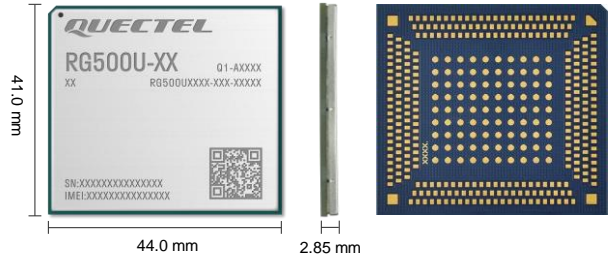


Quectel RG500U Series

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



Quectel RG500U is a series of 5G Sub-6 GHz LGA modules optimized specially for IoT and eMBB applications. Adopting the 3GPP Release 15 technology, it supports both 5G NSA and SA modes, which makes it backward compatible with the 4G/3G network.

RG500U series is an industrial-grade module for industrial and commercial applications only.

RG500U series includes two variants: RG500U-CN and RG500U-EA. RG500U series supports a variety of drivers and software functions, VoLTE, VoNR, DFOTA and audio via communication interfaces such as PCIe, USB, SDIO, UART, SPI, I2C, I2S and GPIOs, integrated with abundant Internet protocols, thus greatly expanding its applications in the IoT industry. RG500U series can be widely used in vertical industries such as smart energy, Internet of Vehicles, industrial Internet, telemedicine, smart education, high-definition video, smart city, and home entertainment.



Key Features

- ✓ 5G/LTE-A multi-mode module with LGA form factor, optimized for IoT and eMBB applications
- ✓ Worldwide 5G and LTE-A coverage
- ✓ 5G NSA and SA modes
- ✓ High performance and cost-effective
- ✓ Feature refinements: DFOTA, VoLTE and VoNR

 5G ^{NR} 5G NR Sub-6 GHz Band	 4G LTE LTE Cat 12 Max. 600 Mbps (DL) Max. 150 Mbps (UL)	 3G HSPA+ Max. 42 Mbps (DL) Max. 11 Mbps (UL)
 Embedded Abundant Protocols	 LGA LGA Form Factor	 AT Quectel Enhanced AT Commands
 USB 3.0 High Speed Interface	 Voice over NR	 VoLTE Voice over LTE
 PCIe PCIe 2.0 Interface		

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5G Sub-6	RG500U-EA	RG500U-CN
Region/Operator	EMEA/ APAC/ Latin America	EMEA/ APAC
Dimensions (mm)	41.0 × 44.0 × 2.85	41.0 × 44.0 × 2.85
Weight (g)	12.78	13
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 Release 15 NSA/SA operation, Sub-6 GHz	3GPP Release 15 NSA/SA operation, Sub-6 GHz
5G NR NSA	n1/ 3/ 7/ 38/ 40/ 41/ 77/ 78/ 79	n41/ 78/ 79
5G NR SA	n1/ 3/ 5 ^② / 7/ 8/ 20/ 28/ 38/ 40/ 41/ 71 ^② / 77/ 78/ 79	n1/ 28/ 41/ 77/ 78/ 79
MIMO	DL: 4 × 4 MIMO on n1/ 3/ 7/ 38/ 40/ 41/ 77/ 78/ 79 UL: 2 × 2 MIMO on n38/ 40/ 41/ 77/ 78/ 79 DL: 2 × 2 MIMO on n5 ^② / 8/ 20/ 28/ 71 ^②	UL: 2 × 2 MIMO on n41/ 77/ 78/ 79 DL: 4 × 4 MIMO on n1/ 41/ 77/ 78/ 79 DL: 2 × 2 MIMO on n28
LTE Category	DL Cat 12, UL Cat 13	DL Cat 12, UL Cat 13
LTE-FDD	B1/ 2/ 3/ 4/ 5/ 7/ 8/ 20/ 28A/ 28B/ 66	B1/ 2/ 3/ 5/ 7/ 8/ 20/ 28
LTE-TDD	B38/ 40/ 41	B34/ 38/ 39/ 40/ 41
DL 2 × 2 MIMO	B1/ 2/ 3/ 4/ 5/ 7/ 8/ 20/ 28A/ 28B/ 38/ 40/ 41/ 66	B1/ 2/ 3/ 5/ 7/ 8/ 20/ 28/ 34/ 38/ 39/ 40/ 41
UMTS WCDMA	B1/ 2/ 5/ 8	B1/ 2/ 5/ 8
Certifications		
Regulatory	Europe: CE Australia/New Zealand: RCM Global: GCF*	China: SRRC/ NAL/ CCC
Carrier	TBD	China: China Telecom/ China Mobile*/ China Unicom*
Others	RoHS/WHQL	RoHS/WHQL
Data Rates (Max.)^①		
5G SA Sub-6	2 Gbps (DL)/ 1 Gbps (UL)	2 Gbps (DL)/ 1 Gbps (UL)
5G NSA Sub-6	2.6 Gbps (DL)/ 650 Mbps (UL)	2.2 Gbps (DL)/ 575 Mbps (UL)
LTE	600 Mbps (DL)/ 150 Mbps (UL)	600 Mbps (DL)/ 150 Mbps (UL)
WCDMA	42.2 Mbps (DL)/ 11 Mbps (UL)	42.2 Mbps (DL)/ 11 Mbps (UL)
Interfaces		
(U)SIM	× 2	× 2
USB 2.0	× 1	× 1
USB 3.0	× 1	× 1
PCIe 2.0	× 1	× 1
SDIO 3.0	× 1	× 1
SPI	× 1	× 1
UART	× 2	× 2
I2S	× 1	× 1
I2C	× 1	× 1
PCM	× 1	× 1
Antennas	× 6	× 4
Voice		
Voice	Digital Audio, VoLTE and VoNR	Digital Audio, VoLTE and VoNR
Enhanced Features		
DTMF	●	●
DFOTA	●	●
(U)SIM Card Detection	●	●
5G Network Slicing	●	●
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
RIL Driver	Android 4.x–12.x	Android 4.x–12.x
PCIe Driver	Linux 3.10–5.18	Linux 3.10–5.18
USB RNDIS Driver	Windows 7/ 8/ 8.1/ 10/ 11 Linux 2.6–5.18	Windows 7/ 8/ 8.1/ 10/ 11 Linux 2.6–5.18
USB ECM Driver	Linux 2.6–5.18	Linux 2.6–5.18
USB NCM Driver	Linux 2.6–5.18	Linux 2.6–5.18
Electrical Features		
Supply Voltage Range	3.3–4.3 V, typ. 3.8 V	3.3–4.3 V, typ. 3.8 V
Power Consumption	70 μA @ Power off 4.0 mA @ Sleep 55 mA @ USB 2.0, idle 70 mA @ USB 3.0, idle	70 μA @ Power off 4.0 mA @ Sleep 55 mA @ USB 2.0, idle 70 mA @ USB 3.0, idle

NOTE:

- ①: Theoretical only. The actual values depend on network conditions.
- ②: n5 and n71 are optional.
- *: Under planning/ongoing.
- : Supported.
- : Optional.