

TOBY-L2 series

LTE/HSPA+/GPRS modules

Highlights

- Powerful LTE module in LGA package, for easy manufacturing
- Highest throughput of up to 150Mb/s with LTE Cat. 4
- Voice over LTE (VoLTE)
- Variants for America and Europe/Asia
- Industrial temperature range –40 to +85 °C
- Easy migration from u-blox W-CDMA, CDMA, GSM modules
- Manufactured in ISO/TS 16949 certified production sites



TOBY-L2 series:
24.8 x 35.6 x 2.6 mm

Product description

TOBY-L2 series modules support multi-band LTE-FDD, along with HSPA+ and GPRS/ EDGE in a very small LGA package.

With 3GPP Rel. 9 and LTE Cat 4, which provides data throughput up to 150Mb/s, the modules are ideal for both industrial and consumer applications requiring the highest data-rates.

They are the perfect choice for vehicle infotainment systems, ruggedized mobile terminals, set top boxes, notebooks, tablets, as well as high-speed M2M applications such as digital signage, mobile health, remote security and video systems where backwards compatibility with 3G and 2G networks is desired.

Voice over LTE and Circuit-Switched-Fall-Back are supported.

The modules support HSPA+ guaranteed connectivity, also in areas that do not yet have LTE coverage.

The temperature range of –40 to +85 guarantees operation in harsh environments and in very compact designs.

The compact LGA package enables straightforward automated manufacturing. Easy migration from u-blox GSM/GPRS, HSPA and CDMA modules maximizes the investments of customers, simplify logistics, and have very short time-to-market.

TOBY-L2 modules are manufactured in ISO/TS 16949 certified sites, with the highest production standards and the highest quality and reliability. Each module is fully tested and inspected during production. Modules are qualified according to ISO16750 – for systems installed in vehicles.

TOBY-L2 modules come in variants for America and Europe/Asia/Africa. A variant for Japan is planned.

USB drivers and RIL software for Android are free of charge.

Product selector

Model	Region	Access Technology					GNSS	Interfaces					Audio	Features										
		3GPP Release Baseline	LTE FDD Category	LTE Bands	UMTS Bands	GSM Bands	MIMO	GNSS receiver	UART	USB 2.0	DDC	SDIO (Master/Slave)	GPIO	Analog audio	Digital audio	Antenna Supervisor	Jamming Detection	Embedded TCP/UDP	Embedded HTTP, FTP, SSL	AssistNow software	CellLocate®	FOTA	eCall / ERA GLONASS	Dual stack IPv4 / IPv6
TOBY-L200	North America	9	4	2, 4, 5, 7, 17	850, AWS, 1900, 2100	850, 1900	2x2		1	1	1	1	10	1		•	•	•	•	•	•	•	•	•
TOBY-L210	Europe / APAC	9	4	1, 3, 5, 7, 8, 20	850, 900, 2100	900, 1800	2x2		1	1	1	1	10	1		•	•	•	•	•	•	•	•	•

Features

LTE	Cat. 4 (150 Mb/s DL, 50 Mb/s UL) 3GPP Release 9 FDD Bands: TOBY-L200: 2,4,5,7,17 (America) TOBY-L210: 1,3,5,7,8,20 (EU, Asia, Africa) All channel bandwidths: 1.4 - 20 MHz MIMO 2x2 Rx diversity
UMTS/HSPA	Bands: TOBY-L200: 850/AWS/1900/2100 MHz TOBY-L210: 850,900,2100 MHz 42 Mb/s downlink, 5.76 Mb/s uplink
GSM	Bands: TOBY-L200: 850/1900 MHz TOBY-L210: 900/1800 MHz GPRS & EDGE Class 12
SMS	MT/MO PDU / Text mode SMS over IMS and via SMS-C
Voice	VoLTE and CSFB Codec: HR/FR/EFR/AMR/AMR-WB Audio-over-USB Echo cancelation & noise reduction ¹

¹ Available in FW version 01S

Software features

Protocols	Dual stack IPv4 / IPv6 Embedded TCP/IP, UDP/IP ² HTTP/FTP/SSL (Secure Socket Layer) ²
Network	Jamming detection
GPS Interfaces ²	Direct access to u-blox GNSS via TOBY AssistNow software for fastest GPS Time-To-First-Fix CellLocate® & Hybrid Positioning
Firmware upgrade	Via UART and USB

² Available in FW version 01S

Electrical data

Power supply	3.8 V nominal, range 3.3 V to 4.4 V
Power consumption	TBD

Interfaces

Serial	1 UART 1 USB 2.0 (high-speed, 480 Mb/s) 1 SDIO (Master)
GPIO	Up to 10 GPIOs, configurable
(U)SIM	Supports 1.8 V and 3 V, SIM toolkit
Audio	1 digital

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Package

152 pin LGA (Land Grid Array): 24.8 x 35.6 x 2.6 mm, < 7 g

Environmental data, quality & reliability

Operating temperature -40 to +85°C (extended range)

RoHS compliant (lead-free)

Qualification according to ISO 16750

Manufactured in ISO/TS 16949 certified production sites

Certifications and approvals

TOBY-L200:	PTCRB, FCC, IC, AT&T
TOBY-L210:	GCF, PTCRB, FCC, RTTE&D, KCC (Korea), A-tick (Australia), operators approvals

Support products

EVK-L20 / EVK-L21	Evaluation Kits for TOBY-L2 series
RIL software	Available for Android 4.2
USB driver	Available for Embedded Windows 6.x 7.x, Windows Vista, 7, 8

Ordering information

TOBY-L200-xxS ³	LTE/HSPA+/GSM modules for America Cat. 4; Bands 2, 4, 5, 7, 17 LGA 25x36 mm, 150 pcs/reel
TOBY-L210-xxS ³	LTE/HSPA+/GSM modules for Europe/Asia Cat. 4; Bands 1, 3, 5, 7, 8, 20 LGA 25x36 mm, 150 pcs/reel

³ xx refers to firmware version

Contact us

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