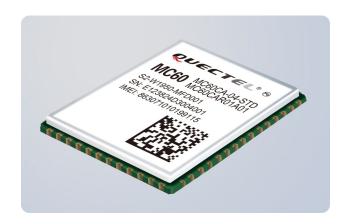# Quectel MC60

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

MC60 is a quad-band full-featured GSM/GPRS module using LCC castellation package. With an extensive set of Internet protocols (TCP, UDP, PPP, FTP, HTTP and SSL), it has integrated 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^{TM} 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^{TM} (Embedded Assist System) technology is also supported. It enables the GNSS engine to achieve a very fast first fix 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 very-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 Benefits

- ✓ Ultra compact size: 18.7mm × 16.0mm × 2.1mm

- ✓ Multi navigation constellation: GPS/ GLONASS/ QZSS

- ✓ GNSS receiver channels: 99 acquisition/ 33 tracking channels

- ✓ Powerful AGPS functions: Autonomous AGPS EASY^{TM}/ Offline AGPS EPO^{TM}/ Online AGPS QuecFastFix

- ✓ Built-in LNA for better GNSS sensitivity (-167dBm@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/ 1900MHz

- ✓ Multi internet protocols: TCP/ UDP/ PPP/ HTTP/ FTP/ SSL

- ✓ Support Voice, SMS, QuecFOTA^{TM}, DSSS, OpenCPU

- ✓ Support Bluetooth V3.0: SPP & HFP-AG profiles

Quad-band

GPRS Multi-slot Class 12

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

Highly Compact Size

LCC Package

Embedded Internet Services Protocols

Dual SIM Single Standby

Digital Audio

Bluetooth 3.0

Multi-GNSS System

Quectel MC60

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

18.7 mm

16.0 mm

2.1 mm

Frequency Band
Quad-band:
850/ 900/ 1800/ 1900MHz

Data
GPRS Class 12:
Max. 85.6kbps (Downlink)
Max. 85.6kbps (Uplink)
PBCCH
Coding Schemes:
CS 1, 2, 3. 4
USSD
Non-transparent Mode

SMS
Point-to-point MO and MT
SMS Cell Broadcast
Text and PDU Mode

Voice
Speech Codec Modes:
Half Rate (HR)
Full Rate (FR)
Enhanced Full Rate (EFR)
Adaptive Multi-Rate (AMR)
Echo Arithmetic:
Echo Cancellation
Echo Suppression
Noise Reduction

GNSS Features
GPS L1 Band Receiver (1575.42MHz):
Channel: 33 (Tracking)/ 99 (Acquisition)/
210 (PRN)
GLONASS L1 Band Receiver (1601.71MHz):
C/A Code
SBAS: WAAS, EGNOS, MSAS, GAGAN
Horizontal Position Accuracy:
Autonomous: <2.5m CEP
Velocity Accuracy:
Without Aid: <0.1m/s
Acceleration Accuracy:
Without Aid: <0.1m/s²
Reacquisition Time: <1s
TTFF @-130dBm with QuecFastFix Online:
Cold Start: <4.5s
TTFF @-130dBm with EASY™:
Cold Start: <15s
Warm Start: <5s
Hot Start: <1s

TTFF @-130dBm without EASY™:
Cold Start: <35s
Warm Start: <30s
Hot Start: <1s
Sensitivity:
Acquisition: -149dBm
Tracking: -167dBm
Reacquisition: -161dBm
Dynamic Performance:
Maximum Altitude: Max. 18000m
Maximum Velocity: Max. 515m/s
Maximum Acceleration: 4G

Interfaces
(U)SIM Card Interface: × 2 (3.0V/ 1.8V)
SD* × 1
UART: × 3 (×1 UART Port, ×1 Debug Port, ×1
GNSS UART Port)
Analog Audio Channel:
2 Output Channels and 1 Input Channel
Bluetooth:
BT 3.0
Profile: SPP/HFP-AG
ADC × 1
GPIO × 1
PCM × 1 (LGA Pad)
RTC × 1
Antenna Pads:
×3 (×1 GSM Antenna Pad, ×1 GNSS Antenna Pad,
×1 Bluetooth Antenna Pad)

Enhanced Features
EASY™
LOCUS™
AlwaysLocate™
GLP
SDK
AIC
EPO™
QuecFastFix Online
eCall
DTMF
CMUX
Dual UART
DSSS
STK
Audio Play/ Audio Record
QuecLocator
OpenCPU
FOTA

QuecFile
(U)SIM Card Detection
GNSS
Jamming Detection
Firmware Update

Electrical & Sensitivity
Output Power:
Class 4 (2W @850/ 900MHz)
Class 1 (1W @1800/ 1900MHz)
Consumption:
1.2mA @DRX=5
0.9mA @DRX=9
Supply Voltage:
3.3V~4.6V, 4.0V Typ.

Software Features
BT 3.0
GNSS: GPS/ GLONASS/ QZSS
Protocols: TCP/ UDP/ FTP/ HTTP/ SMTP/ PPP/
MMS (Sending)/ NTP/ PING

General Features
GPRS Multi-slot Class: Class 12
GPRS Mobile Station: Class B
Great Anti-jamming Performance due to
Multi-tone Active Interface Canceller
Support 1PPS Function
Built-in LNA for Higher Sensitivity
Temperature Range: -40°C ~ +85°C
Dimensions: 18.7mm × 16.0mm × 2.1mm
LCC Package
Weight: Approx. 1.3g
GSM 07.07, 07.05 and other Enhanced AT
Commands

Approvals
RoHS Compliant
CE (Europe)
FCC (North America)
Anatel (Brazil)
ICASA (South Africa)

QUECTEL®