

DESCRIPTION

The LX5561 is a low noise amplifier (LNA) for WLAN applications in the 2.4-2.5 GHz frequency range. This LNA is manufactured with an InGaAs Enhancement mode pseudomorphic HEMT (E-pHEMT) process.

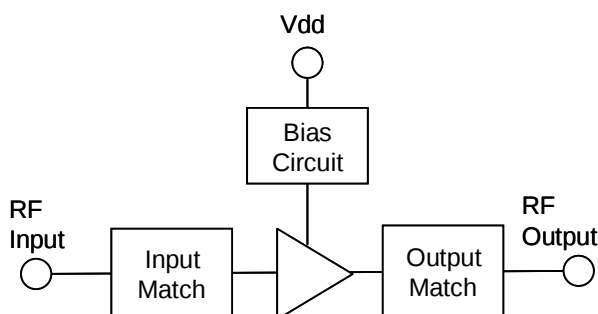
It operates with a single positive voltage supply of 3.3V, with noise figure of 1.5dB while maintaining input third order intercept point(IIP3) of up to +6.5dBm.

The LNA is implemented with bias circuit and input/output matching circuit on chip, resulting in simple external circuit on board. In addition, the on-chip bias circuit provides stable performance of gain, NF and current for voltage variation compared to a general resistor-network bias circuit.

The LX5561 is available in a 12-pin 2mm x 2mm micro-lead package (MLPQ-12L).

KEY FEATURES

- 0.5μm InGaAs E-mode pHEMT
- 2.4 – 2.5GHz Operation
- Single 3.3V Supply
- Gain ~ 13.0dB
- Noise Figure ~ 1.5dB
- Input IP3 ~ +6.5dBm
- Input P1dB ~ +2.5dBm
- On-Chip Bias Circuit
- On-Chip Input/Output Match
- 2mm x 2mm MLPQ-12L
- Low Profile 0.5mm

BLOCK DIAGRAM

APPLICATIONS

- Wireless LAN 802.11b/g
- WiMax

IMPORTANT: For the most current data, consult MICROSEMI's website: <http://www.microsemi.com>

PRODUCT HIGHLIGHT

PACKAGE ORDER INFO
LL
Plastic MLPQ
12 pin

RoHS Compliant / Pb-free

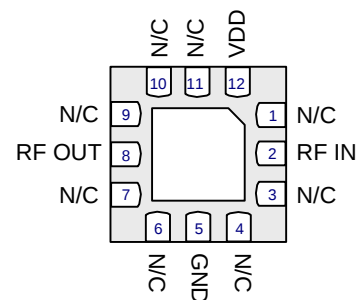
LX5561LL

Note: Available in Tape & Reel. Append the letters "TR" to the part number. (i.e. LX5561LL-TR)

ABSOLUTE MAXIMUM RATINGS

DC Supply Voltage, RF Off 4 V
 Drain Current 40 mA
 Total Power Dissipation 0.15 W
 RF Input Power +10 dBm
 Operation Ambient Temperature -40°C to +85°C
 Storage Temperature Range -65°C to 150°C
 Package Peak Temp. for Solder Reflow (40 seconds maximum exposure) 260°C (+0 -5)

Note: Exceeding these ratings could cause damage to the device. All voltages are with respect to Ground. Currents are positive into, negative out of specified terminal.

PACKAGE PIN OUT


LL PACKAGE
(Bottom View)

RoHS / Pb-free NiPdAu Finish

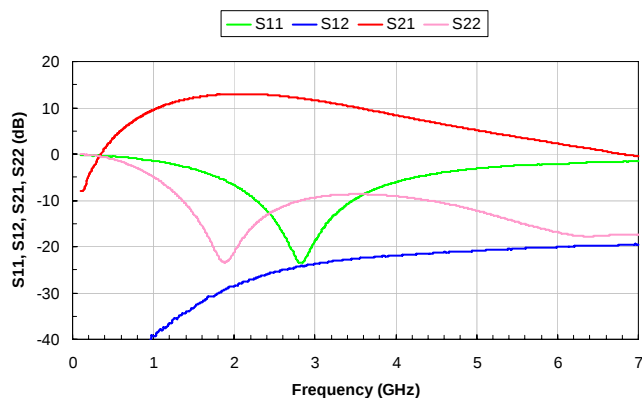
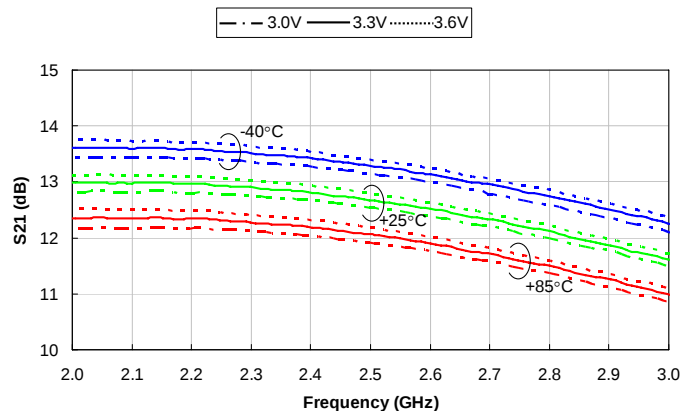
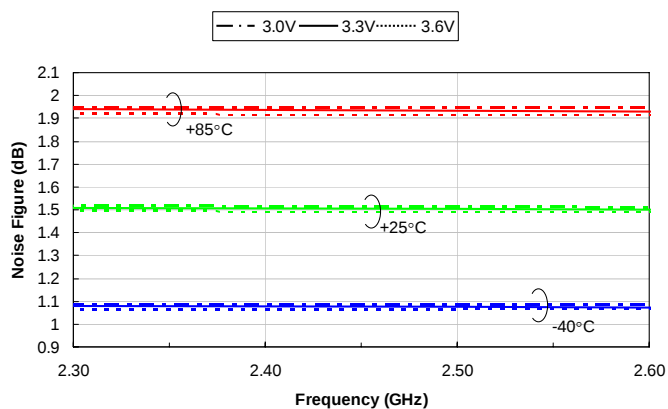
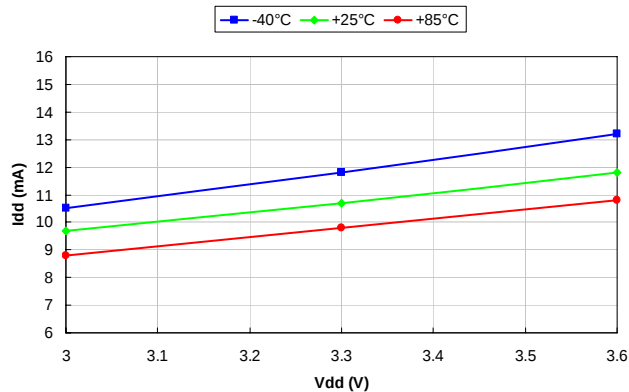
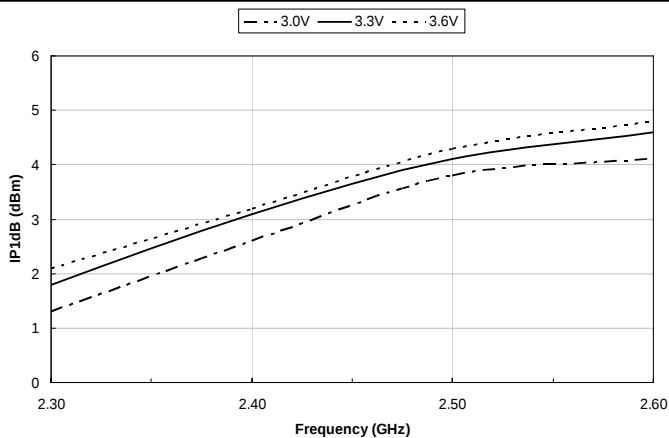
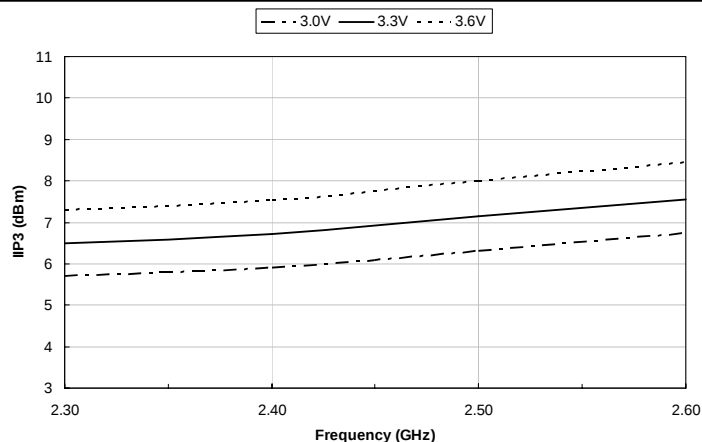
FUNCTIONAL PIN DESCRIPTION

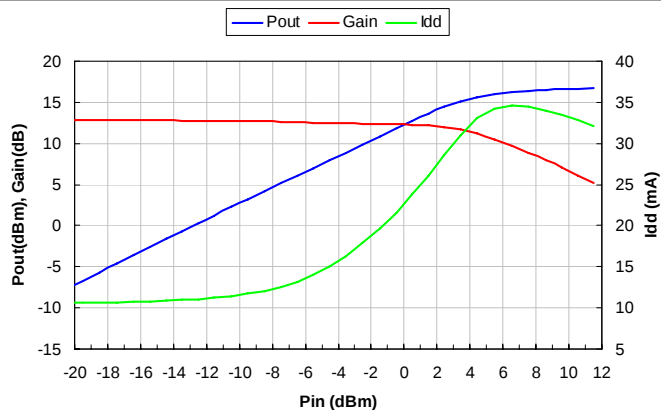
Name	Pin #	Description
RF IN	2	RF input for the low noise amplifier. This pin is AC-coupled and does not require a DC-blocking capacitor.
RF OUT	8	RF output for the low noise amplifier. This pin is AC-coupled and does not require a DC-blocking capacitor.
VDD	12	Supply voltage.
GND	5	Ground.
N/C	1,3,4,6,7,9,10,11, Center Metal	Not Connected. They can be treated either as open pins or connected to ground.

ELECTRICAL CHARACTERISTICS

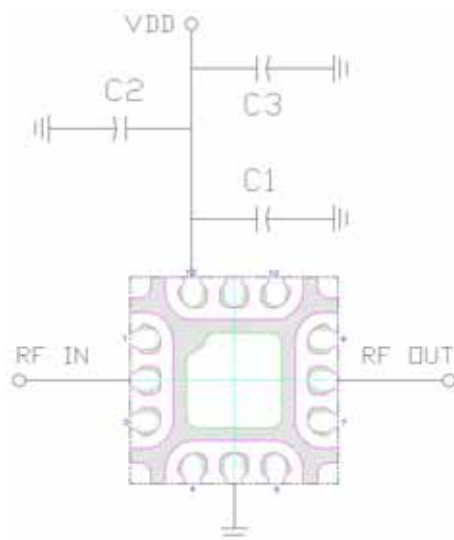
Test conditions: $V_{DD} = 3.3V$, $I_{DD} = 10.5mA$, $T_A = +25^{\circ}C$ (Room Temperature)

Parameter	Symbol	Test Conditions	LX5561			Units
			Min	Typ	Max	
Application Frequency Range	f		2.4		2.5	GHz
Small-Signal Gain	S21			13.0		dB
Noise Figure	NF			1.5	1.8	dB
Input 3 rd Order Intercept Point	IIP3	Freq. 1 = 2.412GHz, Freq. 2 = 2.432GHz		6.5		dBm
Input P1dB	IP1dB	Freq. = 2.45GHz		2.5		dBm
Input Return Loss	S11			12		dB
Output Return Loss	S22			12		dB
Supply Voltage	V_{DD}			3.3		V
Supply Current	I_{DD}			10.5		mA

S-PARAMETER

GAIN OVER TEMP

NOISE FIGURE OVER TEMP

CURRENT OVER TEMP

INPUT P1dB (+25°C)

INPUT IP3 (+25°C)


POWER SWEEP @ 2.45GHZ


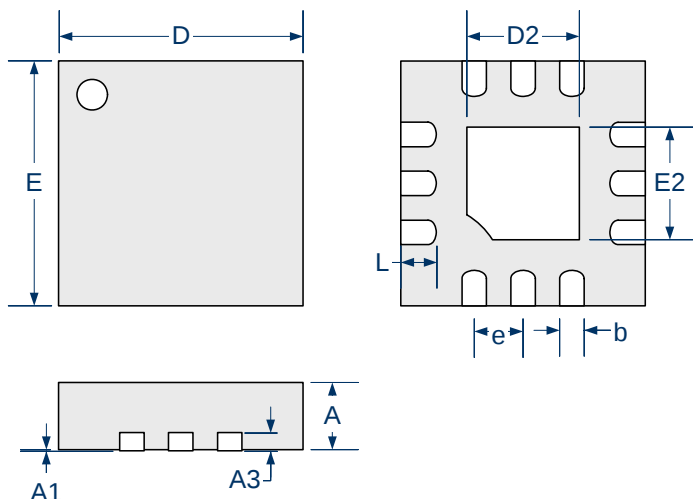
(Vdd=3.3V, Idq=10.5mA at Room Temperature)

APPLICATION SCHEMATIC

BOM LIST

Reference Designator	Part Description	Case
C1	Capacitor, 1 nF	0402
C2	Capacitor, 1 μ F	0603
C3	Capacitor, 10 μ F	0805

NOTES

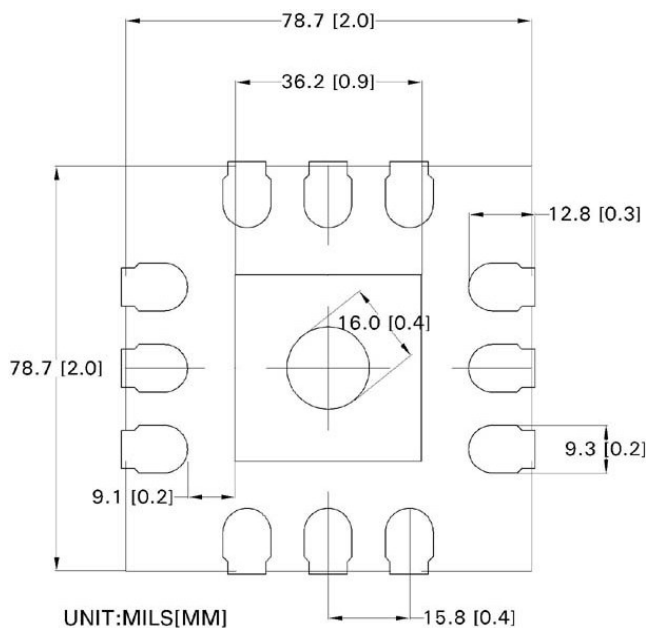
- It is recommended to place C1 at 20-50mil from MLP package outline.
- C2 and C3 are used for standalone evaluation board test only. They are not needed in final applications.

PACKAGE DIMENSIONS
LL
12-Pin MLPQ Plastic (2x2mm)


Dim	MILLIMETERS		INCHES	
	MIN	MAX	MIN	MAX
A	0.40	0.50	0.016	0.020
A1	0.00	0.05	0.000	0.002
A3	0.15 REF		0.006 REF	
b	0.15	0.25	0.006	0.010
D	2.00 BSC		0.079 BSC	
D2	0.77	1.02	0.030	0.040
E	2.00 BSC		0.079 BSC	
E2	0.77	1.02	0.030	0.040
e	0.40 BSC		0.016 BSC	
L	0.19	0.39	0.007	0.015

Note:

- Dimensions do not include mold flash or protrusions; these shall not exceed 0.155mm(.006") on any side. Lead dimension shall not include solder coverage.


Recommended Land Pattern



LX5561

InGaAs – E-Mode pHEMT Low Noise Amplifier

PRODUCTION DATA SHEET

NOTES

www.Microsemi.COM

NOTES

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