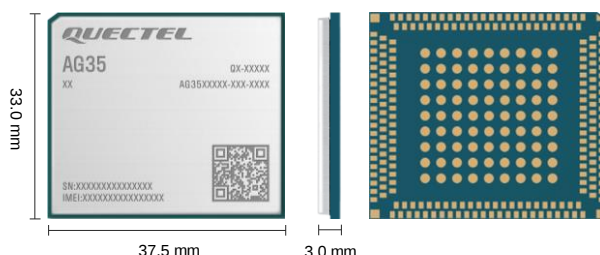


Quectel AG35 Series

IATF 16949 Compliant Automotive Grade LTE Cat 4 Module



AG35 is a series of automotive grade LTE Cat 4 modules developed by Quectel. Designed and manufactured according to IATF 16949:2016 quality management system, it is targeted at the IoV (Internet of Vehicles) applications. Its excellent performance in ESD and EMI protection ensures great robustness in harsh environments.

AG35 series contains seven modules (AG35-CE, AG35-CN, AG35-E, AG35-EN, AG35-NA, AG35-LA, and AG35-J) to meet varied market demands. With the exception of AG35-CN/-J, the modules are backward compatible with existing EDGE and GSM/GPRS networks, enabling them to be connected even in remote areas devoid of 3G or 4G coverage. Adopting the 3GPP Rel-10 LTE technology, AG35 series features maximally 150 Mbps downlink and 50 Mbps uplink data rates. It also provides abundant interfaces for customers to develop applications.

AG35 series supports multiple-input multiple-output (MIMO) technology. The use of multiple antennas at the receiver end at the same time and on the same frequency band greatly minimizes errors and optimizes the data speed. The module also combines high-speed wireless connectivity with embedded highly sensitive multi-constellation GNSS (GPS, GLONASS, BDS, Galileo, and QZSS) receiver for positioning. This greatly simplifies product design and enables quicker and more accurate positioning.

A rich set of Internet protocols, industry-standard interfaces and abundant functions (USB drivers for Windows 10/11 and Linux, etc.) extend the applicability of AG35 series to a wide range of M2M applications in industrial, consumer and automotive markets. It is especially suitable for auto-related applications, such as fleet management, vehicle tracking, in-vehicle navigation system, vehicle remote monitoring, vehicle remote control, remote vehicle diagnostics, vehicle wireless routing, in-car entertainment, and more.



Key Features

- ✓ Designed for automotive applications requiring IATF 16949:2016
- ✓ Automotive quality processes such as APQP and PPAP
- ✓ Multi-constellation GNSS receiver available for applications requiring fast and accurate position fixes in any environment
- ✓ Support Dead Reckoning through external IMU and RTK algorithm to achieve high-precision positioning (optional)
- ✓ Up to 8 APNs and security features such SELinux, TrustZone and Secure Boot are supported to ensure more secure and reliable data communication
- ✓ Support EU eCall and ERA-GLONASS emergency call systems
- ✓ Wide operation temperature range (-40 °C to +85 °C) and support eCall under +95 °C
- ✓ MIMO technology meets demands for data rate and link reliability in modem wireless communication systems
- ✓ Compact SMT packaging format meets the demands for limited space in automotive applications



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



eCall



LGA Package



Dead
Reckoning



High Security



Multi-constellation
GNSS



USB Driver



Embedded Abundant
Protocols



QuecOpen®

Version: 1.8 | Status: Released

Quectel AG35 Series

LTE Cat 4	AG35-CE	AG35-CN	AG35-E	AG35-EN	AG35-NA	AG35-LA	AG35-J
Region/Operator	China	China	EMEA/Korea/Australia/India/Southeast Asia	EMEA/Korea/Australia/India/Southeast Asia	North America (America/Canada/Mexico)	Latin America (Brazil/Argentina)	Japan
Dimensions (mm)	33.0 × 37.5 × 3.0	33.0 × 37.5 × 3.0	33.0 × 37.5 × 3.0	33.0 × 37.5 × 3.0	33.0 × 37.5 × 3.0	33.0 × 37.5 × 3.0	33.0 × 37.5 × 3.0
Temperature Range							
Normal 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	-35 °C to +75 °C	-35 °C to +75 °C
Extended Operating 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	-40 °C to +85 °C	-40 °C to +85 °C
eCall Operating Temperature	-	-	-40 °C to +95 °C	-40 °C to +95 °C	-	-	-
Frequency Bands							
LTE-FDD	B1/3/5/8	B1/3/5/8	B1/3/5/7/8/20/28	B1/3/5/7/8/20/28	B2/4/5/7/12 (17)/13	B1/2/3/4/5/7/8/28	B1/3/5/8/9/19/21/28
LTE-TDD	B34/38/39/40/41	B34/38/39/40/41 ^①	B38/40	B38/40/41 ^①	-	-	B41 ^②
WCDMA	B1/8	B1/8	B1/5/8	B1/5/8	B2/4/5	B1/2/3/4/5/8	B1/3/5/6/8/19
TD-SCDMA	B34/39	-	-	-	-	-	-
EVDO/CDMA	BC0 (Optional)	-	-	-	-	-	-
GSM/EDGE	900/1800 MHz	-	900/1800 MHz	900/1800 MHz	850/1900 MHz	850/900/1800/1900 MHz	-
Certifications							
Regulatory	China: SRRC/NAL ^③ /CCC	China: SRRC/NAL ^③ /CCC	Europe: CE America: FCC South Korea: KC Australia & New Zealand: RCM	Europe: CE America: FCC ^③ South Korea: KC ^③ Australia & New Zealand: RCM	America: FCC Canada: IC	Europe: CE America: FCC Brazil: Anatel Australia & New Zealand: RCM	Japan: JATE/TELEC
Conformance ^④	-	-	Global: GCF	Global: GCF ^③	Global: GCF North America: PTCRB	-	-
Carrier ^④	-	-	South Korea: KT ^③ /LGU+ ^③	South Korea: KT ^③ /LGU+ ^③	America: Verizon ^③ /AT&T ^③ /T-Mobile ^③ Canada: Rogers ^③	-	Japan: NTT DOCOMO ^③ /Softbank ^③
Others	RoHS	RoHS	RoHS	RoHS	RoHS	RoHS	RoHS
Data Transmission (Peak Rate)							
LTE-FDD (Mbps)	150 (DL)/50 (UL)	150 (DL)/50 (UL)	150 (DL)/50 (UL)	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)	-	-	130 (DL)/30 (UL)
WCDMA (kbps)	384 (DL)/384 (UL)	384 (DL)/384 (UL)	384 (DL)/384 (UL)	384 (DL)/384 (UL)	384 (DL)/384 (UL)	384 (DL)/384 (UL)	384 (DL)/384 (UL)
DC-HSPA+ (Mbps)	42 (DL)/5.76 (UL)	42 (DL)/5.76 (UL)	42 (DL)/5.76 (UL)	42 (DL)/5.76 (UL)	42 (DL)/5.76 (UL)	42 (DL)/5.76 (UL)	42 (DL)/5.76 (UL)
TD-SCDMA (Mbps)	4.2 (DL)/2.2 (UL)	-	-	-	-	-	-
EVDO (Mbps)	3.1 (DL)/1.8 (UL)	-	-	-	-	-	-
1×Advanced (kbps)	307.2 (DL/UL)	-	-	-	-	-	-
EDGE (kbps)	296 (DL)/236.8 (UL)	-	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)	107 (DL)/85.6 (UL)	-
Interfaces							
1PPS	-	●	-	●	-	-	-
(U)SIM	× 1 (1.8 V/3.0 V)	× 1 (1.8 V/3.0 V)	× 1 (1.8 V/3.0 V)	× 1 (1.8 V/3.0 V)	× 1 (1.8 V/3.0 V)	× 1 (1.8 V/3.0 V)	× 1 (1.8 V/3.0 V)
PCM	× 1	× 1	× 1	× 1	× 1	× 1	× 1
USB 2.0	× 1	× 1	× 1	× 1	× 1	× 1	× 1
Antenna	× 3 (Main/Rx-diversity/GNSS)	× 3 (Main/Rx-diversity/GNSS)	× 3 (Main/Rx-diversity/GNSS)	× 3 (Main/Rx-diversity/GNSS)	× 3 (Main/Rx-diversity/GNSS)	× 3 (Main/Rx-diversity/GNSS)	× 3 (Main/Rx-diversity/GNSS)
UART	× 3	× 3	× 3	× 3	× 3	× 3	× 3
SDIO	× 2 (for Wi-Fi and eMMC)	× 2 (for Wi-Fi and eMMC)	× 2 (for Wi-Fi and eMMC)	× 2 (for Wi-Fi and eMMC)	× 2 (for Wi-Fi and eMMC)	× 2 (for Wi-Fi and eMMC)	× 2 (for Wi-Fi and eMMC)
SPI	> 1 (for QuecOpen® Version Only)	> 1 (for QuecOpen® Version Only)	> 1 (for QuecOpen® Version Only)	> 1 (for QuecOpen® Version Only)	> 1 (for QuecOpen® Version Only)	> 1 (for QuecOpen® Version Only)	> 1 (for QuecOpen® Version Only)
I2C	× 2 (one for PCM)	× 2 (one for PCM)	× 2 (one for PCM)	× 2 (one for PCM)	× 2 (one for PCM)	× 2 (one for PCM)	× 2 (one for PCM)
SGMII	× 1 (Optional)	× 1 (Optional)	× 1 (Optional)	× 1 (Optional)	× 1 (Optional)	× 1 (Optional)	× 1 (Optional)
ADC	× 3 (15 bits)	× 3 (15 bits)	× 3 (15 bits)	× 3 (15 bits)	× 3 (15 bits)	× 3 (15 bits)	× 3 (15 bits)
GPIO	> 15 (for QuecOpen® Version Only)	> 15 (for QuecOpen® Version Only)	> 15 (for QuecOpen® Version Only)	> 15 (for QuecOpen® Version Only)	> 15 (for QuecOpen® Version Only)	> 15 (for QuecOpen® Version Only)	> 15 (for QuecOpen® Version Only)
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	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	Echo Cancellation/Noise Suppression	Echo Cancellation/Noise Suppression	Echo Cancellation/Noise Suppression
VoLTE	Digital Audio and VoLTE (Optional)	Digital Audio and VoLTE (Optional)	Digital Audio and VoLTE (Optional)	Digital Audio and VoLTE (Optional)	Digital Audio and VoLTE (Optional)	Digital Audio and VoLTE (Optional)	Digital Audio and VoLTE (Optional)
SMS							
Point-to-point MO/MT	●	●	●	●	●	●	●
SMS Cell Broadcast	●	●	●	●	●	●	●
Text and PDU Mode	●	●	●	●	●	●	●

NOTE:

- ①: AG35-CN/-EN supports B41 within the range of 2555–2675 MHz.
- ②: AG35-J supports B41 within the range of 2535–2655 MHz.
- ③: Based on customer requirements.

- ④: Please contact Quectel to confirm the specific firmware version corresponding to each carrier/conformance certification.
- ⑤: ●: Supported.

Quectel AG35 Series

LTE Cat 4	AG35-CE	AG35-CN	AG35-E	AG35-EN	AG35-NA	AG35-LA	AG35-J
GNSS							
Embedded GNSS	GPS/GLONASS/BDS/Galileo/QZSS	GPS/GLONASS/BDS/Galileo/QZSS	GPS/GLONASS/BDS/Galileo/QZSS	GPS/GLONASS/BDS/Galileo/QZSS	GPS/GLONASS/BDS/Galileo/QZSS	GPS/GLONASS/BDS/Galileo/QZSS	GPS/GLONASS/BDS/Galileo/QZSS
TTFF	Autonomous @ Open Sky: Cold Start: 35 s Warm Start: 26 s Hot Start: 2.5 s XTRA Start @ Open Sky:	Autonomous @ Open Sky: Cold Start: 35 s Warm Start: 26 s Hot Start: 2.5 s XTRA Start @ Open Sky:	Autonomous @ Open Sky: Cold Start: 35 s Warm Start: 26 s Hot Start: 2.5 s XTRA Start @ Open Sky:	Autonomous @ Open Sky: Cold Start: TBD Warm Start: TBD Hot Start: TBD XTRA Start @ Open Sky:	Autonomous @ Open Sky: Cold Start: 35 s Warm Start: 26 s Hot Start: 2.5 s XTRA Start @ Open Sky:	Autonomous @ Open Sky: Cold Start: 35 s Warm Start: 26 s Hot Start: 2.5 s XTRA Start @ Open Sky:	Autonomous @ Open Sky: Cold Start: 35 s Warm Start: 26 s Hot Start: 2.5 s XTRA Start @ Open Sky:
	Cold Start: 18 s Warm Start: 2.2 s Hot Start: 1.8 s	Cold Start: 18 s Warm Start: 2.2 s Hot Start: 1.8 s	Cold Start: 18 s Warm Start: 2.2 s Hot Start: 1.8 s	Cold Start: TBD Warm Start: TBD Hot Start: TBD	Cold Start: 18 s Warm Start: 2.2 s Hot Start: 1.8 s	Cold Start: 18 s Warm Start: 2.2 s Hot Start: 1.8 s	Cold Start: 18 s Warm Start: 2.2 s Hot Start: 1.8 s
Sensitivity	Acquisition: -146 dBm Reacquisition: -158 dBm Tracking: -162 dBm	Acquisition: -146 dBm Reacquisition: -158 dBm Tracking: -162 dBm	Acquisition: -146 dBm Reacquisition: -158 dBm Tracking: -162 dBm	Acquisition: TBD Reacquisition: TBD Tracking: TBD	Acquisition: -146 dBm Reacquisition: -158 dBm Tracking: -162 dBm	Acquisition: -146 dBm Reacquisition: -158 dBm Tracking: -162 dBm	Acquisition: -146 dBm Reacquisition: -158 dBm Tracking: -162 dBm
Enhanced Features							
eCall	-	-	●	●	-	-	-
ERA-GLONASS	-	-	●	●	-	-	-
QuecOpen® (Open Linux)	●	●	●	●	●	●	●
Dead Reckoning (QDR)	○	○	○	○	○	○	○
PPE (RTK)	○	○	-	-	-	-	-
SDIO for Wi-Fi Function	●	●	●	●	●	●	●
UART2/PCM for Bluetooth Function	●	●	●	●	●	●	●
Multi-APN	●	●	●	●	●	●	●
Temperature Management	●	●	●	●	●	●	●
DFOTA	○	○	○	○	○	○	○
FOTA	●	●	●	●	●	●	●
TrustZone	●	●	●	●	●	●	●
Secure Boot	●	●	●	●	●	●	●
A/B System	●	●	●	●	●	●	●
ESD/EMI Protection	Realized through Internal Specific Circuits and Components	Realized through Internal Specific Circuits and Components	Realized through Internal Specific Circuits and Components	Realized through Internal Specific Circuits and Components	Realized through Internal Specific Circuits and Components	Realized through Internal Specific Circuits and Components	Realized through Internal Specific Circuits and Components
Software Features							
USB Serial Driver	Windows 10/11 Linux 2.6–6.7	Windows 10/11 Linux 2.6–6.7	Windows 10/11 Linux 2.6–6.7	Windows 10/11 Linux 2.6–6.7	Windows 10/11 Linux 2.6–6.7	Windows 10/11 Linux 2.6–6.7	Windows 10/11 Linux 2.6–6.7
GNSS Driver	Android 4.x–14.x	Android 4.x–14.x	Android 4.x–14.x	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	Android 4.x–14.x	Android 4.x–14.x	Android 4.x–14.x
RNDIS Driver	Windows 10/11 Linux 2.6–6.7	Windows 10/11 Linux 2.6–6.7	Windows 10/11 Linux 2.6–6.7	Windows 10/11 Linux 2.6–6.7	Windows 10/11 Linux 2.6–6.7	Windows 10/11 Linux 2.6–6.7	Windows 10/11 Linux 2.6–6.7
ECM Driver	Linux 2.6–6.7	Linux 2.6–6.7	Linux 2.6–6.7	Linux 2.6–6.7	Linux 2.6–6.7	Linux 2.6–6.7	Linux 2.6–6.7
QMI_WWAN Driver	Linux 3.4–6.7	Linux 3.4–6.7	Linux 3.4–6.7	Linux 3.4–6.7	Linux 3.4–6.7	Linux 3.4–6.7	Linux 3.4–6.7
Protocols	TCP/UDP/PPP/PING/FTP(S)/HTTP(S)/SMTP/SSL/TLS/MMS/NTP/FILE/QMI	TCP/UDP/PPP/PING/FTP(S)/HTTP(S)/SMTP/SSL/TLS/MMS/NTP/FILE/QMI	TCP/UDP/PPP/PING/FTP(S)/HTTP(S)/SMTP/SSL/TLS/MMS/NTP/FILE/QMI	TCP/UDP/PPP/PING/FTP(S)/HTTP(S)/SMTP/SSL/TLS/MMS/NTP/FILE/QMI	TCP/UDP/PPP/PING/FTP(S)/HTTP(S)/SMTP/SSL/TLS/MMS/NTP/FILE/QMI	TCP/UDP/PPP/PING/FTP(S)/HTTP(S)/SMTP/SSL/TLS/MMS/NTP/FILE/QMI	TCP/UDP/PPP/PING/FTP(S)/HTTP(S)/SMTP/SSL/TLS/MMS/NTP/FILE/QMI
Electrical Characteristics							
Supply Voltage	3.3–4.3 V DC, typ. 3.8 V DC	3.3–4.3 V DC, typ. 3.8 V DC	3.3–4.3 V DC, typ. 3.8 V DC	3.3–4.3 V DC, typ. 3.8 V DC	3.3–4.3 V DC, typ. 3.8 V DC	3.3–4.3 V DC, typ. 3.8 V DC	3.3–4.3 V DC, typ. 3.8 V DC
Power Consumption	20 µA @ Power off 2.4 mA @ LTE Sleep, PF = 128	20 µA @ Power off 2.9 mA @ LTE Sleep, PF = 128	20 µA @ Power off 2.3 mA @ LTE Sleep, PF = 128	20 µA @ Power off 3.1 mA @ LTE Sleep, PF = 128	20 µA @ Power off 2.0 mA @ LTE Sleep, PF = 128	20 µA @ Power off 1.8 mA @ LTE Sleep, PF = 128	20 µA @ Power off 1.9 mA @ LTE Sleep, PF = 128
	1.9 mA @ LTE Sleep, PF = 256	2.5 mA @ LTE Sleep, PF = 256	1.9 mA @ LTE Sleep, PF = 256	2.8 mA @ LTE Sleep, PF = 256	1.7 mA @ LTE Sleep, PF = 256	1.6 mA @ LTE Sleep, PF = 256	1.6 mA @ LTE Sleep, PF = 256
	23 mA @ Idle, typ.	23 mA @ Idle, typ.	23 mA @ Idle, typ.	23 mA @ Idle, typ.	23 mA @ Idle, typ.	23 mA @ Idle, typ.	23 mA @ Idle, typ.

NOTE:
1. ●: Supported.
2. ○: Optional.

