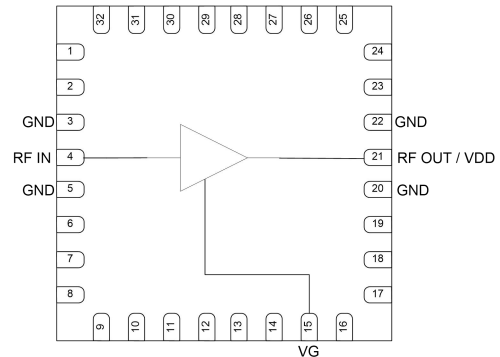


## GaAs MMIC Power Amplifier Chip, 1 - 8 GHz

### Performance characteristics

- Frequency Range: 1 - 8 GHz
- Small signal gain: 14.5dB
- Noise figure: 3.5dB
- P -1dB : 25dBm
- Psat : 26dBm
- Power supply: +8 V /160mA
- 50Ohm input / output
- Chip size: QFN 5X5

### Block Diagram



### Product Introduction

GPA-0108A-CQ5 is a broadband low noise amplifier chip with a frequency range of 1GHz~8GHz, a small signal gain of 14.5dB, and a P-1 output of 25dBm. GPA-0108A-CQ5 is powered by a +8V power supply. This chip is packaged in a 5 x 5 mm ceramic surface mount package, which can achieve airtight packaging. The surface of the pin pad is gold-plated, which is suitable for reflow soldering installation.

### Use limit parameters

Maximum drain voltage	+12V
Maximum input power	+20dBm
Operating temperature	-55 ~ +85°C
Storage temperature	-65 ~ +150°C

Exceeding any of these maximum limits may cause permanent damage.

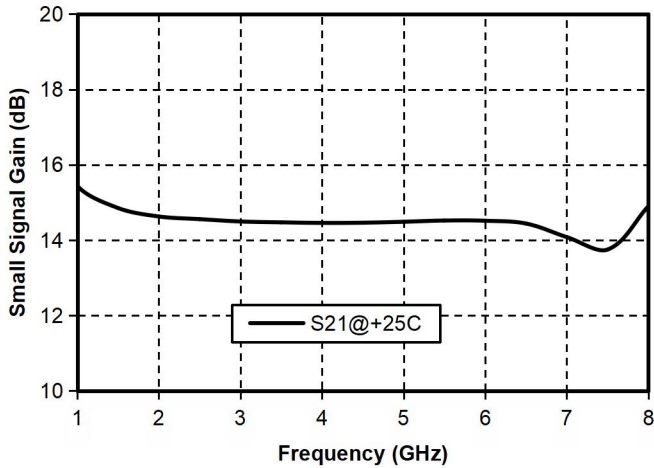
### Electrical performance parameters ( TA = +25°C , Vd =+8V )

Index	Minimum	Typical Value	Maximum	Unit
Frequency Range	1-8			G Hz
Small Signal Gain		14.5		dB
Gain Flatness		± 0.5		dB
Noise Figure	-	3.5	4.5	dB
P -1dB	24.5	25	-	dBm
Psat	25	26	-	dBm
Input return loss	13	14	-	dB
Output return loss	14	23	-	dB
Quiescent Current		160		mA

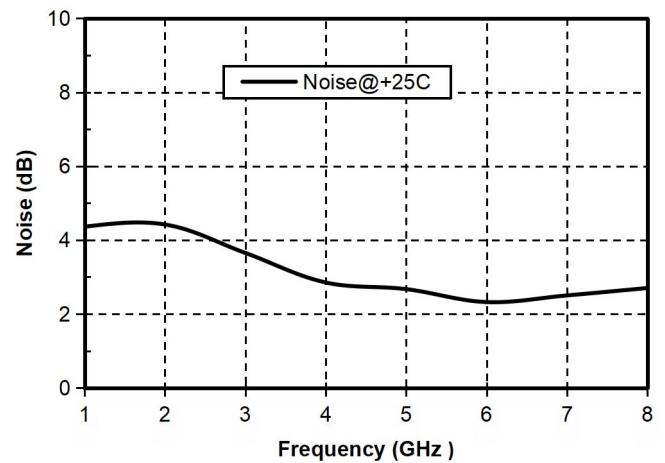
## GaAs MMIC Power Amplifier Chip, 1 - 8 GHz

Main index test curve

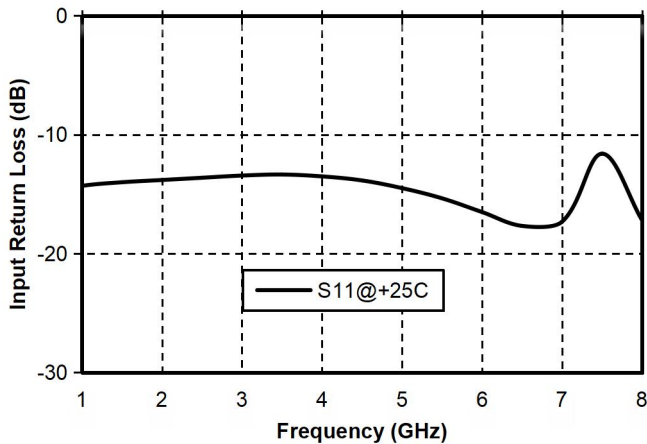
Gain vs. Frequency



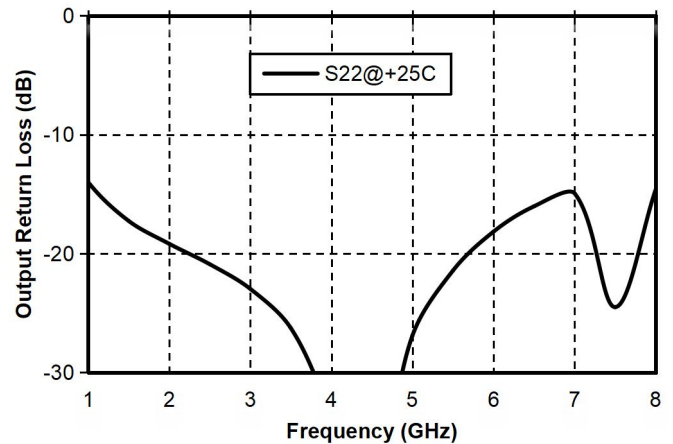
Noise Figure vs. Frequency



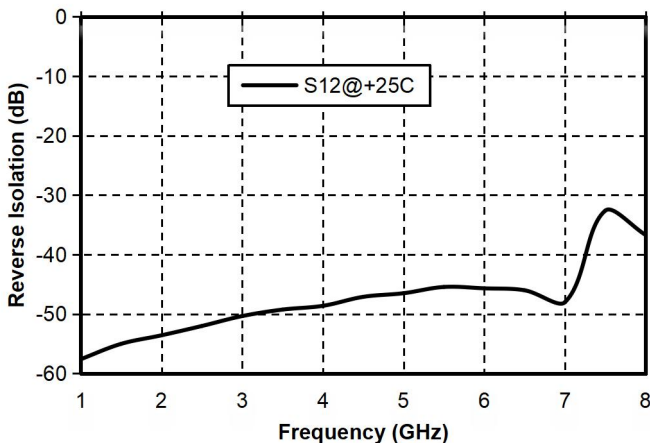
Input Return Loss vs. Frequency



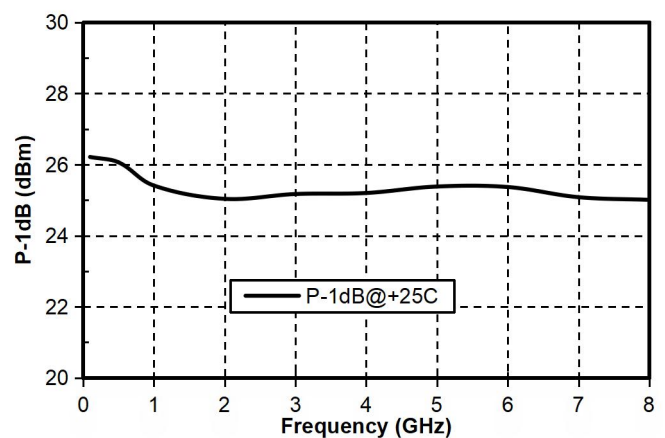
Output Return Loss vs. Frequency



Reverse Isolation vs. Frequency

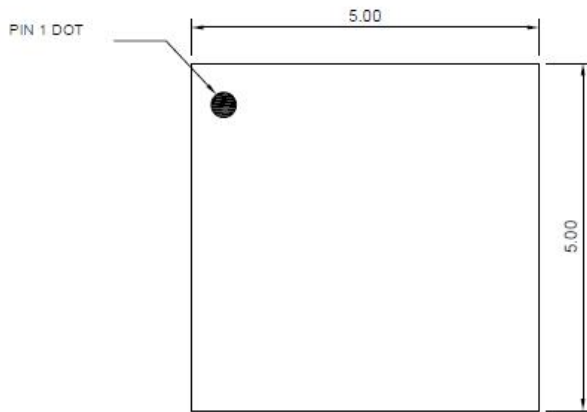


P-1dB vs. Frequency

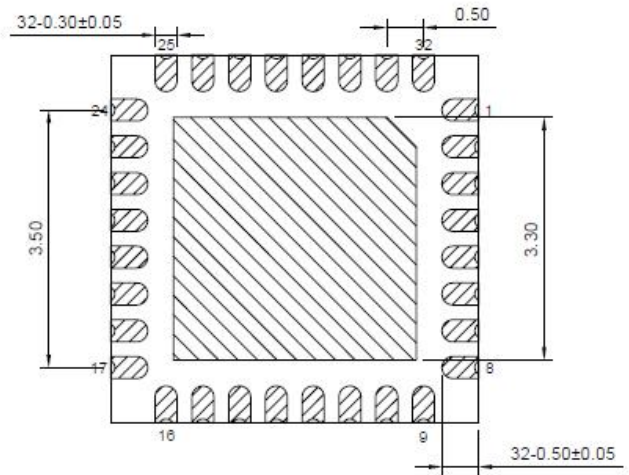


## GaAs MMIC Power Amplifier Chip, 1 - 8 GHz

### Appearance structure



Top view



Bottom view



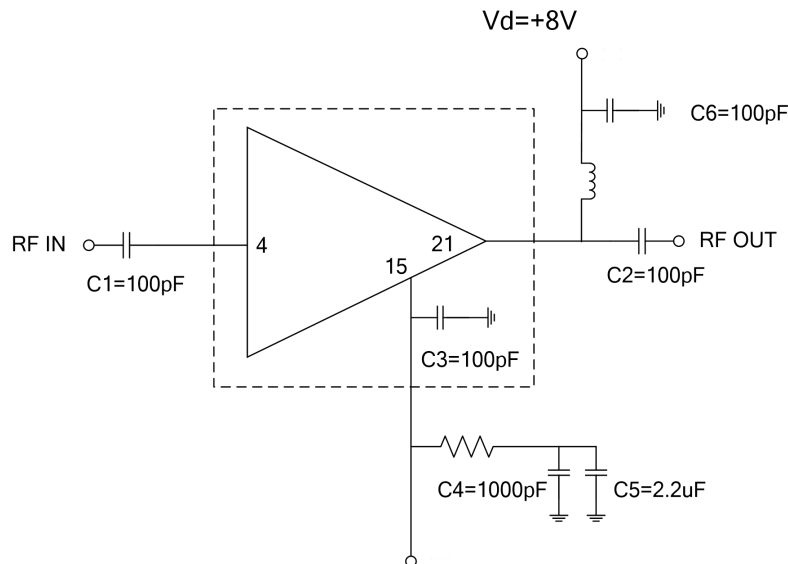
Side View

The units in the figures are all in millimeters , and the tolerance is  $\pm 0.15$  mm.

Pin Definition		
Bonding point number	Function Symbol	Functional Description
4	RFIN	RF signal input terminal, requires DC blocking capacitor
21	RFOUT	RF signal output terminal, DC blocking capacitor is required
21	VDD	External DC bias network to provide drain voltage
15	VG	Amplifier Gate Bias
4, 6, 20, 22	GND	The bottom of the chip needs to be well grounded to RF and DC
1~3, 7~14, 16~19, 23~32	NC	No welding required

## GaAs MMIC Power Amplifier Chip, 1 - 8 GHz

### Recommended Circuit



Raw material	Capacitance, inductance, resistance
C1	100pF
C 2	100 pF
C 3	100pF
C4	1000 pF
C5	2.2uF
C6	100 pF

### Precautions for use

- Sealing material : Ceramic material that meets ROHS standards
- Lead frame material: copper alloy
- Lead surface plating: gold, gold layer thickness greater than 1.3um
- Maximum reflow peak temperature: 260 °C