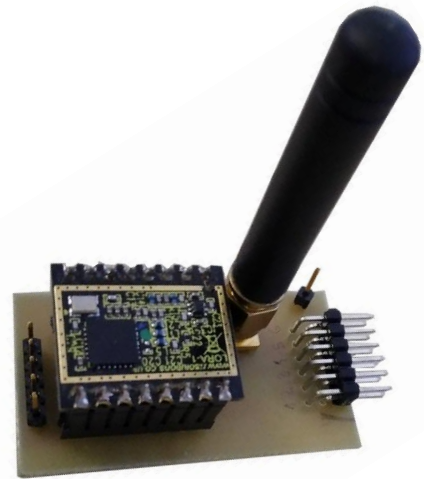# LoRa Pmod V2.0

Pmod designed by Paul LELOUP

Additional features

- Integrated RF-LoRa-868 of RF Solutions
- A Pmod Connector for plug and play (using FPGA card for prototype)
- An SMA connector for the antenna
- Small card dimensions: 27.9mm x 50.9 mm
- 4 connectors for measure current and tension of the modules
- 5 connectors for use optional PINS of the RF-LoRa-868

RF-LoRa-868 Features

- Up to 16KM Range
- Integrated LoRa Modem Semtech SX1272
- Highly Efficient Integral Impedance Matching Network
- Provides Full Functionality of the RFIC:
- 157 dB maximum link budget
- +20 dBm at 100mW constant RF output vs. V supply
- -14 dBm high efficiency PA
- Built in RF switch
- High sensitivity: down to -130 dBm
- Bullet-proof front end: IIP3 = -12.5 dBm
- 89 dB blocking immunity
- Programmable bit rate up to 300kbps
- Low RX current of 10 mA, 100nA register retention
- FSK, GFSK, MSK, GMSK, LoRaTM and OOK modulation
- Built-in bit synchronizer for clock recovery
- Preamble detection
- 127 dB Dynamic Range RSSI
- Automatic RF Sense and CAD with ultra-fast AFC
- Packet engine up to 256 bytes with CRC
- Built-in temperature sensor and low battery indicator

Application

- Prototype with FPGA
- Smart Sensor
- Home Automation
- RF Alarms
- Sensor networks
- Long Range Telemetry
- Meter Reading
- Irrigation Systems
- Wireless Applications

Part Numbers

Pmod connector

PIN	Definition	Direction	Function
1	RESET	In	Reset Trigger Input
2	DIO0	In/Out	Digital I/O software configured
3	TX_SWITCH	In	Enable TX RF Path Active High
4	RX_SWITCH	In	Enable RX RF Path Active High
5	GND	-	Ground connection
6	VCC	In	Power connection
7	SCLK	In	SPI Serial Clock Input
8	NSEL	In	Device Select Active Low
9	SDI	In	SPI Serial Data Input
10	SDO	Out	SPI Serial Data Output
11	GND	-	Ground connection
12	VCC	In	Power connection

5 Pins connector

| PIN	Definition	Direction	Function
13	DIO3	In/Out	Digital I/O software configured
14	DIO4	In/Out	Digital I/O software configured
15	DIO5	In/Out	Digital I/O software configured
16	DIO1	In/Out	Digital I/O software configured
17	DIO2	In/Out	Digital I/O software configured

4 Pins connector

PIN	Definition	Direction	Function
18	VCC Module	-	Pin for tension measure
19	VCC Module	-	Pin for current measure
20	VCC Pmod	-	Pin for current measure
21	GND	-	Pin for tension measure

Pin Description
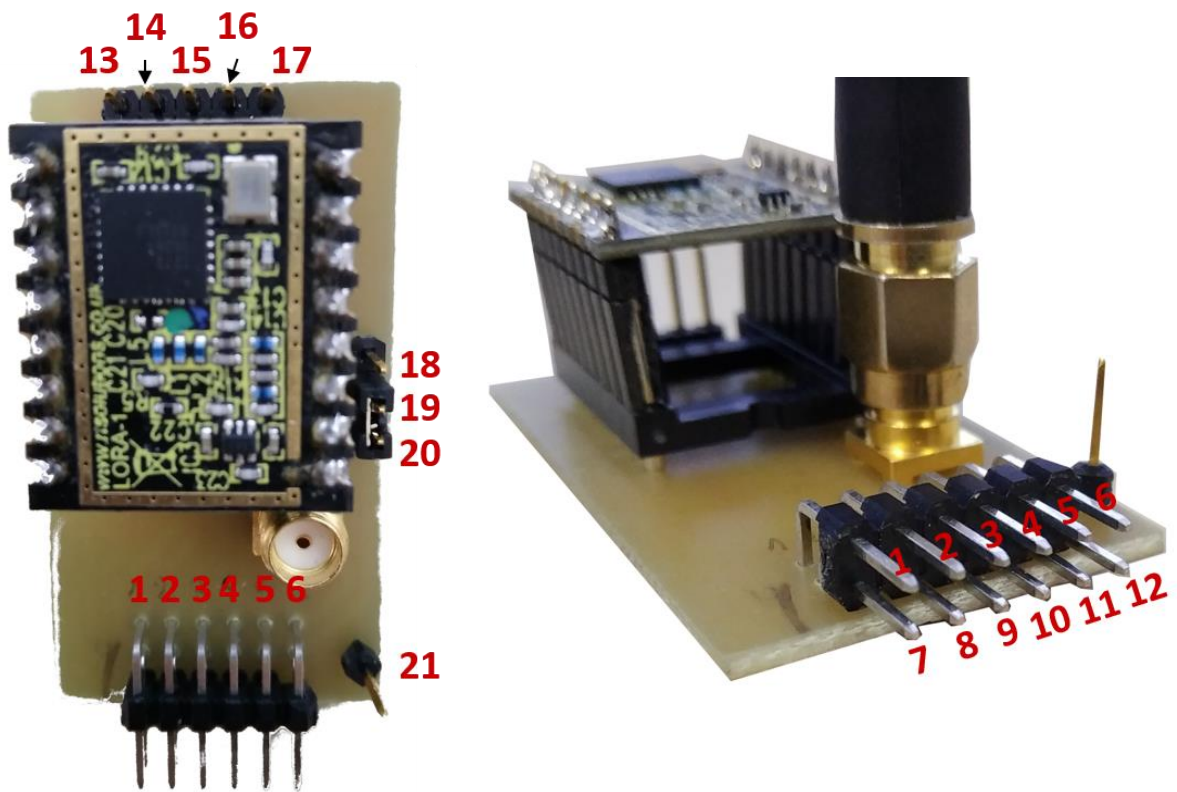
Using the Pmod

First you can plug the RF-LoRa-868 like this in the Pmod card:
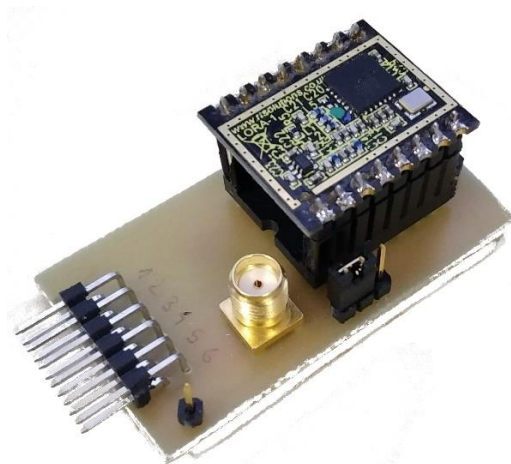
Then for turn ON the alimentation of the Pmod, you must put a bridge between the Pin 19 and 20. Now there is 3.3V to the module.

It's highly recommended to put an SMA antenna (868 MHz).
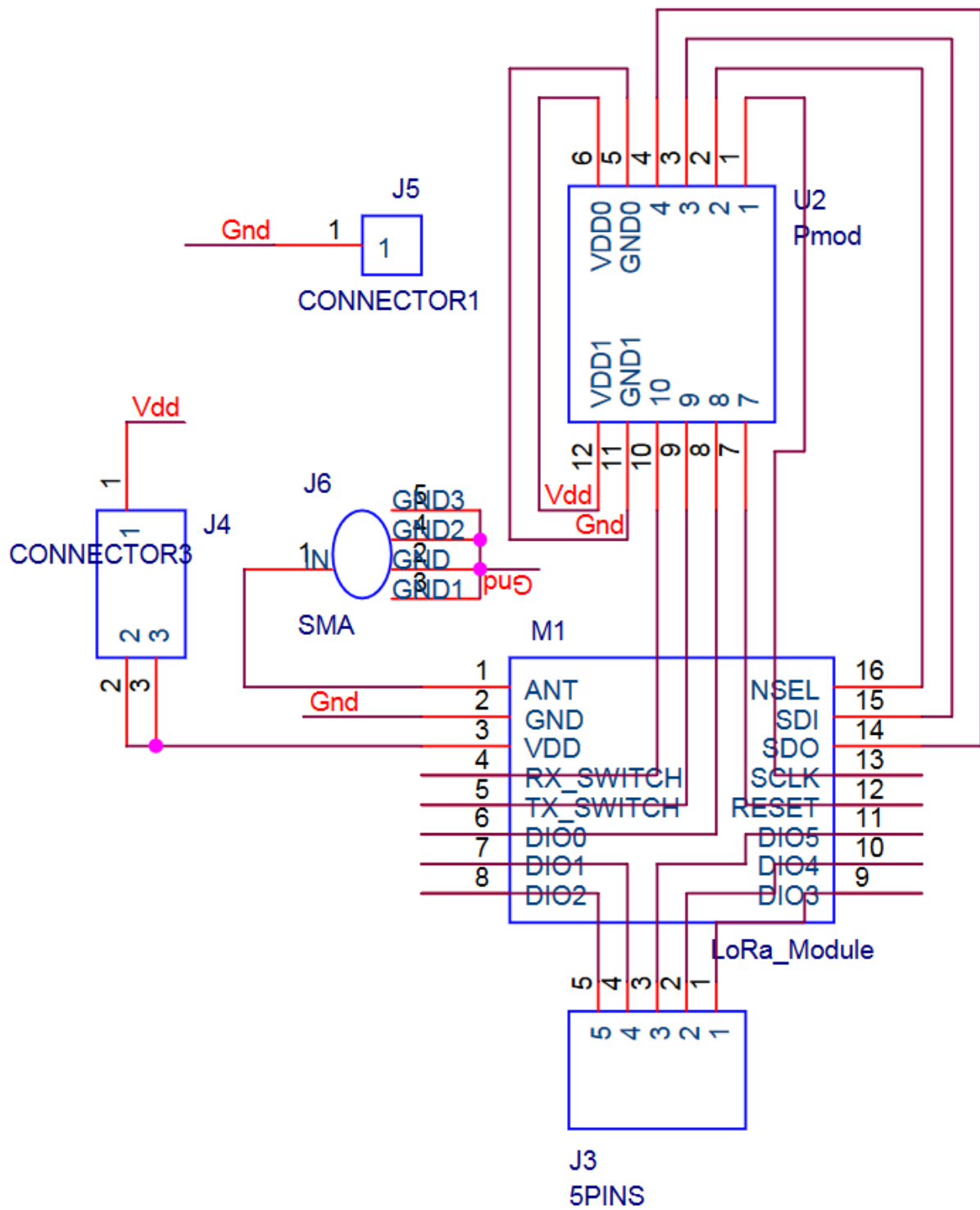
Go on your keyboards, you can use the Pmod!

Schematic
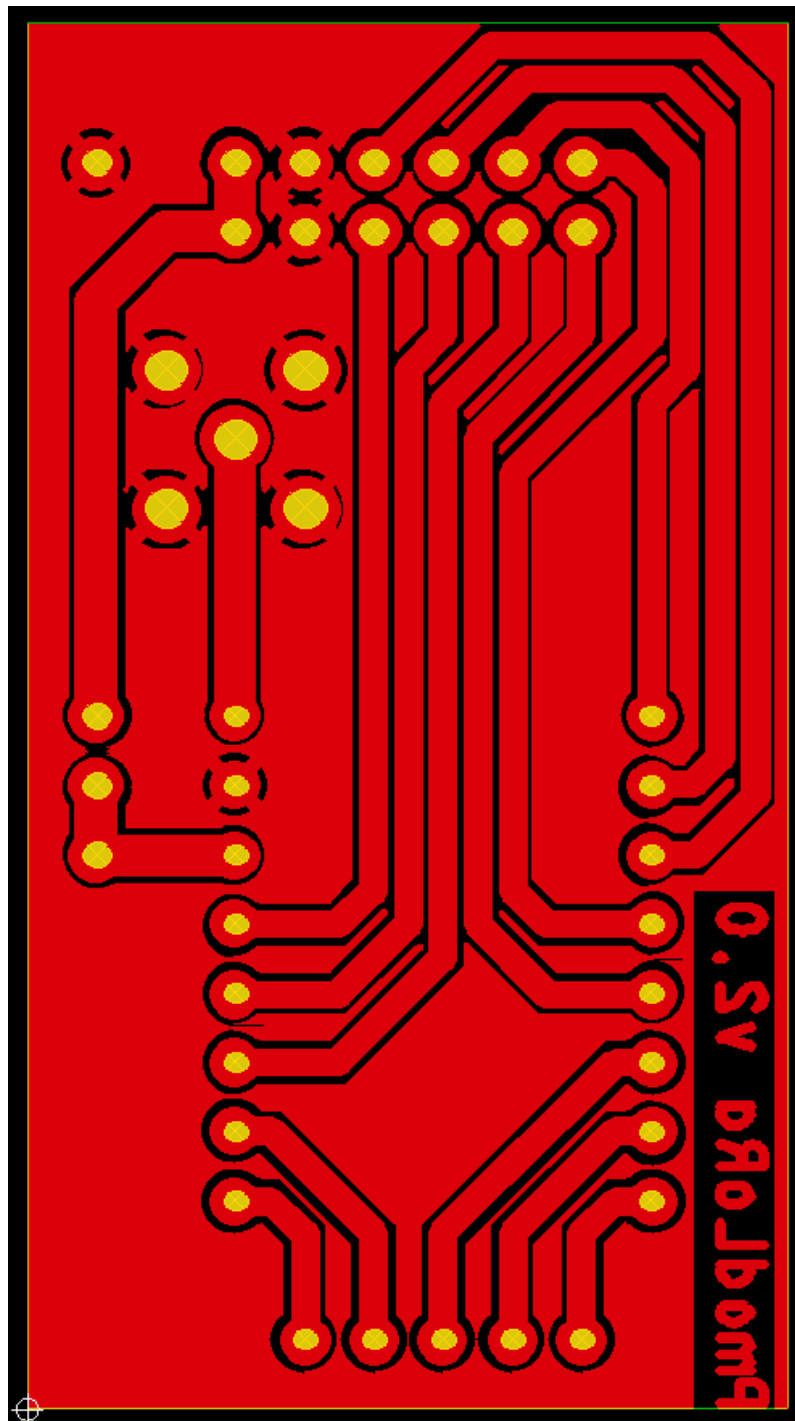

Figure 1 Schematic of Pmod v2.0

Board

Figure 2 Bottom view Board of Pmod v2.0

References

- Datasheet RF-LORA-868
  http://www.farnell.com/datasheets/2162976.pdf?_ga=2.254649036.578254260.154816570
  1-413366784.1537950013
- Datasheet SX1272/73
  https://www.semtech.com/uploads/documents/sx1272.pdf