



LOVE Light

Created by Erin St Blaine



<https://learn.adafruit.com/love-light>

Last updated on 2025-03-26 07:06:41 PM EDT

Table of Contents

Overview	3
<hr/>	
• Additional Tools & Materials	
Assembly	6
<hr/>	

Overview

Let your LOVE light shine with this lovely handmade light. Press gently on the wooden base to turn the sign on or off. The warm white glow illuminates your bedside table and shouts your message to the world.

This project will work with any 4-letter word using our LED letter filaments. This one is battery powered so you can take it anywhere, anytime. I'll also show you how to make a USB powered version, for that eternal glow.

This is a fairly easy project. You'll need to solder together some components but there's no coding or software required: these lights just power up and glow.

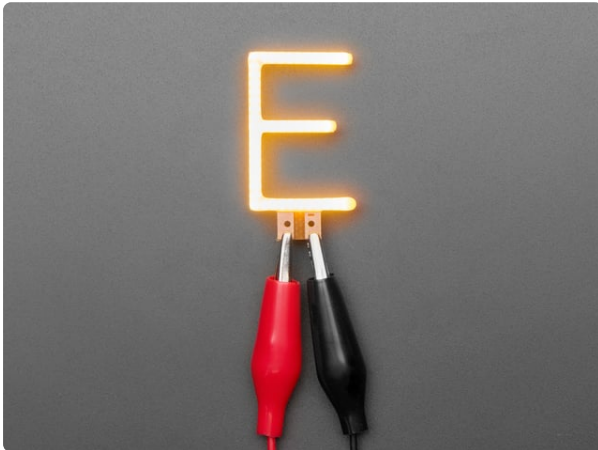


This warm-white glowy letter is made out of COB (chip on board) LEDs, often seen in 'Edison-like' LED bulbs, arranged in different patterns to give a bright, warm lighting effect. They're made of dozens of micro LED diodes that are bonded together on a stiff metal backing and then coated in silicone for protection. Even though the LEDs are only placed on one side, the PCB substrate is very thin so it glows out the back too (although a little dimmer)

Please note that these are NOT flexible! However, they have a nice uniform glow all the way around and do an excellent job of mimicking a tungsten-like filament.

These letters light up when you give them 3v. For a 4-letter word, that means we need 12v (3v x 4 letters) to get all four lit up, if we wire them in series. Adafruit carries a 12v Bias Voltage Boost Converter: a little chip that takes a 3-5v input (like from a LiPoly battery or USB cable) and steps it up to 12v. Perfect!

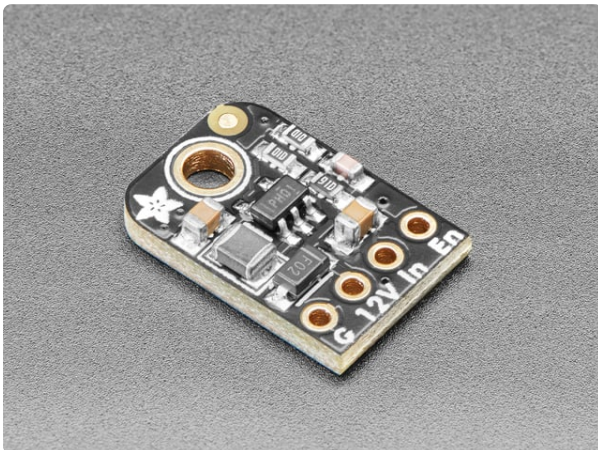
We recommend using a 100 ohm resistor to keep the lights from getting too much power.



[Alphabet LED Filament - Warm White Letter "E"](https://www.adafruit.com/product/6195)

This warm-white glowy letter is made out of COB (chip on board) LEDs, often seen in 'Edison-like' LED...

<https://www.adafruit.com/product/6195>



[Adafruit 12V Bias Voltage Boost Converter - TPS61040](https://www.adafruit.com/product/5644)

The Adafruit 12V Bias Voltage Boost Converter uses our new favorite mini-booster, the TI TPS61040, to generate a 12V...

<https://www.adafruit.com/product/5644>

[1 x 100 ohm Resistor](https://www.adafruit.com/product/4293)

Through-Hole Resistors - 100 ohm 5% 1/4W - Pack of 25

<https://www.adafruit.com/product/4293>

I added a clicky on/off switch to the bottom of my lamp, and embedded it so it just sticks up enough that when I touch the wooden lamp base I can actuate the switch.

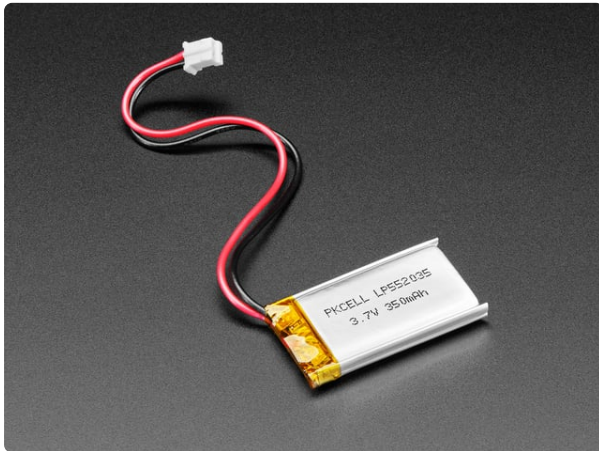


[Mini On/Off Push-Button Switch](https://www.adafruit.com/product/3870)

Push once to turn on, push again to turn off, push again to turn the other side on, one last push and it's off again! It's basically a push-button toggle switch that connects...

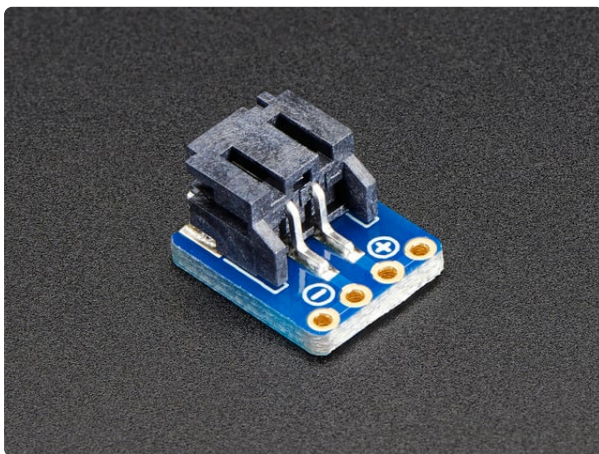
<https://www.adafruit.com/product/3870>

If you want a battery powered light, this setup works great. LiPoly batteries come in all different sizes. I like this one because it's small and powerful, but it does need to be charged more often than our larger sizes. Be sure to get a charger too.



[Lithium Ion Polymer Battery - 3.7V 350mAh](https://www.adafruit.com/product/2750)

Lithium-ion polymer (also known as 'lipo' or 'lipoly') batteries are thin, light, and powerful. The output ranges from 4.2V when completely charged to 3.7V. This... <https://www.adafruit.com/product/2750>



[JST-PH 2-Pin SMT Right Angle Breakout Board](https://www.adafruit.com/product/1862)

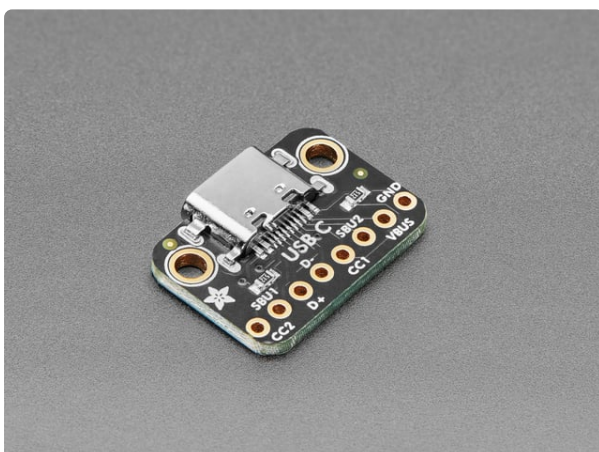
A simple 2-pin connector soldered onto a breadboard-friendly breakout. This is compatible with the "JST PH 2-pin" connector. Mates perfectly with all our 1-cell <https://www.adafruit.com/product/1862>

1 x [Battery Charger](https://www.adafruit.com/product/1304)

JST LiPoly Battery Charger

<https://www.adafruit.com/product/1304>

If you prefer to make a plug-in version, use this USB breakout instead of the JST connector. Get a USB cable to plug it into the wall.



[Adafruit Sunken USB Type C Breakout Board](https://www.adafruit.com/product/6050)

When you want a svelte USB C build, a 'sunken' type connector that straddles the PCBA will let you keep your build super slim. This breakout gives you all the contacts for a... <https://www.adafruit.com/product/6050>

1 x USB C Cable

USB C Cable

<https://www.adafruit.com/product/4474>

2 x Silicone Stranded Wire

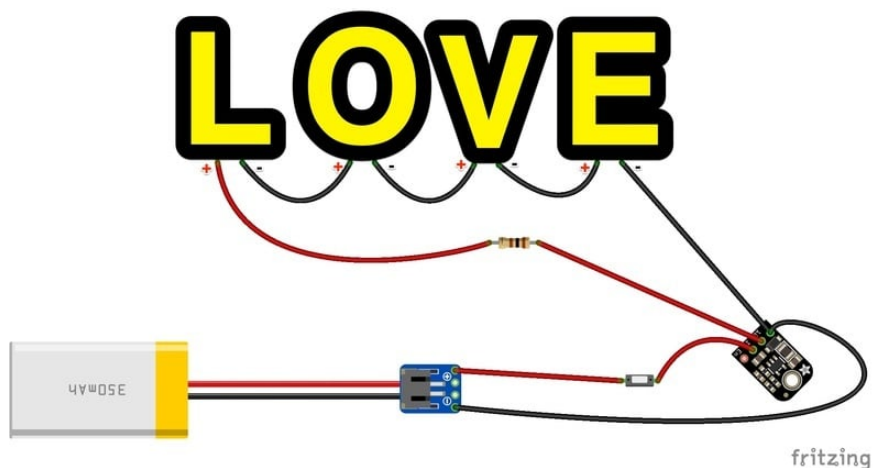
Silicone Stranded Wire in Red and Black

<https://www.adafruit.com/product/1877>

Additional Tools & Materials

- Soldering iron & accessories
- Hot glue gun
- Hardwood or other base material
- A Table saw is useful for making the base (though not required)

Assembly



Connect the red wire as follows:

- JST Connector + (or USB breakout **VBUS**)
- Power switch **IN**
- Power switch **OUT** (interchangeable)
- 12v Boost Converter **IN**
- 12v Boost Converter **12v**
- Resistor **in/out**
- + (anode) pad of your first letter

Connect the black wire as follows:

1. JST Connector - (or USB breakout G)
2. 12v Boost Converter G

3. - (cathode) pad of your last letter

4. Connect the rest of the letters as shown: the wire goes from the cathode of one letter to the anode of the next letter.

Follow along with the video at the beginning of this guide for a step-by-step build tutorial.