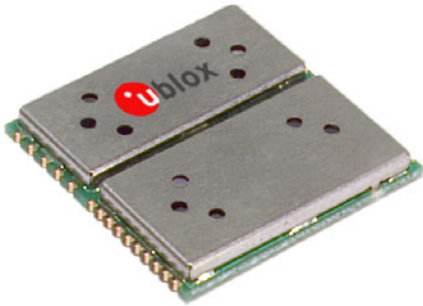




# TIM

## GPS Receiver Macro Component SiRFstar™ II Positioning Engine

TIM is a fully self-contained low-cost GPS receiver based on the SiRFstar™ II GPS technology. With its innovative packaging technology the TIM GPS receiver is the ideal solution for high volume application with stringent, minimal space requirements. The integrated data logger allows storing GPS data on the receiver.



### Overview

The TIM 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 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.

TIM provides two serial ports, which can handle NMEA or SiRF® proprietary data format or accept differential GPS data (RTCM). The integrated data logging function stores up to 100'000 logs on the internal FLASH memory.

Operating at a nominal operating voltage of 3.3 Volts, the module consumes less than 0.5 Watts in continuous operation mode. The implementation of the TricklePower™ mode allows a considerable reduction of power consumption for applications where power consumption is of primary concern.

### Benefits

- Fully self-contained GPS receiver (PVT output)
- Low power consumption
- Excellent GPS performance
  - Fast time-to-first-fix
- Macro component
  - Very compact design
  - Automatic pick and place assembly
  - Reflow solderable
- Supports Satellite Based Augmentation Systems (SBAS)
- Integrated data logging
- Fully EMI shielded
- Passive and active antenna support
- Immune to RF interference

### Features

- 12 channel GPS receiver
- 1 Hz position update rate
- SiRFstar™ II architecture
  - GRF2i RF front-end IC
  - GSP2e GPS DSP with integrated Real Time Clock
- 8 MBit FLASH memory
- Low noise amplifier
- Power management features
  - TricklePower™ mode
  - Push-to-Fix™ mode
- Operating voltage 2.75 ... 3.45 V
- Battery voltage 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

#### TIM Evaluation Kit

Use the TIM Evaluation Kit to experience the power of TIM.

*your position  
is our focus*



## Specifications

### Receiver Performance Data

<b>Receiver Type</b>	12 channel, L1 frequency, C/A code
<b>Max. Update Rate</b>	1 Hz
<b>Accuracy</b>	Position 4 m CEP DGPS 2 m CEP 1
<b>Start-up Times</b>	Hot start 2-8 s Warm start 38 s Cold start 45 s
<b>Signal reacquisition</b>	100 ms
<b>Dynamics</b>	< 4 g
<b>Operational Limits</b>	COCOM restrictions apply

<sup>1</sup> Depending on accuracy of correction data

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

### Electrical Data

<b>Power Supply</b>	2.75 – 3.45 V
<b>Power Consumption</b>	< 160 mA (continuous)
<b>Power Save Modes</b>	10 mA (8s update rate) 50 mA (1s update rate)
<b>Backup Power</b>	1.85 V – 3.6 V, 4.5 $\mu$ A
<b>Serial Ports</b>	Two UARTS @ 3.3 V levels (CMOS / TTL compatible)
<b>Digital IOs</b>	1PPS @ 3.3 V (1 Pulse Per Second)
<b>I/O Protocols</b>	NMEA input/output SiRF <sup>®</sup> binary input/output RTCM in
<b>Interface</b>	30 pin leadless chip carrier, reflow solderable
<b>Antenna Power</b>	External

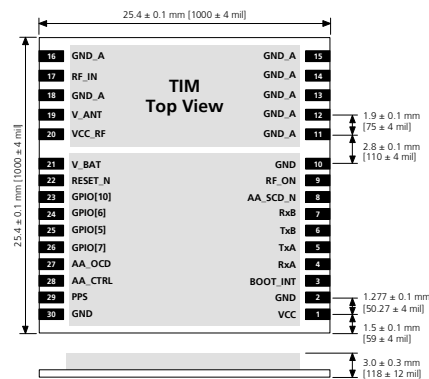
### Datalogger

<b>Capacity</b>	Max. 100K position logs
<b>Logged Parameters</b>	Position, velocity, time, GPS status, state of 4 GPIOs
<b>Configuration</b>	Serial protocol messages
<b>Download</b>	Compressed format, serial
<b>Logging Events</b>	Time intervals, distance, external events via GPIOs

### Environmental Data

<b>Operating Temperature</b>	-40°C to 85°C
<b>Storage Temperature</b>	-40°C to 125°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

<b>TIM-ST-0-000-0</b>	TIM GPS Receiver Macro Component Single Samples
<b>TIM-ST-0-000-1</b>	TIM GPS Receiver Macro Component Tape on reel 100pcs
<b>TIM-ST-0-000-5</b>	TIM GPS Receiver Macro Component Tape on reel 500pcs
<b>TEK-ST-0-000-0</b>	TIM Evaluation Kit

Parts of this product are patent protected.

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