

Quectel EC25 Mini PCIe

IoT/M2M-optimized LTE Cat 4 Module



Quectel EC25 Mini PCIe is a series of LTE category 4 module adopting standard PCI Express® Mini Card form factor (Mini PCIe). It is optimized specially for M2M and IoT applications, and delivers 150Mbps downlink and 50Mbps uplink data rates.

EC25 Mini PCIe contains 5 variants: EC25-J Mini PCIe, EC25-E Mini PCIe, EC25-AU Mini PCIe, EC25-V Mini PCIe and EC25-A Mini PCIe. This makes it backward-compatible with existing EDGE and GSM/GPRS networks, ensuring that it can be connected even in remote areas devoid of 4G or 3G coverage.

EC25 Mini PCIe supports Qualcomm® IZat™ location technology Gen8C Lite (GPS, GLONASS, BeiDou, Galileo and QZSS). The integrated GNSS greatly simplifies product design, and provides quicker, more accurate and more dependable positioning.

A rich set of Internet protocols, industry-standard interfaces and abundant functionalities (USB drivers for Windows XP, Windows Vista, Windows 7/8/8.1/10, Linux, Android/eCall) extend the applicability of the module to a wide range of M2M applications such as industrial router, industrial PDA, rugged tablet PC, video surveillance and digital signage.



Key Benefits

- ✓ LTE category 4 module optimized for broadband IoT applications
- ✓ Worldwide LTE, UMTS/HSPA+ and GSM/GPRS/EDGE coverage
- ✓ Standard PCI Express® MiniCard form factor (Mini PCIe) ideal for manufacturers to easily integrate wireless connectivity into their devices
- ✓ MIMO technology meets demands for data rate and link reliability in modem wireless communication systems
- ✓ Multi-constellation GNSS receiver available for applications requiring fast and accurate fixes in any environment

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|---|---|--|
|  4G LTE LTE Cat 4 Max 150Mbps (DL) Max 50Mbps (UL) |  3G HSPA+ Max 42Mbps (DL) Max 5.76Mbps (UL) |  Mini PCIe Mini PCIe Package |
|  Embedded Abundant Protocols |  eCall eCall |  Multi-constellation GNSS |
|  USB 2.0 High Speed Interface |  USB Drivers |  AT Quectel Enhanced AT Commands |

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Variant for EMEA/Korea/Thailand

EC25-E Mini PCIe:

LTE FDD: B1/B3/B5/B7/B8/B20
LTE TDD: B38/B40/B41
WCDMA: B1/B5/B8
GSM: B3/B8

Variants for North America

EC25-A Mini PCIe:

LTE FDD: B2/B4/B12
WCDMA: B2/B4/B5

EC25-V Mini PCIe:

LTE FDD: B4/B13

Variant for Australia/New Zealand/Taiwan/ Brazil

EC25-AU Mini PCIe:

LTE FDD: B1/B2^①/B3/B4/B5/B7/B8/B28
LTE TDD: B40
WCDMA: B1/B2/B5/B8
GSM: B2/B3/B5/B8

Variant for Japan

EC25-J Mini PCIe:

LTE FDD: B1/B3/B8/B18/B19/B26
LTE TDD: B41
WCDMA: B1/B6/B8/B19

Data

LTE:

LTE FDD: Max 150Mbps (DL)/Max 50Mbps (UL)
LTE TDD: Max 130Mbps (DL)/Max 35Mbps (UL)

UMTS:

DC-HSDPA: Max 42Mbps (DL)
HSUPA: Max 5.76Mbps (UL)
WCDMA: Max 384Kbps (DL)/Max 384Kbps (UL)

GSM:

EDGE: Max 296Kbps (DL)/Max 236.8Kbps (UL)
GPRS: Max 107Kbps (DL)/Max 85.6Kbps (UL)

Voice

Speech Codec Modes:

HR/FR/EFR/AMR/AMR-WB

Echo Arithmetic:

Echo Cancellation/Noise Reduction

Audio*:

Digital Audio and VoLTE (Voice over LTE)
(Optional)

Interfaces

USB 2.0 with High Speed up to 480Mbps
Digital Audio through PCM (Optional)

1.8V/3.0V (U)SIM Card Interface

LED_WWAN# for Network Status Indication
W_DISABLE# for Disabling RF Function
UART × 1
PERST# for Module Resetting

Enhanced Features

eCall
DTMF
(U)SIM Card Detection
Antenna:
DL MIMO, Support Rx-diversity/GNSS Antennas
DFOTA*:
Delta Firmware Upgrade Over the Air
GNSS:
GPS/GLONASS/BeiDou/Galileo/QZSS (Optional)

Electrical Characteristics

Output Power:

Class 3 (23dBm±2dB) for LTE
Class 3 (24dBm+1/-3dB) for UMTS
Class E2 (27dBm±3dB) for EDGE 850/900MHz
Class E2 (26dBm±3dB) for EDGE 1800/1900MHz
Class 4 (33dBm±2dB) for GSM 850/900MHz
Class 1 (30dBm±2dB) for GSM 1800/1900MHz

Consumption:

3.6mA @Sleep, Typ.
35mA @Idle

Sensitivity:

LTE B1: -101.5dBm (10M)
LTE B2: -101dBm (10M)
LTE B3: -101.5dBm (10M)
LTE B4: -101dBm (10M)
LTE B5: -101dBm (10M)
LTE B7: -99.5dBm (10M)
LTE B8: -101dBm (10M)
LTE B12: -101dBm (10M)
LTE B13: -100dBm (10M)
LTE B20: -102.5dB (10M)
LTE B28: -102dBm (10M)
UMTS B1: -110dBm
UMTS B2: -110dBm
UMTS B4: -110dBm
UMTS B5: -110.5dBm
UMTS B8: -110.5dBm
GSM: -109dBm
DCS: -109dBm

Software Features

USB Serial Driver:

Windows XP, Windows Vista,
Windows 7/8/8.1/10, Windows CE 5.0/6.0/7.0*,
Linux 2.6/3.x/4.1, Android 4.x/5.x/6.x/7.x

RIL Driver:

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

NIDS Driver:

Windows 7/8/8.1/10

ECM Driver*:

Linux 2.6/3.x/4.1

Gobinet Driver:

Linux 2.6/3.x/4.1

Linux qmi wwan Driver:

3.x (3.4 or later)/4.1

Protocols:

TCP/UDP/PPP/FTP/HTTP/NTP/PING/QMI/
CMUX*/HTTPS*/SMTP*/MMS*/FTPS*/SMTPS*/
SSL*/FILE*

General Features

3GPP E-UTRA Release 11
Bandwidth: 1.4/3/5/10/15/20MHz
Temperature Range: -40°C ~ +80°C
Dimensions: 51.0mm x 30.0mm x 4.9mm
Mini PCIe Package
Approx. 9.8g
Supply Voltage: 3.0V~3.6V, 3.3V Typ.
3GPP TS27.007 and Enhanced AT Commands

Approvals

RoHS Compliant
CE/GCF/Vodafone (Europe)
FCC/PTCRB/AT&T/Verizon* (North America)
RCM/Telstra (Australia)
JATE/TELEC/DOCOMO*/Softbank* (Japan)
NCC (Taiwan)
KC/SKT/KT*/LGU+* (Korea)
IC/Rogers (Canada)
NBTC (Thailand)
Anatel (Brazil)

①: LTE B2 of EC25-AU Mini PCIe Does Not
Support Rx-diversity

* Under Development