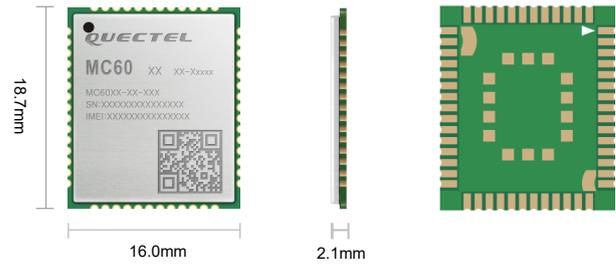




Quectel MC60

Ultra-small LCC Quad-band GSM/ GPRS/ GNSS Module



MC60 is a quad-band full-featured GSM/GPRS/GNSS module using LCC castellation package. With an extensive set of Internet protocols (TCP, UDP, PPP, FTP, HTTP, SSL, MQTT, etc.), it integrates the GNSS technology for satellite navigation. Based on the latest 2G chipset, it has the optimal performance in SMS & data transmission as well as audio service even in harsh environments. It features Dual SIM Single Standby function.

MC60 module integrates both GPRS and GNSS engines in one compact and low profile SMT package. It supports EPO™ technology which provides predicted Extended Prediction Orbit to speed up TTFF without need of extra server. Based on EPO data, QuecFastFix Online function further reduces TTFF in cold start, making cold start TTFF comparable to that in hot start. EASY™ (Embedded Assist System) technology is also supported. It enables the GNSS engine to achieve TTFF when there is no enough satellite information. MC60 additionally supports working in proven AlwaysLocate™ and GLP (GNSS Low Power) modes, which ensure great positioning accuracy while with ultra-low power consumption. The built-in LNA provides the module with improved RF sensitivity and exceptional acquisition/tracking performance even in weak signal areas.

The compact form factor, great positioning performance, low power consumption and dual (U)SIM card interfaces make MC60 the best choice for a wide range of M2M applications, such as automotive, telematics, wearable device, asset tracker, pet tracker, and so on.



Key Feature

- ✓ Ultra compact size: 18.7 mm × 16.0 mm × 2.1 mm
- ✓ Multi navigation constellation: GPS/ GLONASS/ Galileo/ BeiDou/ QZSS
- ✓ GNSS receiver channels: 99 acquisition/ 33 tracking channels/ 210 PRN
- ✓ Powerful AGPS functions: Autonomous AGPS EASY™/ Offline AGPS EPO™/ Online AGPS QuecFastFix
- ✓ Built-in LNA for better GNSS sensitivity (-167 dBm @ Tracking): able to use passive GNSS antenna without the need of any extra LNA
- ✓ Enhanced GNSS features: SDK command/ AIC/ LOCUS/ GLP
GSM quad-band: 850/ 900/ 1800/ 1900 MHz
- ✓ Multi internet protocols: TCP/ UDP/ FTP/ PPP/ HTTP/ NITZ/ NTP/PING/ HTTPS/ SSL/ MQTT
- ✓ Support Voice, SMS, QuecFOTA®, DSSS
- ✓ Support Bluetooth SPP & HFP-AG profiles (BT 3.0) and GATT/ FMP*/ PXP* (BT 4.0)



Quad-band



GPRS Multi-slot
Class 12



Extended Temperature
Range: -40 °C ~ +85 °C



Highly Compact Size



LCC Package



Embedded Internet
Services Protocols



Dual SIM Single
Standby



Digital Audio



BT 3.0 & BT 4.0
(Optional)



Multi-constellation
System

Version: 1.5 | Status: Released

| GSM/ GPRS/ GNSS | MC60 |
|---|--|
| Frequency Band | Quad-band: 850/ 900/ 1800/ 1900 MHz |
| Dimensions (mm) | 18.7 × 16.0 × 2.1 |
| Temperature Range | |
| Operating Temperature | -35°C ~ +75°C |
| Extended Temperature | -40°C ~ +85°C |
| Certifications | |
| Regulatory | Global: GCF Europe: CE/UCRF North America: FCC Brazil: Anatel South Africa: ICASA |
| Others | RoHS China: AITC |
| Data | |
| GPRS Class 12 | Max 85.6kbps (DL/ UL) |
| PBCCH | ● |
| Coding Schemes | CS-1, CS-2, CS-3, CS-4 |
| USSD | ● |
| Non-transparent Mode | ● |
| SMS | |
| Point-to-point MO and MT | ● |
| SMS Cell Broadcast | ● |
| Text and PDU Modes | ● |
| Interfaces | |
| (U)SIM | x 2 (1.8 V/ 3.0 V) |
| UART | x 4 (Main UART Port, Auxiliary UART Port, Debug UART Port, GNSS UART Port) |
| SD Card | x 1 |
| Bluetooth | BT 3.0 BT 4.0 (Optional) |
| Analog Audio Channel | x 3 (2 Output Channels and 1 Input Channel) |
| PCM | x 1 (LGA Pad) |
| ADC | x 1 |
| RTC | x 1 |
| PWRKEY | ● |
| Network Status Indication | ● |
| Antennas | x 3 (GSM Antenna, GNSS Antenna, Bluetooth Antenna) |
| Voice | |
| Speech Codec Modes | HR/ FR/ EFR/ AMR |
| Echo Arithmetic | Echo Cancellation/ Echo Suppression/ Noise Reduction |
| GNSS Features | |
| Receiving Bands ^① | GPS L1 Band Receiver (1575.42 MHz) GLONASS L1 Band Receiver (1601.7 MHz): C/A Code Galileo E1 Band Receiver (1575.42 MHz): C/A Code BeiDou B1 Band Receiver (1561.098 MHz): C/A Code QZSS L1 Band Receiver (1575.42 MHz) |
| SBAS | WAAS/ EGNOS/ MSAS/ GAGAN |
| Number of Channels | GPS L1 Band Receiver (1575.42MHz): 33 (Tracking)/ 99 (Acquisition)/ 210 (PRN) |
| Horizontal Position Accuracy (Autonomous) | < 2.5 m CEP @ -130 dBm |
| Velocity Accuracy (Without Aid) | < 0.1 m/s |
| Acceleration Accuracy (Without Aid) | 0.1 m/s ² |
| Reacquisition Time | < 1 s |
| TTFF @ -130dBm (With QuecFastFix Online) | Cold Start: < 4.5 s |
| TTFF @ -130dBm (With EASY™) | Cold Start: < 15 s Warm Start: < 5 s Hot Start: < 1 s |
| TTFF @ -130dBm (Without EASY™) | Cold Start: < 35 s Warm Start: < 30 s Hot Start: 1 s |
| Sensitivity | Acquisition: -149 dBm Tracking: -167 dBm Reacquisition: -161 dBm |
| Dynamic Performance | Maximum Altitude: 18000 m Maximum Velocity: 515 m/s Maximum Acceleration: 4g |

Notes:

- ^①: GPS + GLONASS is supported by default.
- *: Under development.
- : Supported.

| GSM/ GPRS/GNSS | MC60 |
|---|---|
| Advanced Technologies | |
| EASY™ / LOCUS™ / AlwaysLocate™ / EPO™ / GLP/ AIC/ SDK/ QuecFastFix Online/ 1PPS | ● |
| Enhanced Features | |
| eCall | ● |
| DTMF | ● |
| CMUX | ● |
| Dual UART | ● |
| DSSS (Dual SIM Single Standby) | ● |
| STK | ● |
| Audio Playing/Audio Recording | ● |
| FOTA | ● |
| QuecFile | ● |
| (U)SIM Card Detection | ● |
| GNSS | ● |
| Jamming Detection | ● |
| Firmware Upgrade | ● |
| General Features | |
| GPRS Multi-slot Class | Class 12 |
| GPRS Mobile Station | Class B |
| Software Features | |
| Protocols | TCP/ UDP/ FTP/ PPP/ HTTP/ NITZ/ NTP/ PING/ HTTPS/ TCP/ SSL/ MQTT |
| GNSS | GPS/GLONASS/Galileo/BeiDou/QZSS |
| Bluetooth (Optional) | BT 3.0 (SPP/ HFP-AG Profiles Supported) BT 4.0 (GATT/ FMP*/ PXP* Profiles Supported) |
| Electrical & Sensitivity | |
| Output Power | Class 4 (2 W @ 850/ 900 MHz) Class 1 (1 W @ 1800/ 1900 MHz) |
| Consumption | 1.2 mA @ DRX = 5 0.9 mA @ DRX = 9 |
| Supply Voltage | 3.3 V~4.6 V, Typ. 4.0 V |

Notes:

1. *: Under development.
2. ●: Supported.