

# RFM Shields prototypes for Moteino

## 1 Motivation

While testing several Moteino and RFM transceivers, I have decided to design a RFM shield for the various transceivers, this to be able to use different types of transceivers and frequencies on a bare Moteino Rx.

Of course, ideally an actual printed circuit board shall be designed, however, due to the small quantity of items, I propose the following design.

Because of the different size and number of pins, different shields are necessary for each type of transceiver.

No shield is foreseen for RFM12B.

The main part used is a pin-out adaptive printed circuit board providing connection between, 2mm, 1,27mm and 2,54mm pin layout (see bill of material RFM shield transceiver PCB).

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*Note: These shields are probably also applicable on Anarduino miniWireless69 but are not tested*

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## 2 Bill of Material

The following list is the summary of the passive components used to build the shields (from aliexpress).

- 2 mm headers and pins

<https://www.aliexpress.com/item/20PCS-Lot-1x40-Pin-2-mm-Single-Row-Female-Male-Pin-Header-connector/32639596843.html?spm=2114.13010608.0.0.fEfNqq>

- 2.54 mm headers and pins

[https://www.aliexpress.com/store/product/20PCS-Lot-1x40-Pin-2-54mm-Single-Row-Female-Male-Pin-Header-connector/1815642\\_32625720896.html?spm=2114.12010612.0.0.tNjGEK](https://www.aliexpress.com/store/product/20PCS-Lot-1x40-Pin-2-54mm-Single-Row-Female-Male-Pin-Header-connector/1815642_32625720896.html?spm=2114.12010612.0.0.tNjGEK)

- RFM shield transceivers PCB

<https://www.aliexpress.com/item/10-pcs-1-27MM-2-0MM-2-54MM-12-Pin-Adapter-Board-For-Wireless-Modules/32761740335.html?spm=2114.13010608.0.0.EHFOiw>

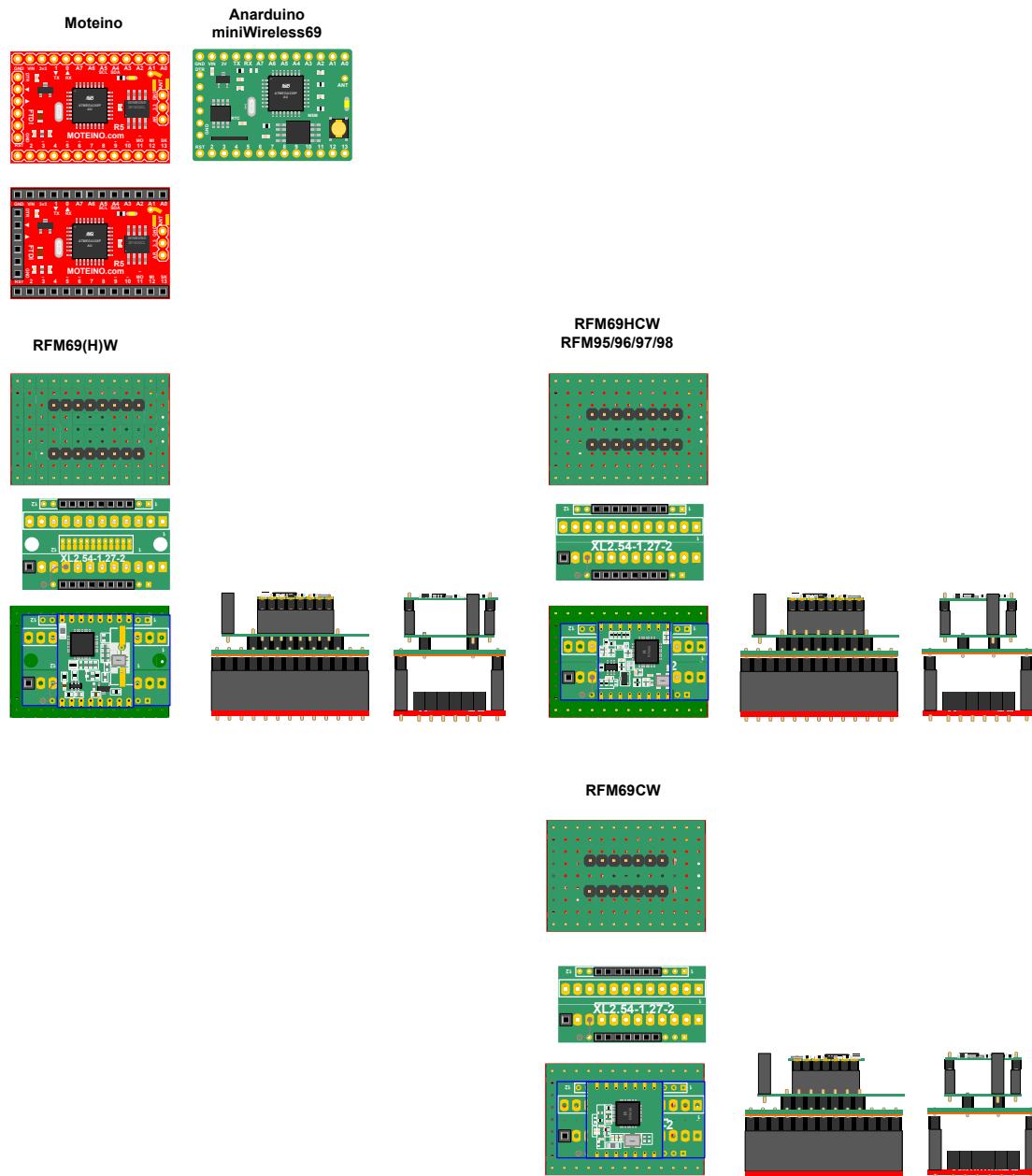
- Moteino Driver PCB

[https://www.aliexpress.com/item/2-pcs-lot-Single-Side-10x20cm-Prototype-Stripboard-Veroboard-vero-FR-4-Fibreglass-100x200mm-PCB-Stripboard/32779865738.html?spm=2114.01010208.3.262.9OEhs&ws\\_ab\\_test=searchweb0\\_0,searchweb201602\\_4\\_10152\\_10208\\_10065\\_10151\\_10068\\_5330012\\_10304\\_10136\\_10137\\_10060\\_10302\\_10155\\_10062\\_437\\_10154\\_10056\\_10055\\_10054\\_10059\\_303\\_100031\\_10099\\_10103\\_5320014\\_10102\\_10096\\_10052\\_10053\\_10142\\_10107\\_10050\\_10051\\_10084\\_10083\\_10080\\_10082\\_10081\\_10177\\_10110\\_519\\_10111\\_10112\\_10113\\_10114\\_10182\\_10078\\_10079\\_5260014\\_10073\\_10123\\_10189\\_142,searchweb201603\\_13,ppcSwitch\\_3&btsid=30ca61b1-ce77-423b-9f34-c343c8f22a7f&algo\\_expid=d8faeca7-7d0e-410e-9d1b-80a28e338d35-34&algo\\_pvid=d8faeca7-7d0e-410e-9d1b-80a28e338d35](https://www.aliexpress.com/item/2-pcs-lot-Single-Side-10x20cm-Prototype-Stripboard-Veroboard-vero-FR-4-Fibreglass-100x200mm-PCB-Stripboard/32779865738.html?spm=2114.01010208.3.262.9OEhs&ws_ab_test=searchweb0_0,searchweb201602_4_10152_10208_10065_10151_10068_5330012_10304_10136_10137_10060_10302_10155_10062_437_10154_10056_10055_10054_10059_303_100031_10099_10103_5320014_10102_10096_10052_10053_10142_10107_10050_10051_10084_10083_10080_10082_10081_10177_10110_519_10111_10112_10113_10114_10182_10078_10079_5260014_10073_10123_10189_142,searchweb201603_13,ppcSwitch_3&btsid=30ca61b1-ce77-423b-9f34-c343c8f22a7f&algo_expid=d8faeca7-7d0e-410e-9d1b-80a28e338d35-34&algo_pvid=d8faeca7-7d0e-410e-9d1b-80a28e338d35)

## RFM69 Shields Prototypes

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### 3 The final result



Basically, two physical types of drivers have to be build according to the transceiver layout.

One for RFM69(H)W

One for RFM69CW and RFM85/96/97/98

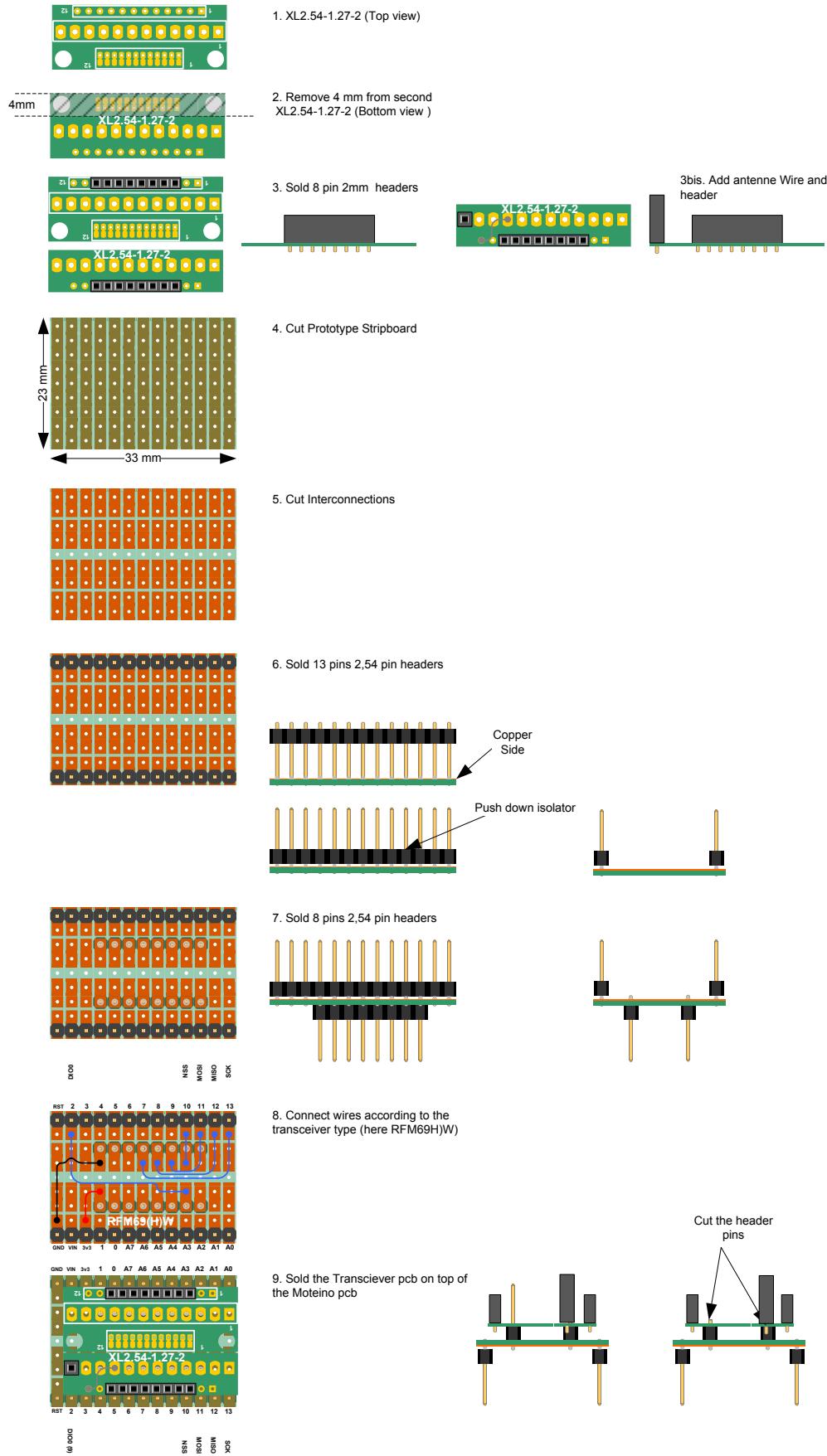
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*Note: Only 7 pins are required for RFM69CW*

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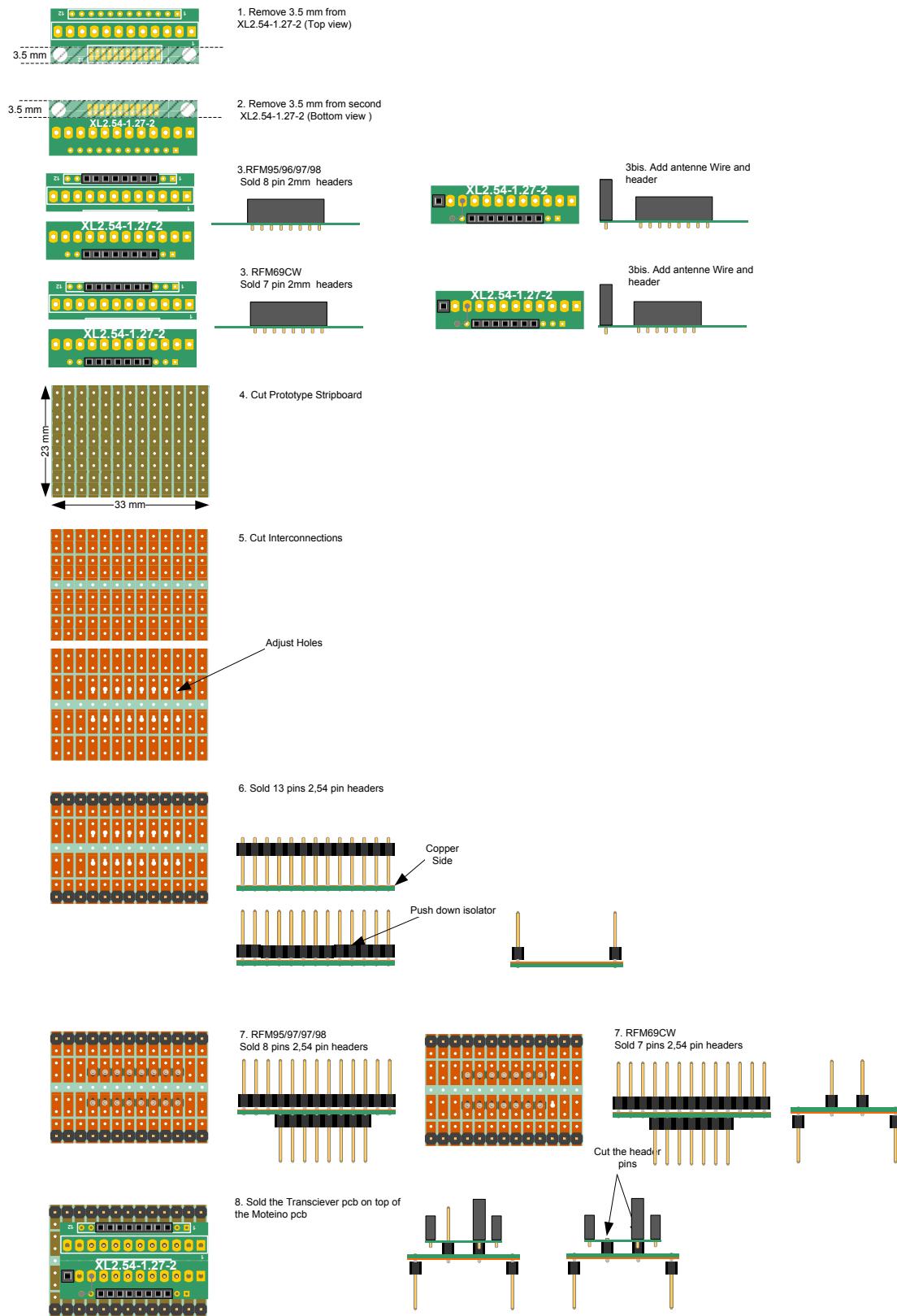
## RFM69 Shields Prototypes

### 3.1 RFM69(H)W shield



## RFM69 Shields Prototypes

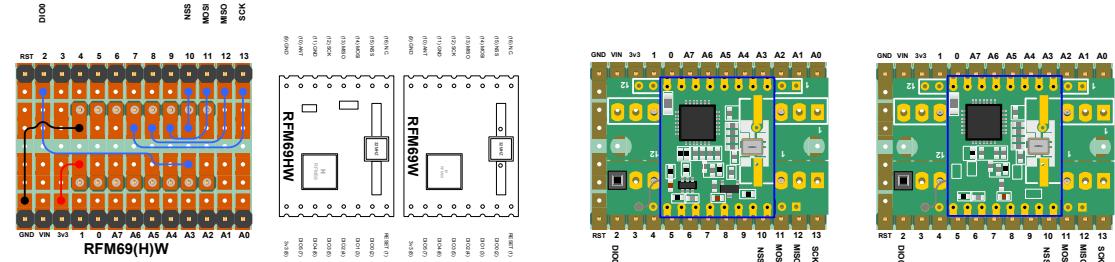
### 3.2 RFM69CW and RFM95/96/97/98



## RFM69 Shields Prototypes

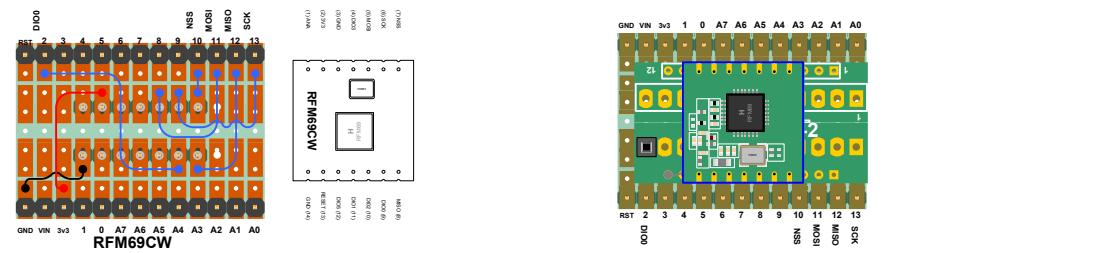
### 4 Wiring and final results

#### 4.1 RFM69(H)W



#### 4.2 RFM69CW

Warning only 2\* 7 pins are used to connect the transceiver



#### 4.3 RFM69HCW RFM95/96/97/98

