

QWX27103 Product Brief

5-7 GHz IoT Wi-Fi CMOS Front-End IC

Applications

- Wi-Fi 6 and Wi-Fi 6E systems
- Modules, Smart TV, set-top boxes

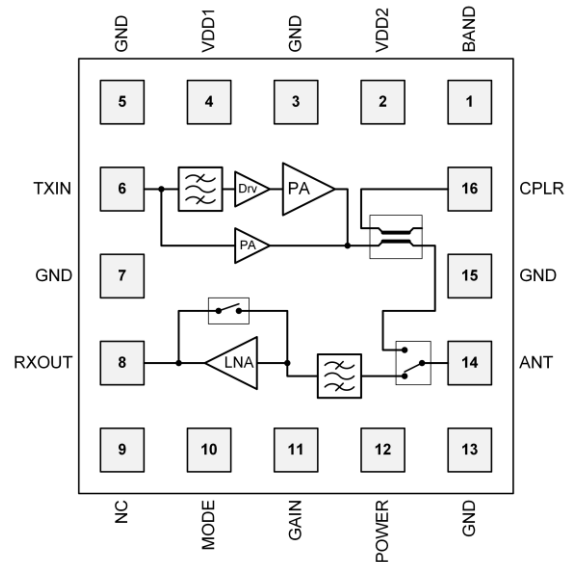
Features

- PA with superior linear output power and best-in-class power efficiency for Wi-Fi 6E applications
- Monolithic die implementation CMOS SOI ensures smallest form factor
- LNA with bypass mode and industry leading current consumption
- High-performance and low power transmit modes
- 16-pin LGA 2 mm x 2 mm or bare die with Cu pillars for flip chip assembly
- Directional coupler output
- On-chip filtering for enhanced coexistence performance

Key Specifications

- 5150 – 7125 MHz
- Single 3.3V or 3.85V supply voltage
- Transmit output power (3.3V supply):
 - 20 dBm, 6 Mbps 802.11a, 20 MHz
 - 16 dBm, MCS9, VHT80 -35 dB DEVM
 - 15 dBm, MCS11, HE80, -42 dB DEVM
- Transmit gain: 27 dB
- Current consumption:
 - 265 mA at 20 dBm output power
- Noise figure: 2.6 dB
- Receive gain: 16 dB
- 50 dB attenuation at 2.4-2.5 GHz

Functional Block Diagram



Pin description follows on the next page.

Description

The QuantalRF QWX27103 is a highly integrated monolithic front-end IC designed for high performance Wireless Local Area Network (WLAN) applications supporting all standards up to Wi-Fi 7. It features a patent pending PA architecture providing superior power efficiency, a low loss single-pole, double-throw (SPDT) switch and an LNA.

Support for Digital Pre-Distortion (DPD) is implemented in both transmit modes for a further improved EVM performance.

All RF ports are matched on-chip to 50 ohms to minimize the external components and application layout area.

The QX27103 is fabricated as a monolithic die in CMOS SOI technology.

Pin Configuration and Description

Pin No.	Label	Description
1	BAND	Control signal for PA band selection
2, 4	VDD1, VDD2	3.3 V supply
3, 5, 7, 13, 15	GND	Ground
Not shown	GND	Ground paddle
6	TXIN	RF PA input port
8	RXOUT	RF LNA output port
9	NC	No connect
10	MODE	Control signal, see truth table in the datasheet.
11	GAIN	Control signal, see truth table in the datasheet.
12	POWER	Control signal, see truth table in the datasheet.
14	ANT	Bidirectional antenna port, matched to 50Ω
16	CPLR	TXRF coupler output port

Handling Precautions

Proper caution must be exercised to prevent electrostatic (ESD) damage.

Parameter	Rating	Condition
HBM	2000 V	Human body model contact discharge per ANSI/ESDA/JEDEC JS-001-2014
CDM	500 V	Charged device model contact discharge per ANSI/ESDA/JEDEC JS-002-2014

RoHS Compliance

The part is compliant with the 2011/65/EU RoHS directive, as amended by Directive 2015/863/EU.

Contact Information

For the latest specifications, additional product information and support:

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Learn more at quantalrf.com

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