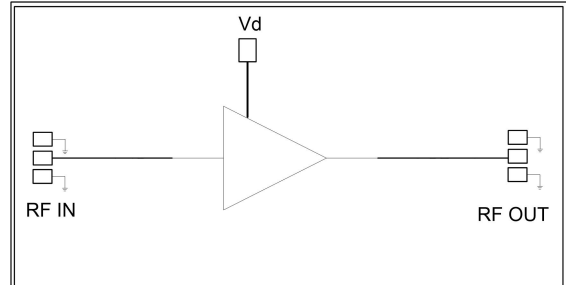


GaAs MMIC low-noise amplifier chip, 0.1-3.5GHz

Performance characteristics

- Frequency range: 0.1-3.5GHz
- Small-signal gain: 30.5dB
- Noise figure: 0.6dB Typ.
- P-1dB: 18dBm
- Power supply: +5V/80mA
- Input/Output: 50Ohm
- Chip size: QFN 4X4mm

Functional block diagram



Product Introduction

GLA-0003A-CQ4 is a broadband low noise amplifier chip with a frequency range of 0.1GHz~3.5GHz, small signal gain of 30.5dB, and in-band noise factor of 0.6dB. The ILA-0003A-CQ4 is powered by a single +5V power supply. The amplifier adopts 4X4mm surface pasted leadless ceramic shell, which can realize airtight package, and the surface of the pin pad is gold-plated, which is suitable for reflow installation process.

Use restriction parameters¹

Maximum leakage voltage	+7V
Maximum input power	+20dBm
Working temperature	-55 ~ +85°C
Storage temperature	-65 ~ +150°C

【1】 Exceeding any of the above maximum limits may result in permanent damage.

Electrical performance parameters (T_A = +25°C, V_d=+5V, R=10Ω)

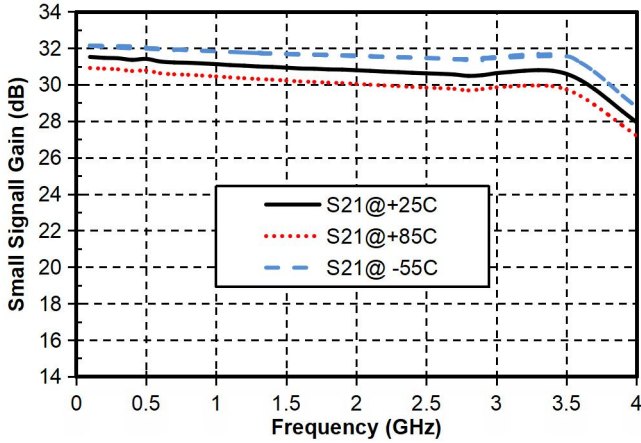
Index	Minimum value	Typical value	Maximum value	Unit
Frequency range	0.1-3.5			GHz
Small signal gain	30	30.5	31.5	dB
Gain flatness	-	±0.75	-	dB
Noise figure	-	0.6	-	dB
P-1dB	-	18	-	dBm
Psat	-	19	-	dBm
Input return loss	12	17	-	dB
Output return loss	14	19	-	dB
Static current		80		mA

*P-1、Psat and static current vary with the resistance value of the power supply resistor.

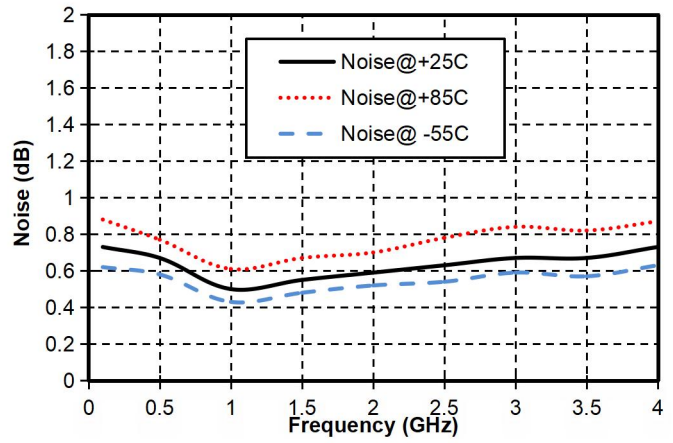
GaAs MMIC low-noise amplifier chip, 0.1-3.5GHz

Main index test curve

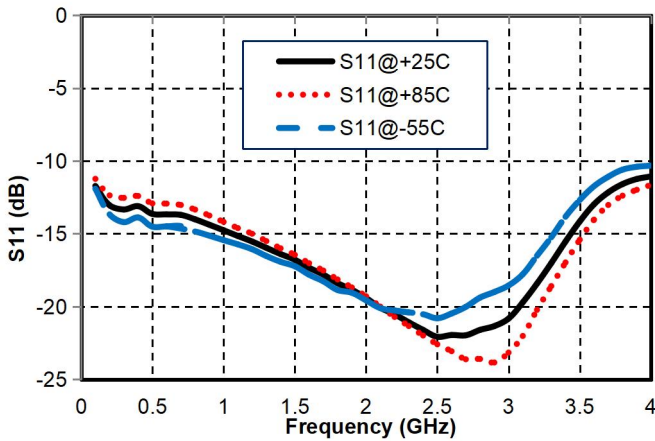
Gain vs. Frequency



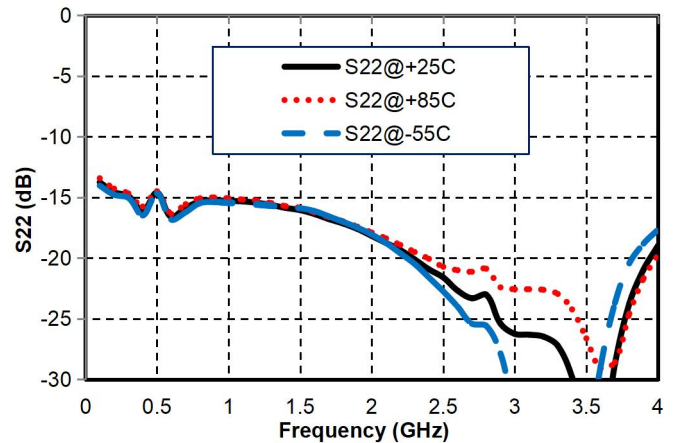
Noise coefficient vs. Frequency



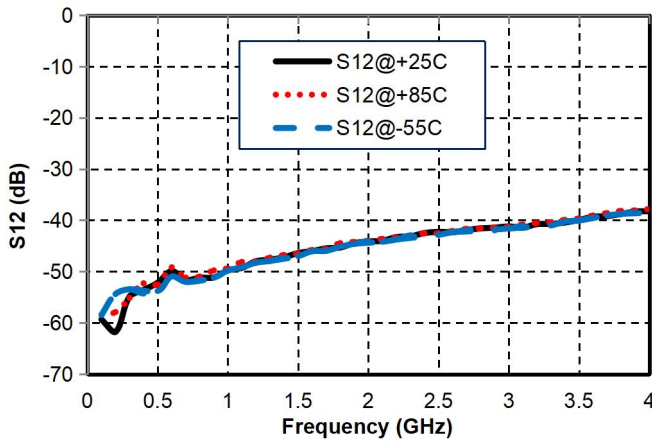
Input return loss vs. Frequency



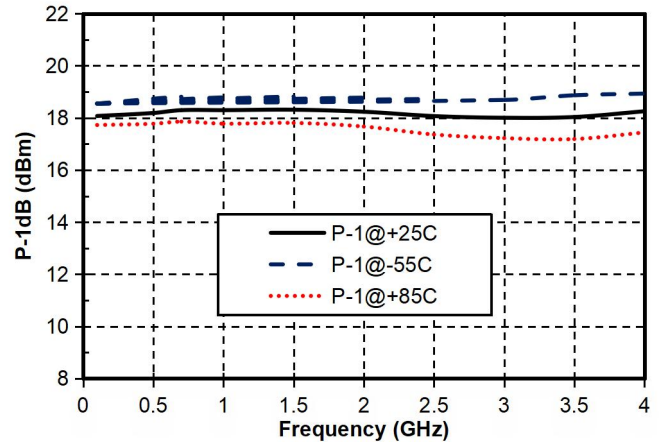
Output return loss vs. Frequency



Reverse isolation vs. Frequency

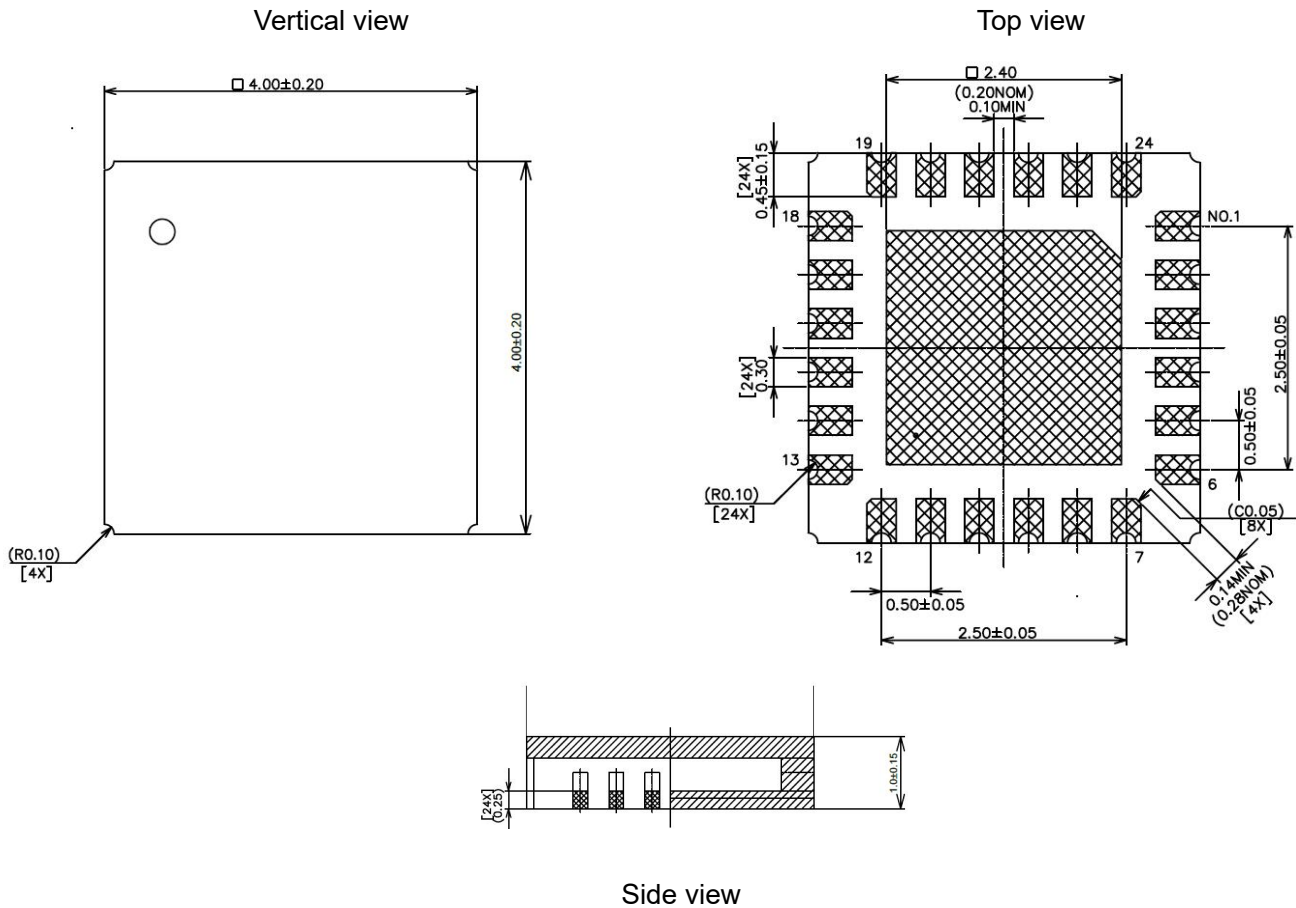


P-1dB vs. Frequency



GaAs MMIC low-noise amplifier chip, 0.1-3.5GHz

Exterior structure

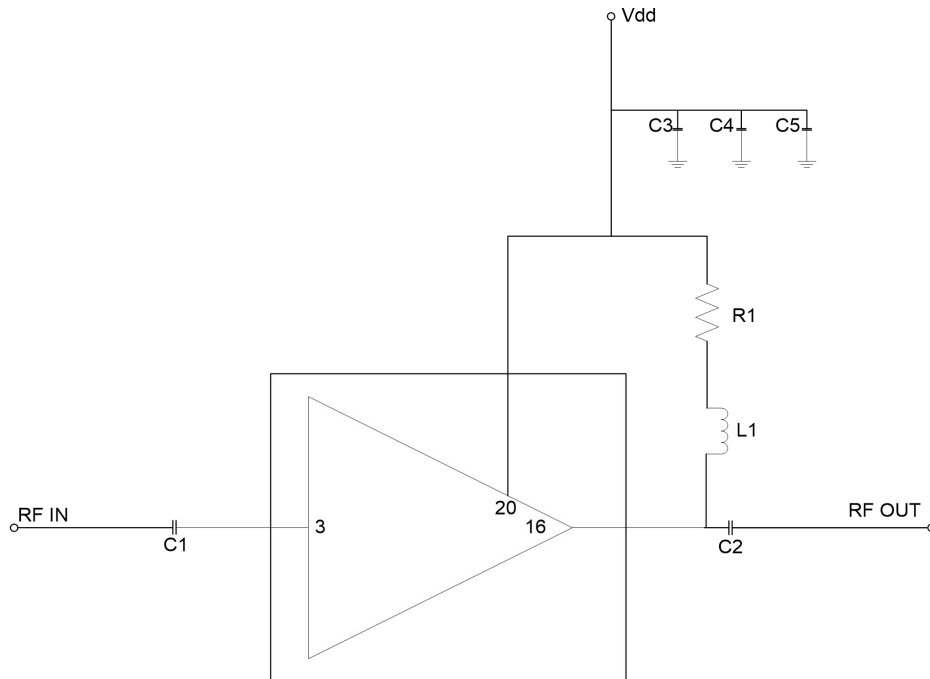


The units in the figure are millimeters.

Pin definition		
Bond point number	Functional symbols	Function Description
3	RFIN	At the input end of the RF signal, separate the capacitor
16	RFOUT、VDD	RF signal output end, need to isolate the straight capacitor; Amplifier drain bias
20	VDD	Amplifier drain bias
1、5~14、18、19、21~24	NC	No welding required
2、4、15、17	GND	The bottom of the chip must be properly grounded to the RF and DC

GaAs MMIC low-noise amplifier chip, 0.1-3.5GHz

Recommended circuit



Ingredients	Capacity value, sensing value, resistance value
C1、C2	100pF~10nF
C3	100pF
C4	100nF
C5	2.2uF
R1	10Ω
L1	220~390nH

Notice

- Sealing material: Ceramic material in accordance with ROHS specification
- Lead frame material: copper alloy
- lead surface coating: gold, gold layer thickness greater than 1.5um
- Maximum peak reflow temperature: 260°C