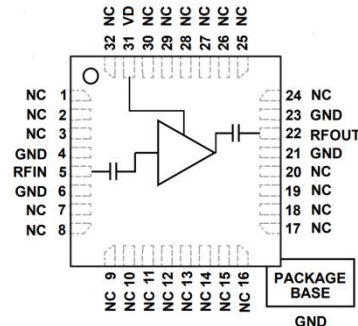


GaAs MMIC Power Amplifier Chip, 2 - 20 GHz

Performance characteristics

Frequency range: 2 - 20 GHz
 Small signal gain: 11.5dB
 Gain flatness: ± 1.5 dB
 P-1dB: 23 dBm
 Psat : 24 dBm
 Power supply: + 8V / 190mA
 50Ohm input / output
 Chip size: QFN 5X5

Functional Block Diagram



Product Introduction

GPA-0 220C-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 11.5 dB, and a saturated output power of 24 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.

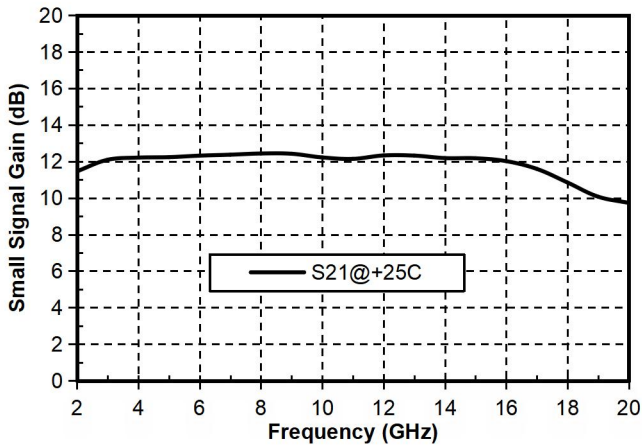
Electrical parameters (Ta=+25°C, Vd = + 8V)

index	Minimum	Typical Value	Maximum	unit
Frequency Range	2 - 20			GHz
Small Signal Gain	-	11.5	-	dB
Gain Flatness	-	± 1.5	-	dB
P-1dB	-	23	-	dBm
Psat	-	24	-	dBm
Input return loss	-	14	-	dB
Output return loss	-	13	-	dB
Quiescent Current	-	190	-	mA

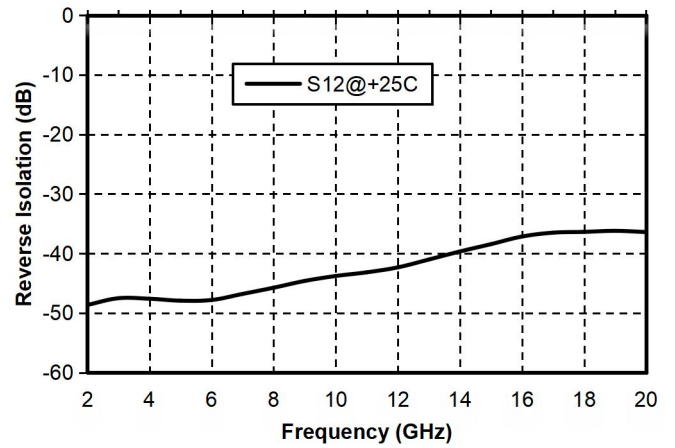
GaAs MMIC Power Amplifier Chip, 2-20 GHz

Main index test curve

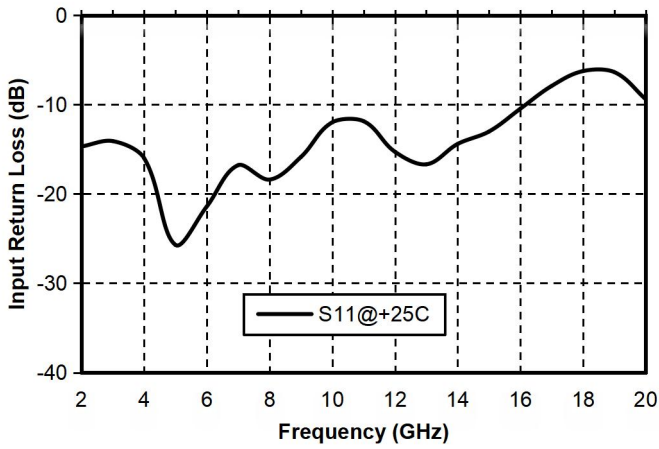
Gain vs. Frequency



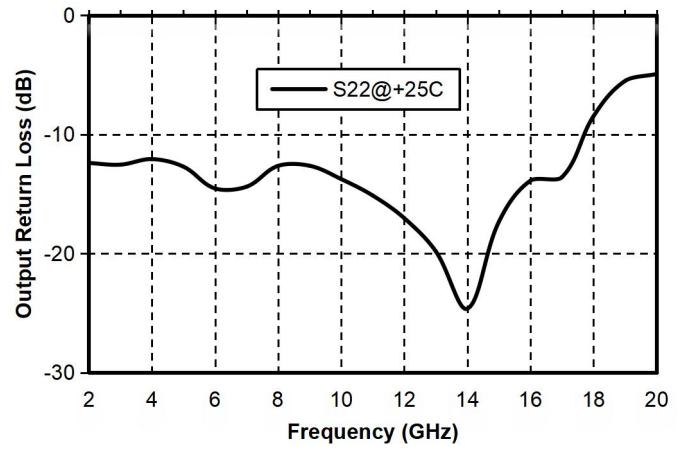
Reverse Isolation vs. Frequency



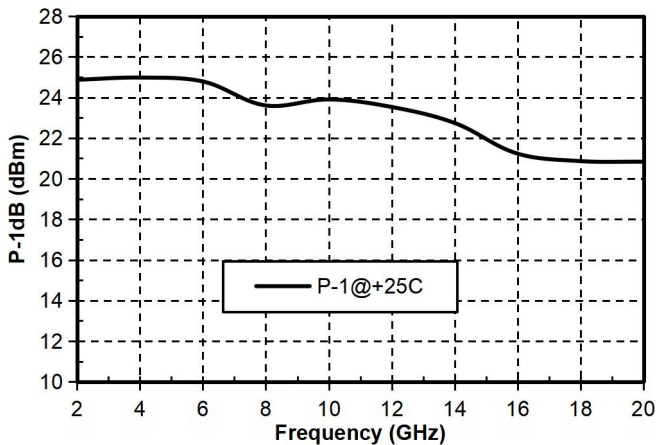
Input Return Loss vs. Frequency



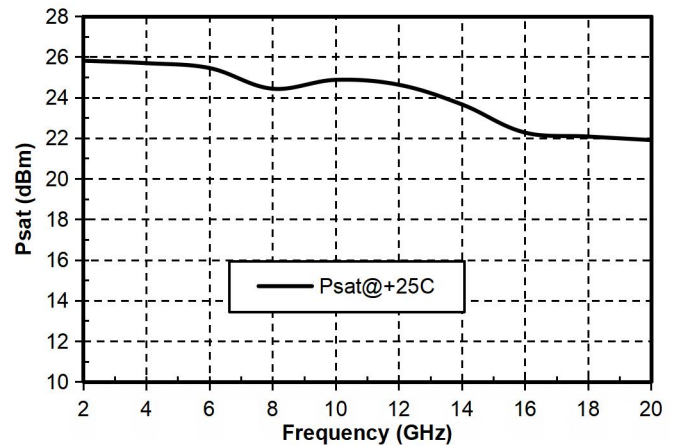
Output Return Loss vs. Frequency



P-1dB vs. Frequency

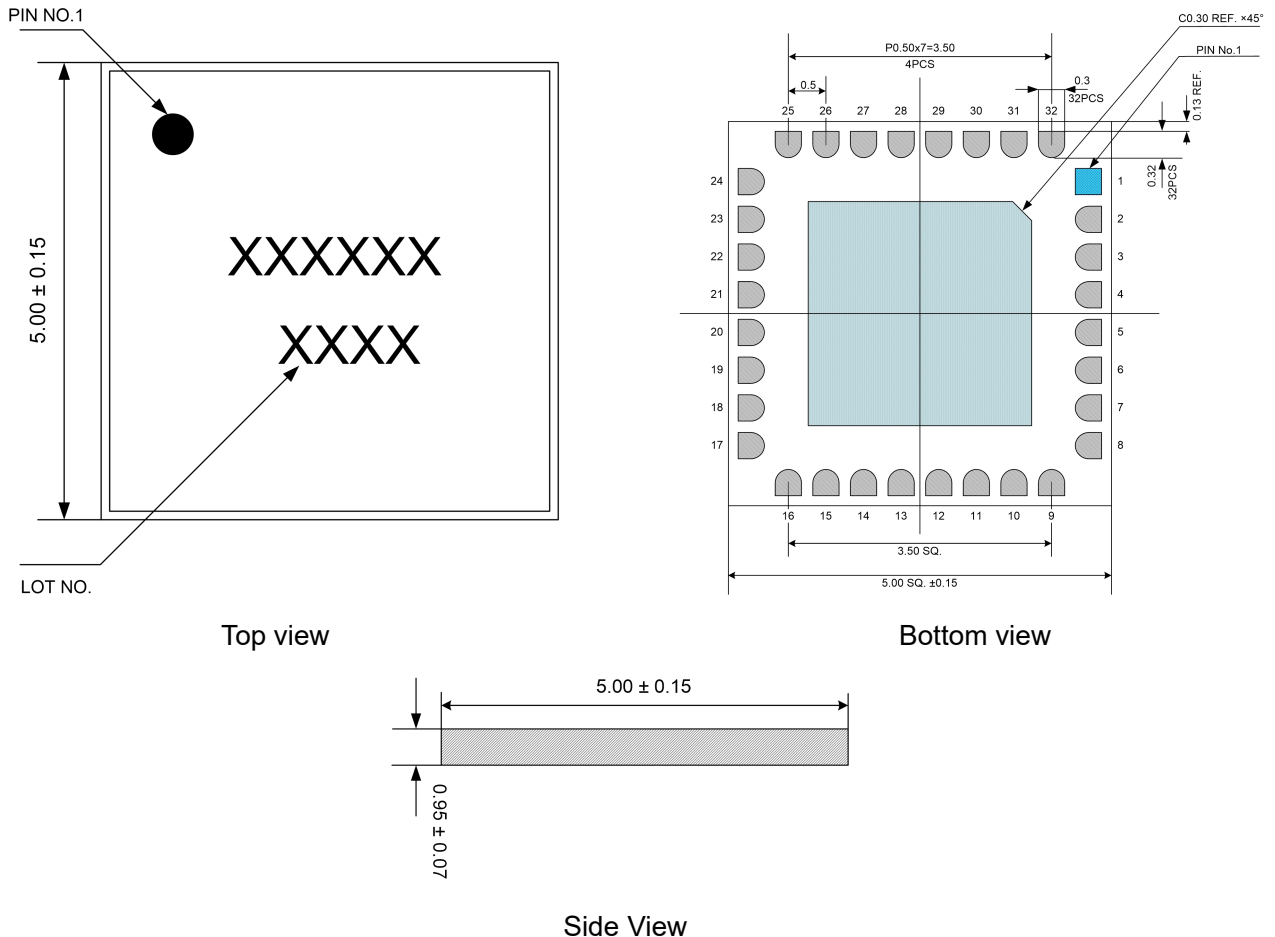


Psat vs. Frequency



GaAs MMIC Power Amplifier Chip, 2 - 20 GHz

Appearance structure

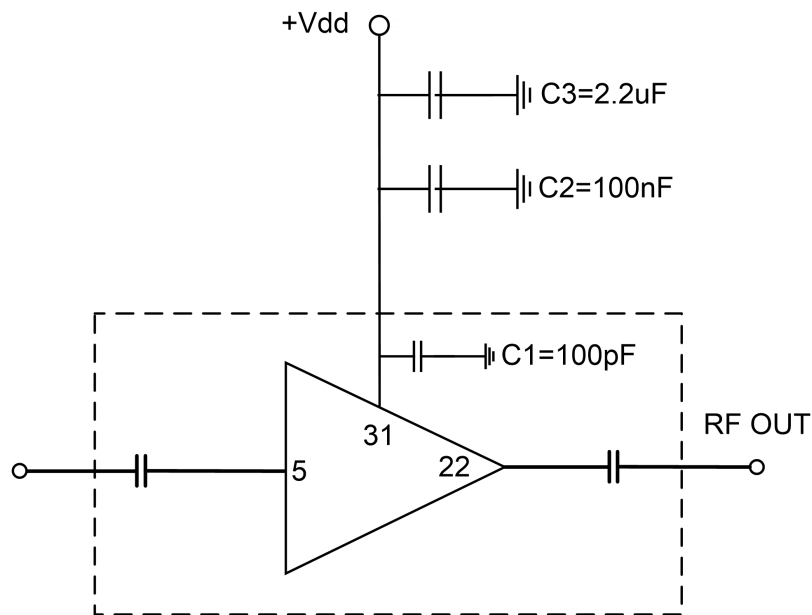


The units in the figures are all in millimeters , and the tolerance is ± 0.15 mm.

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

GaAs MMIC Power Amplifier Chip, 2 - 20 GHz

Recommended Circuit



Precautions for use

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