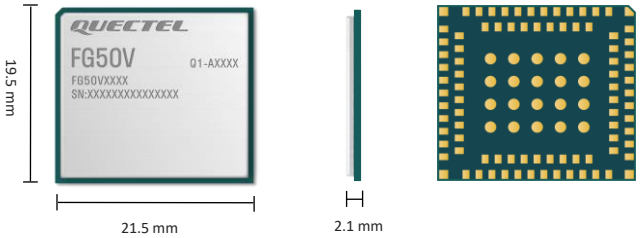
Quectel FG50V

Wi-Fi&Bluetooth Module
Compact LGA Package



FG50V is an industrial-grade, high-performance Wi-Fi 6 and BLE (Bluetooth 5.2) module in the LGA package. It can be used to establish WLAN and Bluetooth connections. Supporting 2 × 2+ 2 × 2 MIMO, it provides a maximum data rate of up to 1774.5 Mbps. With a compact and unified form factor of 19.5 mm × 21.5 mm × 2.1 mm, FG50V is an ideal Wi-Fi/Bluetooth solution for size-sensitive applications, and helps customers reduce product size and optimize application design costs. It can be used with Quectel's 5G RG5xQ series modules to formulate reliable 5G+Wi-Fi/Bluetooth applications.

The surface-mount technology enhances its durability and robustness, and the LGA package ensures that the module can be easily embedded into size-constrained applications and provide reliable connectivity with these applications. The advanced package allows for large-scale automated manufacturing that has strict requirements on cost and efficiency.

Designed with a reliable PCIe 2.0 interface to provide WLAN capability, FG50V achieves low-power and high-speed data transmission. This, coupled with its compact size and wide operating temperature range, enables the module to meet Wi-Fi/Bluetooth application design requirements in industrial, consumer, and MiFi fields.

Key Features

- Wi-Fi&Bluetooth module supporting 2.4 GHz/5 GHz dual-band and BLE (Bluetooth 5.2)
- Support PCIe 2.0 interface and achieve higher data transmission rate and lower power consumption
- Fast time-to-market: simple design minimizes design-in time and development efforts
- Optimal coexistence mechanism designed to ensure best performance when used with 5G modules
- Wide operating temperature range (-30 °C to +85 °C)

Ultra Compact Size

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

BLE (Bluetooth 5.2)

Operating Temperature Range: -30 °C to +85 °C

LGA

LGA

Version: 1.0 | Status: Released

Quectel FG50V

Wi-Fi&Bluetooth	FG50V
Region	Global
Function	Wi-Fi 2.4 GHz/5 GHz, 2 × 2 + 2 × 2 MIMO
WLAN	IEEE 802.11a/b/g/n/ac/ax
Bluetooth Standard	BLE (Bluetooth 5.2)
2.4 GHz Channel Bandwidth	20/40 MHz
5 GHz Channel Bandwidth	20/40/80 MHz
DBS	Supported
Modulation Mode	BPSK/QPSK/CCK/16QAM/64QAM/256QAM/1024QAM
Temperature Range	
Operating Temperature Range	-30 °C to +85 °C
Data Rate (Max.)	
802.11a	54 Mbps
802.11b	11 Mbps
802.11g	54 Mbps
802.11n	600 Mbps
802.11ac	866 Mbps
802.11ax	1774.5 Mbps
BLE	2 Mbps
Interface	
Wi-Fi	PCIe 2.0
Bluetooth	UART and PCM
Coex	2.4 GHz/5 GHz Coex
Wi-Fi/Bluetooth Antenna	ANT_WIFI0, ANT_WIFI1, ANT_BT (optional)
Supply Voltage	
Power Supply Voltage	0.95/1.35/1.95/3.85 V
I/O Power Supply Voltage	1.8 V
Consumption	**Max. current in 802.11ax DBS mode (transmitting in FTM mode):** 517 mA @ 0.95 V 1116 mA @ 3.85 V 147 mA @ 1.95 V 276 mA @ 1.35 V 3 mA @ 1.8 V
General Feature	
Encryption Mode	WPA3
Operation Mode	AP/STA
Dimension	19.5 mm × 21.5 mm × 2.1 mm
Weight	2.3 g
Certification	
Regulatory	**Europe:** CE **America:** FCC

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Wi-Fi&Bluetooth	FG50V		
RF Performance			
(2.4 GHz)	**Receiving Sensitivity**	**(2.4 GHz)**	**Transmitting Power**
802.11b/1 Mbps	-96 dBm	**802.11b/1 Mbps**	20 dBm
802.11b/11 Mbps	-89 dBm	**802.11b/11 Mbps**	20 dBm
802.11g/6 Mbps	-93 dBm	**802.11b/6 Mbps**	18.5 dBm
802.11g/54 Mbps	-74 dBm	**802.11g/54 Mbps**	17 dBm
802.11n/1SS MCS0	-93 dBm	**802.11n/HT20 MCS0**	18.5 dBm
802.11n/1SS MCS7	-73 dBm	**802.11n/HT20 MCS7**	16 dBm
802.11n/2SS MCS0	-90 dBm	**802.11n/HT40 MCS7**	16 dBm
802.11n/2SS MCS7	-70 dBm	**802.11ax/HE20 MCS0**	18 dBm
802.11ax/1SS MCS0	-93 dBm	**802.11ax/HE20 MCS11**	13 dBm
802.11ax/1SS MCS11	-65 dBm	**802.11ax/HE40 MCS11**	13 dBm
802.11ax/2SS MCS0	-90 dBm		
802.11ax/2SS MCS11	-62 dBm		
(5 GHz)	**Receiving Sensitivity**	**(5 GHz)**	**Transmitting Power**
802.11a/6 Mbps	-94 dBm	**802.11a/6 Mbps**	18 dBm
802.11a/54 Mbps	-75 dBm	**802.11a/54 Mbps**	15.5 dBm
802.11n/1SS MCS0	-93 dBm	**802.11n/HT20 MCS0**	18 dBm
802.11n/1SS MCS7	-75 dBm	**802.11n/HT20 MCS7**	15 dBm
802.11n/2SS MCS0	-90 dBm	**802.11n/HT40 MCS7**	15 dBm
802.11n/2SS MCS7	-72 dBm	**802.11ac/VHT20 MCS0**	17.5 dBm
802.11ac/1SS MCS0	-94 dBm	**802.11ac/VHT20 MCS8**	14 dBm
802.11ac/1SS MCS9	-72 dBm	**802.11ac/VHT40 MCS9**	14 dBm
802.11ac/2SS MCS0	-91 dBm	**802.11ac/VHT80 MCS9**	14 dBm
802.11ac/2SS MCS9	-69 dBm	**802.11ax/HE20 MCS0**	17.5 dBm
802.11ax/1SS MCS0	-94 dBm	**802.11ax/HE20 MCS11**	13 dBm
802.11ax/1SS MCS11	-65 dBm	**802.11ax/HE40 MCS11**	13 dBm
802.11ax/2SS MCS0	-91 dBm	**802.11ax/HE80 MCS11**	13 dBm
802.11ax/2SS MCS11	-62 dBm		

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