gemalto
security to be free

ELS61

- Five Band LTE Cat 1
- Java™ embedded
- Tri Band 3G HSPA Dual Band 2G GSM
- RLS Monitoring (Jamming Detection)
- USB 2.0 High Speed compatible
- Multi Design Capability (LGA)
- Embedded TCP/IP Stack
- Cell ID for On-Demand Positioning
- Incremental Firmware Update
- High quality voice support

LTE

Cinterion® ELS61 Wireless Module

LTE Cat 1 with 2G / 3G fallback Optimized for M2M IoT Solutions

Cinterion® ELS61 Wireless Module Delivering LTE Cat 1 connectivity with 2G / 3G fallback

Gemalto's Cinterion® ELS61 wireless module delivers highly efficient Cat 1 LTE connectivity for M2M IoT solutions offering seamless fall back to 2G and 3G networks. The best in class solution enables M2M optimized speeds of 10Mbit/s download and 5Mbit/s uplink making it ideal for the vast number of M2M and industrial IoT applications that are not dependent on speed but that requires the longevity of LTE networks, while still providing 3G and 2G connectivity to ensure complete population and geographic coverage as LTE rolls out. Applications well suited to the ELS61 solution include metering, tracking and tracing, remote surveillance, connected signs, fleet management and mHealth solutions.

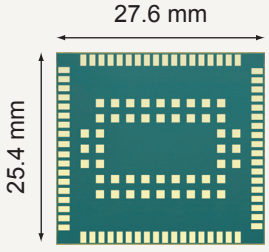
The Cinterion ELS61 module comes with a Java® embedded virtual machine leveraging a powerful ARM11 architecture which allows device manufacturers to utilize the massive to reduce complexity and speed application integration. The latest Java ME 3.2 client runtime platform reduces total cost of ownership (TCO) and time to market by sharing internal resources such as memory, a large existing code base and proven software building blocks. The module uses Multi MIDlet Java execution to simultaneously host and run multiple applications and protocols.

An extended security concept with the latest TLS/SSL engine provides secure and reliable TCP/IP connectivity. Sophisticated sandbox modeling and layered architectures simplify device management and allow simultaneous progress of network operator approvals and application code development for a shorter time to market.

A growing family of M2M-optimized LTE modules shares the same footprint as other Cinterion industrial modules enabling easy forward and backward migration from a single hardware design. Cinterion LTE Cat.1 modules deliver long product lifespans up to seven years, efficient bandwidth and power utilization plus a feature set that meets the rigorous requirements of M2M IoT solutions including extended operating temperatures from -40°C to 85°C. All Cinterion M2M modules come with global customer support, Full Type Approval (FTA) and local network operator certifications to ensure easy integration and a fast time to market for innovative solutions.

The Cinterion ELS61 Cat.1 solution provides a dependable connectivity platform with the support needed for a fast time to market and a value you can trust.

LTE Cat 1 Optimized for M2M IoT Solutions



Future proof and support for multi-designs
Sharing a common footprint with existing Gemalto 2G, 3G and 4G modules, the unique form factor of ELS61 supports easy migration between existing wireless standards. In addition, the footprint matches forthcoming lower category LTE modules such as LTE Cat.M1 standards.

Java™
Java offers easy and fast application development, a broad choice of tools, high code reusability, easy maintenance, a proven security concept, on-device debugging as well as multi-threading programming and program execution.

BIP (Bearer Independent Protocol)
BIP enables remote SIM provisioning according to latest GSMA's embedded SIM specifications as well as over-the-air subscription management of eUICCs for the lifetime of M2M devices. This enables remote management of MNO subscriptions when device ownership changes or when the device is moved to another geographical location. In addition, ELS61 fully supports Gemalto's On-Demand Connectivity solutions including On-Demand Provisioning Service for the secure remote download of MNO subscription profiles into embedded SIMs.

Gemalto M2M 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® ELS61 Features

GENERAL FEATURES

- LTE (FDD) 3GPP Rel.9 Compliant Protocol Stack, RX-Diversity
- Regional Variants
  ELS61-E: Penta-Band LTE: Bands 1, 3, 8, 20, 28 (700, 800, 900, 1800, 2100 MHz), Dual-Band UMTS/HSPA+: Bands 8, 1 (900, 2100 MHz), Dual-Band GSM 900 and 1800 MHz
  ELS61-US/USA: Quad-Band LTE: Bands 2, 4, 5, 12 (700, 850, 1700/2100 (AWS) and 1900 MHz), Tri-Band UMTS: Bands 5, 4, 2 (WCDMA/FDD 850, 1700/2100 (AWS) and 1900 MHz)
  ELS61-AUS: Quad-Band LTE: Bands 3, 5, 8, 28 (1800, 850, 900, 700 MHz), Tri-Band UMTS: Bands 1, 5, 8 (WCDMA/FDD 2100, 850, 900 MHz)
- SIM Application Toolkit, letter classes b, c, e with BIP and RunAT support
- Control via standardized and extended ATcommands (Hayes, TS 27.007 and 27.005)
- Embedded IP stack with IPv4/ IPv6 support
- TCP/IP stack access via AT command and transparent TCP/UDP services
- Secure Connection with TLS
- Internet Services TCP/UDP server/client, DNS, Ping, HTTP, SMTP, FTP client
- LGA pad soldering mount, MSL4
- Supply voltage range: 3.0 - 4.5 V
- Dimension: 27.6 x 25.4 x 2.2 mm
- Weight: 4g
- Operating temperature: -40°C to +85°C

SPECIFICATIONS

- LTE Cat.1
  DL: max. 10.2 Mbps, UL: max. 5.2 Mbps
- HSPA+ Cat.8 (ELS61-US/USA)
  data rates DL: max. 7.2 Mbps, UL: max. 5.76 Mbps
- GPRS Class 12 (ELS61-E)
  DL: max. 85.6 kbps, UL: max 85.6 kbps
- SMS text and PDU mode support
- VoLTE[4] or CSFB[4,5]
- Integrated TTY[4,5]

SPECIAL FEATURES

- USB Interface features a composite mode, compliant to Windows, Linux and Mac
- Firmware update via USB and ASC
- Incremental firmware update over-the-air
- High-Quality Voice for handset and handfree operation[4,5]
- Customer IMEI/SIM-Lock as variant
- Multiplexer according 3GPP TS 27.010
- Real time clock with alarm functionality
- RLS Monitoring (Jamming detection)
- Informal Network Scan

JAVA OPEN PLATFORM

- Java™ ME 3.2 embedded
- Multi-Threading programming and Multi-Application execution
- 18 MB RAM and 31 MB Flash File System
- Secure data transmission with HTTPS/SSL

INTERFACES (LGA PADS)

- Power Supply
- Pads for RX-Diversity Antenna
- USB 2.0 HS interface up to 480 Mbps
- High speed serial modem interface ASC0
- 16 GPIO lines shared with DSR, DTR, DCD (all ASC0), ASC1 (RXD, TXD, RTS, CTS), SPI, Fast-Shutdown, Network-Status-Indication, PWM, Pulse-Counter lines
- ADC and I^2C interface
- UICC and U/SIM card interface 1.8V / 3V
- Lines for Module-On and Reset

DRIVERS

- USB, MUX driver for Microsoft® Windows 7™ and Microsoft® Windows 10™
- RIL Driver for Android versions KitKat (V4.x) and Lollipop (V5.x)
- RIL, USB driver for Microsoft® Windows Embedded Handheld™ >= 6.x

APPROVALS

- CE, R&TTE, GCF, PTCRB, IC, UL
- EuP, RoHS, REACH compliant
- AT&T[2,4] , Telstra and other local approvals and provider certifications

[2]) ELS61-US only
[4]) ELS61-USA only
[5]) ELS61-E

Connect. Secure. Monetize.™
Gemalto's complementary offering of solutions, services and platforms helps enterprises unleash the power of the IoT, providing a solid foundation of Trust based on three key pillars:

- Connect. The backbone of any IoT solution, Cinterion M2M Modules, SIM/MIMs, Terminals and secure services provide future-proof,reliable connectivity for all vertical market IoT solutions.
- Secure. Gemalto's end-to-end security solutions protect devices, the network and the cloud while managing the entire applicationlifecycle.
- Monetize. Our agile Sentinel monetization solutions enable innovative business models and new revenue streams throughembedded licensing, while our secure Application Enablement Plat form speeds time to market.

For more information, please visit: www.gemalto/IoT, www.facebook.com/gemalto, or Follow @ gemaltoIoT on twitter

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