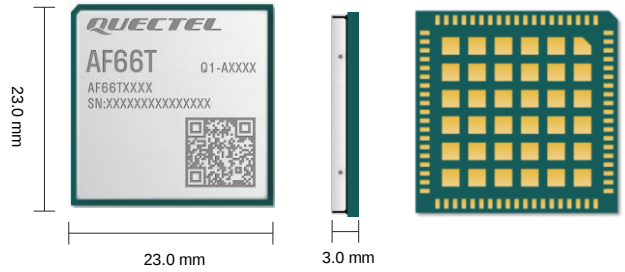


Quectel AF66T

Automotive Grade
Wi-Fi 6 & Bluetooth 5.2 Module
Compact LGA Package



AF66T is an automotive grade Wi-Fi 6 and Bluetooth 5.2 module with high performance, supporting $2 \times 2 + 2 \times 2$ MU-MIMO. It is designed to be used together with Quectel automotive modules AG52xR, AG55xQ and AG57xQ family modules to establish WLAN and Bluetooth connections.

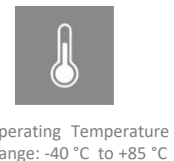
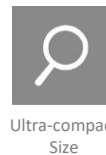
With a compact and unified form factor of 23.0 mm $\times$ 23.0 mm $\times$ 3.0 mm, AF66T is an ideal Wi-Fi/Bluetooth solution for size-sensitive applications, and helps customers reduce product size and optimize application design cost. The surface-mount technology enhances its durability and robustness, 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 interface to provide WLAN capability, AF66T achieves low-power and high-speed data transmission. Coupled with its compact size and wide temperature range, AF66T can meet Wi-Fi/Bluetooth + LTE-A/5G 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 5.2
- ✓ Support DBS and dual MAC
- ✓ Support PCIe 2.0 and UART interfaces which provide higher data transmission rate and lower power consumption
- ✓ Good co-existence with Quectel LTE-A/5G 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 (-40°C to +85°C) and superior anti-electromagnetic interference capability meet the demanding requirements for automotive devices
- ✓ Fast time-to-market: simple design minimizes design-in time and development efforts



Wi-Fi 6 & Bluetooth 5.2	AF66T
Region	Global
Function	Wi-Fi 2.4 GHz/ 5 GHz, Bluetooth 5.2
WLAN	IEEE 802.11a/b/g/n/ac/ax
Bluetooth	Bluetooth 5.2 (BR/EDR + BLE)
Wi-Fi Modulation Mode	DBPSK, DQPSK, CCK, BPSK, QPSK, 16QAM, 64QAM, 256QAM, 1024QAM
Bluetooth Modulation Mode	GFSK, 8-DPSK, π /4-DQPSK
Temperature Range	
Operating Temperature Range	-40 °C to +85 °C
Theoretical Data Rate (Max.)	
802.11a	54 Mbps
802.11b	11 Mbps
802.11g	54 Mbps
802.11n	300 Mbps (2 × 2, 802.11n/HT40 MCS 7)
802.11ac	866 Mbps (2 × 2, 802.11ac/VHT80 MCS 9)
802.11ax	1200 Mbps (2 × 2 + 2 × 2, 802.11ax/HE80 MCS 11 + 802.11ax/HE40 MCS 11)
Bluetooth 5.2	BR: 2 Mbps EDR: 3 Mbps BLE: 2 Mbps
Interfaces	
PCIe	× 1
PCM	× 1
UART	× 1
Coexistence Interface	× 1
Antenna Interfaces	ANT_WIFI0: Wi-Fi 0 and Bluetooth antenna interface ANT_WIFI1: Wi-Fi 1 antenna interface ANT_BT *: Bluetooth antenna interface (optional)
Electrical Features	
Power Supply Voltage	VDD_PA: 3.3–4.25 V, Typ. 3.85 V VDD_CORE: 1.90 V, 1.35 V, 0.95 V
I/O Power Supply Voltage	VDD_IO: 1.71–1.89 V, Typ. 1.8 V
Certification	
Regulatory	Europe: CE America: FCC Canada: IC China: SRRC Australia/New Zealand: RCM
Others	Bluetooth
General Features	
Encryption Mode	WPA3
Max. Access Point	32
Operating Mode	AP, STA, AP + STA, AP + P2P, AP + STA + P2P
Dimension	23.0 mm × 23.0 mm × 3.0 mm
Weight	Approx. 3.42 g

NOTE:
*: Under development.

Wi-Fi 6 & Bluetooth 5.2		AF66T	
Wi-Fi Performance			
		Receiver Sensitivity	Transmit Power
2.4 GHz	802.11b/1 Mbps	-96 dBm	20 dBm
	802.11b/11 Mbps	-87 dBm	20 dBm
	802.11g/6 Mbps	-92 dBm	19 dBm
	802.11g/54 Mbps	-74 dBm	16 dBm
	802.11n/HT20 MCS 0	-92 dBm	19 dBm
	802.11n/HT20 MCS 7	-73 dBm	16 dBm
	802.11n/HT40 MCS 0	-89 dBm	19 dBm
	802.11n/HT40 MCS 7	-71 dBm	16 dBm
	802.11ax/HE20 MCS 0	-92 dBm	19 dBm
	802.11ax/HE20 MCS 11	-62 dBm	14 dBm
	802.11ax/HE40 MCS 0	-89 dBm	19 dBm
	802.11ax/HE40 MCS 11	-60 dBm	14 dBm
		Receiver Sensitivity	Transmit Power
5 GHz	802.11a/6 Mbps	-92 dBm	17 dBm
	802.11a/54 Mbps	-75 dBm	15 dBm
	802.11n/HT20 MCS 0	-92 dBm	17 dBm
	802.11n/HT20 MCS 7	-74 dBm	15 dBm
	802.11n/HT40 MCS 0	-90 dBm	17 dBm
	802.11n/HT40 MCS 7	-72 dBm	15 dBm
	802.11ac/VHT20 MCS 0	-93 dBm	17 dBm
	802.11ac/VHT20 MCS 8	-71 dBm	14 dBm
	802.11ac/VHT40 MCS 0	-90 dBm	17 dBm
	802.11ac/VHT40 MCS 9	-67 dBm	13 dBm
	802.11ac/VHT80 MCS 0	-87 dBm	17 dBm
	802.11ac/VHT80 MCS 9	-62 dBm	13 dBm
	802.11ax/HE20 MCS 0	-93 dBm	17 dBm
	802.11ax/HE20 MCS 11	-63 dBm	12 dBm
	802.11ax/HE40 MCS 0	-90 dBm	17 dBm
	802.11ax/HE40 MCS 11	-60 dBm	12 dBm
	802.11ax/HE80 MCS 0	-87 dBm	17 dBm
	802.11ax/HE80 MCS 11	-56 dBm	12 dBm
Bluetooth Performance			
		Receiver Sensitivity	Transmit Power
2.4 GHz	BR (GFSK)	-92 dBm	8 dBm
	EDR ($\pi/4$ -DQPSK)	-92 dBm	6 dBm
	EDR (8-DPSK)	-86 dBm	6 dBm
	BLE (1 Mbps)	-86 dBm	6 dBm
	BLE (2 Mbps)	-94 dBm	6 dBm
	BLE (S = 2)	-98 dBm	6 dBm
	BLE (S = 8)	-98 dBm	6 dBm