



LEA-5 Module Series

u-blox 5 GPS and GALILEO Receivers

Preliminary Data

Overview

The LEA-5 module series brings the high performance of the u-blox 5 positioning engine to the industry standard LEA form factor. These versatile, stand-alone receivers combine an extensive array of features with flexible connectivity options. Their ease of integration results in fast times-to-market for a wide range of automotive, consumer and industrial applications with strict size and cost requirements.



22.4 x 17.0mm

*your position
is our focus*



Highlights

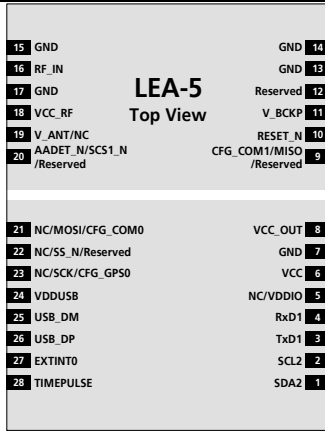
- 50-channel u-blox 5 engine with over 1 million effective correlators
- <1 second Time To First Fix for Hot and Aided Starts
- -160dBm SuperSense[®] sensitivity
- Accelerated startup at weak signals with KickStart feature
- Up to four serial interfaces: 1 UART, 1 USB, 1 DDC (I2C compliant), 1 SPI (where available)
- Supports AssistNow Online and AssistNow Offline A-GPS services; OMA SUPL compliant
- High immunity to jamming
- Hybrid GPS, GALILEO and SBAS (WAAS, EGNOS, MSAS, GAGAN) engine
- 4 Hz position update rate
- Easy migration from LEA-4 modules
- RoHS compliant

Features

	Power	Size	Memory	Function				Antenna		Input / Output						
	Voltage Range (V)	Thickness (mm)	Programmable (Flash)/FW Update	Low Power Modes	KickStart	Dead Reckoning	Raw Data	Precision Timing	Antenna Supply	Antenna Supervisor	UART	USB	SPI	DDC (I ² C compliant)	Reset Input	Configuration Pin
LEA-5H	2.7-3.6	3	•	P	•				•	•	1	1		1	•	
LEA-5S				P	•				•	•	1	1		1	•	1
LEA-5A				P						•	•	1	1		1	•
LEA-5Q		2.4		P	•						1	1	•	1	•	3
LEA-5M				P							1	1		1	•	2

P= Planned

Mechanical Data



Dimensions 22.4mm x 17.0mm
Weight 2.1 g

Receiver Performance Data

Receiver Type 50-channel u-blox 5 engine
 GPS L1 C/A code
 GALILEO L1 Open Service (with upgrade)
 SBAS: WAAS, EGNOS, MSAS, GAGAN

Max. Update Rate 4 Hz

Accuracy¹ Position 2.5 m CEP
 SBAS 2.0 m CEP

Acquisition¹

	LEA-5H/5S/5Q	LEA-5A/5M
Cold starts:	29 s	32 s
Warm starts:	29 s	32 s
Aided starts ² :	<1 s	<1 s
Hot starts:	<1 s	<3 s

Sensitivity³

	LEA-5H/5S/5Q	LEA-5A/5M
Tracking:	-160 dBm	-160 dBm
Reacquisition:	-160 dBm	-160 dBm
Cold starts:	-144 dBm	-143 dBm

Timing Accuracy RMS 30 ns
 99% <60 ns
 Granularity 21 ns

Time Pulse Configurable 0.25 to 1000 Hz

A-GPS Supports AssistNow Online and AssistNow Offline, OMA SUPL compliant

Operatl. Limits Velocity: 515 m/s (1000 knots)

Operating Temp. -40°C to 85°C

Storage Temp. -40°C to 85°C

¹ All SV @ -130 dBm

² Dependent on aiding data connection speed and latency

³ Demonstrated with a good active antenna

Interfaces

Serial Interfaces 1 UART
 1 USB V2.0 Full Speed 12 Mbit/s
 1 DDC (I²C compliant)
 1 SPI

Digital I/O Configurable time pulse
 1 EXTINT input
 1 Reset
 1 Configuration Pin (LEA-5A, LEA-5S)

Serial and I/O Voltages 2.7 to 3.6 V

Protocols NMEA, UBX binary

Electrical Data

Power Supply 2.7 to 3.6 V

Power Consumption⁴ 120 mW @ 3.0V Eco Mode
 129 mW @ 3.0V Max. Performance Mode

Backup Power 1.4 V to 3.6 V, 25µA

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

⁴ LEA-5A/M

Support Products

u-blox 5 Evaluation Kits

Evaluation Kit Suitable for

EVK-5H: u-blox 5 Evaluation Kit with KickStart LEA-5H, LEA-5S, LEA-5Q

EVK-5P: u-blox 5 Evaluation Kit with SuperSense® LEA-5A, LEA-5M

Ordering Information

LEA-5H-0 LEA-5H – u-blox 5 GPS/GALILEO Module

LEA-5S-0 LEA-5S – u-blox 5 GPS/GALILEO Module

LEA-5A-0 LEA-5A – u-blox 5 GPS/GALILEO Module

LEA-5Q-0 LEA-5Q – u-blox 5 GPS/GALILEO Module

LEA-5M-0 LEA-5M – u-blox 5 GPS/GALILEO Module

Available as samples and tape on reel (250 pieces)

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