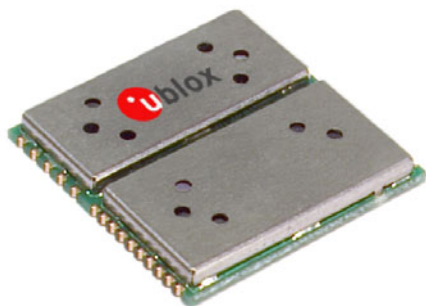




TIM-LP

GPS Receiver Macro Component ANTARIS™ Positioning Engine

The TIM-LP is an ultra-low power GPS receiver macro component. Based on the ANTARIS™ GPS positioning engine jointly developed by Atmel and u-blox, it offers excellent GPS performance. The TIM-LP can run custom applications on the on-board processor and offers two 3V serial ports and a set of configurable 3V input / output ports. With its innovative packaging technology the TIM-LP GPS receiver is the ideal solution for a broad range of high-volume applications.



Overview

The TIM-LP GPS receiver macro component is another milestone in the miniaturization of GPS receiver modules. Innovative packaging technology has opened the door for a thin and compact GPS receiver unique to the market. The TIM-LP macro component is SMT solderable and can be handled by standard pick-and-place equipment. This allows a fully automatic assembly process. The height of 3mm (~120mil) and the size of 25.4 x 25.4 mm (1" x 1") make it the ideal GPS solution for applications with stringent space requirements.

Benefits

- Fully self-contained GPS receiver (PVT output)
- Ultra-low power consumption
- Excellent GPS performance
 - Excellent navigation accuracy
 - Fast Time-to-first-fix
- Macro component
 - Very compact design
 - Automatic pick and place assembly
 - Reflow solderable
- High Flexibility:
 - Extensively configurable
 - Integration of custom application code

- Fully EMI shielded
- Immune to RF interference
- Passive and active antenna support

Features

- 16 channel GPS receiver
- 8192 simultaneous time-frequency search bins
- 4 Hz position update rate
- Based on the ANTARIS™ GPS Technology
 - ATR0600 RF front-end IC
 - ATR0620 Baseband IC with integrated ARM7TDMI
 - ATR0610 Low noise amplifier IC
- 8 MBit FLASH memory
- Available resources for custom applications
 - SRAM
 - FLASH
 - GPIOs
 - SPI
 - CPU power
- FixNOW™ power saving mode ideally suited for mobile and battery-driven tracking applications
- Operating voltage 2.7...3.3 V
- Battery supply pin for internal backup memory and real time clock
- Industrial operating temperature range -40...85°C
- Small size
 - Size 25.4mm x 25.4mm
 - Height 3mm
 - Weight 3g

Support Products

ANTARIS™ EvalKit

Use the ANTARIS™ EvalKit to experience the power of TIM-LP.

ANTARIS™ Software Customization Kit

The ANTARIS™ Software Customization Kit (SCKit) enables you to implement your own code on TIM-LP. The Application Link Layer (ALL) of the ANTARIS™ GPS software offers a powerful API (Application Programmer's Interface) for fast and safe integration of your application code.

*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	3 m CEP
	DGPS	2 m CEP ¹
Start-up Times	Hot start	3.5 sec
	Warm start	33 sec
	Cold start	41.5 sec
Signal reacquisition	< 1 s	
Timing Accuracy	max. 100 ns typ. 50 ns (RMS)	
Dynamics	< 4 g	
Operational Limits	COCOM restrictions apply	

¹ Depending on accuracy of correction data

For more detailed information on the GPS performance check the *TIM-LP Data Sheet*.

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. 1.6 mA
Backup Power	1.95 V – 3.6 V
Serial Ports	Two USARTs @ 3 V levels
Digital IOs	TIMEPULSE @ 3 V
I/O Protocols	NMEA input/output UBX binary input/output RTCM in
	Interleaving multiple protocols via same serial interface is supported

Interface 30 pin leadless chip carrier, reflow solderable

Antenna Power External

Antenna Supervision Integrated short-circuit detection and antenna shutdown

Open circuit detection is supported with little external circuitry

Available Resources²

Processor	ARM7 @ 23MHz 3.75 – 9 MIPS ³ @ 1Hz Navigation update	
Memory	FLASH	500kB
	SRAM	8kB
Interfaces	SPI @ 3 V	
Digital IOs	10 GPIOs @ 3 V	

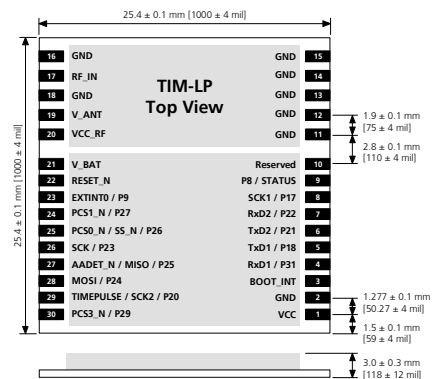
² To use these resources, the ANTARIS™ SCKit is required

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

Environmental Data

Operating Temperature	-40°C to 85°C
Storage Temperature	-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 Macro Component Single Samples
TIM-LP-0-000-1	TIM-LP - GPS Receiver Macro Component Tape on reel 100pcs
TIM-LP-0-000-5	TIM-LP - GPS Receiver Macro Component Tape on reel 500pcs
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.

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