Quectel FC905A

Wi-Fi&Bluetooth Module
Ultra-compact LCC Package

12.0 mm

12.0 mm

1.55 mm
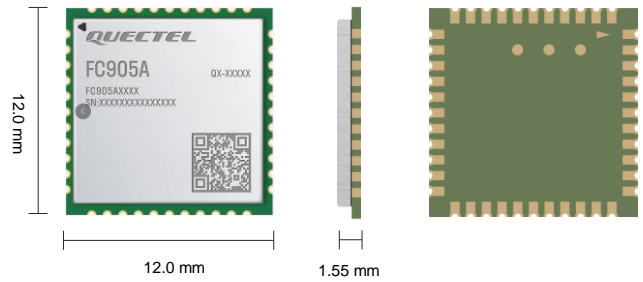
FC905A is a high-performance Wi-Fi 5 and BLE (Bluetooth 5.0) module in LCC package. It can be used to establish WLAN and Bluetooth connections. In IEEE 802.11ac mode, the WLAN operation supports rates of MCS0–MCS8 in 20 MHz channel and MCS0–MCS9 in 40 MHz and 80 MHz channels. With 256QAM supported, it delivers maximum data rate up to 433.3 Mbps. All rates specified in IEEE 802.11a/b/g/n are supported. Designed with a reliable SDIO 3.0 interface to provide WLAN capability, FC905A also includes 2.4 GHz and 5 GHz transmit power amplifiers and receive low noise amplifiers.

FC905A is Bluetooth 5.0 compliant. The Bluetooth transmitter features a Class 1 power amplifier. FC905A supports Extended Synchronous Connection Oriented link (eSCO) for enhanced voice quality by allowing for retransmission of dropped packets, and Adaptive Frequency Hopping (AFH) for reducing radio frequency interference.

With an ultra-compact size of 12.0 mm × 12.0 mm × 1.55 mm, FC905A optimizes the size and cost for end-products, which fully meets the demands of size-sensitive applications.

Surface-mount Technology (SMT) makes FC905A an ideal solution for durable and rugged designs. The low profile and small size of LCC package ensure that FC905A can be easily embedded into size-constrained applications and provide reliable connectivity with these applications. The advanced package and the laser-engraved label with better heat dissipation and indelible markings allow for large-scale automated manufacturing that has strict requirements on cost and efficiency. Coupled with its compact size and wide operating temperature range, FC905A can meet various needs of commercial and industrial applications.

Key Features

- ✔ 2.4 GHz/ 5 GHz Wi-Fi and BLE (Bluetooth 5.0)
- ✔ SDIO 3.0 interface that supports higher data transmission rate and enables lower power consumption
- ✔ Explicit transmit beamforming standardized by IEEE 802.11ac
- ✔ Faster time-to-market: simple design minimizes design-in time and development efforts
- ✔ Wide operating temperature range: -30 °C to +85 °C

Ultra-compact Size

LCC Package

IEEE 802.11 a/b/g/n/ac

SDIO 3.0 Interface

Operating Temperature Range: -30 °C to +85 °C

BLE (Bluetooth 5.0)

Wi-Fi&Bluetooth	FC905A
WLAN Protocol	IEEE 802.11a/b/g/n/ac
Wi-Fi Frequency Band	2.4 GHz/ 5 GHz
Wi-Fi Antenna	1 × 1
Wi-Fi Modulation Mode	DSSS, CCK, BPSK, QPSK, DBPSK, DQPSK, 16QAM, 64QAM, 256QAM
Bluetooth Protocol	Bluetooth 5.0
Bluetooth Antenna	Share antenna with Wi-Fi
Encryption Mode	WPA3
Wi-Fi Operating Mode	AP/ STA
Dimension	12.0 mm × 12.0 mm × 1.55 mm
Weight	Approx. 0.6 g
Temperature Range	
Operating Temperature Range	-30 °C to +85 °C[①]
Data Rate (Max.)	
802.11a	54 Mbps
802.11b	11 Mbps
802.11g	54 Mbps
802.11n	72 Mbps
802.11ac	433.3 Mbps
Interfaces	
PCM	× 1 (for Bluetooth)
SDIO 3.0	× 1 (for Wi-Fi)
UART	× 1 (for Bluetooth)
Wi-Fi/ Bluetooth Antenna	× 1
Electrical Features	
Power Supply Voltage	VBAT: 3.13–4.8 V, Typ. 3.6 V
I/O Power Supply Voltage	VIO: 1.71–3.63 V, Typ. 1.8/ 3.3 V
Power Consumption	Max. current at Tx mode: 330 mA @ VBAT 0.5 mA @ VIO
Certification	
Regulatory	**Europe:** CE **America:** FCC **Canada**: IC **China:** SRRC

NOTE:

①: Functionality is guaranteed across this ambient temperature range. Optimum RF performance is guaranteed only in the temperature range from -30 °C to 75 °C.

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Wi-Fi&Bluetooth	FC905A	
Wi-Fi Performance		
	Receiving Sensitivity (Typ.)	Transmitting Power (Typ.)
2.4 GHz 802.11b/1 Mbps	-96 dBm	18 dBm
802.11b/11 Mbps	-87 dBm	18 dBm
802.11g/6 Mbps	-93 dBm	18 dBm
802.11g/54 Mbps	-76 dBm	16 dBm
802.11n/HT20 MCS0	-93 dBm	18 dBm
802.11n/HT20 MCS7	-74 dBm	15 dBm
5 GHz 802.11a/6 Mbps	-91 dBm	17 dBm
802.11a/54 Mbps	-75 dBm	15 dBm
802.11n/HT20 MCS0	-91 dBm	17 dBm
802.11n/HT20 MCS7	-73 dBm	15 dBm
802.11n/HT40 MCS0	-88 dBm	16 dBm
802.11n/HT40 MCS7	-70 dBm	13 dBm
802.11ac/VHT20 MCS0	-91 dBm	17 dBm
802.11ac/VHT20 MCS8	-70 dBm	14 dBm
802.11ac/VHT40 MCS0	-88 dBm	16 dBm
802.11ac/VHT40 MCS9	-65 dBm	13 dBm
802.11ac/VHT80 MCS0	-85 dBm	15 dBm
802.11ac/VHT80 MCS9	-63 dBm	12 dBm
Bluetooth Performance		
	Receiving Sensitivity (Typ.)	Transmitting Power (Typ.)
BR	-88 dBm	9 dBm
EDR (π/4-DQPSK)	-92 dBm	6 dBm
EDR (8-DPSK)	-85 dBm	6 dBm
BLE	-92 dBm	5 dBm

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