

QWX23105 Product Brief

2.4 GHz Wi-Fi 7 / Bluetooth Front-End IC

Applications

- Wi-Fi 7 / Bluetooth systems
- Smartphones and other portable, rechargeable battery-operated devices
- Modules for embedded systems

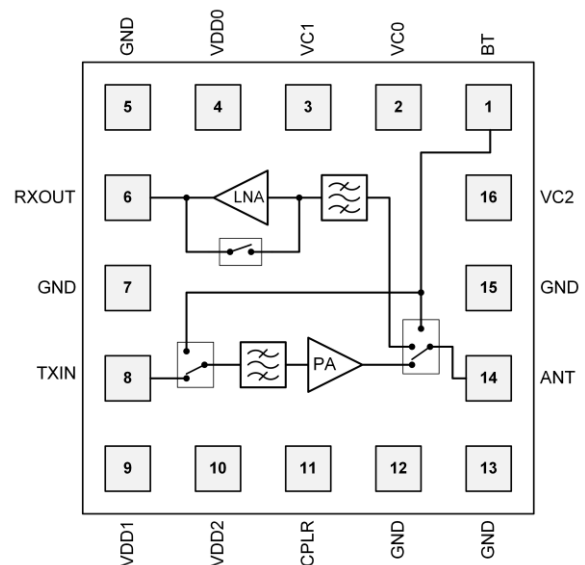
Features

- Single Wi-Fi 7 / Bluetooth combo front-end IC
- PA with superior linear output power and best-in-class power efficiency for Wi-Fi 7 high data rate applications
- LNA with bypass mode and industry leading current consumption
- High power, mid power, and ultra-low power modes
- Fully integrated CMOS SOI single die IC
- LGA 2 mm x 2 mm or bare die with Cu pillars for flip chip assembly
- Directional coupler output
- Integrated RF filters offer superior interferer immunity

Key Specifications

- 2400 – 2500 MHz
- Single 3.85V supply voltage
- Pout = +16 dBm MCS13 EHT40 -45 dB DEVM
- Pout = +17.5 dBm MCS11 HE40 -43 dB DEVM
- Pout = +19 dBm MCS8 HE20 -34 dB DEVM
- Pout = +23 dBm 6 Mbps 802.11g
- Pout = +24 dBm CCK11
- Transmit gain = 28 dB
- Current consumption:
170 mA at 18.5 dBm output power
- Noise Figure (including on-chip filter) = 2 dB
- Receive gain = 16.5 dB

Functional Block Diagram



Pin description follows on the next page.

Description

The QuantalRF QWX23105 is a highly integrated single front-end IC designed for high performance Wireless Local Area Network (WLAN) and Bluetooth applications supporting all standards up to Wi-Fi 7. It features a patent pending PA architecture providing superior linearity, a low loss single-pole, double-throw (SPDT) switch and an LNA.

The QWX23105 is equipped with on-chip filters enhancing coexistence performance. IoT devices are supported via the ultra-low power mode.

All RF ports are matched on-chip to 50 ohms. Combined with the on-chip filtering, it minimizes the external components and application layout area.

The QWX23105 is fabricated as a single die in CMOS SOI technology.

Pin Configuration and Description

Pin No.	Label	Description
1	BT	Bluetooth RF bidirectional port, matched to 50Ω
2	VC0	Control signal, see truth table in the datasheet.
3	VC1	Control signal, see truth table in the datasheet.
4, 9, 10	VDD	3.85V supply
5, 7, 12, 13, 15	GND	Ground
6	RXOUT	RF LNA output port
8	TXIN	RF PA input port
11	PDET	Directional coupler output
14	ANT	Bidirectional antenna port, matched to 50Ω
16	VC2	Control signal, see truth table in the datasheet.

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:

sales@quantalrf.com

Learn more at quantalrf.com

Disclaimer

Limited warranty and liability - Information in this document is believed to be accurate and reliable. However, QuantalRF does not give any representations or warranties, expressed or implied, as to the accuracy or completeness of such information and shall have no liability for the consequences of the use of such information.

Right to make changes - QuantalRF reserves the right to make changes to information published in this document, including without limitation specifications and product descriptions, at any time and without notice. This document supersedes and replaces all information supplied prior to the publication hereof.