

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

LX5543 is a WLAN front-end module (FEM) for 802.11b/g/n and other applications in the 2.4-2.5GHz frequency range. LX5543 integrates an advanced InGaP/GaAs Heterojunction Bipolar Transistor (HBT) power amplifier with on chip impedance matching and a Depletion mode pHEMT (D-pHEMT) single-pole triple-throw (SP3T) switch in a single package with 3x3mm footprint. LX5543 provides capability of sharing a single antenna between WLAN and Bluetooth systems through the SP3T switch.

The Tx path of LX5543 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 LX5543 features low insertion loss of 0.6dB and high input referred 1dB gain compression point (IP<sub>1dB</sub>) of +25dBm. Bluetooth path of LX5543 features insertion loss 0.9dB, and IP<sub>1dB</sub> of +29dBm.

LX5543 is available in a 16-pin, low profile of 0.55mm, 3x3mm<sup>2</sup> micro-lead package (MLPQ-16L). With its high level of functional integration, best-class performance, compact footprint and low profile, LX5543 offers an ideal front-end solution for the ever demanding design requirements of today's highly integrated mobile equipments, including 802.11 b/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 ~ 25dB\*
- Pout ~ +17dBm\* for 3% EVM at Antenna
- Current ~145mA at +17dBm\*
- Pout ~ +21dBm\* for 11b 1Mbps DSSS Mask Compliance
- Quiescent Current ~ 82mA

**RX Features :**

- Insertion Loss ~ 0.6 dB
- IP<sub>1dB</sub> ~ +25 dBm

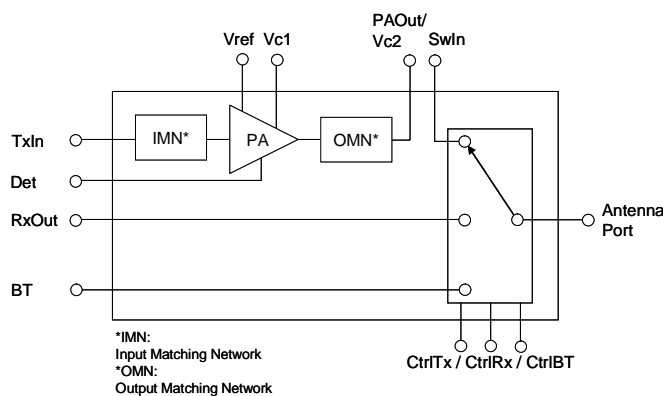
**Bluetooth Path :**

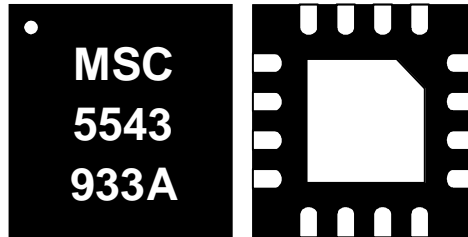
- Insertion Loss ~ 0.9 dB
- IP<sub>1dB</sub> ~ +29 dBm

\* Including SP3T switch loss

**APPLICATIONS**

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

**BLOCK DIAGRAM**


**PRODUCT HIGHLIGHT**

**PACKAGE ORDER INFO**

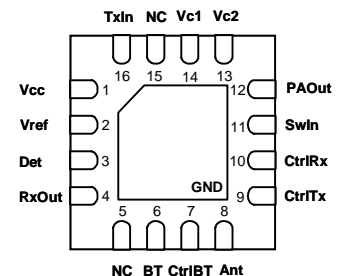
<b>LU</b>	Plastic MLPQ
	16 pin 3x3mm
	RoHS Compliant /Pb-Free
LX5543LU	

Note: Available in Tape & Reel.  
Append the letters "TR" to the part number.  
(i.e. LX5543LU-TR)

**ABSOLUTE MAXIMUM RATINGS**

DC Supply Voltage, RF off .....	5V
Collector Current (PA).....	500mA
Total Power Dissipation.....	2W
RF Input Power (TxIn).....	+10dBm
RF Input Power (Ant, SwIn, BT).....	+25dBm
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**


**LU 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, $\theta_{JC}$	<b>10 C/W</b>
THERMAL RESISTANCE-JUNCTION TO AMBIENT, $\theta_{JA}$	<b>50 C/W</b>

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.



LX5543

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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.