

## GaAs MMIC power amplifier chip, 13-15 GHz

### Performance characteristics

- Frequency Range: 13 - 15 GHz
- Small signal gain: 18dB
- Gain Flatness:  $\pm 1.0$ dB
- P -1 dB : 22.5dBm
- Psat : 23dBm
- Power supply: +5 V /85mA
- 50Ohm input / output
- Chip size: QFN 4X4

### Product Introduction

GPA-1315A-CQ4 is a broadband amplifier chip with a frequency range of 13GHz~15GHz, a small signal gain of 18dB, and a P-1 output of 22.5dBm. GPA-1315A-CQ4 is powered by a single +5V power supply. This chip is packaged in a 4 x 4 mm ceramic surface mount package , and the surface of the pin pad is gold-plated, which is suitable for reflow soldering installation.

### Using the Limit Parameter

Maximum drain voltage	+7V
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 = +5V )

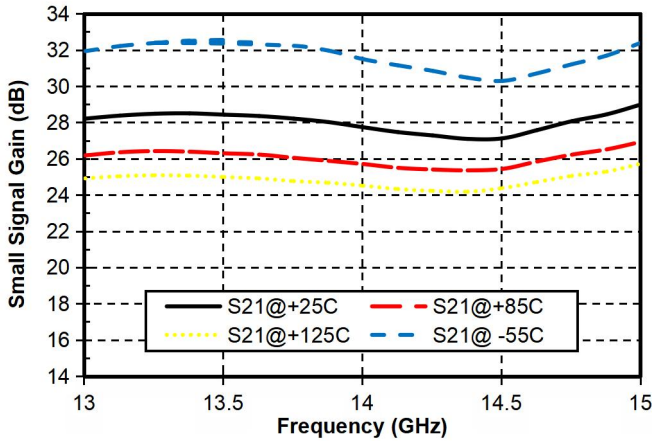
Index	Minimum	Typical Value	Maximum	Unit
Frequency Range	13-15			GHz
Small Signal Gain	-	18	-	dB
Gain Flatness		$\pm 1.0$		dB
P -1dB	-	22.5	-	dBm
Psat	-	23	-	dBm
Input return loss	-	13	-	dB
Output return loss	-	23	-	dB
Quiescent Current		85		mA

\* By tuning the Vg terminal voltage from -2V to 0V , the recommended Vg terminal voltage is -0.7V .

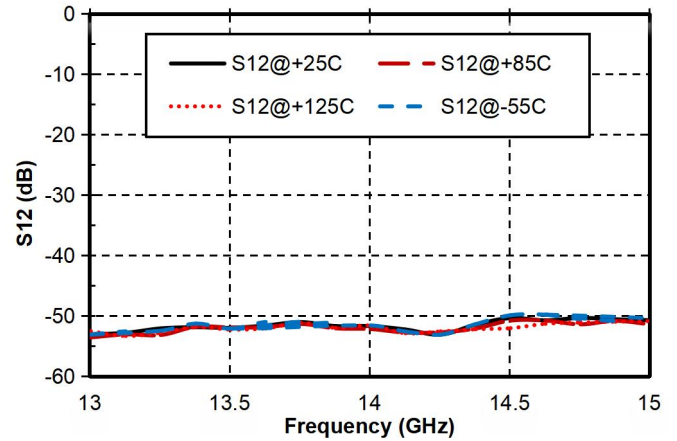
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Main index test curve

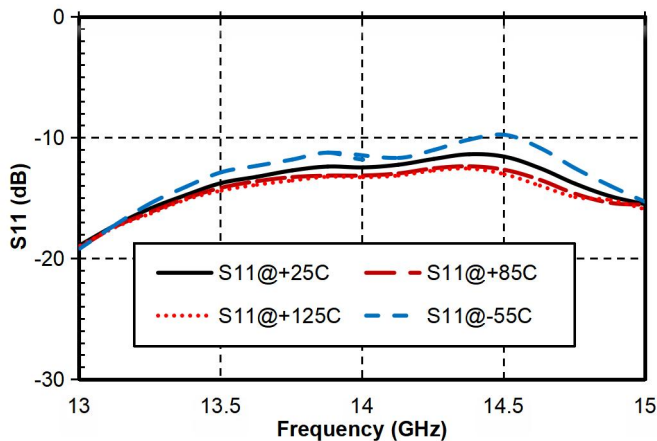
Gain vs. Frequency



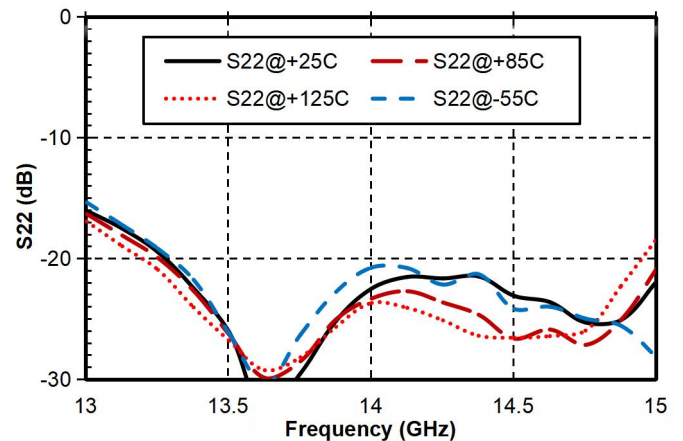
Reverse Isolation vs. Frequency



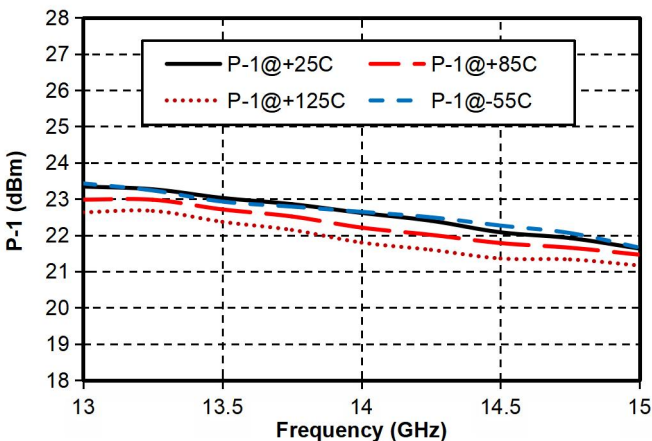
Input Return Loss vs. Frequency



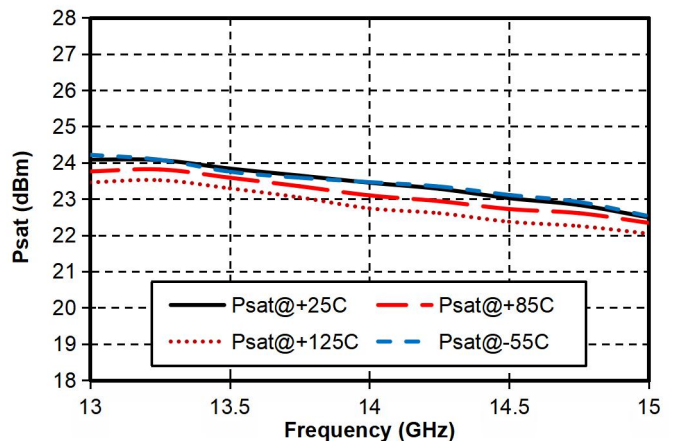
Output Return Loss vs. Frequency



P-1dB vs. Frequency

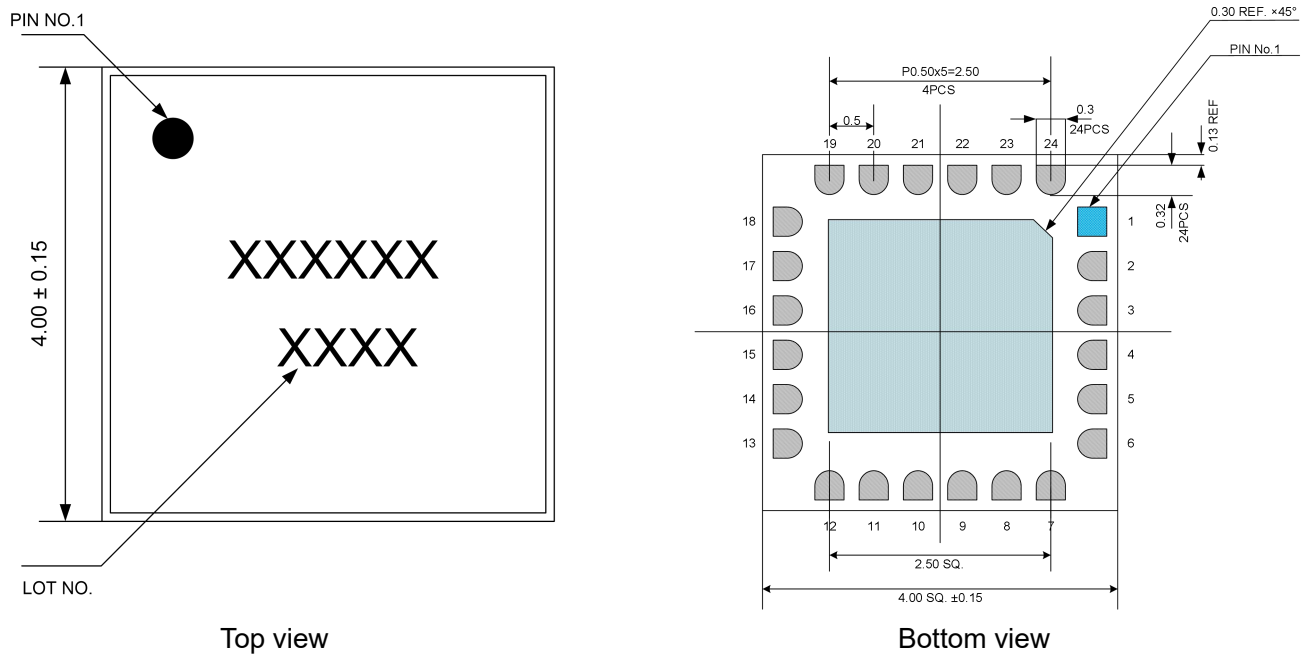


Psat vs. Frequency



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### Appearance structure



Top view

Bottom view

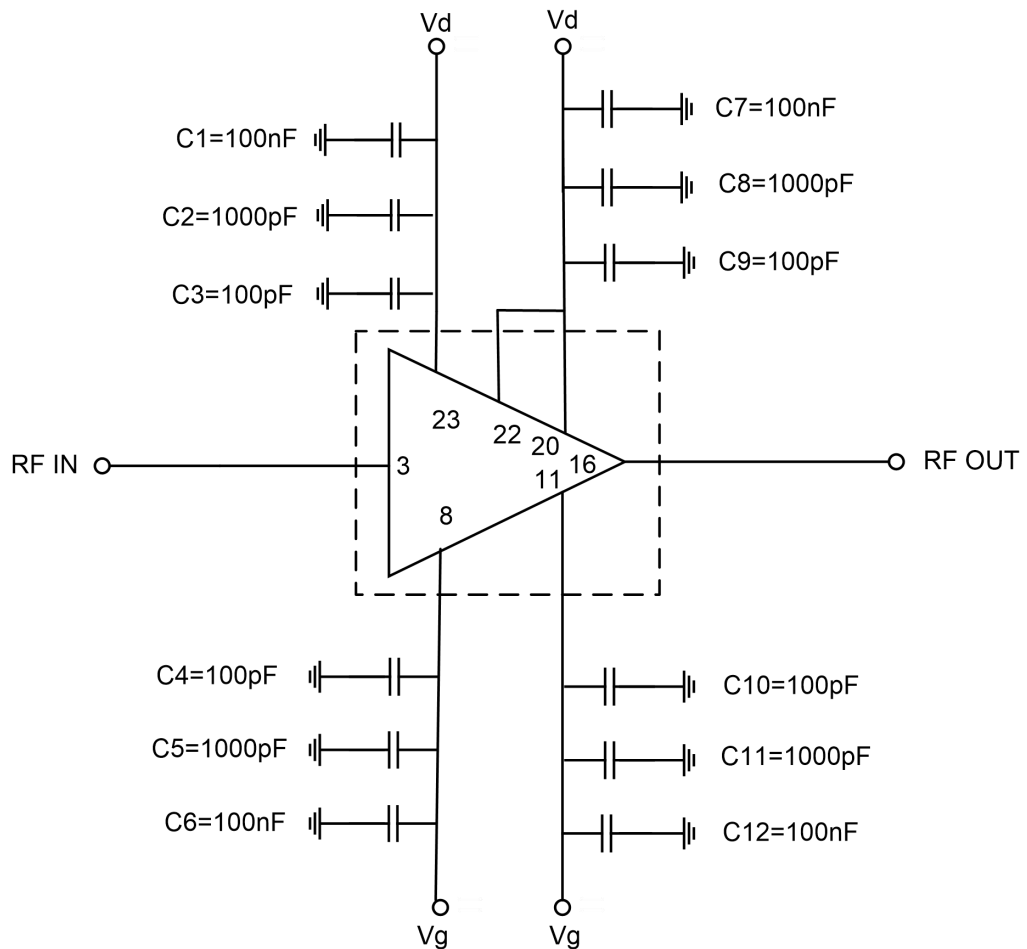
Side View

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

Pin Definition		
Pin number	Function Symbol	Functional Description
3	RF in	RF signal input terminal, no DC blocking capacitor required
16	RF out	RF signal output terminal, no DC blocking capacitor required
20, 22, 23	Vd1 , Vd2 , Vd3	Amplifier Drain Bias
8, 11	Vg1 , Vg3	Amplifier Gate Bias
2, 4, 15, 17	GND	The pins need to be in good contact with the RF and DC grounds.
Chip bottom	GND	Needs to be in good contact with the RF and DC grounds

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### Recommended Circuit



### Precautions for use

- Sealing material : Ceramic material that meets ROHS standards
- Lead frame material: copper alloy
- Lead surface plating: gold, gold layer thickness 0.30um MIN
- Maximum reflow peak temperature: 260 °C