Quectel FCU906A

Wi-Fi 5 & Bluetooth 5.2 Module
Ultra-compact LCC Package

12.0 mm

12.0 mm

1.55 mm
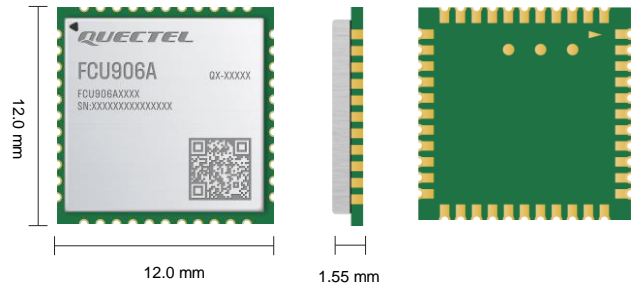
FCU906A is a high-performance Wi-Fi 5 and Bluetooth 5.2 module in LCC package. It can be used to establish WLAN and Bluetooth connections. In IEEE 802.11ac mode, the WLAN operation supports rates of MCS 0–MCS 8 in 20 MHz channel and MCS 0–MCS 9 in 40 MHz and 80 MHz channels. With 256QAM supported, it 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 USB 2.0 interface to provide WLAN capability, FCU906A also includes 2.4 GHz and 5 GHz transmit power amplifiers and receive low noise amplifiers.

FCU906A is Bluetooth 5.2 compliant. The Bluetooth transmitter features a Class 1 power amplifier. FCU906A 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, FCU906A optimizes the size and cost for end-products, which fully meets the demands of size-sensitive applications.

Surface-mount Technology (SMT) makes FCU906A an ideal solution for durable and rugged designs. The low profile and small size of LCC package ensure that FCU906A 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, FCU906A can meet various needs of commercial and industrial applications.

Key Features

- ✔ 2.4 GHz/ 5 GHz Wi-Fi and Bluetooth 5.2
- ✔ USB 2.0 interface
- ✔ 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: -20 °C to +70 °C

Bluetooth 5.2

LCC Package

IEEE 802.11 a/b/g/n/ac

USB 2.0 Interface

Operating Temperature Range: -20 °C to +70 °C

Ultra-compact Size

Version: 1.0.0 | Status: Preliminary

Wi-Fi 5 & Bluetooth 5.2	FCU906A
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	DBPSK, DQPSK, CCK, BPSK, QPSK, 16-QAM, 64-QAM, 256-QAM
Bluetooth Protocol	Bluetooth 5.2
Bluetooth Antenna	Share antenna with Wi-Fi
Encryption Mode	WPA3-Personal
Wi-Fi Operating Mode	AP/ STA
Dimensions	12.0 mm × 12.0 mm × 1.55 mm
Weight	TBD
Temperature Range	
Operating Temperature	-20 °C to +70 °C
Data Rate (Max.)	
802.11a	54 Mbps
802.11b	11 Mbps
802.11g	54 Mbps
802.11n	150 Mbps
802.11ac	433.3 Mbps
Interfaces	
PCM	× 1 (for Bluetooth)
USB 2.0	× 1 (for Wi-Fi & Bluetooth)
Wi-Fi/Bluetooth Antenna	× 1
Electrical Features	
Power Supply Voltage	VBAT: 3.2–4.8 V, Typ. 3.6 V
I/O Power Supply Voltage	VIO: 1.62–3.63 V, Typ. 1.8/ 3.3 V
Power Consumption	Max. current at Tx mode: TBD @ VBAT TBD @ VIO
Certifications	
Regulatory (Planning)	**Europe:** CE **America:** FCC **Canada:** IC **Australia/New Zealand:** RCM **China:** SRRC

Model	Ordering Code	Antenna	Development Board (Only for Debugging)
FCU906A	FCU906AAAMD	One antenna	FCU906AAAM2

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