

GPS Engine Board

EB-870

EB-870 is an ultra miniature 10.5 x10.4 mm² GPS engine board. It provides superior navigation performance under dynamic conditions in areas with limited sky view like urban canyons. High sensitivity up to **-165dBm** for weak signal operation without compromising accuracy. EB-870 series is your best choice for embedded applications.



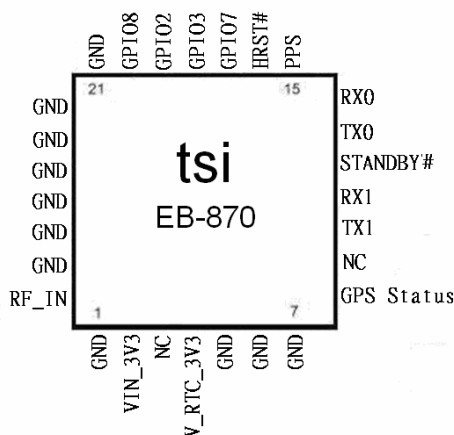
Key Features :

- Small form factor: 10.5 x 10.4 x 2.0 mm
- Lead-Free – RoHS/WEEE compliant
- High sensitivity -165dBm (With external LNA)
- Tracks 66-Channel of satellites
- Support QZSS and SBAS
- WAAS/EGNOS/MSAS/GAGAN supported
- RTCM ready
- AlwaysLocate™ location awareness technology
- EPO™ / HotStill™ orbit prediction
- EASY™ self-generated orbit prediction
- Fast Position Fix
- Ultra low power consumption
- FCC E911 compliance and A-GPS support

Applications :

- Handheld devices
- Automotive and Marine Navigation
- Automotive Navigator Tracking
- Emergency Locator
- Geographic Surveying
- Personal Positioning
- Sporting and Recreation
- Embedded applications : PDA, DSC, Smart phone, UMPC, PND, MP4

PIN Definition :



Ultimate



TRANSYSTEM INC.

An A+ supplier of RF microwave & GPS products

EB

Ver 1.1

Specifications

Item	Description
General	L1 frequency, C/A code (SPS) 66 independent tracking channels
Sensitivity	-165dBm /Tracking; -148dBm /Acquisition
Update Rate	Up to 5Hz
Accuracy	Without aid: 3.0m 2D-RMS <3m CEP (50%) without SA (horizontal) DGPS (WAAS, EGNOS, MSAS, RTCM): 2.5m
Acquisition (open sky)	Cold Start: <35sec Warm Start: <34sec Hot Start: <1.5sec
Reacquisition	< 1sec
Dynamics	Altitude : 18000m (max.) Velocity : 515m/sec (max.) Vibration : 4G (max.)
Supply Voltage	DC 2.8~4.2 V
Power Consumption	< 15 mA @ 3.3V (w/o Active ANT) / Tracking
Backup Battery	DC 2.0~4.2V, 20 uA@3.3V typical
NMEA Message	NMEA0183 v3.1 baud rate 4800/9600/.../115200, default 9600 Selectable Output: GGA, GLL, GSA, GSV, RMC, and VTG
Datum	Default WGS-84
Antenna	External Active Antenna Output Voltage: 2.8 VDC or Passive Antenna
Serial Interface	UART
Operating Temp.	-40°C to 85°C
Storage Temp.	-40°C to 85°C
Operating Humidity	≤ 95%, non condensing
Mounting	SMT Type, 28 Pin
Dimension	10.5 x 10.4 x 2.0(H) mm

* Refer to chip specification.

** Specifications subject to change without prior notice.

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Pin Definition

Pin#	Signal Name	Type	Description
1	GND	P	Ground
2	VIN_3V3	P	Power Supply 2.8~4.2V DC
3	NC	NC	NC
4	VRTC_3V3	P	RTC power 2.0~4.2V, 20uA @ 3.3V typical
5	GND	P	Ground
6	GND	P	Ground
7	GND	P	Ground
8	GPS Status	O	GPS status, blink when GPS has position fix
9	NC	NC	NC
10	TX1	O	UART port 1 output, leave open if not used
11	RX1	I	UART port 1 input (RTCM only), leave open if not used
12	STANDBY#	I	Falling edge trigger. Back to High for normal operation. Leave open if not used
13	TX0	O	UART port 0 for NMEA output
14	RX0	I	UART port 0 input
15	PPS	O	PPS
16	HRST#	I	GPS reset, active low. Internal pull high, leave open if not used
17	GPIO3 / SO	I/O*	General input / output ; SPI serial output, leave open if not used
18	GPIO4 / SCK	I/O*	General input / output ; SPI clock output, leave open if not used
19	GPIO5 / SCS#	I/O*	General input / output ; SPI select, active low, leave open if not used
20	GPIO2 / SI	I/O*	General input / output ; SPI serial input, leave open if not used
21	GND	P	Ground
22	GND	P	Ground
23	GND	P	Ground
24	GND	P	Ground
25	GND	P	Ground
26	GND	P	Ground
27	GND	P	Ground
28	RF_IN	I	Antenna port, L1, 1575.42MHz, 50 ohm DC O/P: 2.8V Current \leq 25mA

Note : 1) P: Power, I: Input, O: Output, I/O: Input or Output
2) GPIO current output default : 4mA, Max : 16mA



No. 1-2, Li-Hsin Road I,
Hsinchu 300, Taiwan, R.O.C.
t: +886-3-5780393 / f: +886-3-5784111
sales@transystem.com.tw
www.transystem.com.tw