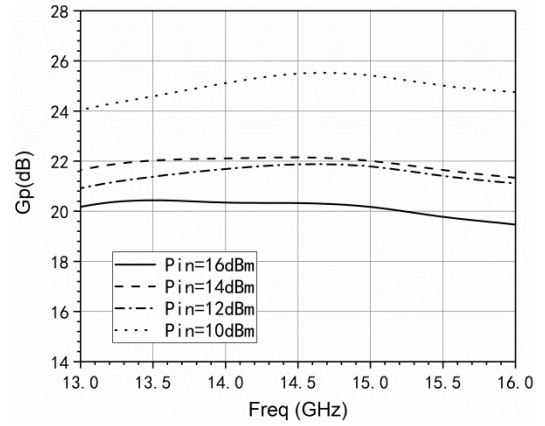
## GaN MMIC Power Amplifier Chip, 13.0-16.0 GHz

Typical performance curves (Vd: +28V, CW)

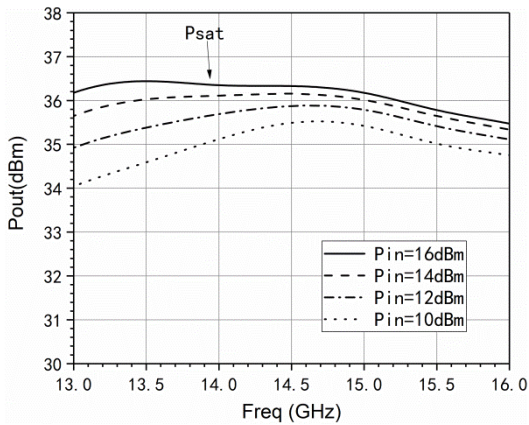
Gain vs. frequency (@Pin=-30dBm)



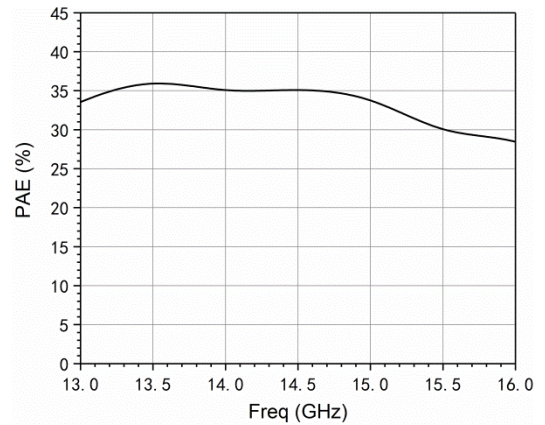
power gain vs. frequency



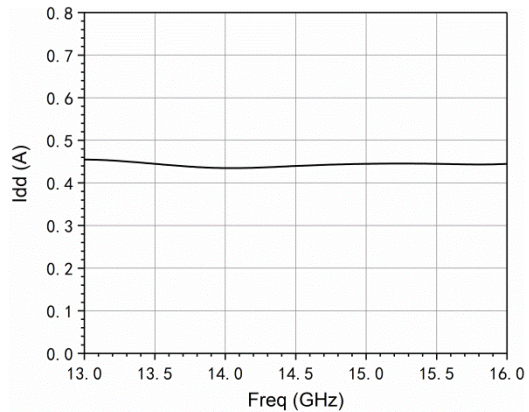
output power vs. frequency



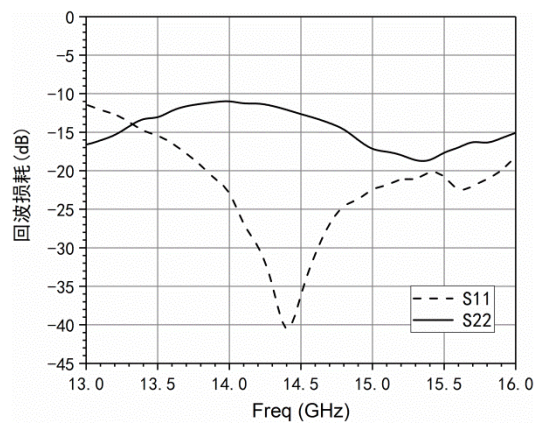
PAE vs. frequency



Dynamic current vs. frequency(@Psat)

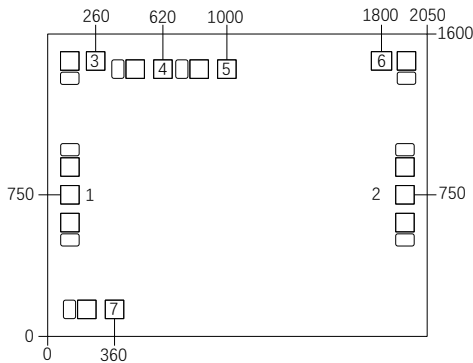


Input/output return loss vs. frequency



## GaN MMIC Power Amplifier Chip, 13.0-16.0 GHz

### Outline dimensions



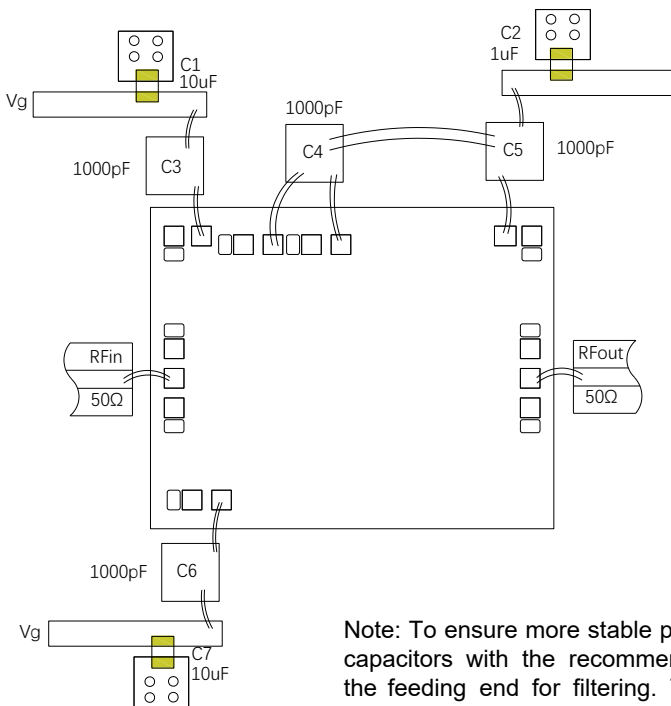
**Notes:**

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	100×100um
2	OUT	RF output, external 50 ohm system, no need for external blocking capacitor	100×100um
4、5、6	Vd	Drain power supply, 28V	100×100um
3、7	Vg	Gate power supply, -2.7V, quiescent current is 140mA	100×100um

### Suggested assembly diagram



**Note:**

For 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: 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.