LX5552

2.4-2.5 GHz Front-End Module with Internally Matched Power Amplifier, LNA & SPDT Switch

PRODUCTION DATA SHEET

DESCRIPTION

LX5552 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. LX5552 integrates a fully matched InGaP/GaAs Hetero-junction Bipolar Transistor (HBT) power amplifier, a low noise amplifier based on InGaAs Enhancement mode pseudo-morphic high electron mobility transistor (E-pHEMT) technology, and a low-cost Depletion mode pHEMT (D-pHEMT) single pole double throw (SPDT) antenna switch in a single package.

The Tx path of LX5552 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 3.3V supply voltage and 80mA bias current, the Tx path provides about 26dB power gain and +17dBm linear output power, with low total EVM (<3%) for 64QAM/ 54Mbps OFDM. Both gain and power are readily measured at antenna port with the insertion loss of the Tx switch included.

The Rx path of LX5552 features small-signal gain of 12.5dB, low noise figure of 2dB, and high input third-order intercept point (IIP3) of +5dBm with the insertion loss of the the Rx switch loss included. The LNA consumes about 10mA current with 3.3V supply voltage.

LX5552 is available in a 16-pin, 3x3mm micro-lead package (MLPQ-16L). With its high level of functional integration, best-class performance, compact footprint and low profile, LX5552 offers an ideal front-end solution for the ever demanding design requirements of today's WLAN systems, including 802.11b/g and the latest 11n MIMO 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
- All RF I/O Matched to 50 Ω
- Single-Polarity 3.3V Supply
- Small Footprint: 3x3mm^2
- Low Profile: 0.55mm
- RoHS Compliant & Pb-Free

TX Features :

- Power Gain ~ 26dB*
- Pout ~ +17dBm* for 3% EVM
- Current ~140mA at +17dBm
- Pout ~ +21dBm* for 11b 1Mbps DSSS Mask Compliance
- Quiescent Current ~ 80mA

RX Features :

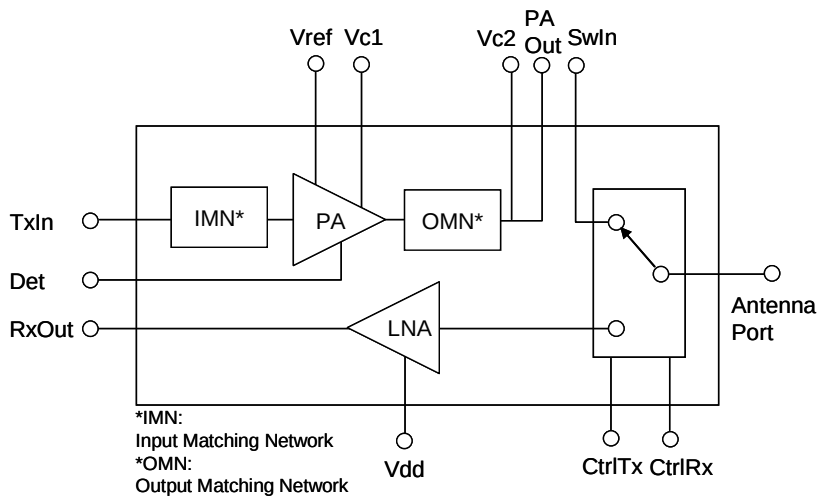
- Gain ~ 12.5dB*
- Noise Figure ~ 2dB*
- IIP3 ~ +5dBm*

* Including SPDT switch loss

APPLICATIONS

- IEEE 802.11b/g
- IEEE 802.11n MIMO

BLOCK DIAGRAM



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Microsemi
Analog Mixed Signal Group
11861 Western Avenue, Garden Grove, CA. 92841, 714-898-8121, Fax: 714-893-2570

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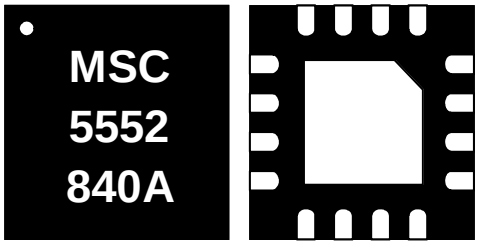
PRODUCT HIGHLIGHT



PACKAGE ORDER INFO

LU	Plastic MLPQ 16 pin 3x3mm RoHS Compliant /Pb-Free
LX5552LU	

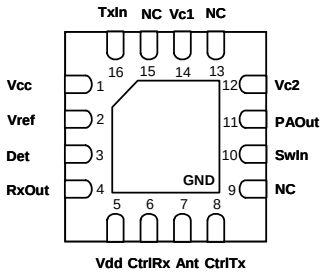
Note: Available in Tape & Reel.
Append the letters "TR" to the part number.
(i.e. LX5552LU-TR)

ABSOLUTE MAXIMUM RATINGS

DC Supply Voltage, RF off (PA) 5V
(LNA) 4V
(Switch) 5V
Collector Current (PA) 500mA
Drain Current (LNA) 40mA
Total Power Dissipation 2W
RF Input Power (With 50 Ohm Load at Output) ..... +10dBm
Maximum Junction Temperature (Tj 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, θ_{JC}	9.5 C/W
THERMAL RESISTANCE-JUNCTION TO AMBIENT, θ_{JA}	50.0 C/W

Junction Temperature Calculation: $T_J = T_A + (P_D \times \theta_{JA})$.
The θ_{JA} numbers are guidelines for the thermal performance of the device/pc-board system. All of the above assume no ambient airflow.

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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.

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