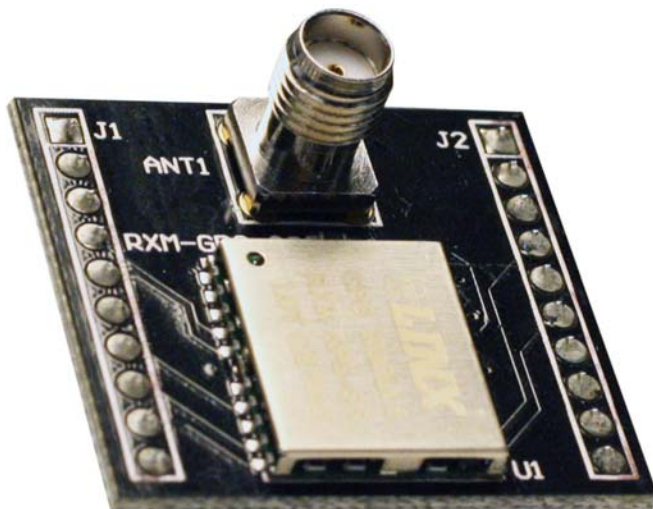


SG SERIES MASTER DEVELOPMENT SYSTEM DAUGHTER BOARD USER'S GUIDE



DESCRIPTION

The SG Series GPS receiver module is a self-contained high-performance GPS receiver with an on-board LNA and SAW filter. Based on the SiRFstar III chipset, it provides exceptional sensitivity, even in dense foliage and urban canyons. The module's very low power consumption helps maximize runtimes in battery powered applications. With over 200,000 effective correlators, the SG Series receiver can acquire and track up to 20 satellites simultaneously in just seconds, even at the lowest signal levels. These features, along with the module's standard NMEA data output, make it easy to integrate, even by engineers without previous RF or GPS experience. The Linx SG Series GPS modules offer a simple, efficient and cost-effective method of adding GPS capabilities to any product.

The Master Development System daughter board contains the surface mount SG Series GPS module, SMA connector and a ferrite bead (used to supply power to an external active antenna, such as the Linx UC or SH Series active GPS antennas) on a single board with through-hole headers. This small board makes prototyping with the SG Series module very easy.

ORDERING INFORMATION

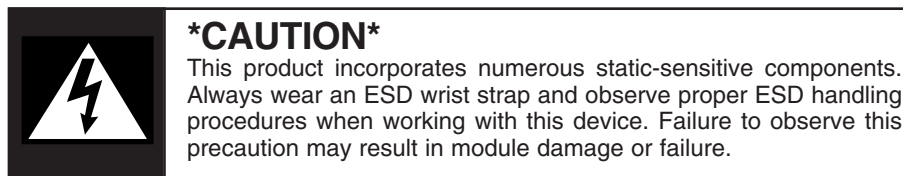
PART #	DESCRIPTION
ASY-MDEV-GPS-SG-DB	SG Series Master Development System Daughter Board

Parameter	Designation	Min.	Typical	Max.	Units	Notes
POWER SUPPLY						
Supply Voltage	V _{CC}	3.0	–	4.2	VDC	1
Supply Current:	I _{CC}					2
Peak		–	–	46.0	mA	6
Acquisition		–	32	–	mA	6
Tracking		–	28	–	mA	6
Standby		–	1.5	–	mA	6
Backup Battery Voltage	V _{BAT}	1.3	–	6.0	VDC	–
Backup Battery Current	I _{BAT}	–	10	–	μA	–
2.85V Output Voltage	V _{OUT}	2.79	2.85	2.91	VDC	–
2.85V Output Current	I _{OUT}	–	–	30	mA	3
ANTENNA PORT						
RF Input Impedance	R _{IN}	–	50	–	Ω	–
ENVIRONMENTAL						
Operating Temperature Range	–	-30	–	+85	°C	–
Storage Temperature Range	–	-40	25	+85	°C	–

Notes:

1. $I_{OUT} = 0$
2. $V_{CC} = 3.3V$, $I_{OUT} = 0$
3. $V_{CC} = 3.3V$
6. With passive antenna. Active antennas will increase current consumption.

Please see the SG Series GPS Module Data Guide for full specifications, features and operation instructions.



The diagram shows the PCB layout with pin headers J1 and J2. The pin connections are as follows:

Pin Header	Signal
J1 (Left)	GND
J1 (Left)	NC
J1 (Left)	NC
J1 (Left)	TXM
J1 (Left)	RXM
J1 (Left)	1PPS
J1 (Left)	GPIO0
J1 (Left)	RFPWRUP
J1 (Left)	ON_OFF
J1 (Left)	GND
J2 (Right)	GND
J2 (Right)	NC
J2 (Right)	NC
J2 (Right)	VCC
J2 (Right)	NC
J2 (Right)	VBACKUP
J2 (Right)	NC
J2 (Right)	NC
J2 (Right)	NC
J2 (Right)	GND

The photograph shows the physical PCB with the ESP8266 module (U1) and the antenna (ANT1) connected to the headers J1 and J2.

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Figure 2: MDEV-GPS-SG-DB PCB Layout Dimensions

The daughter board uses 0.02" diameter round header pins on 0.1" centers. These headers can be soldered directly to the PCB or plugged into a matching socket to enable easy removal.

The schematic diagram illustrates the internal components and connections of the RXM-GPS-SG module. The central component is the U1 chip, labeled RXM-GPS-SG, which has multiple pins for various functions. The connections are as follows:

- Connector J1 (Left):**
 - Pin 1: Connected to RXB (pin 1 of U1) through a 10kΩ pull-up resistor to GND.
 - Pin 2: Connected to TXB (pin 2 of U1).
 - Pin 3: Connected to 1PPS (pin 3 of U1).
 - Pin 4: Connected to TXA (pin 4 of U1).
 - Pin 5: Connected to RXA (pin 5 of U1).
 - Pin 6: Connected to GND (pin 21 of U1) through a 10kΩ pull-up resistor.
 - Pin 7: Connected to GPIO10 (pin 6 of U1).
 - Pin 8: Connected to LCKIND (pin 7 of U1).
 - Pin 9: Connected to GPIO1 (pin 8 of U1).
 - Pin 10: Connected to GND.
- Internal Connections (U1):**
 - Pin 1: RXB
 - Pin 2: TXB
 - Pin 3: 1PPS
 - Pin 4: TXA
 - Pin 5: RXA
 - Pin 6: GPIO10
 - Pin 7: LCKIND
 - Pin 8: GPIO1
 - Pin 9: RRPWRUP
 - Pin 10: ON_OFF
 - Pin 11: VBACKUP
 - Pin 12: VIN
 - Pin 13: GPIO14
 - Pin 14: GPIO15
 - Pin 15: GPIO13
 - Pin 16: BOOTSEL
 - Pin 17: VOUT
 - Pin 18: RFIN
 - Pin 19: GND
 - Pin 20: GND
 - Pin 21: GND
 - Pin 22: GND
- External Components and Connections (Right):**
 - ANT1 CONREV SMA001:** An antenna connector connected to the RFIN (pin 18) and GND (pin 19) pins of U1.
 - L1:** A 300ohm BEAD inductor connected between the VOUT (pin 17) and RFIN (pin 18) pins of U1.
 - Connector J2 (Bottom Right):**
 - Pin 1: Connected to GND.
 - Pin 2: Connected to GND.
 - Pin 3: Connected to GND.
 - Pin 4: Connected to GND.
 - Pin 5: Connected to GND.
 - Pin 6: Connected to GND.
 - Pin 7: Connected to GND.
 - Pin 8: Connected to GND.
 - Pin 9: Connected to GND.
 - Pin 10: Connected to GND.

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