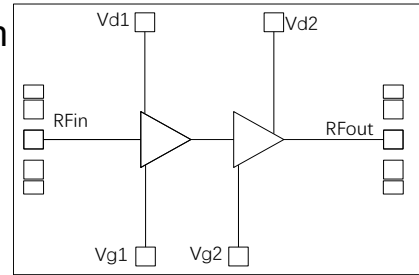


Performance characteristics **GaN MMIC Power Amplifier Chip, 0.1-2.5 GHz**

- Frequency range: 0.1~2.5GHz
- Psat: 37dBm
- Power supply: 28V/120mA
- 50ohm input/output
- Chip size:2.4mm×1.6mm×0.1mm

Block Diagram



Product Introduction

GPA0.1-2-37 is a power amplifier chip manufactured using GaN HEMT technology. In continuous wave working mode, covering a frequency band of 0.1~2.5GHz, with a saturated output power of 37dBm under a supply voltage of 28V. The chip is grounded through the back through-hole. Mainly used in communication systems, high-power transceiver components, and other fields.

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

| Parameter | Min | Typ | Max | Unit |
|-------------------------|-----|------|-----|------|
| Gate bias voltage | -3 | -2.2 | -2 | V |
| Drain working voltage | | 28 | | V |
| Quiescent drain current | | 120 | | mA |
| Dynamic drain current | | 700 | | mA |

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

| Parameter | Min | Typ | Max | Unit |
|--------------------|---------|-----|-----|------|
| Frequency range | 0.1~2.5 | | | GHz |
| Psat | | 37 | 39 | dBm |
| PAE | | 30 | 43 | % |
| Small signal gain | | 28 | | dB |
| Input return loss | | -10 | | dB |
| Output return loss | | -10 | | dB |

Absolute maximum ratings^[1]

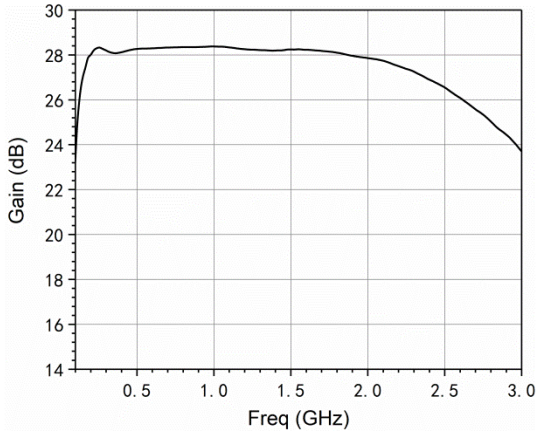
| Parameter | Ratings |
|-----------------------|--------------|
| Drain voltage | +30V |
| Input power | +30dBm |
| Operating temperature | -55°C~+85°C |
| Storage temperature | -65°C~+120°C |

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

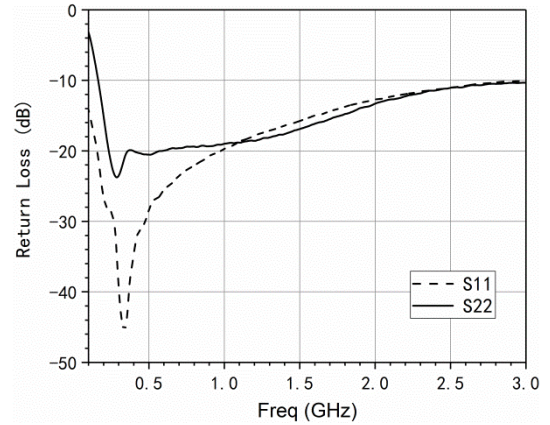
GaN MMIC Power Amplifier Chip, 0.1-2.5 GHz

Typical performance curves (Vd:+28V, quiescent Id=120mA, continuous wave)

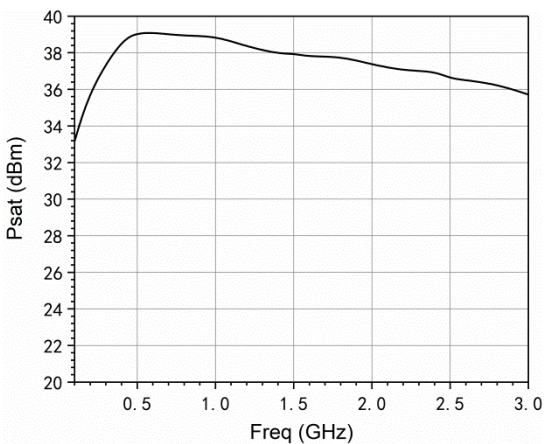
Gain VS. Frequency (@Pin=-25dBm)



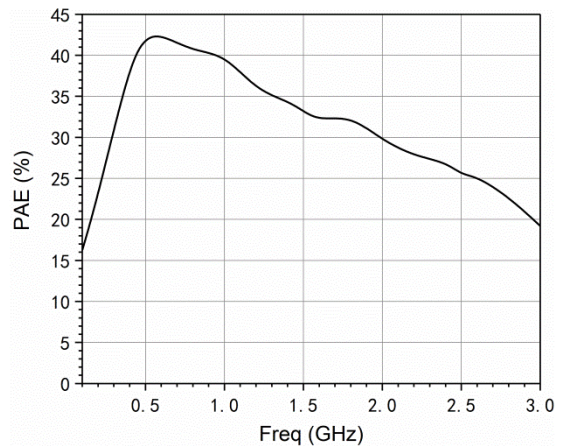
Return loss VS. Frequency



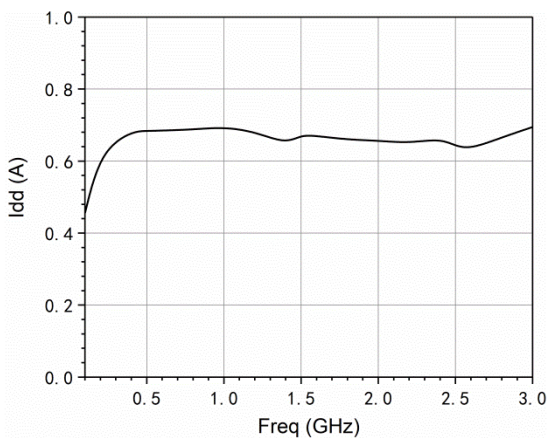
Saturated output power vs. frequency



PAE vs.frequency (@Psat)

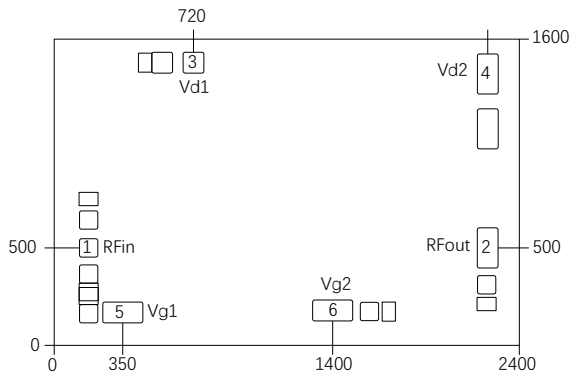


Idd VS. frequency



GaN MMIC Power Amplifier Chip, 0.1-2.5 GHz

Outline Dimensions



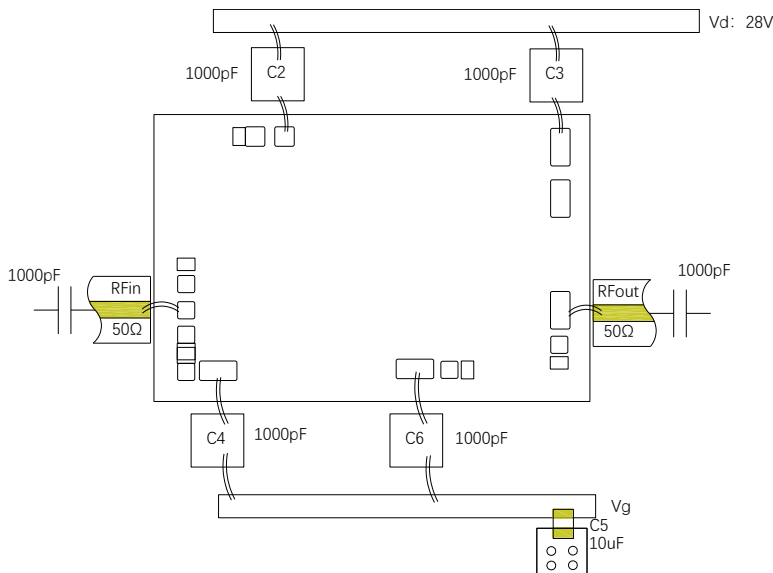
Notes:

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

Definition of bonding pressure point

| Pad Number | Function | Description | Dimensions |
|------------|----------|---|-------------|
| 1 | IN | RF input, external 50 ohm system, requiring external DC blocking capacitor, recommended capacitance value 1000pF | 100 × 100μm |
| 2 | OUT | RF output, external 50 ohm system, requiring external DC blocking capacitor, recommended capacitance value 1000pF | 100 × 200μm |
| 3、4 | Vd | Drain power supply, 28V | 100 × 200μm |
| 5、6 | Vg | Gate power supply, -2.5V~-2.1V | 100 × 200μm |

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. 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
5. This product is an electrostatic sensitive device. Please pay attention to anti-static measures 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