

**Co-Package 2.3 – 2.5 GHz HBT Power Amp +
pHEMT Low Noise Amplifier + SPDT Switch**
PRODUCTION DATA SHEET
DESCRIPTION

LX5541 is a co-package RFIC consisting of an InGaP/GaAs Heterojunction Bipolar Transistor (HBT) power amplifier, an InGaAs pseudomorphic HEMT (pHEMT) low noise amplifier, and a SPDT switch. All three RF devices are optimized for WLAN applications in the 2.3 to 2.5 GHz frequency range.

The PA is implemented as a two-stage monolithic microwave integrated circuit (MMIC) with active bias and output pre-matching. The LNA is fully matched internally, and the LNA is connected to the RX port of SPDT switch directly inside the MLPQ package.

Both PA and LNA operate with single low voltage supply of 3.3V. The PA (including SPDT switch loss) offers 27 dB power gain between 2.3-2.5GHz, at a low quiescent current of 90mA.

For 19dBm OFDM output power (64QAM, 54Mbps) at the antenna port, the PA including SPDT switch provides a low EVM (Error-Vector Magnitude) of about 3%, and consumes 145 mA total DC current.

The LNA (including SPDT switch loss) offers 13 dB gain, 2 dB noise figure (switch contribution included) and a high input IP3 of +5 dBm at 10 mA DC current.

LX5541 is available in a low profile 16-pin 3mmx3mm micro-lead package (MLPQ-16L). LX5541 with a PA, LNA and SPDT integrated in a small, low profile, and low thermal resistance package offers an ideal compact front end solution for IEEE 802.11b/g/n applications.

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

KEY FEATURES

- Small Footprint: 3x3mm²
- Low Profile: 0.45mm
- 2.3-2.5GHz Operation
- Single-Polarity 3.3V Supply
- On-Chip Active Bias Circuit for both PA and LNA

TX Features:

- Input matched PA
- Quiescent Current ~ 90mA
- Power Gain ~ 27 dB *
- Total Current ~ 145mA for Pout=19 dBm OFDM *
- EVM~3 % at 19dBm (2% at 17dBm) 54Mbps/64QAM

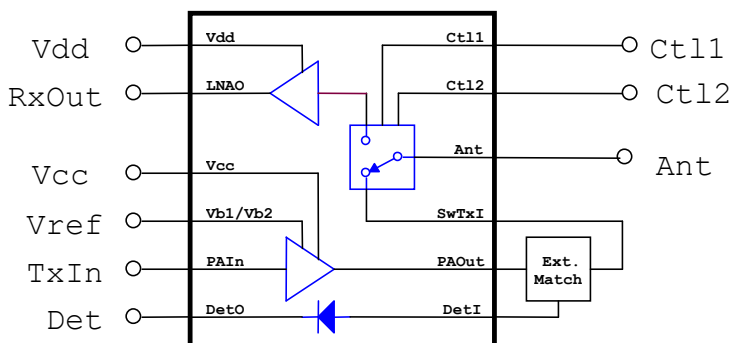
RX Features:

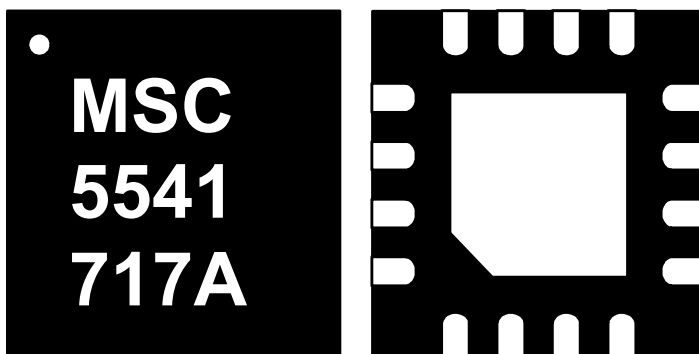
- LNA Gain ~ 13 dB *
- LNA Noise Figure ~ 2 dB *
- LNA Input IP3 ~ +5dBm *
- LNA On-Chip Input/Output Match

* Including SPDT switch loss

APPLICATIONS

- IEEE 802.11b/g/n

BLOCK DIAGRAM


PRODUCT HIGHLIGHT

PACKAGE ORDER INFO

	Plastic MLPQ
LL	16 pin 3X3
	RoHS Compliant /Pb-free
	LX5541LL

Note: Available in Tape & Reel.
Append the letters "TR" to the part number.
(i.e. LX5541LL-TR)

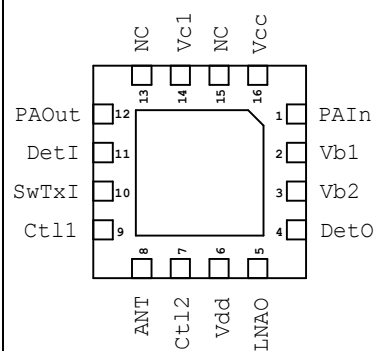
ABSOLUTE MAXIMUM RATINGS

DC Supply Voltage, RF off (PA)	5V
(LNA)	4V
Collector Current (PA)	500mA
Drain current (LNA)	40mA
Total Power Dissipation	2W
RF Input Power	+10 dbm
Operation Ambient Temperature.....	-40°C to +85°C
Storage Temperature	-65°C to +150°C
Peak Package Solder Reflow Temp. (40 second max 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.
x denotes respective pin designator 1, 2, or 3

THERMAL DATA
LL Plastic MLPQ 3X3 X1

THERMAL RESISTANCE-JUNCTION TO CASE, θ_{JC}	12.8 C/W
THERMAL RESISTANCE-JUNCTION TO AMBIENT, θ_{JA}	53.4 C/W

PACKAGE PIN OUT


LQ PACKAGE
(Bottom View)

RoHS/Pb-free 100% Matte Tin Lead finish



INFORMATION

Thank you for your interest in Microsemi® Analog Mixed Signal products.

The full data sheet for this device contains proprietary information.

To obtain a copy, please contact your local Microsemi sales representative. The name of your local representative can be obtained at the following link

<http://www.microsemi.com/contact/contactfind.asp>

or

Contact us directly by sending an email to:

IPGdatasheets@microsemi.com

Be sure to specify the data sheet you are requesting and include your company name and contact information and or vcard.

We look forward to hearing from you.