

## Application of TP4056 5V 1A Micro USB Lithium Battery Charging Board

### Introduction

The TP4056 charger board uses the TP4056 lithium ion charge controller IC. This board is very cheap and comes in small size makes it easy to add to any of your projects. There are a couple of different versions of the TP4056 charger board. The two most common ones are pictured below.



This charging board capable of charging single cell lithium batteries using the constant current to constant voltage charging method. The board on top adds additional circuitry which provides over-discharge, over current, and short circuit protection. It also uses a micro USB connection instead of mini USB. The boards feature two indicator LEDs, a green or blue LED to indicate that the battery is fully charged, and a red LED to indicate that the battery is charging.

User have the option to power the board via a USB cable or by attaching an external power source to the IN+ and IN- pads on the left-hand side. The lithium battery is connected to the BAT+ and BAT- pads on the right-hand side. If you are using the board with the protection circuit, you can connect the output to the OUT+ and OUT- pads. Connect the output wires to the BAT+ and BAT- if your board does not have a protection circuit.

The charging current is set to 1 A. This setting is fine for 18650 and similar style lithium batteries but is too high for lower capacity lithium polymer batteries. You can lower the charging current by changing the R3 resistor

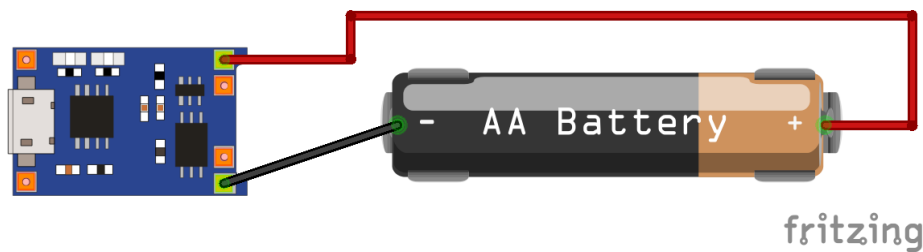
## Components

- TP4056 Charging Board
- I8650 Battery (Any Lithium ION batteries should work)
- Wire

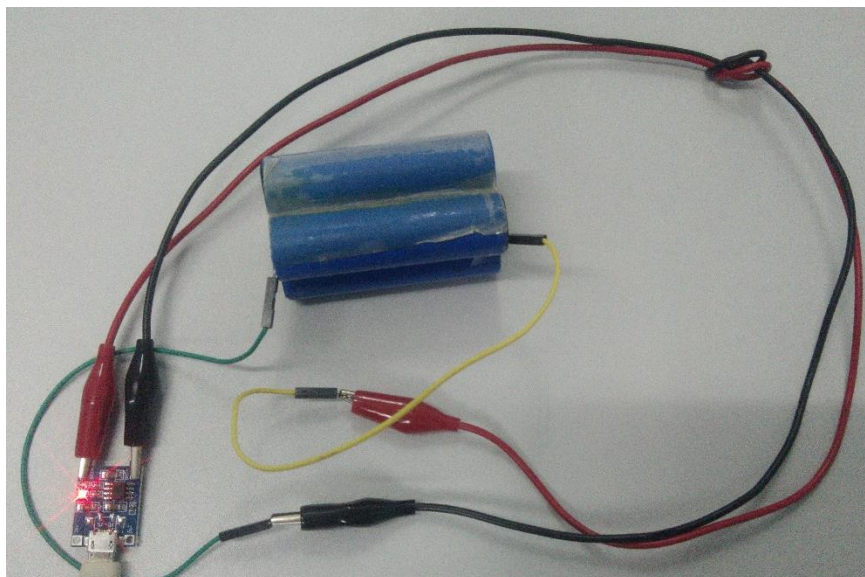
## Procedure

1. Connect the TP4056 Charging Board and I8650 Battery based on picture below.

TP4056	Battery
Bat +	Positive +
Bat -	Negative -



2. Connect the Micro USB cable and turn on the switch the Red indicator LED will light up means the battery still in charging condition.



3. The indicator LED will turn Blue when the battery was fully charged you can now turn off the plug and disconnect the Micro USB cable.

