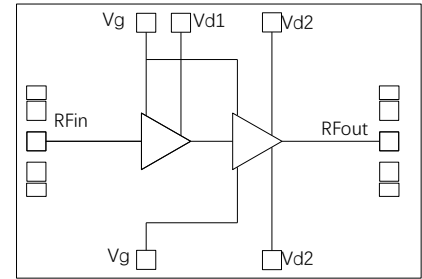


## Performance characteristics **GaAs MMIC Power Amplifier Chip, 0.8-2 GHz**

- Frequency range: 0.8~2GHz
- Small signal gain: 35.2dB@1.4GHz
- P-1dB: 32.8dBm
- Psat: 33.5dBm
- Power supply: 8V/-0.7V
- 50ohm input/output
- Chip size: 4.28mm×2.34mm×0.1mm

### Block Diagram



### Product Introduction

GPA0.8-2-33 is a power amplifier chip manufactured using GaAs pHEMT technology. The working frequency band covers 0.8~2GHz, and under an 8V supply voltage, it can provide a gain of 35.2dB, a P-1dB output power of 32.8dBm, and a saturated output power greater than 33.5dBm. The chip is grounded through the back through-hole, and mainly used in communication systems, transceiver components, and other fields.

### DC electrical specifications (TA=+25 °C)

Parameter	Min	Typ	Max	Unit
Gate bias voltage		-0.7		V
Drain working voltage		8		V
Quiescent drain current		0.72		A
Dynamic drain current		0.8		A

### Microwave electrical specifications (TA=+25 °C, Vd=+8V)

Parameter	Min	Typ	Max	Unit
Frequency range		0.8~2		GHz
Psat		33.5		dBm
P-1dB		32.8		dBm
PAE		40		%
Small signal gain		35.2		dB
Small signal gain flatness		±0.1		dB
Input return loss		-15	-12	dB
Output return loss		-15	-7	dB

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

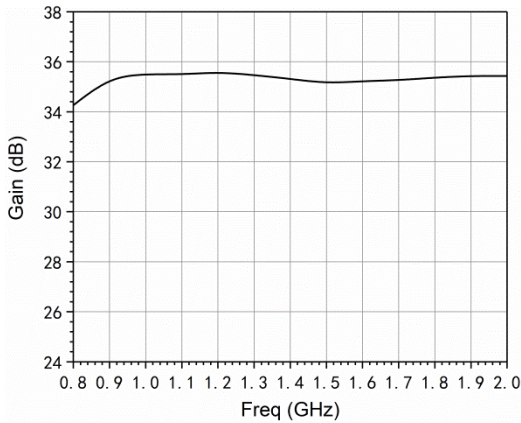
Parameter	Ratings
Drain voltage	10V
Input power	20dBm
Operating temperature	-55°C~+85°C
Storage temperature	-65°C~+120°C

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

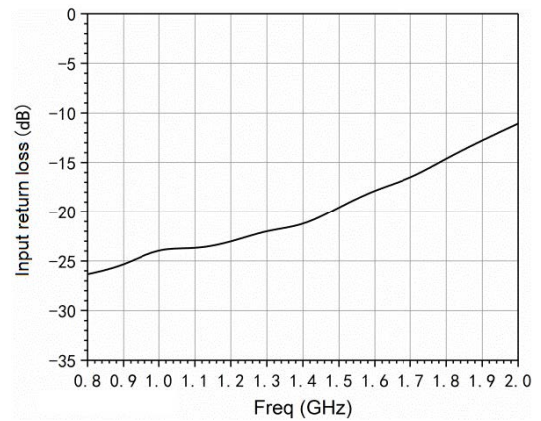
## GaAs MMIC Power Amplifier Chip, 0.8-2 GHz

Typical performance curves (Vd: +8V)

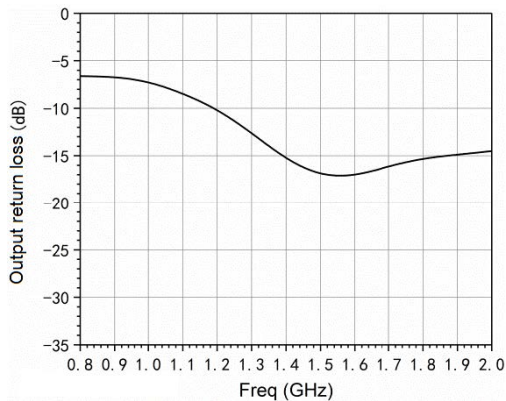
**Gain VS. Frequency**



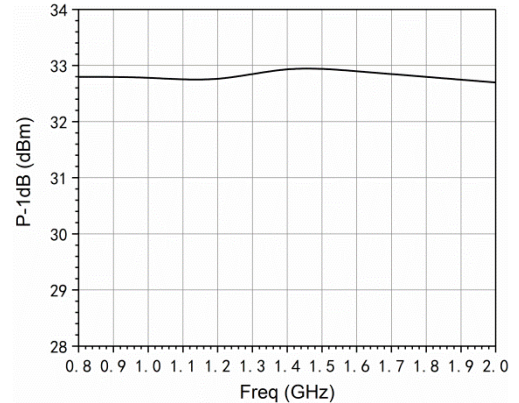
**Input return loss VS. Frequency**



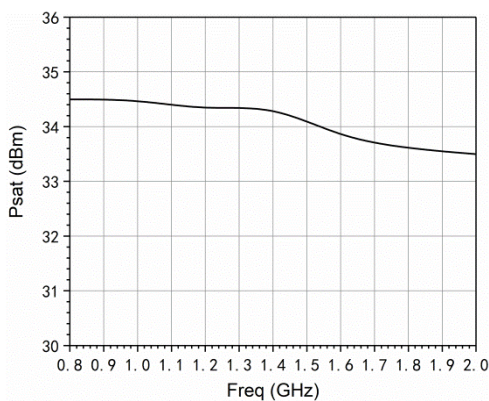
**Output return loss VS. Frequency**



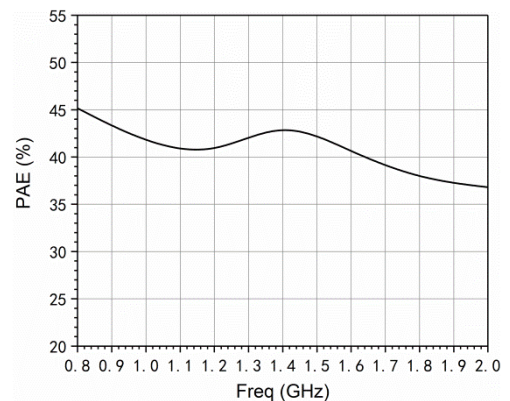
**P-1dB VS. Frequency**



**Psat VS. Frequency**

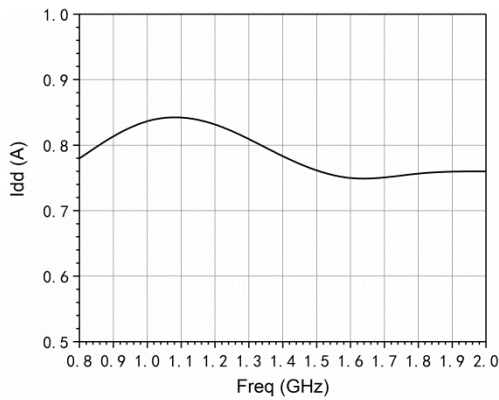


**PAE VS. Frequency (@Psat)**

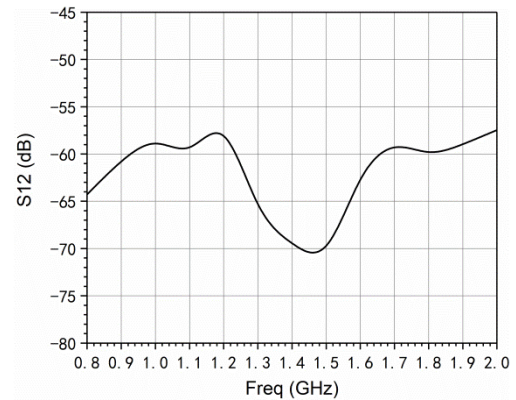


## GaAs MMIC Power Amplifier Chip, 0.8-2 GHz

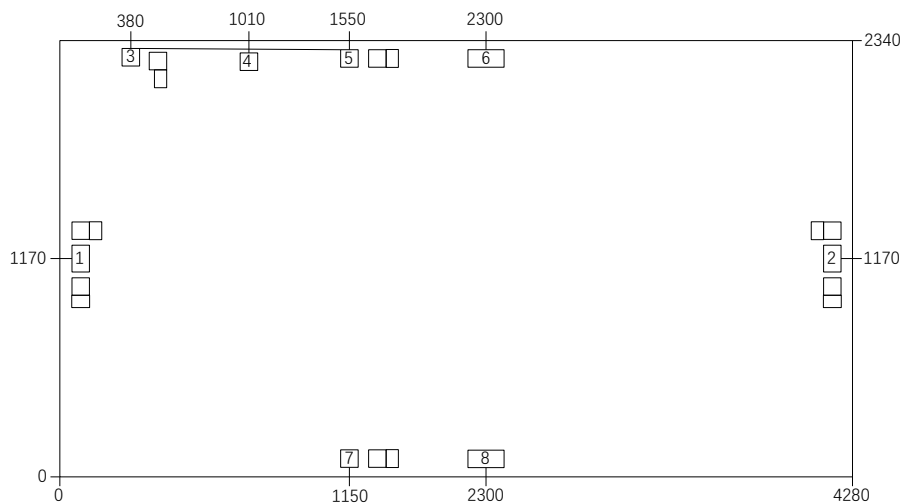
**I<sub>dd</sub> VS. Frequency**



**Reverse isolation degree VS. Frequency (@P<sub>sat</sub>)**



### Outline Dimensions



**Notes:**

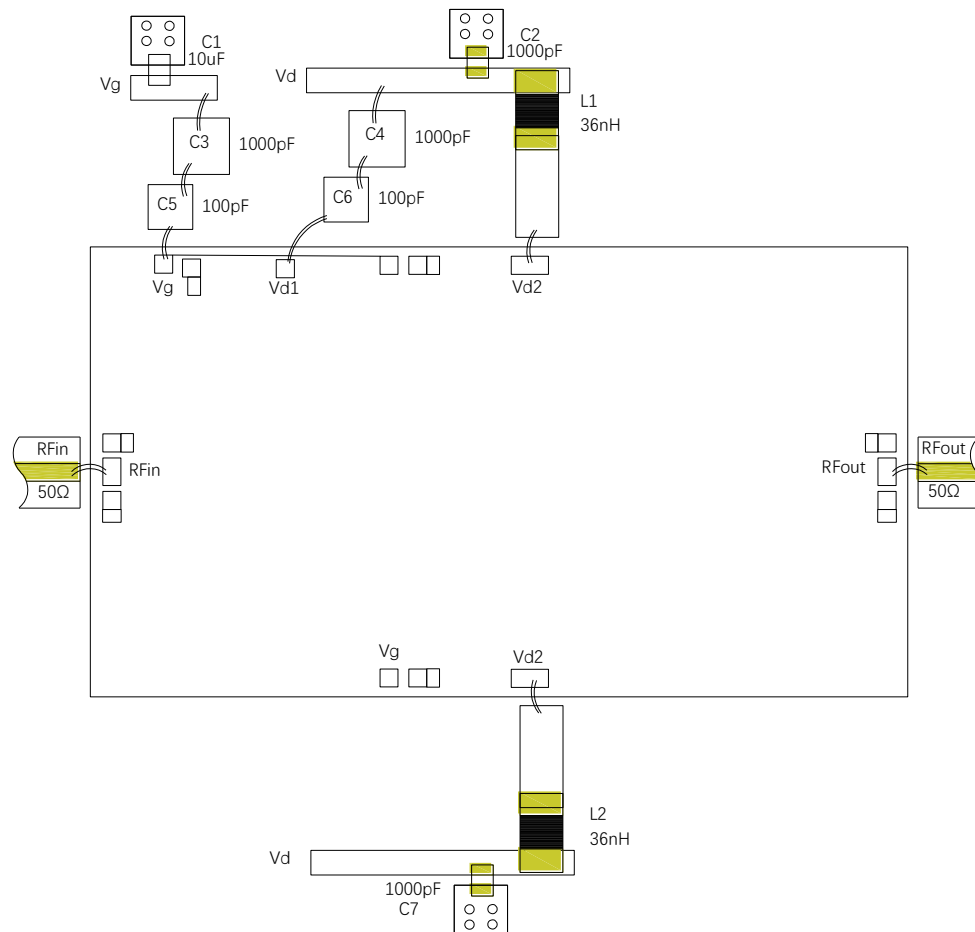
1. Unit:  $\mu\text{m}$
2. Gold plating on bonding pads
3. Dimensional tolerance:  $\pm 20\mu\text{m}$

### Pad Definition

Pad Number	Function	Description	Dimensions
1	IN	RF input, external 50 ohm system, no need for external blocking capacitor	100×200 $\mu\text{m}$
2	OUT	RF output, external 50 ohm system, no need for external blocking capacitor	100×100 $\mu\text{m}$
3、5、7	V <sub>g</sub>	Gate power supply	100×100 $\mu\text{m}$
4	V <sub>d1</sub>	Drain 1 power supply	100×100 $\mu\text{m}$
6、8	V <sub>d2</sub>	Drain 2 power supply, the addition of a 36nH inductor for bias are required	200×100 $\mu\text{m}$

## GaAs MMIC Power Amplifier Chip, 0.8-2 GHz

### 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



This product is sensitive to static electricity. Please pay attention to anti-static measures during use