

## High Linearity Low Noise Gain Amplifier , 0.05 - 6 GHz

### Performance characteristics

- Frequency range: 0.05 - 6 GHz
- Small signal gain: 25dB@1GHz
- Noise figure: 0.65 dB @1GHz
- P-1dB : 20 dBm
- OIP3: 35dBm@1GHz
- Power supply: +5V/ 70mA
- 50Ohm input / output
- Chip size: QFN 3X3

GHLN-9037-CQ3 is a GaAs monolithic amplifier operating at 0.05-6 GHz . The amplifier operates at +5V and the circuit is biased by an external choke inductor at the output. At 70 mA operating current, 1GHz can provide 25dB gain , 0.65dB noise figure, 20dBm P - 1dB output power and 35dBm OIP3. The amplifier uses a 3X3mm surface-mount leadless ceramic tube shell to achieve airtight packaging. The surface of the pin pad is gold-plated and suitable for reflow soldering installation.

Use restriction parameter <sup>1</sup>	
Maximum drain voltage	+6V
Maximum input power	+23dBm
Operating temperature	-40 ~ + 70 °C
storage temperature	-65 ~ +150°C

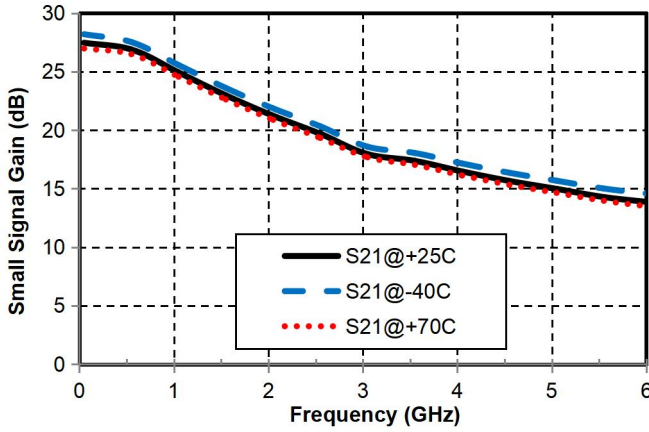
【1】 Exceeding any of these maximum limits may cause permanent damage.

Electrical performance parameters ( TA = +25°C , Vcc=+5V )				
Index	Minimum	Typical Value	Maximum	Unit
Frequency Range	0.05-6			G Hz
Small Signal Gain @ 1GHz	-	25	-	dB
Input return loss	-	11	-	dB
Output return loss	-	13	-	dB
Reverse Isolation	-	29	-	dB
P -1 dB	-	20	-	dBm
Psat	-	21	-	dBm
OIP3 @1GHz	-	35	-	dBm
Noise Figure @1GHz	-	0.65	-	dB
Quiescent Current	-	70	-	mA

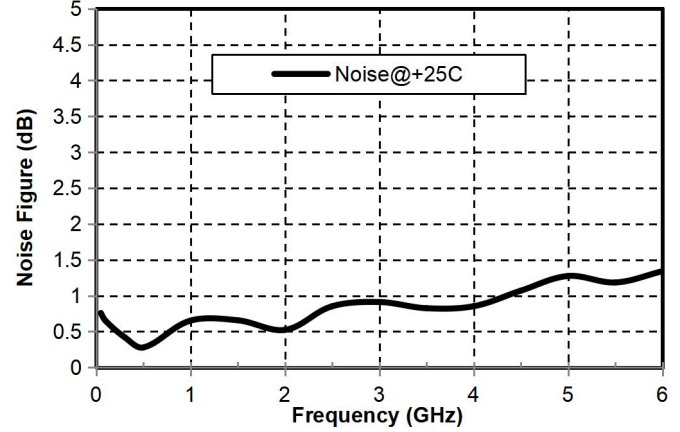
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Main index test curve

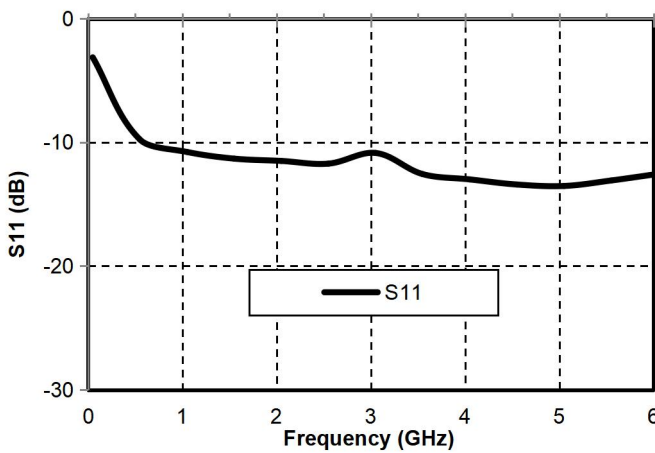
Gain vs. Frequency



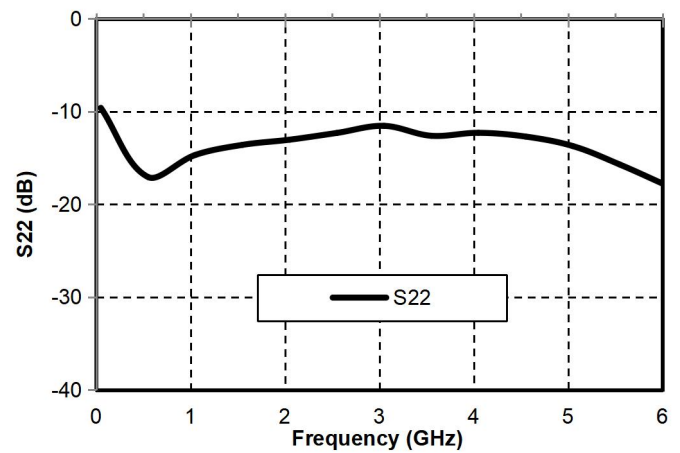
Noise Figure vs. Frequency



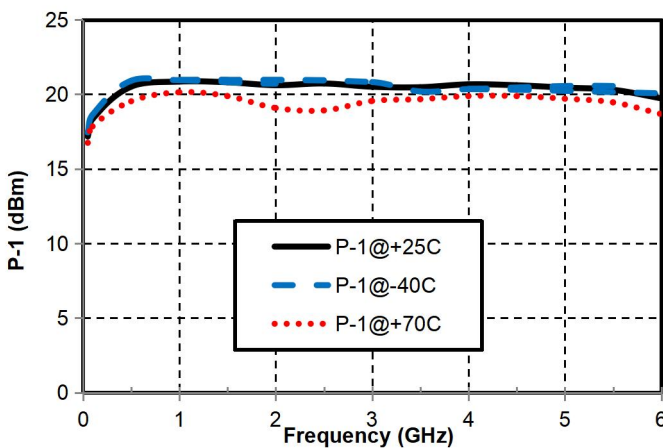
Input Return Loss vs. Frequency



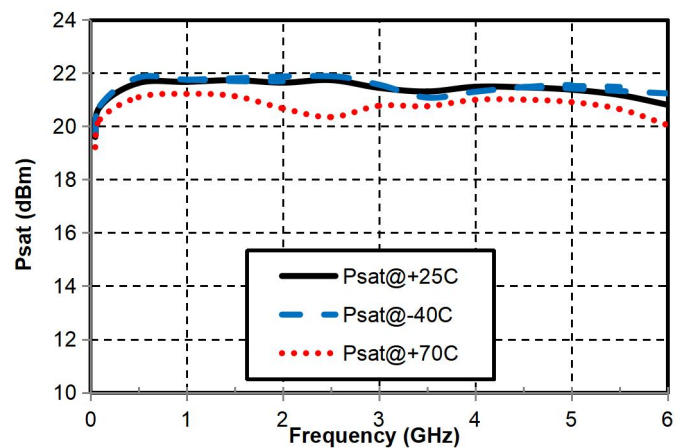
Output Return Loss vs. Frequency



P-1dB vs. Frequency

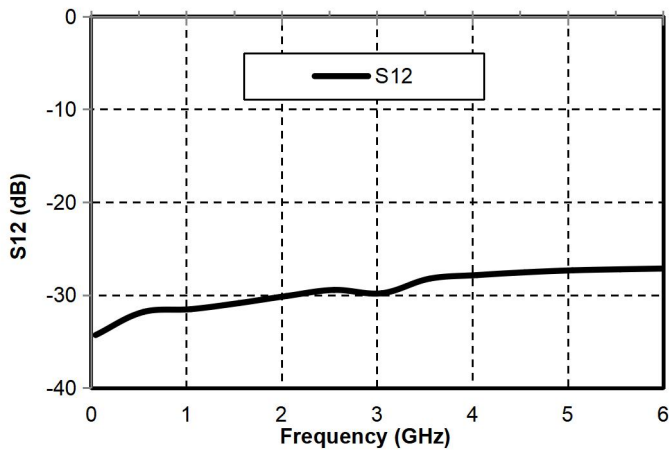


P sat vs. frequency

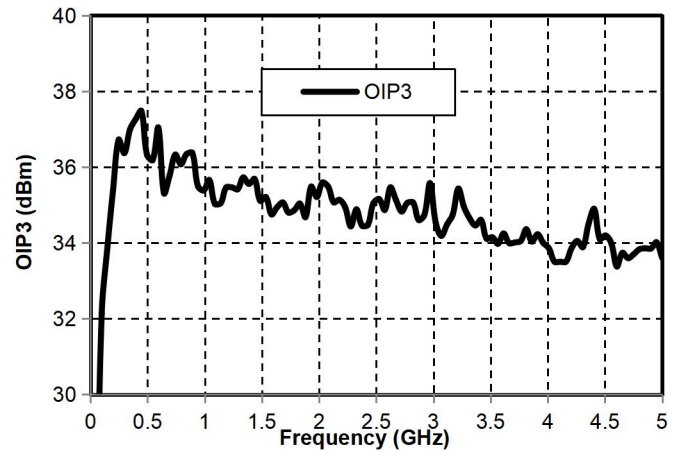


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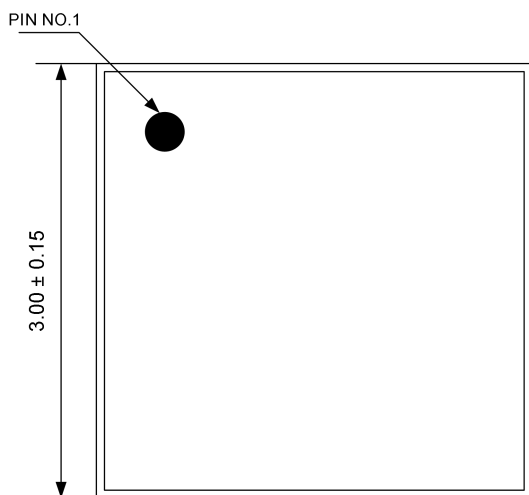
Reverse Isolation vs. Frequency



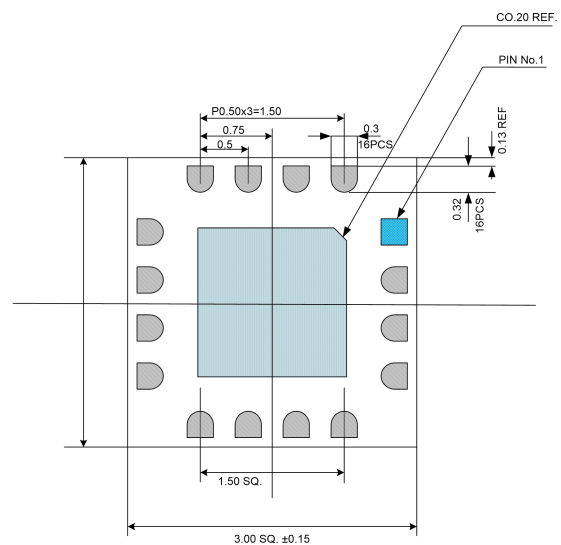
OIP3 vs. Frequency



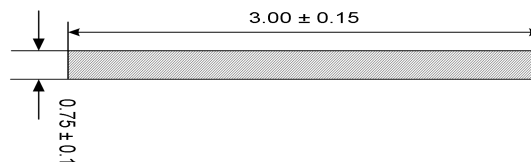
### Appearance structure



Top view



Bottom view

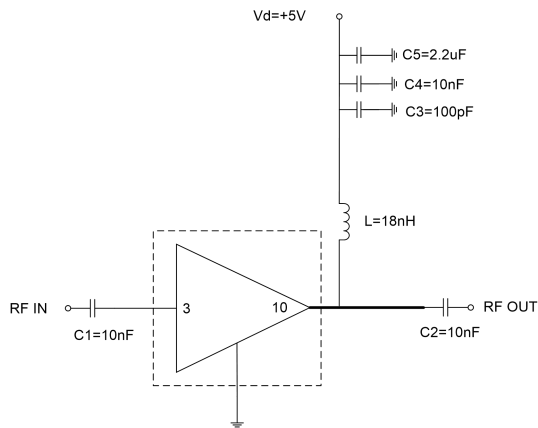


Side View

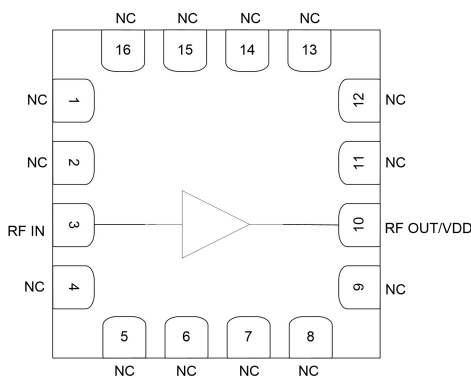
All units in the figures are millimeters .

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### Recommended Circuit



### Recommended assembly drawing



### Pin Definition

Bonding point number	Function Symbol	Functional Description
3	RFIN	RF signal input terminal , external DC blocking capacitor is required
10	RFOUT	RF signal output, amplifier leakage bias, bias the circuit at the output through external choke inductor and bias resistor, external DC blocking capacitor is required
other	NC	No welding required, also grounding possible
Back lot	GND	The bottom of the chip needs to be well grounded to RF and DC

### Precautions for use

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