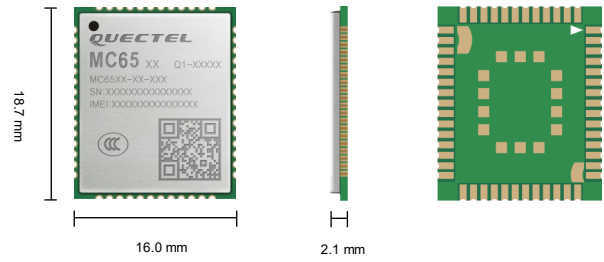


Quectel MC65

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



MC65 is a quad-band full-featured GSM/GPRS/GNSS module using LCC + LGA castellation package. With an extensive set of Internet protocols (TCP/UDP/NTP/PING/PPP/FTP/HTTP, etc.), it has integrated the GNSS technology (GPS/GLONASS/Galileo/QZSS/SBAS) 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.

MC65 integrates both GPRS and GNSS engines in one compact and low profile SMT package. It supports A-GPS technology which provides predicted SV date to speed up TTFF without the need of extra server. It enables the GNSS engine to achieve a very fast first fix when there is no enough satellite information. MC65 additionally supports working in GNSS low power mode, which ensures 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 make MC65 the best choice for a wide range of M2M applications, such as automotive, telematics, wearable device, asset tracker, pet tracker, etc.



Key Features

- ✓ Ultra compact size: 18.7 mm × 16.0 mm × 2.1 mm
- ✓ GSM quad-band: 850/900/1800/1900 MHz
- ✓ Multi navigation constellation: GPS/GLONASS/Galileo/QZSS/SBAS
- ✓ Ultra low power consumption
- ✓ Support voice, data transmission, SMS, QuecOpen, DFOTA and QuecFOTA functions
- ✓ GNSS receiver channels: 96 tracking/32 acquisition channels
- ✓ Powerful A-GPS function
- ✓ Built-in LNA for better GNSS sensitivity: -144 dBm @ Acquisition
-156 dBm @ Tracking
- ✓ Embedded rich network protocols: TCP/UDP/NTP/PING/PPP/FTP/HTTP, etc.
- ✓ Support 1PPS function



Quad-band



GPRS Multi-slot Class 12



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



Highly Compact Size



LCC + LGA Package



Embedded Internet Services Protocols



Analog Audio



Multi-GNSS System



Quectel Enhanced AT Commands

Quectel MC65

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

Frequency Band

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

Data

GPRS Class 12:
Max. 85.6 kbps (Downlink)
Max. 85.6 kbps (Uplink)
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 Mode

Voice

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

GNSS Features

Band Receiver ¹⁾
GPS L1 (1575.42 MHz):
Channel: 96 (Tracking)/32 (Acquisition)/
210 (PRN)
GLONASS G1 (1602 MHz):
C/A Code
SBAS: WAAS, EGNOS, MSAS, GAGAN
Horizontal Position Accuracy:
Autonomous: < 2.5 m CEP
Velocity Accuracy:
Without Aid: < 0.1 m/s
Acceleration Accuracy:
Without Aid: < 0.1 m/s²
Reacquisition Time: < 1 s
TTFF @ -130 dBm with A-PGS:
Cold Start: < 35 s
Warm Start: < 10 s
Hot Start: 1 s

TTFF @ -130 dBm without A-PGS:

Cold Start: < 35 s
Warm Start: < 30 s
Hot Start: < 1 s

Sensitivity:

Acquisition: -144 dBm
Tracking: -156 dBm
Reacquisition: -157 dBm

Dynamic Performance:

Maximum Altitude: 18000 m
Maximum Velocity: 515 m/s
Maximum Acceleration: 4g

Interfaces

(U)SIM Interface:

× 1 (1.8/3.0 V)

UART Interfaces:

× 4 (Main UART Port × 1, Debug Port × 1,
Auxiliary UART Port × 1, GNSS UART Port × 1)

Analogue Audio Channels:

2 Output Channels and 1 Input Channel

ADC: × 1

GPIO (Supported on QuecOpen Version)

RTC: × 1

Antenna Pads:

× 2 (GSM Antenna Pad × 1,
GNSS Antenna Pad × 1)

Enhanced Features

A-GPS
DTMF*
CMUX
Dual UART
STK
Audio Play/Audio Recording*
QuecLocator
QuecOpen
DFOTA
QuecFOTA
QuecFile
(U)SIM Card Detection*
GNSS
Jamming Detection*
Firmware Upgrade

Electrical & Sensitivity

Output Power:

Class 4 (2 W @ 850/900 MHz)
Class 1 (1 W @ 1800/1900 MHz)

Consumption:

1.1 mA @ DRX = 5
1.0 mA @ DRX = 9

Supply Voltage:

3.45–4.25 V, Typ. 4.0 V

Software Features

GNSS: GPS/GLONASS/Galileo/QZSS/SBAS
Protocols: TCP/UDP/NTP/PING/PPP/FTP/HTTP

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
Operating Temperature Range: -35 °C to +75 °C
Extended Temperature Range: -40 °C to +85 °C
Dimensions: 18.7 mm × 16.0 mm × 2.1 mm
LCC + LGA Package
Weight: Approx. 1.3 g
GSM 07.07, 07.05 and Other Enhanced AT
Commands

Approvals

Others:
RoHS

¹⁾ Supports GPS + GLONASS by default

* means under development