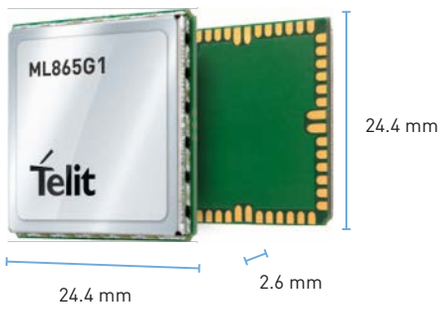
ML865G1 Series

PRELIMINARY

LTE Cat M1/NB2 Embedded



Product Description

The ML865G1 is the Category M1/NB2 evolution in the widely deployed Telit xL865 product family. Specified in the Release 14 of the 3GPP standard, LTE Cat M1/NB2 is specially tailored for IoT applications, offering optimized power consumption and enhanced coverage.

This next generation of products supports the new features specified by 3GPP to boost IoT applications. These features include Power Saving Mode (PSM) and the extended Discontinuous Reception (eDRX). PSM and eDRX allow the devices to wake up periodically to deliver only minimal amounts of data to the networks and then go back to sleep for most of the time, thus allowing prolonged battery operation. Enhanced coverage, with up to +15 dB/+20 dB in maximum coupling loss (MCL) compared to the other cellular technologies, is also one of the primary benefits of this new LTE flavor. LTE Cat M1/NB2 devices are optimized in cost, size and power consumption compared to higher UE categories.

3GPP Release 14 further improves these features by adding techniques to increase the date rate for LTE-M and NB-IoT. These advantages make the ML865G1 ideal for enabling the quick implementation of LTE technology in which low cost and low power are more relevant than high speed. Some examples are asset tracker, smart metering, smart parking, smart agriculture, waste collection, industrial sensors, healthcare monitors, home automation and many more low-data-rate IoT devices.

The ML865G1 is highly recommended as a migration path for existing GPRS devices, and both new and updated designs can benefit from a significant extension in life cycle with LTE Cat M1/NB2.

Key Benefits

- Design once and deploy globally with the xL865 form factor family
- Optimized for low power consumption
- Compact VQFN pack is ideally suited for low profile integrated solutions, limited real estate application boards, reducing costs in high-volume applications and saving space and weight in portable devices
- The perfect platform for IoT applications, such as smart metering, security and surveillance, point of sales, health monitoring, fleet management and asset tracking
- LTE UE Cat M1/NB2 compliant to the latest 3GPP Rel. 14 enhanced machine-type communication (MTC)

Family Concept

The xL865 family includes pin-to-pin compatible 2G, 3G and 4G modules — the GL865, UL865, and NL865, respectively — making it another pillar of the concept "design once and deploy globally." It enables integrators to develop a single PCB layout for 2G, 3G and 4G Cat M1/NB2 technologies.

AVAILABLE FOR

Worldwide

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IoT Modules | Connectivity Plans | Software & Platforms

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PRELIMINARY

Model	Market	M1/NB2 Support	Frequencies		Output Power	Approvals
			4G bands	2G bands		
ML865G1-WW	Worldwide	Dual mode M1/NB2 + 2G	B1, B2, B3, B4, B5, B8, B12, B13, B18, B19, B20, B25, B26, B27, B28, B66, B71, B85	B2, B3, B5, B8	LTE: 23 dBm (Power Class 3) GSM/GPRS: 33 dBm (Power Class 4)	RED*, GCF* ANATEL*

**In process*

Product Features

- LTE UE Cat M1 (1.4 MHz)/NB2 (200 KHz)
- 3GPP Rel. 14 compliant
- Half duplex FDD
- Single Rx, single antenna
- 3GPP Rel. 12 PSM
- 3GPP Rel. 13 eDRX
- 3GPP Rel. 13 extended coverage
- Control via AT commands according to 3GPP TS27.005, 27.007 and customized Telit AT commands
- SIM application tool kit 3GPP TS 51.01
- VoLTE (planned)
- SMS over NAS
- IPv4/IPv6 stack with TCP and UDP protocol
- TLS/DTLS
- Embedded GNSS (GPS, GLONASS, Beidou, Galileo)
- OMA Lightweight M2M (LwM2M)
- Firmware Over-the-Air (FOTA) update

Data

LTE Category M1 (Rel. 14)

- Uplink up to 1 Mbps
- Downlink up to 588 Kbps

LTE Category NB2 (Rel. 14)

- Uplink up to 160 Kbps
- Downlink up to 120 Kbps

EGPRS

- Uplink up to 210 Kbps
- Downlink up to 264 Kbps

Interfaces

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

Physical & Environmental

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

Electrical

- Supply voltage
  - Nominal: 3.8 V dc

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