Quectel FGS061N

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

14.0 mm

13.0 mm

2.0 mm
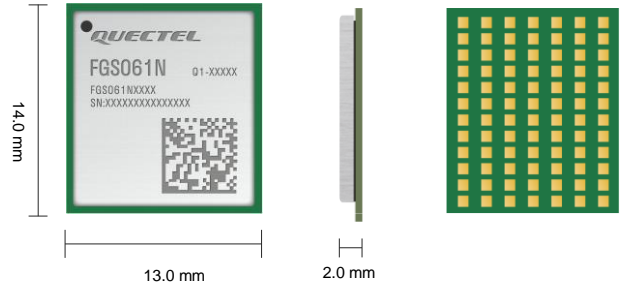
FGS061N is a high-performance Wi-Fi 6, Bluetooth 5.2 module in LGA package launched by Quectel. Under the IEEE 802.11ax standard protocol, it supports MCS 0–MCS 11 rates in an 80 MHz bandwidth with 1024QAM supported. It is designed with a reliable SDIO 3.0 interface to provide WLAN capability.

With an ultra-compact size of 14.0 mm × 13.0 mm × 2.0 mm, FGS061N optimizes the size and cost for end-products, which fully meets the demands of size-sensitive applications.

Surface-mount Technology (SMT) makes FGS061N an ideal solution for durable and rugged designs. Its low profile and small size of LGA package ensure that the module can be easily embedded into size-constrained applications and provide reliable connectivity with these applications. The advanced package, integrated shielding cover 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, FGS061N is suitable for a variety of smart home and industrial applications.

Key Features

- ✔ 2.4 GHz/ 5 GHz Wi-Fi bands, Bluetooth 5.2

- ✔ SDIO 3.0 interface that supports higher data transmission rate and enables lower power consumption

- ✔ Faster time-to-market: simple design minimizes design-in time and development efforts

- ✔ Wide operating temperature range: -40 °C to +85 °C

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

Bluetooth 5.2

LGA Package

SDIO 3.0 Interface

Operating Temperature Range: -40 °C to +85 °C

Ultra-compact Size

Wi-Fi 6 & Bluetooth 5.2	FGS061N
WLAN Protocol	IEEE 802.11a/b/g/n/ac/ax
Wi-Fi Frequency Band	2.4 GHz/ 5 GHz
Wi-Fi Antenna	1 × 1
Wi-Fi Modulation Mode	DSSS/ OFDM/ DBPSK/ DQPSK/ CCK/ BPSK/ QPSK/ 16QAM/ 64QAM/ 256QAM/ 1024QAM
Encryption Mode	WPA2/ WPA3
Wi-Fi Operating Mode	AP/ STA
Bluetooth Protocol	Bluetooth 5.2
Dimensions	14.0 mm × 13.0 mm × 2.0 mm
Weight	Approx. 0.7 g
Temperature Range	
Operating Temperature	-40 °C to +85 °C
Storage Temperature	-45 °C to +95 °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
802.11ax	600.4 Mbps
Interfaces	
SDIO 3.0	× 1 (For Wi-Fi)
UART	× 1 (For Bluetooth)
Wi-Fi/Bluetooth Antenna	× 1
Electrical Features	
Power Supply Voltage	VBAT_3V3: 3.14–3.46 V, Typ. 3.3 V VBAT_1V8: 1.71–1.89 V, Typ. 1.8 V
I/O Power Supply Voltage	VDDIO: ● 3.14–3.46 V, Typ. 3.3 V ● 1.71–1.89 V, Typ. 1.8 V
VDDIO_RF Power Supply	VDDIO_RF: ● 3.14–3.46 V, Typ. 3.3 V ● 1.71–1.89 V, Typ. 1.8 V
SDIO_VDD Power Supply	SDIO_VDD: ● 3.14–3.46 V, Typ. 3.3 V ● 1.71–1.89 V, Typ. 1.8 V
Power Consumption	TBD
Certifications	
Regulatory (Planning)	**Europe:** CE **America:** FCC **Canada:** IC **Australia/New Zealand:** RCM

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Wi-Fi 6 & Bluetooth 5.2	FGS061N

Wi-Fi Performance

		Receiver Sensitivity	Transmit Power
2.4 GHz	802.11b/1 Mbps	-96 dBm ±2 dB	17 dBm ±2 dB
	802.11b/11 Mbps	-87 dBm ±2 dB	17 dBm ±2 dB
	802.11g/6 Mbps	-90 dBm ±2 dB	16 dBm ±2 dB
	802.11g/54 Mbps	-74 dBm ±2 dB	14 dBm ±2 dB
	802.11n/HT20 MCS 0	-90 dBm ±2 dB	14 dBm ±2 dB
	802.11n/HT20 MCS 7	-71 dBm ±2 dB	14 dBm ±2 dB
	802.11n/HT40 MCS 0	-87 dBm ±2 dB	14 dBm ±2 dB
	802.11n/HT40 MCS 7	-69 dBm ±2 dB	14 dBm ±2 dB
	802.11ax/HE20 MCS 0	-90 dBm ±2 dB	14 dBm ±2 dB
	802.11ax/HE20 MCS 11	-61 dBm ±2 dB	11 dBm ±2 dB
	802.11ax/HE40 MCS 0	-87 dBm ±2 dB	14 dBm ±2 dB
	802.11ax/HE40 MCS 11	-59 dBm ±2 dB	11 dBm ±2 dB
5 GHz	802.11a/6 Mbps	-90 dBm ±2 dB	17 dBm ±2 dB
	802.11a/54 Mbps	-74 dBm ±2 dB	16 dBm ±2 dB
	802.11n/HT20 MCS 0	-90 dBm ±2 dB	17 dBm ±2 dB
	802.11n/HT20 MCS 7	-71 dBm ±2 dB	15 dBm ±2 dB
	802.11n/HT40 MCS 0	-87 dBm ±2 dB	17 dBm ±2 dB
	802.11n/HT40 MCS 7	-69 dBm ±2 dB	15 dBm ±2 dB
	802.11ac/VHT20 MCS 0	-90 dBm ±2 dB	17 dBm ±2 dB
	802.11ac/VHT20 MCS 8	-68 dBm ±2 dB	14 dBm ±2 dB
	802.11ac/VHT40 MCS 0	-87 dBm ±2 dB	17 dBm ±2 dB
	802.11ac/VHT40 MCS 9	-64 dBm ±2 dB	14 dBm ±2 dB
	802.11ac/VHT80 MCS 0	-83 dBm ±2 dB	17 dBm ±2 dB
	802.11ac/VHT80 MCS 9	-60 dBm ±2 dB	13 dBm ±2 dB
	802.11ax/HE20 MCS 0	-91 dBm ±2 dB	17 dBm ±2 dB
	802.11ax/HE20 MCS 11	-62 dBm ±2 dB	12 dBm ±2 dB
	802.11ax/HE40 MCS 0	-88 dBm ±2 dB	17 dBm ±2 dB
	802.11ax/HE40 MCS 11	-59 dBm ±2 dB	12 dBm ±2 dB
	802.11ax/HE80 MCS 0	-84 dBm ±2 dB	17 dBm ±2 dB
	802.11ax/HE80 MCS 11	-57 dBm ±2 dB	12 dBm ±2 dB

Bluetooth Performance

	Receiver Sensitivity	Transmit Power
BR	-92 dBm ±2 dB	17 dBm ±2 dB
EDR (π/4-DQPSK)	-93 dBm ±2 dB	7 dBm ±2 dB
EDR (8-DPSK)	-88 dBm ±2 dB	7 dBm ±2 dB
BLE (1 Mbps)	-96 dBm ±2 dB	15 dBm ±2 dB
BLE (2 Mbps)	-94 dBm ±2 dB	15 dBm ±2 dB
BLE (S = 8)	-103 dBm ±2 dB	15 dBm ±2 dB
BLE (S = 2)	-98 dBm ±2 dB	15 dBm ±2 dB

Model	Ordering Code	Antenna	DBS	Coexistence with Cellular Module	Development Board (Only for Debugging)
FGS061N	FGS061NAAMD	One antenna	-	-	FGS061NAAM2

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