LOCOSYS

Product name	Description	Version
RTK-1010-SB	Single-frequency multi-constellation GNSS RTK module	0.1

1 Introduction

RTK-1010-SB is a high-performance single-frequency GNSS RTK module that designed for applications requiring centimeter level positioning accuracy. It adopts 12 nm process and integrates efficient power management architecture to perform low power and high sensitivity. The module supports concurrent reception of GPS/QZSS, GLONASS, GALILEO, BEIDOU and NAVIC to improve the availability and reliability of RTK solution even in the harsh environment.

2 Features

- Single-frequency and multi-constellation RTK positioning solution
- Support GPS/QZSS, GLONASS, GALILEO, BEIDOU and NAVIC
- Capable of SBAS (WAAS, EGNOS, MSAS, GAGAN)
- Support 75-channel GNSS
- Low power consumption
- Fast TTFF at low signal level
- Small form factor 10.1 x 9.7 x 2.2 mm
- SMD type with stamp holes; RoHS compliant

3 Application

- Precision Agriculture
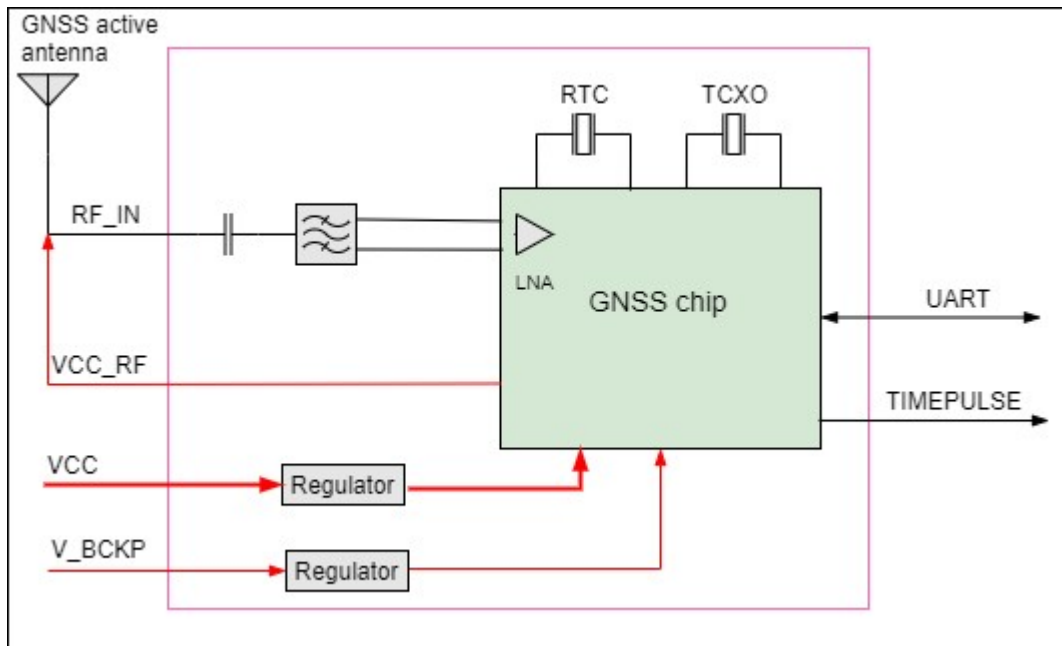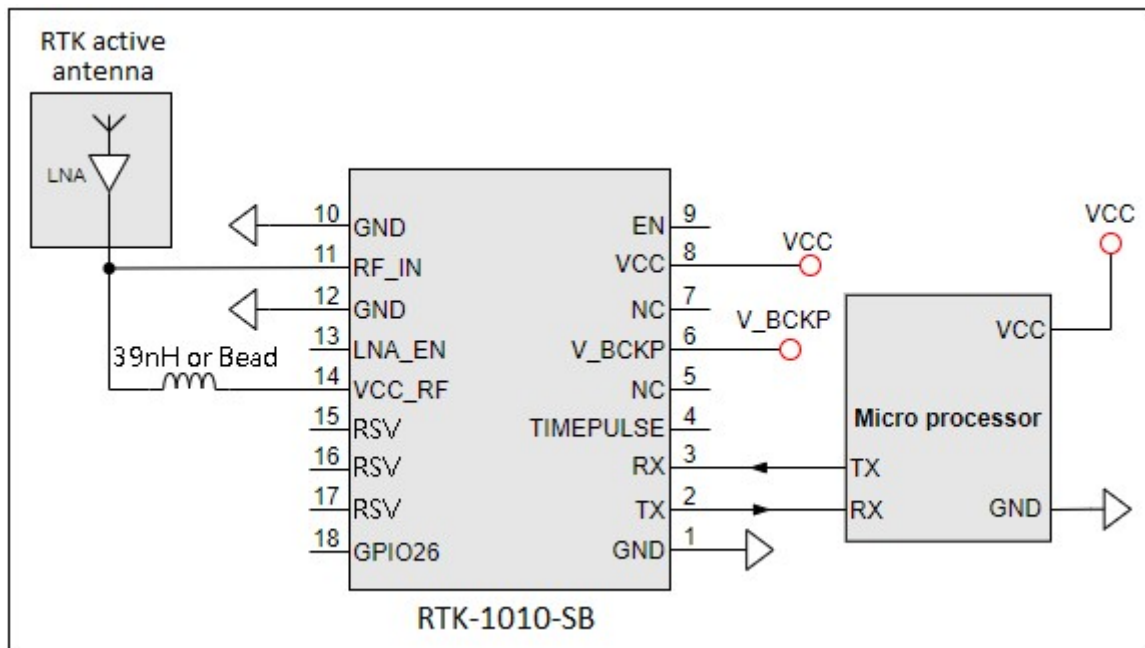- Structural / Land Monitoring
- Offshore / Marine Application

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Fig 3-1 System block diagram.

Fig 3-2 Typical application circuit that uses an active antenna.

4 GNSS receiver

Frequency	GPS/QZSS: L1 C/A GLONASS: L1OF GALILEO: E1 BEIDOU: B1I IRNSS (NAVIC): L5	
Channels	Support 75 channels	
Update rate	1Hz, 5Hz	
Sensitivity	Tracking	-165dBm (with external LNA)
	Cold start	-148dBm (with external LNA)
Acquisition Time	Cold start	28s (typical)
	RTK convergence time	< 10s (typical, after 3D fix)
Position Accuracy [1]	Autonomous	2.5m CEP
	RTK	0.01m + 1ppm CEP (Horizontal)
Max. Altitude	< 18,000 m	
Max. Velocity	< 500 m/s	
Protocol Support	NMEA 0183 ver. 4.1	115200 bps [2], 8 data bits, no parity, 1 stop bits (default) 1Hz: GGA, GLL, GSA, RMC, VTG 0.2Hz: GSV
	Raw data	RTCM3.3 Message type 1005, 1074, 1084, 1094, 1114, 1124

Note 1: Open sky, demonstrated with a good antenna.

Note 2: Both baud rate and output message rate are configurable to be factory default.