

# CMOS 5GHz WLAN 802.11ac RFeIC with PA, LNA and SPDT

## Description

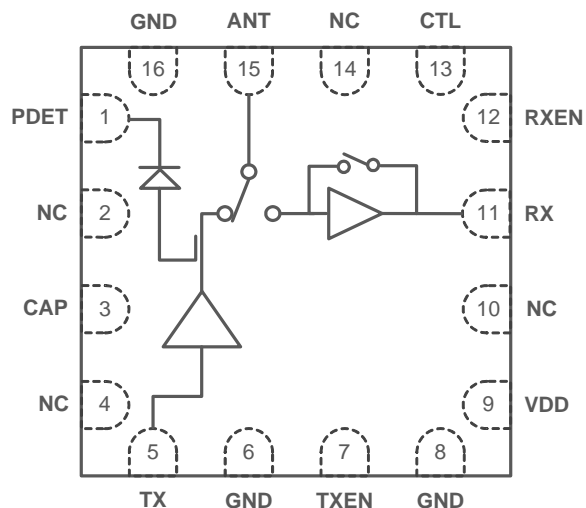
RFX8053 is a highly integrated, single-chip, single-die RFeIC (RF Front-end Integrated Circuit) which incorporates key RF functionality needed for IEEE 802.11a/n/ac WLAN systems operating in the 5.15-5.825GHz range. The RFX8053 architecture integrates a high-efficiency high-linearity power amplifier (PA), low noise amplifier (LNA) with bypass, the associated matching network, LO rejection, and harmonic filters all in a CMOS single-chip device.

RFX8053 has simple and low-voltage CMOS control logic, and requires minimal external components. A directional coupler based power detect circuit is also integrated for accurate monitoring of output power from the PA.

RFX8053 is assembled in an ultra-compact, ultra-thin 2.5x2.5x0.4mm 16-lead QFN package. With support to direct battery operation, the RFX8053 is the ideal RF front-end solution for implementing 5GHz WLAN in smartphones and many other mobile platforms.

## Applications

- ▶ 802.11a/n/ac
- ▶ Smartphones
- ▶ Tablets/MIDs
- ▶ Gaming Devices
- ▶ Notebook/Netbook/Ultrabooks
- ▶ Mobile/Portable Devices
- ▶ Consumer Electronics
- ▶ Linear 5GHz ISM Platforms



Parameters	Typical	Conditions
<b>TX</b>		
Small-Signal Gain	31dB	In Band
Quiescent Current	180mA	No RF Applied
Linear Output Power for 11a	+18.5dBm	EVM 3.5%, 802.11a 54Mbps, VDD=3.6V
Linear Output Power for 11n	+17.5dBm	EVM -32dB, 802.11n MCS7/HT40, VDD=3.6V
Linear Output Power for 11ac	+16.5dBm	EVM -35dB, 802.11ac MCS9/VHT80, VDD=3.6V
TX Linear Current	260mA	At Pout=+18dBm
2 <sup>nd</sup> and 3 <sup>rd</sup> Harmonic	-40dBc	At Pout=+19dBm, CW
<b>RX</b>		
Small-Signal Gain	12dB	High Gain Mode, Between ANT and RX pin
Noise Figure	3.4dB	High Gain Mode, At ANT Pin
Quiescent Current	13mA	No RF Applied
Bypass Insertion Loss	-5dB	Between ANT and RX Pin
<b>CHIP</b>		
Operating Frequency	5.15-5.825GHz	Operational between 4.9-5.15GHz
Supply VDD	3 – 4.8 V	Nominal VDD=3.6V
Shut-down Current	3uA	
RF Port Impedance	50-Ohm	Single-ended
Control Signals	High Enable	CMOS Logic, <0.3V Low, >1.2V High
Package	16-QFN	2.5mm x 2.5mm x 0.40mm