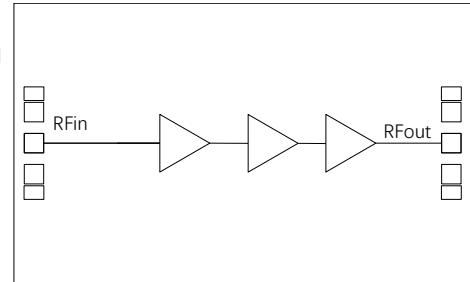


Performance characteristics **GaN MMIC Power Amplifier Chip, DC-2.0 GHz**

- Frequency range: DC~2.0GHz
- Psat: 39.5dBm
- Power gain: 11dB
- Power supply: 28V
- 50ohm input/output
- Chip size: 2.6mm × 1.55mm × 0.1mm

Block Diagram



Product Introduction

GPA0.01-2-39 is a power amplifier chip manufactured using GaN HEMT technology. The working frequency band covers DC~2.0GHz. Under a supply voltage of 28V, the saturated output power is 39.5dBm, and the power added efficiency is greater than 37%. The chip is grounded through the back through-hole. Mainly used in communication systems, high-power transceiver components, and other fields.

DC electrical specifications (TA=+25 °C)

Parameter	Min	Typ	Max	Unit
Gate bias voltage		-2.7		V
Drain working voltage		28		V
Quiescent drain current		330		mA
Dynamic drain current		800		mA

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

Parameter	Min	Typ	Max	Unit
Frequency range	DC~2.0			GHz
Psat		39.5		dBm
PAE	37			%
Power gain		11		dB
Input/output return loss		-10		dB

Absolute maximum ratings^[1]

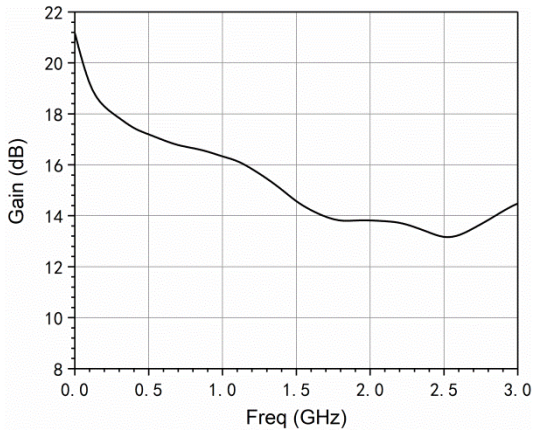
Parameter	Ratings
Drain voltage	+30V
Input power	+30dBm
Operating temperature	-55°C~+85°C
Storage temperature	-65°C~+120°C

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

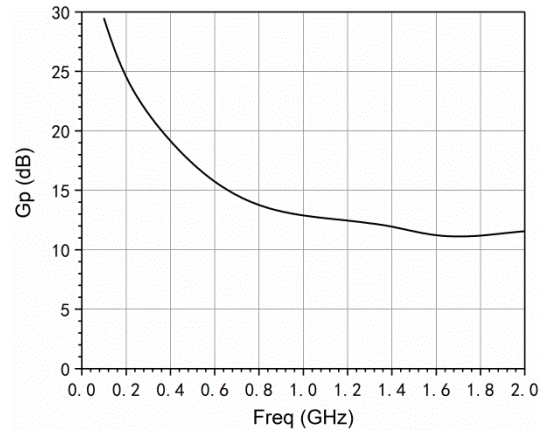
GaN MMIC Power Amplifier Chip, DC-2.0 GHz

Typical performance curves (Vd: +28V, quiescent Id=330mA, pulse width 1ms, cycle 5ms, duty cycle 20%)

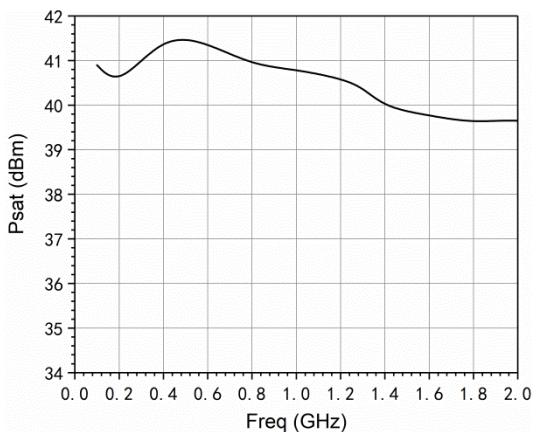
Gain VS. Frequency (@Pin=-30dBm)



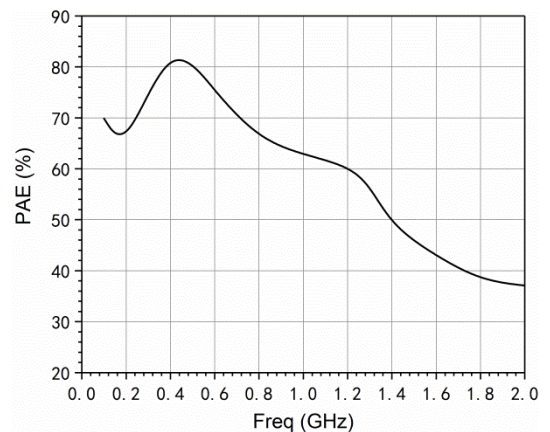
Power gain vs. frequency (@Psat)



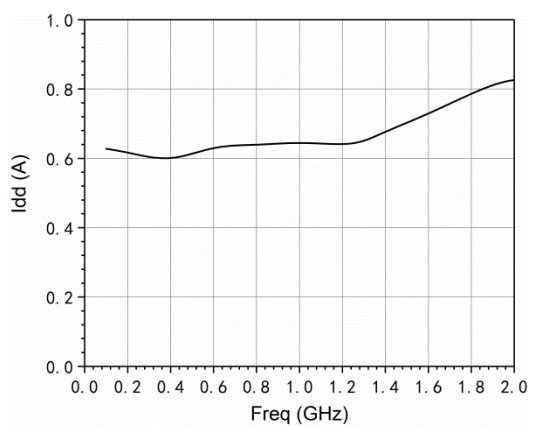
Psat vs. frequency



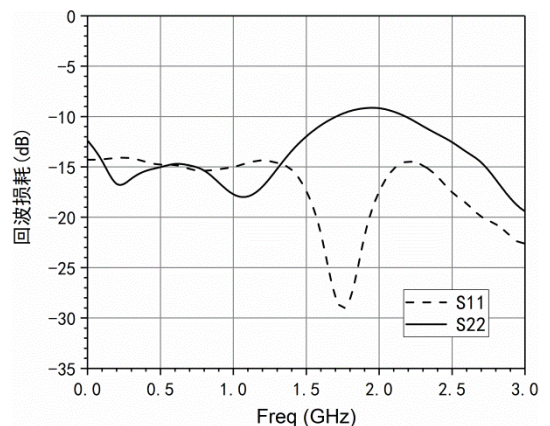
PAE vs. frequency



Dynamic current vs. frequency (@Psat)

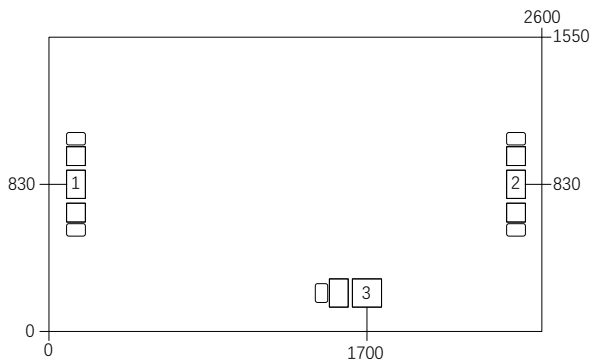


Input/output return loss vs. frequency



GaN MMIC Power Amplifier Chip, DC-2.0 GHz

Outline Dimensions



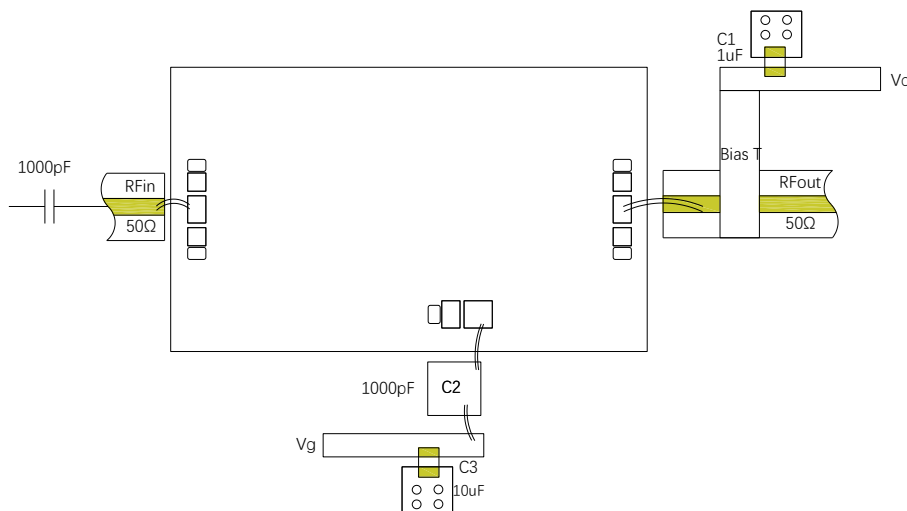
Notes:

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, requiring external isolation capacitor	$100 \times 100 \mu\text{m}$
2	OUT	RF output, external 50 ohm system, BiasT power supply, voltage 28V	$100 \times 100 \mu\text{m}$
3	Vg	Gate power supply, -2.7V, quiescent current about 330mA	$100 \times 100 \mu\text{m}$

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. If the pulse works, a ceramic capacitor can be omitted at the drain Vd.

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 $300 \text{ }^\circ\text{C}$ 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

