Quectel UC20
UMTS/HSPA+ Module

Quectel UC20 is a powerful UMTS/HSPA+ module offering maximally 14.4Mbps downlink and 5.76Mbps uplink data rates. The module is designed to provide customers with global network coverage on the connectivity of UMTS/HSPA+, and it is also fully backward compatible with the existing EDGE and GSM/GPRS networks.

Its compact profile of 29.0mm × 32.0mm × 2.5mm in cost optimized SMT form factor and high integration level enables integrators and developers to easily design their applications and truly benefit from the module’s multi-functionality, low power consumption and mechanical intensity. Its advanced LCC package is ideally suited for large-scale manufacturing which has strict requirements for cost and efficiency.

A rich set of Internet protocols, industry-standard interfaces and abundant functions (such as USB serial drivers for Windows 7/8/8.1/10, Windows CE, Linux, Android/eCall/GNSS) extend the applicability of the module to a wide range of M2M applications such as automotive applications, smart metering, tracking systems, security solutions, routers, wireless POS terminals, mobile computing devices, PDAs and tablet PCs.

Key Benefits

- Worldwide UMTS/HSDPA+ and GSM/GPRS/EDGE coverage
- GNSS receiver available for applications requiring fast and accurate fixes in any location
- High-quality data and image transmission even in harsh environment
- Robust mounting and interfaces
- Fast time-to-market: reference designs, evaluation tools and timely technical support minimize design-in time and development efforts

Dual-mode & Multi-band for UMTS & GSM
Max 14.4Mbps (DL)
Max 5.76Mbps (UL)
Embedded Abundant Protocols
GLONASS+GPS
eCall
Digital Audio (Optional)
LCC Package
DFOTA
GPRS/EDGE

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**Frequency Bands**

**UC20-G:**
- 800/850/900/1900/2100MHz @UMTS
- 850/900/1800/1900MHz @GSM

**Data**

- HSDPA: Max.14.4Mbps (DL)
- HSUPA: Max.5.76Mbps (UL)
- WCDMA: Max.384Kbps (DL)/Max.384Kbps (UL)
- EDGE: Max.236.8Kbps (DL)/Max.236.8Kbps (UL)
- GPRS: Max.85.6Kbps (DL)/Max.85.6Kbps (UL)

**Voice**

- Speech Codec Modes: HR/FR/AMR/AMR-WB/AMR-NB
- Echo Arithmetic: Echo Cancellation/Noise Reduction

**SMS**

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

**Interfaces**

- UART x 2: Main UART, Debug UART
- (U)SIM x 1: 1.8V/3.0V (U)SIM Card
- USB x 1: USB 2.0 with High Speed up to 480Mbps
- PCM and I2C Interfaces: Digital Audio through PCM Interface (Optional)
- ADC x 2: 15 Bits
- Control and Indicator Signals
- Solder Pads for Main and GNSS Antennas
- STATUS for Power ON/OFF Status Indication
- RTC Backup
- SD Card Interface
- RESET
- PWRKEY

**Enhanced Features**

- eCall
- (U)SIM Card Insertion Detection
- Firmware Update: via USB or UART Interface

**GNSS Features**

- Qualcomm gpsOne Gen8 with 16 GPS Channels and 14 GLONASS Channels
- SBAS (WAAS/EGNOS/MSAS)
- Support XTRA™ Technology
- Accuracy <1.5m CEP-50 @Open Sky
- TTF @-130dBm with XTRA™:
  - Cold/Warm/Hot Start: Typ. 22s/3s/2s
- TTF @-130dBm without XTRA™:
  - Cold/Warm/Hot Start: Typ. 32s/29s/2.5s
- Sensitivity with LNA:
  - Cold Start/Reacquisition/Tracking: -147dBm/-159dBm/-161dBm
- Power Saving Mode: DPO Mode
- Dedicated GNSS AT Commands

**Electrical Characteristics**

- Output Power:
  - Class 4 (33dBm±2dB) for GSM850 and EGSM900
  - Class 1 (30dBm±2dB) for DCS1800 and PCS1900
  - Class E2 (27dBm±3dB) for GSM850 and EGSM900
  - Class E2 (26dBm±3/4dB) for DCS1800 and PCS1900
- Class 3 (24dBm±1/3dB) for UMTS850/850/900/1900/2100
- Consumption (GNSS OFF):
  - 20μA @Power Off
  - 2.7mA @GSM Sleep, DRX=x (USB Disconnected)
  - 2.7mA @WCDMA Sleep, DRX=6 (USB Disconnected)
  - 269mA @GSM Voice, Max Power
  - 503mA @WCDMA Voice, Max Power
  - 587mA @GPRS Data, Max Power
  - 469mA @EDGE Data, Max Power
  - 548mA @HSDPA, Max Power
  - 534mA @HSPA, Max Power
  - Sensitivity:
    - -110dBm @UMTS Bands
    - -108.5dBm @GSM850/EGSM900
    - -108dBm @DCS1800/PCS1900

**Remote Features**

- USB Serial Driver:
  - Windows 7/8/8.1/10,
  - Windows CE 5.0/6.0/7.0*,
  - Linux 2.6.3.x/4.1~4.14
  - Android 4.x/5.x/6.x/7.x
- RIL Driver: Android 4.x/5.x/6.x/7.x
- NDIS Driver: Windows 7/8/8.1/10
- Gobinet Driver: Linux 2.6.3.x/4.1~4.14
- QMI_WWAN Driver: Linux 3.x(3.4 or later)/4.1~4.14
- Protocols:
  - PPP/TCP/UDP/FTP/HTTP/FIRE/MMS/SMTP/SSL

**General Features**

- Temperature Range: -40°C ~ +85°C
- Dimensions: 29.0mm × 32.0mm × 2.5mm
- Weight: Approx. 4.9g
- Supply Voltage: 3.3V~4.3V, 3.8V Typ.
- GPRS/EDGE: Multi-slot Class 12 (10 by Default)
- WCDMA: Release 99
- GSM: Release 99/4
- HSPA+: Release 5/6 (UL Category 6, DL Category 10)
- 3GPP TS 27.007, 3GPP TS 27.005 and Quectel Enhanced AT Commands

**Approvals**

- RoHS Compliant
- GCF/Vodafone (Global)
- CE (Europe)
- FCC/PTCRB/AT&T (North America)
- RCM (Australia & New Zealand)
- JATE/TELEC (Japan)
- IC/Rogers (Canada)
- Anatel (Brazil)
- NBTC (Thailand)
- * Under Development