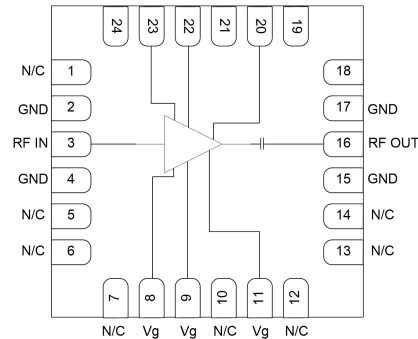


GaAs MMIC power amplifier chip, 13.5-15 GHz

Performance characteristics

- Frequency Range: 13.5 - 15 GHz
- Small signal gain: 26dB
- Gain flatness: ± 0.8 dB
- P -1 dB : 22.5dBm
- Psat: 23dBm
- Power supply: + 5V /60mA
- 50Ohm input / output
- Chip size: QFN 4X4

Block Diagram



Product Introduction

GPA-1315C-CQ4 is a broadband low noise amplifier with a frequency range of 13.5GHz~15GHz, a small signal gain of 26B, and a P-1 output of 22.5dBm. GPA-1315C-CQ4 is powered by a +5V power supply. This chip uses a 4 x 4 mm ceramic surface mount package to achieve airtight packaging. The surface of the pin pad is gold-plated and is suitable for reflow soldering installation.

Using the Limit Parameter

Maximum drain voltage	+8V
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, Ids=60mA)

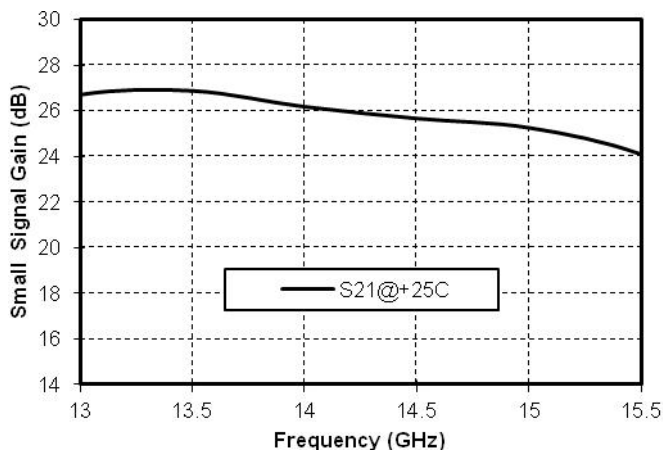
Index	Minimum	Typical Value	Maximum	Unit
Frequency Range	13.5-15			GHz
Small Signal Gain	-	26	-	dB
Gain Flatness		± 0.8		dB
P -1dB	-	22.5	-	dBm
Psat	-	23	-	dBm
Input return loss	-	13	-	dB
Output return loss	-	8	-	dB
Quiescent Current		60		mA

* By tuning the Vg terminal voltage from -2V to 0V , the recommended Vg terminal voltage is -0.9V .

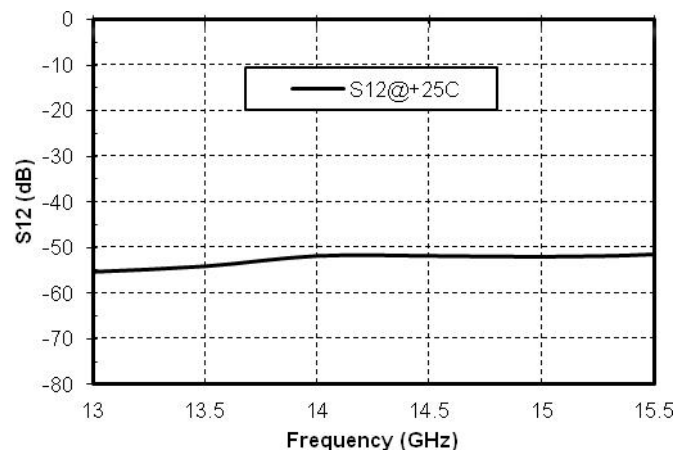
GaAs MMIC Power Amplifier Chip, 13.5 - 15 GHz

Main index test curve

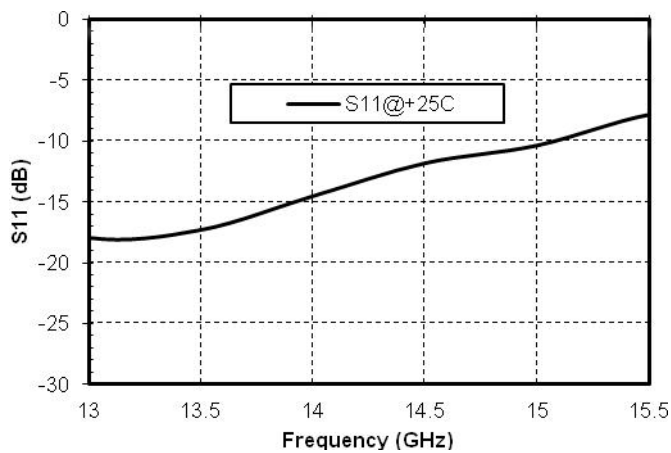
Gain vs. Frequency



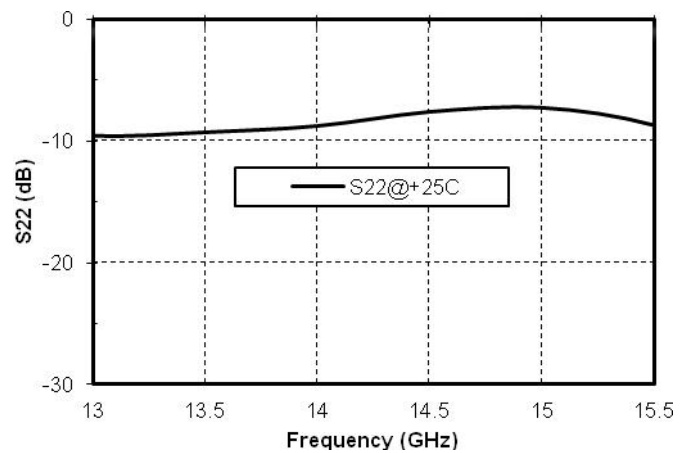
Reverse Isolation vs. Frequency



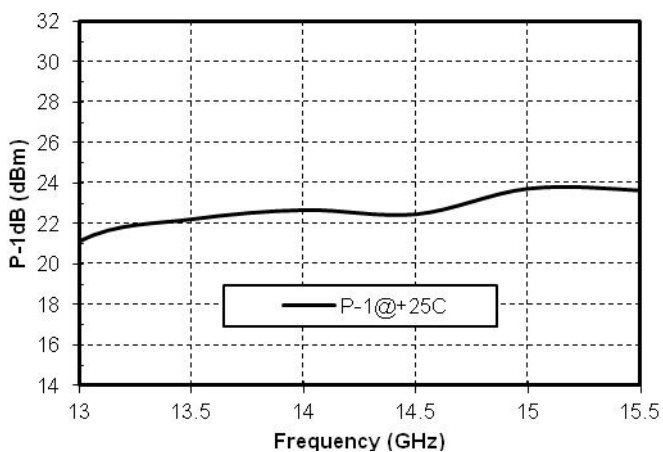
Input Return Loss vs. Frequency



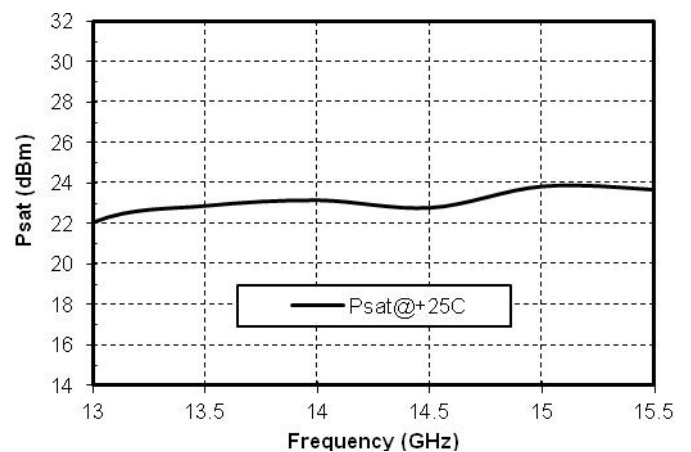
Output Return Loss vs. Frequency



P-1dB vs. Frequency

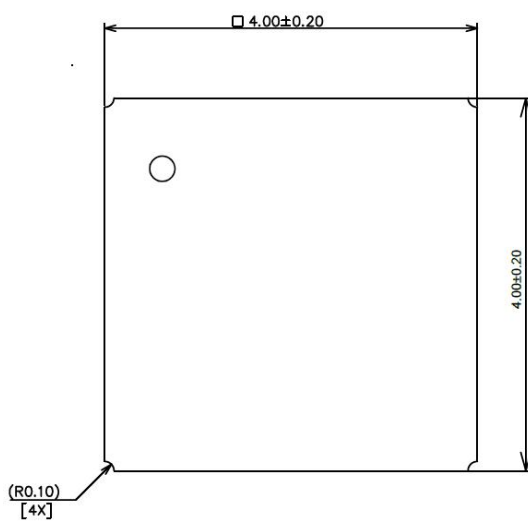


P sat vs. frequency

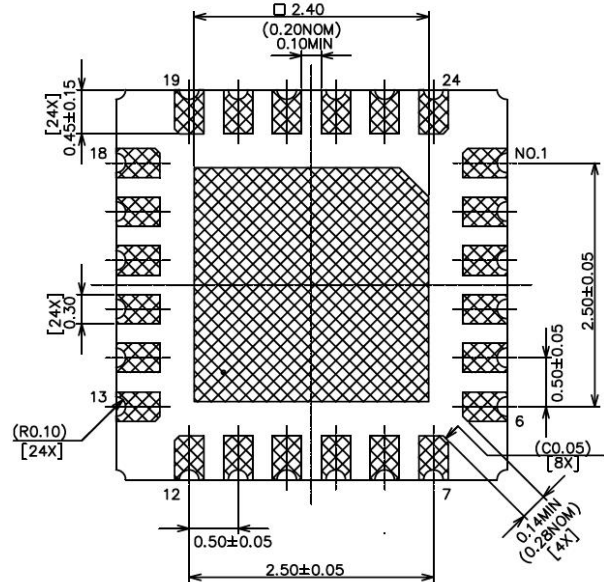


GaAs MMIC Power Amplifier Chip, 13.5 - 15 GHz

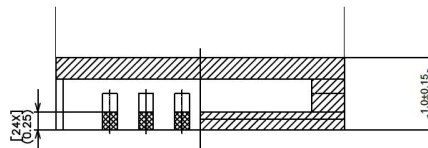
Appearance structure



Top view



Bottom view



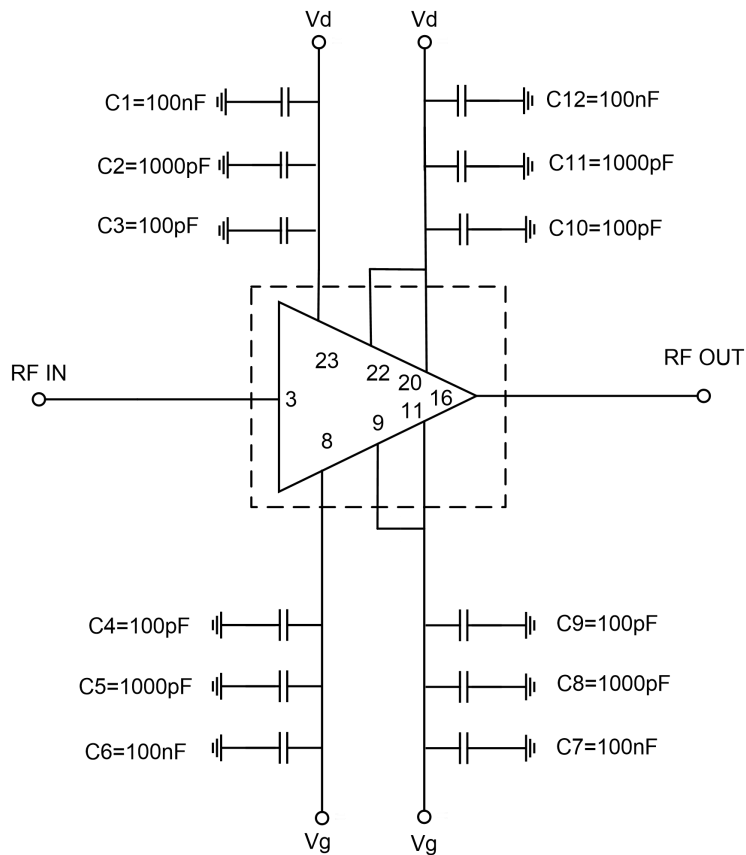
Side View

All units in the figures are millimeters .

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, 9, 11	Vg1 , Vg2 , Vg3	Amplifier Gate Bias
2, 4, 15, 17	GND	The pins need to be in good contact with the RF and DC grounds.
1, 5-7, 10, 12-14, 18, 19, 21, 24	NC	The pin is left floating and can be grounded
Chip bottom	GND	The bottom of the chip needs to be in good contact with the RF and DC grounds

GaAs MMIC Power Amplifier Chip, 8 - 12 GHz

Recommended Circuit



Raw material	Capacitance
C3 , C4, C9, C10	100pF
C2 , C5, C8, C11	1000pF
C1, C6, C7, C12	100nF

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 1.5 μm
- Maximum reflow peak temperature: 260 $^{\circ}\text{C}$