

Features

- Reliable/continuous navigation system
- 16-channel high performance GPS receiver
- Automatic DR calibration
- Using GPS, odometer, reverse signal and gyroscope
- MEMS gyroscope contained (Inclined angle : 20 degrees)
- Fast start-up
- Low power consumption
- Compact package

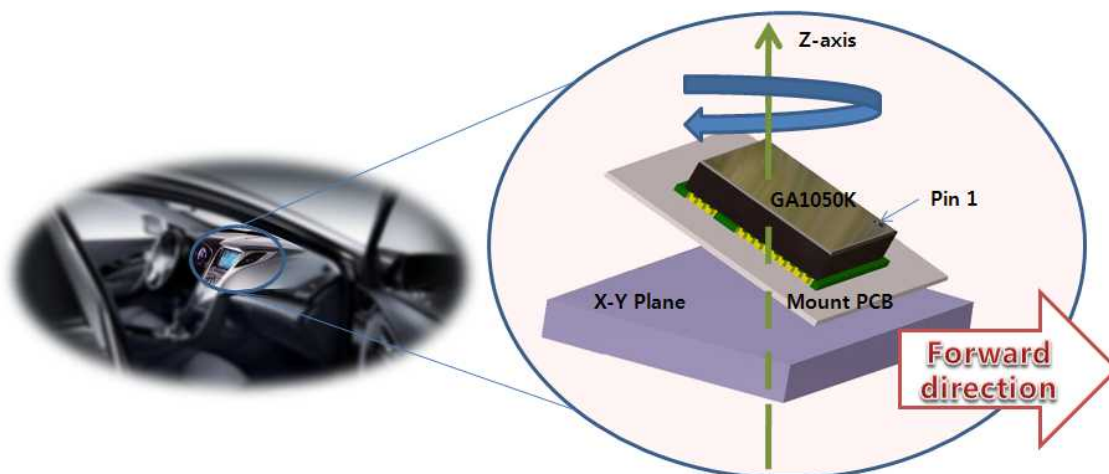


Applications

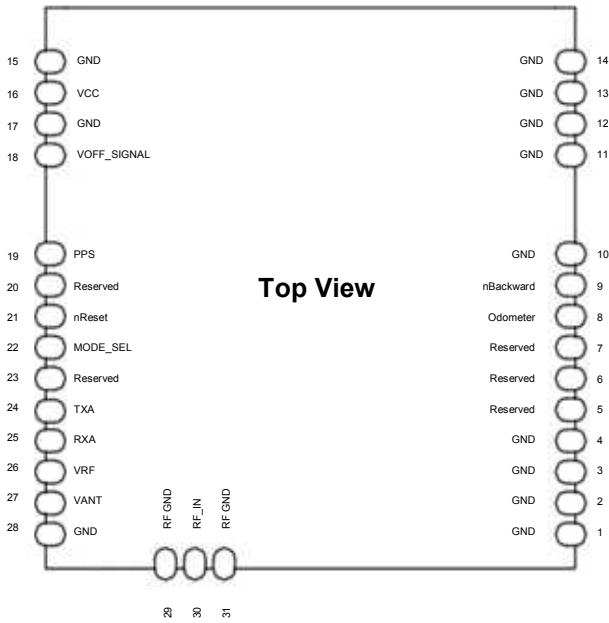
- Dead reckoning car navigation
- Black-box, 3D navigation, and portable navigation device
- Robots and land vehicles

Description

The GA1050K is a reliable and precise DR/GPS navigation system. In modern cities, tall buildings and narrow streets obscure most or all GPS signals. These urban canyons also degrade the visible GPS signals by reflections or multi-path. The GA1050K guarantees continuous and accurate position even in place where no GPS signals are available such as tunnels and underground parking lots. The GA1050K enhances the position accuracy and availability with dead reckoning technology. Measurements from the odometer, gyroscope, and GPS are combined by Kalman filter resulting in a very accurate position estimate. The GA1050K is a single board and small system that can be easily integrated in other systems such as MDT (Mobile Data Terminal) or CNS (Car Navigation System).



[Figure1] GA1050K Coordinates system



Pin Function

Pin Name	I/O	Function
VCC	I	Main supply voltage
VOFF_SIGNAL	I	Run/Standby mode selection voltage
GND	-	Ground
Odometer	I	Odometer signal input
nBackward	I	Backward signal input
PPS	O	1 PPS signal
nReset	I	System Reset (Active Low)
MODE_SEL	I	Switch to Boot mode (Normal : Low)
TXA	O	Serial port A TX(Navigation output)
RXA	I	Serial port A Rx (User command)
VRF	O	Internal RF power voltage
VANT	I	Active antenna power input
RF_GND	-	Ground of Antenna
RF_IN	I	GPS signal from antenna
Reserved	-	Reserved for additional functions

Product Characteristics

Size (LxWxH)	27 mm x 27 mm x 6 mm	Weight	< 6g
Main supply voltage	3.3 VDC	Input Current	< 100mA (typical)
Power Consumption	< 350 mW (typical)	Backup Current	< 50 uA (typical)
Data Interface	3V, UART (baudrate:57600(default))	Speed Pulse Interface	3.3V pulse Input
Operating Temperature	-40 ~ 85 °C	Shock	20 gRMS

Performances

General	L1 frequency, C/A code 16 channel high performance GPS 1Hz navigation solution output	
Acquisition Time	Cold Start Warm Start Hot Start	45 sec (open sky, typical) 35 sec (open sky, typical) 5 sec (open sky, typical)
Receiving Sensitivity	Tracking Acquisition (Warm) Re-tracking	-159 dBm -146 dBm -151 dBm
Heading Error/Drift	DR only DR/GPS	< 0.5 °/sec (typical) < 5 ° (Open sky, typical)
Position Accuracy	DR only DR/GPS	< 5% of distance traveled up to 1 Km (typical) ≤ 3m CEP with SA off (typical)
Output Message	Latitude, Longitude, Velocity, Heading angle, Time, Height, Satellite tracking status, Sensor information (optional)	
Protocol	NMEA 0183 v2.2 and Microinfinity Format	