

Lithium Battery Charging & Protection Module

Model: TP4056



Description:

This module is used for charging rechargeable lithium batteries using the constant-current/constant-voltage (CC/CV) charging method. In addition to safely charging a lithium battery, the module also provides necessary protection required by lithium batteries.

Features:

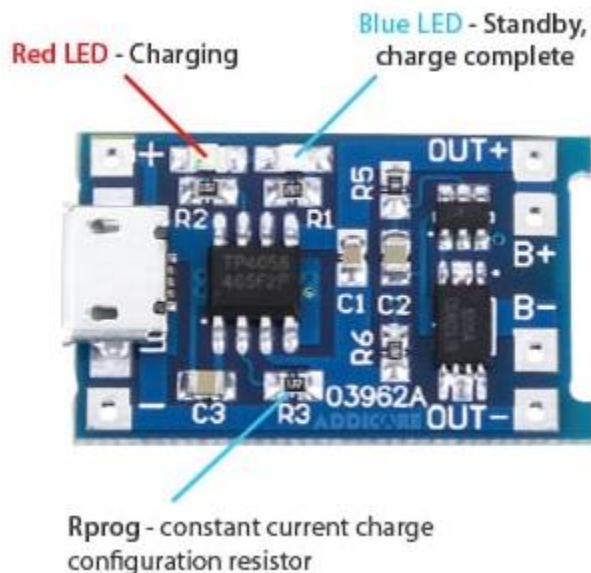
- This module uses both the TP4056 / TC4056 and the DW01A Li-Ion battery protection IC, which together in combination provide the following protection features:
 - Manage the constant current to constant voltage charging of a connected lithium battery
 - Over-discharge protection - keeps your battery from being discharged below 2.4V, a healthy minimum voltage level for your battery
 - Overcharge protection - the module will safely charge your battery to 4.2V
 - Overcurrent and short-circuit protection - the module will cut the output from the battery if the discharge rate exceeds 3A or if a short-circuit condition occurs.
 - Soft-start protection limits inrush current.
 - Trickle charge (battery reconditioning) - if the voltage level of the connected battery is less than 2.9V, the module will use a trickle charge current of 130mA until the battery voltage reaches 2.9V, at which point the charge current will be linearly increased to the configured charge current.
- Can be powered, for charging, from a Type-C USB cable or the + and - connections. The power source needs to be able to provide at least 1A for the charger to correctly charge a connected battery. Most modern phone/USB chargers can provide 1A or more.
- Includes two indicator LEDs. Red LED indicates charging. Blue LED indicates charge complete.
- You can connect two lithium battery cells in parallel to form an equivalent single cell battery with a total capacity of twice that of the individual single cells, but we do not recommend connecting more than two cells at a time to this module.

Specifications:

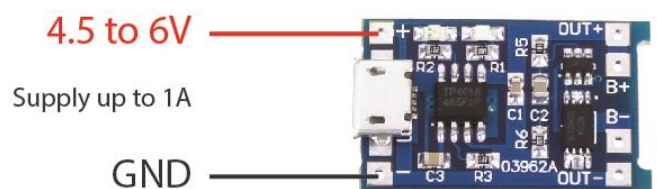
Charge Controller	TP4056/TC4056A
Protection IC	DW01A
Charge/Discharge Control MOSFET	FS8205A
Charge Method	Constant-Current/Constant Voltage (CC/CA)
Input Supply Voltage	5V
Constant Charge Current	1000mA
Charge Complete (Float) Voltage	4.2V $\pm$ 1%
Overcharge Protection	
Overcharge Detection Voltage	4.3V $\pm$ 50mV
Overcharge Release Voltage	4.1V $\pm$ 50mV
Over-Discharge Protection	
Over-Discharge Detection Voltage	2.4V $\pm$ 100mV
Over-Discharge Release Voltage	3.0V $\pm$ 100Mv
Overcurrent Protection	
Overcurrent Protection Threshold	3A
Overcurrent Cutout Delay	10~20ms
Short-Circuit Cutout Delay	5~50 μ s
Trickle Charge (Battery Reconditioning)	
Trickle Charge Threshold Voltage	2.9V $\pm$ 0.1V
Trickle Charge Current	130mA $\pm$ 10mA
Dimensions	
Length	26mm
Width	17mm
Weight	1.6g

More Product Details:

Indicator LEDs and Config Resistor



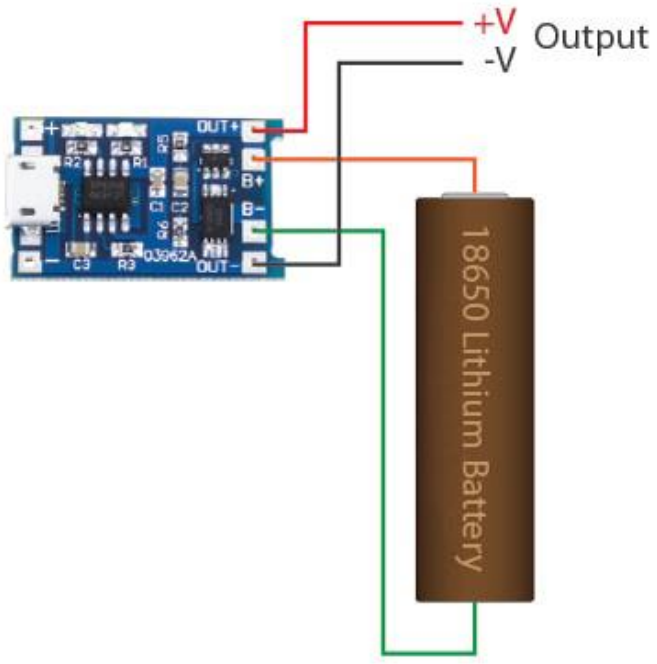
Power Supply Options



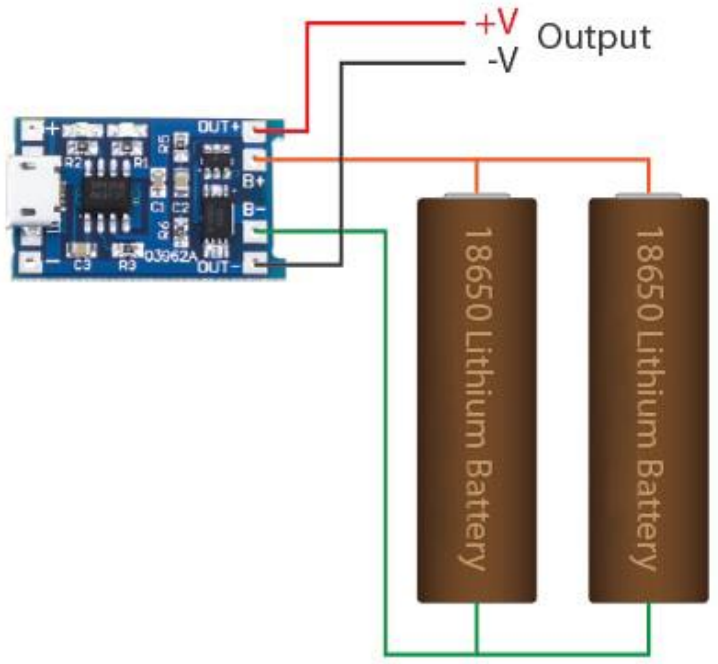
or



Single Cell Connection



Two Cells Parallel Connection



Made in China



TP4056 MODULE+

TP4056 - Micro USB 5V 1A Lithium Battery Charger with Protection

Description

This tiny module is perfect for charging single cell 3.7V 1 Ah or higher LiPo cells such as 16550s that don't have their own protection circuit.

Based around the TP4056 charger IC and DW01 battery protection IC this module will offer 1A charge current then cut off when finished.

Futhermore when the battery voltage drops below 2.4V the protection IC will switch the load off to protect the cell from running at too low of a voltage - and also protects against over-voltage and reverse polarity connection (it will usually destroy itself instead of the battery) however please check you have it connected correctly the first time.

Using the module

- Connect micro USB cable for power, or 5V DC to pads marked IN+ and IN- on left-hand side of the module
- Connect cell to charge to B+/B- pads on right-hand side of module
- A load (something for the battery to power) can be connected to the OUT+/OUT- pads on the right-hand side
- Important! Disconnect load when charging
- The red LED indicates chaging in progress, green LED indicates charging has finished.
- Never charge your battery at a rate greater than 1C.

Specifications

- Input voltage - 5V via microUSB or solder pads on left-hand side of module
- Full charge voltage - 4.2V
- Charging current - 1A by default. However you can change this by changing the 1k2 resistor next to the "IN-" pad the bottom-left of the board. See the Rprog table on page three of the TP4056 data sheet for different values and matching charging currents

