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 8 variants: EC25-J Mini PCIe, EC25-E Mini PCIe, EC25-EU Mini PCIe, EC25-EC Mini PCIe, EC25-AU Mini PCIe, EC25-V Mini PCIe , EC25-AF 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 serial drivers for 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

LTE Cat 4
Max 150Mbps (DL)
Max 50Mbps (UL)

Max 42Mbps (DL)
Max 5.76Mbps (UL)

Mini PCIe Package

Embedded Abundant Protocols

eCall*

Multi-constellation GNSS

USB 2.0 High Speed Interface

USB Drivers

Quectel Enhanced AT Commands

Rev.: V1.4 | Status: Released

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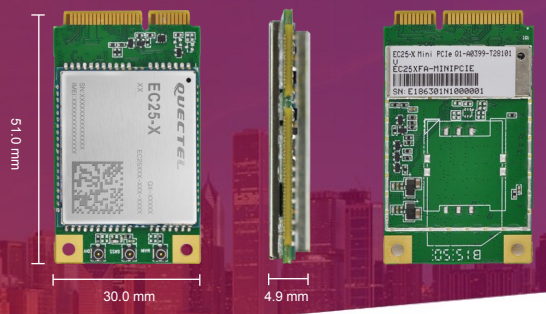

Variant for EMEA/Korea/Thailand
EC25-E Mini PCIe:
LTE FDD: B1/B3/B5/B7/B8/B20
LTE TDD: B38/B40/B41
WCDMA: B1/B5/B8
GSM: B3/B8
EC25-EU Mini PCIe:
LTE FDD: B1/B3/B7/B8/B20/B28A
LTE TDD: B38/B40/B41
WCDMA: B1/B8
GSM: B3/B8
EC25-EC Mini PCIe:
LTE FDD: B1/B3/B7/B8/B20/B28A
WCDMA: B1/B8
GSM: B3/B8

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
EC25-AF Mini PCIe:
LTE FDD: B2/B4/B5/B12/B13/B14/B66/B71
WCDMA: B2/B4/B5

Variant for Australia/New Zealand/Taiwan/ Brazil
EC25-AU Mini PCIe:
LTE FDD: B1/B2①/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 30Mbps (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 Interface
LED_WWAN# for Network Status Indication
W_DISABLE# for Disabling RF Function
UART × 1
PERST# for Module Resetting
Solder Pads for Main Antenna, Rx-diversity and GNSS Antennas

Enhanced Features
eCall*
DTMF
(U)SIM Card Detection
Support MIMO in DL Direction
DFOTA*:
Delta Firmware Upgrade Over the Air
GNSS:
GPS/GLONASS/BeiDou/Galileo/QZSS (Optional)

Electrical Characteristics
Output Power:
Class 4 (33dBm±2dB) for GSM850
Class 4 (33dBm±2dB) for EGSM900
Class 1 (30dBm±2dB) for DCS1800
Class 1 (30dBm±2dB) for PCS1900
Class E2 (27dBm±3dB) for GSM850 8-PSK
Class E2 (27dBm±3dB) for EGSM900 8-PSK
Class E2 (26dBm±3dB) for DCS1800 8-PSK
Class E2 (26dBm±3dB) for PCS1900 8-PSK
Class 3 (24dBm+1/-3dB) for WCDMA bands
Class 3 (23dBm±2dB) for LTE-FDD bands
Class 3 (23dBm±2dB) for LTE-TDD bands
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 B14: -99dBm (10M)
LTE B18: -101.7dBm (10M)
LTE B19: -101.4dBm (10M)
LTE B20: -102.5dB (10M)
LTE B26: -101.5dBm (10M)
LTE B28: -102dBm (10M)
LTE B38: -100dBm (10M)
LTE B40: -100dBm (10M)
LTE B41: -99dBm (10M)
LTE B66: -99dBm (10M)
LTE B71: -100dBm (10M)
WCDMA B1: -110dBm
WCDMA B2: -110dBm
WCDMA B4: -110dBm
WCDMA B5: -110.5dBm
WCDMA B6: -110.5dBm
WCDMA B8: -110.5dBm
WCDMA B19: -110.5dBm
GSM850: -109dBm
EGSM900: -109dBm
DCS1800: -109dBm
PCS1900: -109dBm

Software Features
USB Serial Driver:
Windows 7/8/8.1/10, Windows CE 5.0/6.0/7.0*, 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
NIDS 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
Linux qmi wwan Driver:
3.x (3.4 or later)/4.1~4.14
Protocols:
TCP/UDP/PPP/FTP/HTTP/NTP/PING/QMI/ CMUX*/HTTPS*/SMTP*/MMS*/FTPS*/SMTPS*/ SSL*/FILE*

General Features
Temperature Range: -40°C ~ +80°C
Dimensions: 30.0mm x 51.0mm x 4.9mm
Weight: Approx. 9.8g
Mini PCIe Package
Supply Voltage: 3.0V~3.6V, 3.3V Typ.
3GPP E-UTRA Release 11
Bandwidth: 1.4/3/5/10/15/20MHz
3GPP TS 27.007, 27.005 and Quectel Enhanced AT Commands

Approvals
RoHS Compliant
GCF (Global)
CE/Vodafone/Deutsche Telekom (Europe)
FCC/PTCRB/AT&T/Verizon* (North America)
RCM/Telstra* (Australia)
JATE/TELEC/DOCOMO/Softbank/KDDI (Japan)
NCC (Taiwan)
KC/SKT/KT*/LGU+* (Korea)
IC/Rogers (Canada)
NBTC (Thailand)
Anatel (Brazil)
ICASA (S. Africa)
FAC (Russia)
Telefonica* (Spain)

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

* Under Development

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