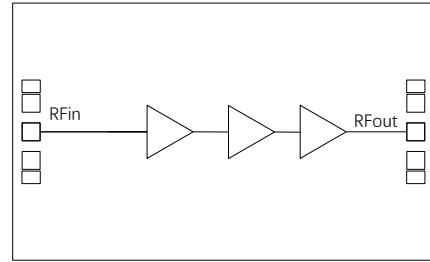


Performance characteristics **GaN MMIC Power Amplifier Chip, 2.0-18.0 GHz**

- Frequency range: 2.0~18.0GHz
- Psat: 38dBm
- Power gain: 7dB
- Power supply: 28V
- 50ohm input/output
- Chip size: 4.7mm×2.6mm×0.1mm

Block Diagram



Product Introduction

GPA2-18-38 is a power amplifier chip manufactured using GaN HEMT technology. The working frequency band covers 2.0~18.0GHz, and under a supply voltage of 28V, it can provide 7dB power gain with a saturated output power of 38dBm. 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°C)

Parameter	Min	Typ	Max	Unit
Gate bias voltage		-2.7		V
Drain working voltage		28		V
Quiescent drain current		500		mA
Dynamic drain current		1100		mA

Microwave electrical specifications (T_A=+25°C, V_d=+28V, Pulse width 1ms, cycle 5ms, duty cycle 20%)

Parameter	Min	Typ	Max	Unit
Frequency range	2.0~18.0			GHz
Psat	38	39		dBm
PAE		20		%
Power gain		7		dB
Power gain flatness		±1		dB
Input/output return loss		-10		dB

Absolute maximum ratings^[1]

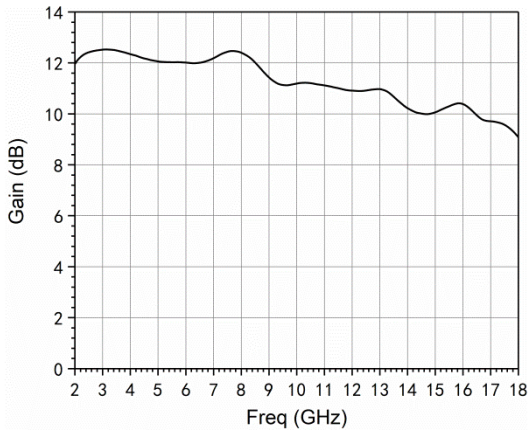
Parameter	Ratings
Drain voltage	+30V
Input power	+30dBm
Operating temperature	-55°C~+85°C
Storage temperature	-65°C~+120°C

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

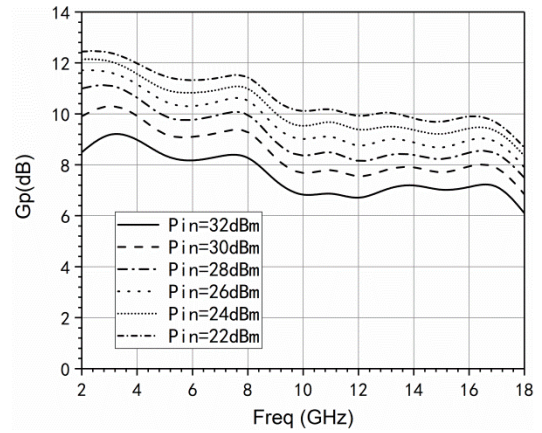
GaN MMIC Power Amplifier Chip, 2.0-18.0 GHz

Typical performance curves (Vd: +28V, quiescent Id=500mA, pulse width 1ms, cycle 5ms, duty cycle 20%)

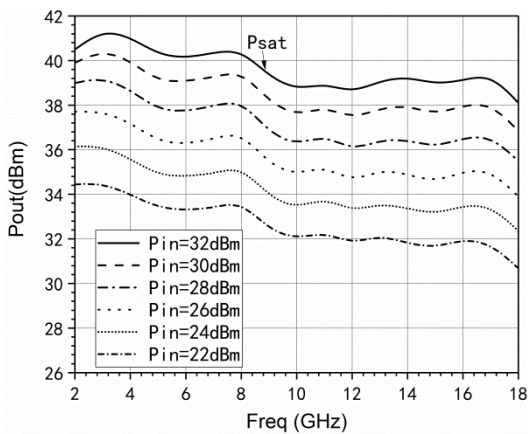
Gain vs. frequency (@Pin=-30dBm)



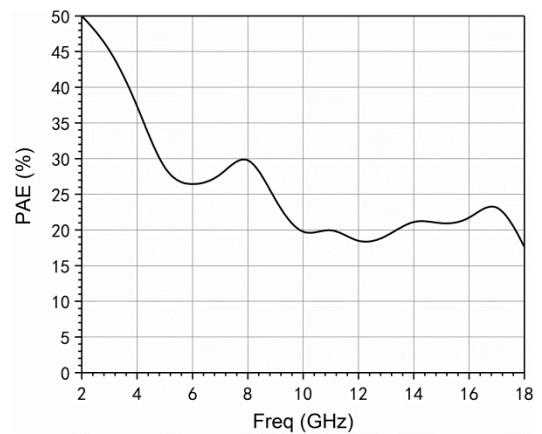
Power gain vs. frequency



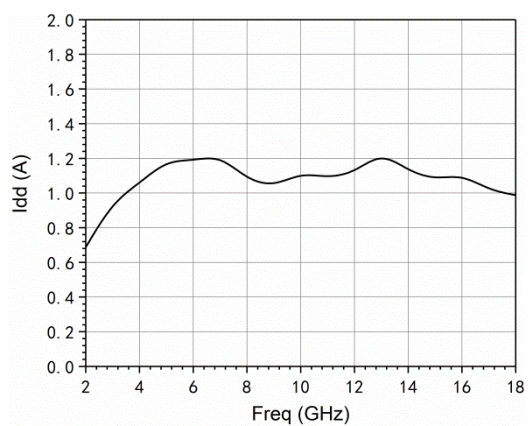
Output power vs. frequency



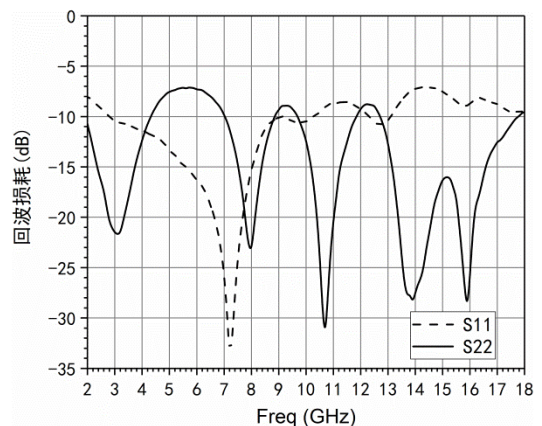
PAE vs. frequency



Dynamic current vs. frequency (@Psat)

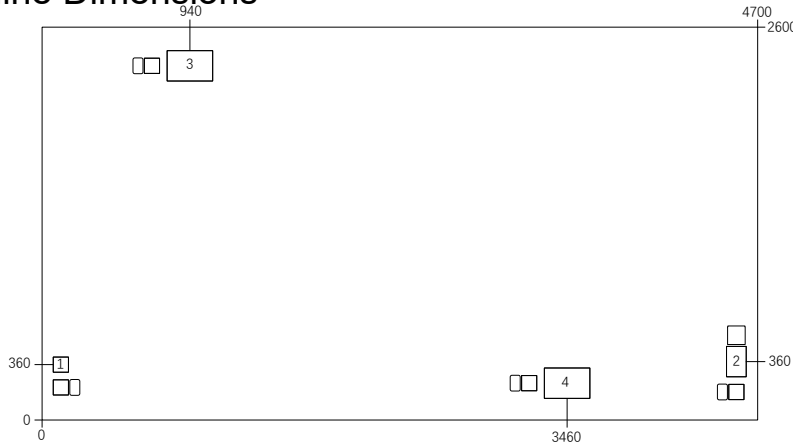


Input/output return loss vs. frequency



GaN MMIC Power Amplifier Chip, 2.0-18.0 GHz

Outline Dimensions



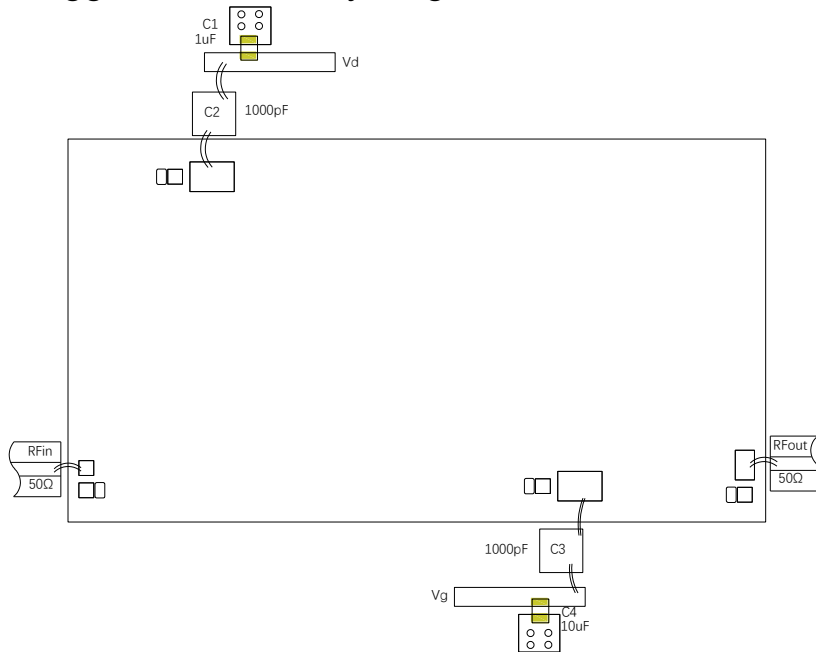
Notes:

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	RF input, external 50 ohm system, no need for external blocking capacitor	$100 \times 100 \mu\text{m}$
2	OUT	RF output, external 50 ohm system, no need for external blocking capacitor	$100 \times 100 \mu\text{m}$
3	Vd	The chip drain power supply terminal has a supply voltage of 28V	$200 \times 200 \mu\text{m}$
4	Vg	Chip gate power supply terminal, voltage is -2.7V, static current is about 500mA	$200 \times 200 \mu\text{m}$

Suggested assembly diagram



Note:

1. Please assemble and store in a purified environment
Put it in a container with anti-static function and keep it dry
2. The back of the chip is grounded with gold backing, during use
Please ensure that the back is in full contact with the ground and well grounded
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

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. If the pulse works, no ceramic capacitor is added at the drain Vd.