

GR-86 GPS Receiver Module

■ Main Features

- SiRF GSC3f chipset with embedded ARM7TDMI CPU available for customized applications in firmware.
- 20-channel GPS Receiver for fast acquisition and reacquisition
- Very compact size, only 24 * 24 * 3 mm.
- 200,000 effective correlators for fast Time To First Fix (TTFF), even at poor satellite signal.
- Built-in WAAS/EGNOS Demodulator.
- Low power consumption with Advanced Trickle-Power and Push-To-Fix mode.
- Support NMEA-0183 v2.2 data protocol and SiRF binary code.
- Real time navigation for location based services.
- For Car Navigation · Marine Navigation · Fleet Management · AVL and Location-Based Services · Auto Pilot · Personal Navigation or touring devices, tracking devices/systems and Mapping devices application.

■ Specifications

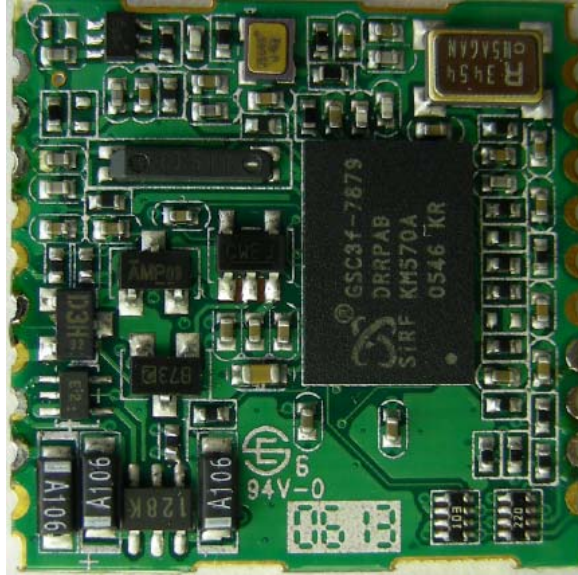
- Acquisition at low signal levels:
 - Cold / warm / hot start: 42/38/8 sec(average)
- Position Accuracy:
 - Autonomous: <10 meters at 2D RMS.
 - SBAS: <7 meters at 2DRMS, WAAS corrected.
 - DGPS: 1-5 meters at DGPS corrected.
- Receiver:
 - Tracking : L1/CA code
 - Channel : 20
 - Max. Update rate: 1 HZ
 - Time mark: output 1 pulse/sec, aligned with GPS time+/-0.1 uSec
 - Max. altitude/velocity : <60,000 ft / < 1,000 knots.

- Protocol Support : NMEA-0183, SiRF Binary, AI3/F
- Datum: WGS-84(default), selectable for other Datum.

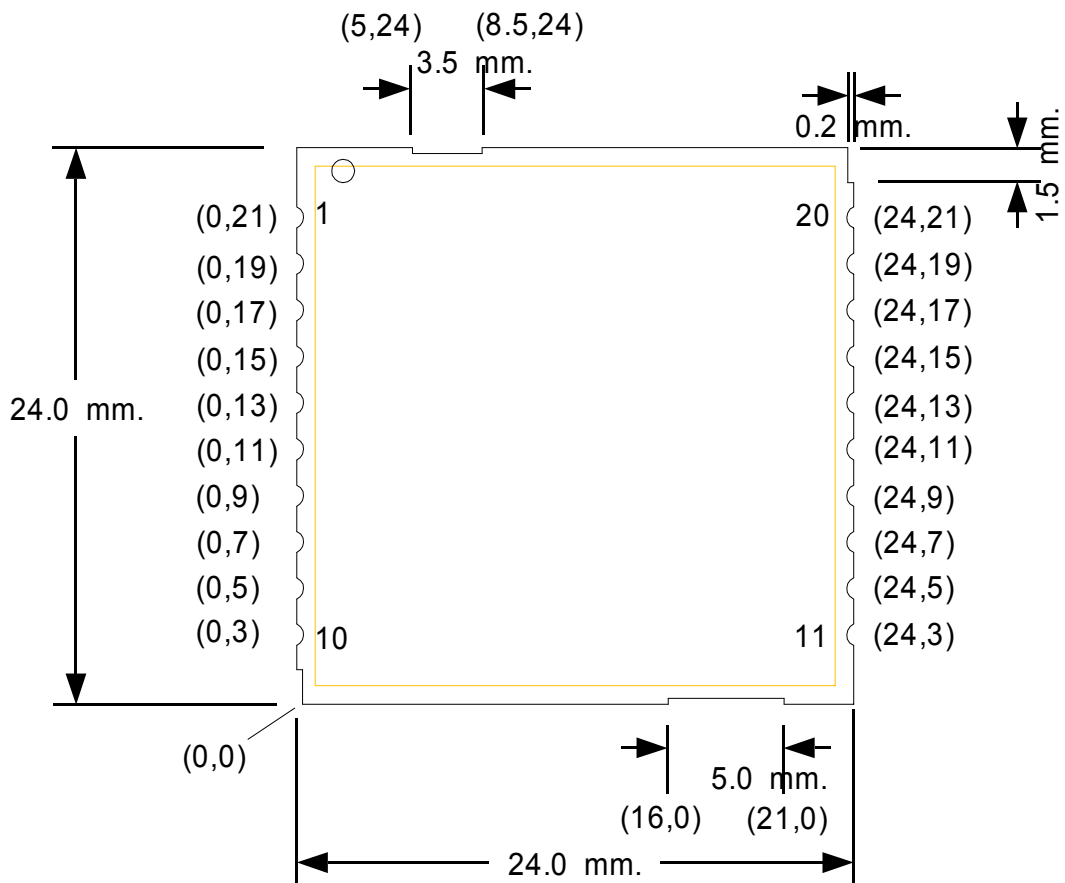
- Processing Core
 - 200,000+ effective correlators for fast TTFF and high sensitivity acquisition.
 - Processor Type: ARM7/TDMI
 - Processor Speeds 49 MHZ
 - Integrated Flash 4 Mb
 - Minimum acquire signal levels: -159 dBm (based on SiRF GSC3f spec)
 - Interface : CMOS 3V
 - Dimension: 24 x 24 x 3 mm
 - Weight: less than 3 g
 - Operating Temperature : -20 °C to +70 °C
 - Storage Temperature: -40 °C to +85 °C
 - Operating Humidity: 5% to 95%, No Condensing
 - Power : input power 3.3V ~ 5.5 VDC
 - Operational current: 70 mA (without antenna)

■ Module snapshot and pin out definition

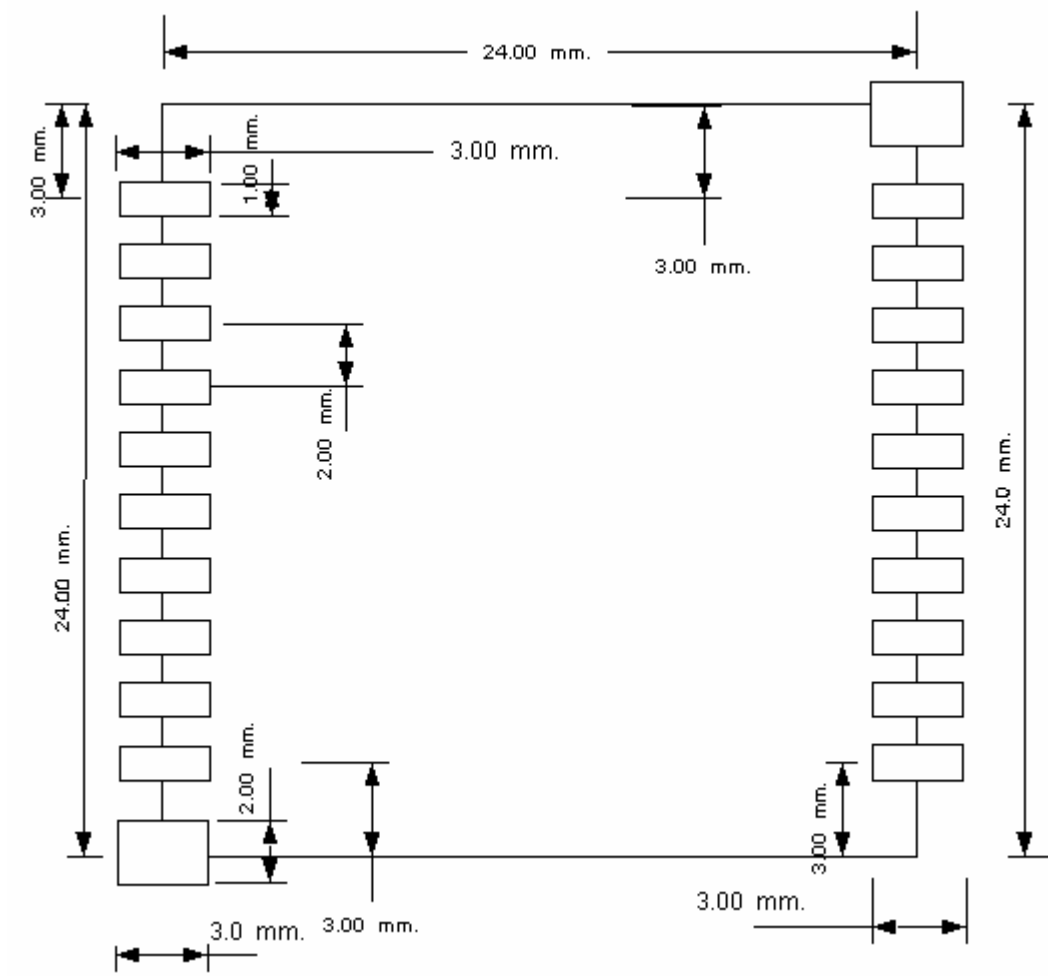
Picture



Outline drawing



Recommended PCB



Module Pin out definition

Pin	Pin Name	Type	Function description
1	GND	PWR	Ground
2	RFIN	I	RF signal input
3	GND	PWR	Ground
4	GND	PWR	Ground
5	NRESET	I	Reset, active low. Keep floating if not used.
6	LED_ONOFF	O	1 HZ High/Low pulse output in tracking mode
7	BATTERY	PWR	Backup battery input (2.5–3.3V)
8	NSLEEP	I	Power down module, low active
9	VCC_IN	PWR	3.3 ~ 5.5 VDC supply input
10	GND	PWR	Ground
11	RXDB	I	Serial Data input B
12	TXDA	O	Serial Data Output A
13	RXDA	I	Serial Data Input A
14	BOOT_SEL	I	Pull high for firmware download mode. Keep NC if not used.
15	GND	PWR	Ground
16	TIMER_SYNC	I	Reserve for feature
17	AMP_INTR	I	Reserve for feature
18	FREQ_XFER	I	Reserve for feature
19	TIMEMARK	O	1 μ sec pulse per second when tracking
20	GND	PWR	Ground

Ordering Information

Model No.	Chipset	RF interface output voltage (V)
GR-86-A	GSC3f	RF antenna power 2.8 VDC from GR-86
GR-86-B	GSC3f	RF antenna power supply from VCC_IN