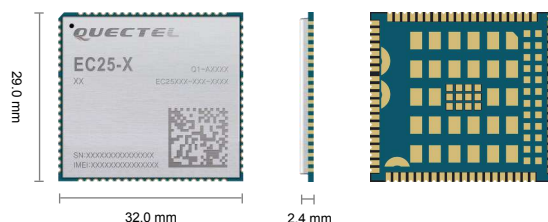


Quectel EC25 Series

IoT/M2M-optimized

LTE Cat 4 Module



Quectel EC25 is a series of LTE Cat 4 module 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 R2.1/EG25-G/EG21-G modules and UMTS/HSPA+ UC200T series modules, which allows for flexible migration among them in design and manufacturing.

EC25 series contains 12 variants: EC25-E, EC25-EU, EC25-EUX, EC25-J, EC25-A, EC25-V, EC25-AF, EC25-AFX, EC25-AFXD (Data-only), EC25-MX, EC25-AU and EC25-AUX. 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.

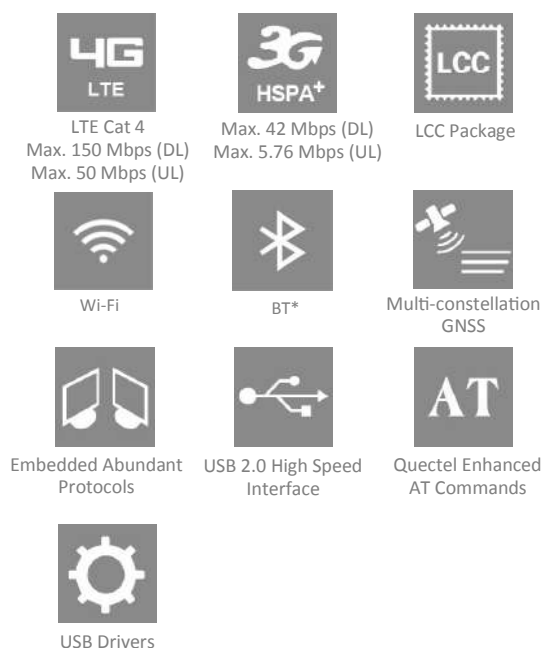
EC25 series supports Qualcomm® IZat™ location technology Gen8C Lite (GPS, GLONASS, BeiDou/Compass, Galileo and QZSS). The integrated GNSS greatly simplifies product design, and provides quicker, more accurate and more dependable positioning.

A rich set of Internet protocols, industry-standard interfaces and abundant functionalities (USB serial drivers for Windows 7/8/8.1/10, Linux, Android) 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



Version: 2.1 | Status: Released

Quectel EC25 Series

| LTE Cat 4 | EC25-E | EC25-EU | EC25-EUX | EC25-J |
|----------------------------------|---|--|--|---|
| Region/Operator | EMEA/South Korea/Thailand/India | EMEA/Thailand | EMEA/Thailand | Japan |
| Dimensions (mm) | 32.0 × 29.0 × 2.4 | 32.0 × 29.0 × 2.4 | 32.0 × 29.0 × 2.4 | 32.0 × 29.0 × 2.4 |
| Temperature Ranges | | | | |
| 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 +85°C | -40°C to +85°C | -40°C to +85°C | -40°C to +85°C |
| Frequency Bands | | | | |
| LTE-FDD | B1/B3/B5/B7/B8/B20 | B1/B3/B7/B8/B20/B28A | B1/B3/B7/B8/B20/B28A | B1/B3/B8/B18/B19/B26 |
| LTE-TDD | B38/B40/B41 | B38/B40/B41 | B38/B40/B41 | B41 |
| WCDMA | B1/B5/B8 | B1/B8 | B1/B8 | B1/B6/B8/B19 |
| GSM/EDGE | B3/B8 | B3/B8 | B3/B8 | / |
| GNSS | GPS/GLONASS/BeiDou (Compass)/Galileo/QZSS (Optional) | GPS/GLONASS/BeiDou (Compass)/Galileo/QZSS (Optional) | GPS/GLONASS/BeiDou (Compass)/Galileo/QZSS (Optional) | GPS/GLONASS/BeiDou (Compass)/Galileo/QZSS (Optional) |
| Certifications | | | | |
| Carrier | Global: Vodafone Europe: Deutsche Telekom/Telefónica South Korea: SKT/KT*/LGU+* | Europe: Deutsche Telekom/ British Telecom | / | Japan: NTT DOCOMO/SoftBank/KDDI |
| Regulatory | Global: GCF Europe: CE South Korea: KC Taiwan (China): NCC Australia/New Zealand: RCM Thailand: NBTC Russia: FAC 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 | Japan: JATE/TELEC |
| Others | RoHS/WHQL | RoHS/WHQL | RoHS/WHQL | RoHS/WHQL |
| Data Transmission | | | | |
| LTE-FDD Data Rates (Mbps) | 150 (DL)/ 50 (UL) | 150 (DL)/ 50 (UL) | 150 (DL)/ 50 (UL) | 150 (DL)/ 50 (UL) |
| LTE-TDD Data Rates (Mbps) | 130 (DL)/ 30 (UL) | 130 (DL)/ 30 (UL) | 130 (DL)/ 30 (UL) | 130 (DL)/ 30 (UL) |
| DC-HSPA+ Data Rates (Mbps) | 42 (DL)/ 5.76 (UL) | 42 (DL)/ 5.76 (UL) | 42 (DL)/ 5.76 (UL) | 42 (DL)/ 5.76 (UL) |
| WCDMA Data Rates (kbps) | 384 (DL)/ 384 (UL) | 384 (DL)/ 384 (UL) | 384 (DL)/ 384 (UL) | 384 (DL)/ 384 (UL) |
| EDGE Data Rates (kbps) | 296 (DL)/ 236.8 (UL) | 296 (DL)/ 236.8 (UL) | 296 (DL)/ 236.8 (UL) | / |
| GPRS Data Rates (kbps) | 107 (DL)/ 85.6 (UL) | 107 (DL)/ 85.6 (UL) | 107 (DL)/ 85.6 (UL) | / |
| Interfaces | | | | |
| (U)SIM | x 1 | x 1 | x 1 | x 1 |
| UART | x 2 | x 2 | x 2 | x 2 |
| USB 2.0 | x 1 | x 1 | x 1 | x 1 |
| Audio Digital (PCM) | x 1 | x 1 | x 1 | x 1 |
| I2C | x 1 | x 1 | x 1 | x 1 |
| SDIO | x 2 | x 2 | x 1 | x 2 |
| SGMII | x 1 | x 1 | x 1 | x 1 |
| Bluetooth* | x 1 | x 1 | / | x 1 |
| ADC | x 2 | x 2 | x 2 | x 2 |
| 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 | Digital Audio and VoLTE (Voice over LTE) (Optional) | Digital Audio and VoLTE (Voice over LTE) (Optional) | Digital Audio and VoLTE (Voice over LTE) (Optional) | Digital Audio and VoLTE (Voice over LTE) (Optional) |
| Enhanced Features | | | | |
| DTMF | ● | ● | ● | ● |
| DFOTA | ● | ● | ● | ● |
| QMI/RmNet | ● | ● | ● | ● |
| Audio Playback*/Audio Recording* | Optional | Optional | Optional | Optional |
| QuecLocator® | ● | ● | ● | ● |
| QuecFile® | ● | ● | ● | ● |
| (U)SIM Card Detection | ● | ● | ● | ● |
| Drivers | | | | |
| USB Serial Driver | Windows 7/8/8.1/10, Linux 2.6–5.4, Android 4.x–9.x | Windows 7/8/8.1/10, Linux 2.6–5.4, Android 4.x–9.x | Windows 7/8/8.1/10, Linux 2.6–5.4, Android 4.x–9.x | Windows 7/8/8.1/10, Linux 2.6–5.4, Android 4.x–9.x |
| GNSS Driver | Android 4.x–9.x | Android 4.x–9.x | Android 4.x–9.x | Android 4.x–9.x |
| RIL Driver | Android 4.x–10.x | Android 4.x–10.x | Android 4.x–10.x | Android 4.x–10.x |
| NDIS | Windows 7/8/8.1/10 | Windows 7/8/8.1/10 | Windows 7/8/8.1/10 | Windows 7/8/8.1/10 |
| MBIM | Windows 8/8.1/10, Linux 3.18–5.4 | Windows 8/8.1/10, Linux 3.18–5.4 | / | Windows 8/8.1/10, Linux 3.18–5.4 |
| GobiNet Driver | Linux 2.6–5.4 | Linux 2.6–5.4 | Linux 2.6–5.4 | Linux 2.6–5.4 |
| QMI_WWAN Driver | Linux 3.4–5.4 | Linux 3.4–5.4 | Linux 3.4–5.4 | Linux 3.4–5.4 |
| Electrical Features | | | | |
| Supply Voltage Range | 3.3–4.3V, 3.8 V Typ. | 3.3–4.3V, 3.8 V Typ. | 3.3–4.3V, 3.8 V Typ. | 3.3–4.3V, 3.8 V Typ. |
| Power Consumption | 11 µA @ Power off 1.16 mA @ Sleep, Typ. 19.5 mA @ Idle | 11 µA @ Power off 1.16 mA @ Sleep, Typ. 19.5 mA @ Idle | 9.0 µA @ Power off 0.9 mA @ Sleep, Typ. 14.5 mA @ Idle | 10 µA @ Power off 1.1 mA @ Sleep, Typ. 21 mA @ Idle |

Notes:
1. * means under development.
2. ● means supported.

Quectel EC25 Series

| LTE Cat 4 | EC25-A | EC25-V | EC25-AF | EC25-AFX | EC25-AFXD (Data-only) |
|---------------------------------------|---|--|--|---|---|
| Region/Operator | North America | America Verizon | North America | North America | North America |
| Dimensions (mm) | 32.0 × 29.0 × 2.4 | 32.0 × 29.0 × 2.4 | 32.0 × 29.0 × 2.4 | 32.0 × 29.0 × 2.4 | 32.0 × 29.0 × 2.4 |
| Temperature Ranges | | | | | |
| Operating Temperature | -35°C to +75°C | -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 +85°C | -40°C to +85°C | -40°C to +85°C | -40°C to +85°C | -40°C to +85°C |
| Frequency Bands | | | | | |
| LTE-FDD | B2/B4/B12 | B4/B13 | B2/B4/B5/B12/B13/B14/B66/B71 | B2/B4/B5/B12/B13/B14/B66/B71 | B2/B4/B5/B12/B13/B14/B66/B71 |
| LTE-TDD | / | / | / | / | / |
| WCDMA | B2/B4/B5 | / | B2/B4/B5 | B2/B4/B5 | B2/B4/B5 |
| GSM/EDGE | / | / | / | / | / |
| GNSS | GPS/GLONASS/BeiDou (Compass)/Galileo/QZSS (Optional) | GPS/GLONASS/BeiDou (Compass)/Galileo/QZSS (Optional) | GPS/GLONASS/BeiDou (Compass)/Galileo/QZSS (Optional) | GPS/GLONASS/BeiDou (Compass)/Galileo/QZSS (Optional) | GPS/GLONASS/BeiDou (Compass)/Galileo/QZSS (Optional) |
| Certifications | | | | | |
| Carrier | America: AT&T/T-Mobile Canada: Rogers/Telus | America: Verizon | America: Verizon/ AT&T (FirstNet) / T-Mobile/U.S. Cellular Canada: Rogers/Telus | America: Verizon/ AT&T (FirstNet) | America: Verizon* / AT&T (FirstNet)* / T-Mobile* |
| Regulatory | America: FCC North America: PTCRB Canada: IC | Global: GCF America: FCC | Global: GCF America: FCC North America: PTCRB Canada: IC | Global: GCF America: FCC North America: PTCRB Canada: IC | Global: GCF America: FCC North America: PTCRB |
| Others | RoHS/WHQL | RoHS/WHQL | RoHS/WHQL | RoHS/WHQL | RoHS/WHQL |
| Data Transmission | | | | | |
| LTE-FDD Data Rates (Mbps) | 150 (DL)/ 50 (UL) | 150 (DL)/ 50 (UL) | 150 (DL)/ 50 (UL) | 150 (DL)/ 50 (UL) | 150 (DL)/ 50 (UL) |
| LTE-TDD Data Rates (Mbps) | / | / | / | / | / |
| DC-HSPA+ Data Rates (Mbps) | 42 (DL)/ 5.76 (UL) | / | 42 (DL)/ 5.76 (UL) | 42 (DL)/ 5.76 (UL) | 42 (DL)/ 5.76 (UL) |
| WCDMA Data Rates (kbps) | 384 (DL)/ 384 (UL) | / | 384 (DL)/ 384 (UL) | 384 (DL)/ 384 (UL) | 384 (DL)/ 384 (UL) |
| EDGE Data Rates (kbps) | / | / | / | / | / |
| GPRS Data Rates (kbps) | / | / | / | / | / |
| Interfaces | | | | | |
| (U)SIM | x 1 | x 1 | x 1 | x 1 | x 1 |
| UART | x 2 | x 2 | x 2 | x 2 | x 2 |
| USB 2.0 | x 1 | x 1 | x 1 | x 1 | x 1 |
| Audio Digital (PCM) | x 1 | x 1 | x 1 | x 1 | x 1 |
| I2C | x 1 | x 1 | x 1 | x 1 | x 1 |
| SDIO | x 2 | x 2 | x 2 | x 1 | x 1 |
| SGMII | x 1 | x 1 | x 1 | x 1 | x 1 |
| Bluetooth* | x 1 | x 1 | x 1 | / | / |
| ADC | x 2 | x 2 | x 2 | x 2 | x 2 |
| 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 | Digital Audio and VoLTE (Voice over LTE) (Optional) | Digital Audio and VoLTE (Voice over LTE) (Optional) | Digital Audio and VoLTE (Voice over LTE) (Optional) | Digital Audio and VoLTE (Voice over LTE) (Optional) | / |
| Enhanced Features | | | | | |
| DTMF | ● | ● | ● | ● | / |
| DFOTA | ● | ● | ● | ● | ● |
| QMI/ RmNet | ● | ● | ● | ● | ● |
| Audio Playback* / Audio Recording* | Optional | Optional | Optional | Optional | Optional |
| QuecLocator® | * | ● | ● | ● | ● |
| QuecFile® | ● | ● | ● | ● | ● |
| (U)SIM Card Detection | ● | ● | ● | ● | ● |
| Drivers | | | | | |
| USB Serial Driver | Windows 7/8/8.1/10, Linux 2.6–5.4, Android 4.x–9.x | Windows 7/8/8.1/10, Linux 2.6–5.4, Android 4.x–9.x | Windows 7/8/8.1/10, Linux 2.6–5.4, Android 4.x–9.x | Windows 7/8/8.1/10, Linux 2.6–5.4, Android 4.x–9.x | Windows 7/8/8.1/10, Linux 2.6–5.4, Android 4.x–9.x |
| GNSS Driver | Android 4.x–9.x | Android 4.x–9.x | Android 4.x–9.x | Android 4.x–9.x | Android 4.x–9.x |
| RIL Driver | Android 4.x–10.x | Android 4.x–10.x | Android 4.x–10.x | Android 4.x–10.x | Android 4.x–10.x |
| NDIS | Windows 7/8/8.1/10 | Windows 7/8/8.1/10 | Windows 7/8/8.1/10 | Windows 7/8/8.1/10 | Windows 7/8/8.1/10 |
| MBIM | Windows 8/8.1/10, Linux 3.18–5.4 | Windows 8/8.1/10, Linux 3.18–5.4 | Windows 8/8.1/10, Linux 3.18–5.4 | / | / |
| GobiNet Driver | Linux 2.6–5.4 | Linux 2.6–5.4 | Linux 2.6–5.4 | Linux 2.6–5.4 | Linux 2.6–5.4 |
| QMI_WWAN Driver | Linux 3.4–5.4 | Linux 3.4–5.4 | Linux 3.4–5.4 | Linux 3.4–5.4 | Linux 3.4–5.4 |
| Electrical Features | | | | | |
| Supply Voltage Range | 3.3–4.3V, 3.8 V Typ. | 3.3–4.3V, 3.8 V Typ. | 3.3–4.3V, 3.8 V Typ. | 3.3–4.3V, 3.8 V Typ. | 3.3–4.3V, 3.8 V Typ. |
| Power Consumption | 10 µA @ Power off 1.1 mA @ Sleep, Typ. 21 mA @ Idle | 10 µA @ Power off 0.85 mA @ Sleep, Typ. 20 mA @ Idle | 10 µA @ Power off 1.0 mA @ Sleep, Typ. 23.3 mA @ Idle | 8.0 µA @ Power off 1.0 mA @ Sleep, Typ. 14.9 mA @ Idle | 8.0 µA @ Power off 0.83 mA @ Sleep, Typ. 14.9 mA @ Idle |

Notes:
1. * means under development.
2. ● means supported.

Quectel EC25 Series

| LTE Cat 4 | EC25-MX | EC25-AU | EC25-AUX |
|-----------------------------------|---|--|---|
| Region/Operator | Mexico | Latin America/Australia/New Zealand | Latin America/ Australia/New Zealand |
| Dimensions (mm) | 32.0 × 29.0 × 2.4 | 32.0 × 29.0 × 2.4 | 32.0 × 29.0 × 2.4 |
| Temperature Ranges | | | |
| Operating Temperature | -35°C to +75°C | -35°C to +75°C | -35°C to +75°C |
| Extended Temperature | -40°C to +85°C | -40°C to +85°C | -40°C to +85°C |
| Frequency Bands | | | |
| LTE-FDD | B2/B4/B5/B7/B28/B66 | B1/B2 ^① /B3/B4/B5/B7/B8/B28 | B1/B2 ^① /B3/B4/B5/B7/B8/B28 |
| LTE-TDD | / | B40 | B40 |
| WCDMA | B2/B4/B5 | B1/B2/B5/B8 | B1/B2/B4/B5/B8 |
| GSM/EDGE | / | B2/B3/B5/B8 | B2/B3/B5/B8 |
| GNSS | / | GPS/GLONASS/BeiDou (Compass)/Galileo/QZSS (Optional) | GPS/GLONASS/BeiDou (Compass)/Galileo/QZSS (Optional) |
| Certifications | | | |
| Carrier | / | Australia: Telstra | |
| Regulatory | America: FCC North America: PTCRB Mexico: IFETEL | Global: GCF America: FCC Taiwan (China): NCC Brazil: Anatel Australia/New Zealand: RCM | Europe: CE America: FCC Taiwan (China): NCC Brazil: Anatel Australia/New Zealand: RCM South Africa: ICASA* |
| Others | RoHS/WHQL | RoHS/WHQL | RoHS/WHQL |
| Data Transmission | | | |
| LTE-FDD Data Rates (Mbps) | 150 (DL)/ 50 (UL) | 150 (DL)/ 50 (UL) | 150 (DL)/ 50 (UL) |
| LTE-TDD Data Rates (Mbps) | / | 130 (DL)/ 30 (UL) | 130 (DL)/ 30 (UL) |
| DC-HSPA+ Data Rates (Mbps) | 42 (DL)/ 5.76 (UL) | 42 (DL)/ 5.76 (UL) | 42 (DL)/ 5.76 (UL) |
| WCDMA Data Rates (kbps) | 384 (DL)/ 384 (UL) | 384 (DL)/ 384 (UL) | 384 (DL)/ 384 (UL) |
| EDGE Data Rates (kbps) | / | 296 (DL)/ 236.8 (UL) | 296 (DL)/ 236.8 (UL) |
| GPRS Data Rates (kbps) | / | 107(DL)/ 85.6 (UL) | 107 (DL)/ 85.6 (UL) |
| Interfaces | | | |
| (U)SIM | x 1 | x 1 | x 1 |
| UART | x 2 | x 2 | x 2 |
| USB 2.0 | x 1 | x 1 | x 1 |
| Audio Digital (PCM) | x 1 | x 1 | x 1 |
| I2C | x 1 | x 1 | x 1 |
| SDIO | x 1 | x 2 | x 1 |
| SGMII | x 1 | x 1 | x 1 |
| Bluetooth* | / | x 1 | / |
| ADC | x 2 | x 2 | x 2 |
| Voice | | | |
| Speech Codec Modes | 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 |
| VoLTE | Digital Audio and VoLTE (Voice over LTE) (Optional) | Digital Audio and VoLTE (Voice over LTE) (Optional) | Digital Audio and VoLTE (Voice over LTE) (Optional) |
| Enhanced Features | | | |
| DTMF | ● | ● | ● |
| DFOTA | ● | ● | ● |
| QMI/ RmNet | ● | ● | ● |
| Audio Playback*/ Audio Recording* | Optional | Optional | Optional |
| QuecLocator® | ● | ● | ● |
| QuecFile® | ● | ● | ● |
| (U)SIM Card Detection | ● | ● | ● |
| Drivers | | | |
| USB Serial Driver | Windows 7/8/8.1/10, Linux 2.6–5.4, Android 4.x–9.x | Windows 7/8/8.1/10, Linux 2.6–5.4, Android 4.x–9.x | Windows 7/8/8.1/10, Linux 2.6–5.4, Android 4.x–9.x |
| GNSS Driver | / | Android 4.x–9.x | Android 4.x–9.x |
| RIL Driver | Android 4.x–10.x | Android 4.x–10.x | Android 4.x–10.x |
| NDIS | Windows 7/8/8.1/10 | Windows 7/8/8.1/10 | Windows 7/8/8.1/10 |
| MBIM | / | Windows 8/8.1/10, Linux 3.18–5.4 | / |
| GobiNet Driver | Linux 2.6–5.4 | Linux 2.6–5.4 | Linux 2.6–5.4 |
| QMI_WWAN Driver | Linux 3.4–5.4 | Linux 3.4–5.4 | Linux 3.4–5.4 |
| Electrical Features | | | |
| Supply Voltage Range | 3.3–4.3V, 3.8 V Typ. | 3.3–4.3V, 3.8 V Typ. | 3.3–4.3V, 3.8 V Typ. |
| Power Consumption | 19 µA @ Power off 1.0 mA @ Sleep, Typ. 12.9 mA @ Idle | 11 µA @ Power off 1.3 mA @ Sleep, Typ. 22 mA @ Idle | 9.0 µA @ Power off 0.9 mA @ Sleep, Typ. 16.9 mA @ Idle |

Notes:

- ① LTE-FDD B2 of EC25-AU and EC25-AUX does not support Rx-diversity.
- * means under development.
- means supported.