Quectel RG520F Series
IoT/ eMBB-Optimized 5G Sub-6 GHz LGA Module

Quectel RG520F is a series of 5G Sub-6 GHz LGA modules optimized specially for IoT and eMBB applications. Adopting the 3GPP Rel-16 technology, it delivers maximum data rates up to 4.0 Gbps downlink and 900 Mbps uplink. It supports both 5G NSA and SA modes with Option 3x/ 3a/ 3 and Option 2 network architectures and is backward compatible with 4G/ 3G network. It is pin-to-pin compatible with Quectel 5G module RG50xQ series and LTE-A Cat 12 module EG512R-EA. The module can meet customers’ different application demands for high speed, large capacity, low latency, high reliability, etc.

RG520F series module is an industrial-grade module for industrial and commercial applications only.

RG520F series contains three variants: RG520F-EU, RG520F-EB and RG520F-NA. It supports Qualcomm® iZat™ location technology Gen 9VT (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 7/ 8/ 8.1/ 10/ 11, 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 PDAs, rugged tablet PCs, and video transmission.

---

**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 VoNR/ VoLTE (optional)**

---

Quectel Enhanced AT Commands

Version: 1.4 | Status: Released
<table>
<thead>
<tr>
<th>Region/Operator</th>
<th>RG520F EU</th>
<th>RG520F-NA</th>
<th>RG520F-EB</th>
</tr>
</thead>
<tbody>
<tr>
<td>Dimensions (mm)</td>
<td>41.0 × 44.0 × 2.75</td>
<td>41.0 × 44.0 × 2.75</td>
<td>41.0 × 44.0 × 2.75</td>
</tr>
<tr>
<td>Weight (g)</td>
<td>Approx. 11.0 g</td>
<td>Approx. 11.0 g</td>
<td>Approx. 11.0 g</td>
</tr>
</tbody>
</table>

### Frequency Bands

**SG**
- **3GPP Rel-16 NSA/SA operation, Sub-6 GHz**
  - n1/3/5/7/8/20/28/30/41/42/43/55/66/71
- **3GPP Rel-15 NSA/SA operation, Sub-6 GHz**
  - n2/5/7/12/13/14/25/26/29/30/38/41/48/66/70/71

**LTE**
- **LTE Cat 20/26/41/42/43**
  - B2/3/7/12/13/17/25/26/29/30/41/48/66/71
- **LTE Cat 20/26**
  - B2/3/7/12/13/17/25/26/29/30/41/48/66/71

**5G NR**
- **5G NSA**
  - n1/3/5/7/8/20/28/30/41/42/43
- **5G SA**
  - n1/3/5/7/8/20/28/30/41/42/43/75/76/77/78

### Certifications

- **Europe:** CE, The UK: UKCA
- **Australia/New Zealand:** RCM
- **TBD:** To Be Determined

### Regulatory

- **Europe:** CE
- **Australia/New Zealand:** RCM

### Data Rates (Max.)

- **5G SA Sub-6**
  - 4.0 Gbps (DL)/900 Mbps (UL)
- **5G NSA Sub-6**
  - 4.0 Gbps (DL)/550 Mbps (UL)
- **LTE**
  - 2.0 Gbps (DL)/200 Mbps (UL)
- **WCDMA**
  - 42 Mbps (DL)/5.76 Mbps (UL)

### Interfaces

- **USB**
  - USB 2.0/3.0/3.1
  - x 2
  - x 1
- **SDIO**
  - x 1
- **PCIe 3.0**
  - Gen3, Lane x 2
- **PCM**
  - x 1
- **I2S**
  - x 1
- **SPI**
  - x 1
- **ADC**
  - x 1
- **GPIOs (QuecOpen®)**
  - x 1
- **Antennas**
  - Cellular: x 4; GNSS: x 1

### Audio

- **Voice**
  - Digital Audio and VoLTE (Optional)

### Enhanced Features

- **eSIM**
  - x 1
- **DTMF®**
  - x 1
- **DFOTA**
  - x 1
- **(U)SIM Card Detection**
  - x 1

### Drivers

- **USB Serial Driver**
  - Windows 7/8/8.1/10/11; Linux 2.6–5.18; Android 4.x–12.x
- **Rel Driver**
  - Linux 2.6–5.18
- **USB QMI/WWAN Driver**
  - Linux 2.6–5.18

### Electrical Features

- **Supply Voltage Range**
  - 3.3–4.4 V, typ. 3.8 V
  - 3.3–4.4 V, typ. 3.8 V

### Power Consumption

- 150 μA @ Power down
  - 3.0 mA @ Sleep
  - 40 mA @ idle (USB 2.0 active)
  - 60 mA @ idle (USB 3.0 active)
- 150 μA @ Power down
  - 3.0 mA @ Sleep
  - 60 mA @ idle (USB 2.0 active)
  - 60 mA @ idle (USB 3.0 active)

**NOTE:**
1. Excluding China/Japan.
2. Only supporting DL 2 × 2 MIMO currently.
3. Theoretical only; actual values depend on network conditions.
4. Default: 4-Antenna; Optional: 6-Antenna.
5. Supported.
6. Optional.
7. TBD: To Be Determined.

---

**Quectel RG520F Series**

---

Copyright © 2023 Quectel Wireless Solutions Co., Ltd. All Rights Reserved

http://www.quectel.com

HQ address: Building 5, Shanghai Business Park Phase III (Area B), No.1016 Tianlin Road, Minhang District, Shanghai 200233, China
Tel: +86 21 51086236 Email: info@quectel.com