



Chipsmall Limited consists of a professional team with an average of over 10 year of expertise in the distribution of electronic components. Based in Hongkong, we have already established firm and mutual-benefit business relationships with customers from,Europe,America and south Asia,supplying obsolete and hard-to-find components to meet their specific needs.

With the principle of “Quality Parts,Customers Priority,Honest Operation,and Considerate Service”,our business mainly focus on the distribution of electronic components. Line cards we deal with include Microchip,ALPS,ROHM,Xilinx,Pulse,ON,Everlight and Freescale. Main products comprise IC,Modules,Potentiometer,IC Socket,Relay,Connector.Our parts cover such applications as commercial,industrial, and automotives areas.

We are looking forward to setting up business relationship with you and hope to provide you with the best service and solution. Let us make a better world for our industry!



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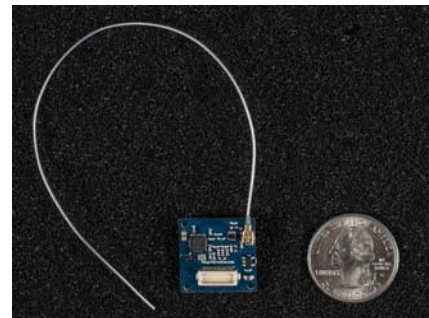
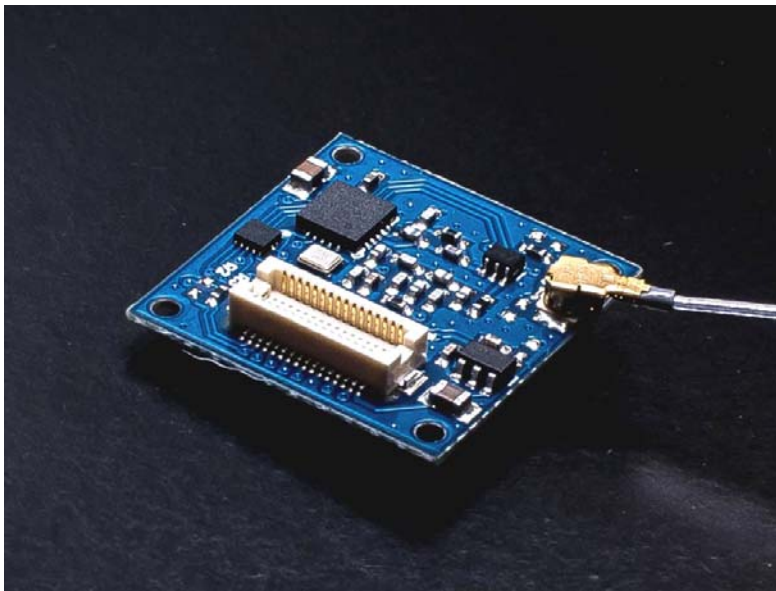
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433MHZ LONG RANGE RADIO TINYSHIELD

ASD2162-R



DESCRIPTION

This long range radio TinyShield is based around the very popular Silicon Labs SI4432 radio transceiver - the same transceiver as used by the HopeRF RFM22B module. The TinyShield is set to operate at 433MHz and can transmit at up to +20dBm and is very easy to use. This transceiver allows for long range communication between radios and is designed for an open field range of up to 500 meters, which makes this great for long range sensors of RC control (like drones and vehicles).

An U.FL antenna connection is included on the board, along with a 433MHz whip antenna. The TinyShield incorporates 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)
<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**

Si4432 Transceiver Specs

- Frequency: 433MHz
- Sensitivity: -121 dBm
- Output power range: +20 dBm Max
- Data Rate: 0.123 to 256 kbps
- FSK, GFSK, and OOK modulation
- Ultra low power shutdown mode
- Wake-up timer
- Auto-frequency calibration (AFC)
- Configurable packet handler
- Preamble detector
- TX and RX 64 byte FIFOs

TinyDuino Power Requirements

- Voltage: 3.0V - 5.5V
- Current:
 - Receive: 18.5mA
 - Transmit (+13 dBm): 30mA

- Receive (+20 dBm): 85mA
- Sleep: 1uA
- Due to the current, this board cannot be run using the TinyDuino coin cell option

Pins Used

SPI Interface used

- **3 - SPI_IRQ:** This signal is the interrupt output from the radio transceiver and into the TinyDuino.
- **7 - SPI_CS:** This signal is the SPI chip select for the radio transceiver.
- **11 - MOSI:** This signal is the serial SPI data out of the TinyDuino and into the radio transceiver.
- **12 - MISO:** This signal is the serial SPI data out of the radio transceiver and into the TinyDuino.
- **13 - SCLK:** This signal is the serial SPI clock out of the TinyDuino and into the radio transceiver.

Dimensions

- Board: 20mm x 20mm (.787 inches x .787 inches)
- Board: Max Height (from lower bottom TinyShield Connector to upper top TinyShield Connector): 5.11mm (0.201 inches)
- Board Weight: 1.15 gram (.04 ounces)
- Antenna Length: 177mm (7.0 inches)
- Antenna Weight: 0.26 grams (0.009 ounces)

NOTES

- For best range, the antenna should not be close to metal or coiled up.
- You can use different antennas with this board, they need to be 433Mhz with a U.FL connector on them.
- We've tested these at low data rates up to ~500 meters/1640 feet on the ground with the included antenna! However range will vary greatly depending on local 433MHz noise, obstructions, height above ground, and other factors.