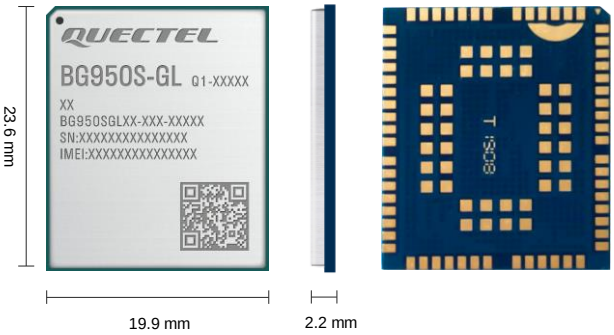
Quectel BG950S-GL

Ultra-Compact
LTE Cat M1/ NB2 Module



BG950S-GL, a 5G-ready ultra-compact LPWA module, is compliant with 3GPP Release 14, which is to support 3GPP Release 15-17 easily by software upgrade. The module supports LTE Cat M1/ NB2 bands, SRD* (Short Range Device) communication in Sub-1 GHz and 2.4 GHz bands, and integrated SIM (iSIM*). Besides, it features ultra-low power consumption implemented by Sony ALT1350 processor and integrated RAM and flash, which help reduce the current consumption to rather low levels in various modes, including PSM*, eDRX, etc. It is further integrated with a GNSS engine that supports GPS* and GLONASS* satellite systems.

With an ultra-compact SMT form factor of 23.6 mm × 19.9 mm × 2.2 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 BG950S-GL's advanced LGA package allows for fully automated manufacturing necessary 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/ NB2 module with ultra-low power consumption
- SRD* (Short Range Device) radio with mesh capabilities
- Integrated RAM and flash
- Super slim profile in LGA package
- Support integrated SIM (iSIM*)
- Embedded with abundant Internet service protocols
- Support DFOTA*
- A rich set of external interfaces (including RF control interfaces) that ensure convenient applications
- Fast time-to-market: reference designs, evaluation tools and timely technical support minimizing time and efforts in design and development
- Robust mounting and interfaces

LTE Cat M1 & Cat NB2

LGA Package

iSIM

Abundant Protocols Embedded

DFOTA

Compact Size

Ultra-Low Power Consumption

Quectel Enhanced AT Commands

Integrated RAM and Flash

Quectel BG950S-GL

LPWA Module	BG950S-GL
Region/ Operator	Global
Dimensions (mm)	23.6 × 19.9 × 2.2
Package	LGA
Weight (g)	2.31
Temperature Range	
Operating Temperature	-35 °C to +75 °C
Extended Temperature	-40 °C to +85 °C
Frequency Bands	
LTE-FDD	Cat M1: B1/ 2/ 3/ 4/ 5/ 8/ 12/ 13/ 18/ 19/ 20/ 25/ 26/ 27/ 28/ 66/ 85
	Cat NB2: B1/ 2/ 3/ 4/ 5/ 8/ 12/ 13/ 17/ 18/ 19/ 20/ 25/ 26/ 28/ 66/ 85
Data Rate (Max.)	
LTE (kbps) Rel-14	Cat M1: 588 (DL)/ 1119 (UL)
	Cat NB2*: 127 (DL)/ 158 (UL)
Certifications	
Carrier	**Europe:** Vodafone*/ Deutsche Telekom* **America:** AT&T*/ T-Mobile*/ Verizon* **South Korea:** KT*/ LGU+*/ KC* **Australia**: Telstra* **Canada**: Rogers*/ Telus* **Japan**: KDDI*/ NTT DOCOMO*
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	
UART	× 2
ADC*	× 2
(U)SIM	× 1 (Supports 1.8 V only)
GPIO	× 9
GRFC*	× 2
NET_STATUS	× 1 (Indicate the module's network activity status)
STATUS	× 1 (Indicate the module's operation status)
Antenna	× 2 (Main Antenna: × 1; GNSS Antenna*: × 2)
SMS	
Short Message Service*	Point-to-Point MO and MT SMS cell broadcast Text and PDU mode SMS storage: ME by default
Enhanced Features	
GNSS*	GPS/ GLONASS
DFOTA*	●
QuecOpen®	-
iSIM*	●
SRD*	●
Software Features	
3GPP	3GPP E-UTRA Release 14
AT Commands	*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*
Firmware Upgrade	UART/ DFOTA*
Electrical Features	
Output Power (Max.)	23 dBm ±2 dB
Supply Voltage Range	VBAT_BB/ VBAT_RF: 2.2–4.35 V, typ. 3.3 V
Power Consumption (Typical)	**Power Saving Mode*:** 1.5 μA **Rock Bottom:** 1.6 μA @ CFUN=0, QSCLK=3 5.6 μA @ CFUN=0, QSCLK=2 **Idle Mode:** 10.6 mA @ Cat NB, DRX = 1.28 s 10.4 mA @ Cat M1, DRX = 1.28 s 10.3 mA @ e-I-DRX = 81.92 s; PTW = 2.56 s; DRX = 1.28 s **Sleep Mode @ QSCLK=2:** Cat M1: 0.5 mA @ DRX = 1.28 s 16 μA @ e-I-DRX = 40.96 s; PTW = 1.28 s; DRX = 1.28 s 12 μA @ e-I-DRX = 81.92 s; PTW = 1.28 s; DRX = 1.28 s Cat NB: 0.8 mA @ DRX = 1.28 s 27.05 μA @ e-I-DRX = 81.92 s; PTW = 2.56 s; DRX = 1.28 s 50 μA @ e-I-DRX = 40.96 s; PTW = 2.56 s; DRX = 1.28 s **Active Mode (GNSS disabled):** Cat M1: 138 mA @ 23 dbm Cat NB1: 172 mA @ 23 dbm

Note:
*: Under development/ in progress. ●: Supported. -: Not supported.

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