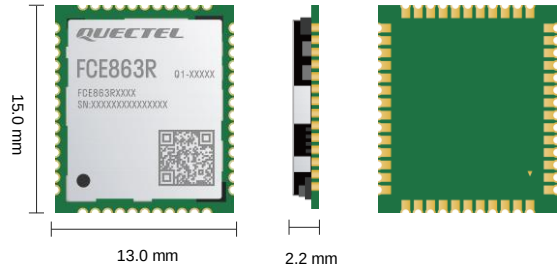


Quectel FCE863R

Wi-Fi 6 & Bluetooth 5.2 Module Ultra-compact LCC Package



FCE863R is a high-performance Wi-Fi 6 and Bluetooth 5.2 module featuring 2T2R in LCC package. It can be used for WLAN and Bluetooth connections, providing a maximum data rate up to 1201 Mbps.

With an ultra-compact size of 15.0 mm × 13.0 mm × 2.2 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.

Based on the reliable PCIe 1.1 interface, the module can achieve high-speed and low-power WLAN wireless transmission. Combining its compact size, lower power consumption, with an ultra wide temperature range and high reliability, the FCE863R can meet the application needs of the consumer field.



Key Features

- ✓ Dual-band 2.4 GHz and 5 GHz Wi-Fi and Bluetooth 5.2
- ✓ Supports PCIe 1.1 interface, with higher data transmission rate and low power consumption
- ✓ Faster time-to-market: simple design minimizes design-in time and development efforts
- ✓ Wide temperature range: -40 °C to +85 °C / -20 °C to +70 °C



Ultra-compact Size



LCC Package



IEEE 802.11
a/b/g/n/ac/ax



PCIe 1.1 Interface



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



Bluetooth 5.2

Wi-Fi 6 & Bluetooth 5.2		FCE863R
WLAN Protocol	IEEE 802.11a/b/g/n/ac/ax	
Wi-Fi Frequency Band	2.4 GHz/ 5 GHz	
Wi-Fi Antenna	2 × 2	
Wi-Fi Modulation Mode	DBPSK/ DQPSK/ CCK/ BPSK/ QPSK/ 16QAM/ 64QAM/ 256QAM/ 1024QAM	
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/ AP + STA	
Bluetooth Protocol	Bluetooth 5.2	
Dimensions	15.0 mm × 13.0 mm × 2.2 mm	
Weight	Approx. 0.93 g	
Temperature Range		
Operating Temperature	-40°C to +85°C/ -20 °C to +70 °C	
Physical Rate (Max.)		
802.11a	54 Mbps	
802.11b	11 Mbps	
802.11g	54 Mbps	
802.11n	300 Mbps	
802.11ac	866.7 Mbps	
802.11ax	1201 Mbps	
Interfaces		
PCIe 1.1	× 1 (For Wi-Fi)	
PCM	× 1 (For Bluetooth)	
UART	× 1 (For Bluetooth)	
Special Pins	WLAN_EN, BT_EN	
Wi-Fi Antenna Interfaces	× 2 (ANT_WIFI0, ANT_WIFI1/BT)	
Bluetooth Antenna Interface	× 1 (ANT_BT) (Optional)	
Electrical Features		
Power Supply Voltage	VBAT: 3.1–3.6 V, Typ. 3.3 V VDD_IO: 1.7–3.6 V, Typ. 1.8/3.3 V	
Power Consumption	Max. current at 802.11n/ac/ax MIMO Tx mode: 406.92 mA @ 3.3 V 393.82 uA @ 1.8 V	
Certifications		
Regulatory (Planning)	China: SRRC* Europe: CE* America: FCC* Canada: IC* Australia/New Zealand: RCM* Japan: JATE*/ TELEC* South Korea: KC*	

Wi-Fi 6 & Bluetooth 5.2 FCE863R

Wi-Fi Performance

		Receiver Sensitivity (Typ.)	Transmit Power (Typ.)
2.4 GHz	802.11b/1 Mbps	-94 dBm	19 dBm
	802.11b/11 Mbps	-85 dBm	19 dBm
	802.11g/6 Mbps	-90 dBm	19 dBm
	802.11g/54 Mbps	-71 dBm	18 dBm
	802.11n/HT20 MCS 0	-90 dBm	19 dBm
	802.11n/HT20 MCS 7	-69 dBm	17 dBm
	802.11n/HT40 MCS 0	-87 dBm	19 dBm
	802.11n/HT40 MCS 7	-66 dBm	17 dBm
	802.11ac/VHT20 MCS 0	-90 dBm	19 dBm
	802.11ac/VHT20 MCS 8	-66 dBm	16 dBm
	802.11ac/VHT40 MCS 0	-87 dBm	19 dBm
	802.11ac/VHT40 MCS 9	-59 dBm	15 dBm
	802.11ax/HE20 MCS 0	-90 dBm	19 dBm
	802.11ax/HE20 MCS 11	-60 dBm	13 dBm
	802.11ax/HE40 MCS 0	-87 dBm	19 dBm
	802.11ax/He40 MCS 11	-57 dBm	13 dBm
5 GHz	802.11a/6 Mbps	-90 dBm	19 dBm
	802.11a/54 Mbps	-71 dBm	18 dBm
	802.11n/HT20 MCS 0	-90 dBm	19 dBm
	802.11n/HT20 MCS 7	-69 dBm	17 dBm
	802.11n/HT40 MCS 0	-87 dBm	19 dBm
	802.11n/HT40 MCS 7	-66 dBm	17 dBm
	802.11ac/VHT20 MCS 0	-90 dBm	19 dBm
	802.11ac/VHT20 MCS 8	-66 dBm	16 dBm
	802.11ac/VHT40 MCS 0	-87 dBm	19 dBm
	802.11ac/VHT40 MCS 9	-59 dBm	15 dBm
	802.11ac/VHT80 MCS 0	-84 dBm	19 dBm
	802.11ac/VHT80 MCS 9	-56 dBm	15 dBm
	802.11ax/HE20 MCS 0	-90 dBm	19 dBm
	802.11ax/HE20 MCS 11	-60 dBm	13 dBm
	802.11ax/HE40 MCS 0	-87 dBm	19 dBm
	802.11ax/HE40 MCS 11	-57 dBm	13 dBm
	802.11ax/HE80 MCS 0	-84 dBm	19 dBm
	802.11ax/VHT80 MCS 11	-54 dBm	13 dBm

Bluetooth Performance

	Receiver Sensitivity (Typ.)	Transmit Power (Typ.)
GFSK (1 Mbps)	-92 dBm	5 dBm
π /4-DQPSK (2 Mbps)	-86 dBm	5 dBm
8-DQPSK (3 Mbps)	-85 dBm	5 dBm
BLE (1 Mbps)	-99 dBm	5 dBm
BLE (2 Mbps)	-96 dBm	5 dBm
BLE (S = 2)	-102 dBm	5 dBm
BLE (S = 8)	-105 dBm	5 dBm

Ordering Code	Operating Temperature	Antenna	DBS	Coexistence with Cellular Module	Development Board (Only for Debugging)
FCE863RABMD	-40 °C to +85 °C	Two antennas	-	-	FCE863RABM2
FCE863RBABMD	-40 °C to +85 °C	Three antennas	-	-	FCE863RBABM2
FCE863RAAMD	-20 °C to +70 °C	Two antennas	-	-	FCE863RAAM2
FCE863RBAAMD	-20 °C to +70 °C	Three antennas	-	-	FCE863RBAAM2