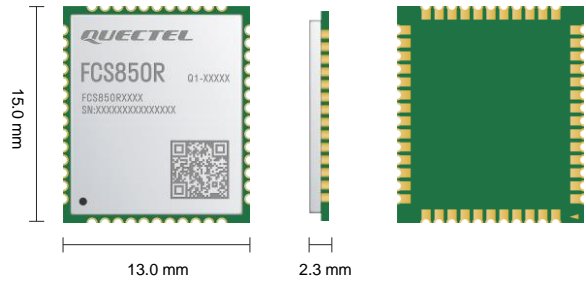




Quectel FCS850R Series

Wi-Fi 5 & Bluetooth 5.3 Module Ultra-compact LCC Package



FCS850R is a series of high-performance Wi-Fi 5 and Bluetooth 5.3 module featuring 2T2R in LCC package. It can be used to establish WLAN and Bluetooth connections, providing a maximum data rate up to 866.7 Mbps.

With an ultra-compact size of 15.0 mm × 13.0 mm × 2.3 mm, the module optimizes the size and cost for end-products, which fully meets the demands of size-sensitive applications.

Surface-mount technology (SMT) makes the module an ideal solution for durable and rugged designs. The low profile and small size of LCC package ensure that the module can be easily embedded into size-constrained applications and provide reliable connectivity with these applications.

Designed with a reliable SDIO 3.0 interface to provide WLAN capability, the module achieves low-power and high-speed data transmission. This, coupled with its compact size and wide operating temperature range, the module can meet Wi-Fi & Bluetooth application design requirements in consumer field.



Key Features

- ✓ Support 2.4 GHz and 5 GHz Wi-Fi and Bluetooth 5.3
- ✓ Support SDIO 3.0 interface which features higher data transmission rate and lower power consumption
- ✓ Faster time-to-market: simple design minimizes design-in time and development efforts
- ✓ Wide operating temperature range: -20 °C to +70 °C



Ultra-compact
Size



Bluetooth 5.3



IEEE 802.11
a/b/g/n/ac



SDIO 3.0
Interface



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



LCC Package

Quectel FCS850R Series

Wi-Fi 5 & Bluetooth 5.3	FCS850R-B	FCS850R
WLAN Protocol	IEEE 802.11a/b/g/n/ac	IEEE 802.11a/b/g/n/ac
Wi-Fi Frequency Band	2.4 GHz/ 5 GHz	2.4 GHz/ 5 GHz
Wi-Fi Antenna	2 × 2	2 × 2
Wi-Fi Modulation Mode	DBPSK/ DQPSK/ BPSK/ QPSK/ CCK/ 16QAM/ 64QAM/ 256QAM	DBPSK/ DQPSK/ BPSK/ QPSK/ CCK/ 16QAM/ 64QAM/ 256QAM
2.4 GHz Channel Bandwidth	20 MHz/ 40 MHz	20 MHz/ 40 MHz
5 GHz Channel Bandwidth	20 MHz/ 40 MHz/ 80 MHz	20 MHz/ 40 MHz/ 80 MHz
Encryption Mode	WPA3	WPA3
Wi-Fi Operating Mode	AP/ STA	AP/ STA
Bluetooth Protocol	Bluetooth 5.3	Bluetooth 5.3
Dimensions	15.0 mm × 13.0 mm × 2.3 mm	15.0 mm × 13.0 mm × 2.3 mm
Weight	Approx. 0.79 g	Approx. 0.79 g
Temperature Range		
Operating Temperature	-20 °C to +70 °C	-20 °C to +70 °C
Physical Rate (Max.)		
802.11a	54 Mbps	54 Mbps
802.11b	11 Mbps	11 Mbps
802.11g	54 Mbps	54 Mbps
802.11n	300 Mbps	300 Mbps
802.11ac	866.7 Mbps	866.7 Mbps
Interfaces		
PCM	× 1	× 1
SDIO	× 1	× 1
UART	× 1	× 1
Special Pins	WLAN_EN, BT_EN	WLAN_EN, BT_EN
Wi-Fi Antennas	× 2	× 1
Wi-Fi/ Bluetooth Antenna	-	× 1
Bluetooth Antenna	× 1	-
Electrical Features		
Power Supply Voltage	VBAT: 3.1–3.6 V, typ. 3.3 V VDDIO: 1.7–3.6 V, typ. 1.8/3.3 V	VBAT: 3.1–3.6 V, typ. 3.3 V VDDIO: 1.7–3.6 V, typ. 1.8/3.3 V
Power Consumption	Max. current at 802.11n/ac MIMO Tx mode: 389.83 mA @ 3.3 V 16.26 uA @ 1.8 V	Max. current at 802.11n/ac MIMO Tx mode: 389.83 mA @ 3.3 V 16.26 uA @ 1.8 V
Certifications		
Regulatory	Europe: CE America: FCC China: SRRC Australia/New Zealand: RCM Canada: IC Japan: JATE*/ TELEC* South Korea: KC*	Europe: CE America: FCC China: SRRC Australia/New Zealand: RCM Canada: IC Japan: JATE*/ TELEC* South Korea: KC*

NOTE:

*: Planning.

Quectel FCS850R Series

Wi-Fi 5 & Bluetooth 5.3 FCS850R-B FCS850R

Wi-Fi Performance		Receiver Sensitivity (Typ.)	Transmit Power (Typ.)	Receiver Sensitivity (Typ.)	Transmit Power (Typ.)
2.4 GHz	802.11b/1 Mbps	-97 dBm	18 dBm	-97 dBm	18 dBm
	802.11b/11 Mbps	-89 dBm	18 dBm	-89 dBm	18 dBm
	802.11g/6 Mbps	-93 dBm	17 dBm	-93 dBm	17 dBm
	802.11g/54 Mbps	-76 dBm	15 dBm	-76 dBm	15 dBm
	802.11n/HT20 MCS 0	-93.5 dBm	17 dBm	-93.5 dBm	17 dBm
	802.11n/HT20 MCS 7	-75 dBm	14 dBm	-75 dBm	14 dBm
	802.11n/HT40 MCS 0	-90 dBm	17 dBm	-90 dBm	17 dBm
	802.11n/HT40 MCS 7	-72 dBm	14 dBm	-72 dBm	14 dBm
5 GHz	802.11a/6 Mbps	-94.5 dBm	18 dBm	-94.5 dBm	18 dBm
	802.11a/54 Mbps	-77 dBm	15 dBm	-77 dBm	15 dBm
	802.11n/HT20 MCS 0	-94.5 dBm	17 dBm	-94.5 dBm	17 dBm
	802.11n/HT20 MCS 7	-75 dBm	14 dBm	-75 dBm	14 dBm
	802.11n/HT40 MCS 0	-91 dBm	17 dBm	-91 dBm	17 dBm
	802.11n/HT40 MCS 7	-72 dBm	14 dBm	-72 dBm	14 dBm
	802.11ac/VHT20 MCS 0	-94.5 dBm	17 dBm	-94.5 dBm	17 dBm
	802.11ac/VHT20 MCS 8	-71 dBm	14 dBm	-71 dBm	14 dBm
	802.11ac/VHT40 MCS 0	-90 dBm	17 dBm	-90 dBm	17 dBm
	802.11ac/VHT40 MCS 9	-66.5 dBm	13 dBm	-66.5 dBm	13 dBm
	802.11ac/VHT80 MCS 0	-88.5 dBm	17 dBm	-88.5 dBm	17 dBm
	802.11ac/VHT80 MCS 9	-63.5 dBm	13 dBm	-63.5 dBm	13 dBm

Bluetooth Performance		Receiver Sensitivity (Typ.)	Transmit Power (Typ.)	Receiver Sensitivity (Typ.)	Transmit Power (Typ.)
BR		-93 dBm	5 dBm	-93 dBm	5 dBm
EDR ($\pi/4$ -DQPSK)		-91 dBm	5 dBm	-91 dBm	5 dBm
EDR (8-DPSK)		-87 dBm	5 dBm	-87 dBm	5 dBm
BLE (1 Mbps)		-97 dBm	5 dBm	-97 dBm	5 dBm
BLE (2 Mbps)		-94 dBm	5 dBm	-94 dBm	5 dBm

Model	Ordering Code	Antenna	DBS	Coexistence with Cellular Module	Development Board (Only for Debugging)
FCS850R	FCS850RACMD	Two antennas	-	-	FCS850RACM2
FCS850R-B	FCS850RBACMD	Three antennas	-	-	FCS850RBACM2