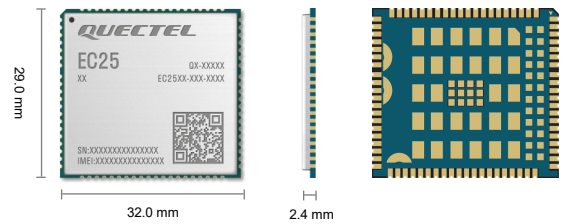


# Quectel EC25 Series

## IoT/M2M-optimized LTE Cat 4 Module



Quectel EC25 is a series of LTE Cat 4 modules optimized specially for M2M and IoT applications. Adopting the 3GPP Rel-11 LTE technology, it delivers maximum data rates up to 150 Mbps downlink and 50 Mbps uplink. Designed in the compact and unified form factor, EC25 series is compatible with Quectel multi-mode LTE Standard EC21 series/EC20-CE/EG25-G/EG21-G modules and UMTS/HSPA+ UC200A-GL module, which allows for flexible migration among them in design and manufacturing.

EC25 series contains 15 variants: EC25-A, EC25-ADL, EC25-V, EC25-AF, EC25-AFDL (Data-only), EC25-AFX, EC25-AFXD (Data-only), EC25-MX, EC25-AU, EC25-AUX, EC25-J, EC25-EU, EC25-EUX, EC25-E and EC25-EM. 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 series (excluding EC25-MX) supports Qualcomm® IZat™ location technology Gen8C Lite (GPS, GLONASS, BDS, 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 7/8/8.1/10/11, Linux, Android) extend the applicability of the module to a wide range of M2M and IoT applications such as industrial router, industrial PDA, rugged tablet PC, video surveillance, and digital signage.



### Key Features

- ✓ LTE Cat 4 module optimized for M2M and IoT applications
- ✓ Worldwide LTE, UMTS/HSPA(+) and GSM/GPRS/EDGE 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

 <b>4G</b> LTE LTE Cat 4 Max. 150 Mbps (DL) Max. 50 Mbps (UL)	 <b>3G</b> HSPA+ Max. 42 Mbps (DL) Max. 5.76 Mbps (UL)	 <b>LCC</b> LCC Package
 Wi-Fi	 Bluetooth	 Multi-constellation GNSS
 Embedded Abundant Protocols	 USB 2.0 High Speed Interface	 <b>AT</b> Quectel Enhanced AT Commands
 USB Drivers		

# Quectel EC25 Series

LTE Cat 4	EC25-A	EC25-ADL	EC25-V
<b>Region/Operator</b>	North America	North America	America Verizon
<b>Dimensions (mm)</b>	29.0 × 32.0 × 2.4	29.0 × 32.0 × 2.4	29.0 × 32.0 × 2.4
<b>Temperature Ranges</b>			
<b>Operating Temperature</b>	-35°C to +75 °C	-35°C to +75 °C	-35°C to +75 °C
<b>Extended Temperature</b>	-40°C to +85 °C	-40°C to +85 °C	-40°C to +85 °C
<b>Frequency Bands</b>			
<b>LTE-FDD</b>	B2/4/12	B2/4/12	B4/13
<b>LTE-TDD</b>	-	-	-
<b>WCDMA</b>	B2/4/5	-	-
<b>GSM/EDGE</b>	-	-	-
<b>GNSS (Optional)</b>	GPS/GLONASS/BDS/Galileo/QZSS	GPS/GLONASS/BDS/Galileo/QZSS	GPS/GLONASS/BDS/Galileo/QZSS
<b>Certifications</b>			
<b>Carrier</b>	America: AT&T/T-Mobile Canada: Rogers/Telus	America: AT&T/T-Mobile	America: Verizon
<b>Regulatory</b>	North America: PTCRB America: FCC Canada: IC	North America: PTCRB America: FCC Canada: IC	Global: GCF America: FCC
<b>Others</b>	RoHS/WHQL	RoHS/WHQL	RoHS/WHQL
<b>Max. Data Transmission Rates</b>			
<b>LTE-FDD (Mbps)</b>	150 (DL)/ 50 (UL)	150 (DL)/ 50 (UL)	150 (DL)/ 50 (UL)
<b>LTE-TDD (Mbps)</b>	-	-	-
<b>DC-HSPA+ (Mbps)</b>	42 (DL)/ 5.76 (UL)	-	-
<b>WCDMA (kbps)</b>	384 (DL)/ 384 (UL)	-	-
<b>EDGE (kbps)</b>	-	-	-
<b>GPRS (kbps)</b>	-	-	-
<b>Interfaces</b>			
<b>(U)SIM</b>	× 1	× 1	× 1
<b>UART</b>	× 2	× 2	× 2
<b>USB 2.0</b>	× 1	× 1	× 1
<b>Audio Digital (PCM)</b>	× 1	-	× 1
<b>I2C</b>	× 1	× 1	× 1
<b>SDIO</b>	× 2	× 2	× 2
<b>SGMII</b>	× 1	× 1	× 1
<b>Wi-Fi</b>	× 1	× 1	× 1
<b>Bluetooth</b>	× 1	× 1	× 1
<b>ADC</b>	× 2	× 2	× 2
<b>Voice</b>			
<b>Speech Codec Modes</b>	HR/FR/EFR/AMR/AMR-WB	HR/FR/EFR/AMR/AMR-WB	HR/FR/EFR/AMR/AMR-WB
<b>Echo Arithmetic</b>	Echo Cancellation/Noise Suppression	Echo Cancellation/Noise Suppression	Echo Cancellation/Noise Suppression
<b>VoLTE (Optional)</b>	Digital Audio and VoLTE (Voice over LTE)	-	Digital Audio and VoLTE (Voice over LTE)
<b>Enhanced Features</b>			
<b>DTMF</b>	●	*	●
<b>DFOTA</b>	●	●	●
<b>QMI/ RmNet</b>	●	●	●
<b>Audio Playback/ Audio Recording</b>	Optional	*	Optional
<b>QuecLocator®</b>	●	●	●
<b>QuecFile®</b>	●	●	●
<b>(U)SIM Card Detection</b>	●	●	●
<b>Drivers</b>			
<b>USB Serial Driver</b>	Windows 7/8/8.1/10/11, Linux 2.6–5.18, Android 4.x–12.x	Windows 7/8/8.1/10/11, Linux 2.6–5.18, Android 4.x–12.x	Windows 7/8/8.1/10/11, Linux 2.6–5.18, Android 4.x–12.x
<b>GNSS Driver</b>	Android 4.x–12.x	Android 4.x–12.x	Android 4.x–12.x
<b>RIL Driver</b>	Android 4.x–12.x	Android 4.x–12.x	Android 4.x–12.x
<b>USB NDIS Driver</b>	Windows 7/8/8.1/10/11	Windows 7/8/8.1/10/11	Windows 7/8/8.1/10/11
<b>USB MBIM Driver</b>	Windows 8/8.1/10/11, Linux 3.18–5.18	Windows 8/8.1/10/11, Linux 3.18–5.18	Windows 8/8.1/10/11, Linux 3.18–5.18
<b>USB GobiNet Driver</b>	Linux 2.6–5.18	Linux 2.6–5.18	Linux 2.6–5.18
<b>USB QMI_WWAN Driver</b>	Linux 3.4–5.18	Linux 3.4–5.18	Linux 3.4–5.18
<b>Electrical Features</b>			
<b>Supply Voltage Range</b>	3.3–4.3 V, 3.8 V Typ.	3.3–4.3V, 3.8 V Typ.	3.3–4.3 V, 3.8 V Typ.
<b>Power Consumption (Typ.)</b>	10 µA @ Power off 1.1 mA @ Sleep 21 mA @ Idle	7 µA @ Power off 0.72 mA @ Sleep 18.69 mA @ Idle	10 µA @ Power off 0.85 mA @ Sleep 20 mA @ Idle

**NOTE:**

- \* : Under development.
- : Supported.

# Quectel EC25 Series

LTE Cat 4	EC25-AF	EC25-AFDL (Data-only)	EC25-AFX	EC25-AFXD (Data-only)
<b>Region/Operator</b>	North America	North America	North America	North America
<b>Dimensions (mm)</b>	29.0 × 32.0 × 2.4	29.0 × 32.0 × 2.4	29.0 × 32.0 × 2.4	29.0 × 32.0 × 2.4
<b>Temperature Ranges</b>				
<b>Operating Temperature</b>	-35 °C to +75 °C	-35 °C to +75 °C	-35 °C to +75 °C	-35 °C to +75 °C
<b>Extended Temperature</b>	-40 °C to +85 °C	-40 °C to +85 °C	-40 °C to +85 °C	-40 °C to +85 °C
<b>Frequency Bands</b>				
<b>LTE-FDD</b>	B2/4/5/12/13/14/66/71	B2/4/5/12/13/14/66/71	B2/4/5/12/13/14/66/71	B2/4/5/12/13/14/66/71
<b>LTE-TDD</b>	-	-	-	-
<b>WCDMA</b>	B2/4/5	-	B2/4/5	B2/4/5
<b>GSM/EDGE</b>	-	-	-	-
<b>GNSS (Optional)</b>	GPS/GLONASS/BDS/Galileo/QZSS	GPS/GLONASS/BDS/Galileo/QZSS	GPS/GLONASS/BDS/Galileo/QZSS	GPS/GLONASS/BDS/Galileo/QZSS
<b>Certifications</b>				
<b>Carrier</b>	America: Verizon/AT&T/T-Mobile/U.S. Cellular Canada: Rogers/Telus	America: Verizon/AT&T/T-Mobile/U.S. Cellular Canada: Rogers/Telus	America: Verizon/AT&T/U.S. Cellular Canada: Telus	America: Verizon/AT&T/T-Mobile/U.S. Cellular Canada: Rogers*/Telus
<b>Regulatory</b>	Global: GCF North America: PTCRB America: FCC Canada: IC	Global: GCF North America: PTCRB America: FCC Canada: IC	Global: GCF North America: PTCRB America: FCC Canada: IC	Global: GCF North America: PTCRB America: FCC Canada: IC
<b>Others</b>	RoHS/WHQL	RoHS/WHQL	RoHS/WHQL	RoHS/WHQL
<b>Max. Data Transmission Rates</b>				
<b>LTE-FDD (Mbps)</b>	150 (DL)/ 50 (UL)	150 (DL)/ 50 (UL)	150 (DL)/ 50 (UL)	150 (DL)/ 50 (UL)
<b>LTE-TDD (Mbps)</b>	-	-	-	-
<b>DC-HSPA+ (Mbps)</b>	42 (DL)/ 5.76 (UL)	-	42 (DL)/ 5.76 (UL)	42 (DL)/ 5.76 (UL)
<b>WCDMA (kbps)</b>	384 (DL)/ 384 (UL)	-	384 (DL)/ 384 (UL)	384 (DL)/ 384 (UL)
<b>EDGE (kbps)</b>	-	-	-	-
<b>GPRS (kbps)</b>	-	-	-	-
<b>Interfaces</b>				
<b>(U)SIM</b>	× 1	× 1	× 1	× 1
<b>UART</b>	× 2	× 2	× 2	× 2
<b>USB 2.0</b>	× 1	× 1	× 1	× 1
<b>Audio Digital (PCM)</b>	× 1	× 1	× 1	× 1
<b>I2C</b>	× 1	× 1	× 1	× 1
<b>SDIO</b>	× 2	× 2	× 1	× 1
<b>SGMII</b>	× 1	× 1	× 1	× 1
<b>Wi-Fi</b>	× 1	× 1	-	-
<b>Bluetooth</b>	× 1	× 1	-	-
<b>ADC</b>	× 2	× 2	× 2	× 2
<b>Voice</b>				
<b>Speech Codec Modes</b>	HR/FR/EFR/AMR/AMR-WB	-	HR/FR/EFR/AMR/AMR-WB	-
<b>Echo Arithmetic</b>	Echo Cancellation/Noise Suppression	-	Echo Cancellation/Noise Suppression	-
<b>VoLTE (Optional)</b>	Digital Audio and VoLTE (Voice over LTE)	(Voice over -	Digital Audio and VoLTE (Voice over LTE)	-
<b>Enhanced Features</b>				
<b>DTMF</b>	●	-	●	-
<b>DFOTA</b>	●	●	●	●
<b>QMI/ RmNet</b>	●	●	●	●
<b>Audio Playback*/ Audio Recording*</b>	Optional	Optional	Optional	Optional
<b>QuecLocator®</b>	●	●	●	●
<b>QuecFile®</b>	●	●	●	●
<b>(U)SIM Card Detection</b>	●	●	●	●
<b>Drivers</b>				
<b>USB Serial Driver</b>	Windows 7/8/8.1/10/11, Linux 2.6–5.18, Android 4.x–12.x	Windows 7/8/8.1/10/11, Linux 2.6–5.18, Android 4.x–12.x	Windows 7/8/8.1/10/11, Linux 2.6–5.18, Android 4.x–12.x	Windows 7/8/8.1/10/11, Linux 2.6–5.15, Android 4.x–12.x
<b>GNSS Driver</b>	Android 4.x–12.x	Android 4.x–12.x	Android 4.x–12.x	Android 4.x–12.x
<b>RIL Driver</b>	Android 4.x–12.x	Android 4.x–12.x	Android 4.x–12.x	Android 4.x–12.x
<b>USB NDIS Driver</b>	Windows 7/8/8.1/10/11	Windows 7/8/8.1/10/11	Windows 7/8/8.1/10/11	Windows 7/8/8.1/10/11
<b>USB MBIM Driver</b>	Windows 8/8.1/10/11, Linux 3.18–5.18	Windows 8/8.1/10/11, Linux 3.18–5.18	-	-
<b>USB GobiNet Driver</b>	Linux 2.6–5.18	Linux 2.6–5.18	Linux 2.6–5.18	Linux 2.6–5.18
<b>USB QMI_WWAN Driver</b>	Linux 3.4–5.18	Linux 3.4–5.18	Linux 3.4–5.18	Linux 3.4–5.18
<b>Electrical Features</b>				
<b>Supply Voltage Range</b>	3.3–4.3 V, 3.8 V Typ.	3.3–4.3 V, 3.8 V Typ.	3.3–4.3 V, 3.8 V Typ.	3.3–4.3 V, 3.8 V Typ.
<b>Power Consumption (Typ.)</b>	10 µA @ Power off 1.0 mA @ Sleep 23.3 mA @ Idle	7 µA @ Power off 0.81 mA @ Sleep 19.7 mA @ Idle	8.0 µA @ Power off 0.83 mA @ Sleep 14.9 mA @ Idle	8.0 µA @ Power off 0.83 mA @ Sleep 14.9 mA @ Idle

**NOTE:**

- \* : Under development.
- : Supported.

# Quectel EC25 Series

LTE Cat 4	EC25-MX	EC25-AU	EC25-AUX	EC25-J
<b>Region/Operator</b>	Mexico	Latin America/Australia/New Zealand	Latin America/ Australia/New Zealand	Japan
<b>Dimensions (mm)</b>	29.0 × 32.0 × 2.4	29.0 × 32.0 × 2.4	29.0 × 32.0 × 2.4	29.0 × 32.0 × 2.4
<b>Temperature Ranges</b>				
<b>Operating Temperature</b>	-35 °C to +75 °C	-35 °C to +75 °C	-35 °C to +75 °C	-35 °C to +75 °C
<b>Extended Temperature</b>	-40 °C to +85 °C	-40 °C to +85 °C	-40 °C to +85 °C	-40 °C to +85 °C
<b>Frequency Bands</b>				
<b>LTE-FDD</b>	B2/4/5/7/28/66	B1/2 <sup>①</sup> /3/4/5/7/8/28	B1/2 <sup>①</sup> /3/4/5/7/8/28	B1/3/8/18/19/26
<b>LTE-TDD</b>	-	B40	B40	B41
<b>WCDMA</b>	B2/4/5	B1/2/5/8	B1/2/4/5/8	B1/6/8/19
<b>GSM/EDGE</b>	-	B2/3/5/8	B2/3/5/8	-
<b>GNSS (Optional)</b>	-	GPS/GLONASS/BDS/Galileo/QZSS	GPS/GLONASS/BDS/Galileo/QZSS	GPS/GLONASS/BDS/Galileo/QZSS
<b>Certifications</b>				
<b>Carrier</b>	-	<b>Australia:</b> Telstra	-	<b>Japan:</b> NTT DOCOMO/SoftBank/KDDI
<b>Regulatory</b>	North America: PTCRB America: FCC Mexico: IFETEL	Global: GCF America: FCC Brazil: Anatel Taiwan, China: NCC Australia/New Zealand: RCM	Europe: CE America: FCC Brazil: Anatel Australia/New Zealand: RCM South Africa: ICASA	Japan: JATE/TELEC
<b>Others</b>	RoHS/WHQL	RoHS/WHQL	RoHS/WHQL	RoHS/WHQL
<b>Max. Data Transmission Rates</b>				
<b>LTE-FDD (Mbps)</b>	150 (DL)/ 50 (UL)	150 (DL)/ 50 (UL)	150 (DL)/ 50 (UL)	150 (DL)/ 50 (UL)
<b>LTE-TDD (Mbps)</b>	-	130 (DL)/ 30 (UL)	130 (DL)/ 30 (UL)	130 (DL)/ 30 (UL)
<b>DC-HSPA+ (Mbps)</b>	42 (DL)/ 5.76 (UL)	42 (DL)/ 5.76 (UL)	42 (DL)/ 5.76 (UL)	42 (DL)/ 5.76 (UL)
<b>WCDMA (kbps)</b>	384 (DL)/ 384 (UL)	384 (DL)/ 384 (UL)	384 (DL)/ 384 (UL)	384 (DL)/ 384 (UL)
<b>EDGE (kbps)</b>	-	296 (DL)/ 236.8 (UL)	296 (DL)/ 236.8 (UL)	-
<b>GPRS (kbps)</b>	-	107 (DL)/ 85.6 (UL)	107 (DL)/ 85.6 (UL)	-
<b>Interfaces</b>				
<b>(U)SIM</b>	× 1	× 1	× 1	× 1
<b>UART</b>	× 2	× 2	× 2	× 2
<b>USB 2.0</b>	× 1	× 1	× 1	× 1
<b>Audio Digital (PCM)</b>	× 1	× 1	× 1	× 1
<b>I2C</b>	× 1	× 1	× 1	× 1
<b>SDIO</b>	× 1	× 2	× 1	× 2
<b>SGMII</b>	× 1	× 1	× 1	× 1
<b>Wi-Fi</b>	-	× 1	-	× 1
<b>Bluetooth</b>	-	× 1	-	× 1
<b>ADC</b>	× 2	× 2	× 2	× 2
<b>Voice</b>				
<b>Speech Codec Modes</b>	HR/FR/EFR/AMR/AMR-WB	HR/FR/EFR/AMR/AMR-WB	HR/FR/EFR/AMR/AMR-WB	HR/FR/EFR/AMR/AMR-WB
<b>Echo Arithmetic</b>	Echo Cancellation/Noise Suppression	Echo Cancellation/Noise Suppression	Echo Cancellation/Noise Suppression	Echo Cancellation/Noise Suppression
<b>VoLTE (Optional)</b>	Digital Audio and VoLTE (Voice over LTE)	Digital Audio and VoLTE (Voice over LTE)	Digital Audio and VoLTE (Voice over LTE)	Digital Audio and VoLTE (Voice over LTE)
<b>Enhanced Features</b>				
<b>DTMF</b>	●	●	●	●
<b>DFOTA</b>	●	●	●	●
<b>QMI/ RmNet</b>	●	●	●	●
<b>Audio Playback*/ Audio Recording*</b>	Optional	Optional	Optional	Optional
<b>QuecLocator<sup>®</sup></b>	●	●	●	●
<b>QuecFile<sup>®</sup></b>	●	●	●	●
<b>(U)SIM Card Detection</b>	●	●	●	●
<b>Drivers</b>				
<b>USB Serial Driver</b>	Windows 7/8/8.1/10/11, Linux 2.6–5.18, Android 4.x–12.x	Windows 7/8/8.1/10/11, Linux 2.6–5.18, Android 4.x–12.x	Windows 7/8/8.1/10/11, Linux 2.6–5.18, Android 4.x–12.x	Windows 7/8/8.1/10/11, Linux 2.6–5.18, Android 4.x–12.x
<b>GNSS Driver</b>	-	Android 4.x–12.x	Android 4.x–12.x	Android 4.x–12.x
<b>RIL Driver</b>	Android 4.x–12.x	Android 4.x–12.x	Android 4.x–12.x	Android 4.x–12.x
<b>USB NDIS Driver</b>	Windows 7/8/8.1/10/11	Windows 7/8/8.1/10/11	Windows 7/8/8.1/10/11	Windows 7/8/8.1/10/11
<b>USB MBIM Driver</b>	-	Windows 8/8.1/10/11, Linux 3.18–5.18	-	Windows 8/8.1/10/11, Linux 3.18–5.18
<b>USB GobiNet Driver</b>	Linux 2.6–5.18	Linux 2.6–5.18	Linux 2.6–5.18	Linux 2.6–5.18
<b>USB QMI_WWAN Driver</b>	Linux 3.4–5.18	Linux 3.4–5.18	Linux 3.4–5.18	Linux 3.4–5.18
<b>Electrical Features</b>				
<b>Supply Voltage Range</b>	3.3–4.3 V, 3.8 V Typ.	3.3–4.3 V, 3.8 V Typ.	3.3–4.3 V, 3.8 V Typ.	3.3–4.3 V, 3.8 V Typ.
<b>Power Consumption (Typ.)</b>	19 µA @ Power off 1.0 mA @ Sleep 12.9 mA @ Idle	11 µA @ Power off 1.3 mA @ Sleep 22 mA @ Idle	9.0 µA @ Power off 0.9 mA @ Sleep 16.9 mA @ Idle	10 µA @ Power off 1.1 mA @ Sleep 21 mA @ Idle

**NOTE:**

- ①: LTE-FDD B2 for EC25-AU and EC25-AUX does not support Rx-diversity.
- \*: Under development.
- : Supported.

# Quectel EC25 Series

LTE Cat 4	EC25-E	EC25-EU	EC25-EUX	EC25-EM
<b>Region/Operator</b>	EMEA/South Korea/Thailand/India	EMEA/Thailand	EMEA/Thailand	EMEA/Southeast Asia
<b>Dimensions (mm)</b>	29.0 × 32.0 × 2.4	29.0 × 32.0 × 2.4	29.0 × 32.0 × 2.4	29.0 × 32.0 × 2.4
<b>Temperature Ranges</b>				
<b>Operating Temperature</b>	-35 °C to +75 °C	-35 °C to +75 °C	-35 °C to +75 °C	-35 °C to +75 °C
<b>Extended Temperature</b>	-40 °C to +85 °C	-40 °C to +85 °C	-40 °C to +85 °C	-40 °C to +85 °C
<b>Frequency Bands</b>				
<b>LTE-FDD</b>	B1/3/5/7/8/20	B1/3/7/8/20/28A	B1/3/7/8/20/28A	B1/3/5/7/8/20/28
<b>LTE-TDD</b>	B38/40/41	B38/40/41	B38/40/41	B38/40/41
<b>WCDMA</b>	B1/5/8	B1/8	B1/8	B1/5/8
<b>GSM/EDGE</b>	B3/8	B3/8	B3/8	B3/8
<b>GNSS (Optional)</b>	GPS/GLONASS/BDS/Galileo/QZSS	GPS/GLONASS/BDS/Galileo/QZSS	GPS/GLONASS/BDS/Galileo/QZSS	GPS/GLONASS/BDS/Galileo/QZSS
<b>Certifications</b>				
<b>Carrier</b>	Europe: Vodafone/Deutsche Telekom/ British Telecom/Telefónica South Korea: KT/SKT/LGU+	Europe: Deutsche Telekom/ British Telecom	-	-
<b>Regulatory</b>	Global: GCF Europe: CE South Korea: KC Taiwan, China: NCC Australia/New Zealand: RCM Thailand: NBTC South Africa: ICASA	Global: GCF Europe: CE Taiwan, China: NCC Australia/New Zealand: RCM	Global: GCF Europe: CE Taiwan, China: NCC Australia/New Zealand: RCM	Europe: CE* Australia/New Zealand: RCM*
<b>Others</b>	RoHS/WHQL	RoHS/WHQL	RoHS/WHQL	RoHS/WHQL
<b>Max. Data Transmission Rates</b>				
<b>LTE-FDD (Mbps)</b>	150 (DL)/ 50 (UL)	150 (DL)/ 50 (UL)	150 (DL)/ 50 (UL)	150 (DL)/ 50 (UL)
<b>LTE-TDD (Mbps)</b>	130 (DL)/ 30 (UL)	130 (DL)/ 30 (UL)	130 (DL)/ 30 (UL)	130 (DL)/ 30 (UL)
<b>DC-HSPA+ (Mbps)</b>	42 (DL)/ 5.76 (UL)	42 (DL)/ 5.76 (UL)	42 (DL)/ 5.76 (UL)	42 (DL)/ 5.76 (UL)
<b>WCDMA (kbps)</b>	384 (DL)/ 384 (UL)	384 (DL)/ 384 (UL)	384 (DL)/ 384 (UL)	384 (DL)/ 384 (UL)
<b>EDGE (kbps)</b>	296 (DL)/ 236.8 (UL)	296 (DL)/ 236.8 (UL)	296 (DL)/ 236.8 (UL)	296 (DL)/ 236.8 (UL)
<b>GPRS (kbps)</b>	107 (DL)/ 85.6 (UL)	107 (DL)/ 85.6 (UL)	107 (DL)/ 85.6 (UL)	107 (DL)/ 85.6 (UL)
<b>Interfaces</b>				
<b>(U)SIM</b>	× 1	× 1	× 1	× 1
<b>UART</b>	× 2	× 2	× 2	× 2
<b>USB 2.0</b>	× 1	× 1	× 1	× 1
<b>Audio Digital (PCM)</b>	× 1	× 1	× 1	× 1
<b>I2C</b>	× 1	× 1	× 1	× 1
<b>SDIO</b>	× 2	× 2	× 1	× 1
<b>SGMII</b>	× 1	× 1	× 1	× 1
<b>Wi-Fi</b>	× 1	× 1	-	-
<b>Bluetooth</b>	× 1	× 1	-	-
<b>ADC</b>	× 2	× 2	× 2	× 2
<b>Voice</b>				
<b>Speech Codec Modes</b>	HR/FR/EFR/AMR/AMR-WB	HR/FR/EFR/AMR/AMR-WB	HR/FR/EFR/AMR/AMR-WB	HR/FR/EFR/AMR/AMR-WB
<b>Echo Arithmetic</b>	Echo Cancellation/Noise Suppression	Echo Cancellation/Noise Suppression	Echo Cancellation/Noise Suppression	Echo Cancellation/Noise Suppression
<b>VoLTE (Optional)</b>	Digital Audio and VoLTE (Voice over LTE)	Digital Audio and VoLTE (Voice over LTE)	Digital Audio and VoLTE (Voice over LTE)	Digital Audio and VoLTE (Voice over LTE)
<b>Enhanced Features</b>				
<b>DTMF</b>	●	●	●	●
<b>DFOTA</b>	●	●	●	●
<b>QMI/RmNet</b>	●	●	●	●
<b>Audio Playback*/ Audio Recording*</b>	Optional	Optional	Optional	Optional
<b>QuecLocator®</b>	●	●	●	●
<b>QuecFile®</b>	●	●	●	●
<b>(U)SIM Card Detection</b>	●	●	●	●
<b>Drivers</b>				
<b>USB Serial Driver</b>	Windows 7/8/8.1/10/11, Linux 2.6–5.18, Android 4.x–12.x	Windows 7/8/8.1/10/11, Linux 2.6–5.18, Android 4.x–12.x	Windows 7/8/8.1/10/11, Linux 2.6–5.18, Android 4.x–12.x	Windows 7/8/8.1/10/11, Linux 2.6–5.18, Android 4.x–12.x
<b>GNSS Driver</b>	Android 4.x–12.x	Android 4.x–12.x	Android 4.x–12.x	Android 4.x–12.x
<b>RIL Driver</b>	Android 4.x–12.x	Android 4.x–12.x	Android 4.x–12.x	Android 4.x–12.x
<b>USB NDIS Driver</b>	Windows 7/8/8.1/10/11	Windows 7/8/8.1/10/11	Windows 7/8/8.1/10/11	Windows 7/8/8.1/10/11
<b>USB MBIM Driver</b>	Windows 8/8.1/10/11, Linux 3.18–5.18	Windows 8/8.1/10/11, Linux 3.18–5.18	-	-
<b>USB GobiNet Driver</b>	Linux 2.6–5.18	Linux 2.6–5.18	Linux 2.6–5.18	Linux 2.6–5.18
<b>USB QMI_WWAN Driver</b>	Linux 3.4–5.18	Linux 3.4–5.18	Linux 3.4–5.18	Linux 3.4–5.18
<b>Electrical Features</b>				
<b>Supply Voltage Range</b>	3.3–4.3 V, 3.8 V Typ.	3.3–4.3 V, 3.8 V Typ.	3.3–4.3 V, 3.8 V Typ.	3.3–4.3 V, 3.8 V Typ.
<b>Power Consumption (Typ.)</b>	11 µA @ Power off 1.16 mA @ Sleep 19.5 mA @ Idle	11 µA @ Power off 1.16 mA @ Sleep 19.5 mA @ Idle	9.0 µA @ Power off 0.9 mA @ Sleep 14.5 mA @ Idle	7.0 µA @ Power off 0.84 mA @ Sleep 21.33 mA @ Idle

NOTE:  
1. \* : Under development.  
2. ● : Supported.