

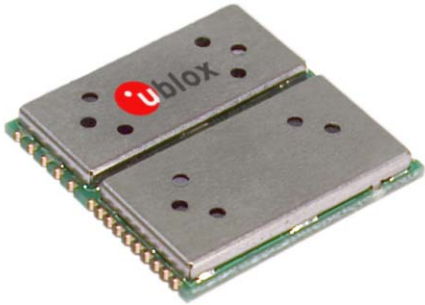


TIM-LP

GPS Receiver Module

ANTARIS® Positioning Engine

The TIM-LP is an ultra-low power OEM GPS module with built-in low noise amplifier suitable for passive and active antennas. It provides two 3V serial ports, SPI and a set of configurable 3V I/O ports. The TIM-LP provides system resources for user application software. The combination of high performance, maximum flexibility, and innovative packaging technology makes the TIM-LP suitable for a broad range of high-volume applications.



Overview

The leading ANTARIS® GPS Engine, jointly developed by Atmel and u-blox, provides excellent navigation performance under dynamic conditions in areas with limited sky view like urban canyons, high sensitivity for weak signal operation without compromising accuracy, and support of DGPS and multiple SBAS systems like WAAS and EGNOS. The 16 parallel channels and 8192 search bins provide fast start-up times. The aiding functionality accelerates start-up times even further. The low power consumption and FixNOW™ power saving mode make this product suitable for handheld and battery-operated devices.

Small Form Factor

Innovative packaging technologies enable high integration of a GPS receiver in a small module measuring just 25.4 x 25.4 mm and allowing straightforward integration in particularly small end products and opportunities in new application fields. The small form factor and the SMT pads allow a fully automatic assembly process with standard pick-and-place equipment and reflow soldering, enabling cost-efficient high-volume production.

Benefits

- High acquisition and tracking sensitivity
- Ultra-low power consumption
- Excellent GPS performance
 - Excellent navigation accuracy, even at low signal levels
 - Active multipath detection and removal
 - Fast Time-To-First-Fix (TTFF)
 - Accelerated TTFF with aiding functionality
- Highly integrated GPS module
 - Automatic pick-and-place-assembly
 - Reflow solderable
- Maximum flexibility
 - Extensively configurable
 - Integration of user application software
- Fully EMI shielded
- Passive and active antenna support

Features

- 16 channel GPS receiver
- 8192 simultaneous time-frequency search bins
- 4 Hz position update rate
- ANTARIS Positioning Engine
 - ATR0600 RF front-end IC
 - ATR0620 Baseband IC with ARM7TDMI inside
 - ATR0610 Low noise amplifier IC
- FLASH memory
- DGPS and SBAS (WAAS, EGNOS) support
- FixNOW™ power saving mode
- Operating voltage 2.7 to 3.3 V
- Battery supply pin for internal backup memory and real time clock
- Industrial operating temperature range -40 to 85°C
- Small size: 25.4 x 25.4 x 3 mm, weight: 3g

Support Products

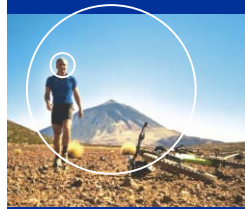
ANTARIS EvalKit

Use the ANTARIS Evaluation Kit (EvalKit) to experience the power of TIM-LP.

ANTARIS SCKit

The ANTARIS Software Customization Kit (SCKit) enables you to implement your own code on TIM-LP.

*your position
is our focus*



Specifications

Receiver Performance Data

Receiver Type	16 channel, L1 frequency, C/A code
Max. Update Rate	4 Hz
Accuracy	Position 2.5 m CEP DGPS / SBAS 2.0 m CEP ¹
Start-up Times	Hot start <3.5 sec Warm start 33 sec Cold start 34 sec Aided start 5 sec
Signal reacquisition	< 1 s
Sensitivity	Acquisition -140 dBm Tracking -149 dBm
Timing Accuracy	RMS 50 ns 99% <100 ns
Dynamics	< 4 g
Operational Limits	COCOM restrictions apply

¹ Depends on accuracy of correction data of DGPS or SBAS service

Electrical Data

Power Supply	2.7 – 3.3 V
Power Consumption	typ. 168 mW @ 3.0 V typ. 151 mW @ 2.7 V Sleep mode: typ. 2000 µA
Backup Power	1.95 V – 3.6 V
Serial Ports	Two USARTs @ 3 V levels
Digital IOs	TIMEPULSE @ 3 V
Protocols	NMEA, UBX binary, RTCM Interleaving multiple protocols via same serial interface is supported
Interface	30 pin leadless chip carrier, reflow solderable
Antenna Power	External or Internal VCC_RF
Antenna Supervision	Integrated short-circuit detection and antenna shutdown Open circuit detection is supported with little external circuitry

Available Resources ²

Processor	ARM7 @ 23MHz 3.75 – 9 MIPS ³ @ 1Hz Navigation update
Memory	FLASH 1 MB SRAM 8 kB
Interfaces	SPI @ 3 V
Digital IOs	8 GPIOs @ 3 V

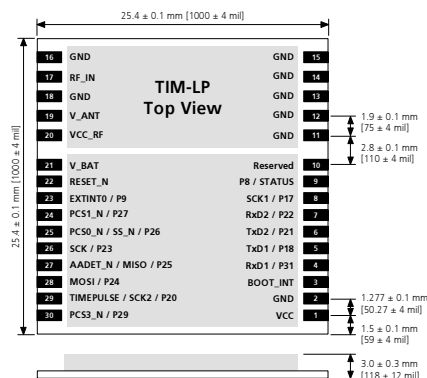
² For use with TIM-LP-9 (8 Mbit version). ANTARIS SCKit is required.

³ "VAX MIPS", calculated using Dhrystone, available for user code

Environmental Data

Operating Temp.	-40°C to 85°C
Storage Temp.	-40°C to 125°C
Vibration	5 Hz to 500 Hz, 5g (IEC 68-2-6)
Shock	Half sine 30g / 11ms (DIN 40046-7)

Mechanical Data



Ordering Information

TIM-LP-0-000-0	TIM-LP - GPS Receiver Module
	Delivery Packing 0 = Single samples 1 = Tape on reel (100 pieces) 5 = Tape on reel (500 pieces)
AEK-LS-0-000-0	ANTARIS EvalKit - Evaluation Kit
ASK-LS-0-000-0	ANTARIS SCKit - Software Customization Kit

Parts of this product are patent protected.

u-blox AG
Zuercherstrasse 68
8800 Thalwil
Switzerland
www.u-blox.com

Phone +41 1722 7444
Fax +41 1722 7447
info@u-blox.com

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