Quectel BC660K-GL

Compact NB-IoT Module with Ultra-low Power Consumption
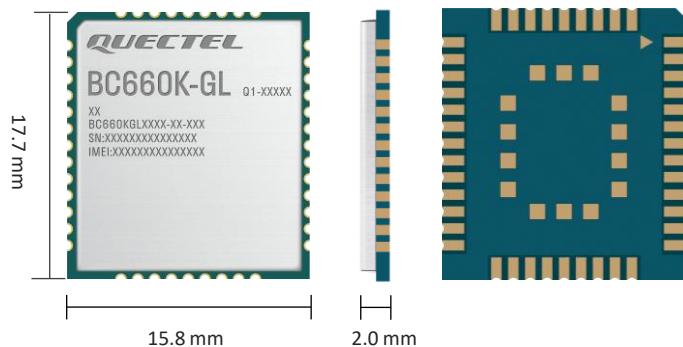
17.7 mm

15.8 mm 2.0 mm

BC660K-GL is a high-performance LTE Cat NB2 module which supports multiple frequency bands of B1/ 2/ 3/ 4/ 5/ 8/ 12/ 13/ 17/ 18/ 19/ 20/ 25/ 28/ 66/ 70/ 85 with extremely low power consumption. The module's ultra-compact profile (17.7 mm × 15.8 mm × 2.0 mm) makes it a perfect choice for size-sensitive applications. Designed to be compatible with Quectel GSM/GPRS M66 module and NB-IoT BC66/BC66-NA, BC65 and BC68-GV modules, it provides a flexible and scalable platform for the migration from GSM/GPRS to NB-IoT networks.

BC660K-GL adopts the surface-mount technology, which makes it an ideal solution for durable and rugged designs. The module's small LCC package allows it to be easily embedded into space-constrained applications and to enjoy reliable connection with the applications. This kind of package suits well large-scale manufacturing which has strict requirements on cost and efficiency.

Due to the ultra-compact profile, super-low power consumption and extended temperature range, BC660K-GL is one of the best choices for a wide range of IoT applications, such as smart metering, bike sharing, smart parking, smart city, smart safety, asset tracking, home appliances, agricultural and environmental monitoring. It is able to provide a complete range of SMS and data transmission services to meet various user demands.

Key Features

- ✔ Compact-sized, multi-band LTE Cat NB2 module
- ✔ Ultra-low power consumption
- ✔ Ultra-low cost
- ✔ eSIM [①] reserved with 2.552 × 2.722 mm package
- ✔ Wide power supply range: 2.2–4.3 V
- ✔ LCC package facilitating large-volume manufacturing
- ✔ Compatible with Quectel GSM/GPRS M66 and NB-IoT BC66/BC66-NA, BC65 and BC68-GV modules, which means easier future upgrading
- ✔ Embedded with abundant internet service protocols
- ✔ Multi-band and rich external interfaces ensuring convenient application

Compact Size	Multi-Band NB-IoT	Extended Temperature Range: -40 °C to +85 °C
LCC Package	Multiple Serial Ports	Ultra-low Power Consumption
Embedded Internet Service Protocols	Quectel Enhanced AT Commands	

LTE Cat NB2	BC660K-GL
Region/Operator	Global
General Features	
Pins	58
Package	LCC
Dimensions (mm)	17.7 × 15.8 × 2.0
Weight (g)	1.0 ±0.2
Temperature Range	
Operating Temperature	-35 °C to +75 °C
Extended Temperature	-40 °C to +85 °C
Frequency Bands	
Cat NB2	B1/ 2/ 3/ 4/ 5/ 8/ 12/ 13/ 17/ 18/ 19/ 20/ 25/ 28/ 66/ 70/ 85
Certifications	
Regulatory	GCF (Global) PTCRB (North America) CE (Europe) FCC (America) IC (Canada) Anatel (Brazil) KC (South Korea) RCM (Australia/New Zealand) IMDA (Singapore) NBTC (Thailand) ICASA (South Africa) JATE/TELEC (Japan) NCC (China Taiwan)
Carrier	Vodafone/ Deutsche Telekom (Europe) AT&T /T-Mobile (America) KT/ LGU+ (South Korea) Telefónica (Spain) Orange (France) Telstra/Optus (Australia) Spark (New Zealand)
Data Rates	
Single-tone (kbps)	25.5 (DL)/ 16.7 (UL)
Multi-tone (kbps)	127 (DL)/ 158.8 (UL)
Interfaces	
USIM	× 1
UART	× 2 (for QuecOpen® version, × 3, only one for debug)
RI	× 1
ADC	× 1 (for QuecOpen® version, × 2)
RESET_N	× 1
BOOT	× 1
NETLIGHT	× 1
Antenna	× 1
GRFC	× 2
GPIO	× 4 (for QuecOpen® version, × 16)
PSM_EINT	× 1 (for QuecOpen® version, × 2)
SPI	× 1 (for QuecOpen® version only)
I2C	× 1 (for QuecOpen® version only)
PWM	× 1 (for QuecOpen® version only)
SMS	
Short Message Service (Point-to-point MO and MT)	Text Mode

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LTE Cat NB2	BC660K-GL
Enhanced Features	
DFOTA: Delta Firmware Upgrade Over-The-Air	●
RAI: Release Assistance Indication	●
eSIM: Embedded SIM	○
Software Features	
Protocol Stacks	UDP/ TCP/ PING/ LwM2M/ SNTP/ COAP/ COAPS/ HTTP/ HTTPS/ MQTT/ MQTTS/ SSL/ TLS
Download Methods	Main UART/ DFOTA
AT Commands	*3GPP TS 27.007* *3GPP TS 27.005* Quectel Enhanced AT Commands
Electrical Features	
Supply Voltage Range	2.2–4.3 V, typical 3.3 V [2]
Maximum Output Power	23 dBm ±2.7 dB
Sensitivity	-116 dBm
Power Consumption (Typical)	800 nA @ PSM [3] 0.22 mA @ Idle (DRX = 1.28 s, ECL = 0) 0.11 mA @ Idle (DRX = 2.56 s, ECL = 0) 0.038 mA @ Idle (eDRX = 40.96 s, PTW = 10.24 s, ECL = 0) 67 mA @ Connected Tx 0 dBm 330 mA @ Connected Tx 23 dBm

Notes:

1. [1]: eSIM is reserved but not included by default.

2. [2]: 3GPP performance for QCX212 chipset is guaranteed from VBAT supply 3.0–4.3 V.

3. [3]: Reference data provided by baseband chip platform.

4. ●: Supported; ○: Optional.

5. *: Under development/planning.

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