

# Quectel UC20

## UMTS/HSPA+ Module

UMTS/HSPA+



Dual-mode & Multi-band for UMTS & GSM



HSDPA 14.4Mbps  
HSUPA 5.76Mbps



LCC Package



Embedded Abundant Protocols



eCall



Compact Size



GLONASS+GPS



Rx-diversity



Digital Audio (Optional)



GPRS/EDGE Multi-slot Class 12



USB Drivers



Quectel Enhanced AT Commands



### Key Benefits

- Worldwide UMTS/HSPA+ and GSM/GPRS/EDGE coverage
- Minimal SMT form factor ideal for small end products with tight space
- High-quality data and image transmission even in hazard conditions and dark environment
- Fast time-to-market:  
reference designs, evaluation tools and timely technical support minimize design-in time and development efforts
- Equivalent noise-figure performance is achieved by primary and diversity receiving patches of WCDMA
- Robust mounting and interfaces

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

The tiny profile of 32.0x29.0x2.5mm in cost optimized SMT form factor and highly integration level enable integrators and developers to easily design their applications and truly benefit from the module's small size, low power consumption and mechanical intensity. Its advanced LCC package allows fully automated manufacturing for high-volume applications.

A rich set of Internet protocols, industry-standard interfaces (USB/UART/PCM/ADC/NETLIGHT/SD/Rx-diversity) and abundant functions (USB drivers for Windows XP, Windows Vista, Windows 7, Windows 8, Windows CE, Linux, Android/eCall/GNSS) extend the applicability of the module to a wide range of M2M applications such as automotive, metering, tracking systems, security solutions, routers, wireless POS, mobile computing devices, PDA, and tablet PC.

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## UMTS/HSPA+ Module

### General Features

<b>Frequency Bands</b>	<b>UC20-E</b> 900/2100MHz@UMTS 850/900/1800/1900MHz@GSM <b>UC20-A</b> 850/1900MHz @UMTS, 3G only <b>UC20-G</b> 800/850/900/1900/2100MHz@UMTS 850/900/1800/1900MHz@GSM
<b>HSPA+</b>	Release 5/6 (UL category 6, DL category 10)
<b>EDGE</b>	Multi-slot Class 12 (10 by default)
<b>GPRS</b>	Multi-slot Class 12 (10 by default)
<b>WCDMA</b>	Release 99
<b>GSM</b>	Release 99/4
<b>Supply Voltage Range</b>	3.3 ~ 4.3V, 3.8V typ.
<b>Operation Temperature</b>	-40 °C ~ +85 °C
<b>Dimensions</b>	32.0x29.0x2.5mm
<b>Weight</b>	Approx. 4.9g
<b>Control via AT commands</b>	3GPP TS27.007, 27.005 and other enhanced AT Commands

### Specifications

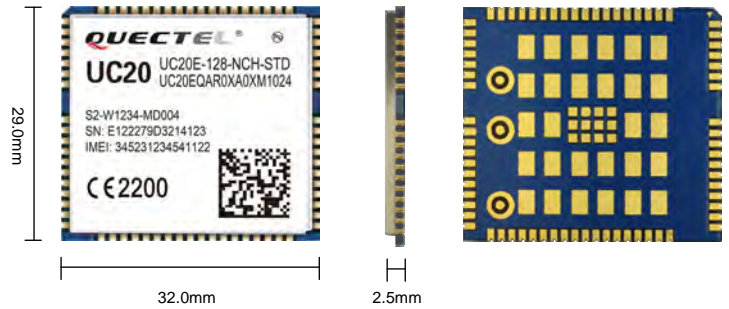
<b>SMS</b>	Point-to-point MO and MT SMS Cell Broadcast Text and PDU Mode
<b>HSPA+</b>	Max.14.4Mbps (DL)/Max.5.76Mbps (UL)
<b>UMTS</b>	Max.384Kbps (DL)/Max.384Kbps (UL)
<b>DATA</b>	<b>EDGE</b> Max.236.8Kbps (DL)/Max.236.8Kbps (UL)
	<b>GPRS</b> Max.85.6Kbps (DL)/Max.85.6Kbps (UL)
	<b>CSD</b> 14.4Kbps
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

### Special Features

<b>USB Serial</b>	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
<b>Drivers</b>	<b>USB RIL</b> Android 2.3/4.0/4.2, Windows CE6.0
	<b>NDIS</b> Windows XP, Windows Vista, Windows 7, Windows 8, Linux2.6/3.0
	<b>MUX</b> Linux 2.6/3.0, Android 2.3/4.0/4.2
<b>eCall</b>	Accident, Emergency Services
<b>USIM Detection</b>	Hardware USIM Card Detection Design
<b>Firmware Update</b>	Firmware Update via USB and UART Interface
<b>QuecFile</b>	File System Access and Management
<b>QuecLocator</b>	
<b>FOTA</b>	QuecFOTA, DFOTA
<b>GNSS</b>	GPS/GLONASS

### Electrical Characteristics

<b>Output Power</b>	Class 3 (24dBm +1/-3dB) for UMTS bands Class E2 (27dBm ±3dB) for EDGE 850/900 Class E2 (26dBm +3/-4dB) for EDGE 1800/1900 Class 4 (33dBm ±2dB) for GSM 850/900 Class 1 (30dBm ±2dB) for GSM 1800/1900
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<b>Consumption (GNSS Off)</b>	45µA@power off 1.5mA@GSM sleep, DRX=9 1.1mA@UMTS sleep, DRX=9 293mA@GSM voice, max power 532mA@UMTS voice, max power 610mA@GPRS data, max power 503mA@EDGE data, max power 593mA@HSDPA, max power 576mA@HSUPA, max power
<b>Sensitivity</b>	-110dBm@UMTS Bands -108.5dBm@GSM 850/900MHz -108dBm@GSM 1800/1900MHz

### GNSS Features

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

### Interfaces

<b>AUDIO</b>	Digital Audio through PCM Interface (Optional)
<b>USB</b>	2.0 High Speed
<b>UART</b>	1xFull Function, 1xDebug
<b>USIM</b>	1.8V/3V
<b>NETLIGHT</b>	1xNET_MODE, 1xNET_STATUS
<b>ADC</b>	x2, 15bits
<b>RTC Backup</b>	Real Time Clock
<b>SD</b>	
<b>RESET</b>	
<b>PWRKEY</b>	
<b>ANTENNA</b>	Pads for Primary, Rx-diversity and GNSS
<b>STATUS</b>	Indication for Power On and Off

### Certificates

<b>Approval</b>	CE/GCF/FCC/PTCRB/AT&T/OFCA/NCC/RCM/IC/Rogers/Vodafone/KC/NAL/TA
<b>Plan</b>	SKT/ANATEL

