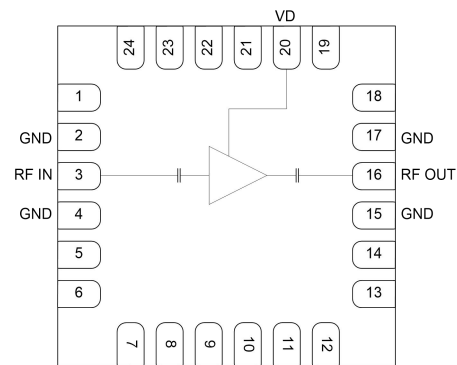


GaAs MMIC Power Amplifier Chip, 5-16 GHz

Performance characteristics

- Frequency range: 5 - 16 GHz
- Small signal gain: 16dB
- Gain flatness: ± 1.5 dB
- Noise figure: 4.0dB
- P -1 dB : 14.5dBm
- Psat: 15.5dBm
- Power supply: + 5V /52mA
- 50Ohm input / output
- Chip size: QFN 4X4

Block Diagram



Product Introduction

GPA-0516B-PQ4 is a broadband low noise amplifier chip with a frequency range of 4GHz~20GHz, a small signal gain of 16dB, and a P-1 output of 14.5dBm. GPA-0516B-PQ4 is powered by a single +5V power supply. This chip is packaged in a 4 x 4 mm plastic 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.

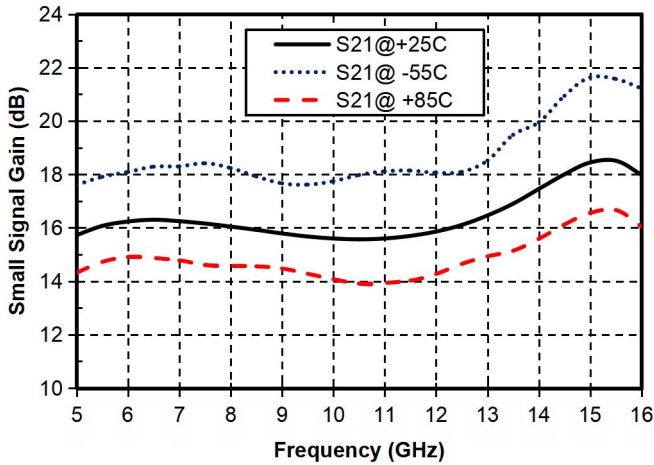
Electrical performance parameters (TA = +25°C , Vd=+5V)

Index	Minimum	Typical Value	Maximum	Unit
Frequency Range	5-16			G Hz
Small Signal Gain	15.5	16	-	dB
Gain Flatness	-	± 1.5	-	dB
P -1dB	-	14.5	-	dBm
Psat	-	15.5	-	dBm
Input return loss	-	10	-	dB
Output return loss	-	17	-	dB
Quiescent Current	52			mA

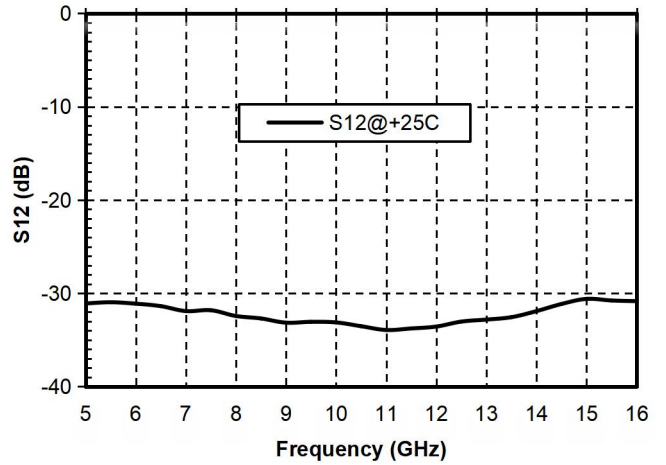
GaAs MMIC Power Amplifier Chip, 5 - 16 GHz

Main index test curve

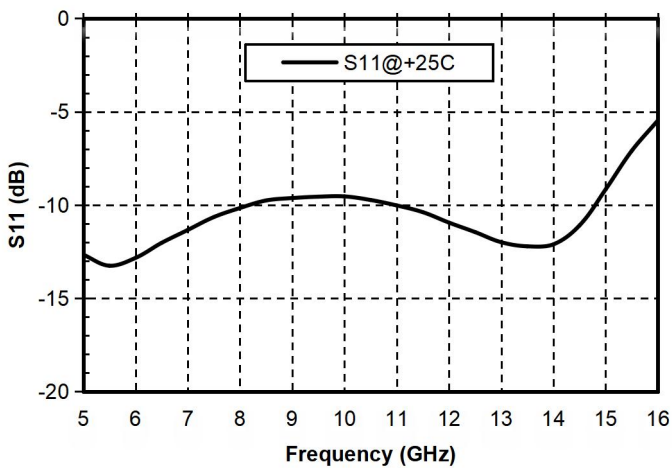
Gain vs. Frequency



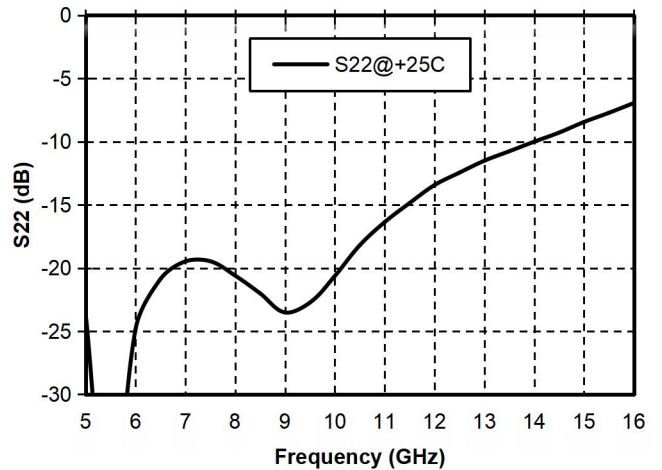
Reverse Isolation vs. Frequency



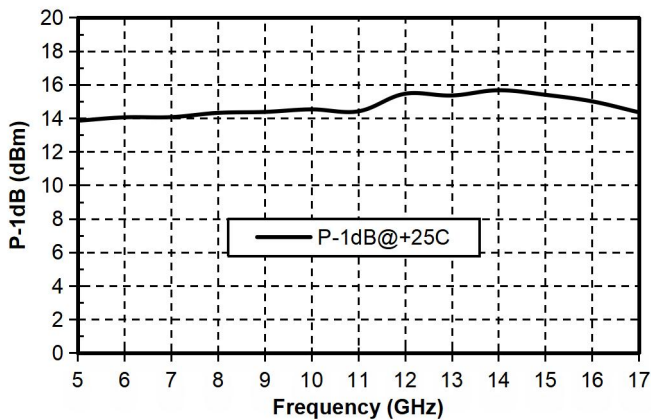
Input Return Loss vs. Frequency



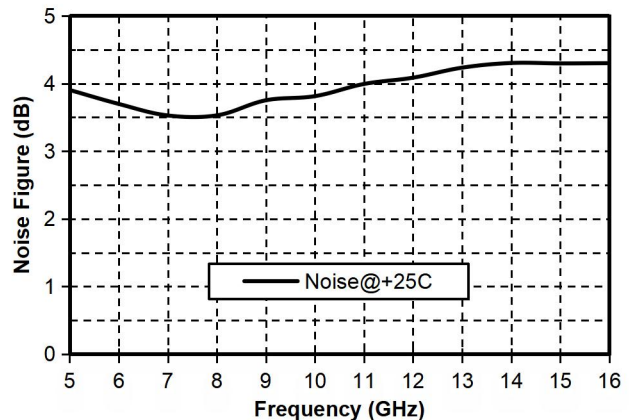
Output Return Loss vs. Frequency



P-1dB vs. Frequency

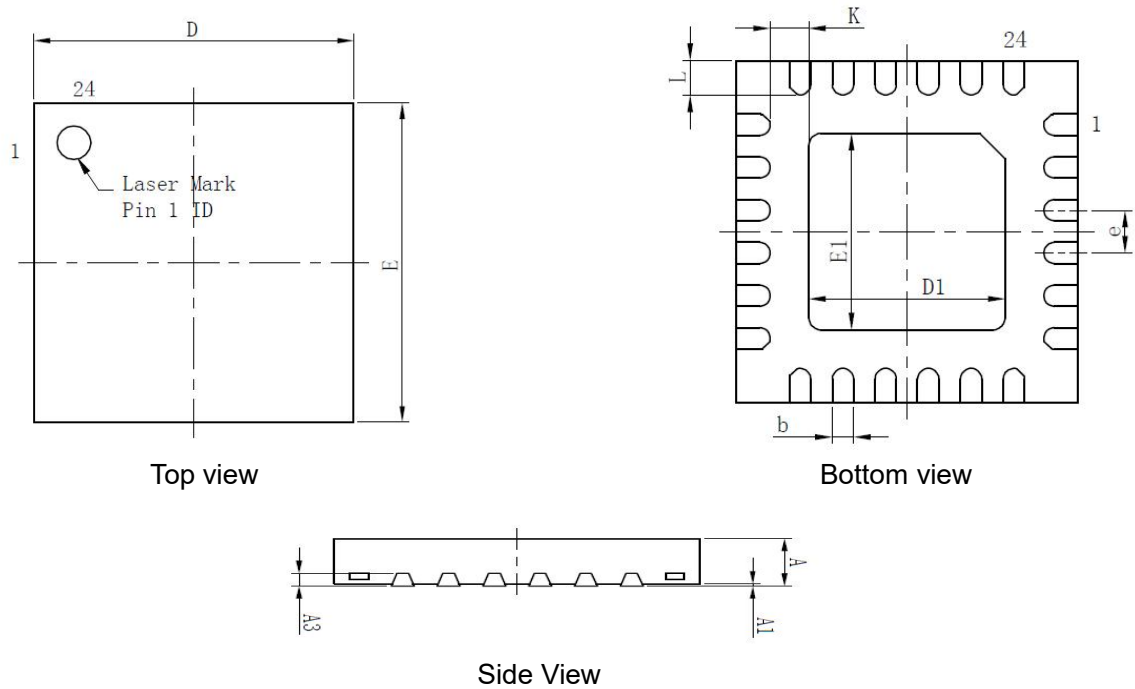


Noise vs. Frequency



GaAs MMIC Power Amplifier Chip, 5 - 16 GHz

Appearance structure



Structure size

Annotation	Minimum	Standard	Maximum	Annotation	Minimum	Standard	Maximum
A	0.70	0.75	0.80	D1	2.20	2.30	2.40
A1	0.00	-	0.05	E1	2.20	2.30	2.40
A3	0.203REF			e	0.5TYP		
b	0.20	0.25	0.30	K	0.20	-	-
D	3.90	4.00	4.10	L	0.30	0.40	0.50
E	3.90	4.00	4.10				

All units in the figures are millimeters .

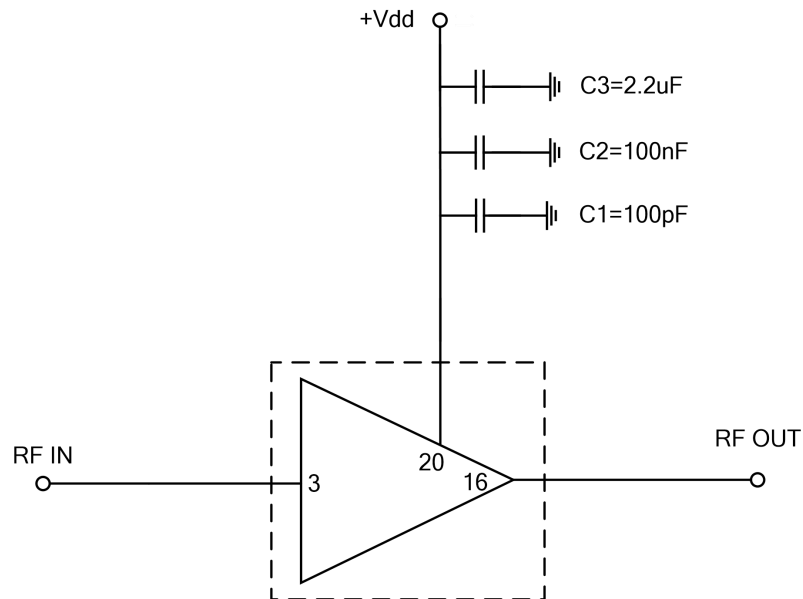
Pin Definition

Bonding point number	Function Symbol	Functional Description
3	RFIN	RF signal input terminal, no DC blocking capacitor required
16	RFOUT	RF signal output terminal, no DC blocking capacitor required
20	VDD	Amplifier Drain Bias

2, 4, 15, 17	GND	The bottom of the chip needs to be well grounded to RF and DC
1, 5~14, 18, 19, 21, 22, 23, 24	NC	No welding required

GaAs MMIC Power Amplifier Chip, 5 - 16 GHz

Recommended Circuit



raw material	Capacitance, inductance, resistance
C1	100pF
C 2	100nF
C 3	2.2uF

Precautions for use

- Sealing material: Low-pressure injection molding plastic that meets ROHS specifications
- Lead frame material: copper alloy
- Lead surface plating: 100% matte tin
- Maximum reflow peak temperature: 260 °C