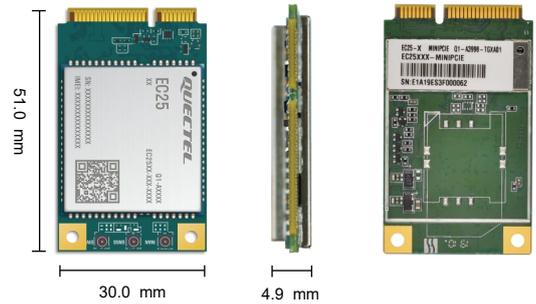


Quectel

EC25 Series Mini PCIe

IoT/M2M-optimized LTE Cat 4 Module



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

EC25 series Mini PCIe contains 14 variants: EC25-A Mini PCIe, EC25-ADL Mini PCIe, EC25-V Mini PCIe, EC25-AF Mini PCIe, EC25-AFDL (Data-only) Mini PCIe, EC25-AFX Mini PCIe, EC25-AFXD (Data-only) Mini PCIe, EC25-AU Mini PCIe, EC25-AUX Mini PCIe, EC25-J Mini PCIe, EC25-EU Mini PCIe, EC25-EUX Mini PCIe, EC25-E Mini PCIe and EC25-EM 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 series Mini PCIe 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 10/11, Linux, Android) extend the applicability of the module to a wide range of M2M applications such as industrial router, industrial PDA, rugged tablet PC, video transmission and digital signage.



Key Features

- ✓ LTE Cat 4 module optimized for broadband IoT applications
- ✓ Worldwide LTE, UMTS/HSPA(+) and GSM/GPRS/EDGE coverage
- ✓ Standard PCI Express® Mini Card 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 (optional) available for applications requiring fast and accurate fixes in any environment



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



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



Mini PCIe
Package



Embedded Abundant
Protocols



Multi-constellation
GNSS (Optional)



USB 2.0 High Speed
Interface



Quectel Enhanced
AT Commands



USB Drivers

Quectel EC25 Series Mini PCIe

LTE Cat 4	EC25-A Mini PCIe	EC25-ADL Mini PCIe	EC25-V Mini PCIe
Region/Operator	North America	North America	America Verizon
Dimensions (mm)	30.0 × 51.0 × 4.9	30.0 × 51.0 × 4.9	30.0 × 51.0 × 4.9
Temperature Range			
Operating Temperature	-35 °C to +75 °C	-35 °C to +75 °C	-35 °C to +75 °C
Extended Temperature	-40 °C to +80 °C	-40 °C to +85 °C	-40 °C to +80 °C
Frequency Bands			
LTE-FDD	B2/4/12	B2/4/12	B4/13
LTE-TDD	-	-	-
WCDMA	B2/4/5	-	-
GSM/EDGE	-	-	-
GNSS (Optional)	GPS/GLONASS/BDS/Galileo/QZSS	GPS/GLONASS/BDS/Galileo/QZSS	GPS/GLONASS/BDS/Galileo/QZSS
Certifications			
Carrier	America: AT&T/T-Mobile Canada: Rogers/Telus	America: AT&T/T-Mobile	America: Verizon
Regulatory/Conformance	North America: PTCRB America: FCC Canada: IC	North America: PTCRB America: FCC Canada: IC	Global: GCF America: FCC
Others	RoHS/WHQL	RoHS/WHQL	RoHS/WHQL
Max. Data Transmission Rates			
LTE-FDD (Mbps)	150 (DL)/50 (UL)	150 (DL)/50 (UL)	150 (DL)/50 (UL)
LTE-TDD (Mbps)	-	-	-
DC-HSPA+ (Mbps)	42 (DL)/5.76 (UL)	-	-
WCDMA (kbps)	384 (DL)/384 (UL)	-	-
EDGE (kbps)	-	-	-
GPRS (kbps)	-	-	-
Interfaces			
(U)SIM	× 1	× 1	× 1
USB 2.0	× 1	× 1	× 1
Digital Audio (PCM)	× 1	× 1	× 1
I2C	× 1	× 1	× 1
LED_WWAN#	× 1	× 1	× 1
W_DISABLE#	× 1	× 1	× 1
UART	× 1	× 1	× 1
PERST#	× 1	× 1	× 1
Voice			
Speech Codec Modes	AMR/AMR-WB	-	AMR/AMR-WB
Echo Arithmetic	Echo Cancellation/Noise Suppression	-	Echo Cancellation/Noise Suppression
VoLTE (Optional)	Digital Audio and VoLTE (Voice over LTE)	-	Digital Audio and VoLTE (Voice over LTE)
Enhanced Features			
DTMF	●	*	●
DFOTA	●	●	●
QMI/ RmNet	●	●	●
Audio Playback/ Audio Recording	Optional	*	Optional
QuecFile®	●	●	●
(U)SIM Card Detection	●	●	●
SMS	●	●	●
Drivers			
USB Serial Driver	Windows 10/11, Linux 2.6–6.7, Android 4.x–14.x	Windows 10/11, Linux 2.6–6.7, Android 4.x–14.x	Windows 10/11, Linux 2.6–6.7, Android 4.x–14.x
GNSS Driver	Android 4.x–14.x	Android 4.x–14.x	Android 4.x–14.x
RIL Driver	Android 4.x–14.x	Android 4.x–14.x	Android 4.x–14.x
USB NDIS Driver	Windows 10/11	Windows 10/11	Windows 10/11
USB MBIM Driver	Windows 10/11, Linux 3.18–6.7	Windows 10/11, Linux 3.18–6.7	Windows 10/11, Linux 3.18–6.7
USB GobiNet Driver	Linux 2.6–3.4	Linux 2.6–3.4	Linux 2.6–3.4
USB QMI_WWAN Driver	Linux 3.4–6.7	Linux 3.4–6.7	Linux 3.4–6.7
Electrical Features			
Supply Voltage Range	3.0–3.6 V, 3.3 V Typ.	3.0–3.6 V, 3.3 V Typ.	3.0–3.6 V, 3.3 V Typ.
Power Consumption (Typ.)	3.6 mA @ Sleep 27 mA @ Idle	2.27 mA @ Sleep 25.23 mA @ Idle	3.4 mA @ Sleep 30 mA @ Idle

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

Quectel EC25 Series Mini PCIe

LTE Cat 4	EC25-AF Mini PCIe	EC25-AFDL Mini PCIe (Data-only)	EC25-AFX Mini PCIe	EC25-AFXD Mini PCIe (Data-only)
Region/Operator	North America	North America	North America	North America
Dimensions (mm)	30.0 × 51.0 × 4.9	30.0 × 51.0 × 4.9	30.0 × 51.0 × 4.9	30.0 × 51.0 × 4.9
Temperature Range				
Operating Temperature	-35 °C to +75 °C	-35 °C to +75 °C	-35 °C to +75 °C	-35 °C to +75 °C
Extended Temperature	-40 °C to +80 °C	-40 °C to +80 °C	-40 °C to +80 °C	-40 °C to +80 °C
Frequency Bands				
LTE-FDD	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
LTE-TDD	-	-	-	-
WCDMA	B2/4/5	-	B2/4/5	B2/4/5
GSM/EDGE	-	-	-	-
GNSS (Optional)	GPS/GLONASS/BDS/Galileo/QZSS	GPS/GLONASS/BDS/Galileo/QZSS	GPS/GLONASS/BDS/Galileo/QZSS	GPS/GLONASS/BDS/Galileo/QZSS
Certifications				
Carrier	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: Telus
Regulatory/Conformance	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
Others	RoHS/WHQL	RoHS/WHQL	RoHS/WHQL	RoHS/WHQL
Max. Data Transmission Rates				
LTE-FDD (Mbps)	150 (DL)/50 (UL)	150 (DL)/50 (UL)	150 (DL)/50 (UL)	150 (DL)/50 (UL)
LTE-TDD (Mbps)	-	-	-	-
DC-HSPA+ (Mbps)	42 (DL)/5.76 (UL)	-	42 (DL)/5.76 (UL)	42 (DL)/5.76 (UL)
WCDMA (kbps)	384 (DL)/384 (UL)	-	384 (DL)/384 (UL)	384 (DL)/384 (UL)
EDGE (kbps)	-	-	-	-
GPRS (kbps)	-	-	-	-
Interfaces				
(U)SIM	× 1	× 1	× 1	× 1
USB 2.0	× 1	× 1	× 1	× 1
Digital Audio (PCM)	× 1	× 1	× 1	× 1
I2C	× 1	× 1	× 1	× 1
LED_WWAN#	× 1	× 1	× 1	× 1
W_DISABLE#	× 1	× 1	× 1	× 1
UART	× 1	× 1	× 1	× 1
PERST#	× 1	× 1	× 1	× 1
Voice				
Speech Codec Modes	AMR/AMR-WB	-	AMR/AMR-WB	-
Echo Arithmetic	Echo Cancellation/Noise Suppression	-	Echo Cancellation/Noise Suppression	-
VoLTE (Optional)	Digital Audio and VoLTE (Voice over LTE)	-	Digital Audio and VoLTE (Voice over LTE)	-
Enhanced Features				
DTMF	●	-	●	-
DFOTA	●	●	●	●
QMI/RmNet	●	●	●	●
Audio Playback*/ Audio Recording*	Optional	Optional	Optional	Optional
QuecFile®	●	●	●	●
(U)SIM Card Detection	●	●	●	●
SMS	●	●	●	●
Drivers				
USB Serial Driver	Windows 10/11, Linux 2.6–6.7, Android 4.x–14.x	Windows 10/11, Linux 2.6–6.7, Android 4.x–14.x	Windows 10/11, Linux 2.6–6.7, Android 4.x–14.x	Windows 10/11, Linux 2.6–6.7, Android 4.x–14.x
GNSS Driver	Android 4.x–14.x	Android 4.x–14.x	Android 4.x–14.x	Android 4.x–14.x
RIL Driver	Android 4.x–14.x	Android 4.x–14.x	Android 4.x–14.x	Android 4.x–14.x
USB NDIS Driver	Windows 10/11	Windows 10/11	Windows 10/11	Windows 10/11
USB MBIM Driver	Windows 10/11, Linux 3.18–6.7	Windows 10/11, Linux 3.18–6.7	Windows 10/11, Linux 3.18–6.7	Windows 10/11, Linux 3.18–6.7
USB GobiNet Driver	Linux 2.6–3.4	Linux 2.6–3.4	Linux 2.6–3.4	Linux 2.6–3.4
USB QMI_WWAN Driver	Linux 3.4–6.7	Linux 3.4–6.7	Linux 3.4–6.7	Linux 3.4–6.7
Electrical Features				
Supply Voltage Range	3.0–3.6 V, 3.3 V Typ.	3.0–3.6 V, 3.3 V Typ.	3.0–3.6 V, 3.3 V Typ.	3.0–3.6 V, 3.3 V Typ.
Power Consumption (Typ.)	2.2 mA @ Sleep 21.7 mA @ Idle	2.3 mA @ Sleep 26.5 mA @ Idle	1.67 mA @ Sleep 22 mA @ Idle	1.67 mA @ Sleep 22 mA @ Idle

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

Quectel EC25 Series Mini PCIe

LTE Cat 4	EC25-AU Mini PCIe	EC25-AUX Mini PCIe	EC25-J Mini PCIe
Region/Operator	Latin America/Australia/New Zealand	Latin America/Australia/New Zealand	Japan
Dimensions (mm)	30.0 × 51.0 × 4.9	30.0 × 51.0 × 4.9	30.0 × 51.0 × 4.9
Temperature Range			
Operating Temperature	-35 °C to +75 °C	-35 °C to +75 °C	-35 °C to +75 °C
Extended Temperature	-40 °C to +80 °C	-40 °C to +80 °C	-40 °C to +80 °C
Frequency Bands			
LTE-FDD	B1/2 ^① /3/4/5/7/8/28	B1/2 ^① /3/4/5/7/8/28	B1/3/8/18/19/26
LTE-TDD	B40	B40	B41
WCDMA	B1/2/5/8	B1/2/4/5/8	B1/6/8/19
GSM/EDGE	B2/3/5/8	B2/3/5/8	-
GNSS (Optional)	GPS/GLONASS/BDS/Galileo/QZSS	GPS/GLONASS/BDS/Galileo/QZSS	GPS/GLONASS/BDS/Galileo/QZSS
Certifications			
Carrier	Australia: Telstra	Australia: Telstra	Japan: NTT DOCOMO/SoftBank/KDDI/Rakuten*
Regulatory/Conformance	Global: GCF America: FCC Taiwan, China: NCC Brazil: Anatel Australia/New Zealand: RCM	Europe: CE America: FCC Brazil: Anatel Australia/New Zealand: RCM South Africa: ICASA	Japan: JATE/TELEC
Others	RoHS/WHQL	RoHS/WHQL	RoHS/WHQL
Max. Data Transmission Rates			
LTE-FDD (Mbps)	150 (DL)/50 (UL)	150 (DL)/50 (UL)	150 (DL)/50 (UL)
LTE-TDD (Mbps)	130 (DL)/30 (UL)	130 (DL)/30 (UL)	130 (DL)/30 (UL)
DC-HSPA+ (Mbps)	42 (DL)/5.76 (UL)	42 (DL)/5.76 (UL)	42 (DL)/5.76 (UL)
WCDMA (kbps)	384 (DL)/384 (UL)	384 (DL)/384 (UL)	384 (DL)/384 (UL)
EDGE (kbps)	296 (DL)/236.8 (UL)	296 (DL)/236.8 (UL)	-
GPRS (kbps)	107 (DL)/85.6 (UL)	107 (DL)/85.6 (UL)	-
Interfaces			
(U)SIM	× 1	× 1	× 1
USB 2.0	× 1	× 1	× 1
Digital Audio (PCM)	× 1	× 1	× 1
I2C	× 1	× 1	× 1
LED_WWAN#	× 1	× 1	× 1
W_DISABLE#	× 1	× 1	× 1
UART	× 1	× 1	× 1
PERST#	× 1	× 1	× 1
Voice			
Speech Codec Modes	HR/FR/EFR/AMR/AMR-WB	HR/FR/EFR/AMR/AMR-WB	AMR/AMR-WB
Echo Arithmetic	Echo Cancellation/Noise Suppression	Echo Cancellation/Noise Suppression	Echo Cancellation/Noise Suppression
VoLTE (Optional)	Digital Audio and VoLTE (Voice over LTE)	Digital Audio and VoLTE (Voice over LTE)	Digital Audio and VoLTE (Voice over LTE)
Enhanced Features			
DTMF	●	●	●
DFOTA	●	●	●
QMI/ RmNet	●	●	●
Audio Playback*/ Audio Recording*	Optional	Optional	Optional
QuecFile®	●	●	●
(U)SIM Card Detection	●	●	●
SMS	●	●	●
eSIM	-	Optional	-
Drivers			
USB Serial Driver	Windows 10/11, Linux 2.6–6.7, Android 4.x–14.x	Windows 10/11, Linux 2.6–6.7, Android 4.x–14.x	Windows 10/11, Linux 2.6–6.7, Android 4.x–14.x
GNSS Driver	Android 4.x–14.x	Android 4.x–14.x	Android 4.x–14.x
RIL Driver	Android 4.x–14.x	Android 4.x–14.x	Android 4.x–14.x
USB NDIS Driver	Windows 10/11	Windows 10/11	Windows 10/11
USB MBIM Driver	Windows 10/11, Linux 3.18–6.7	Windows 10/11, Linux 3.18–6.7	Windows 10/11, Linux 3.18–6.7
USB GobiNet Driver	Linux 2.6–3.4	Linux 2.6–3.4	Linux 2.6–3.4
USB QMI_WWAN Driver	Linux 3.4–6.7	Linux 3.4–6.7	Linux 3.4–6.7
Electrical Features			
Supply Voltage Range	3.0–3.6 V, 3.3 V Typ.	3.0–3.6 V, 3.3 V Typ.	3.0–3.6 V, 3.3 V Typ.
Power Consumption (Typ.)	2.6 mA @ Sleep 22 mA @ Idle	1.9 mA @ Sleep 23.4 mA @ Idle	3.2 mA @ Sleep 31.5 mA @ Idle

NOTE:

- ①: LTE-FDD B2 for EC25-AU Mini PCIe and EC25-AUX Mini PCIe does not support Rx-diversity.
- * : Under development/In progress.
- : Supported.
- eSIM function can be supported by software, but an external eSIM chip is required.

Quectel EC25 Series Mini PCIe

LTE Cat 4	EC25-E Mini PCIe	EC25-EU Mini PCIe	EC25-EUX Mini PCIe	EC25-EM Mini PCIe
Region/Operator	EMEA/South Korea/Thailand/India	EMEA/Thailand	EMEA/Thailand	EMEA/Southeast Asia
Dimensions (mm)	30.0 × 51.0 × 4.9	30.0 × 51.0 × 4.9	30.0 × 51.0 × 4.9	30.0 × 51.0 × 4.9
Temperature Range				
Operating Temperature	-35 °C to +75 °C	-35 °C to +75 °C	-35 °C to +75 °C	-35 °C to +75 °C
Extended Temperature	-40 °C to +80 °C	-40 °C to +80 °C	-40 °C to +80 °C	-40 °C to +80 °C
Frequency Bands				
LTE-FDD	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
LTE-TDD	B38/40/41	B38/40/41	B38/40/41	B38/40/41
WCDMA	B1/5/8	B1/8	B1/8	B1/5/8
GSM/EDGE	B3/8	B3/8	B3/8	B3/8
GNSS (Optional)	GPS/GLONASS/BDS/Galileo/QZSS	GPS/GLONASS/BDS/Galileo/QZSS	GPS/GLONASS/BDS/Galileo/QZSS	GPS/GLONASS/BDS/Galileo/QZSS
Certifications				
Carrier	Europe: Vodafone/Deutsche Telekom/ British Telecom/Telefónica South Korea: SKT/KT/LGU+	Europe: Deutsche Telekom/ British Telecom	Europe: Vodafone/Deutsche Telekom/ Telefónica/Orange/British Telecom	-
Regulatory/Conformance	Global: GCF Europe: CE The UK: UKCA South Korea: KC Taiwan, China: NCC Australia/New Zealand: RCM Thailand: NBTC South Africa: ICASA	Global: GCF Europe: CE The UK: UKCA Taiwan, China: NCC Australia/New Zealand: RCM	Global: GCF Europe: CE The UK: UKCA South Korea: KC Taiwan, China: NCC Australia/New Zealand: RCM	Europe: CE Australia/New Zealand: RCM
Others	RoHS/WHQL	RoHS/WHQL	RoHS/WHQL	RoHS/WHQL
Max. Data Transmission Rates				
LTE-FDD (Mbps)	150 (DL)/50 (UL)	150 (DL)/50 (UL)	150 (DL)/50 (UL)	150 (DL)/50 (UL)
LTE-TDD (Mbps)	130 (DL)/30 (UL)	130 (DL)/30 (UL)	130 (DL)/30 (UL)	130 (DL)/30 (UL)
DC-HSPA+ (Mbps)	42 (DL)/5.76 (UL)	42 (DL)/5.76 (UL)	42 (DL)/5.76 (UL)	42 (DL)/5.76 (UL)
WCDMA (kbps)	384 (DL)/384 (UL)	384 (DL)/384 (UL)	384 (DL)/384 (UL)	384 (DL)/384 (UL)
EDGE (kbps)	296 (DL)/236.8 (UL)	296 (DL)/236.8 (UL)	296 (DL)/236.8 (UL)	296 (DL)/236.8 (UL)
GPRS (kbps)	107 (DL)/85.6 (UL)	107 (DL)/85.6 (UL)	107 (DL)/85.6 (UL)	107 (DL)/85.6 (UL)
Interfaces				
(U)SIM	× 1	× 1	× 1	× 1
USB 2.0	× 1	× 1	× 1	× 1
Digital Audio (PCM)	× 1	× 1	× 1	× 1
I2C	× 1	× 1	× 1	× 1
LED_WWAN#	× 1	× 1	× 1	× 1
W_DISABLE#	× 1	× 1	× 1	× 1
UART	× 1	× 1	× 1	× 1
PERST#	× 1	× 1	× 1	× 1
Voice				
Speech Codec Modes	HR/FR/EFR/AMR/AMR-WB	HR/FR/EFR/AMR/AMR-WB	HR/FR/EFR/AMR/AMR-WB	HR/FR/EFR/AMR/AMR-WB
Echo Arithmetic	Echo Cancellation/Noise Suppression	Echo Cancellation/Noise Suppression	Echo Cancellation/Noise Suppression	Echo Cancellation/Noise Suppression
VoLTE (Optional)	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)
Enhanced Features				
DTMF	●	●	●	●
DFOTA	●	●	●	●
QMI/ RmNet	●	●	●	●
Audio Playback*/Audio Recording*	Optional	Optional	Optional	Optional
QuecFile®	●	●	●	●
(U)SIM Card Detection	●	●	●	●
SMS	●	●	●	●
eSIM	Optional	Optional	Optional	Optional
Drivers				
USB Serial Driver	Windows 10/11, Linux 2.6–6.7, Android 4.x–14.x	Windows 10/11, Linux 2.6–6.7, Android 4.x–14.x	Windows 10/11, Linux 2.6–6.7, Android 4.x–14.x	Windows 10/11, Linux 2.6–6.7, Android 4.x–14.x
GNSS Driver	Android 4.x–14.x	Android 4.x–14.x	Android 4.x–14.x	Android 4.x–14.x
RIL Driver	Android 4.x–14.x	Android 4.x–14.x	Android 4.x–14.x	Android 4.x–14.x
USB NDIS Driver	Windows 10/11	Windows 10/11	Windows 10/11	Windows 10/11
USB MBIM Driver	Windows 10/11, Linux 3.18–6.7	Windows 10/11, Linux 3.18–6.7	Windows 10/11, Linux 3.18–6.7	Windows 10/11, Linux 3.18–6.7
USB GobiNet Driver	Linux 2.6–3.4	Linux 2.6–3.4	Linux 2.6–3.4	Linux 2.6–3.4
USB QMI_WWAN Driver	Linux 3.4–6.7	Linux 3.4–6.7	Linux 3.4–6.7	Linux 3.4–6.7
Electrical Features				
Supply Voltage Range	3.0–3.6 V, 3.3 V Typ.	3.0–3.6 V, 3.3 V Typ.	3.0–3.6 V, 3.3 V Typ.	3.0–3.6 V, 3.3 V Typ.
Power Consumption (Typ.)	3.9 mA @ Sleep 30 mA @ Idle	3.4 mA @ Sleep 23.3 mA @ Idle	1.69 mA @ Sleep 18.51 mA @ Idle	2.3 mA @ Sleep 29.65 mA @ Idle

NOTE:

- * : Under development.
- : Supported.
- eSIM function can be supported by software, but an external eSIM chip is required.