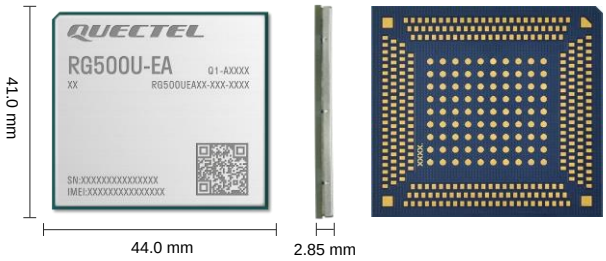
Quectel RG500U-EA

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



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

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

With a rich set of Internet protocols, integrated with rich communication interfaces such as PCIe, USB, SDIO, UART, SPI, I2C, I2S and GPIOs, RG500U-EA supports a variety of drivers and software functions, and supports VoLTE (optional), VoNR (optional), DFOTA, audio, eSIM* (optional), greatly expanding its applications in the IoT industry. RG500U-EA 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 and VoLTE (Optional)

5G NR Sub-6 GHz Band

LTE Cat 12
Max. 600 Mbps (DL)
Max. 150 Mbps (UL)

Max. 42 Mbps (DL)
Max. 11 Mbps (UL)

Embedded Abundant Protocols

LGA Form Factor

Quectel Enhanced AT Commands

USB 3.0/PCIe 2.0 High Speed Interface

Voice over NR (Optional)

Voice over LTE (Optional)

Version: 1.1 | Status: Released

Quectel RG500U-EA

5G Sub-6		RG500U-EA
Region/Operator		EMEA/ APAC/ Latin America
Dimensions (mm)		41.0 × 44.0 × 2.85
Weight (g)		12.78 g
Temperature Range		
Operating Temperature		-30 °C to +75 °C
Extended Temperature		-40 °C to +85 °C
Frequency Bands		
5G	**5G NR**	3GPP Release 15 NSA/SA operation, Sub-6 GHz
	5G NR NSA	n1/ 3/ 7/ 38/ 40/ 41/ 77/ 78/ 79
	5G NR SA	n1/ 3/ 7/ 8/ 20/ 28/ 38/ 40/ 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 n8/ 20/ 28
LTE	**LTE Category**	DL Cat 12, UL Cat 13
	LTE-FDD	B1/ 2/ 3/ 4/ 5/ 7/ 8/ 20/ 28A/ 28B/ 66
	LTE-TDD	B38/ 40/ 41
	DL 2 × 2 MIMO	B1/ 2/ 3/ 4/ 5/ 7/ 8/ 20/ 28A/ 28B/ 38/ 40/ 41/ 66
UMTS	**WCDMA**	B1/ 2/ 5/ 8
Certifications		
Regulatory		**Europe:** CE **Australia/New Zealand:** RCM **Global:** GCF*
Carrier		TBD
Others		RoHS
Data Rates (Max.) ①		
5G SA Sub-6		2 Gbps (DL)/ 1 Gbps (UL)
5G NSA Sub-6		2.6 Gbps (DL)/ 650 Mbps (UL)
LTE		600 Mbps (DL)/ 150 Mbps (UL)
WCDMA		42.2 Mbps (DL)/ 11 Mbps (UL)
Interfaces		
(U)SIM		× 2
USB 2.0		× 1
USB 3.0		× 1
PCIe 2.0		× 1
SDIO 3.0		× 1
SPI		× 1
UART		× 2
I2S		× 1
I2C		× 1
PCM		× 1
Antennas		× 6
Voice		
VoLTE		Digital Audio and VoLTE (Voice over LTE) (Optional)
Enhanced Features		
eSIM*		○
DTMF		●
DFOTA		●
(U)SIM Card Detection		●
Drivers		
USB Serial Driver		Windows 7/8/8.1/10/11 Linux 2.6–5.18 Android 4.x–12.x
RIL Driver		Android 4.x–12.x
PCIe Driver		Linux 3.10–5.18
USB RNDIS Driver		Windows 7/8/8.1/10/11
USB ECM Driver		Linux 2.6–5.18
USB NCM Driver		Linux 2.6–5.18
Electrical Features		
Supply Voltage Range		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 68 mA @ USB 3.0, idle

NOTE:

1. ①: Theoretical only. The actual values depend on network conditions.
2. *: Under development/planning.
3. ●: Supported.
4. ○: Optional.

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