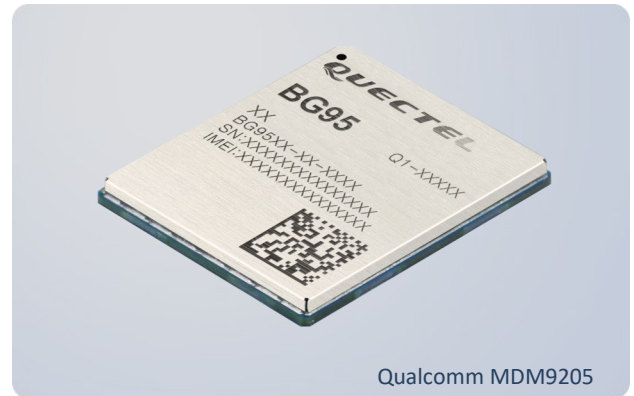


Quectel BG95

LTE Cat M1/ Cat NB2/ EGPRS Module



BG95 is a series of multi-mode LTE Cat M1/Cat NB2/EGPRS module with integrated GNSS functionality. It is fully compliant with 3GPP Rel. 14 specification and offers a maximum data rate of 589Kbps downlink and 1.12Mbps uplink. It features ultra-low power consumption by leveraging the integrated RAM/flash as well as the ARM Cortex A7 processor supporting ThreadX, achieving up to 70% reduction in PSM leakage and 85% reduction in eDRX current consumption compared to its predecessor.

BG95 boasts a comprehensive set of hardware-based security features and enables trusted applications to run directly on the Cortex A7 TrustZone engine. Additionally, BG95 provides pin-to-pin compatibility with Quectel LTE Standard modules EG91/EG95, LPWA modules BG96/BC95, UMTS/HSPA modules UG95/UG96 and GSM/GPRS module M95.

With a cost-effective SMT form factor of 23.6mm × 19.9mm × 2.2mm and high integration level, BG95 enables integrators and developers to easily design their applications and take advantage from the module's low power consumption and mechanical intensity. Its advanced LGA package allows fully automated manufacturing for high-volume applications. A rich set of Internet protocols, industry-standard interfaces (USB/UART/PCM/STATUS) and abundant functions (e.g. USB drivers for Windows 7/8/8.1/10, Linux and Android, etc.) extend the applicability of the module to a wide range of M2M applications such as wireless POS, smart metering, tracking, wearable devices, etc.

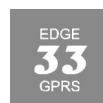


Key Benefits

- ✓ LTE Cat M1/Cat NB2/EGPRS module with ultra-low power consumption
- ✓ Easy migration from Quectel GSM/GPRS, UMTS/HSPA and LTE standard modules
- ✓ Super slim profile in LGA package
- ✓ Integrated RAM and flash in the baseband chipset
- ✓ Comprehensive set of hardware-based security features
- ✓ Fast time-to-market: reference designs, evaluation tools and timely technical support minimize design-in time and development efforts
- ✓ Compact SMT form factor ideal for size-constrained applications with tight space
- ✓ Robust mounting and interfaces



LTE Cat M1/
Cat NB2



EGPRS



LGA Package



Embedded Abundant
Protocols



DFOTA



USB 2.0 High Speed
Interface



Ultra-low Power
Consumption



Quectel Enhanced
AT Commands

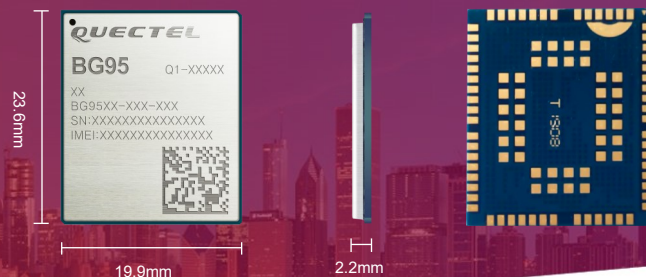


Integrated RAM/
Flash in Chipset

Rev.: V1.0 | Status: Preliminary

Quectel BG95

LTE Cat M1/ Cat NB2/ EGPRS Module



Variants for the Global

BG95-M1

Cat M1 Only:

LTE FDD: B1/B2/B3/B4/B5/B8/B12/B13/B14/
B18/B19/B20/B25/B26*/B27/B28/B66/B85

BG95-M2*

Cat M1/Cat NB2:

LTE FDD: B1/B2/B3/B4/B5/B8/B12/B13/B14^①/
B18/B19/B20/B25/B26*/B27^①/B28/B66/B71^②/
B85

BG95-M3*

Cat M1/Cat NB2:

LTE FDD: B1/B2/B3/B4/B5/B8/B12/B13/B14^①/
B18/B19/B20/B25/B26*/B27^①/B28/B66/B71^②/
B85

EGPRS:

850/900/1800/1900MHz

BG95-N1*

Cat NB2 Only:

LTE FDD: B1/B2/B3/B4/B5/B8/B12/B13/B18/
B19/B20/B25/B26*/B28/B66/B71/B85

BG95-M4 (Planning)

Cat M1/Cat NB2 (450MHz Supported):

LTE FDD: B1/B2/B3/B4/B5/B8/B12/B13/B14^①/
B18/B19/B20/B25/B26*/B27^①/B28/B31/B66/
B72/B73/B85

BG95-M5 (Planning)

Cat M1/Cat NB2 (Power Class 3):

LTE FDD: B1/B2/B3/B4/B5/B8/B12/B13/B14^①/
B18/B19/B20/B25/B26*/B27^①/B28/B66/B71^②/
B85

BG95-MF (Planning)

Cat M1/Cat NB2:

LTE FDD: B1/B2/B3/B4/B5/B8/B12/B13/B14^①/
B18/B19/B20/B25/B26*/B27^①/B28/B66/B71^②/
B85

Wi-Fi (For Positioning Only):

2.4GHz/5GHz

Data

Cat M1:

Max. 589Kbps (DL), Max. 1.12Mbps (UL)

Cat NB2:

Max. 136Kbps (DL), Max. 150Kbps (UL)

EDGE:

Max. 296Kbps (DL), Max. 236.8Kbps (UL)

GPRS:

Max. 107Kbps (DL), Max. 85.6Kbps (UL)

Voice*

VoLTE for LTE Cat M1

CS Voice for GSM

SMS*

Point-to-point MO and MT

SMS Cell Broadcast

Text and PDU Mode

Interfaces

USB 2.0 × 1

UART × 3

PCM × 1

ADC × 1

RESET_N* × 1

GPIO × 6

(U)SIM × 1

NETLIGHT × 1 (For Network Status Indication)

STATUS × 1 (For Power ON/OFF Indication)

Antenna × 2 (For LTE & GNSS Antennas)

Enhanced Features

GNSS* (Optional):

GPS, GLONASS, BeiDou, Galileo, QZSS

Firmware Upgrade:

via USB interface

DFOTA*:

Delta Firmware Upgrade Over-the-Air

Processor:

ARM A7 Processor

Quecopen**:

Simplifies the Development of Embedded
Applications

QuecLocator™*:

Support Cell ID Positioning

Electrical Characteristics

Output Power:

Max. Power: 20dBm @ LTE Bands

Consumption @LTE Cat M1 (Typical):

Power Saving Mode: 3uA

Idle State: TBD

Sleep State: TBD

LTE Connected Mode (Avg.): TBD

Consumption @LTE Cat NB2 (Typical):

Power Saving Mode: 3uA

Idle State: TBD

Sleep State: TBD

LTE Connected Mode (Avg.): TBD

Sensitivity:

TBD

Software Features

USB Serial Driver*:

Windows 7/8/8.1/10,

Linux 2.6/3.x/4.1~4.15,

Android 4.x/5.x/6.x/7.x/8.x/9.x

RIL Driver*: Android 4.x/5.x/6.x/7.x/8.x/9.x

NDIS Driver*: Windows 7/8/8.1/10

ECM Driver*: Linux 2.6/3.x/4.1~4.15

Gobinet Driver*: Linux 2.6/3.x/4.1~4.15

QMI_WWAN Driver*:

Linux 3.x(3.4 or later)/4.1~4.15

Protocols*:

PPP/TCP/UDP/SSL/TLS/FTP(S)/HTTP(S)/NITZ/

PING/MQTT/CoAP

General Features

3GPP E-UTRA Release 14

Temperature Range: -40°C ~ +85°C

Dimensions: 23.6mm × 19.9mm × 2.2mm

Weight: approx. 2.15g

Package: LGA

Supply Voltage:

2.4V~4.8V, 3.3V Typ. (BG95-M1/-M2/-M4/-M5/
-N1/-MF)

3.3V~4.3V, 3.8V Typ. (BG95-M3)

AT Commands:

3GPP TS27.007, 3GPP TS 27.005 and Quectel

Enhanced AT Commands

Approvals*

Carrier:

Vodafone (Global)

Deutsche Telekom/Telefónica (Europe)

Verizon/AT&T/T-Mobile/Sprint (North America)

Rogers/Bell/Telus (Canada)

KT/SKT/LGU+ (South Korea)

NTT DOCOMO/SoftBank/KDDI (Japan)

Telstra (Australia)

Regulatory:

GCF (Global)

CE (Europe)

FCC/PTCRB (North America)

IC (Canada)

IFETEL (Mexico)

CCC (China)

KC (South Korea)

NCC (Taiwan)

JATE/TELEC (Japan)

RCM (Australia)

NBTC (Thailand)

IMDA (Singapore)

Others:

RoHS Compliant

* Under Development

① Cat M1 Bands Only

② Cat NB2 Bands Only