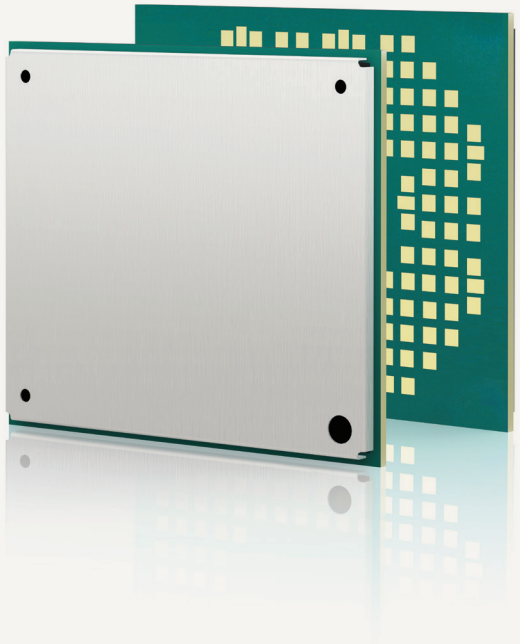
gemalto
security to be free

ALS3

- Five Band LTE, Tri Band UMTS/ DC-HSPA+
- LTE Voice Support
- GPRS/EDGE Quad/Dual Band
- GPS / A-GPS / GLONASS
- Multi Design Capability (LGA)
- Extended Temperature Range
- USB 2.0
- Multi OS Support



LTE

Cinterion® ALS3 Wireless Module
First Automotive 4G LGA Module in the Market

— PRELIMINARY VERSION —

Cinterion® ALS3 Wireless Module
First Automotive 4G LGA Module in the Market

The new Gemalto Cinterion ALS3 LTE cellular machine-to-machine (M2M) module offers a smart solution for wireless connectivity today and in the future. With the newest 3GPP Rel. 9 LTE technology, ALS3 is optimized for high bandwidth computing, enabling speeds up to 100 Mbps for downlink and 50 Mbps for uplink.

ALS3 and its variants, ALS3-E and ALS3-US, provide world-wide coverage and reliability even while roaming across different wireless networks. For investment protection, ALS3 supports multi designs due to footprint compatibility with Gemalto Automotive 2G and 3G modules AGS2-E, AHS2 and AHS3.

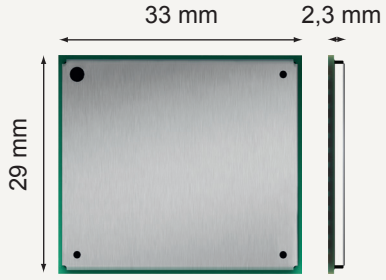
ALS3 is engineered and widely field proven to meet the highest level of compliance with automotive specifications and provides an unparalleled
level of quality and performance, even under the harshest operating conditions. The ALS3 is an ideal enabler for current and future high
performance automotive and ITS applications including: toll collect, onboard vehicle telematics and fleet management, in-car entertainment systems, breakdown support or roadside assistance.

Two antenna pads enable diversity support allowing ALS3 to provide improved data speeds. An optimized GPS antenna path eliminates blanking on GPS and provides more consistent performance.

Gemalto nique type of LGA technology enables optimized heat dissipation that prevents warping and gives customers the freedom to select the most beneficial soldering paste for each individual application.

Like all Cinterion products, the ALS3 comes with full type approval (FTA) and is certified by the largest global network operators.

First Automotive 4G LGA Module in the Market



Future Proof Design
At just 2,3 mm in height, ALS3 is ideal for integration in the slimmest and most size constrained automotive solutions. Extreme ruggedness and long-life chipset ensure long product availability to meet automotive market requirements. With the future proven LGA footprint today's automotive application are already prepared for future upcoming variants and standards in LTE and enjoying a confirmed migration path.

Improved Power Management
ALS3 improved power management features preserve the battery power necessary for automotive systems and reduce heat generation. Combined with its intelligent design for superior heat distribution, ALS3 is the first choice for temperature critical automotive applications.

Automotive Compliance
The ALS3 is compliant with multiple automotive manufacturing process standards accord ing to TS16949 and quality processes including APQP, PPAP, PCN and 8D.

M2M and Automotive Support includes:

- Personal design-in consulting for hardware and software
- Extensive RF test capabilities
- GCF/PTCRB conform pretests to validate approval readiness
- Regular training workshops

Local engineers, a competent helpdesk, a dedicated team of R&D specialists and an advanced development center are the hallmarks of our leading support offer.

Cinterion® ALS3

GENERAL FEATURES

- ALS3-E:
  Five Band LTE: 800/900/1800/2100/2600 MHz, FDD-Band (20,8,3,7,1)
  Tri Band UMTS (WCDMA): 900/1800/2100 MHz, FDD-Band (8,3,1)
  Dual Band GSM/GPRS/EDGE: 900/1800 MHz
- ALS3-US
  Quad Band LTE: 700/850/AW (1700/2100)/1900 MHz, FDD-Band (17,5,4,2)
  Tri Band UMTS (WCDMA): 850AWS(1700/2100)/1900 MHz, FDD-Band (5,4,2)
  Quad Band GSM/GPRS/EDGE: 850/900/1800/1900 MHz
- LTE (FDD 3GPP Release 8/9
  2x2 DL-MIMO
- UMTS/HSPA (FDD) 3GPP Release 8
  Rx diversity
- GSM/GPRS/EDGE 3GPP Release 6
  DARP/SAIC
- SIM Application Toolkit, 3GPP release 99
- Control via AT commands (Hayes, TS 27.007, TS 27.005)
- Fully integrated GPS/GLONASS solution (Qualcomm gpsOne Gen8A)
- Supply voltage range 3.3 - 4.2 V, highly optimized for minimal power consumption
- Dimension: 29 × 33 × 2,3 mm
- Operating Temperature Range: -40 °C to +85 °C
- RoHS and REACH compliant, EuP support

SPECIFICATIONS

- LTE Cat. 3
  DL: max. 100 Mbps, UL: max. 50 Mbps, 2x2 DL MIMO
- HSPA+ DL Cat.24 / UL Cat. 6, Dual Carrier
  DL: max. 42 Mbps, UL: max. 5.76 Mbps
- EDGE Class 12 data rates
  DL: max. 237 kbps, UL: max. 237 kbps
- GPRS Class 12 data rates
  DL: max. 85.6 kbps, UL: max. 85.6 kbps
- Voice Support (HR, FR, EFR, AMR narrowband & AMR wideband)
- Voice Support for LTE via CSFB (circuit-switched fall-back), prepared for VoLTE
- Handsfree speaking
- Supplementary services & USSD support
- SMS text and PDU mode

SPECIAL FEATURES

- USB interface supports multiple composite modes and a Linux-/Mac- compliant mode
- Firmware update via USB
- Remote SIM access profile, SAP
- Antenna diagnostics
- BIP (Bearer Independent Protocol)

GPS/GLONASS FEATURES

- Standalone GPS and GLONASS
- GNSS dedicated AT commands
- A/GPS support: standalone, XTRA®, CP E911
- Protocol: NMEA-0183 V2.3
- Option for temporary NMEA stream buffering
- Tracking Sensitivity: better than -158 dBm

INTERFACES

- 156 pad LGA mount
- Pads for primary, secondary Antenna and GNSS
- Digital audio interfaces (PCM or I2S)
- USB 2.0 HS interface up to 480 Mbps
- UICC and U/SIM card interface 1.8 V and 3 V
- Serial Interface (UART)
- 10 GPIOs shared with Network Status and Low Current Indication, 2 ADC's

DRIVERS

- NDIS/USB driver for Microsoft® Windows Vista™, Windows 7™ and Windows 8™
- RIL driver for devices based on Android OS™
- USB driver for Microsoft® Windows Embedded Compact™
- CDC-ACM compliant mode for Linux

APPROVALS

- R&TTE, FCC, IC, UL
- GCF, PTCRB
- AT&T
- Other local approvals and certifications on request
- Automotive e-mark

For more information, please visit
m2m.gemalto.com, developer.gemalto.com, www.facebook.com/gemalto,
or follow @gemaltom2m on twitter.

Gemalto M2M GmbH
St.-Martin-Str. 60
81541 Munich
Germany

M2M.GEMALTO.COM

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