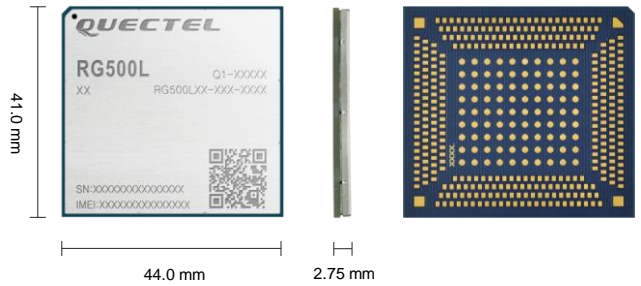


Quectel RG500L Series

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



Quectel RG500L is a series of 5G Sub-6 GHz LGA modules optimized specially for IoT and eMBB applications. By adopting the 3GPP Rel-15 technology, the module supports both 5G NSA and SA modes. It supports Option 3x, 3a, 3 and Option 2 network architectures and is backwards compatible with 4G/3G network.

RG500L Series is an industrial-grade module for industrial and commercial applications only. It includes 2 variants: RG500L-EU and RG500L-NA. The module also combines high-speed wireless connectivity with embedded multi-constellation and high-sensitivity GNSS (GPS/BDS/GLONASS/Galileo) receiver for positioning.

RG500L Series has a quad-core CPU @ 2.0 GHz, and is integrated with network hardware accelerator and VPN hardware accelerator, which extend the applicability of the modules to a wide range of IoT and eMBB applications such as 5G wireless router, CPE, MiFi, business router, home gateway, etc.



Key Features

- ✓ 5G Sub-6 GHz LGA module with 4G (LTE Cat 19)/3G fallback, optimized for IoT and eMBB applications
- ✓ Worldwide 5G and LTE-A coverage
- ✓ Supports 5G NSA and SA modes
- ✓ Supports 5G 2CC Carrier Aggregation
- ✓ Spectrum multiplexing and significantly increased network capacity enabled with TM9
- ✓ Multi-constellation GNSS receiver available for applications requiring fast and accurate positioning in any environment



5G Sub-6 GHz



LTE Cat 19
Max. 1.6 Gbps (DL)
Max. 211 Mbps (UL)



Max. 42 Mbps (DL)
Max. 5.76 Mbps (UL)



Embedded Abundant
Protocols



LGA
Form Factor



USB 3.0/PCIe 3.0
Superspeed
Interface



VoLTE/VoNR
(Optional)



Quectel
Enhanced API



Multi-constellation
GNSS

Quectel RG500L Series

5G Sub-6	RG500L-EU	RG500L-NA
Region/Operator	Europe/Middle East/Africa/Oceania/Brazil	North America
Dimensions (mm)	41.0 × 44.0 × 2.75	41.0 × 44.0 × 2.75
Temperature Range		
Operating Temperature	-30 °C to +70 °C	-30 °C to +70 °C
Extended Temperature	-40 °C to +85 °C	-40 °C to +85 °C
Frequency Bands		
5G NR NSA	n1/n3/n5/n7/n8/n20/n28/n38/n40/n41/n77/n78	n2/n5/n7/n12/n25/n38/n41/n48/n66/n71/n77/n78
5G NR SA	n1/n3/n5/n7/n8/n20/n28/n38/n40/n41/n77/n78	n2/n5/n7/n12/n25/n38/n41/n48/n66/n71/n77/n78
5G DL CA	Supports 2CC CA	Supports 2CC CA
5G DL 4 × 4 MIMO	n1/n3/n7/n38/n40/n41/n77/n78	n2/n7/n25/n38/n41/n48/n66/n77/n78
5G UL 2 × 2 MIMO	n40/n41/n77/n78	n41/n48/n77/n78
LTE-FDD	B1/B3/B5/B7/B8/B20/B28/B32	B2/B4/B5/B7/B12/B13/B14/B17/B25/B26/B29/B30/B66/B71
LTE-TDD	B38/B40/B41/B42/B43	B38/B41/B42/B43/B48
LTE-LAA	-	B46
LTE DL 4 × 4 MIMO	B1/B3/B7/B38/B40/B41/B42/B43	B2/B4/B7/B25/B30/B38/B41/B42/B43/B48/B66
WCDMA	B1/B5/B8	-
GNSS	GPS/BDS/GLONASS/Galileo, L1 + L5	GPS/BDS/GLONASS/Galileo, L1 only
Certifications		
Carrier	TBD	TBD
Regulatory	Global: GCF* Europe: CE Australia/New Zealand: RCM	Global: GCF* North America: PTCRB* America: FCC* Canada: IC*
Others	RoHS	RoHS
Data Rate		
5G SA Sub-6 GHz	4.67 Gbps (DL)/ 1.25 Gbps (UL)	4.67 Gbps (DL)/ 1.25 Gbps (UL)
5G NSA Sub-6 GHz	3.74 Gbps (DL)/ 1.46 Gbps (UL)	3.74 Gbps (DL)/ 1.46 Gbps (UL)
LTE	1.6 Gbps (DL)/ 211 Mbps (UL)	1.6 Gbps (DL)/ 211 Mbps (UL)
DC-HSPA+	42 Mbps (DL)/ 5.76 Mbps (UL)	-
Interfaces		
Antenna	Cellular: × 8 GNSS: × 1	Cellular: × 8 GNSS: × 1
(U)SIM	× 2 (Dual SIM Single Standby)	× 2 (Dual SIM Single Standby)
UART	× 3 (including 1 Bluetooth UART)	× 3 (including 1 Bluetooth UART)
USB 2.0/3.0	× 1	× 1
SGMII	× 2	× 2
PCIe 3.0	× 4	× 4
Digital Audio (PCM)	× 2	× 2
SPI	× 2	× 2
I2C	× 1	× 1
ADC	× 3	× 3
DBI-C	× 1	× 1
Audio		
Voice	Digital Audio and VoLTE/VoNR (Optional)	Digital Audio and VoLTE/VoNR (Optional)
Enhanced Features		
DTMF	•	•
FOTA	•	•
(U)SIM Detection	•	•
Electrical & RF Features		
Supply Voltage Range	3.3–4.3 V, typ. 3.8 V 80 μA @ Power off	3.3–4.3 V, typ. 3.8 V 80 μA @ Power off
Power Consumption	6.5 mA @ Sleep 125 mA @ Idle (USB active)	6.5 mA @ Sleep 125 mA @ Idle (USB active)
Output Power	Class 3 (24 dBm +1/-3 dB) for WCDMA bands Class 3 (23 dBm ±2 dB) for LTE-FDD bands Class 3 (23 dBm ±2 dB) for LTE-TDD bands Class 3 (23 dBm ±2 dB) for 5G NR bands Class 2 (26 dBm +2/-3 dB) for 5G NR n40/n41/n77/n78 UL MIMO HPUE	Class 3 (23 dBm ±2 dB) for LTE-FDD bands Class 3 (23 dBm ±2 dB) for LTE-TDD bands Class 3 (23 dBm ±2 dB) for 5G NR bands Class 2 (26 dBm +2/-3 dB) for 5G NR n41/n77/n78 UL MIMO HPUE

Note:

*: Ongoing/planning.