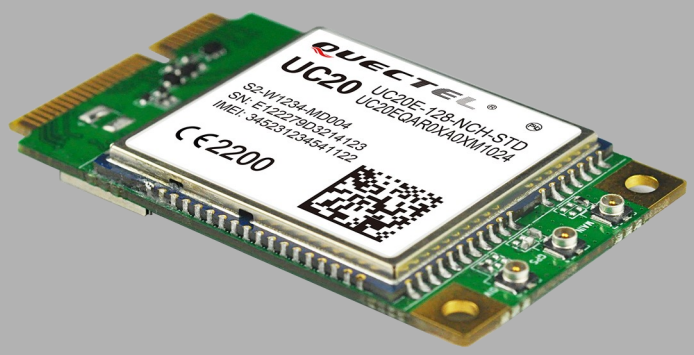
# Quectel UC20 Mini PCIe

## UMTS/HSPA+ Module

UMTS/HSPA+




Dual-mode&Multi-band for UMTS&GSM

HSDPA 14.4Mbps
HSUPA 5.76Mbps

Mini PCIe Package

Embedded Abundant Protocols

eCall

Digital Audio

GLONASS+GPS

Rx-diversity

USB Drivers

GPRS/EDGE Multi-slot Class 12

Extended Temperature Range -40°C to +80°C

Quectel Enhanced AT Commands

Quectel UC20 Mini PCIe is a powerful function UMTS/HSPA+ module featuring a maximum data rate of 14.4Mbps downlink and 5.76Mbps uplink. It is designed to provide customers with global network coverage on the connectivity of HSPA+/WCDMA, and it is also fully backward compatible with existing EDGE and GSM/GPRS networks through multi-band combination of dual-band WCDMA and quad-band GSM.

The tiny profile of 51.0×30.0×4.9mm in standard Mini PCIe form factor and highly integration level enable integrators and developers to easily design their applications and truly benefit from low power consumption and convenient Plug and Play Function.

With an extended temperature range from -40°C up to 80°C, UC20 Mini PCIe functions reliably in extreme environments for use outdoors or inside at sites that lack cooling and heating systems.

A rich set of Internet protocols, industry-standard interfaces (USB/UART/PCM/LED_WWAN#/GNSS) and abundant functions (USB drivers for Windows XP, Windows Vista, Windows 7, Windows 8, Windows CE, Linux, Android) extend the applicability of the module to a wide range of commercial and industrial M2M applications.

## Key Benefits

- Worldwide UMTS/HSPA+ and GSM/GPRS/EDGE coverage
- Standard Mini PCIe form factor maximizes the convenience for customers to design and use
- High-quality data and image transmission even in hazard conditions and dark environment
- High sensitivity GNSS receiver
- Fast time-to-market:
  reference designs, evaluation tools and timely technical support minimize design-in time and development efforts
- Robust mounting and interfaces

QUECTEL
Wireless Module Expert

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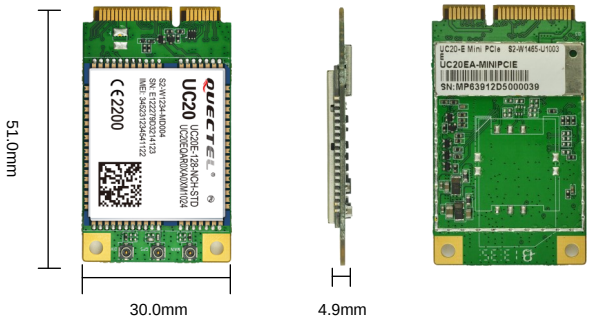
## UMTS/HSPA+ Module




## General Features

| | |
|---|---|
| **Frequency Bands** | **UC20-E Mini PCIe**<br>900/2100MHz@UMTS<br>850/900/1800/1900MHz@GSM<br>**UC20-A Mini PCIe**<br>850/1900MHz @UMTS, 3G only<br>**UC20-G Mini PCIe**<br>800/850/900/1900/2100MHz@UMTS<br>850/900/1800/1900MHz@GSM |
| **HSPA+** | Release 5/6 (UL category 6, DL category 10) |
| **EDGE** | Multi-slot Class 12 (10 by default) |
| **GPRS** | Multi-slot Class 12 (10 by default) |
| **WCDMA** | Release 99 |
| **GSM** | Release 99/4 |
| **Supply Voltage Range** | 3.0 ~ 3.6V, Typ. 3.3V |
| **Operation Temperature** | -40°C ~ +80°C |
| **Dimensions** | 51.0×30.0×4.9mm |
| **Weight** | Approx. 9.8g |
| **Control via AT commands** | 3GPP TS27.007, 27.005 and other enhanced AT Commands |

## Specifications

| | | |
|---|---|---|
| **SMS** | | Point-to-point MO and MT<br>SMS Cell Broadcast<br>Text and PDU Mode |
| **DATA** | **HSPA+** | Max.14.4Mbps (DL)/Max.5.76Mbps (UL) |
| | **UMTS** | Max.384Kbps (DL)/Max.384Kbps (UL) |
| | **EDGE** | Max.236.8Kbps (DL)/Max.236.8Kbps (UL) |
| | **GPRS** | Max.85.6Kbps (DL)/Max.85.6Kbps (UL) |
| | **CSD** | 14.4Kbps |
| **Voice** | **Speech Codec Modes** | HR, FR, EFR, AMR, AMR-WB |
| | **Echo Arithmetic** | Echo Cancellation<br>Noise Reduction |
| **Protocols** | | PPP/TCP/UDP/FTP/HTTP/MMS/SMTP/SSL |

## Special Features

| | | |
|---|---|---|
| **Drivers** | **USB Serial** | Windows XP, Windows Vista, Windows 7, Windows 8, Windows CE5.0/6.0/7.0, Linux 2.6/3.0, Android 2.3/4.0/4.2 |
| | **USB RIL** | Android 2.3/4.0/4.2, Windows CE6.0 |
| | **NDIS** | Windows XP, Windows Vista, Windows 7, Windows 8, Linux2.6/3.0 |
| | **MUX** | Linux 2.6/3.0, Android 2.3/4.0/4.2 |
| **eCall** | | Accident, Emergency Services |
| **Firmware Update** | | Firmware Update via USB Interface |
| **QuecFile** | | File System Access and Management |
| **FOTA** | | QuecFOTA, DFOTA |
| **GNSS** | | GPS/GLONASS |
| **QuecLocator** | | |

## Electrical Characteristics

| | |
|---|---|
| **Output Power** | Class 3 (24dBm +1/-3dB) for UMTS bands<br>Class E2 (27dBm ±3dB) for EDGE 850/900<br>Class E2 (26dBm +3/-4dB) for EDGE 1800/1900<br>Class 4 (33dBm ±2dB) for GSM 850/900<br>Class 1 (30dBm ±2dB) for GSM 1800/1900 |
| **Consumption (GNSS Off)** | 3.1mA@GSM sleep, DRX=9<br>3.0mA@UMTS sleep, DRX=9<br>43.0mA@Idle, USB active<br>365mA@GSM voice, max power<br>630mA@UMTS voice, max power<br>681mA@GPRS data, max power<br>570mA@EDGE data, max power<br>660mA@HSDPA, max power<br>640mA@HSUPA, max power |
| **Sensitivity** | -110 dBm@UMTS Bands<br>-108.5 dBm@GSM 850/900MHz<br>-108 dBm@GSM 1800/1900MHz |

## GNSS Features

| | | |
|---|---|---|
| **GNSS Receiver** | | Qualcomm gpsOne Gen8 |
| **SBAS** | | WAAS, EGNOS, MSAS |
| **AGNSS** | | Supports XTRA™ Technology |
| **Accuracy@Open Sky** | | <1.5m CEP-50 |
| **TTFF@-130dBm with XTRA™ , typ.** | **Cold Start** | 22s |
| | **Warm Start** | 3s |
| | **Hot Start** | 2s |
| **TTFF@-130dBm without XTRA™ , typ.** | **Cold Start** | 32s |
| | **Warm Start** | 29s |
| | **Hot Start** | 2.5s |
| **Sensitivity (with LNA)** | **Cold Start** | -147dBm |
| | **Reacquisition** | -159dBm |
| | **Tracking** | -161dBm |
| **Power Saving Mode** | | Supports DPO Mode |
| **Dedicated GNSS AT Commands** | | |

## Interfaces

| | |
|---|---|
| **AUDIO** | Digital Audio through PCM Interface (Optional) |
| **USB** | 2.0 High Speed |
| **UART** | 1×Seven-Line UART Interface |
| **USIM** | 1.8V/3V |
| **LED_WWAN#** | Network Status |
| **W_DISABLE#** | Close RF Channel |
| **PERST#** | Reset Pin |
| **USIM Holder** | UC20-E Mini PCIe supports |

## Certificates

| | |
|---|---|
| **Approval** | CE/ FCC/ GCF/ PTCRB/ RCM |

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