



## LEA-LA

### GPS Receiver Module

### ANTARIS® Positioning Engine

LEA-LA measures only 17 x 22.4 mm and is about half the area of the previously available modules. LEA-LA is u-blox' first module in the new industry standard form factor. It contains the ANTARIS positioning engine, and a built-in low noise amplifier to support passive and active antennas. This latest miniaturization step and the cost-efficient FLASH-less architecture inside enable applications where small size, low cost and design simplicity are the decisive criteria.



#### Overview

The leading ANTARIS GPS Engine, 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 time/frequency 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.

#### Leadership in Miniaturization

While the traditional TIM form factor has become a widely accepted industry standard, the next integration step, measuring just 17 x 22 mm, allows much higher flexibility in the integration of a GPS receiver in small consumer and professional devices. 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
- No FLASH EPROM inside
  - Independence from memory market and price fluctuations
- Highly integrated module
  - Automatic pick-and-place assembly
  - Reflow solderable
- Maximum flexibility
  - Extensively configurable
  - Boot-time configuration pins
- Fully EMI shielded
- Passive and active antenna support

#### Features

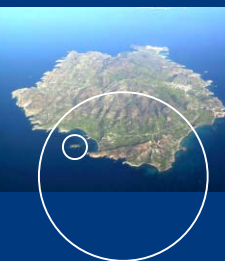
- 16 channel GPS receiver
- 8192 simultaneous time-frequency search bins
- 4 Hz position update rate
- ANTARIS Positioning Engine
  - ATR0600 RF front-end IC
  - ATR0620 Baseband IC with ARM7TDMI inside
  - ATR0610 Low noise amplifier IC
- DGPS and SBAS (WAAS, EGNOS) support
- FixNOW™ power saving mode
- 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: 17.0 x 22.4 x 3 mm

#### Support Products

##### ANTARIS EvalKit

Use the ANTARIS EvalKit to experience the power of LEA-LA.

*your position  
is our focus*



## Specifications

### Receiver Performance Data

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

**Dynamics** < 4 g

**Operational Limits** COCOM restrictions apply

<sup>1</sup> Depends on accuracy of correction data of DGPS or SBAS service

### Electrical Data

<b>Power Supply</b>	2.7 – 3.3 V
<b>Power Consumption</b>	typ. 150 mW @ 3.0 V typ. 135 mW @ 2.7 V  Sleep mode: typ. 100 µA
<b>Backup Power</b>	1.95 V – 3.6 V
<b>Serial Ports</b>	2 UARTs @ 3 V levels 5V TTL compatible input
<b>Digital IOs</b>	TIMEPULSE
<b>Protocols</b>	NMEA, UBX binary, RTCM  Interleaving multiple protocols via same serial interface is supported

**Interface** 28 pin leadless chip carrier, reflow solderable

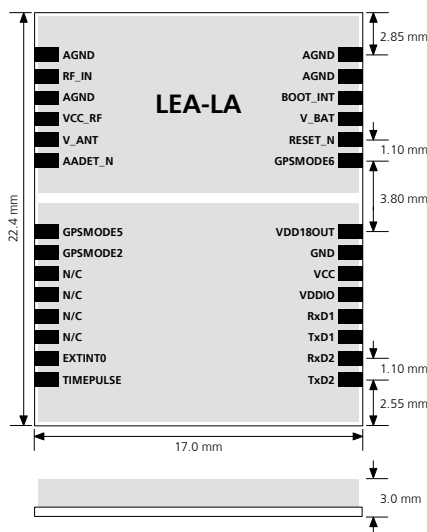
**Antenna Power** External or Internal VCC\_RF

**Antenna Supervision** Provided with little external circuit

### Environmental Data

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

### Mechanical Data



### Ordering Information

**LEA-LA-0-000-0** LEA-LA- GPS Receiver Module

**Delivery Packing**  
**0** = Single samples  
**1** = Tape on reel (100 pieces)

**AEK-LS-0-000-0** ANTARIS EvalKit - Evaluation Kit

Parts of this product are patent protected.

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