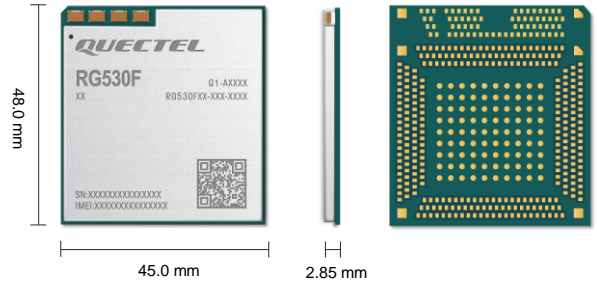


Quectel RG530F Series

IoT/eMBB-Optimized 5G Sub-6 GHz & mmWave LGA Module



Quectel RG530F is a series of 5G LGA modules optimized specially for IoT and eMBB applications. Adopting the 3GPP Rel-16 technology, it supports both 5G NSA and SA modes with Option 3x/ 3a/ 3 and Option 2 network architectures, and is compatible with the 4G/ 3G network. It is compatible with Quectel 5G module RG50xQ series and LTE-A module EG512R-EA (while some additional pins are added to RG530F series). The module can meet customers' different application demands for high speed, large capacity, low latency, high reliability, etc.

RG530F series is an industrial-grade module for industrial and commercial applications only.

RG530F series supports Qualcomm® IZat™ location technology Gen9C Lite (GPS, GLONASS, BDS, Galileo and QZSS). The integrated GNSS receiver greatly simplifies product design and provides quicker, more accurate and more dependable positioning capability.

A rich set of Internet protocols, industry-standard interfaces (USB 2.0/3.0/3.1, PCIe 3.0, PCM, UART, etc.) and abundant functionalities (USB drivers for Windows, Linux and Android) extend the applicability of the module to a wide range of IoT and eMBB applications such as business routers, home gateway, STB, industrial laptops, consumer laptops, industrial PDA, rugged tablet PCs and video surveillance.

Key Features

- ✓ 5G/ 4G/ 3G multi-mode module with LGA form factor, optimized for IoT and eMBB applications
- ✓ Worldwide 5G, LTE-A and 3G coverage
- ✓ 5G NSA and SA modes
- ✓ Multi-constellation GNSS receiver available for applications requiring fast and accurate fixes in any environment
- ✓ Feature refinements: DFOTA and VoLTE (optional)

 5G^{NR} <small>5G NR Sub-6 GHz & mmWave Bands</small>	 4G <small>LTE</small> <small>LTE Cat 20 (DL) LTE Cat 18 (UL)</small>	 <small>DC-HSDPA</small> <small>Max. 42 Mbps (DL) Max. 5.76 Mbps (UL)</small>
 <small>Embedded Abundant Protocols</small>	 <small>LGA</small> <small>LGA Package</small>	 <small>Multi-constellation GNSS</small>
 <small>USB 3.1</small> <small>High Speed Interface</small>	 <small>PCIe</small> <small>PCIe 3.0 Interface</small>	 <small>AT</small> <small>Quectel Enhanced AT Commands</small>
 <small>RoHS Compliant</small>	 VoLTE <small>VoLTE (optional)</small>	

Quectel RG530F Series

	RG530F-EU	RG530F-NA
Region/Operator	EMEA/Oceania/Brazil	North America
Dimensions (mm)	48.0 × 45.0 × 2.85	48.0 × 45.0 × 2.85
Weight (g)	Approx. 14.15	Approx. 14.12
Temperature Range		
Operating Temperature	-30 °C to +75 °C	-30 °C to +75 °C
Extended Temperature	-40 °C to +85 °C	-40 °C to +85 °C
Frequency Bands		
	5G NR	3GPP Rel-16 NSA/ SA operation, Sub-6 GHz, mmWave
5G	5G NR NSA	n1/ 3/ 5/ 7/ 8/ 20/ 28/ 38/ 40/ 41/ 75/ 76/ 77/ 78 / 257 ^① / 258 ^① / 260 ^① / 261 ^①
	5G NR SA	n1/ 3/ 5/ 7/ 8/ 20/ 28/ 38/ 40/ 41/ 75/ 76/ 77/ 78
	DL 4 × 4 MIMO	n1/ 3/ 5/ 7/ 8/ 20/ 28/ 38/ 40/ 41/ 75/ 76/ 77/ 78
		3GPP Rel-16 NSA/ SA operation, Sub-6 GHz, mmWave
		n2/ 5/ 7/ 12/ 13/ 14/ 25/ 26/ 29/ 30/ 38/ 41/ 48/ 66/ 70/ 71/ 77/ 78/ 257 ^① / 258 ^① / 260 ^① / 261 ^①
		n2/ 5/ 7/ 12/ 13/ 14/ 25/ 26/ 29/ 30/ 38/ 41/ 48/ 66/ 70/ 71/ 77/ 78
		n2/ 5/ 7/ 12/ 13/ 14/ 25/ 26/ 29/ 30/ 38/ 41/ 48/ 66/ 70/ 71/ 77/ 78
LTE	LTE Category	Cat 20 (DL)/ Cat 18 (UL)
	LTE-FDD	B1/ 3/ 5/ 7/ 8/ 20/ 28/ 32
	LTE-TDD	B38/ 40/ 41/ 42/ 43
	LAA	-
	DL 4 × 4 MIMO	B1/ 3/ 5/ 7/ 8/ 20/ 28/ 32/ 38/ 40/ 41/ 42/ 43
		Cat 20 (DL)/ Cat 18 (UL)
		B2/ 4/ 5/ 7/ 12 (17)/ 13/ 14/ 25/ 26/ 29/ 30/ 66/ 71
		B38/ 41/ 42/ 43/ 48
		B46
		B2/ 4/ 5/ 7/ 12 / 13/ 14/ 17/ 25/ 26/ 29/ 30/ 38/ 41/ 42/ 43/ 48/ 66/ 71
WCDMA	B1/ 5/ 8	-
GNSS	GPS/ GLONASS/ BDS/ Galileo/ QZSS	GPS/ GLONASS/ BDS/ Galileo/ QZSS
Certifications		
Regulatory	TBD	TBD
Carrier	TBD	TBD
Others	RoHS	RoHS
Data Rates (Max.)^②		
5G SA Sub-6	4.0 Gbps (DL)/ 900 Mbps (UL)	4.0 Gbps (DL)/ 900 Mbps (UL)
5G NSA Sub-6	4.0 Gbps (DL)/ 550 Mbps (UL)	4.0 Gbps (DL)/ 550 Mbps (UL)
5G NSA mmWave	8.8 Gbps (DL)/ 2.6 Gbps (UL)	8.8 Gbps (DL)/ 2.6 Gbps (UL)
5G TDD + mmWave	8.0 Gbps (DL)/ 3.4 Gbps (UL)	8.0 Gbps (DL)/ 3.4 Gbps (UL)
5G FDD + mmWave	8.9 Gbps (DL)/ 2.7 Gbps (UL)	8.9 Gbps (DL)/ 2.7 Gbps (UL)
LTE	2.0 Gbps (DL)/ 200 Mbps (UL)	2.0 Gbps (DL)/ 200 Mbps (UL)
WCDMA	42 Mbps (DL)/ 5.76 Mbps (UL)	-
Interfaces		
(U)SIM	× 2, 1.8/2.95 V	× 2, 1.8/2.95 V
UART	× 3	× 3
SDIO	× 1	× 1
USB 2.0/3.0/3.1	× 1	× 1
PCIe 3.0	Gen 3, Lane × 2	Gen 3, Lane × 2
PCM*	× 1	× 1
I2S*	× 1	× 1
I2C	× 1	× 1
SPI	× 1	× 1
ADC	●	●
RESET_N	●	●
GPIOs (QuecOpen®)	●	●
Antenna	Sub-6 GHz: 4 + 2 (optional); GNSS: × 1; mmWave: × 8	Sub-6 GHz: × 4; GNSS: × 1; mmWave: × 8
Voice		
VoLTE	Digital Audio and VoLTE (Voice over LTE) (optional)	Digital Audio and VoLTE (Voice over LTE) (optional)
Enhanced Features		
DTMF*	●	●
DFOTA	●	●
(U)SIM Card Detection	●	●

NOTE:

- ①: Works with mmWave antennas.
- ②: The presented data rates are theoretical only, and actual values depend on network conditions.
- *: Under development/Ongoing.
- : Supported.

Quectel RG530F Series

	RG530F-EU	RG530F-NA
Drivers		
USB Serial Driver	Windows 7/8/8.1/10/11; Linux 2.6–5.18; Android 4.x–12.x	Windows 7/8/8.1/10/11; Linux 2.6–5.18; Android 4.x–12.x
GNSS Driver	Android 4.x–12.x	Android 4.x–12.x
RIL Driver	Android 4.x–12.x	Android 4.x–12.x
USB NDIS Driver	Windows 7/8/8.1/10/11	Windows 7/8/8.1/10/11
USB MBIM Driver	Windows 8/8.1/10/11; Linux 3.18–5.18	Windows 8/8.1/10/11; Linux 3.18–5.18
USB GobiNet Driver	Linux 2.6–5.18	Linux 2.6–5.18
USB QMI_WWAN Driver	Linux 3.4–5.18	Linux 3.4–5.18
PCIe MHI Driver	Linux 3.10–5.18	Linux 3.10–5.18
Electrical Features		
Supply Voltage Range	3.3–4.4 V, typ. 3.8 V	3.3–4.4 V, typ. 3.8 V
Output Power	<p>5G NR:</p> <ul style="list-style-type: none"> - Class 2 (26 dBm +2/-3 dB) for n38/ 40/ 41/ 77/ 78 - Class 3 (23 dBm +2/-2 dB) for Other Sub-6 bands - Follow QTM545 (Class 3)/ QTM547 (Class 1) for n257/n258/n260/n261 <p>LTE:</p> <ul style="list-style-type: none"> - Class 2 (26 dBm +2/-2 dB) for B38/ 41/ 42/ 43 - Class 3 (23 dBm +2/-2 dB) for Other LTE bands <p>WCDMA:</p> <ul style="list-style-type: none"> - Class 3 (23 dBm +2/-2 dB) 	<p>5G NR:</p> <ul style="list-style-type: none"> - Class 1.5 (29 dBm +2/-3 dB) for n41/ 77/ 78 - Class 2 (26 dBm +2/-3 dB) for n38/ 41/ 77/ 78 - Class 3 (23 dBm+2/-2dB) for Other Sub-6 bands - Follow QTM545 (Class 3)/ QTM547 (Class 1) for n257/n258/n260/n261 <p>LTE:</p> <ul style="list-style-type: none"> - Class 2 (26 dBm +2/-2 dB) for B38/ 41/ 42/ 43 - Class 3 (23 dBm +2/-2 dB) for Other LTE bands
Power Consumption	<p>125 uA @ Power down</p> <p>4.96 mA @ Sleep</p> <p>34.88 mA @ USB 2.0, Idle</p> <p>52.23 mA @ USB 3.0, Idle</p>	<p>124 uA @ Power down</p> <p>5.01 mA @ Sleep</p> <p>36.29 mA @ USB 2.0, Idle</p> <p>54.26 mA @ USB 3.0, Idle</p>