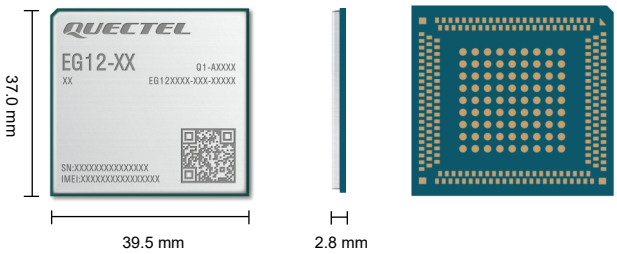
Quectel EG12 Series

IoT/M2M-optimized LTE-A Cat 12 LGA Module



Quectel EG12 is a series of LTE Advanced category 12 module optimized specially for M2M and IoT applications. Adopting the 3GPP Rel. 12 LTE technology, it delivers M2M-optimized speeds of 600 Mbps downlink and 150 Mbps uplink peak data rates. Designed in an LGA form factor, EG12 series is compatible with Quectel Cat 6/18 module series EG06/EG18, which will help customers to migrate between different categories.

EG12 series supports Qualcomm® IZat™ location technology Gen9HT-Lite (GPS, GLONASS, BDS, Galileo and QZSS). The integrated GNSS greatly simplifies product design, and provides quicker, more accurate and more dependable positioning capability.

A rich set of Internet protocols, industry-standard interfaces and abundant functionalities (USB drivers for Windows 7/8/8.1/10, Linux, Android) extend the applicability of the module to a wide range of M2M and IoT applications such as 4G router, CPE, wireless POS terminal, consumer laptop, industrial PDA, rugged tablet PC and video transmission.

Key Features

- LTE-A Cat 12 module with LGA form factor, optimized for M2M and IoT applications
- Support DL 3CA, 256QAM and 4 x 4 MIMO
- Worldwide LTE-A and UMTS/HSPA+ coverage
- Multi-constellation GNSS receiver available for applications requiring fast and accurate fixes in any environment
- Feature refinements: supports DFOTA and DTMF
- MIMO technology meets demands for data rate and link reliability in modem wireless communication systems

LTE
LTE Cat 12
Max 600 Mbps (DL)
Max 150 Mbps (UL)

3G HSPA+
Max 42 Mbps (DL)
Max 11.2 Mbps (UL)

LGA
LGA Package

Embedded Abundant Protocols

VoLTE
Voice over LTE

Multi-constellation GNSS (Optional)

USB 3.0/PCIe High Speed Interface

USB/PCIe Drivers

AT
Quectel Enhanced AT Commands

Rev.: V1.1 | Status: Released

Quectel EG12 Series

IoT/M2M-optimized LTE-A Cat 12 LGA Module

Variant for EMEA/APAC①/Brazil

EG12-EA
LTE-FDD: B1/B3/B5/B7/B8/B20/B28
LTE-TDD: B38/B40/B41

2×CA (UL):
B3+B3; B7+B7; B38+B38; B40+B40; B41+B41
UL 64 QAM

2×CA (DL):
B1+B1/B3/B5/B7/B8/B20/B28/B38/B40/B41;
B3+B3/B5/B7/B8/B20/B28/B38/B40/B41;
B7+B5/B7/B8/B20/B28;
B20+B38/B40;
B38+B38;
B40+B40;
B41+B41

3×CA (DL):
B1+B3+B3/B5/B7/B8/B20/B28/B38/B41;
B1+B40+B40;
B1+B41+B41;
B1+B7+B20;
B3+B3+B7/B20/B28;
B3+B7+B7/B8/B20/B28;
B3+B40+B40;
B3+B41+B41;
B7+B7+B20/B28;
B40+B40+B40;
B41+B41+B41

DL 4×4 MIMO:
LTE-FDD: B1/B3/B7
DL 256 QAM

WCDMA:
B1/B3/B5/B8

Variant for North America

EG12-NA*
LTE-FDD: B2/B4/B5/B7/B12/B13/B14/B17/B25/B26/B29/B30/B66/B71
LTE-TDD: B41

2×CA (UL):
B7+B7; B41+B41
UL 64 QAM

2×CA (DL):
B2+B2/B4/B5/B7/B12/B13/B14/B17/B29/B30/B66/B71;
B25+B5/B12/B25/B26/B41;
B4+B4/B5/B7/B12/B13/B17/B29/B30/B71;
B66+B5/B7/B12/B13/B14/B29/B30/B66/B71;
B7+B5/B7/B12;
B30+B5/B12/B14/B29;
B26+B41

3×CA (DL):
B2+B4+B5/B13/B71;
B2+B5+B66;
B2+B12+B30;
B2+B13+B66;
B2+B7+B12/B66;
B4+B30+B5/B12/B29;
B4+B7+B12;
B30+B66+B5/B12/B29;
B2+B2+B5/B12/B13/B29/B66;
B5+B5+B2/B30/B66;
B7+B7+B2/B4/B5;
B66+B66+B2/B5/B13/B66;
B41+B41+B25/B26/B41

DL 4×4 MIMO:
LTE-FDD: B2/B4/B25/B66/B7
DL 256 QAM

WCDMA:
B2/B4/B5

Variant for Global (TDD 3.5GHz Network)

EG12-GT
LTE-TDD: B42/B43/B48

2×CA (UL):
B42+B42

2×CA (DL):
B42+B42; B48+B48

3×CA (DL):
B42+B42+B42; B48+B48+B48

DL 4×4 MIMO:
LTE-TDD: B42/B48
DL 256 QAM

Data

LTE:
LTE-FDD: Max. 600 Mbps (DL)/150 Mbps (UL)
LTE-TDD: Max. 430 Mbps (DL)/90 Mbps (UL)
UMTS:
DC-HSDPA: Max. 42 Mbps
DC-HSUPA: Max. 11.2 Mbps
WCDMA: Max. 384 Kbps (DL)/384 Kbps (UL)

SMS

Point-to-point MO and MT
SMS Cell Broadcast
Text and PDU Mode

Interfaces

USB 2.0/3.0, Supports Master and Slave Modes
Digital Audio Through PCM Interface
(U)SIM Interfaces × 2: 1.8V/3.0V
UART × 3 (Main, Debug, BT UART)
SPI × 1: multiplexed from BT UART interface
I2C × 1
ADC × 2
PCIe* × 1: only used for data transmission
GPIO × 5
SDIO* × 1
RFFE* × 1
USB_BOOT Interface × 1
Network Status Indication Pins
Status Pin
Main, Diversity, MIMO × 2 and GNSS Antenna Interfaces

Enhanced Features

MIMO: 2 × 2, 4 × 2, 4 × 4 DL
eCall: Emergency Service
Digital Audio and VoLTE (Voice over LTE) (Optional)
(U)SIM Card Detection
DTMF: Dual-tone Multi-frequency
DFOTA: Delta Firmware Over-the-Air
Ethernet*/Wi-Fi* Function through PCIe Interface
GNSS: GPS/GLONASS/BDS/Galileo/QZSS (Optional)

Electrical Characteristics

Output Power:
Class 3 (23 dBm ±2 dB) for LTE-FDD
Class 3 (23 dBm ±2 dB) for LTE-TDD
Class 3 (24 dBm +1/-3 dB) for WCDMA
Consumption:
20 μA @ Power off
2.37 mA @ Sleep
9.76 mA @ Idle

Software Features

USB MBIM Driver:
Windows 10
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/QMI/TCP*/UDP*/FTP*/HTTP*/NTP*/PING*/HTTPS*/SMTP*/MMS*/FTPS*/SMTPS*/SSL*

General Features

3GPP E-UTRA Release 12
Bandwidth: 1.4/3/5/10/15/20MHz
Supply Voltage: 3.3V~4.3V, 3.8V Typ.
Operation Temperature Range: -30 °C to +75 °C
Extended Temperature Range: -40 °C to +85 °C
Dimensions: 37.0 mm × 39.5 mm × 2.8 mm
LGA Package
Approx. 9.0 g
3GPP TS27.007 and Quectel Enhanced AT Commands

Approvals

Carrier: TBD
Regulatory:
CE (Europe)
RCM (Australia/New Zealand)
Others:
RoHS Compliant

* Under Development
① Excluding Japan and CMCC.

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