

# TIM-5H

## u-blox 5 GPS Receiver

### Product description

The TIM-5H module brings the high performance of the u-blox5 positioning engine to the popular and proven TIM form factor. This full-feature and highly flexible GPS receiver is ideal for upgrading existing designs based on this industry standard form factor.



25.4 x 25.4 x 3 mm

### Highlights

- 50-channel u-blox5 engine with over 1 million effective correlators
- < 1 second Time-To-First-Fix for Hot and Aided Starts
- -160 dBm SuperSense® acquisition and tracking sensitivity
- Accelerated startup at weak signals with KickStart feature
- A-GPS: Supports u-blox AssistNow Online and Offline, OMA SUPL compliant
- High immunity to jamming
- Hybrid GPS, GALILEO and SBAS (WAAS, EGNOS, MSAS, GAGAN) engine
- 2 Hz position update rate
- Easy migration from TIM-4 modules
- GALILEO ready
- RoHS compliant

### Features

Serie	Power	Size	Memory	Function	Antenna	Input / Output
	Voltage range [V]	Thickness [mm]	Programmable (Flash) FW update	Power Save mode KickStart Dead Reckoning Raw data Precision Timing	Antenna supply Antenna supervisor	UART USB SPI DDC (I <sup>2</sup> C compliant) Reset input Configuration pin
TIM-5H	2.7 - 3.6	3	•	• •	• •	2 •

## Mechanical data

TIM-5H Top View			
16	GND	GND	15
17	RF_IN	GND	14
18	GND	GND	13
19	V_ANT	GND	12
20	VCC_RF	GND	11
21	V_BCKP	VCC_OUT	10
22	RESET_N	Reserved	9
23	EXTINT0	Reserved	8
24	Reserved	RxD2	7
25	Reserved	TxD2	6
26	Reserved	TxD1	5
27	AADET_N	RxD1	4
28	Reserved	Reserved	3
29	TIMEPULSE	GND	2
30	Reserved	VCC	1

Dimensions  
25.4 x 25.4 x 3 mm

Weight  
3 g

## Electrical data

Power supply	2.7 to 3.6V
Power consumption	69 mW @ 3.0V Power Save mode 135 mW @ 3.0V Eco mode 141 mW @ 3.0V Max. Performance mode
Backup power	1.4 V to 3.6 V, 25 µA
Antenna type	Active and passive
Antenna power	External or internal VCC_RF
Antenna supervision	Integrated short-circuit detection and antenna shutdown, open circuit detection is supported with AADET_N input and little external circuitry

## Interfaces

Serial ports	2 UARTs
Digital I/O	Configurable time pulse 1 EXTINT input
Serial and I/O voltages	2.7 to 3.6V
Protocols	NMEA, UBX binary

## Ordering information

TIM-5H-0 Progr. u-blox 5 GPS Module with KickStart

Available as samples and tape on reel (100 pieces)

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## Receiver performance data

Receiver type	50-channel u-blox5 engine GPS L1 C/A code GALILEO L1 Open Service (with upgrade) SBAS: WAAS, EGNOS, MSAS, GAGAN	
Max. update rate	2 Hz	
Accuracy <sup>1</sup>	Position	2.5 m CEP
	SBAS	2.0 m CEP
Acquisition <sup>1</sup>	Cold starts:	29 s
	Warm starts:	29 s
	Aided starts <sup>2</sup> :	< 1 s
	Hot starts:	< 1 s
Sensitivity <sup>3</sup>	Acquisition:	-160 dBm
	Tracking:	-160 dBm
	Cold starts:	-144 dBm
Timing accuracy	RMS	30 ns
	99%	< 60 ns
	Granularity	21 ns
Time pulse	Configurable	0.25 to 1000 Hz
Multipath suppression	Intelligent multipath detection and suppression	
A-GPS	Supports AssistNow Online and AssistNow Offline, OMA SUPL compliant	
Operational limits	Velocity:	500 m/s (972 knots)
	Altitude:	50,000 m
Operating temp.	-40° C to 85° C	
Storage temp.	-40° C to 85° C	

<sup>1</sup> All SV @ -130 dBm

<sup>2</sup> Dependent on aiding data connection speed and latency

<sup>3</sup> Demonstrated with a good active antenna

## Support products

EVK-5H	u-blox5 Evaluation Kit with KickStart suitable for: TIM-5H
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