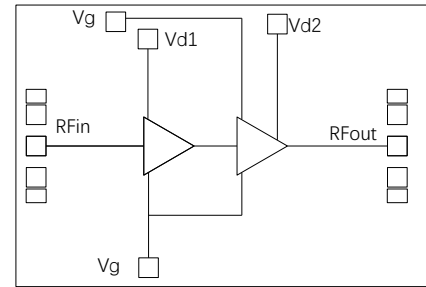


## GaN MMIC Power Amplifier Chip, 8-10.0 GHz

### Performance characteristics

- Frequency range: 8.0~10.0GHz
- Psat: 39dBm
- Power gain: 15dB
- Power supply: 28V/200mA
- 50ohm input/output
- Chip size: 2.0mm×1.2mm×0.1mm

### Block Diagram



### Product Introduction

GPA8-10-39 is a power amplifier chip manufactured using GaN HEMT technology. In continuous wave working mode, with a frequency band coverage of 8.0~10.0GHz, can provide 15dB power gain at 28V supply voltage, and a saturated output power of 39dBm. 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		-2.2		V
Drain working voltage		28		V
Quiescent drain current		200		mA
Dynamic drain current		800		mA

### Microwave electrical parameters (T<sub>A</sub>=+25°C, V<sub>d</sub>=+28V)

Parameter	Min	Typ	Max	Unit
Frequency range	8.0~10.0			GHz
Psat	38.8	39	40	dBm
PAE		40		%
Power gain		15		dB
Power gain flatness		±1		dB
Input/output return loss		-10		dB

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

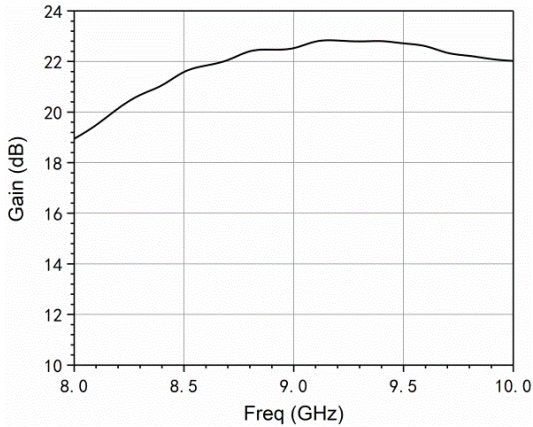
Parameter	Ratings
Drain voltage	+30V
Input power	+30dBm
Operating temperature	-55°C~+85°C
Storage temperature	-65°C~+120°C

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

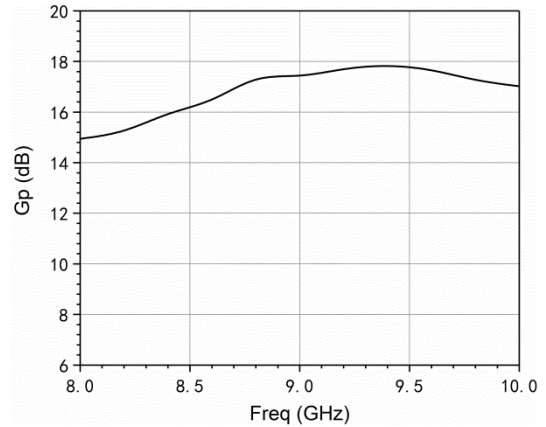
## GaN MMIC Power Amplifier Chip, 8-10.0 GHz

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

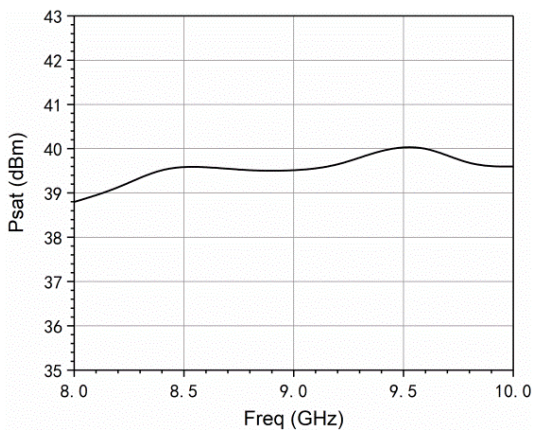
Gain vs. frequency (@Pin=-25dBm)



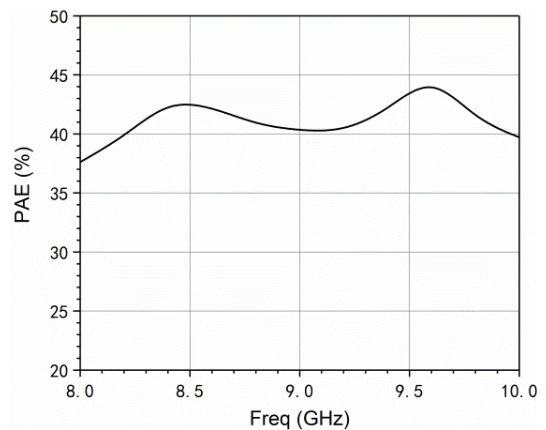
Saturated power gain vs. frequency (Pin=22dBm)



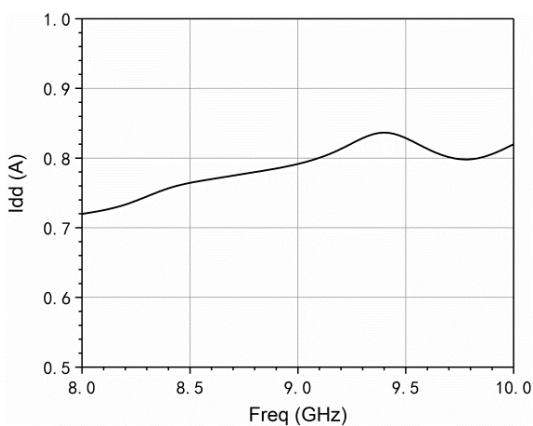
Saturated output power vs. frequency



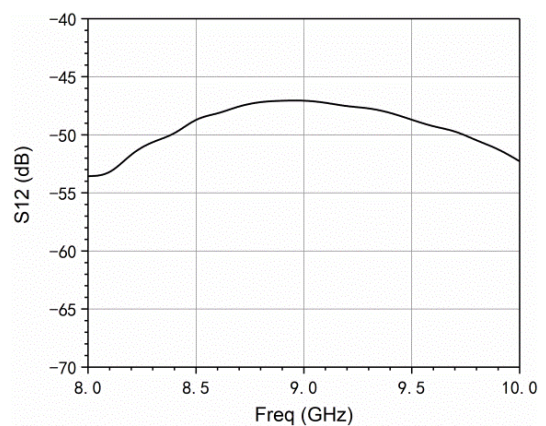
Power added efficiency vs. frequency (@Psat)



Idd VS. frequency

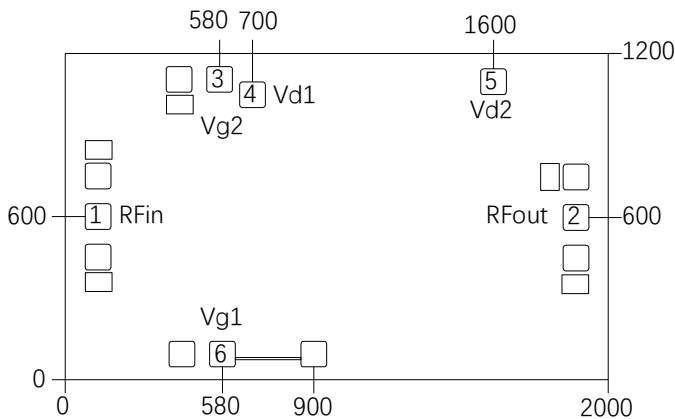


Reverse isolation vs. frequency (@Psat)



## GaN MMIC Power Amplifier Chip, 8-10.0 GHz

### Outline Dimensions



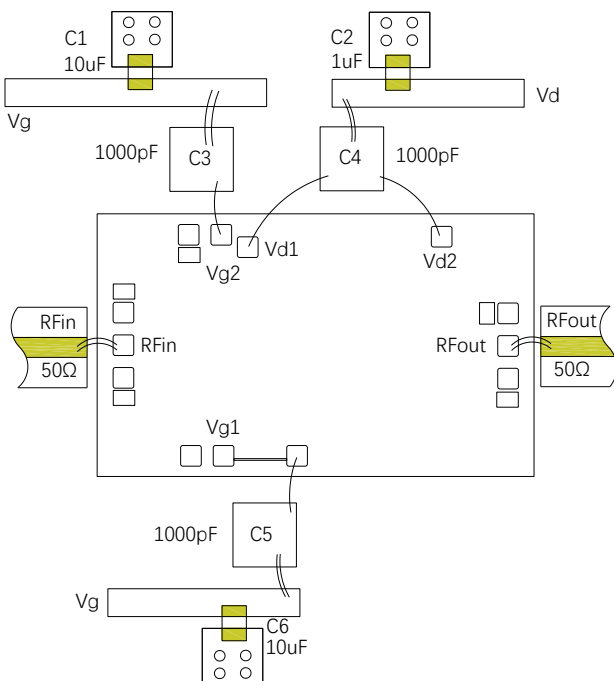
**Notes:**

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	100×100 $\mu\text{m}$
2	OUT	RF output, external 50 ohm system, no need for external blocking capacitor	100×100 $\mu\text{m}$
3、6	Vg	Gate power supply, -3V~-2V, quiescent current 200mA	100×100 $\mu\text{m}$
4、5	Vd	Drain power supply, 28V	100×100 $\mu\text{m}$

### 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.

**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. Use gold tin solder with a ratio of 80/20 to sinter, with a sintering temperature not exceeding 300 °C and a sintering time as short as possible, not exceeding 20 seconds
4. This product is an electrostatic sensitive device. Please pay attention to anti-static measures during storage and use
5. Do not attempt to clean the surface of the chip using dry or wet chemical methods
6. If you have any questions, please contact the supplier

