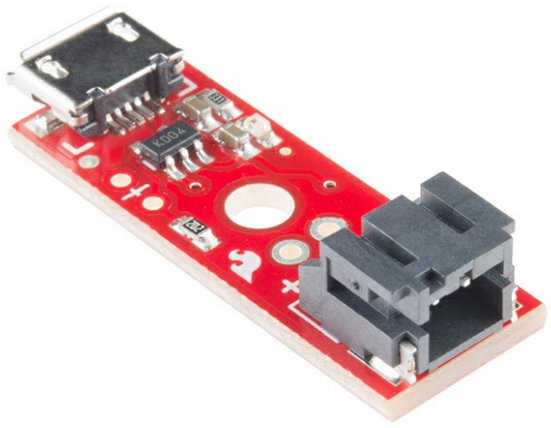




3D Download: Sketchup, STL, Blender

SparkFun LiPo Charger Basic - Micro-USB

PRT-10217 ROHS

23

DESCRIPTION FEATURES DOCUMENTS

If you need to charge LiPo batteries, this simple charger will do just that, and do it fast! The SparkFun LiPo Charger Basic is stripped down of all features and just does one thing well - charge 3.7V LiPo cells at a rate of 500mA. It is designed to charge single-cell Li-Ion or Li-Polymer batteries. Check the datasheet below to see if it will work with your battery.

The board incorporates a charging circuit, status LED, connector for your battery (JST-type used in the batteries we carry), and a micro-USB connector. A small mounting hole allows this charger to be easily embedded into a project.

Note: This version uses a micro-USB cable. We also have this charger with a mini-USB connection as well.

SparkFun LiPo Charger Basic - Micro-USB Product Help and Resources

SUPPORT TIPS hackster.io SKILLS NEEDED

5 of **5** found this helpful:

MCP73831T STAT Pin and STAT LED

last updated about 9 months ago

If you look at the datasheet for the LiPoly USB Charger's IC controller, the LED is connected to the charge status output (STAT). This is an output to indicate the charge status which is explained in section 5.2.1 in table 5-1:

```
Shutdown: Hi-Z (High-impdedence mode)
No battery present: Hi-Z
Preconditioning: L (Low)
Constant-Current Fast Charge: L
Constant Voltage: L
Charge Complete – Standby: H (High)
```

Since the cathode (-) of the LED is connected to the controller, setting the pin low turns the LED on; setting the pin high (or putting it in high-impedence mode) turns the LED off. From the datasheet, this unit features "AutomaticPower-Down." So when the battery is fully charged, the LED should turn off and the charge IC controller should turn off. This can fluctuate back and forth with charging depending on if there is some small discharge with the LiPo battery.

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2 of **2** found this helpful:

Charge rate

last updated about 9 months ago

The default charge rate for the LiPo Charger Basic is set to 500mA. The default output from a standard USB port is 500mA. In general, if you are charging your LiPo at a fast rate past the charge current specs of the battery, the life of the battery will go down. Looking at the charge rate for the battery, it looks like the recommended charge rate is 1C (or 400mA). I recommend changing the resistor that is on board to reduce charge rate. You

can add some resistors in series between the PROG pin and resistor labeled 202 (this would require cutting a trace) or replacing the surface mount resistor with a higher resistance value. You can calculate the resistor value with the equation that is presented in section 5.1.2 Current Regulation Set (PROG) of the datasheet http://dlnmh9ip6v2uc.cloudfront.net/datasheets/Components/General%20IC/33244_SPCN.pdf.

COMMENTS 121 REVIEWS ★★★★☆ 23

Customer Reviews

★★★★☆ 4.2 out of 5

Based on 23 ratings:

5 star		8
4 star		11
3 star		4
2 star		0
1 star		0

Currently viewing all customer reviews.

1 of 1 found this helpful:

★★★☆☆ Great form factor, but having issues

about 3 years ago by Member #535882 ✔ verified purchaser

I've bought five of these and I have been having some trouble. It seems that they will charge for a few minutes and then stop or they will not charge altogether. I love how small it is and I am using it in a project, but perhaps the mini-usb version will be a bit sturdier and less finicky.

1 of 1 found this helpful:

★★★☆☆ The best thing out there but even improvable

about 3 years ago by Member #609919 ✔ verified purchaser

I love this product ! I buy more and more. But sometimes I would like that the staff reply to the comments below the product .

and maybe make one with a cutoff circuit (like in the mac books !!!) please .

When the power is connected battery charging and power via 5v usb, when the charger is unplugged battery takes the relay

> Single T replied on April 27, 2015:
>
> Thanks for the feedback. I have passed this along to our engineer in charge of this product for consideration for revision. Thanks and happy hacking.

1 of 1 found this helpful:

★★★☆☆ Small Size, Can't tell if working

about 2 years ago by TopherGopher ✔ verified purchaser

The product seems to work, but the LED on the charger doesn't light up. It"s hard to know how long I should keep the LiPo plugged in for full charge.

1 of 1 found this helpful:

★★★★☆ Works good

about 2 years ago by Member #779185 ✔ verified purchaser

Jest got through test charging the first battery (18650 2000mA), had to find out how the charge indicator worked, " RED While charging, OFF when finished, makes a quick flash when plugged in to the USB and no battery load". Wish I could get the mating connector with Red & Black pigtails for battery but did not find them on the web site as separate Items.

2 of 2 found this helpful:

★★★★☆ Small, simple and inexpensive

about a year ago by Member #3297 ✔ verified purchaser

The footprint is tiny, the operation is simple and the price is right. As other reviewers have suggested, it would be nice if the LED gave more indication than on and off. I can't tell whether it isn't hooked up correctly or if it is hooked up and done charging.

My other suggestion would be to expose a 2-pin header for for the 5V power input. I have it mounted in a tight enclosure where there isn't space for a USB plug, and I wanted to be able to connect it to a panel-mount barrel connector.

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1 of **1** found this helpful:

★★★★★ works great

about 3 years ago by Member #555800 ✔ verified purchaser

Just plug it in and it charges batteries, at a low cost and no trouble whatsoever.

★★★★☆ Great charging breakout, for one cell

about 2 years ago by Member #391234 ✔ verified purchaser

Super tiny and easy to use. We actually made it smaller by desoldering the plug and hardwiring to the pads. It's rated for 500mA, but you can desolder the on-board resistor and replace it with another value – or solder to the two pads nearby – to adjust the charging rate. It says batteries, but it really only charges one cell properly. Now, is there one that balance-charges lipo batteries? That would be cool!

★★★☆☆ Careful

about 2 years ago by Comeau ✔ verified purchaser

If you are going to attach this to another project be careful. I soldered two male headers to the +/- pads in the picture after checking the schematic. Should have worked imho. I pluged it in and now it is toast. Still not 100% on what I did wrong so I couldn't tell you.

★★★★★ Fits the bill.

about a year ago by Member #708053 ✔ verified purchaser

It is small and takes up minimal amount of space which is a plus in my mobile power pack for my project.

★★★★☆ verry handy

about a year ago by Scooter Scott ✔ verified purchaser

this is great you can add this to your project run the power to your project right off the board.

★★★★★ Good simple charger

about a year ago by Member #833726 ✔ verified purchaser

If you need to charge small nut not to small Li-po batteries With JST Connector at reasonable temperatures this does the job. The 500mA fixed current may be to much for small cells, check max charge current or C rating for cells below 500mAh. The 500 mA will charge larger baterries but will be Slow with a capital S. The unit will attempt to charge even if battery temperature is outside operating termperature, if this may apply to your application take precautions.

★★★★☆ Basic but does the job

about a year ago by Member #660640 ✔ verified purchaser

I'm using this to charge batteries for a cycling headlight whose USB charger has failed. Seems to work just fine. It is skimpy on status, the LED is off whether fully charged or disconnected. I would like it to blink when charged to tell the difference.

★★★★★ It's Exactly as Advertised

about 6 months ago by Member #696121 ✔ verified purchaser

The builtin header fits many common LiPo battery connectors without any modification, but the pads also allow you to solder on any other connector you might need.

★★★★☆ Nice little charging unit

about 6 months ago by Member #668728 ✔ verified purchaser

I bought this for a project I was just trying out and wanted to include a rechargeable battery instead of a coin cell. It does the job nicely and I would consider using it for other projects. In fact I'll probably try to build more of these rechargeable batteries into my projects so I can charge up more devices.

★★★★☆ Simple but works fine

about 5 months ago by Member #472790 ✔ verified purchaser

Lacking a proper connection to large copper areas, the charger chip gets quite hot at the start of charge. I would not reduce the set point resistor to use this with larger batteries, just live with the fact that it will take longer to charge. Or use the smaller battery it is designed for, around 500 mAh..

With this caveat, the charger works well and makes it easy to use LiPo cells in many projects. The micro USB extends over the edge of the board a little so it can be mounted in a case with an opening for a standard USB micro cable.

You should be using cells that have an internal protection circuit with this charger. Most of the familiar cell phone style batteries have internal protection. Cylindrical quad copter style batteries often do not have internal protection.

The charger has no undervoltage protection. If you over-discharge a cell it may not be possible to recharge it, So the attached circuit should have some kind of auto shutoff when the battery is low.

The red LED just shows that it is charging. When charge is complete, it goes out. In an actual unit it would help to have another LED (maybe green?) to show that the charger is plugged in. It would be easy to add this, just tap into the 5V from the micro USB and use a resistor to limit LED current. If you use a dual LED it would do the familiar "amber when charging and green when charged" scheme.

★★★★☆ Very good simple basic charger

about 2 weeks ago by Member #915294 ✔ verified purchaser

Very small and easy to connect. The only thing I would do to improve it is to make the current adjust resistor easier to change if you want to reduce the charging current.

★★★★★ Easy to use

about 3 years ago by Beto Arango ✔ verified purchaser

Truly plug and play… that is plug to your computer and go somewhere else and play.. cause your battery no longer needs you around…

★★★★★ Small and very efficient!

about 3 years ago by Member #663434 ✔ verified purchaser

its small size makes this a very versatile charger. For example, I was able to insert this in 5/8" tubing for a LED hula hoop that had a broken external wall charger. I saved 30 bucks from ordering a charger from the hoop manufacturer, and now the hoop can be charged via USB! no more worries about carrying around the correct charger. My only complaint is I wish it was a wee bit cheaper!

★★★★☆ Indispensable for battery-powered projects

about 2 years ago by Member #622128 ✔ verified purchaser

These LiPo charger 'basic' modules are working fine for me, although I wish Sparkfun could include solder pads for Vin and GND so bypassing the USB connectors would be a bit easier. I had to parse through the schematic and view the board under magnification to figure out the +V and GND runs, and even then I screwed up two basics before I got it right.

I have a dual LiPo battery setup for one of my wall-following robots. A relay switches the batteries from a parallel configuration for powering my robot to a parallel configuration for charging. The on-board charge status LED is a nice touch, too.

On an earlier project I used the basic's big brother with the 3.3-to-5V boost option, but realized I didn't really

need the boost feature, so went with the ‘basic’ for all subsequent work.

★★★★☆ I, too, would *LOVE* to see holes for access to Vin.

about 2 years ago by Member #794847 ✔ verified purchaser

I’d like to imbed this, but I’m not even going to try to take that USB connector off or solder a wire in there. [I'l probably buy a bare Micro USB plug and use that.]

★★★★☆ Love these boards...

about 2 years ago by threadwitch ✔ verified purchaser

because they do exactly what they’re supposed to (charge the lips batteries I use in wearables), they’re small, and thus can be carried in quantity to Maker Faires, and keep my electronic wearables batteries happy and powered. They’re also faster than anything else I’ve tried, without making me afraid something will catch fire.