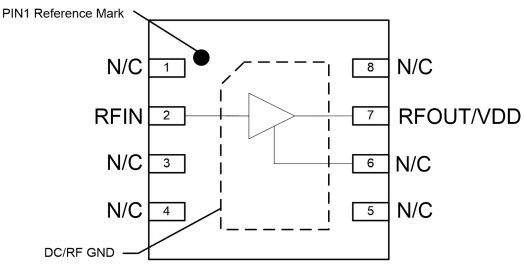


High Linearity Low Noise Gain Amplifier , 100 - 4000 MHz

Product Introduction

GHLN -010A is a 100MHz ~4GHz ultra-wideband, high linearity, low noise gain block amplifier. This amplifier can meet the needs of a variety of application scenarios, including small base stations, walkie-talkies, LTE/WCDMA communication systems and other wireless communication systems. GHLN- 010A adopts a standard DFN2X2 label package, and all pins are equipped with ESD protection. GHLN- 010A biases the circuit through an external choke inductor , and a DC blocking capacitor needs to be added to the periphery of the circuit . The product quality level is industrial grade.

Block Diagram	Product Features
 <p style="text-align: center;">Top view</p>	<ul style="list-style-type: none"> ➤ Working frequency : 100-4000MHz ➤ Noise figure : <1.0dB @100MHz~2GHz ➤ Small signal gain: 25.5dB@1GHz ➤ P-1dB: 17dBm Typ ➤ OIP3: 33 dBm ➤ 50Ohm input and output ➤ + 3V / 60mA ➤ 2x2 mm 8 Pin DFN plastic package

Electrical performance parameters (TA = +25°C, Vd = +3V, 50Ω system)					
Index	Test Conditions	Minimum	Typical Value	Maximum	Unit
Frequency Range		100		4000	MHz
Test frequency			1000		MHz
Small Signal Gain			25.5		dB
Input return loss			12		dB
Output return loss			14		dB
P-1			17.5		dBm
OIP3	Pout = 0 dBm/tone, Δf = 1 MHz		34		dBm
Noise Figure*	Without de-embedding, the estimated evaluation board loss is 0.15dB@1.0G		0.65		dB
Current	Static		60		mA

*The noise figure result does not deduct the input loss of the test DEMO board .

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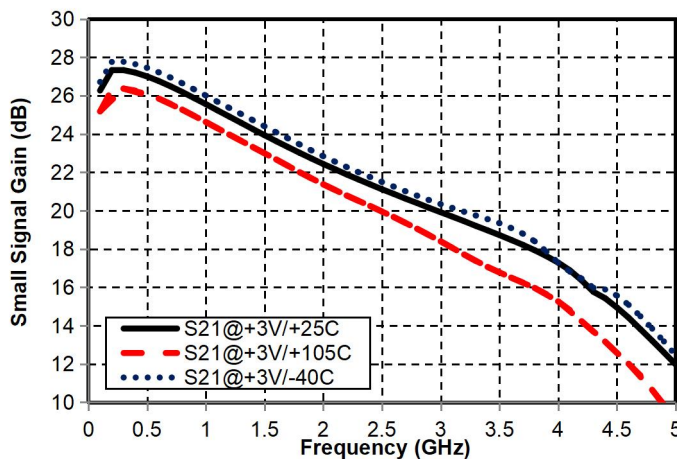
100M-4000M electrical performance parameters:

Electrical performance parameters (TA = +25°C, Vd = +3V, 50Ω system, 60mA)							
Index	Typical Value						Unit
Test frequency	100	400	900	1900	2450	3500	MHz
Small Signal Gain	26.0	27.0	25.5	22.5	21.0	18.5	dB
Input return loss	6.0	12.0	12.0	12.0	12.0	21.0	dB
Output return loss	7.0	15.0	15.0	9.0	8.0	9.5	dB
P-1	18.0	17.5	17.5	17.5	17.5	16.0	dBm
OIP3*	32.0	36.0	34.0	34.5	33.0	30.5	dBm
Noise Figure**	1.0	0.6	0.7	1.0	1.2	2.2	dB

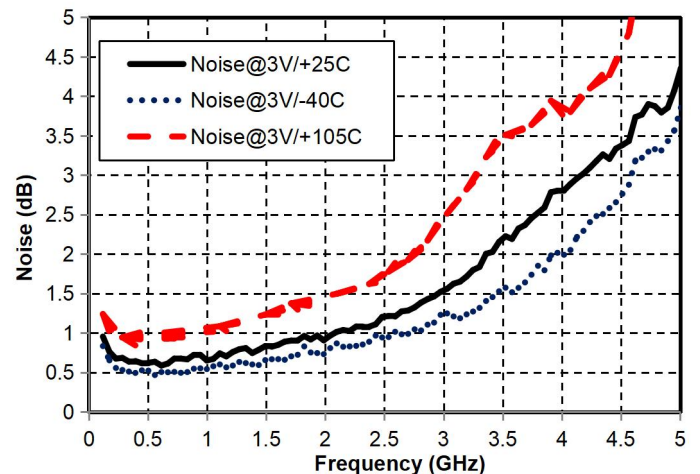
* Pout=+ 0 dBm/tone, Δf=1 MHz .

** Noise figure results do not deduct the input loss of the test DEMO board .

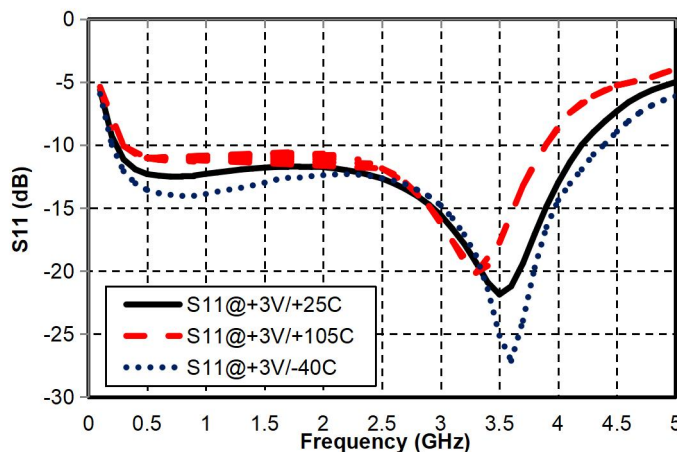
Small Signal Gain vs. Frequency



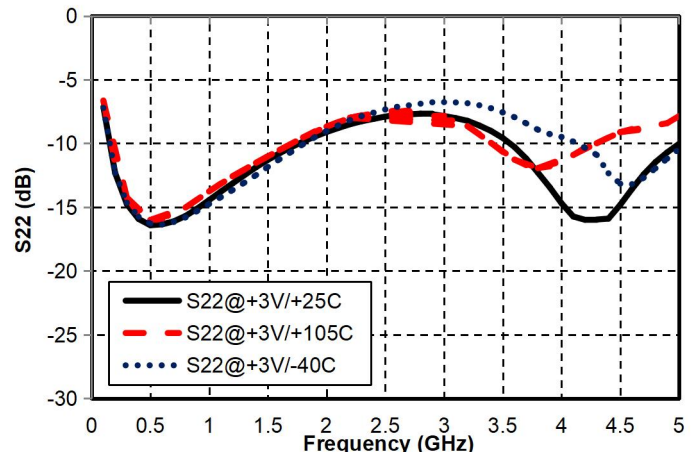
Noise Figure vs. Frequency



Input Return Loss vs. Frequency

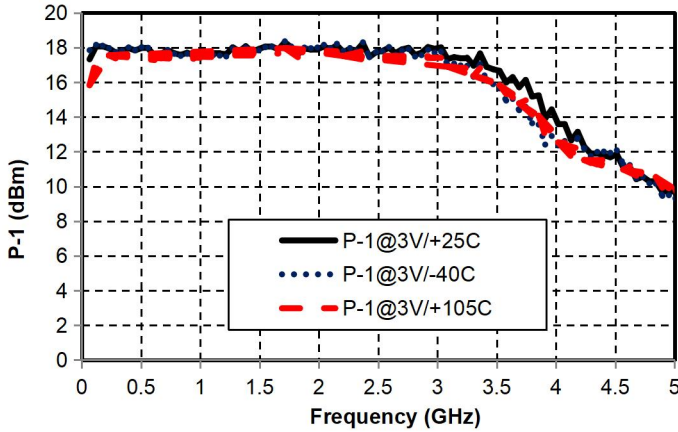


Output Return Loss vs. Frequency

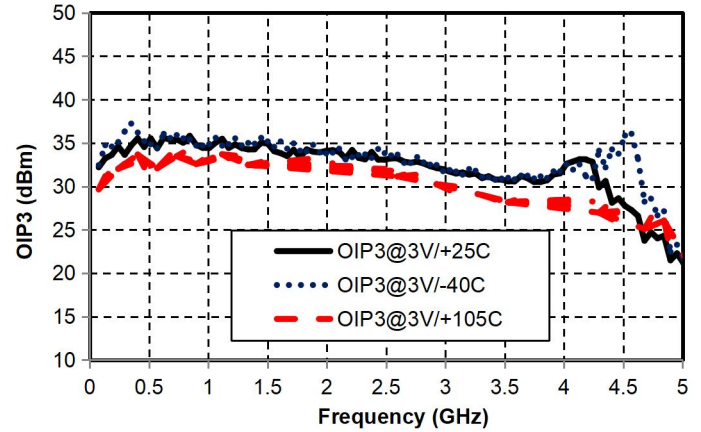


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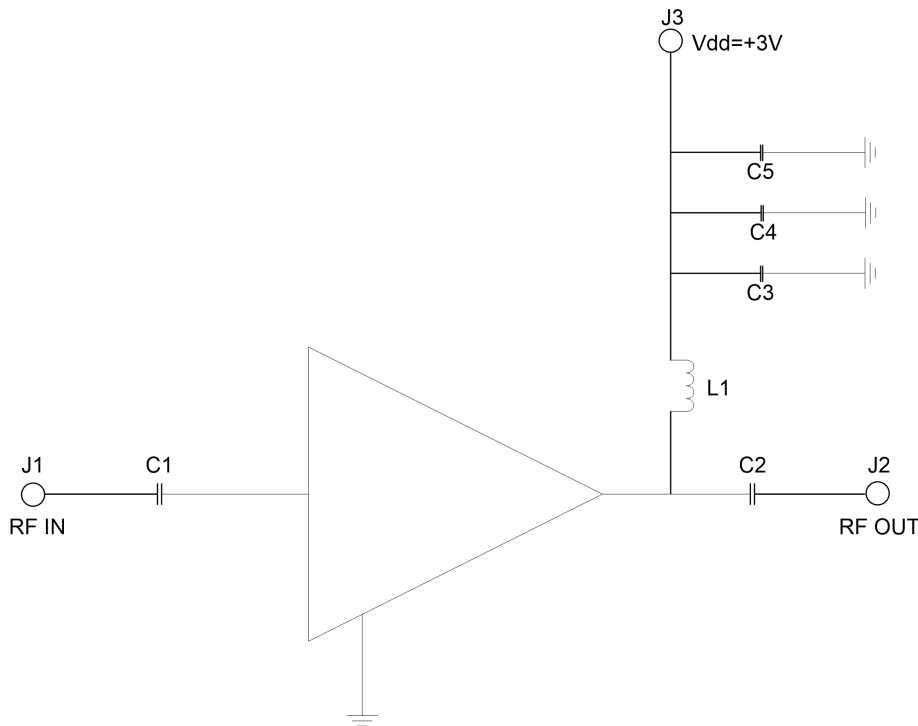
P-1dB vs. Frequency



OIP3 vs. Frequency



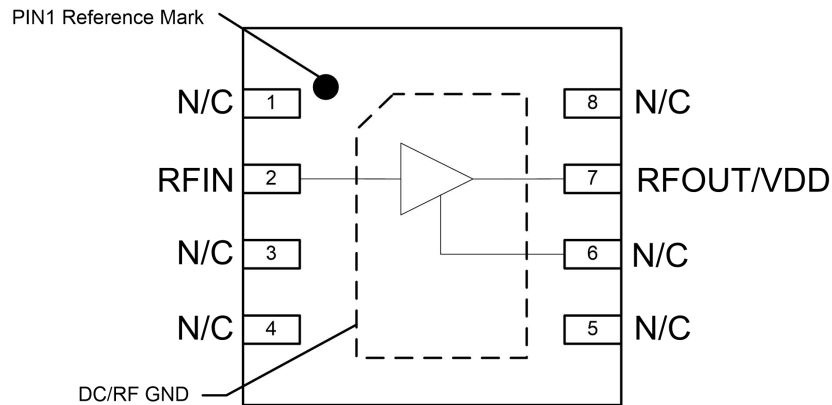
100M-4000M recommended circuit diagram



Ingredients list			
Freq.	50~900MHz	900MHz ~ 3GHz	3GHz ~ 4GHz
C1/C2	1000p F	100pF	1 0 0pF
L1	33 0nH	82nH	8 2nH

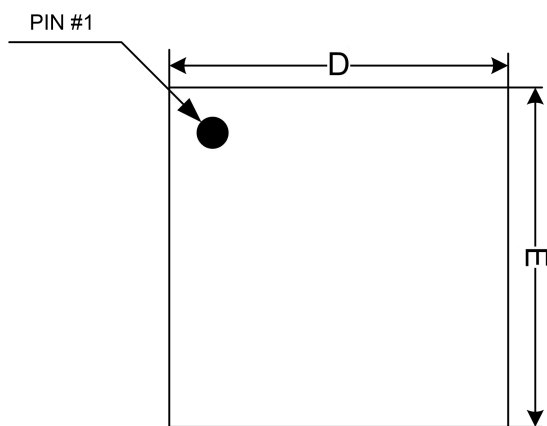
High Linearity Low Noise Gain Amplifier , 100 - 4000 MHz

Pin Definition

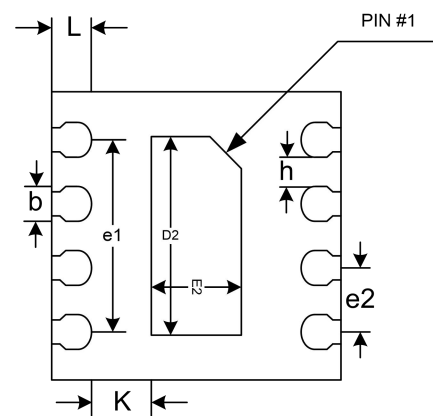


Bonding point number	Function Symbol	Functional Description
2	RF IN	RF input port, impedance 50ohm , requires external DC blocking capacitor
7	RF OUT / DC Bias	RF output port, impedance 50ohm, amplifier leakage bias, bias the circuit at the output end through external current-choking inductor and bias resistor, external DC blocking capacitor is required
1, 3, 4, 5, 6, 8	GND	No connection required
Chip bottom	GND	Grounding

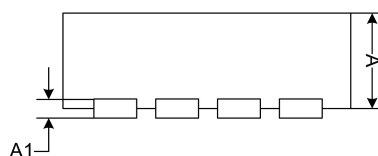
Dimensions



Top view



Bottom view



Side View

High Linearity Low Noise Gain Amplifier , 100 - 4000 MHz

Structure size							
Annotation	Minimum	Standard	Maximum	Annotation	Minimum	Standard	Maximum
A	0.70	0.75	0.80	E2	0.60	0.70	0.80
A1	0.10	0.12	0.15	e-1	1.40	1.50	1.60
b	0.20	0.25	0.30	e-2	0.40	0.50	0.60
D	1.90	2.00	2.10	h	0.10	0.20	0.30
D2	1.20	1.30	1.40	L	0.25	0.30	0.35
E	1.90	2.00	2.10	K	0.30	0.35	0.40

All units in the figures are millimeters .

Use limit parameters	
Collector voltage: +6V	Input power: +20dBm
Maximum current: 80mA	Maximum junction temperature : 150 °C
Operating temperature: -40 ~ +105 ° C	Storage temperature: -65 ~ +150 ° C
Exceeding any of these maximum limits may cause permanent damage.	

Environmental conditions		
Parameter	Grade	Standard
ESD – Human Body Model (HBM)	1 B	ESDA / JEDEC JS-001-2014
ESD – Charged Device Model (CDM)	C3	ESDA / JEDEC JS-001-2014
MSL – Moisture Sensitivity Level	MSL 3	IPC/JEDEC J-STD-020

Precautions for use

- Plastic package material : Low-pressure injection molding plastic that meets ROHS specifications
- Lead frame material: Nickel alloy
- Lead surface plating: 100% matte tin
- Maximum reflow peak temperature: 260 °C