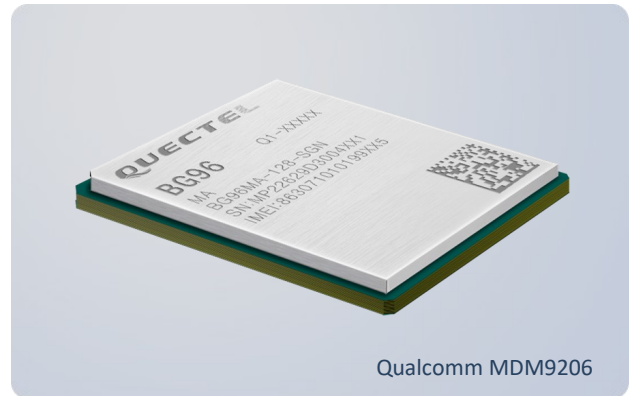# Quectel BG96

LTE Cat M1 & Cat NB1 & EGPRS Module

Qualcomm MDM9206

BG96 is a series of LTE Cat M1/Cat NB1/EGPRS module offering a maximum data rate of 375Kbps downlink and 375Kbps uplink. It features global frequency bands, ultra-low power consumption, and provides pin-to-pin compatibility with Quectel LTE Standard module EG91/EG95, LPWA module BC95-G/BG95, UMTS/HSPA module UG95/UG96 and GSM/GPRS module M95.

With a cost-effective SMT form factor of 26.5mm × 22.5mm × 2.3mm and high integration level, BG96 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/I2C/Status Indicator) and abundant functionalities (USB drivers for Windows 7/8/8.1/10, Linux and Android) extend the applicability of the module to a wide range of M2M applications such as wireless POS, smart metering, tracking, etc.

Key Benefits

- ✓ LTE Cat M1/Cat NB1/EGPRS module with ultra-low power consumption
- ✓ Compact SMT form factor ideal for size-constrained applications with tight space
- ✓ Easy migration from Quectel GSM/GPRS, UMTS/HSPA and LTE modules
- ✓ Super slim profile in LGA package
- ✓ Fast time-to-market: reference designs, evaluation tools and timely technical support minimize design-in time and development efforts
- ✓ Robust mounting and interfaces
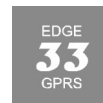
LTE Cat M1 & Cat NB1	EGPRS	LGA Package
Embedded Abundant Protocols	DFOTA	USB 2.0 High Speed Interface
USB Drivers	Quectel Enhanced AT Commands	Compact Size

Quectel BG96

LTE Cat M1 & Cat NB1 & EGPRS Module

26.5mm
22.5mm
2.3mm

BG96 Q1-XXXXX
MA
BG96MA-128-SGN
SN:MP22629D3004XX1
IMEI:863071010199XX5

T 1710
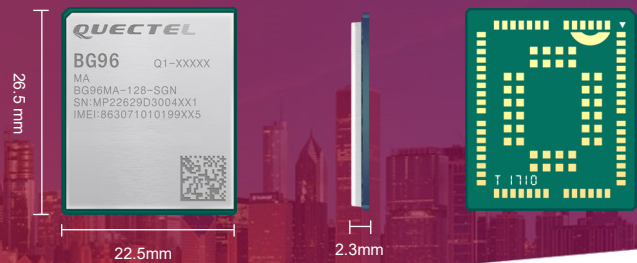
Variants for the Global

BG96

Cat M1/Cat NB1:

LTE FDD: B1/B2/B3/B4/B5/B8/B12/B13/B18/B19/B20/B25[①]/B26*/B28

LTE TDD: B39 (For Cat M1 Only)

EGPRS:

850/900/1800/1900MHz

Data

Cat M1: Max. 375Kbps (DL), Max. 375Kbps (UL)

Cat NB1: Max. 32Kbps (DL), Max. 70Kbps (UL)

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

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

Voice

VoLTE (For Cat M1 Only. Support Realtek ALC 5616 /NAU8814 Codec by Default Firmware)

SMS

Point-to-point MO and MT

SMS Cell Broadcast

Text and PDU Mode

Interfaces

USB 2.0 × 1 (With High Speed up to 480Mbps)

UART × 3

PCM × 1

ADC × 2 (15 bits)

GPIO × 2 (I2C and UART3 Can be Re-configured as Extra 4 GPIOs)

(U)SIM × 1

NETLIGHT × 1 (For Network Status Indication)

STATUS × 1 (For Power ON/OFF Indication)

Main and GNSS Antenna Interfaces

Enhanced Features

GNSS (Optional):

GPS, GLONASS, BeiDou/Compass, Galileo, QZSS

Firmware Upgrade:

via USB interface

DFOTA:

Delta Firmware upgrade Over the Air

Processor:

ARM A7 Processor, with 3MB Flash and 3MB RAM Available for Users

QuecLocator[TM]*:

Supports Cell ID Positioning Function

Electrical Characteristics

Output Power:

Max. Power: 23dBm

Consumption @LTE Cat M1 (Typical):

Power Saving Mode: 10uA

Idle State: 15mA @DRX=1.28s
　　　　　 15mA @e-I-DRX=40.96s

Sleep State: 1.5mA @DRX=1.28s
　　　　　　 1.2mA @e-I-DRX=40.96s

LTE Connected Mode (Avg.):

128mA @0dBm

140mA @10dBm

205mA @23dBm

Consumption @LTE Cat NB1 (Typical):

Power Saving Mode: 10uA

Idle State: 15mA @DRX=1.28s
　　　　　 15mA @e-I-DRX=40.96s

Sleep State: 1.96mA @DRX=1.28s
　　　　　　 1.1mA @e-I-DRX=40.96s

LTE Connected Mode (Avg.):

96mA @0dBm

110mA @10dBm

223mA @23dBm

Sensitivity:

-107dBm @Cat M1, 1.4MHz Bandwidth, CE Mode A

-113dBm @Cat NB1, CE Level 0

Software Features

USB Serial Driver:

Windows 7/8/8.1/10,

Linux 2.6/3.x/4.1~4.14,

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

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

NDIS Driver: Windows 7/8/8.1/10

ECM Driver*: Linux 2.6/3.x/4.1~4.14

Gobinet Driver: Linux 2.6/3.x/4.1~4.14

QMI_WWAN Driver:

Linux 3.x(3.4 or later)/4.1~4.14

Protocols:

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

General Features

3GPP E-UTRA Release 13

Temperature Range: -40°C ~ +85°C

Dimensions: 26.5mm × 22.5mm × 2.3mm

Approx. 3.1g

LGA Package

Supply Voltage: 3.3V~4.3V, 3.8V Typ.

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)

Telus/Rogers*/Bell* (Canada)

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

[①] LTE B25 will be Supported on BG96 with R1.2 Hardware Version.

* Under Development

QUECTEL®