KNCTEK GPS RF Active Antenna Module

KRS-1825MM Specification

Version 1.1.0
2008/08/07

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KRS-1825MM Specification

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Revision History

1. 2008. 06. 05 : Initiated Version 1.0
2. 2008. 08. 07 : Delete RF MCX S/W Connector in Version 1.1.0

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KRS-1825MM Operational Manual

INTRODUCTION

The **KRS-1825MM** is the newest generation of KNCTEK GPS RF Active Antenna Receiver module. The GPS RF Active Antenna receiver is powered by STA5620 which is fully RF front-end compatible with GPS L1 and the Galileo signals, and SMA661 of STMicroelectronics technology and KNCTEK proprietary of RF combination high technology that providing you more stable navigation data. The miniature design is the best choice to be embedded in a portable device like PND, PDA, Telematics and vehicle locator where you may use with variable GPS library into Base Band CPU. The excellent sensitivity of **KRS-1825MM** gets the great performance when going though the urban canyon and foliage environmental condition.

PRODUCT FEATURES

- ✧ Applicable for Base band CPU using GPS library
- ✧ Small farm factor 18 x 25 x 7mm
- ✧ Included Saw Filter, TCXO
- ✧ Galileo Ready GPS Module in RF Front End
- ✧ Excellent Sensitive for Urban Canyon and Foliage
- ✧ Automotive-grade GPS Solution
- ✧ LNA Gain Internally Regulated
- ✧ Low Power For Portable Designs
- ✧ On Chip Programmable PLL
- ✧ 2KV HBM ESD Protected
- ✧ 18 x 18 x 4mm patch antenna

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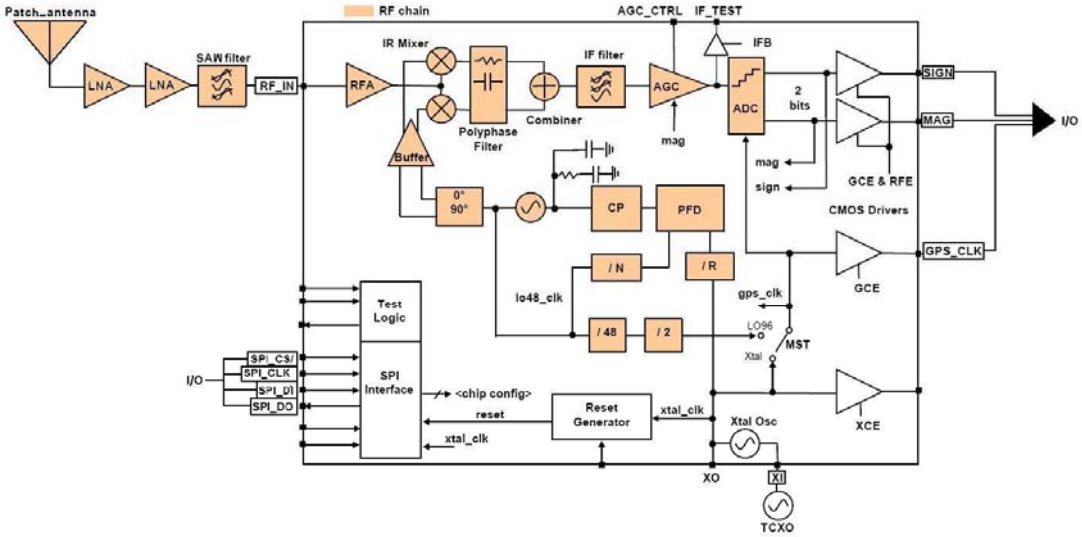
PRODUCT PICTURE

(Top View) (Bottom View)

KRS-1825MM SYSTEM BLOCK DIAGRAM

The KRS-1825MM consists of STMicroelectronics chipsets Technology, KNCTEK LNA and proprietary software. The system is described as follows.



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TECHNICAL SPECIFICATION

1. General Characteristics

1.1 General

Frequency : L1, 1575.42MHz

Code : C/A Code, 1,023MHz chip rate

Channel : Based on the capability of Base Band CPU and/or GPS Library.

1.2 Accuracy

Position, Velocity an Altitude : Base on the capability of Base Band CPU and/or GPS Library.

1.3 Interface

VCC, GND & Using converted IF signal from ADC: Sign, GPS_CLK,

SPI_CS, SPI_CLK, SPI_DI, SPI_DO

Interface Cable : 0.5pitch, 9pin, FPC cable

1.4 Antenna

Internal Patch Antenna 18 X 18 X 4mm

1.5 Performance

Base on the capability of Base Band CPU and/or GPS Library.

2. Electrical Characteristics

Input Voltage : Nominal 3V ±5%, 2.85 ~ 3.15V Acceptable

Supply Current : Average 35mA @3V, Maximum 38mA

3. Environment Characteristics

Operating Temperature : -40 ~ 85℃

Storage Temperature : -55 ~ 125℃

Humidity : 5% to 95% R.H. non-condensing @ +60℃

4. IMDS & RoHs Compatible

Fully accommodated to IMDS & RoHs.

5. Mechanical Characteristics

Dimension : 18 X 25.3 X 6.9mm

Weight : 2.27grams

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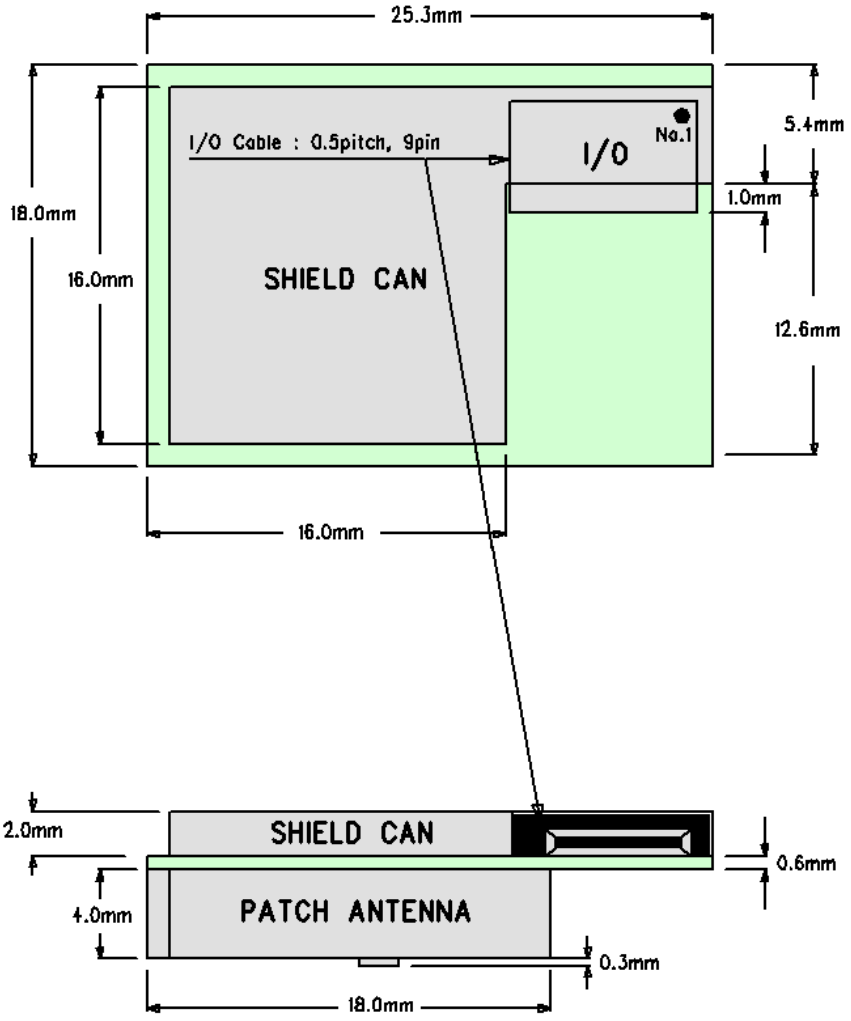
MECHANICAL LAYOUT



* Mechanical Design to be suggested by ODM/OEM customer.

I/O PIN_ ASSIGN

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HARDWARE INTERFACE

Pin Description

PIN	SIGNAL NAME	I/O	DESCRIPTION	REMARK
1	+3.0V	P	DC Power Supply Voltage input	DC +3V ±5%
2	GND	P	Ground	
3	GPSCLK	O	GPS Reference Clock	
4	GND	P	Ground	
5	SIGN	O	Sign Data	
6	SPI_DI	I	SPI Data Input	
7	SPI_CLK	I	SPI Clock	
8	SPI_CS	I	SPI Chip Select	
9	SPI_DO	O	SPI Data Output	

+3.0V

This is the main power supply for the Antenna Module. The power range is DC +3V ±5%.

GND

GND provides the ground for the Engine board. Connect all grounds.

GPSCLK

GPSCLK is converted by ADC. Provide to the baseband.16.368MHz

SIGN

SIGN is converted by ADC. Provide to the base band.

SPI_DI

Serial Parallel Interface Data Input

SPI_CLK

Serial Parallel Interface Clock

SPI_CS

Serial Parallel Interface Chip Select (Active Low)

SPI_DO

Serial Parallel Interface Data Output

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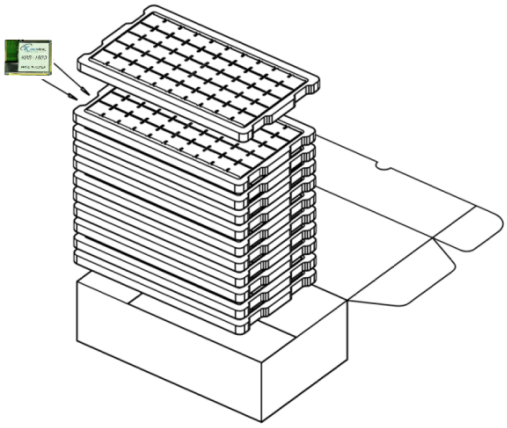
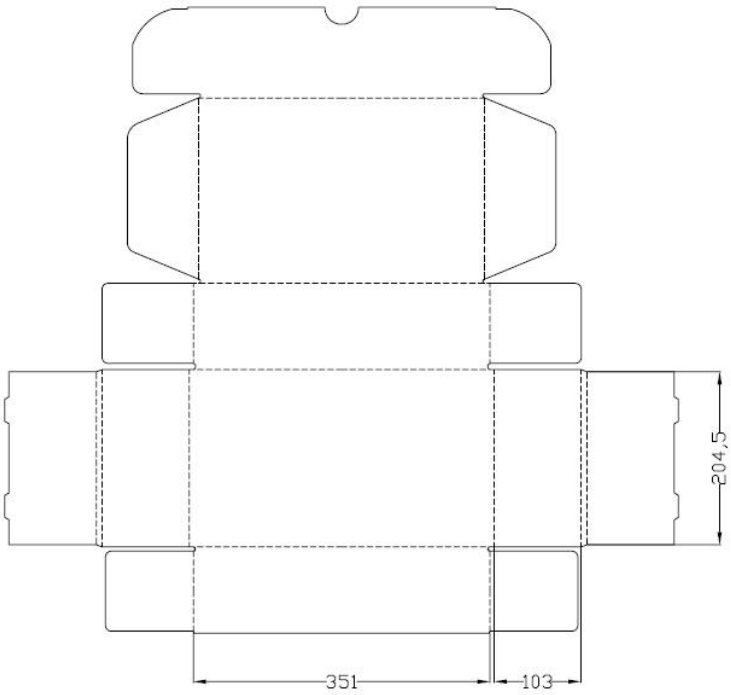
Packing Information

1. **Tray Packing**

   TBD : To be determined



2. **Inner Box Packing**



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GPS Receiver User's Tip

1. GPS signal will be affected by weather and environment conditions, thus suggest to use the GPS receiver under less shielding environments to ensure GPS receiver has better receiving performance.
2. When GPS receiver is moving, it will prolong the time to fix the position, so suggest to wait for the satellite signals to be locked at a fixed point when first power-on the GPS receiver to ensure to lock the GPS signal at the shortest time.
3. The following situation will affect the GPS receiving performance:
   a. Solar control filmed windows.
   b. Metal shielded, such as umbrella, or in vehicle.
   c. Among high buildings.
   d. Under bridges or tunnels.
   e. Under high voltage cables or near by radio wave sources, such as mobile phone base stations.
   f. Bad or heavy cloudy weather.
4. If the satellite signals can not be locked or encounter receiving problem (while in the urban area), the following steps are suggested:
   a. Move to another open space or reposition GPS receiver toward the direction with fewer blockages.
   b. Move the GPS receiver away from the interference resources.
   c. Wait until the weather condition is improved.

While a GPS with a backup battery, the GPS receiver can fix a position immediately at next power-on if the build-in backup battery is full-recharged.

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