QWX23105 Product Brief

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

Applications

- Wi-Fi 7 and Wi-Fi 8 / Bluetooth combo systems
- Smartphones and other portable, rechargeable battery-operated devices
- Smart TV, set-top boxes, AR/VR headsets

Intelligent and Adapative FEM Features

- PA architecture maintaining EVM performance over varying VSWR conditions

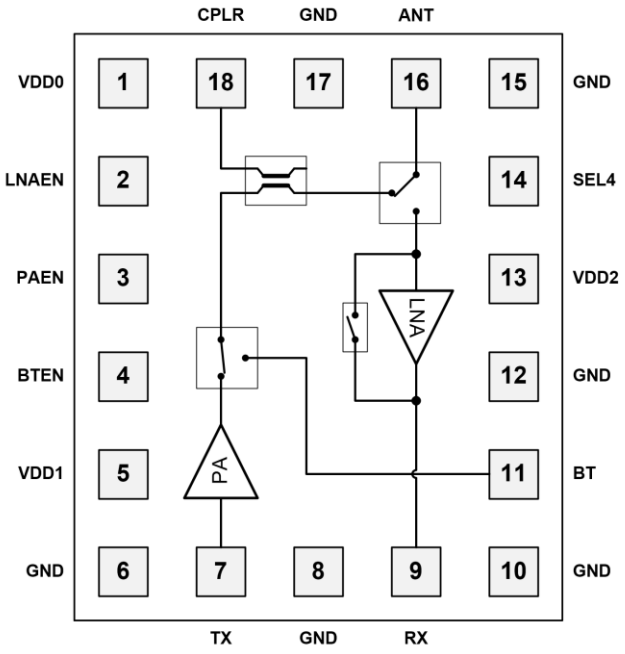
Features

- PA with superior linear output power and best-in-class power efficiency for Wi-Fi 7 and WI-Fi 8 high data rate applications
- Monolithic die implementation in CMOS SOI ensures the smallest form factor
- Receive with high gain, low current and bypass modes
- Transmit with high power, mid power,low power and Bluetooth mode

Key Specifications

- 2400 – 2500 MHz
- 3.8V supply voltage for PA and 1.8V supply voltage for LNA
- Transmit output power:
  - 24.5 dBm, 802.11g, 3 dB SEM margin
  - 21.5 dBm, HE40, -35 dB DEVM
  - 20.5 dBm, HE40, -42 dB DEVM
  - 19 dBm, EHT40, -45 dB DEVM
- Transmit gain: 30 dB (high power mode)
- Current consumption:
  - 265 mA at 22 dBm output power
- Noise figure: 1.8 dB
- Receive gain: 16.5 dB

Functional Block Diagram



18-pin LGA 2 mm x 2.4 mm

Description

The QuantalRF QWX23105 is a highly integrated monolithic front-end IC designed for high performance WLAN and Bluetooth applications supporting all standards up to Wi-Fi 8. It features a patent pending PA architecture providing superior power efficiency, a low loss single-pole, quadruple-throw (SP4T) switch and an LNA.

Support for Digital Pre-Distortion (DPD) is implemented for further improved EVM performance.

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

QWX23105 is fabricated as a monolithic die in CMOS SOI technology.

Pin Configuration and Description

Pin No.	Label	Description
6, 8, 10, 12, 15, 17, 19	GND	Ground
5	VDD1	3.8 V supply
13	VDD2	3.8 V supply
1	VDD0	1.8 V supply for LNA
7	TX	RF PA input port
11	BT	BT TX bypass input port
9	RX	RF LNA output port
2, 3, 4, 14	SEL4, PAEN, LNAEN, BTEN	Control signals
16	ANT	Bidirectional antenna port, matched to 50Ω
18	CPLR	TXRF coupler output port

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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