Linx TECHNOLOGIES

F4 Series
Master Development System
Evaluation Module
User´s Guide

Wireless made simple®

Warning: Linx radio frequency ("RF") products may be used to control machinery or devices remotely, including machinery or devices that can cause death, bodily injuries, and/or property damage if improperly or inadvertently triggered, particularly in industrial settings or other applications implicating life-safety concerns. No Linx Technologies product is intended for use in any application without redundancies where the safety of life or property is at risk.

The customers and users of devices and machinery controlled with RF products must understand and must use all appropriate safety procedures in connection with the devices, including without limitation, using appropriate safety procedures to prevent inadvertent triggering by the user of the device and using appropriate security codes to prevent triggering of the remote controlled machine or device by users of other remote controllers.

All RF products are susceptible to RF interference that can prevent communication. Lack of good sight of the GPS satellites (open sky) can affect the accuracy of a position fix or prevent a fix entirely.

Do not use any Linx product over the limits in this data guide. Excessive voltage or extended operation at the maximum voltage could cause product failure. Exceeding the reflow temperature profile could cause product failure which is not immediately evident.

Do not make any physical or electrical modifications to any Linx product. This will void the warranty and regulatory and UL certifications and may cause product failure which is not immediately evident.

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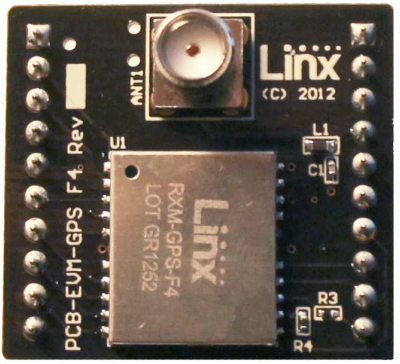


Figure 1: F4 Series Master Development System Evaluation Module

Introduction

The F4 Series GPS receiver module is a self-contained high-performance GPS receiver with an on-board LNA and SAW filter. Based on the SiRFstar IV 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 F4 Series receiver can acquire and track up to 48 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 F4 Series GPS modules offer a simple, efficient and costeffective method of adding GPS capabilities to any product.

The Master Development System evaluation module contains the surface mount F4 Series GPS module, an SMA connector, a 1.8V regulator, voltage level shifters (voltage level protection for RXM and TXM lines), a microcontroller (performs F4 power up sequence), a power source switch (switches to VBACKUP when VCC is removed) and a ferrite bead (used to supply power to an external active antenna, such as the Linx SH Series active GPS antenna), all on a single board with through-hole headers. This small board makes prototyping with the F4 Series module very easy.

Revised 3/14/13

Ordering Information

Ordering Information	
Part Number	**Description**
EVM-GPS-F4	F4 Series Master Development System Evaluation Module
RXM-GPS-F4	F4 Series GPS Receiver Module

Figure 2: Ordering Information

Electrical Specifications

Ordering Information						
Parameter	**Designation**	**Min.**	**Typ.**	**Max.**	**Units**	**Notes**
POWER SUPPLY						
Supply Voltage	V_{CC}	1.71	1.8	1.89	VDC	
Input Pin Voltage			3.6		VDC	
Output Pin Voltage			1.8		VDC	
Supply Current	I_{CC}					
Peak				130	mA	1
Acquisition			46		mA	1
Tracking			27.5		mA	1
Hibernate			20		µA	2
Ready-to-Start			9		µA	2
ANTENNA PORT						
RF Input Impedance	R_{IN}		50		Ω	
ENVIRONMENTAL						
Operating Temperature Range		–30		+85	°C	
Storage Temperature Range		–40		+85	°C	

Notes:
1. V_{CC} = 1.8V
2. Initial state after power us applied

Figure 3: Electrical Specifications

Warning: This product incorporates numerous static-sensitive components. Always wear an ESD wrist strap and observe proper ESD handling procedures when working with this device. Failure to observe this precaution may result in module damage or failure.

Pin Assignments

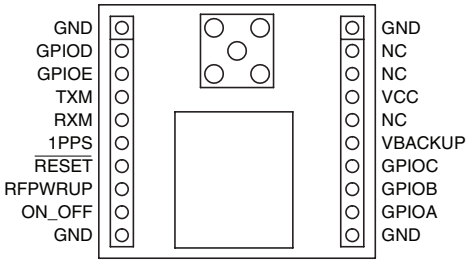


Figure 4: EVM-GPS-F4 Pin Assignments

PCB Layout

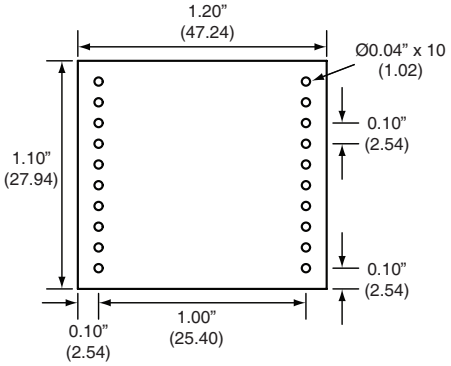
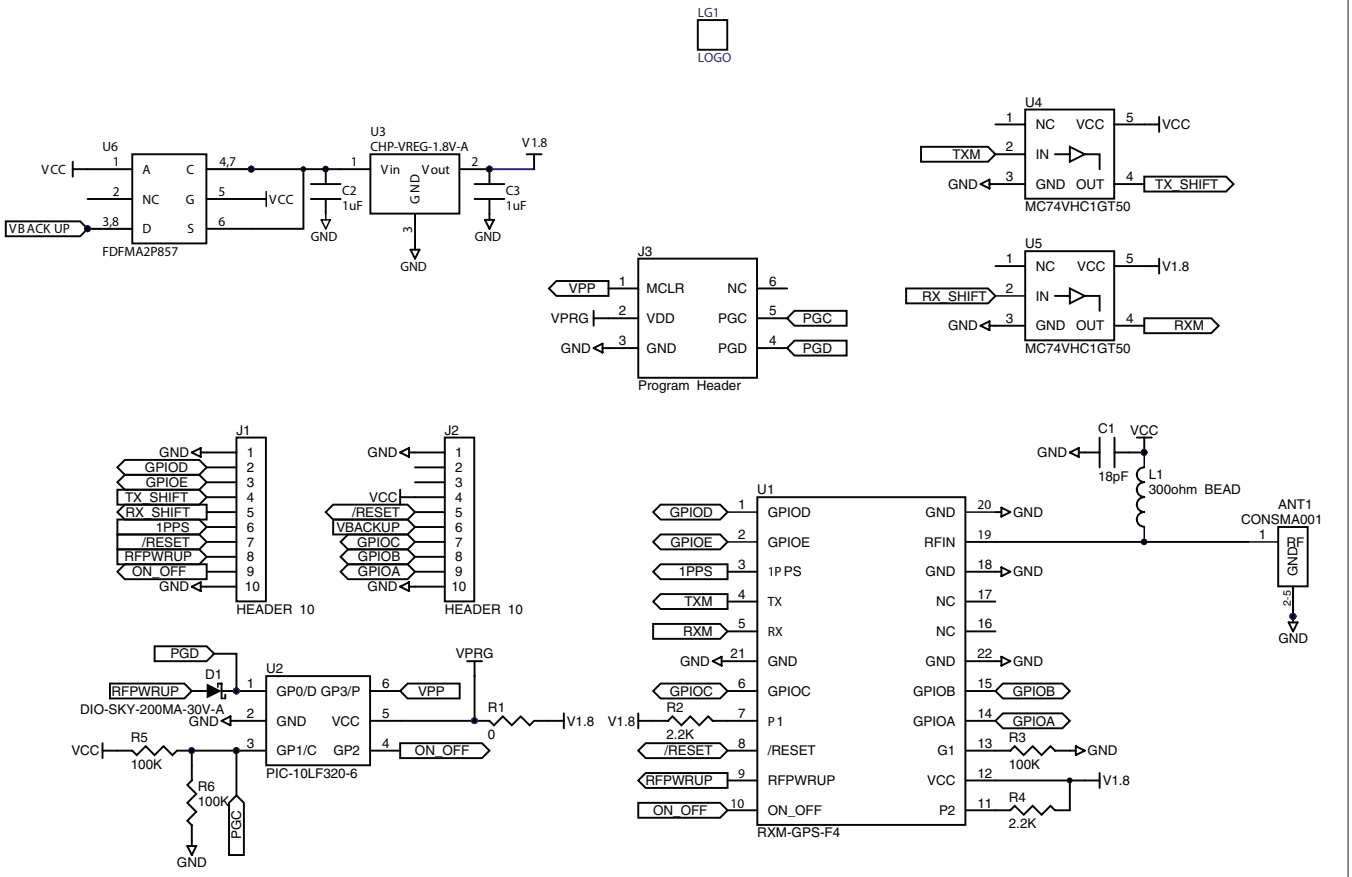


Figure 5: EVM-GPS-F4 PCB Layout Dimensions


LG1
LOGO
U6
VCC
VBACK UP
FDFMA2P857
4,7
C2
1uF
GND
U3
CHP-VREG-1.8V-A
Vin
Vout
GND
V1.8
C3
1uF
U4
NC
VCC
IN
GND
OUT
TXM
TX_SHIFT
MC74VHC1GT50
U5
RX_SHIFT
RXM
J3
MCLR
VDD
PGC
PGD
VPP
VPRG
Program Header
J1
GPIOD
GPIOE
TX_SHIFT
RX_SHIFT
1PPS
/RESET
RFPWRUP
ON_OFF
HEADER 10
J2
VCC
VBACKUP
GPIOC
GPIOB
GPIOA
U1
RXM-GPS-F4
C1
18pF
L1
300ohm BEAD
ANT1
CONSMA001
RF
GND
2.5
PGD
D1
DIO-SKY-200MA-30V-A
U2
GP0/D
GP3/P
GP1/C
GP2
PIC-10LF320-6
R1
R2
2.2K
R3
100K
R4
2.2K
R5
100K
R6
100K

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Linx Technologies
159 Ort Lane
Merlin, OR, US 97532

3090 Sterling Circle, Suite 200
Boulder, CO 80301

Phone: +1 541 471 6256
Fax: +1 541 471 6251
www.linxtechnologies.com

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