

2008.05.30

## Proto Board v1 Series

### 1 Overview of Koala, Kangaroo and Diprotodon

What would the perfect base platform for small electronic prototypes look like? If you had to build a lot of circuits for testing, have lots of projects to build, or just want to minimize time spent with peripheral design work, what would make your job easier? And when it's done, is it going to look like multi-colored angel hair pasta, or is it going to be presentation-worthy?

We asked ourselves these questions, and came up with the Proto Board v1 series of project boards.

#### Features:

- 3.3V linear supply, 150mA
- 5V switch-mode booster supply, 265mA, with disable switch
- FTDI FT232 USB UART I.C. for USB serial communication with mini USB
- Operation from a single LiPo cell (JST connector), or from auxiliary port
- LiPo charging through USB(100mA) or external 5V source (265mA)
- On-board power switch, or external port for panel-mount switches
- TX, RX, Charge and Power On LED indicators
- Designed to fit Sparkfun project cases (SKU#: WIG-08601 and WIG-08632)

Comes in 3 flavors: Koala (through-hole prototyping area), Kangaroo (SMD prototyping area), Diprotodon (combination of through-hole and SMD).

Figure 1: Koala (through-hole prototyping area)

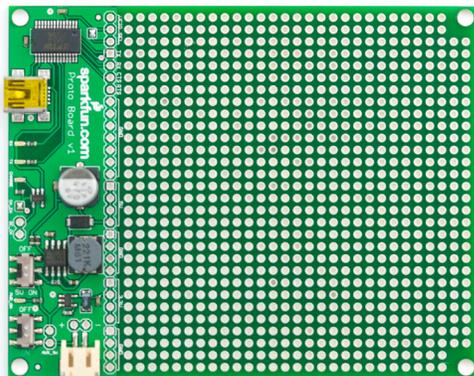


Figure 2: Kangaroo (SMD prototyping area)

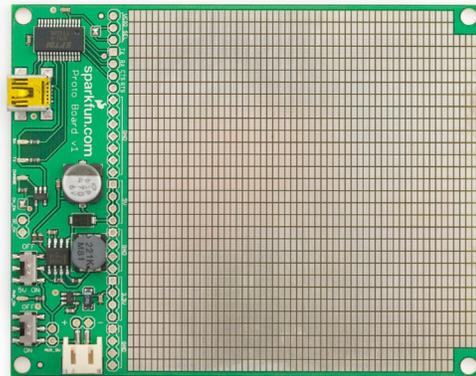
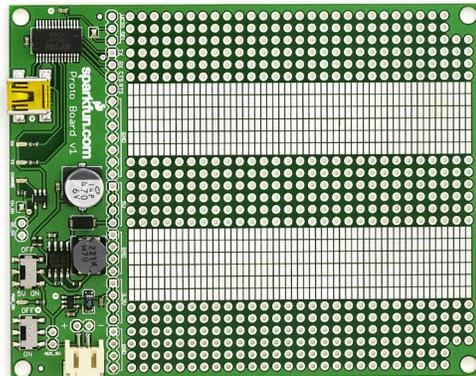


Figure 3: Diprotodon (combination of through-hole and SMD)



### 2 Layout and Circuit Description

Figure 4 shows the circuit portion of the Proto Board, with specific sections numbered for better descriptions.

#### 1 JST LiPo connector and auxiliary power input port.

The JST connector mates with several of the LiPo cells available from Sparkfun (SKU#: PRT-00731, PRT-00341, PRT-00339, PRT-08483). If you don't want to use the JST connector, you can wire directly to the auxiliary power port, which is the 0.1"-spaced port to the left of the JST connector in the picture (plus and minus are labeled on the board, as well). It should be noted, however, that if you intend to use the 5V switching regulator, the input voltage should be kept to standard LiPo

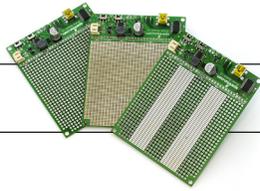
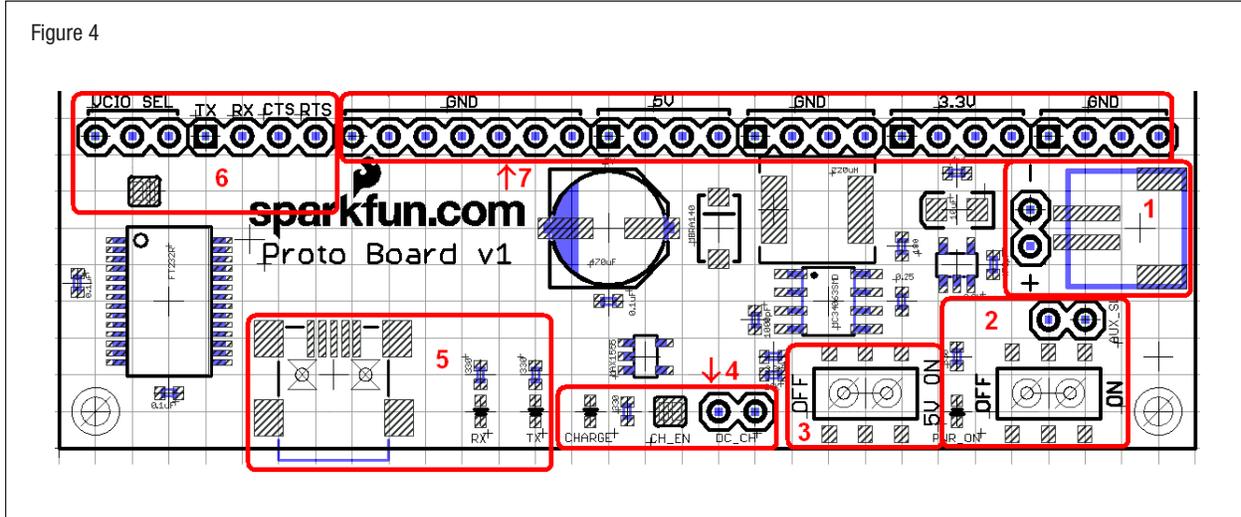


Figure 4



levels (around 3.8-4.2V) to ensure proper operation. Otherwise, the input voltage can be as high as 7V. Also, if using something other than a Lithium Ion or LiPo cell for power, the solder jumper in section 4 labeled “CH\_En” should be opened to disable the charging circuit.

## 2 Power switch and LED indicator.

Turn power on, the LED comes on. We’ve included an auxiliary switch port (above the switch in the picture) in case the user wishes to use a switch mounted to the side of an enclosure.

## 3 5V enable switch.

Why? Switching supplies can be noisy, and/or the user may not need 5V. This is an easy way of disabling that source. It can also help to isolate circuit sections when troubleshooting.

## 4 Charge indicator, charge enable solder jumper and external charging port.

The charge indicator LED will come on if USB is plugged in or if a 5V source is attached to the 2-pin external charge port (plus on the left, minus on the right) and a battery is plugged in. Charging over USB is limited to 100mA, while charging over the external port is set to 250mA. If the charging circuit is not to be used, the solder jumper labeled “CH\_En” should be opened.

## 5 Mini USB and TX/RX indicator LEDs.

The LEDs let you know when you’re transmitting or receiving data (very useful when you run into one of those “why isn’t it talking?” moments).

## 6 VCIO select and solder jumper, TX/RX, CTS/RTS ports.

The solder jumper located just under the 3 pins labeled “VCIO” should come closed, and this enables 3.3V logic on the FTDI FT232 chip. The user may also open that solder jumper and install a male header in that port for easy switching between 3.3V and 5V logic, thus:

(Note: the 5V supply must be switched on for the 5V VCIO logic to work)

The other pins are TX (output), RX (input), CTS (input) and RTS (output). We kept these close so as to make testing of the communications channel easy. Just jumper TX and RX together and you can echo characters through your favorite terminal emulator.

## 7 Lastly, the power outputs.

We’ve given you plenty of soldering points to make it easier to create a star configuration and minimize supply noise.