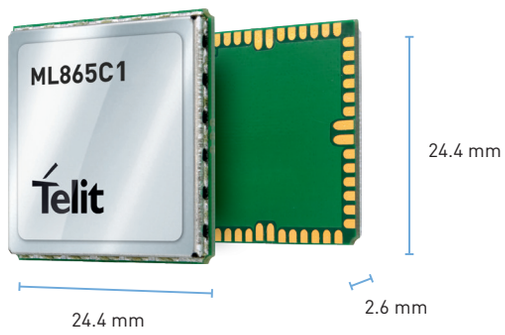
ML865C1 Series

LTE Cat M1/NB1 Embedded



Product Description

The ML865C1 is the Category M1/NB1 evolution in the widely deployed Telit xL865 product family. Specified in the Release 13 of the 3GPP standard, LTE Cat M1/NB1 is specifically tailored for IoT applications, offering optimized power consumption and enhanced coverage. In addition, with its square 24.4 x 24.4 mm VQFN footprint, the ML865C1 is designed for size sensitive applications.

This next generation of products supports the new features specified by 3GPP to boost IoT applications, such as the Power Saving Mode (PSM) and the extended Discontinuous Reception (eDRX), which allow the devices to wake up periodically to deliver only very small amounts of data to the network and then go back to sleep for most of the time, thus allowing longer battery operation. Enhanced coverage, with up to +15dB/+20dB in maximum coupling loss (MCL) com-pared to the other cellular technologies, is also one of the key benefits of this new LTE flavour. LTE Cat M1/NB1 devices are therefore optimized in cost, size and power consump-tion compared to higher UE categories. These advantages make the ML865C1 the perfect platform to enable a quick implementation of LTE technology in IoT/M2M where low cost and low power are more relevant than high speed.

The ML865C1 helps increase the addressable market for LTE technology to include a broad range of new applications and use cases best served with lower maximum data rate, ultra-low power, reduced complexity and cost. Some examples are asset trackers, smart metering, smart parking, smart agri-culture, waste collection, industrial sensors, healthcare monitors, home automation, and many more low data rate IoT devices. The ML865C1 is offered in different bands configurations for deployment in Europe and North America. It is highly recommended for new designs, but also in particular as a migration path for existing GPRS devices, both new and updated designs benefit from a significant extension in life-cycle with LTE Cat M1/NB1.

Key Benefits

- Design once and deploy globally, thanks to the xL865 form factor family
- Compact VQFN package is ideally suited for low profile integrated solutions, limited real estate application boards, reducing cost in high-volume applications, as well as saving space and weight in portable devices
- Perfect platform for regional IoT applications such as smart metering, security & surveillance, point of sales, health monitoring, fleet management, asset tracking and wearable devices
- LTE UE Category M1/NB1 compliant to the latest 3GPP Release 13 enhanced Machine-Type Communication

OneEdge™ Features

To address complexity expected in future exponential growth in the number of IoT devices, integrated, embedded and cloud software components are necessary to increased manageability, lowering cost points for deploying and maintaining such networks. To that end, the ME910G1 is offered with a software suite of management and deployment tools:

- **Lightweight M2M device management protocol compliance**, enabling detailed management of extremely low-power devices and FOTA updates with the goal of more robust and secure connections.
- **Telit's IoT AppZone**, an integrated development environment (IDE) acting as a reference workbench and development tool for all Telit products, running applications directly inside the Telit module.
- **Telit's Connection Manager**, a tool for automating the most common operations for initial connection of devices to cellular networks.
- **Location**, a facility that provides location of devices even in the absence of GNSS connection.

AVAILABLE FOR

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Telit ONEEDGE™

Complete, Ready to Use Access to the Internet of Things

IoT Modules IoT Connectivity IoT Platforms

Family Concept

The xL865 family includes pin-to-pin compatible 2G, 3G and 4G modules - the GL865, UL865, NL865 respectively – making it another pillar of the con-cept "design once and deploy globally." It enables integrators to develop a single PCB layout for 2G, 3G and 4G Cat M1/NB1 technologies.

ML865C1 Series

Model	Market	M1/NB1 Support	Frequencies		Approvals
			4G bands (MHz)	2G bands (MHz)	
ML865C1-EA	Europe LATAM	Dual mode M1&NB1 + 2G	B3(1800), B5(850), B8(900), B20(800), B28(700)	B2(1900), B3(1800), B5(850), B8(900)	RED*, GCF*
ML865C1-NA	North America	M1 & NB1	B2(1900), B4(AWS1700), B12(700), B13(700)		FCC/IC, GCF, PTCRB, Verizon, AT&T

*in process

Product Features

- LTE UE Category M1/NB1
- Single Rx, single antenna
- Half Duplex FDD
- 3GPP Rel. 13 compliant
- 3GPP Rel. 12 Power Saving Mode (PSM)
- 3GPP Rel. 13 Extended Discontinuous Reception (eDRX)
- 3GPP Rel. 13 Extended coverage
- Control via AT commands according to 3GPP TS27.005, 27.007 and customized AT commands
- SMS
- IPv4/IPv6 stack with TCP and UDP protocol
- OMA Lightweight M2M (LWM2M)
- Over-the-Air firmware update
- Telit Application Development Environment: AppZone C
- TLS 1.2
- 2G fallback on specific variants
- Optional embedded GNSS (GPS, GLONASS, Beidou, Galileo)

Data

LTE Category NB1

- Uplink up to 62.5 kpbs
- Downlink up to 21 kbps

LTE Category M1

- Uplink up to 375 kbps
- Downlink up to 300 kbps

EGPRS

- Uplink up to 236 kbps
- Downlink up to 296 kbps

Physical & Environmental

- Compact dimensions 24.4 x 24.4 x 2.6 mm
- Extended temperature range: -40 to +85°C

Interfaces

- USB 2.0 HS
- UART
- SPI
- I2C
- GPIO
- ADC
- 1.8 / 3V SIM interface

Electrical

- Supply voltage
  - Nominal: 3.8 VDC

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