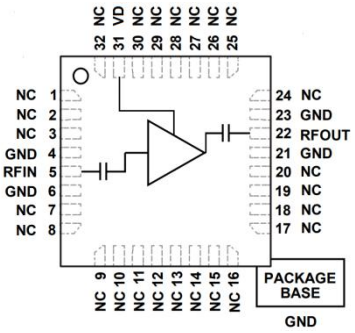
GPA-0220D-CQ5/GPA-0220C

GaAs MMIC Power Amplifier Chip, 2 - 20 GHz

Performance characteristics

Frequency range: 2 - 20 GHz
Small signal gain: 12dB
Gain Flatness: ± 1.0dB
P-1dB: 23 dBm
Psat ： 24 dBm
Power supply: + 8V / 185mA
50Ohm input / output
Chip size: QFN 5X5

Functional Block Diagram



Product Introduction

GPA-0 220 D -CQ5 is an ultra-wideband distributed amplifier chip based on pHEMT technology, with a frequency range of 2 ~ 20 GHz, a small signal gain of 12 dB, and a saturated output power of 2 4 dBm. The chip works with a single + 8V supply. The chip is packaged in a 5 x 5 mm ceramic surface mount package, which can achieve airtight packaging. The surface of the pin pad is gold-plated, which is suitable for reflow soldering installation.

Use restriction parameter [1]	
Maximum drain voltage	+1 0 V
Maximum input power	+20dBm
Operating temperature	-55 ~ +85°C
Storage temperature	-65 ~ +150°C

【1】 Exceeding any of these maximum limits may cause permanent damage.

Electrical parameters (Ta=+25°C, Vd = + 8V)				
Index	Minimum	Typical Value	Maximum	Unit
Frequency Range		2 - 20		GHz
Small Signal Gain	-	12	-	dB
Gain Flatness	-	± 1.0	-	dB
P-1dB	-	23	-	dBm
Psat	-	24	-	dBm
Noise	-	4.5	-	dB
Input return loss	-	14	-	dB
Output return loss	-	17	-	dB
Quiescent Current	-	185	-	mA

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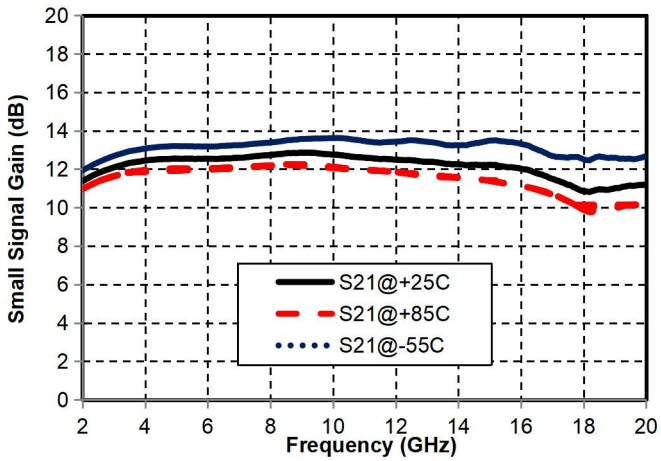
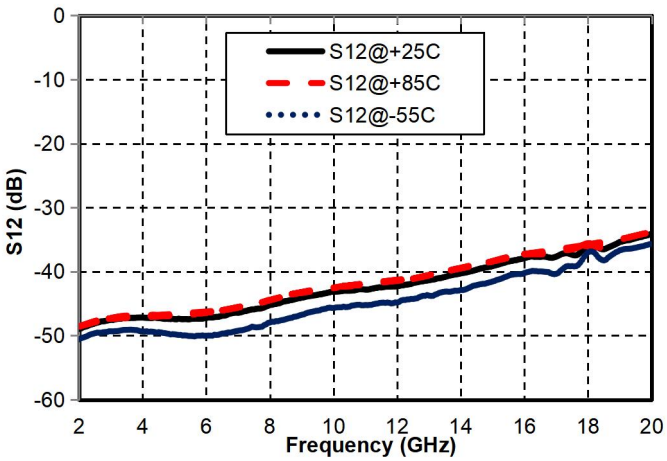
Main index test curve

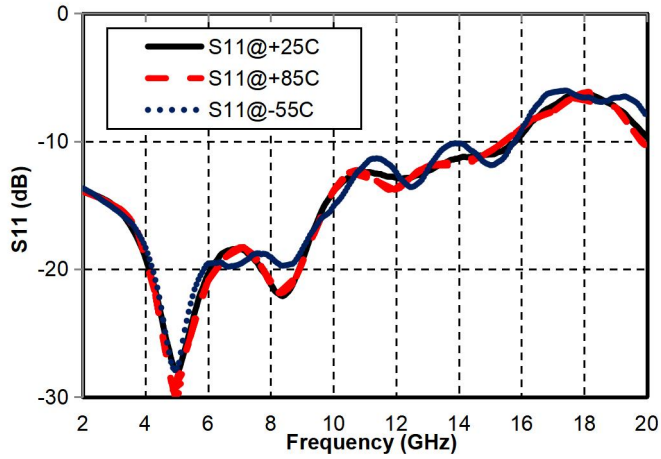
Gain vs. Frequency



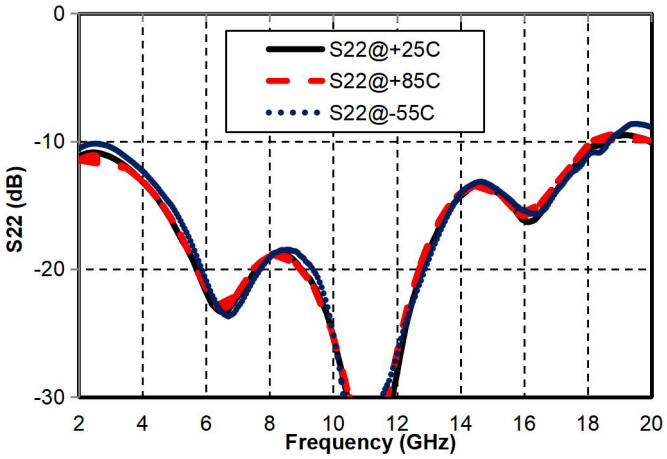
Reverse Isolation vs. Frequency



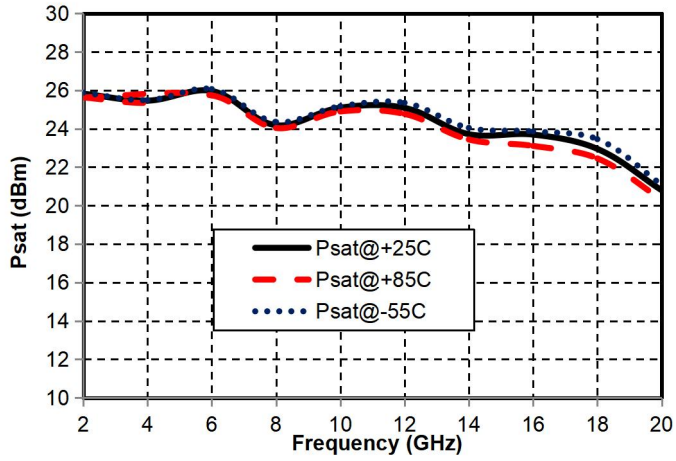
Input Return Loss vs. Frequency



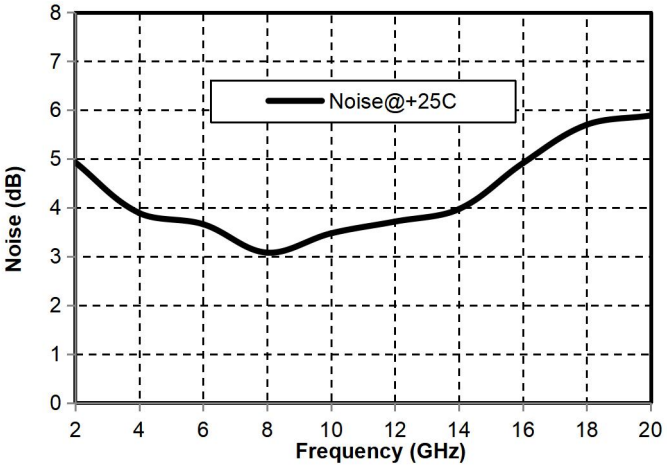
Output Return Loss vs. Frequency



P sat vs. frequency



Nosie vs. Frequency



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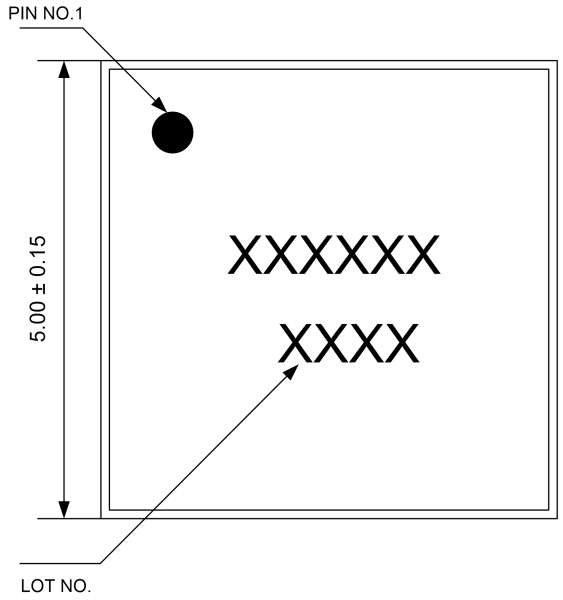
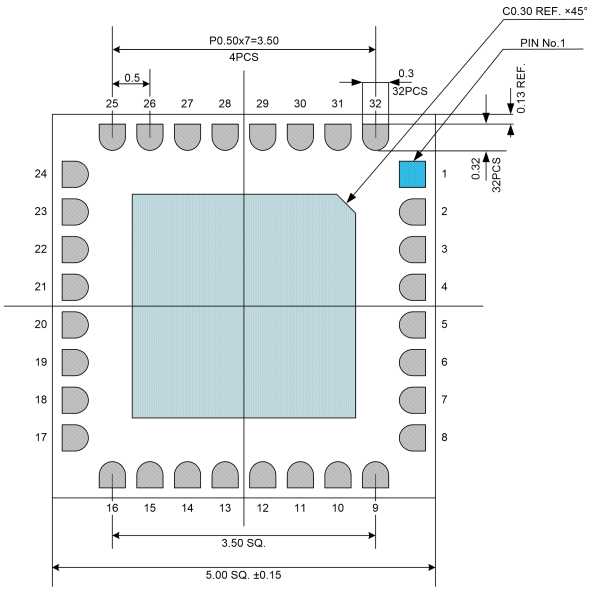
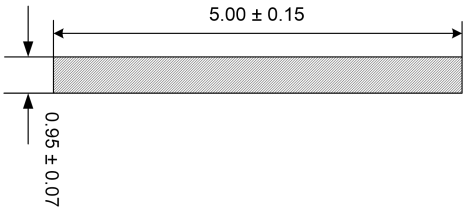
Appearance structure



Top view



Bottom view



Side View

The units in the figures are all in millimeters , and the tolerance is ±0.15 mm.

Pin Definition		
Bonding point number	Function Symbol	Functional Description
5	RFIN	The signal input terminal is connected to a 50 ohm circuit, and no DC blocking capacitor is required
22	RFOUT	The signal output terminal is connected to a 50 ohm circuit, and no DC blocking capacitor is required
31	V D	Amplifier Drain Bias
4, 6, 21, 23	GND	The bottom of the chip needs to be well grounded to RF and DC
Other	NC	Floating pin, can be grounded

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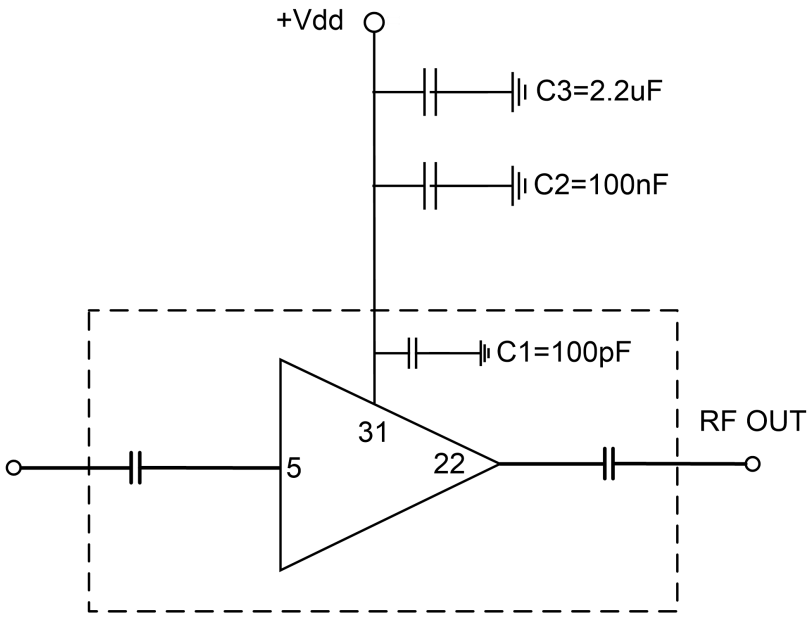
Recommended Circuit



Precautions for use

- Sealing material : Ceramic material that meets ROSH standards
- Lead frame material: copper alloy
- Lead surface plating: gold, gold layer thickness 0.3um
- Maximum reflow peak temperature: 260 ℃