Quectel AG35

IATF 16949 Compliant Automotive Grade LTE Cat 4 Module

AG35 is a series of automotive grade LTE category 4 module developed by Quectel. Designed and manufactured according to IATF 16949:2016 quality management system, it is targeted at the IoV (Internet of Vehicles) applications. Adopting the 3GPP Rel. 10 LTE technology, it features maximally 150Mbps downlink and 50Mbps uplink data rates. It provides abundant interfaces for customers to develop applications, and its excellent performance in ESD and EMI protection ensures great robustness in harsh environments.

AG35 contains five variants (AG35-CE, AG35-E*, AG35-NA*, AG35-LA*, AG35-J*) to meet the market requirements of China, Europe, North America, Latin America and Japan. It is backward compatible with existing EDGE and GSM/GPRS networks, making it can be connected even in remote areas devoid of 3G or 4G coverage.

AG35 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 multi-constellation high-sensitivity GNSS (GPS, GLONASS, BeiDou, Galileo, QZSS) receiver for positioning.

A rich set of Internet protocols, industry-standard interfaces and abundant functionalities (USB drivers for Windows 7/8/8.1/10, Windows CE, Linux and Android, eCall, etc.) extend the applicability of AG35 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, security monitoring and alarming, remote vehicle diagnostics, vehicle wireless routing, in-car entertainment, and more.

Key Benefits

✔ Ideal for automotive premarket applications with IATF 16949:2016 requirement

✔ Compliant with automotive quality processes such as APQP, PPAP, etc.

✔ Wide operation temperature range (-40°C to +85°C) meets the demanding requirements for automotive devices

✔ Excellent EMC protection ensures great robustness even in harsh environments

✔ Compact SMT form factor ideal for integration in slim and size-constrained automotive solutions

✔ 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

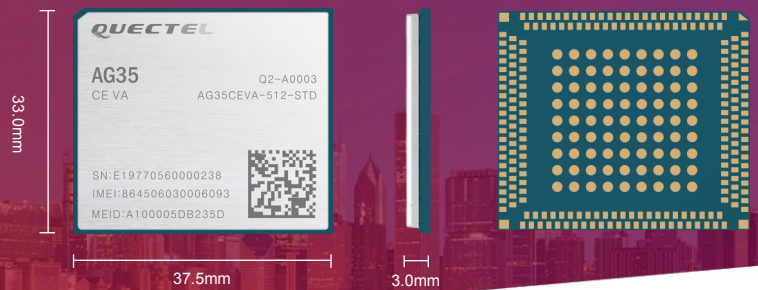|		
4G LTE	**3G HSPA+**	**LGA**
LTE Cat 4 Max 150Mbps (DL) Max 50Mbps (UL)	Max 42Mbps (DL) Max 5.76Mbps (UL)	LGA Package
Embedded Abundant Protocols	eCall	Multi-constellation GNSS
USB Drivers	Quectel Enhanced AT Commands	USB 2.0 High Speed Interface

Rev.: V1.3 | Status: Released

Quectel AG35

IATF 16949 Compliant Automotive Grade LTE Cat 4 Module

33.0mm

37.5mm

3.0mm

Variants for China
AG35-CE:
LTE FDD: B1/B3/B5/B8
LTE TDD: B34/B38/B39/B40/B41
WCDMA: B1/B8
TD-SCDMA: B34/B39
EVDO/CDMA: BC0[①]
GSM: 900/1800MHz

Variant for Europe
AG35-E*:
LTE FDD: B1/B3/B5/B7/B8/B20/B28
LTE TDD: B38/B40/B41
WCDMA: B1/B5/B8
GSM: 900/1800MHz

Variant for North America
AG35-NA*:
LTE FDD: B2/B4/B5/B7/B12/B13/B17/B28[①]
WCDMA: B2/B4/B5
GSM: 850/1900MHz

Variant for Latin America
AG35-LA*:
LTE FDD: B1/B2/B3/B4/B5/B7/B8/B28
WCDMA: B1/B2/B3/B5/B8
GSM: 850/900/1800/1900MHz

Variant for Japan
AG35-J*:
LTE FDD: B1/B3/B8/B19/B21/B28/B11[①]/B26[①]
LTE TDD: B41[①]
WCDMA: B1/B3/B5/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/UL)
TD-SCDMA:
Max 4.2Mbps (DL)/Max 2.2Mbps (UL)
CDMA2000:
EVDO: Max 3.1Mbps (DL)/Max 1.8Mbps (UL)
1X Advanced: Max 307.2Kbps (DL/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
VoLTE:
Digital Audio and VoLTE (Voice over LTE) (Optional)

SMS
Point-to-point MO and MT
SMS Cell Broadcast
Text and PDU Mode

GNSS
Embedded GNSS:
GPS/GLONASS/BeiDou/Galileo/QZSS
TTFF (Autonomous @Open Sky):
Cold Start: 35s
Warm Start: 26s
Hot Start: 2.5s
TTFF (XTRA Enabled @Open Sky):
Cold Start: 18s
Warm Start: 2.2s
Hot Start: 1.8s
Sensitivity:
Cold Start: -146dBm
Reacquisition: -158dBm
Tracking: -162dBm

Interfaces
USB 2.0 × 1 (with High Speed up to 480Mbps)
UART × 3 (for Main UART/BT/Debug Functions)
I2C × 2 (×1 for PCM)
PCM × 1
SDIO × 2 (for Wi-Fi and eMMC)
ADC × 3 (15 bits)
SGMII × 1(Optional)
1.8V/3.0V (U)SIM Interface
Main/Rx-diversity/GNSS Antenna Interfaces
SPI > 1 (for QuecOpen Version Only)
GPIO > 15 (for QuecOpen Version Only)

Enhanced Features
eCall
Quecopen® (Open Linux)
UART2 Interface for BT Function* (Optional)
Multi-APN
Temperature Management
DFOTA
High Security:
TrustZone/TPM*
Secure Boot
Code/User Data Backup
ESD/EMI Protection:
Realized through Internal Specific Circuits and Components

Electrical Characteristics
Output Power:
Class 3 (23dBm±2dB) for LTE
Class 2 (24dBm+1/-3dB) for TD-SCDMA
Class 3 (24dBm+1/-3dB) for WCDMA
Class 3 (24dBm+2/-1dB) for EVDO/CDMA BC0
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 4 (33dBm±2dB) for GSM850/EGSM900
Class 1 (30dBm±2dB) for DCS1800/PCS1900
Consumption:
20uA @Power off
1.9mA @LTE Sleep, PF=128
1.6mA @LTE Sleep, PF=256
22mA @Idle, typ.

Sensitivity:
LTE FDD B1: -101dBm (10M)
LTE FDD B3: -101dBm (10M)
LTE FDD B5: -101dBm (10M)
LTE FDD B7: -101.2dBm (10M)
LTE FDD B8: -101dBm (10M)
LTE FDD B20: -101.5dBm (10M)
LTE FDD B28: -101.8dBm (10M)
LTE TDD B34: -101dBm (10M)
LTE TDD B38: -101.5dBm (10M)
LTE TDD B39: -101.5dBm (10M)
LTE TDD B40: -101.5dBm (10M)
LTE TDD B41: -101dBm (10M)
WCDMA B1: -109dBm
WCDMA B5: -110dBm
WCDMA B8: -110dBm
TD-SCDMA B34: -110.5dBm
TD-SCDMA B39: -110.5dBm
EVDO/CDMA BC0: -109dBm
EGSM900: -109dBm
DCS1800: -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
NDIS Driver: Windows 7/8/8.1/10
ECM* Driver: Linux 2.6/3.x/4.1~4.4
Gobinet Driver: Linux 2.6/3.x/4.1~4.4
QMI_WWAN Driver:
Linux 3.x (3.4 or later)/4.1~4.14
Protocols: TCP/UDP/PPP/PING/FTP(S)/HTTP(S)/SMTP/SSL/TLS/MMS/NTP/FILE/QMI

General Features
3GPP E-UTRA Release 10
Bandwidth: 1.4/3/5/10/15/20MHz
Temperature Range: -40°C ~ +85°C
Dimensions: 33.0mm × 37.5mm × 3.0mm
Approx. 8.1g
Supply Voltage: 3.3V~4.3V, 3.8V Typ.
LGA Package
3GPP TS 27.007, 3GPP TS 27.005 and Quectel Enhanced AT Commands

Approvals
CCC/SRRC/NAL (China)
CE* (Europe)

①: The Band is Optional
* Under Development

QUECTEL®