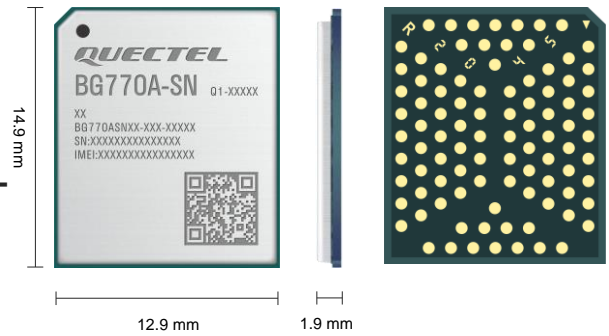




# Quectel BG770A-SN

## 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 ARM Cortex-M4 MCU 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/ 25/ 28/ 66
NB-IoT NTN			n255/ 256/ 23
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)
Certifications			
Carrier			Skylo*
Regulatory			Global: GCF*
			Europe: CE
			North America: PTCRB*
			America: FCC
			Canada: IC
Others			Australia/ New Zealand: RCM
Others			RoHS
Interfaces			
USB 2.0			× 1 (Full speed only)
UART			× 3
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

Note:  
1. \*: Under development/ planning/ in progress.

# Quectel BG770A-SN

LTE Cat M1/ NB1/ NB2/ NB-IoT NTN		BG770A-SN	
Software Features			
3GPP		3GPP E-UTRA Release 13/ 14/ 17	
AT Commands		3GPP TS 27.007 3GPP TS 27.005 Quectel Enhanced AT Commands	
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.)		Power class 3 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	
GPIO Voltage		1.8 V	
Power Consumption (Typical)	Power Saving Mode		1.4 µA
	LTE Cat M	Sleep Mode:	1.3 mA @ DRX = 1.28 s; 0.07 mA @ e-I-DRX = 81.92 s
		Idle Mode:	16.5 mA @ DRX = 1.28 s; 16.1 mA @ e-I-DRX = 81.92 s
		Active Mode:	Cat M1: 228 mA @ 23 dB, GNSS off
	LTE Cat NB	Idle Mode:	17.5 mA @ DRX = 1.28 s; 17.5 mA @ e-I-DRX = 81.92 s;
		Active Mode:	Cat NB2: 411 mA @ 23 dB, GNSS off
	NB-IoT NTN	Sleep Mode:	3.5 mA @ DRX = 1.28 s; 0.2 mA @ e-I-DRX = 81.92 s;
		Idle Mode:	17.1 mA @ DRX = 1.28 s; 17.1 mA @ e-I-DRX = 81.92 s;
		Active Mode:	NB-IoT NTN: 525 mA @ 23 dB, GNSS off

Note:  
1. \*: Under development/ planning/ in progress.

