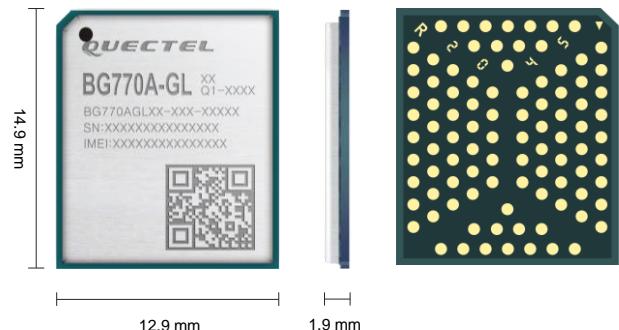


Quectel BG770A-GL

Ultra-Compact LTE Cat M1/NB1/NB2* Module



The BG770A-GL is an ultra-compact LPWA module compliant with the 3GPP E-UTRA Release 13/14* specification and has an integrated GNSS and cellular-based positioning engine that supports GPS and GLONASS systems. The module supports LTE Cat M1 and LTE Cat NB1/NB2* bands and global carrier band combinations. Besides, it features the MIPS 5150 processor and integrated RAM and flash, which help reduce current consumption to rather low levels in various standby/hibernation modes, including PSM and eDRX.

The BG770A-GL has a comprehensive hardware-based security feature - Integrated Security Elements (ISE). With an ultra-compact SMT form factor of 14.9 mm × 12.9 mm × 1.9 mm and a high integration level, the module enables integrators and developers to design applications easily leveraging its low power consumption and compact structure design. The BG770A-GL's advanced LGA package allows for fully automated manufacturing required for large-scale applications.

A rich set of Internet protocols, industry-standard interfaces and abundant functionalities extend the applicability of the module to a wide range of M2M applications, such as wireless POS, smart metering, tracking, wearable devices, and many more.



Key Features

- ✓ Extremely compact LTE Cat M1/NB1/NB2* module with ultra-low power consumption
- ✓ Integrated RAM and flash
- ✓ Super slim profile in LGA package
- ✓ Embedded with abundant Internet service protocols
- ✓ Supports VoLTE* (Cat M1 only), QuecLocator®, and DFOTA
- ✓ A rich set of external, multi-band interfaces that ensure convenient applications
- ✓ Fast time-to-market: reference designs, evaluation tools and timely technical support minimize time and efforts in design and development
- ✓ Robust mounting and interfaces



LTE Cat M1 & Cat NB1/NB2*



LGA Package



Super Compact Size



Abundant Protocols
Embedded



DFOTA



USB 2.0 Interface*



Ultra-Low Power
Consumption



Quectel Enhanced
AT Commands



Integrated RAM and
Flash

Quectel BG770A-GL

LTE Cat M1/NB1/NB2*		BG770A-GL
Region/Operator	Global	
Dimensions (mm)	14.9 x 12.9 x 1.9	
Package	LGA	
Temperature Range		
Operating Temperature	-35 °C to +75 °C	
Extended Temperature	-40 °C to +85 °C	
Frequency Bands		
LTE-FDD	Cat M1: B1/B2/B3/B4/B5/B8/B12/B13/B18/B19/B20/B25/B26/B27/B28/B66 Cat NB1/NB2*: B1/B2/B3/B4/B5/B8/B12/B13/B17/B18/B19/B20/B25/B28/B66	
Data Rate (Max.)		
Cat M1	588 kbps (DL)/ 1119 kbps (UL)	
Cat NB2*	127 kbps (DL)/ 158 kbps (UL)	
Certifications		
Carrier*	Europe: Vodafone/Deutsche Telekom America: Verizon/AT&T South Korea: SKT Japan: NTT DOCOMO/KDDI	
Regulatory	Global: GCF* Europe: CE North America: PTCRB* America: FCC Canada: IC South Korea: KC* Japan: JATE/TELEC* Australia/New Zealand: RCM	
Others*	RoHS	
Interfaces		
USB 2.0*	× 1 (Full speed only)	
UART	× 3	
PCM*	× 1 (For VoLTE only)	
I2C*	× 1 (For VoLTE only)	
ADC	× 2	
(U)SIM	× 1 (Supports 1.8 V only)	
GPIO	× 7	
GRFC*	× 2	
NET_STATUS	× 1 (For network status indication)	
STATUS	× 1 (For power on/off indication)	
Antenna	× 2 (For the main antenna and GNSS antenna, respectively)	
Voice		
VoLTE*	Voice over LTE (For Cat M1 only)	
SMS		
Short Message Service	<ul style="list-style-type: none"> Point-to-point MO and MT SMS Cell Broadcast Text and PDU Mode 	
Enhanced Features		
GNSS	GPS, GLONASS	
DFOTA	Delta Firmware Upgrade Over The Air	
QuecLocator®	Cell ID Positioning	

Note:

*: Under development / in progress.

Quectel BG770A-GL

LTE Cat M1/NB1/NB2*

BG770A-GL

Software Features

3GPP 3GPP E-UTRA Release 13/14*

- 3GPP TS 27.007
- 3GPP TS 27.005
- Quectel Enhanced AT Commands

Protocols

TCP/ PPP/ UDP/ SSL/ MQTT/ FTP(S) / HTTP(S) / LwM2M/ IPv4/ IPv6/ TLS/ DTLS/ PING/ CoAP/ NITZ

- UART
- DFOTA
- USB*

Electrical Features

Output Power Max. 23 dBm

Supply Voltage Range
VBAT_BB: 2.2–4.35 V, Typ. 3.3 V
VBAT_RF: 3.1–4.2 V, Typ. 3.3 V

Power Saving Mode: 1.4 µA

Sleep Mode (modem disabled): 45 µA

Sleep Mode (ECLO):

Cat M: 1.1 mA @ DRX = 1.28 s
 0.06 mA @ eDRX Cycle = 40.96 s; PTW = 1.28 s; DRX = 1.28 s
 0.05 mA @ eDRX Cycle = 81.92 s; PTW = 1.28 s; DRX = 1.28 s

NB-IoT: 2.2 mA @ DRX = 1.28 s
 0.16 mA @ eDRX Cycle = 40.96 s; PTW = 1.28 s; DRX = 1.28 s
 0.12 mA @ eDRX Cycle = 81.92 s; PTW = 1.28 s; DRX = 1.28 s

Power Consumption (Typical)

Active Mode (GNSS disabled):

Cat M: 189 mA @ 23 dBm, B1/2/3/4/5/18/19/20/25/26/27/66
 201 mA @ 23 dBm, B8/B13
 225 mA @ 23 dBm, B12/B28

NB-IoT (max power mode 3.75 kHz):

322 mA @ 23 dBm, B1/B2/B3/B4/B25/B66
 359 mA @ 23 dBm, B5/B8/B13/B18/B19/B20
 225 mA @ 23 dBm, B12/B17/B28

NB-IoT (max power mode 15 kHz):

169 mA @ 23 dBm, B1/B2/B3/B4/B25/B66
 191 mA @ 23 dBm, B5/B8/B13/B18/B19/B20
 225 mA @ 23 dBm, B12/B17/B28

Note:

*: Under development / in progress.