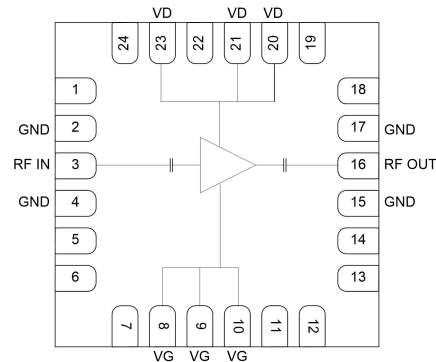


GaAs MMIC Power Amplifier Chip, 8-12 GHz

Performance characteristics

- Frequency range: 8 - 12 GHz
- Small signal gain: 23.5dB
- Gain Flatness: ± 1.0 dB
- P -1 dB : 27dBm
- Psat: 27.5dBm
- Power supply: +5 V /175 mA
- 50Ohm input / output
- Chip size: QFN 4X4

Block Diagram



Product Introduction

GPA-0812A-PQ4 is a broadband low noise amplifier chip with a frequency range of 8GHz~12GHz, a small signal gain of 23.5B, and a P-1 output of 27dBm. GPA-0812A-PQ4 is powered by a +8V 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	+10V
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)

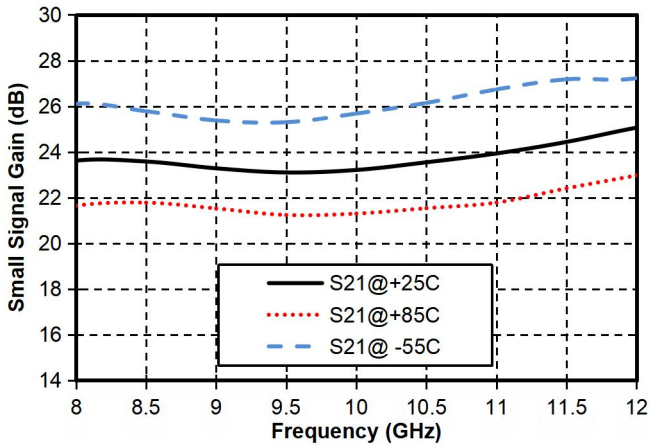
Index	Minimum	Typical Value	Maximum	Unit
Frequency Range	8-12			G Hz
Small Signal Gain	23	23.5	-	dB
Gain Flatness		± 1.0		dB
P -1dB	-	27	-	dBm
Psat	-	27.5	-	dBm
Input return loss	-	22	-	dB
Output return loss	-	8	-	dB
Quiescent Current		135		mA

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

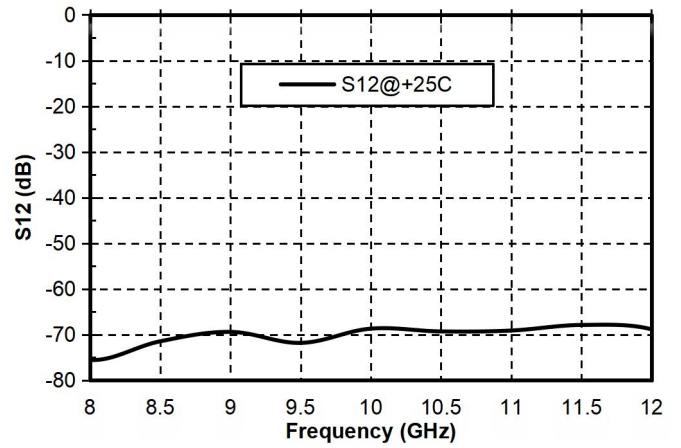
GaAs MMIC Power Amplifier Chip, 8 - 12 GHz

Main index test curve

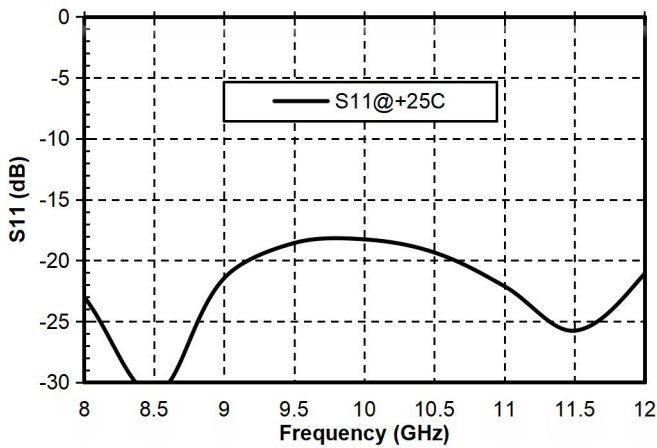
Gain vs. Frequency



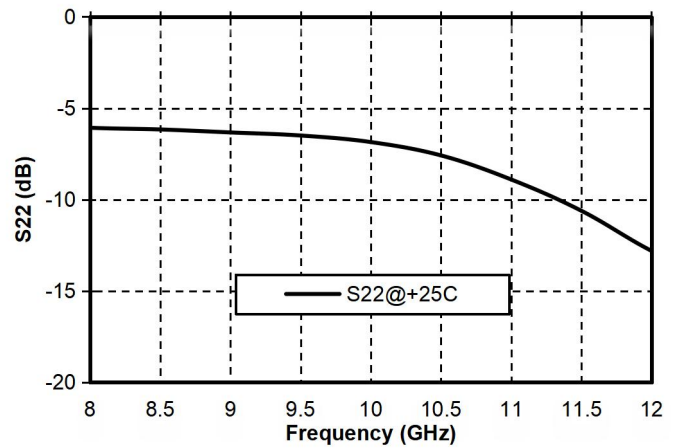
Reverse Isolation vs. Frequency



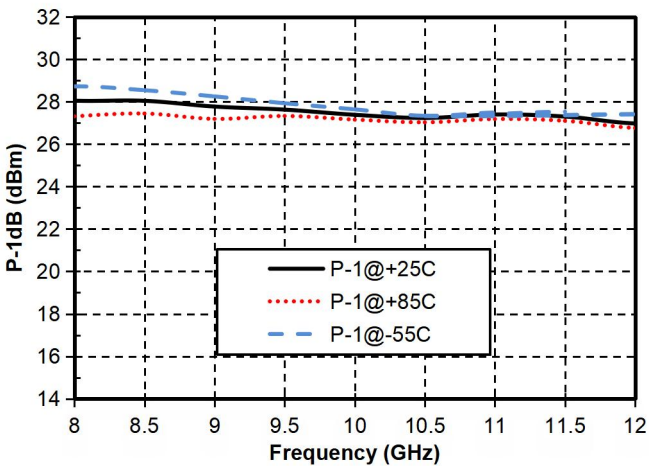
Input Return Loss vs. Frequency



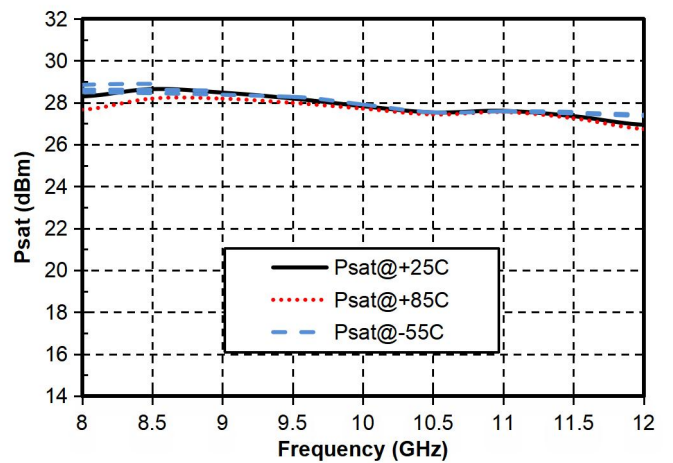
Output Return Loss vs. Frequency



P-1dB vs. Frequency

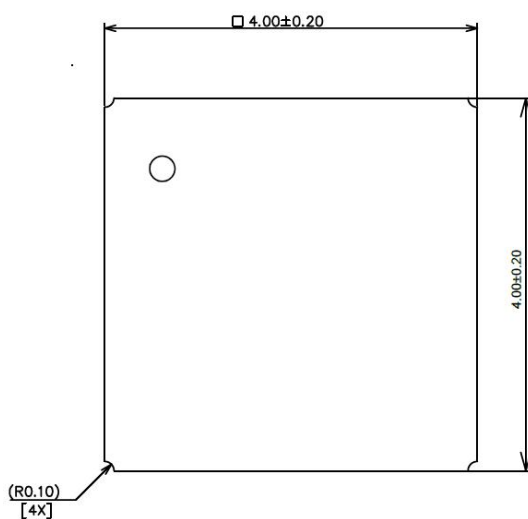


P sat vs. frequency

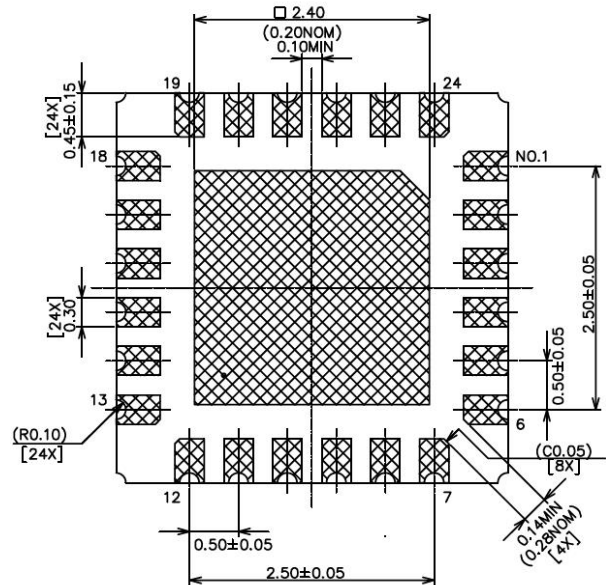


GaAs MMIC Power Amplifier Chip, 8 - 12 GHz

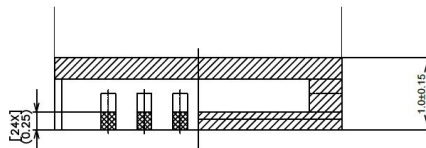
Appearance structure



Top view



Bottom view



Side View

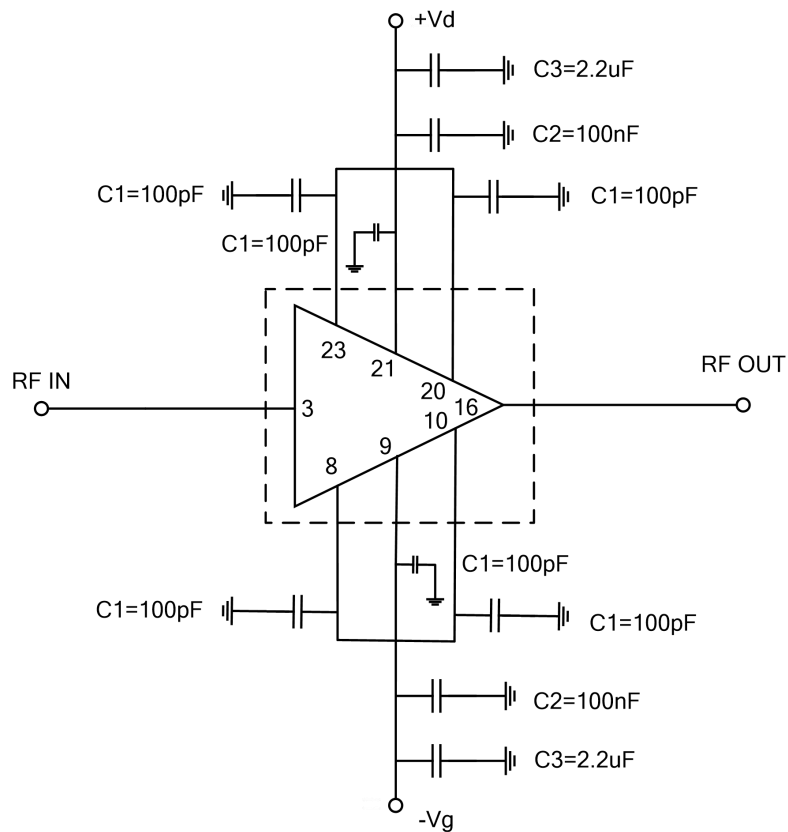
All units in the figures are millimeters .

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, 21, 23	VDD	Amplifier Drain Bias
8, 9, 10	VG	Amplifier Gate Bias
2, 4, 15, 17	GND	The bottom of the chip needs to be well grounded to RF and DC
1, 5, 6, 7, 11~14, 18, 19, 22, 24	NC	No welding required

GaAs MMIC Power Amplifier Chip, 8 - 12 GHz

Recommended Circuit



Raw material	Capacitance, inductance, resistance
C1	100pF
C 2	100pF
C 3	100nF
C 4	2.2uF

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