

Low gain high P-1 low noise amplifier chip, 1 -20 GHz

Performance characteristics

- Frequency range: 0.8 - 20 GHz
- Small signal gain: 14dB
- Gain flatness: ± 1.3 dB
- Noise figure: 4.2dB
- P -1dB: 23.5 dBm
- Psat : 25dBm
- Power supply: +8 V /260mA
- 50Ohm input / output
- Chip size: QFN 5X5

Block Diagram

Product Introduction

GPA-0120 D -CQ5 is a low-gain high P-1 low-noise amplifier chip amplifier based on GaAs process , covering the frequency range of 1 GHz~20GHz, small signal gain of 14dB, noise figure of 4.2dB, P-1 output of 23.5dBm. IPA-0120D-CQ5 is powered by a single +8V power supply. This chip adopts 5x5mm ceramic surface mount package, and the surface of the pin pad is gold-plated, which is suitable for reflow soldering installation process.

Use limit parameters

Maximum drain voltage	+10 V
Maximum input power	+20dBm
Operating temperature	-55 ~ +85°C
Storage temperature	-65 ~ +150°C

Exceeding any of these maximum limits may cause permanent damage.

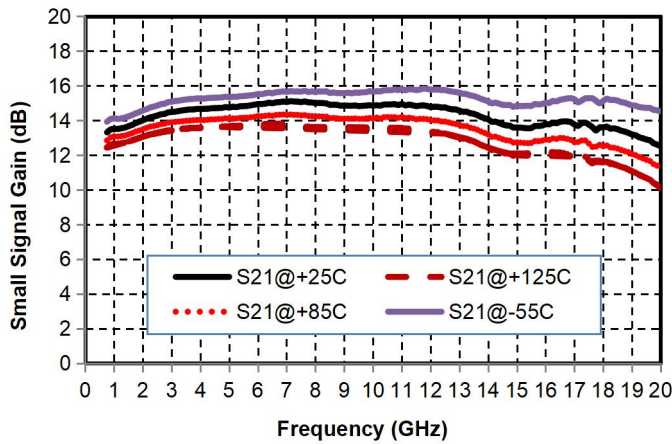
Electrical performance parameters (TA = +25°C , Vd =+8V)

Index	Minimum	Typical Value	Maximum	Unit
Frequency Range	1 -20			G Hz
Small Signal Gain	-	14	-	dB
Gain Flatness		± 1.3		dB
Noise Figure	-	4.2	-	dB
P -1dB	-	23.5	-	dBm
Psat	-	25	-	dBm
Input return loss	-	15	-	dB
Output return loss	-	17	-	dB
Quiescent Current		260		mA

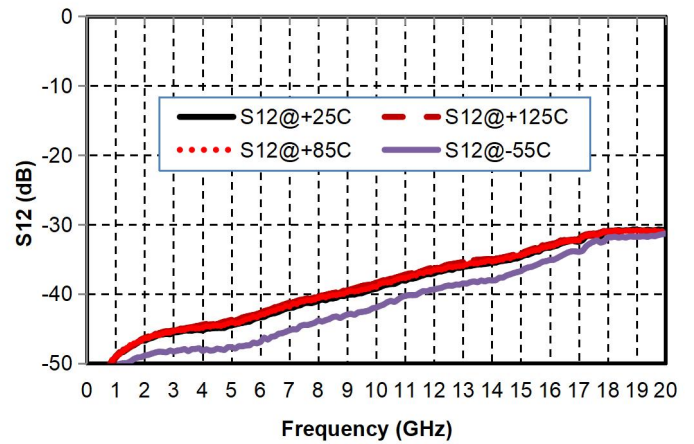
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Main index test curve

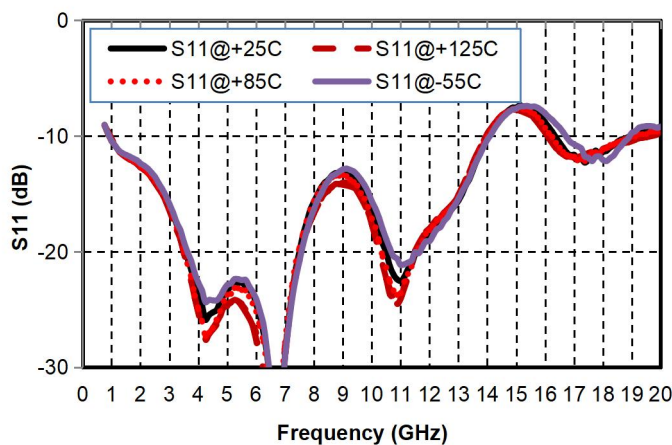
Gain vs. Frequency



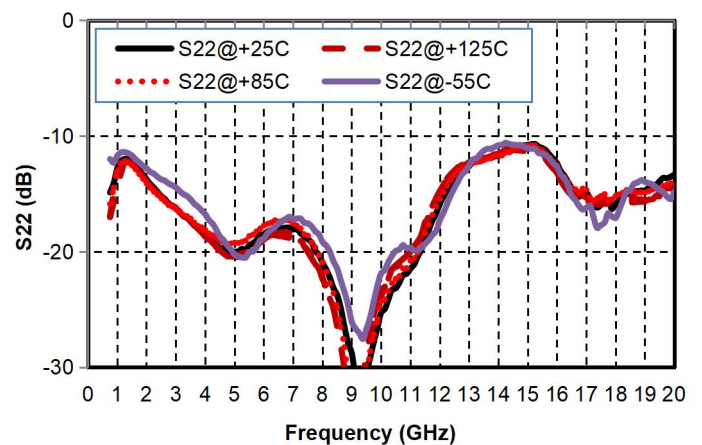
Reverse Isolation vs. Frequency



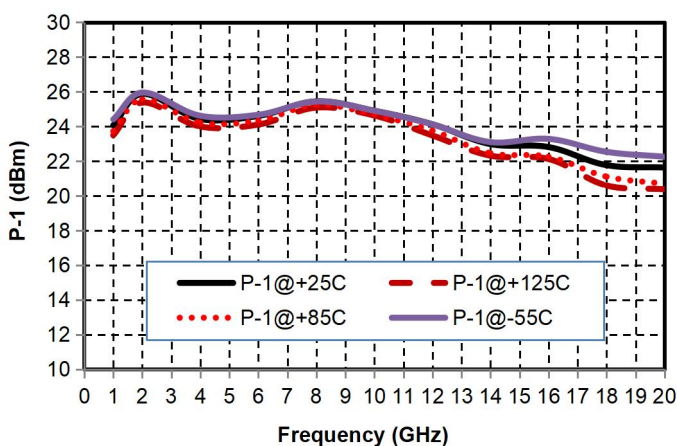
Input Return Loss vs. Frequency



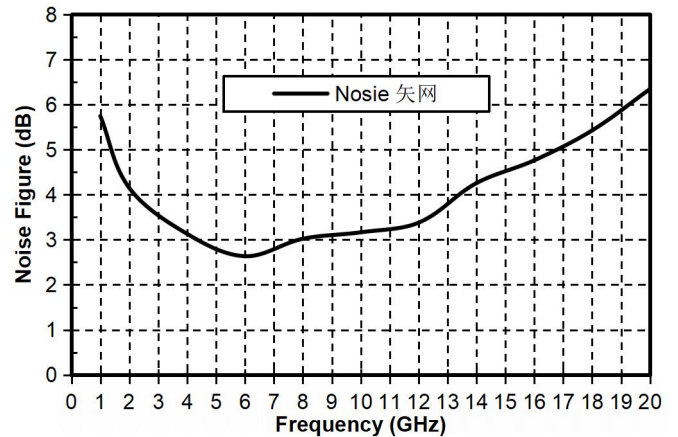
Output Return Loss vs. Frequency



P-1dB vs. Frequency

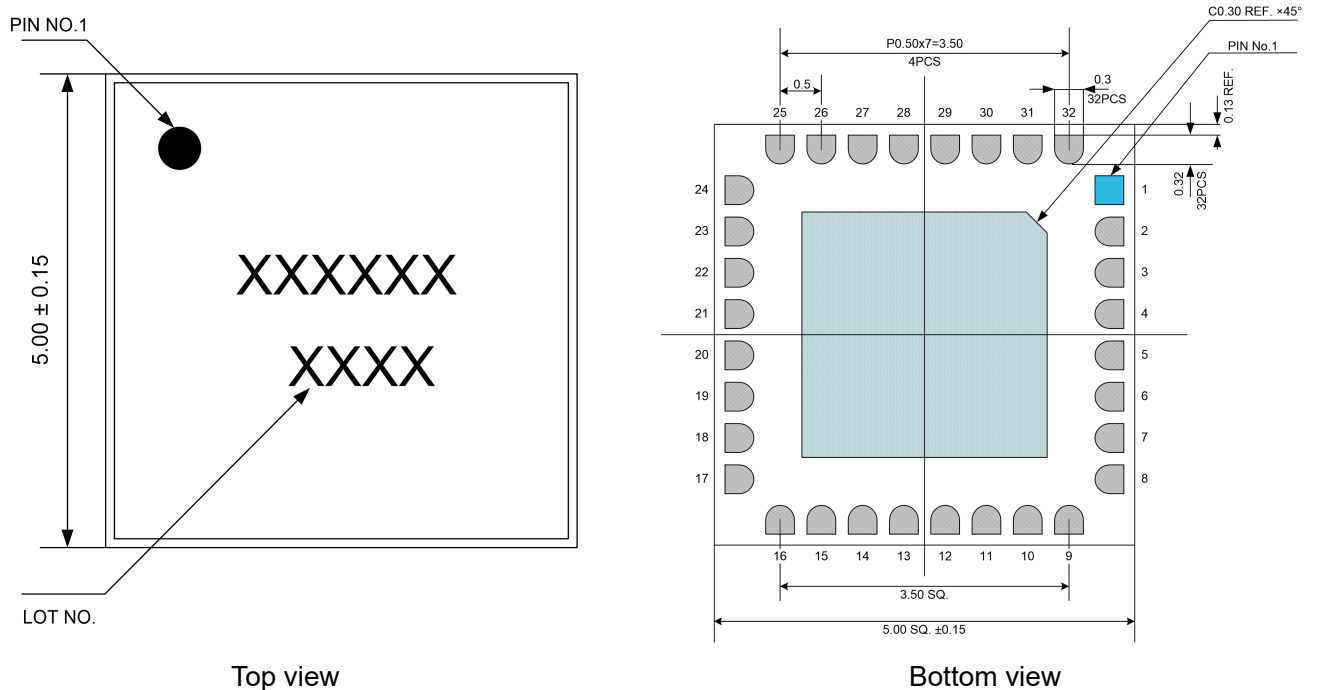


Noise vs. Frequency



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Appearance structure



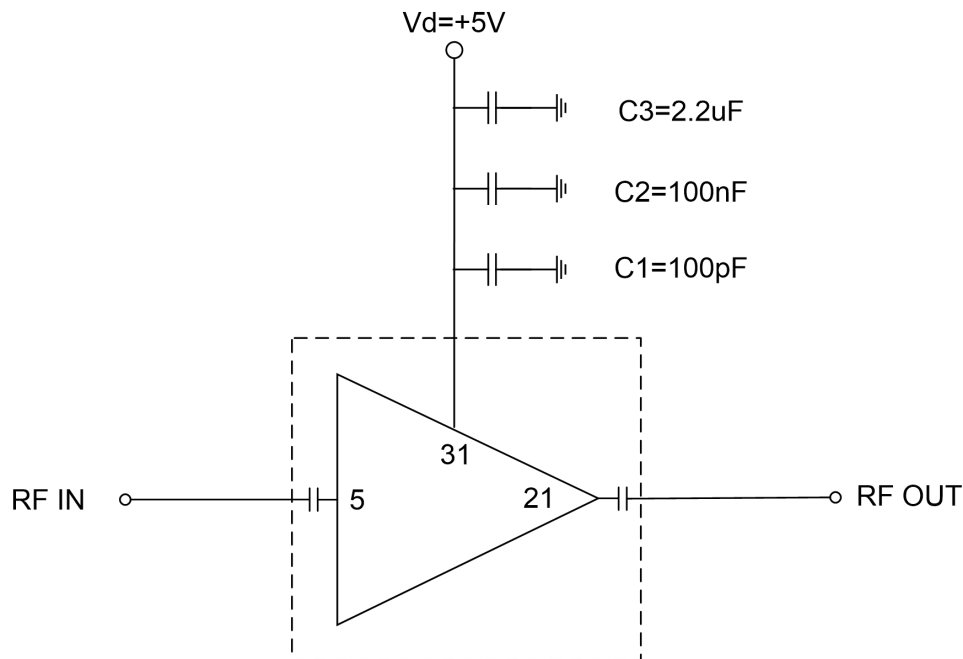
All units in the figure are millimeters

Pin Definition		
Pin Definition	Function Symbol	Functional Description
5	RFIN	RF signal input terminal, no DC blocking capacitor required
21	RFOUT	RF signal output terminal, no DC blocking capacitor required
31	VDD	Amplifier drain bias
4 , 6 , 20 , 22	GND	Need to be in good contact with the RF and DC grounds.
Chip bottom	GND	The bottom of the chip needs to be well grounded to RF and DC

Other	NC	No welding required
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Recommended Circuit



Precautions for use

- Sealing material : Ceramic material that meets ROHS standards
- Lead surface plating: gold, gold layer thickness greater than 0.3um MIN.
- Maximum reflow peak temperature: 260 °C