

Product Summary

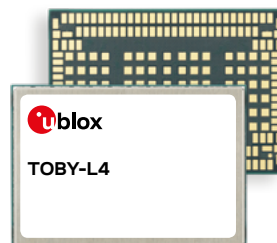
TOBY-L4 slim modem series

LTE Advanced (Cat 6) modules with HSPA+ and 2G fallback



Best in class data rate with LTE Cat 6 and Carrier Aggregation support

- 300 Mbit/s DL peak data rate
- Global coverage with 4 variants
- AECQ certified cellular chipset
- Automotive grade available, qualified according to ISO 16750
- Temperature range -40 °C to + 85 °C, with eCall setup up to +95 °C



24.8 × 35.6 × 2.6 mm

Product description

The TOBY-L4 slim modem series supports LTE-TDD, LTE-FDD, UMTS and GSM connectivity in a compact LGA package. These slim modem TOBY-L4 variants have been designed to be connected with an external application (typically running Linux or Android OS) via AT commands in order to provide the highest data rate and best user experience.

With 3GPP Rel. 10 and LTE Cat 6 supporting carrier aggregation, which provides data throughput up to 300 Mbit/s, the modules 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.

The modules support VoLTE and Circuit-Switched-Fall-Back voice, and they guarantee HSPA+ and GSM connectivity, also in areas that do not yet have LTE coverage.

The TOBY-L4 series supports a temperature range of -40 °C to +85 °C and enables the establishment of eCall at +95 °C for at least 2 minutes.

TOBY-L4 modules are manufactured in an ISO/TS 16949 certified site, 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 ISO 16750 – for systems installed in vehicles.

Product selector

Model	Region	Access Technology	Positioning	Interfaces	Audio	Features	Grade	
		LTE FDD bands LTE TDD bands UMTS bands GSM/GPRS	GNSS via modem AssistNow software CellLocate®	USB 2.0 / 3.0* RGMI/II/RMII DDC (I²C) GPIO	Analog audio Digital audio	Network indication Antenna supervisor Rx diversity MIMO Jamming detection Embedded TCP/UDP stack Embedded HTTP, SSL FOTA Dual stack IPv4 /IPv6	Standard Professional Automotive	
TOBY-L4006-50	North America	2, 4, 5, 7, 12, 13, 29	2, 4, 5	2, 5	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	1 <input type="checkbox"/> <input type="checkbox"/> 9	1 1 <input type="checkbox"/> • • • • • <input type="checkbox"/> <input type="checkbox"/> • •	• •
TOBY-L4106-50	EMEA	1, 3, 7, 8, 20	38	1, 8, 3, 8	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	1 <input type="checkbox"/> <input type="checkbox"/> 9	1 1 <input type="checkbox"/> • • • • • <input type="checkbox"/> <input type="checkbox"/> • •	• •
TOBY-L4206-50	APAC/ Brazil	1, 3, 5, 7, 8, 9, 19, 28	1, 5, 8	quad	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	1 <input type="checkbox"/> <input type="checkbox"/> 9	1 1 <input type="checkbox"/> • • • • • <input type="checkbox"/> <input type="checkbox"/> • •	• •
TOBY-L4906-50	China	1, 3	39, 40, 41	1, 8, 3, 8	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	1 <input type="checkbox"/> <input type="checkbox"/> 9	1 1 <input type="checkbox"/> • • • • • <input type="checkbox"/> <input type="checkbox"/> • •	• •

* USB 3.0 available in future firmware / = Available in future firmware



TOBY-L4 slim modem series



Features

LTE Advanced	Cat 6 (300 Mbit/s DL, 50 Mbit/s UL) 3GPP Release 10 FDD and TDD bands: – TOBY-L4006: 2, 4, 5, 7, 12, 13, 29 (N. America) – TOBY-L4106: 1, 3, 7, 8, 20, 38 (EMEA) – TOBY-L4206: 1, 3, 5, 7, 8, 9, 19, 28 (APAC/Brazil) – TOBY-L4906: 1, 3, 39, 40, 41 (China) Carrier aggregation All channel bandwidths: 1.4 - 20 MHz MIMO 2x2, Rx diversity
UMTS/DC-HSPA+	Bands: – TOBY-L4006: 2, 4, 5 (N. America) – TOBY-L4106: 1, 8 (EMEA) – TOBY-L4206: 1, 5, 8 (APAC/Brazil) – TOBY-L4906: 1, 8 (China) 42 Mbit/s downlink, 11.5 Mbit/s uplink
GSM	Bands: – TOBY-L4006: 2, 5 (N. America) – TOBY-L4106: 3, 8 (EMEA) – TOBY-L4206: 2, 3, 5, 8 (APAC/Brazil) – TOBY-L4906: 3, 8 (China) GPRS & EDGE Class 12
SMS	MT/MO PDU / Text mode SMS over IMS and via SMS-C
Voice	VoLTE ¹ and CSFB Codec: HR/FR/EFR/AMR/AMR-WB Echo cancelation & noise reduction

Software features

3GPP AT commands + u-blox extensions	
Protocols	Dual stack IPv4 / IPv6 eSIM and Bearer Independent Protocol
Network	Jamming detection eCall / ERA Glonass ¹
GNSS Interfaces	SW pre-integration of GNSS and Wi-Fi ¹ AssistNow software for fastest Time-To-First-Fix ¹ CellLocate® & Hybrid Positioning ¹
Firmware upgrade	Via USB Via FOTA ¹

Interfaces

Serial	1 USB 1 RGMII / RMII ¹ 2 I ² C / DDC ¹
GPIO ²	Up to 9 GPIOs, configurable ¹
Audio	1 digital and 1 analog
(U)SIM	2 SIM supporting 1.8 V and 3.0 V, SIM toolkit

¹ Available in future firmware

Package

248-pin LGA (Land Grid Array): 24.8 x 35.6 x 2.6 mm, 4.8 g

Electrical data

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

Environmental data, quality & reliability

Operating temperature –40 °C to +85 °C (extended range)
eCall at +95 °C for at least 2 minutes

RoHS compliant (lead-free)

Automotive qualification

Manufactured in ISO/TS 16949 certified production sites

Planned certifications and approvals

TOBY-L4006 -50A	FCC, ISED (formerly known as IC), PTCRB, GCF, AT&T
TOBY-L4106 -50A	RED (formerly known as R&TTE), GCF
TOBY-L4206 -50A	PTCRB, GCF, Anatel
TOBY-L4906 -50A	CCC, SRRC

Contact your nearest u-blox office for a full list of certifications.

Support products

EVK-L4x	Evaluation kits for TOBY-L4 series
Linux modem manager (planned)	
Android RIL (planned)	
USB drivers for Windows 7, 8, 10	

Product variants

TOBY-L4006-50	LTE Cat 6 / DC-HSPA+ / GSM modules for North America; LTE bands 2, 4, 5, 7, 12, 13, 29
TOBY-L4106-50	LTE Cat 6 / DC-HSPA+ / GSM modules for Europe, Asia; LTE bands 1, 3, 7, 8, 20, 38
TOBY-L4206-50	LTE Cat 6 / DC-HSPA+ / GSM modules for APAC; LTE bands 1, 3, 5, 7, 8, 9, 19, 28
TOBY-L4906-50	LTE Cat 6 FDD / LTE Cat 6 TDD / UMTS FDD / GSM modules for China; LTE bands 1, 3, 39, 40, 41

Further information

For contact information, see www.u-blox.com/contact-us.

For more product details and ordering information, see the [product data sheet](#).

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