Quectel MC60E

Ultra-small LCC Quad-band GSM/GPRS/GNSS Module with BT4.0 Function

GSM/GPRS/GNSS

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 4.0 & Bluetooth 3.0

Multi-GNSS System

Key Benefits

- Ultra compact size: 18.7 × 16.0 × 2.1mm
- Support Bluetooth 4.0 (GATT/PXP/FMP) and Bluetooth 3.0 (SPP/HFP-AG) specifications
- Easier soldering process with LCC package
- Power consumption as low as 1.2mA@DRX=5
- Support Voice, Data, SMS and QuecFOTA™ functions
- Embedded abundant Internet service protocols
- Built-in LNA for higher sensitivity: -149dBm@Acquisition -167dBm@Tracking
- Multi-GNSS engine for GPS, GLONASS and QZSS
- 99 acquisition/33 tracking/210 PRN channels
- Advanced technologies: EASY™/ LOCUS™/EPO™/ AlwaysLocate™/GLP/SDK/QuecFastFix Online
- Great anti-jamming performance due to multi-tone active interface canceller

MC60E is a quad-band full-featured GSM/GPRS/GNSS module using LCC castellation package. It is fully pin-to-pin compatible with MC60, and supports both BT4.0 and BT3.0 specifications. BLE (Bluetooth Low Energy) technology features ultra-low peak, average and idel mode power consumption, making MC60E especially ideal for applications requiring energy efficient Bluetooth wireless conectivity. The module also supports Dual SIM Single Standby.

MC60E 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. EASY™ technology enables a very fast first fix when there is no enough satellite information. AlwaysLocate™ and GLP (GNSS Low Power) power saving modes 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 SIM card interfaces make MC60E a best choice for a wide range of M2M applications, such as automotive, telematics, wearable device, asset tracker, pet tracker, and so on.

QUECTEL®
Build a Smarter World

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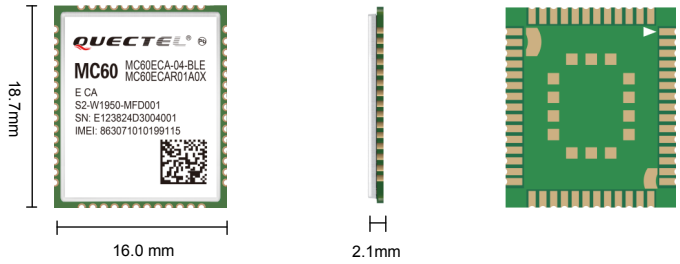

General Features

Quad-band	850/900/1800/1900MHz
GPRS Multi-slot Class	Class 12
GPRS Mobile Station	Class B
Compliant to GSM Phase 2/2+	Class 4 (2W @850/900MHz) Class 1 (1W @1800/1900MHz)
Supply Voltage Range	3.3~4.6V, 4.0V Typ.
Low Power Consumption	1.2mA@DRX=5
BT4.0 Current Consumption (Modem OFF)	Advertising : 1.46mA* Connection : 1.55mA*
Operation Temperature	-40 °C ~ +85 °C
Dimension	18.7mm × 16.0mm × 2.1mm
Weight	Approx. 1.3g
Control via AT Commands	GSM 07.07, 07.05 and other enhanced AT commands

Specifications for Data Function

GPRS Class 12	85.6kbps (Downlink) 85.6kbps (Uplink)
PBCCH	Support
Coding Schemes	CS 1, 2, 3, 4
USSD	Support
Non Transparent Mode	Support
Protocols	TCP/UDP/FTP/HTTP/PPP/SSL

Specifications for SMS Function

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

Specifications for Voice Function

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

Specifications for GNSS Function

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	<2.5 m CEP
Velocity Accuracy	Without Aid	<0.1m/s
Acceleration Accuracy	Without Aid	0.1m/s²
Advanced Technologies	EASY™/LOCUS™/AlwaysLocate™/GLP/SDK/ AIC/EPO™/QuecFastFix Online	
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

SIM/USIM	× 2, 3V/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	BT4.0 BLE Profile: GATT/PXP/FMP BT3.0 Profile: SPP/HFP-AG
ADC	× 1
GPIO	× 1
PCM	× 1 (LGA pad)
RTC	× 1
Antenna	× 3 (×1 GSM antenna pad, ×1 GNSS antenna pad, ×1 Bluetooth antenna pad)

∗ Preliminary Testing Results

QUECTEL®
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HQ address: Office 501, Building 13, No.99, Tianzhou Road, Shanghai, China 200233
Tel: +86 21 51086236
Fax: +86 21 54453668

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