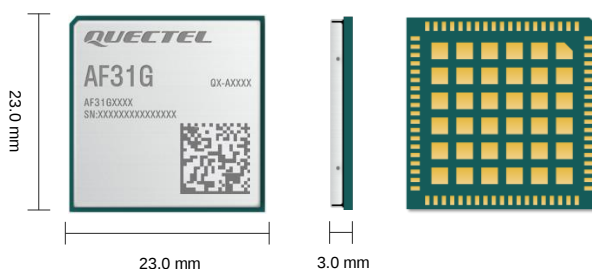


Quectel AF31G

Automotive Grade
Wi-Fi 5 & Bluetooth 5.0 Module
Compact LGA Package



AF31G is an automotive grade Wi-Fi 5 and Bluetooth 5.0 module with high performance. It is designed to be used together with Quectel automotive AG52xR series module to establish WLAN and Bluetooth connections, supporting 2 × 2 MIMO.

With a compact and unified form factor of 23.0 mm × 23.0 mm × 3.0 mm, AF31G is an ideal Wi-Fi & Bluetooth solution for size-sensitive applications, and helps customers reduce product size and optimize application design cost. The surface-mount technology enhances its durability and robustness, and the LGA package makes sure 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 which has strict requirements on cost and efficiency.

Designed with a reliable PCIe 2.0 (or SDIO 3.0) interface to provide WLAN capability, AF31G achieves low-power and high-speed data transmission. Coupled with its compact size and wide temperature range, AF31G enables the module to meet Wi-Fi/Bluetooth + LTE-A application design requirements in automotive industry.



Key Features

- ✓ Automotive grade Wi-Fi & Bluetooth module supporting 2.4 GHz and 5 GHz Wi-Fi and Bluetooth 5.0
- ✓ Support 2 × 2 MIMO
- ✓ Support PCIe 2.0 (or SDIO 3.0), PCM and UART interfaces which provide higher data transmission rate and lower power consumption
- ✓ Good co-existence with Quectel LTE-A module
- ✓ Ideal for automotive market applications with IATF 16949: 2016 requirement, compliant with automotive quality processes such as APQP and PPAP
- ✓ Wide operating temperature range meets the demanding requirements for automotive devices
- ✓ Fast time-to-market: simple design minimizes design-in time and development efforts



Ultra-compact
Size



LGA Package



IEEE 802.11
a/b/g/n/ac



Bluetooth 5.0



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

Wi-Fi 5 & Bluetooth 5.0	AF31G
Region	Global
Function	Wi-Fi 2.4 GHz/5 GHz; Bluetooth 5.0
WLAN	IEEE 802.11a/b/g/n/ac
Modulation Mode	Wi-Fi: BPSK, QPSK, CCK, 16QAM, 64QAM, 256QAM Bluetooth: GFSK, 8-DPSK, π /4-DQPSK
Temperature Range	
Operating Temperature Range	-40 °C to +85 °C
Max. Data Rate	
802.11a	54 Mbps
802.11b	11 Mbps
802.11g	54 Mbps
802.11n	300 Mbps
802.11ac	866 Mbps
BLE (Bluetooth 5.0)	1 Mbps
Interfaces	
PCIe 2.0/SDIO 3.0 ①	× 1
PCM	× 1
UART	× 1
Coexistence Interface	× 1
Antenna Interfaces	ANT_WIFI0/BT: 2.4 GHz/5 GHz Wi-Fi and Bluetooth antenna interface ANT_WIFI1: 2.4 GHz/5 GHz Wi-Fi antenna interface
Electrical Features	
Power Supply Voltage	VDD_PA: 3.14–3.46 V, Typ. 3.3 V
I/O Power Supply Voltage	VDD_IO: 1.71–1.89 V, Typ. 1.8 V
Certification	
Regulatory	Europe: CE America: FCC China: SRRC
Others	Bluetooth
General Features	
Encryption Mode	WPA3
Max. Access Points	10
Operating Modes	AP, STA, P2P, AP + P2P, STA + P2P, AP + STA, AP + AP
Dimensions	23.0 mm × 23.0 mm × 3.0 mm
Weight	Approx. 3.11 g

NOTE:
①: You can select the module variant supporting PCIe 2.0 or the module variant supporting SDIO 3.0 for Wi-Fi function. Contact Quectel Technical Support for details.

Wi-Fi 5 & Bluetooth 5.0		AF31G	
RF Performance			
		Receiver Sensitivity (Typ.)	Transmit Power (Typ.)
2.4 GHz	802.11b/1 Mbps	< -85 dBm	17 dBm
	802.11b/11 Mbps	< -79 dBm	17 dBm
	802.11g/6 Mbps	< -85 dBm	17 dBm
	802.11g/54 Mbps	< -68 dBm	15 dBm
	802.11n/HT20 MCS 0	< -85 dBm	17 dBm
	802.11n/HT20 MCS 7	< -67 dBm	13 dBm
	802.11n/HT40 MCS 0	< -82 dBm	16 dBm
	802.11n/HT40 MCS 7	< -64 dBm	13 dBm
		Receiver Sensitivity (Typ.)	Transmit Power (Typ.)
5 GHz	802.11a/6 Mbps	< -82 dBm	13 dBm
	802.11a/54 Mbps	< -65 dBm	8 dBm
	802.11n/HT20 MCS 0	< -82 dBm	14 dBm
	802.11n/HT20 MCS 7	< -64 dBm	8 dBm
	802.11n/HT40 MCS 0	< -79 dBm	13 dBm
	802.11n/HT40 MCS 7	< -61 dBm	8 dBm
	802.11ac/VHT20 MCS 0	< -82 dBm	13 dBm
	802.11ac/VHT20 MCS 8	< -59 dBm	8 dBm
	802.11ac/VHT40 MCS 0	< -79 dBm	12 dBm
	802.11ac/VHT40 MCS 9	< -57 dBm	7 dBm
	802.11ac/VHT80 MCS 0	< -76 dBm	12 dBm
	802.11ac/VHT80 MCS 9	< -51 dBm	7 dBm
		Receiver Sensitivity (Typ.)	Transmit Power (Typ.)
BLE	BR (GFSK)	< -80 dBm	4 dBm
	EDR (π/4-DQPSK)	< -80 dBm	2 dBm
	EDR (8-DPSK)	< -80 dBm	2 dBm
	BLE (1 Mbps)	< -80 dBm	2 dBm