

S4E19863013

Ultra-Sensitive, Ultra-Small GPS Module for Mobile Handsets

1. FEATURES

- High sensitivity (-160dBm) enables acquisition of indoor location ;
- High-speed satellite search algorithm ;
- Support for three positioning modes in compliance with the 3GPP specification ;
- Miniature one-chip package.

2. OVERVIEW

The global market for mobile phones with built-in GPS functionality is expected to expand dramatically with the spread of position information services such as pedestrian navigation and systems for locating a user's position in the event of an emergency call.

This likely requirement is driving demand for GPS devices that are capable of quickly and accurately identifying location anytime, anywhere. In response to this demand, Epson independently developed its own positioning algorithm and GPS chipset (which consists of a GPS base-band processor and RF receiver).

Then, availing itself of a storehouse of high-density-packaging technology, Epson designed an ultra-sensitive, ultra-compact, one-chip GPS module that is capable of acquiring locations even indoors, in the shadows of tall buildings, and in other places where GPS positioning has traditionally been problematic.

The S4E19863013 supports the three 3GPP-compliant positioning modes (MS-Based, MS-Assisted, and Autonomous), for world-class GPS positioning performance in any application and under any network environment.

3. GENERAL SPECIFICATIONS

GPS Performance

- Receiving frequency L1 (1575.42MHz), C/A code ;
- Sensitivity -160dBm* (at Hot start), -139dBm (at Warm start), -139dBm (at Cold start) ;
- Update rate 1 second (shortest) ;
- Position accuracy (2dRMS) 10m (at -130dBm), 70m (at -150dBm), 150m (at -155dBm) ;
- Time to First Fix Hot start: 4 sec. (at -130dBm), 11sec. (at -150dBm), 25sec. (at -155dBm)
Warm start : 38 sec. (at -130dBm) Cold start : 40 sec. (at -130dBm) ;
- Reacquisition time 2 seconds or less (Interruption time is within 5 seconds) ;
- Server assist Available.

**: Use external LNA*

Electric Specification

- Power supply voltage I/F: 3.0V (2.5V to 3.4V), Core: 1.5V (+/-0.15V) or 1.8V (+/-0.15V) ;
RF : 3.0V (2.7V to 3.3V) ;
- Power consumption Search and indoor tracking : 150 mW (core : 1.5V) ;
Outdoor tracking mode : 100 mW (core : 1.5V).

Interface Specification

- Signals Transmit data (TXD), Receive data (RXD) ;
- Transmission speed 57, 600 bps ;
- Data format EPSON original packet.

Temperature range

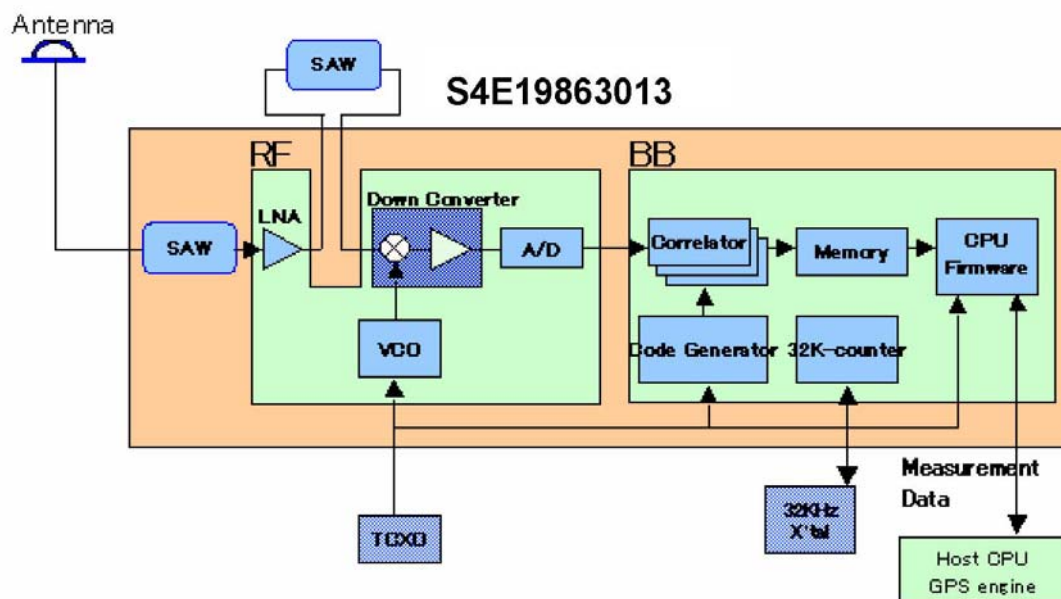
- Operating temperature range - 30 degree C +85 degree C ;
- Storage temperature range - 40 degree C +85 degree C.

Dimensions

- 7 x 6 x 1.28 mm (W x D x H).

Note : Since the specifications above are based on the under-developing product, they may be changed before actual manufacturing.

4. BLOCK DIAGRAM



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