FURUNO

DATASHEET

FURUNO GPS Receiver

GV-84H

(Document No.G09-000-34-160-0)

Preliminary

FURUNO ELECTRIC CO., LTD.

www.furuno.co.jp

The Global Positioning System (GPS) is operated by the U.S.DoD and is subject to U.S Government Selective Availability (SA) policy, thus FURUNO is not liable for the degradation by SA. User is expected to be familiar with the System and make full use of it with their own responsibility.

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Preliminary Data Sheet

Revision History

Version	Contents Change	Date
0	Initial Release	2009.11.XX

Table of contents

1 OUTLINE

This document describes specifications of GV-84H.

2 FEATURES

- Dead Reckoning function with inertial sensors on board
- Built in Patch Antenna
- Supports GPS L1 band (1575.42 MHz) C/A code
- Highest indoor tracking sensitivity of -155dBm its on board passive antenna
- 1Hz NMEA update rate
- Compatible with Pb-free solder processing
- Single power supply: VCC DC3.3V (typ)
- Module Size: is 15 x 64 x 5.6mm(Not included projection)
- Operating temperature : -30 to +85℃

3 FUNCTIONAL BLOCK DIAGRAM

The following functional overview is based on the block diagram in Figure 3.1.
GV-84H has two main function blocks, which is GPS and Sensor.
Sensor block includes one-axis Gyro and three-axis Acceleration sensor.

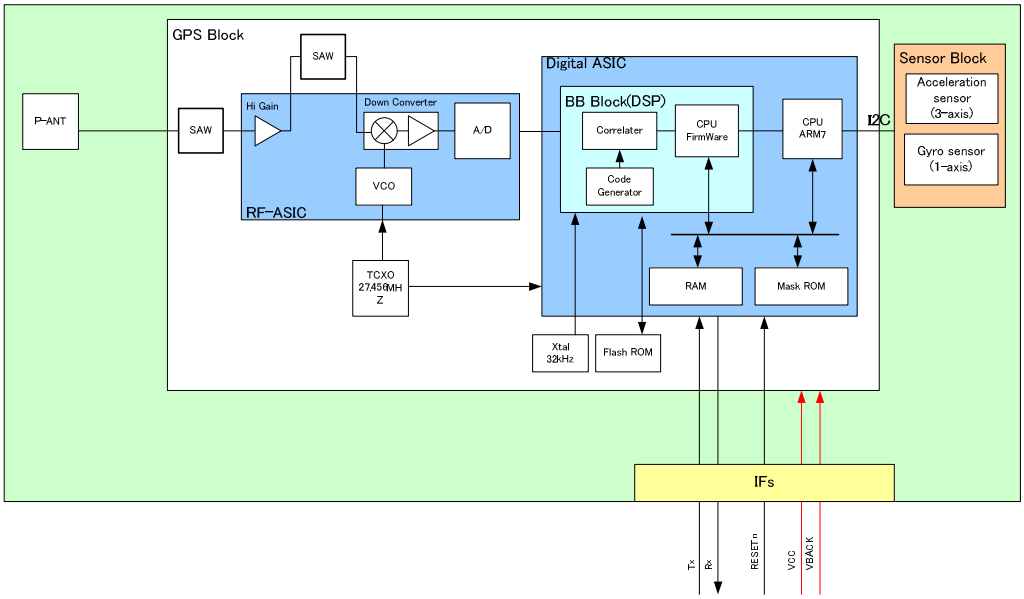


Figure 3.1 Block Diagram

4 GENERAL SPECIFICATIONS

Item		Condition	Specifications
Receiving Signal		-	L1 C/A Code
Tacking satellites		-	12ch
Position Update Rate		-	1Hz
TTFF	Hot Start	-130dBm	3sec (typ)
	Warm Start	-130dBm	34sec (typ)
	Cold Start	-130dBm	45sec (typ)
Sensitivity	Tracking	**TBD**	-155dBm typ
Accuracy of DR*)	Position Accuracy (2σ)	1) Calibration Driving at 60km/h on flat road with DR function after more than 5 minutes traveling under the open sky. 2) Installation Horizontal: within ±5 degree of the line of travel.	After 10 sec GPS outage: 5[m] After 1 min GPS outage: 180[m]
	Course/Azimuth accuracy (2σ)		0.05[°/sec] x GPS outage [sec]
	Velocity Accuracy(2σ)		0.1[m/sec/sec] x GPS outage [sec]
Measurement availability		With DR function	100%
Measurement continuity		With DR function	100%
Setting angle	Horizontal plane		+-15°
	Vertical plane		+-15°

Notes: *)This specification is in case of without GPS signal.

Kommentar [I1]: Hot Start 3sec???

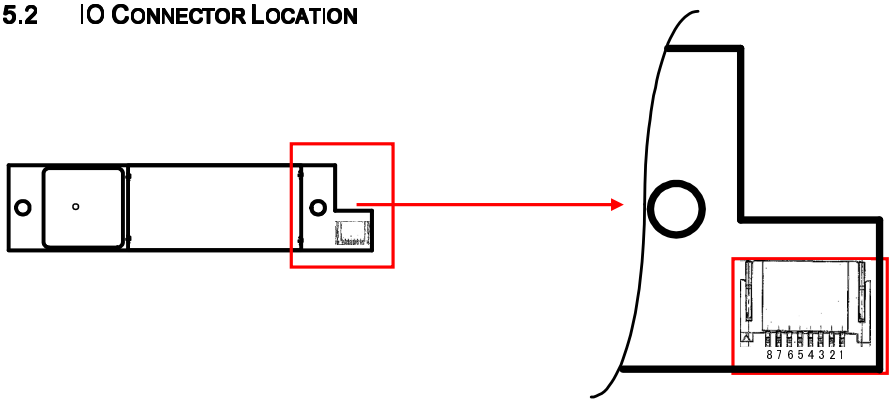
Kommentar [I2]: -155dBm の根拠は？ この信号レベルは、どこでの定義か？

5 IO SIGNAL PIN DESCRIPTION

5.1 IO PIN ASSIGNMENT

PIN #	NAME	I/O	Functions	Internal Connection
1	Tx	O	Serial data output	-
2	Rx	I	Serial data input	Pull-up
3	RESETn	I	External power on reset	Pull-up
4	VBCK	-	Back-up power supply	-
5	GND	-	Ground	-
6	VCC	-	3.3V Main power supply	-
7	RESERVED1	I	Internal use only. To be Connected GND.	Pull-down
8	RESERVED2	I	Internal use only. To be Connected GND.	Pull-down

5.2 IO CONNECTOR LOCATION



(Top of view)

Connector type: IMSA-9690S-08Y902 (IRISO Electronics Co.,LTD).

Socket type :

-FPC/FFC SOCKET (Non-ZIF)

-Pitch size: 0.50mm

6 ELECTRICAL CHARACTERISTICS

This section provides the absolute maximum ratings and the recommended operating conditions for the GV-84H. All electrical and switching characteristics in this data sheet are valid over the recommended operating conditions unless otherwise specified.

6.1 ABSOLUTE MAXIMUM RATING

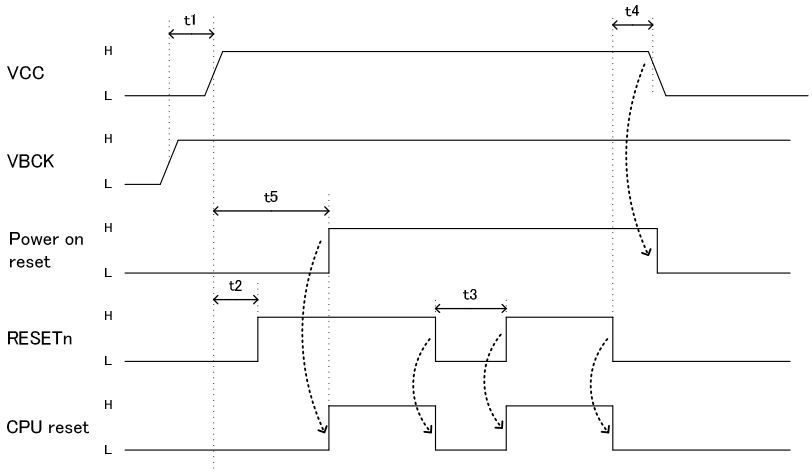
The lists of absolute maximum ratings are specified over operating temperature. Stresses beyond those listed under “absolute maximum ratings” may cause permanent damage to GV-84H.

Items	Symbol	Min	MAX	Unit
Antenna input	-	-	10	dBm
Power supply voltage	VCC	-0.3	3.65	V
	VBCK	-0.3	3.65	V
DC input voltage	Rx	-0.3	3.65	V
	RESETn	-0.3	3.65	V
DC output current	Tx	-	7	mA

6.2 DC CHARACTERISTICS

Items	Symbol	Condition	Min	Typ	Max	Unit	Notes
Input supply voltage	VCC	-	3.0	3.3	3.6	V	
	VBCK	-	1.8	3.3	3.6	V	
Current Consumption	ICC	-	-	**TBD**	**TBD**	mA	
	IBCK	@VCC=0V	-	10	**TBD**	uA	
Output voltage	V_{OH}	$\|I_{OH}\|$=2mA	2.7	-	-	V	
	V_{OL}	$\|I_{OL}\|$=2mA	-	-	0.3	V	
Input voltage	V_{IH}		2.0	-	-	V	
	V_{IL}		-	-	0.8	V	

6.3 POWER ON/OFF SEQUENCE



Parameter	Description	Min	Typ	Max.	Unit	Notes
t1	Time allowed to turn on VCC after turning on VBAK.	0	-	-	s	
t2	Time necessary to assert RESETn "L" after turning on VCC.	0	-	-	ms	
t3	Time necessary to assert RESETn "L".	100	-	-	us	When RESETn is asserted less than 100us, RESETn can be ignored.
t4	Time necessary to assert RESETn "L" before turning off VCC.	0	-	-	s	
t5*)	Time necessary to negate power-on reset after turning on VCC.	-	-	1	s	t1<1s
		-	16	20	ms	t1>1s

Notes :*)

GV-84H has power-on reset circuit with delay function built-in. This power-on reset signal and RESETn signal driven by external device are connected to OR-gate input, and the output drives CPU reset internally. When both power-on reset and RESETn are negated internal CPU reset is negated, and GV-84H starts operation . The delay time of power-on reset is made by RTC counter .The delay time depens on the VBCK power supply as below.

【In case of t1>1s】

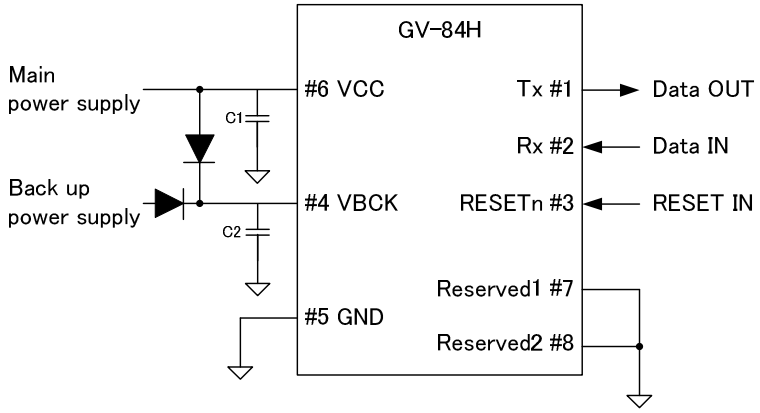
Since RTC is stable at one second or more after VBCK is supplied, the power-on reset is negated in 16ms(typ) after turning on VCC.

【In case t1<1s】

Since the delay occurs until RTC starts to oscillate, the power-on reset is negated in 1s (max) after turning on VCC.

7 SYSTEM REQUIREMENT

7.1 RECOMMENDED CIRCUIT



* C1: over 10 micro F
* C2: over 10 micro F

8 MECHANICAL SPECIFICATIONS

8.1 PACKAGE OUTLINE

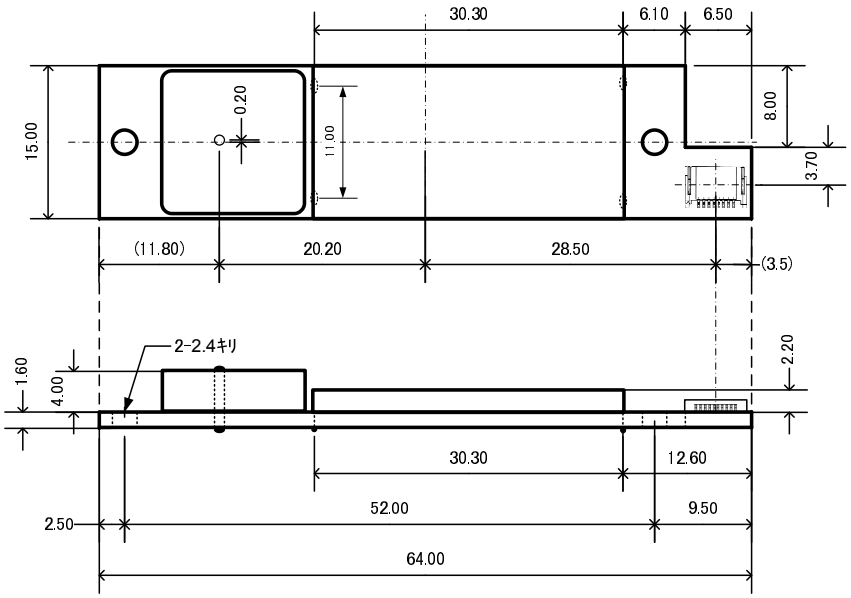


Figure 8.1 External Views

8.2 RECOMMENDED DIMENSION(FEC/FPC)

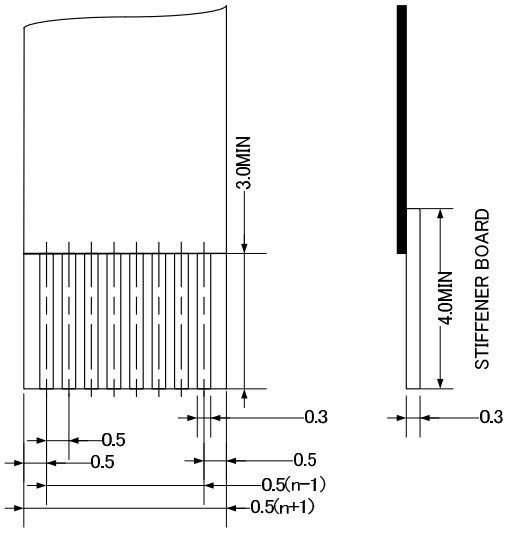


Figure 8.3 External Views (FEC/FPC)

9 ENVIRONMENTAL SPECIFICATIONS

Item	Specification	Unit	Notes
Operating Temperature	-30 to +85	°C	
Storage temperature	**TBD** to **TBD**	°C	
Operation humidity	**TBD**	%R.H	

10 RELIABILITY TESTS

TBD

11 PRODUCT HANDLING

11.1 LABEL INFORMATION

TBD

Figure 11.1 Label Information

11.2 PACKAGE AND DELIVERY

TBD

Figure 11.4 Package & Delivery

11.3 SHIPMENT

TBD

11.4 STORAGE

TBD

11.5 ESD HANDLING CAUTIONS

TBD

11.6 RoHS COMPLIANCE

TBD

12 RELATED DOCUMENT

- Protocol Specifications

TBD

- Hardware Design Support Manual

TBD

13 CONTACT

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