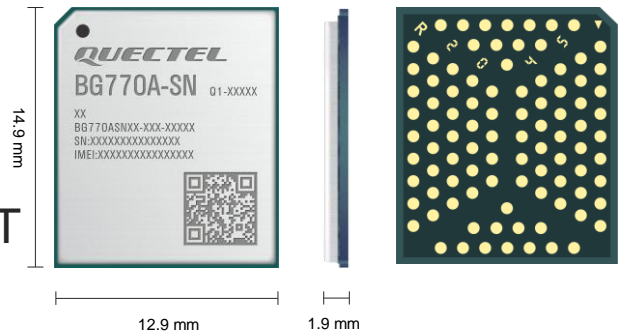




Quectel BG770A-SN

Ultra-Compact

LTE Cat M1/ NB1/ NB2 / NB-IoT
NTN Module



BG770A-SN is a 5G-ready ultra-compact satellite communication module compliant with 3GPP E-UTRA Release 13/ 14/ 17. The module supports LTE Cat M1, LTE Cat NB1/ NB2 bands, and NTN over NB-IoT. Besides, it features ultra-low power consumption implemented by MIPS 5150 processor and integrated RAM and flash, which help reduce current consumption to rather low levels in various modes, including PSM, e-I-DRX, etc. It is further integrated with a GNSS engine that supports GPS and GLONASS systems.

BG770A-SN boasts 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-SN'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/ NB-IoT NTN module with ultra-low power consumption
- ✓ Global coverage over the GEO constellation
- ✓ Super slim profile in LGA package
- ✓ 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 minimize time and efforts in design and development



LTE Cat M1/
Cat NB1/ NB2 & NB-IoT
NTN



Satellite
Communication



Global Coverage



Abundant Protocols
Embedded



DFOTA



LGA Package



Ultra-Low Power
Consumption



Quectel Enhanced
AT Commands



Super Compact Size

Quectel BG770A-SN

| LTE Cat M1/ NB1/ NB2/ NB-IoT NTN | | BG770A-SN | |
|----------------------------------|--------|---|----------------------|
| Region/ Operator | | Global | |
| Dimensions (mm) | | 14.9 × 12.9 × 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/ 2/ 3/ 4/ 5/ 8/ 12/ 13/ 18/ 19/ 20/ 25/ 26/ 27/ 28/ 66 | |
| | | Cat NB2: B1/ 2/ 3/ 4/ 5/ 8/ 12/ 13/ 17/ 18/ 19/ 20/ 23/ 25/ 28/ 66 | |
| NB-IoT NTN | | n255/ n256 | |
| Data Rate (Max.) | | | |
| LTE (kbps) | Rel-13 | Cat M1 | 300 (DL)/ 375 (UL) |
| | | Cat NB1 | 27.2 (DL)/ 62.5 (UL) |
| | Rel-14 | Cat M1 | 588 (DL)/ 1119 (UL) |
| | | Cat NB2 | 127 (DL)/ 158 (UL) |
| NB-IoT NTN (kbps) | Rel-17 | NTN | TBD |
| Certifications | | | |
| Carrier | | Skylo* | |
| Regulatory | | Global: GCF Europe: CE North America: PTCRB America: FCC | |
| Others | | RoHS | |
| Interfaces | | | |
| USB 2.0 | | × 1 (Full speed only) | |
| UART | | × 3 | |
| I2C | | - | |
| SPI | | - | |
| 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) | |
| SMS | | | |
| Short Message Service | | 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 | |
| QuecOpen® | | - | |

Note:

*: Under development/ in progress. -: Not supported. TBD: To Be Determined.

Quectel BG770A-SN

| LTE Cat M1/ NB1/ NB2/ NB-IoT NTN BG770A-SN | |
|--|--|
| Software Features | |
| 3GPP | 3GPP E-UTRA Release 14/ 17 <i>3GPP TS 27.007</i> |
| AT Commands | <i>3GPP TS 27.005</i> Quectel Enhanced AT Commands |
| iSIM | - |
| Protocols | PPP/ TCP/ UDP/ SSL/ DTLS/ FTP(S)/ HTTP(S)/ NITZ/ PING/ NIDD/ MQTT(S)/ NTP/ LwM2M/ CoAP |
| Firmware Upgrade | 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 Rock Bottom: 45 μA Sleep Mode: Cat M1: <ul style="list-style-type: none"> 1.1 mA @ DRX = 1.28 s 0.06 mA @ e-I-DRX = 40.96 s; PTW = 1.28 s; DRX = 1.28 s 0.05 mA @ e-I-DRX = 81.92 s; PTW = 1.28 s; DRX = 1.28 s Cat NB1: <ul style="list-style-type: none"> 2.2 mA @ DRX = 1.28 s 0.16 mA @ e-I-DRX = 40.96 s; PTW = 2.56 s; DRX = 1.28 s 0.12 mA @ e-I-DRX = 81.92 s; PTW = 2.56 s; DRX = 1.28 s |
| Power Consumption (Typical) | Idle Mode: Cat M1: <ul style="list-style-type: none"> 16.5 mA @ DRX = 1.28 s 16.0 mA @ e-I-DRX = 81.92 s; PTW = 2.56 s; DRX = 1.28 s Cat NB1: <ul style="list-style-type: none"> 17.0 mA @ DRX = 1.28 s 16.0 mA @ e-I-DRX = 81.92 s; PTW = 2.56 s; DRX = 1.28 s NB-IoT NTN: TBD Active Mode (GNSS off): Cat M1: TBD Cat NB2: TBD NB-IoT NTN: TBD |

Note:

-: Not supported. TBD: To Be Determined.