

Low Noise Amplifier Gain Block Chip, 0.1-4GHz

Performance Characteristics

- Frequency range: 0.1-4GHz
- Small-signal gain: 16dB
- Noise coefficient: 1.0dB
- P-1dB: 19dBm
- Power supply: 55mA
- Input/Output: 50Ohm
- Chip size: QFN 3X3

GGB-030F-CQ3 is a gallium arsenide single-chip amplifier operating at 0.1-4GHz. The amplifier operates at +5V and biases the circuit through an external choke inductor at the output end. At a working current of 55mA, it provides a 16dB gain, 1.0dB noise figure, and P-1dB output power of 19dBm. The amplifier adopts a 3X3mm surface mount lead-free ceramic tube shell, which can achieve airtight packaging. The surface of the pin pads is treated with gold plating technology, suitable for reflow soldering 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.

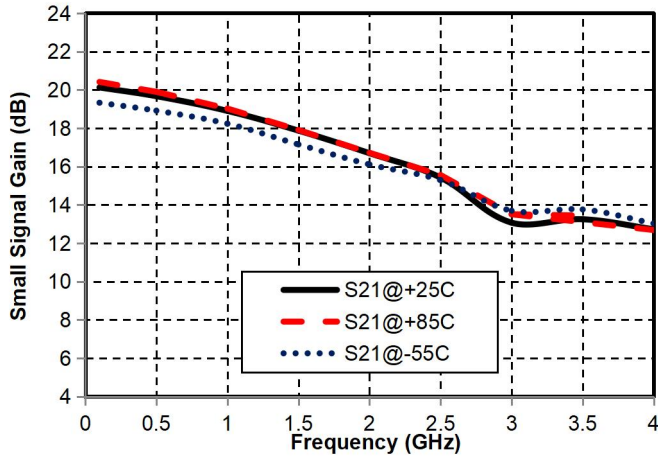
Electrical performance parameters (T_A = +25°C, V_{CC}=+5V, R_{BIAS}=18Ω)

Index	Minimum value	Typical value	Maximum value	Unit
Frequency range	0.1-4			GHz
Small signal gain	-	16	-	dB
Input return loss	-	18	-	dB
Output return loss	-	17	-	dB
Reverse isolation	-	24	-	dB
P-1dB	-	19	-	dBm
Psat	-	20	-	dBm
Noise figure	-	1.0	-	dB
Static current	-	55	-	mA

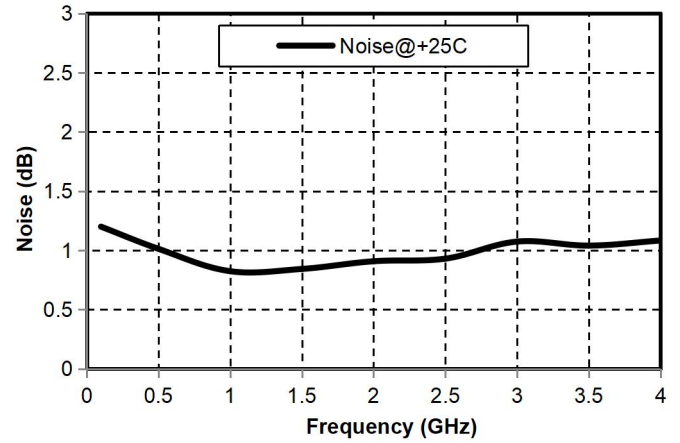
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Main index test curve

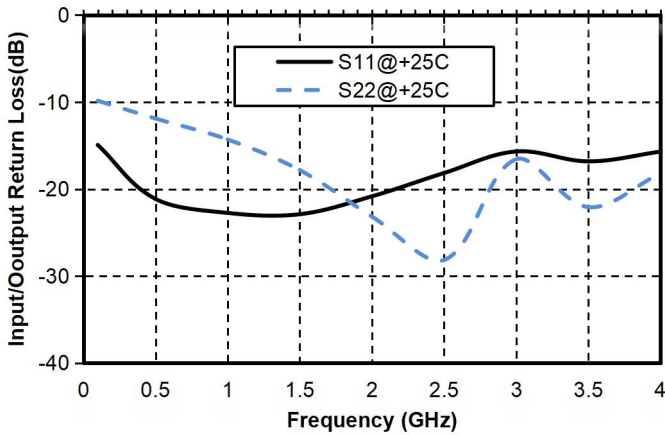
Gain vs. Frequency



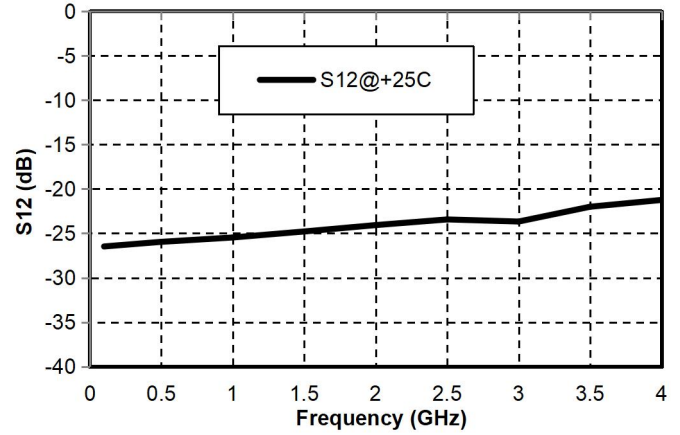
Noise coefficient vs. Frequency



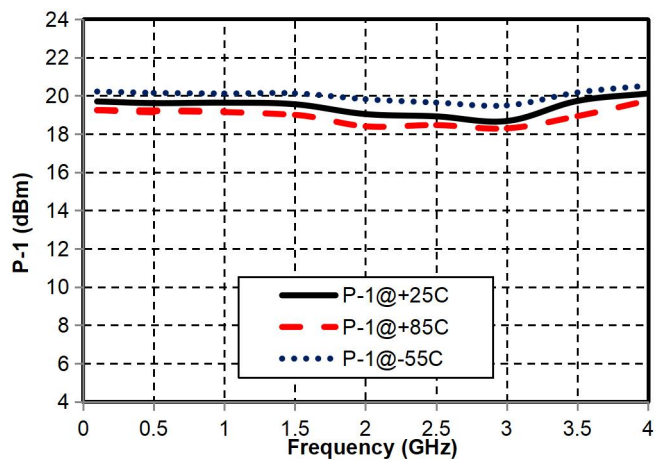
Input/output return loss vs. Frequency



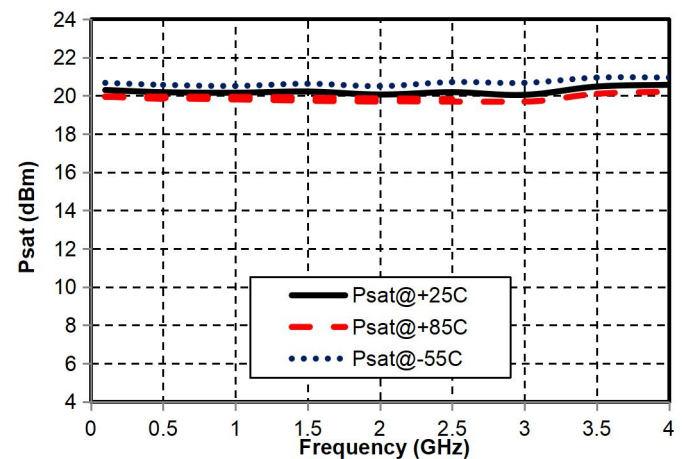
Reverse isolation vs. Frequency



P-1dB vs. Frequency

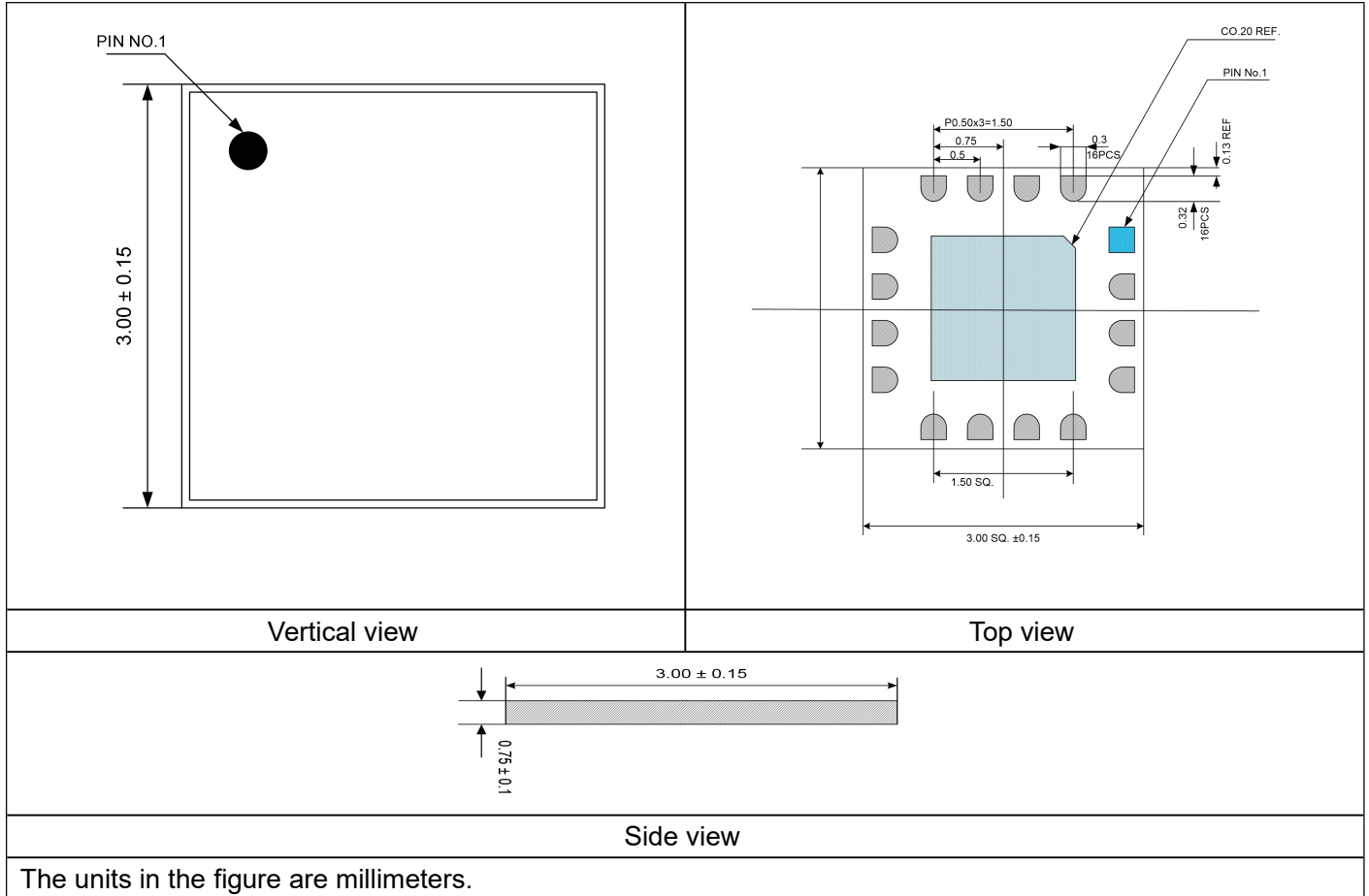


Psat vs. Frequency

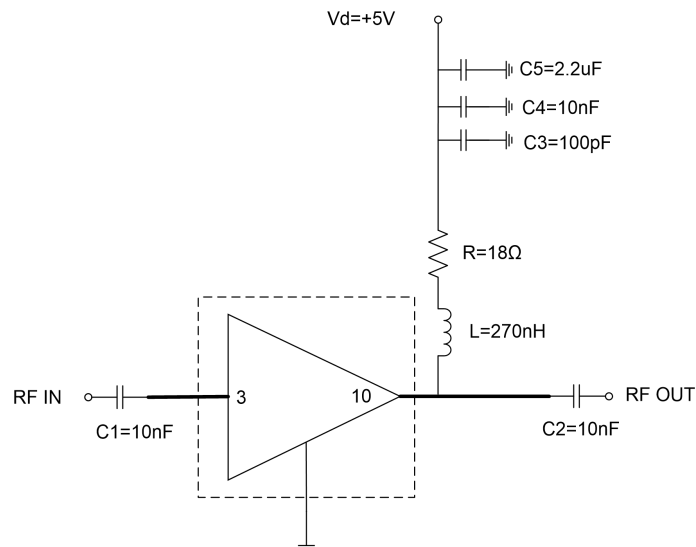


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External structure

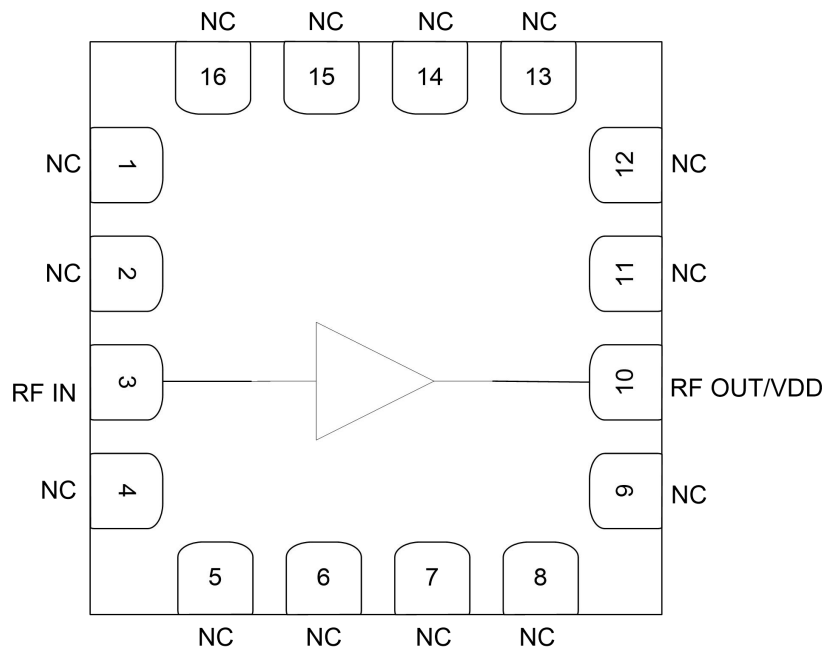


Recommended circuit



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Recommended circuit



Pin definition		
Bond point number	Functional symbols	Function Description
3	RFIN	RF signal input terminal requires external DC isolation capacitor
10	RFOUT	RF signal output terminal, amplifier leakage bias voltage, biases the circuit at the output terminal through external choke inductance and bias resistor, and requires an external DC isolation capacitor
Other	NC	No welding required, can also be grounded
Back grounding	GND	The bottom of the chip needs to be well grounded with RF and DC

Notice

- Sealing material: Ceramic material in accordance with ROHS specification
- Lead frame material: copper alloy
- Lead surface coating: gold, gold layer thickness: 0.3um min
- Maximum peak reflow temperature: 260°C