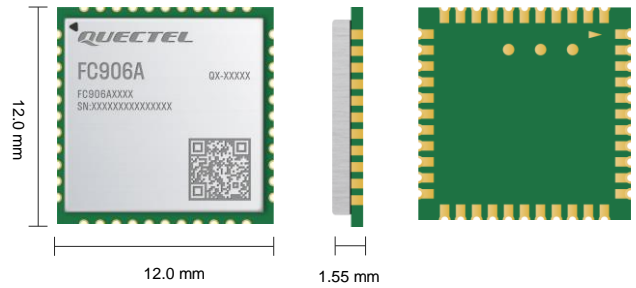


# Quectel FC906A

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



FC906A 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 SDIO 3.0 interface to provide WLAN capability, FC906A also includes 2.4 GHz and 5 GHz transmit power amplifiers and receive low noise amplifiers.

FC906A is Bluetooth 5.2 compliant. The Bluetooth transmitter features a Class 1 power amplifier. FC906A 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, FC906A optimizes the size and cost for end-products, which fully meets the demands of size-sensitive applications.

Surface-mount Technology (SMT) makes FC906A an ideal solution for durable and rugged designs. The low profile and small size of LCC package ensure that FC906A 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, FC906A can meet various needs of commercial applications.



### Key Features

- ✓ 2.4 GHz/ 5 GHz Wi-Fi and Bluetooth 5.2
- ✓ 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: -20 °C to +70 °C



Bluetooth 5.2



LCC Package



IEEE 802.11  
a/b/g/n/ac



SDIO 3.0  
Interface



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



Ultra-compact  
Size

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Wi-Fi 5 & Bluetooth 5.2	FC906A
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 5.2
Bluetooth Antenna	Share antenna with Wi-Fi
Encryption Mode	WPA3
Wi-Fi Operating Mode	AP/ STA
Dimensions	12.0 mm × 12.0 mm × 1.55 mm
Weight	Approx. 0.5 g
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	
SDIO 3.0	× 1 (for Wi-Fi)
PCM	× 1 (for Bluetooth)
UART	× 1 (for 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	VDD_IO: 1.62–3.63 V, Typ. 1.8/ 3.3 V
Power Consumption	Max. current at Tx mode: 315 mA @ VBAT 0.18 mA @ VIO
Certifications	
Regulatory (Planning)	Europe: CE America: FCC Canada: IC Australia/New Zealand: RCM China: SRRC

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## Wi-Fi 5 & Bluetooth 5.2

## FC906A

### Wi-Fi Performance

		Receiver Sensitivity	Transmit Power
2.4 GHz	802.11b/1 Mbps	-97 dBm ±2 dB	17 dBm ±2 dB
	802.11b/11 Mbps	-87 dBm ±2 dB	17 dBm ±2 dB
	802.11g/6 Mbps	-92 dBm ±2 dB	18 dBm ±2 dB
	802.11g/54 Mbps	-73 dBm ±2 dB	16 dBm ±2 dB
	802.11n/HT20 MCS 0	-92 dBm ±2 dB	16 dBm ±2 dB
	802.11n/HT20 MCS 7	-73 dBm ±2 dB	15 dBm ±2 dB
	802.11n/HT40 MCS 0	-90 dBm ±2 dB	16 dBm ±2 dB
	802.11n/HT40 MCS 7	-71 dBm ±2 dB	13.5 dBm ±2 dB
5 GHz	802.11a/6 Mbps	-91 dBm ±2 dB	15.5 dBm ±2 dB
	802.11a/54 Mbps	-73 dBm ±2 dB	15 dBm ±2 dB
	802.11n/HT20 MCS 0	-91 dBm ±2 dB	15.5 dBm ±2 dB
	802.11n/HT20 MCS 7	-72 dBm ±2 dB	14 dBm ±2 dB
	802.11n/HT40 MCS 0	-88 dBm ±2 dB	14 dBm ±2 dB
	802.11n/HT40 MCS 7	-68 dBm ±2 dB	13 dBm ±2 dB
	802.11ac/VHT20 MCS 0	-91 dBm ±2 dB	15.5 dBm ±2 dB
	802.11ac/VHT20 MCS 8	-67 dBm ±2 dB	13 dBm ±2 dB
	802.11ac/VHT40 MCS 0	-89 dBm ±2 dB	14 dBm ±2 dB
	802.11ac/VHT40 MCS 9	-62 dBm ±2 dB	11 dBm ±2 dB
	802.11ac/VHT80 MCS 0	-85 dBm ±2 dB	13 dBm ±2 dB
	802.11ac/VHT80 MCS 9	-59 dBm ±2 dB	11 dBm ±2 dB

### Bluetooth Performance

	Receiver Sensitivity	Transmit Power
BR	-90 dBm ±2 dB	7 dBm ±2 dB
EDR (π/4-DQPSK)	-94 dBm ±2 dB	3 dBm ±2 dB
EDR (8-DPSK)	-87 dBm ±2 dB	3 dBm ±2 dB
BLE	-94 dBm ±2 dB	7 dBm ±2 dB

Model	Ordering Code	Antenna	DBS	Coexistence with Cellular Module	Development Board (Only for Debugging)
FC906A	FC906AAAMD	One antenna	-	-	FC906AAAM2