

**2.4-2.5 GHz Front-End Module with Internally Matched Power Amplifier, LNA & SP3T Switch**
**PRODUCTION DATA SHEET**
**DESCRIPTION**

LX5553 is a high-integration, high-performance WLAN front-end module (FEM) for 802.11b/g/n and other applications in the 2.4-2.5GHz frequency range. LX5553 integrates an advanced InGaP/GaAs Heterojunction Bipolar Transistor (HBT) power amplifier with on chip impedance matching, a fully matched low noise amplifier based on InGaAs Enhancement mode pseudo-morphic high electron mobility transistor (E-pHEMT) technology, and a Depletion mode pHEMT (D-pHEMT) single-pole triple-throw (SP3T) switch, all into a single package with 3x3mm footprint. LX5553 provides capability of sharing a single antenna between WLAN and Bluetooth systems through the SP3T switch.

The Tx path of LX5553 features a two-stage monolithic microwave integrated circuit (MMIC) power amplifier with active bias circuitry, on-chip output power detector, and 50Ω input/output matching inside the package. With 3.6V supply voltage and 82mA bias current, the Tx path

provides about 25dB power gain, and +17dBm linear output power, with EVM (<3%) for 64QAM/ 54Mbps OFDM. Both gain and power are readily measured at antenna port, with the insertion loss of the SP3T switch included.

The Rx path of LX5553 features 13dB small-signal gain, noise figure of 2.1dB, and high input referred third-order harmonic intercept point (IIP3) of +5dBm, including the SP3T switch loss. The LNA consumes about 11mA current with a single 3.6V supply.

The Bluetooth path of LX5553 features low insertion loss of 0.9dB and high input referred 1dB gain compression point (IP<sub>1dB</sub>) of +29dBm.

LX5553 is available in a 16-pin, low profile of 0.55mm, 3x3mm<sup>2</sup> micro-lead package (MLPQ-16L) in very low profile of 0.55mm. With its high level of functional integration, best-class performance, compact footprint and low profile, LX5553 offers an ideal front-end solution for the ever demanding design requirements of today's highly integrated mobile equipments, including 802.11b/g/n and Bluetooth applications.

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

**KEY FEATURES**

- 2.4-2.5GHz 802.11b/g/n Front-End Solution in a Single MLP Package
- SP3T for Sharing Antenna between WLAN and Bluetooth systems
- All RF I/O Matched to 50 Ω
- Single-Supply Voltage 3.0V to 4.2V
- Small Footprint: 3x3mm<sup>2</sup>
- Low Profile: 0.55mm
- RoHS Compliant & Pb-Free

**TX Features :**

- Power Gain ~ 25 dB\*
- Pout ~ +17 dBm\* for 3% EVM at Antenna
- Current ~145 mA at +17 dBm\*
- Pout ~ +21 dBm\* for 11b 1Mbps DSSS Mask Compliance
- Quiescent Current ~ 82 mA

**RX Features :**

- Gain ~ 13 dB\*
- Noise Figure ~ 2.1 dB\*
- IIP3 ~ +5 dBm\*

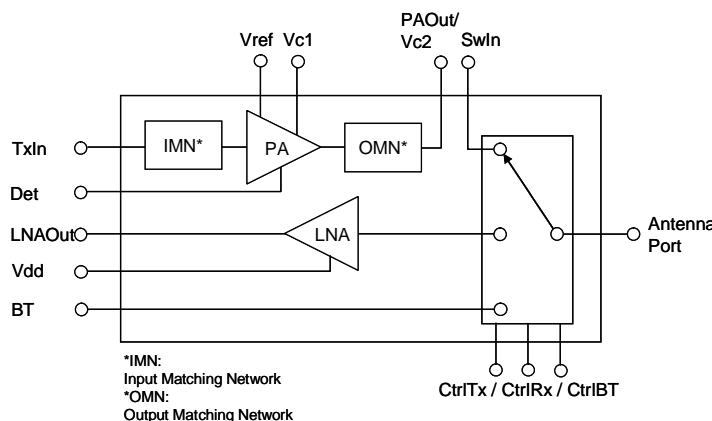
**Bluetooth Path :**

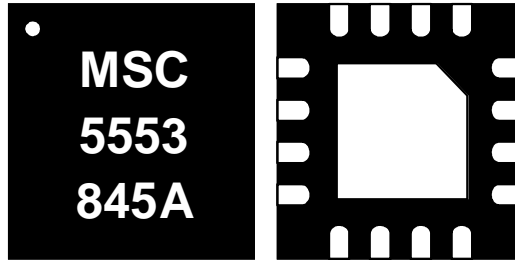
- Insertion Loss ~ 0.9 dB
- IP1dB ~ +29 dBm

\* Including SP3T switch loss

**APPLICATIONS**

- IEEE 802.11b/g/n
- Mobile Phone WLAN module

**BLOCK DIAGRAM**


**PRODUCT HIGHLIGHT**

**PACKAGE ORDER INFO**

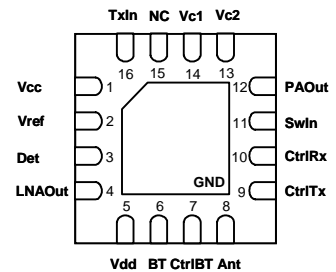
	Plastic MLPQ 16 pin 3x3mm RoHS Compliant /Pb-Free
<b>LU</b>	
LX5553LU	

Note: Available in Tape & Reel.  
Append the letters "TR" to the part number.  
(i.e. LX5553LU-TR)

**ABSOLUTE MAXIMUM RATINGS**

DC Supply Voltage, RF off.....	5V
Collector Current (PA).....	500mA
Drain Current (LNA) .....	40mA
Total Power Dissipation.....	2W
RF Input Power (TxIn) .....	+10 dBm
RF Input Power (Ant, SwIn, BT) .....	+25 dBm
Maximum Junction Temperature (T <sub>j</sub> max) .....	+150°C
Operation Ambient Temperature .....	-40°C to +85°C
Storage Temperature.....	-65°C to +150°C
RoHS/Pb-Free Peak Package 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**


**LQ PACKAGE**  
("See-Through" View from Top)

RoHS/Pb-free 100% Matte Tin Lead finish

**THERMAL DATA**
**LU Plastic MLPQ 16-Pin**

THERMAL RESISTANCE-JUNCTION TO CASE, $\theta_{JC}$	10 C/W
THERMAL RESISTANCE-JUNCTION TO AMBIENT, $\theta_{JA}$	50 C/W

Junction Temperature Calculation:  $T_J = T_A + (P_D \times \theta_{JA})$ .

The  $\theta_{JA}$  numbers are guidelines for the thermal performance of the device/pc-board system. All of the above assume no ambient airflow.



LX5553

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PRODUCTION DATA SHEET

*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](mailto: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.