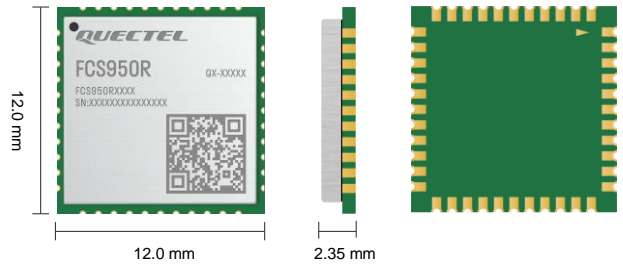


Quectel FCS950R

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



FCS950R is a high-performance Wi-Fi 5 and Bluetooth 5.3 module in LCC package. It can be used to establish WLAN and Bluetooth connections. In IEEE 802.11ac mode, it delivers a maximum data rate up to 433.3 Mbps.

With an ultra-compact size of 12.0 mm × 12.0 mm × 2.35 mm, FCS950R 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 FCS950R 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.

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, FCS950R can meet various needs of industrial and commercial applications.



Key Features

- ✓ 2.4 GHz/ 5 GHz Wi-Fi bands and Bluetooth 5.3
- ✓ SDIO 3.0 interface that supports higher data transmission rate and enables lower power consumption
- ✓ IEEE 802.11a/b/g/n/ac
- ✓ Faster time-to-market: simple design minimizes design-in time and development efforts
- ✓ Wide operating temperature range



IEEE 802.11
a/b/g/n/ac



Bluetooth 5.3



LCC Package



SDIO 3.0
Interface



Operating Temperature
Range: -40 °C to +85 °C/
-20 °C to +70 °C (Optional)



Ultra-compact
Size

Quectel FCS950R

Wi-Fi 5 & Bluetooth 5.3	FCS950R
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/ 16QAM/ 64QAM/ 256QAM
2.4 GHz Channel Bandwidth	20 MHz/ 40 MHz
5 GHz Channel Bandwidth	20 MHz/ 40 MHz/ 80 MHz
Encryption Mode	WPA3
Wi-Fi Operating Mode	AP/ STA
Bluetooth Protocol	Bluetooth 5.3
Dimensions	12.0 mm × 12.0 mm × 2.35 mm
Weight	Approx. 0.6 g
Temperature Range	
Operating Temperature	-40 °C to +85 °C/ -20 °C to +70 °C (Optional)
Physical 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)
SDIO 3.0	× 1 (for Wi-Fi)
UART	× 1 (for Bluetooth)
Wi-Fi/Bluetooth Antenna	× 1 (Wi-Fi shares an antenna with Bluetooth)
Electrical Features	
Power Supply Voltage	VBAT: 3.0–3.6 V, Typ. 3.3 V VIO: 1.62–3.6 V, Typ. 1.8/3.3 V
Power Consumption	Max. current at Tx mode: 375 mA @ VBAT 0.85 mA @ VIO
Certifications	
Regulatory	Europe: CE America: FCC China: SRRC Australia/New Zealand: RCM Canada: IC Japan: TELEC*/ JATE* South Korea: KC*

NOTE:

*: Planning.

Quectel FCS950R

Wi-Fi 5 & Bluetooth 5.3 FCS950R

Wi-Fi Performance

		Receiver Sensitivity	Transmit Power
2.4 GHz	802.11b/1 Mbps	-97 dBm ±2 dB	19 dBm ±2 dB
	802.11b/11 Mbps	-89 dBm ±2 dB	18 dBm ±2 dB
	802.11g/6 Mbps	-92.5 dBm ±2 dB	18 dBm ±2 dB
	802.11g/54 Mbps	-75 dBm ±2 dB	15 dBm ±2 dB
	802.11n/HT20 MCS 0	-91.5 dBm ±2 dB	18 dBm ±2 dB
	802.11n/HT20 MCS 7	-72 dBm ±2 dB	14 dBm ±2 dB
	802.11n/HT40 MCS 0	-89 dBm ±2 dB	18 dBm ±2 dB
	802.11n/HT40 MCS 7	-70 dBm ±2 dB	14 dBm ±2 dB
5 GHz	802.11a/6 Mbps	-90 dBm ±2 dB	18 dBm ±2 dB
	802.11a/54 Mbps	-72 dBm ±2 dB	14 dBm ±2 dB
	802.11n/HT20 MCS 0	-89 dBm ±2 dB	18 dBm ±2 dB
	802.11n/HT20 MCS 7	-70 dBm ±2 dB	13 dBm ±2 dB
	802.11n/HT40 MCS 0	-86.5 dBm ±2 dB	18 dBm ±2 dB
	802.11n/HT40 MCS 7	-68 dBm ±2 dB	13 dBm ±2 dB
	802.11ac/VHT20 MCS 0	-89 dBm ±2 dB	18 dBm ±2 dB
	802.11ac/VHT20 MCS 8	-65 dBm ±2 dB	12 dBm ±2 dB
	802.11ac/VHT40 MCS 0	-86.5 dBm ±2 dB	18 dBm ±2 dB
	802.11ac/VHT40 MCS 9	-62.5 dBm ±2 dB	11 dBm ±2 dB
	802.11ac/VHT80 MCS 0	-83 dBm ±2 dB	18 dBm ±2 dB
	802.11ac/VHT80 MCS 9	-59 dBm ±2 dB	11 dBm ±2 dB

Bluetooth Performance

		Receiver Sensitivity	Transmit Power
BR		-91 dBm ±3 dB	5 dBm ±3 dB
EDR (π/4-DQPSK)		-96.5 dBm ±3 dB	5 dBm ±3 dB
EDR (8-DPSK)		-85 dBm ±3 dB	5 dBm ±3 dB
BLE (1 Mbps)		-95 dBm ±3 dB	5 dBm ±3 dB

Ordering Code	Operating Temperature	Antenna	DBS	Coexistence with Cellular Module	Development Board (Only for Debugging)
FCS950RAAMD	-20 °C to +70 °C	One antenna	-	-	FCS950RAAM2
FCS950RACMD	-40 °C to +85 °C	One antenna	-	-	FCS950RACM2