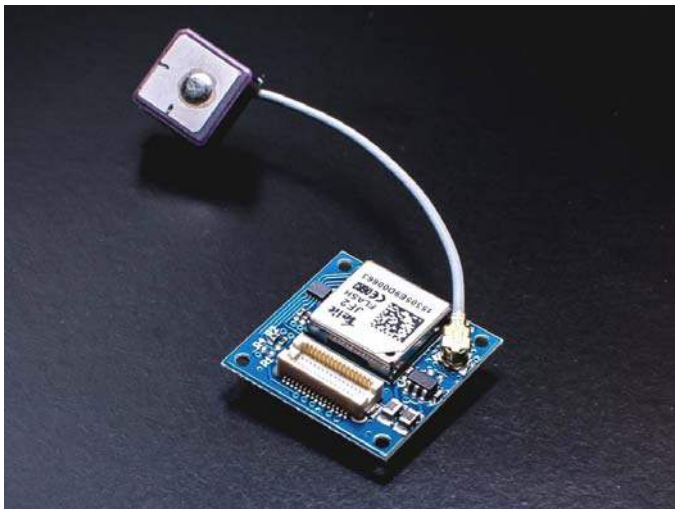
GPS TINYSHIELD

ASD2501-R



DESCRIPTION

Use GPS positioning with your TinyDuino! This TinyShield is based on the Telit JF2 GPS Module, which uses the popular SiRFstar IV chipset. This module is configured by default to output GPS strings in the NMEA format at a 1Hz update rate (this can be changed to a 5HZ updated with a NMEA command).

This TinyShield includes an external passive GPS antenna on with U.FL connector for great outdoor performance. This TinyShield also includes level shifters and a local power supply to ensure proper and safe operation over the entire TinyDuino operating voltage range up to 5V.

*To learn more about the **TinyDuino Platform,** click **here***

https://tinycircuits.com/pages/tinyduino-overview

TECHNICAL DETAILS

*To see what other TinyShields this will work with or conflict with, check out the **TinyShield Compatibility Matrix***

Telit JF2 GPS Specs

- Standards: NMEA and OSP
- Update Rate: 1Hz (default), 5Hz settable
- 48 Channel GPS architecture
- Positional Accuracy < 2.5m
- Accuracy Speed < 0.01m/s
- Accuracy Heading < 0.01deg
- Time to First Fix
  - Hot Start: 1 sec
  - Cold Start: < 35 sec

TinyDuino Power Requirements

- Voltage: 3.0V - 5.5V
- Current:
  - 37mA (Full Power Tracking)
  - 10mA (Low Power Tracking, 1Hz)
  - 14uA (Hibernate Mode)
  - Due to the current requirements, this board cannot be run using the TinyDuino coin cell option

Pins Used

- **A0 - GPS_RX:** Software UART Transmit from the TinyDuino to the GPS Module.
- **A1 - GPS_TX:** Software UART Receive to the TinyDuino from the GPS Module.

- **A2 - SYS_ON:** This signal is an output the GPS module to indicate if the module is in an active mode (the signal is a logic-high) or in hibernate mode (the signal is a logic-low). By Default this signal is connected between the GPS module and the A2 signal using R7, which is a 0 ohm resistor. This resistor can be removed if this signal is not needed to free up A2 for other uses.
- **A3 - ON_OFF:** This signal is an input into the GPS module, and is used to transition between hibernate and active modes. Transitions between states are made with a low to high pulse on this signal (minimum time of 100uS).

Dimensions

- 20mm x 20mm (.787 inches x .787 inches).
- Max Height (from lower bottom TinyShield Connector to upper top TinyShield Connector): 5.11mm (0.201 inches)
- Antenna: 10mm x 10mm x 7mm (.394 inches x .394 inches x .276 inches). 40mm (1.57 inches) cable with U.FL connector
- Weight: Board: 1.65 grams (.06 ounces) Antenna: 2.60 grams (0.09 ounces)

NOTES

- Previous versions (Rev 3 and earlier) of this board shipped with an integrated chip antenna and the board size was 20mm x 28mm. The integrated GPS antenna is not as sensitive as larger GPS antennas. This antenna will not pick up GPS signals indoors and will only work well outdoors. For best results, keep all metal aware from the antenna and make sure it is used in an outdoor environment.
- **Note:** A number of the revision 5 TinyShields have modules configured to run at 4800 baud instead of 9600 baud. So if during testing the module does not seem to work at 9600, try it at 4800 baud.
- Upon power up, the GPS takes approximately 3 seconds to stabilize before it can be put into active mode. To wake up the module, a low-to-high pulse is needed on the ON-OFF pin of the module, which is connected to the Arduino A3 pin. After waking, the module will start to stream out NMEA data every 1 second on the UART. The system can also be put back into hibernate mode with a pulse on the ON-OFF pin again. The example code shows how to handle the wake up properly.