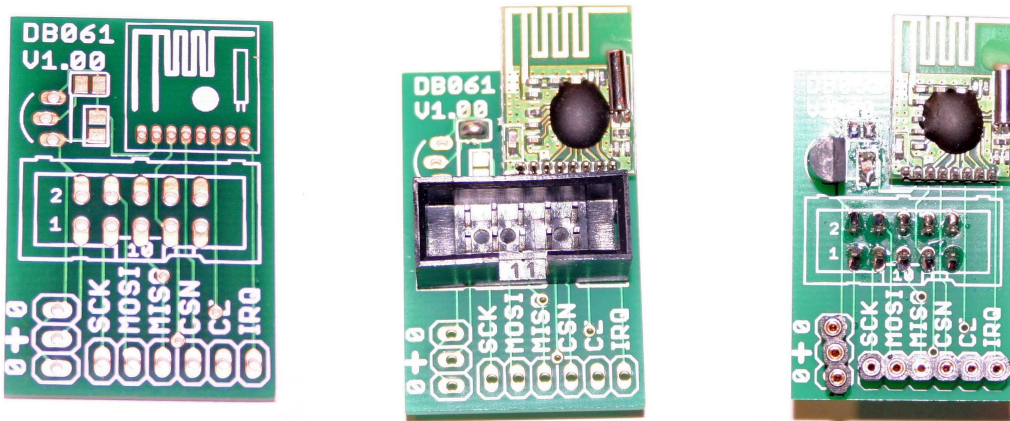


Dwarf Boards

DB061 : RFM70 2.4 GHz transceiver breakout board

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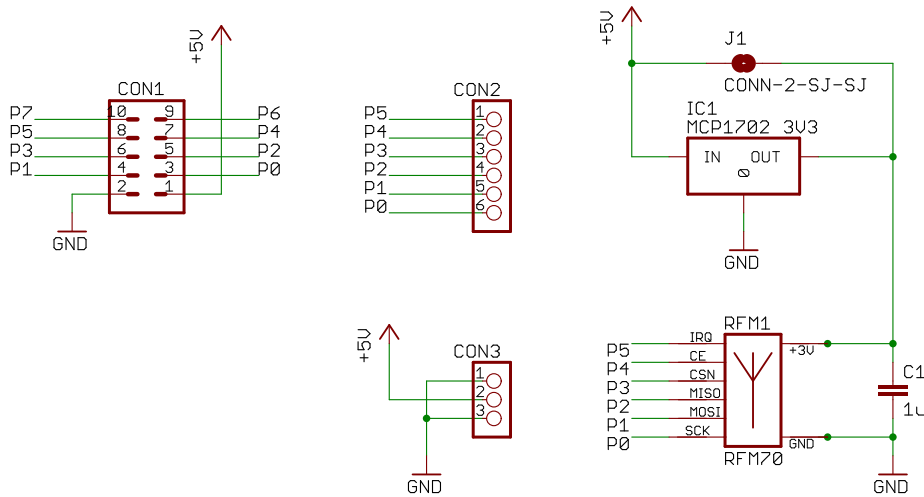


Introduction

This document describes the Dwarf Board DB021. This is a breakout board for the HopeRF RFM70 2.4 GHz transceiver module, making it easy to connect the RFM70 to either a Dwarf Bus connector or directly to wires.

The RFM70 requires 1.9 .. 3.6 V power. The board has room for an MCP1702 3.3V regulator and a 1 uF SMD capacitor. Alternatively, when the 3.3V power is available a solder bridge can be shored to connect the external power directly to the RFM70. The data lines of the RFM70 are 5V tolerant, so they are connected directly to the DwarfBus connector.

Circuit



The circuit consist of the ML10 Dwarf Bus connector CON-1, the pin / cups connectors CON2 and CON3, the 3.3V regulator IC1 and the RFM70 itself. Either CON1 or the combination of CON2 and CON3 can be used to connect to the outside world. The 3.3V regulator can be bridged by closing the solder jumper J1 when the power supplied is directly acceptable to the RFM70. An 1uF SMD capacitor can be placed near IC1 to assure its stability.

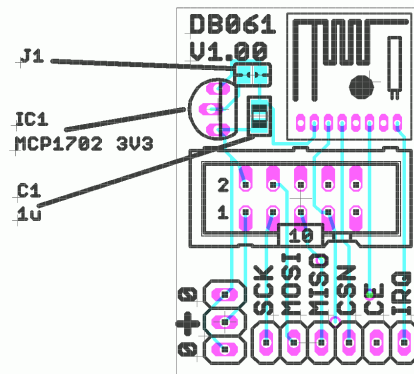
Connector pinout

The pinout of connectors CON2 and CON3 is shown on the PCB. These connectors are intended for wires or wire cups. The pinout of the Dwarf Bus connector is shown in the table below. Refer to the RFM70 datasheet for more details.

Dwarf Bus pin		RFM70
1	+5 or +3.3 Volt	Power (directly or via MCP1702)
2	Ground	Ground
3	D0	SCK
4	D1	MOSI
5	D2	MISO
6	D3	CSN
7	D4	CS
8	D5	IRQ
9	D6	not connected
10	D7	not connected

Component Placement

The figure below shows the placement of the components on the PCB. When 5V is supplied to the board, the components IC1 and C1 must be placed. When 3.3V is supplied, solder bridge J1 must be placed. Note that the DwarfBus connector is rotated 180 degrees compared to other DwarfBus peripherals.



References

The RFM70 datasheet can be found at http://www.hoperf.com/rf_fsk/24g/rfm70.htm

Change notes

the latest version of this document can be downloaded from <http://www.voti.nl/dwarf>

version	date	notes
1.0	2012-12-22	first version