

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 two variants (AG35-CE and AG35-E*) to meet the market requirements of China and Europe. 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 XP, Windows Vista, Windows 7/8/8.1/10, Windows CE, Linux and Android, eCall) 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



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



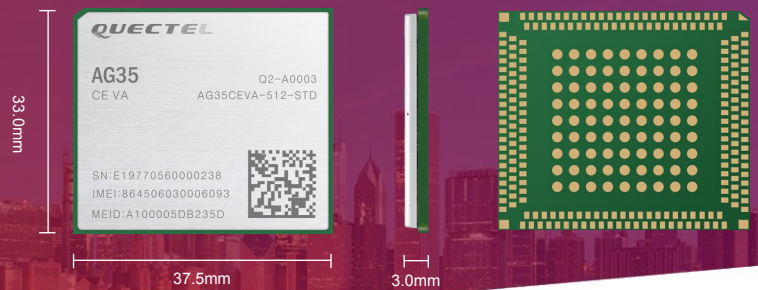
Quectel Enhanced
AT Commands



USB 2.0 High Speed
Interface

Quectel AG35

IATF 16949 Compliant Automotive Grade LTE Cat 4 Module



Variant for Europe

AG35-E*:

LTE FDD: B1/B3/B5/B7/B8/B20
WCDMA: B1/B5/B8
GSM: 900/1800MHz

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
CDMA: BCO
GSM: 900/1800MHz

Data

LTE:

LTE FDD: Max 150Mbps (DL)/Max 50Mbps (UL)
LTE TDD: Max 130Mbps (DL)/Max 35Mbps (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
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)
Multi-APN
SDIO Interface for Wi-Fi Function (Optional)
UART2 Interface for BT Function* (Optional)
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 CDMA BCO
Class E2 (27dBm±3dB) for EDGE 900MHz
Class E2 (26dBm±3dB) for EDGE 1800MHz
Class 4 (33dBm±2dB) for GSM 900MHz
Class 1 (30dBm±2dB) for GSM 1800MHz

Consumption:

20uA @Power off

1.9mA @LTE Sleep, PF=128

1.6mA @LTE Sleep, PF=256
22mA @Idle, typ.

Sensitivity:

FDD B1: -101dBm (10M)
FDD B3: -101dBm (10M)
FDD B5: -101dBm (10M)
FDD B8: -101dBm (10M)
TDD B34: -101dBm (10M)
TDD B38: -99dBm (10M)
TDD B39: -100.5dBm (10M)
TDD B40: -99dBm (10M)
TDD B41: -99dBm (10M)
WCDMA B1: -109dBm
WCDMA B8: -110dBm
TD-SCDMA B34: -109dBm
TD-SCDMA B39: -110dBm
CDMA BCO: -109dBm
GSM 900MHz: -109dBm
GSM 1800MHz: -109dBm

Software Features

USB Serial Driver: Windows XP, Windows Vista, Windows 7/8/8.1/10, Windows CE 5.0/6.0/7.0*, Linux 2.6/3.x/4.1, Android 4.x/5.x/6.x/7.x
RIL Driver: Android 4.x/5.x/6.x/7.x
NDIS Driver: Windows 7/8/8.1/10
ECM* Driver: Linux 2.6/3.x/4.1
Gobinet Driver: Linux 2.6/3.x/4.1
QMI_WWAN Driver: Linux 3.x (3.4 or later)/4.1
Protocols: TCP/UDP/PPP/PING/FTP(S)/HTTP(S)/SMTP/SSL/TLS/MMS/NTP/DTMF*/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

* Under Development