

Power Supply and DC Regulators on a PCB for MCUs

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2/3/22

1 Introduction

This HW we created a DC Power Regulator where we could choose between 5V, 3.3V, 1A, and 3A and connect it to a bread board with ease.

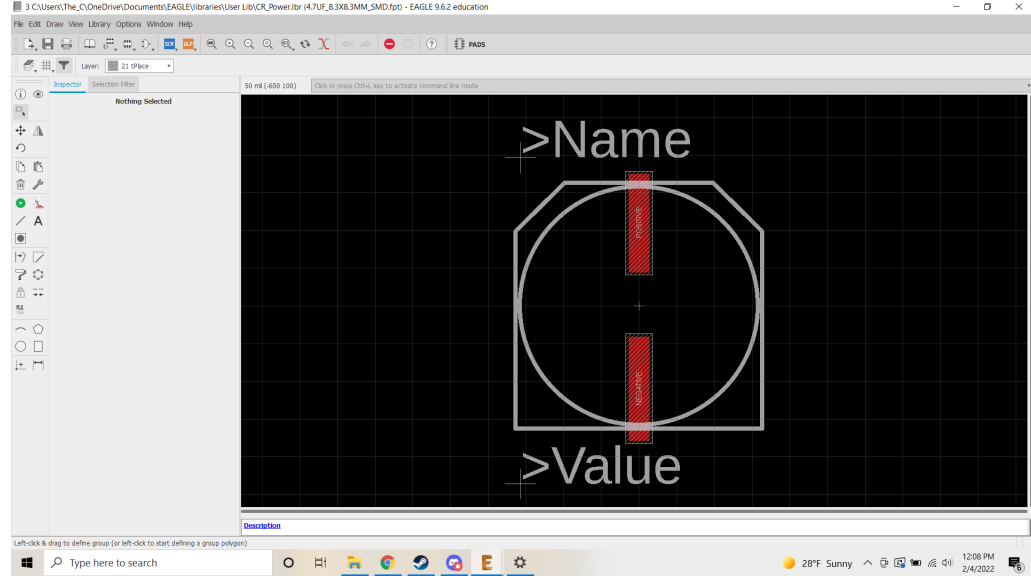
2 Materials and Methods

The tutorial this DC regulator is based on is found: http://www.yilectronics.com/Courses/CE351_Microcontrollers/s2022/lectures/powerSupply/powerSupply.html

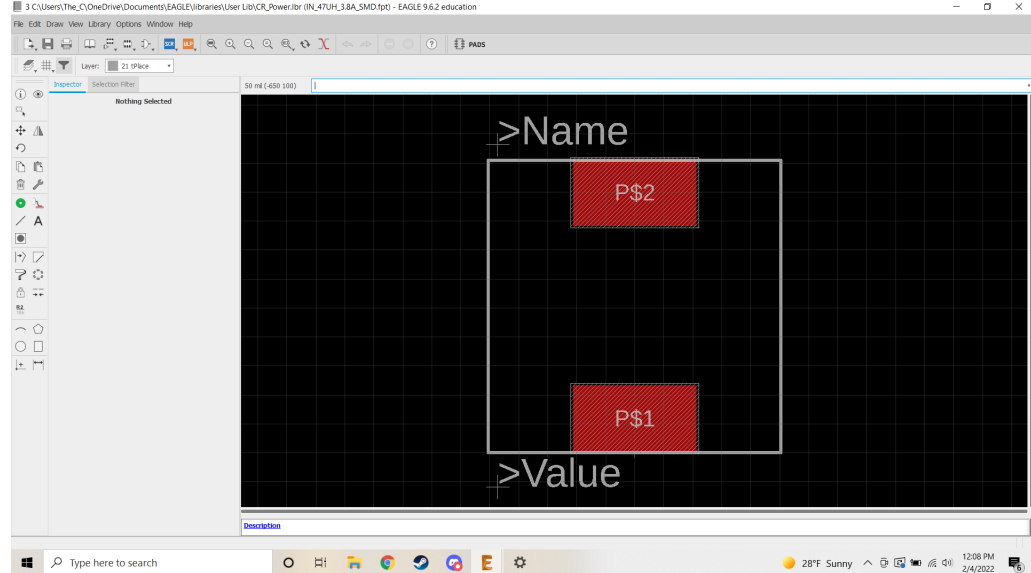
3 Results

3.1 Designing required devices

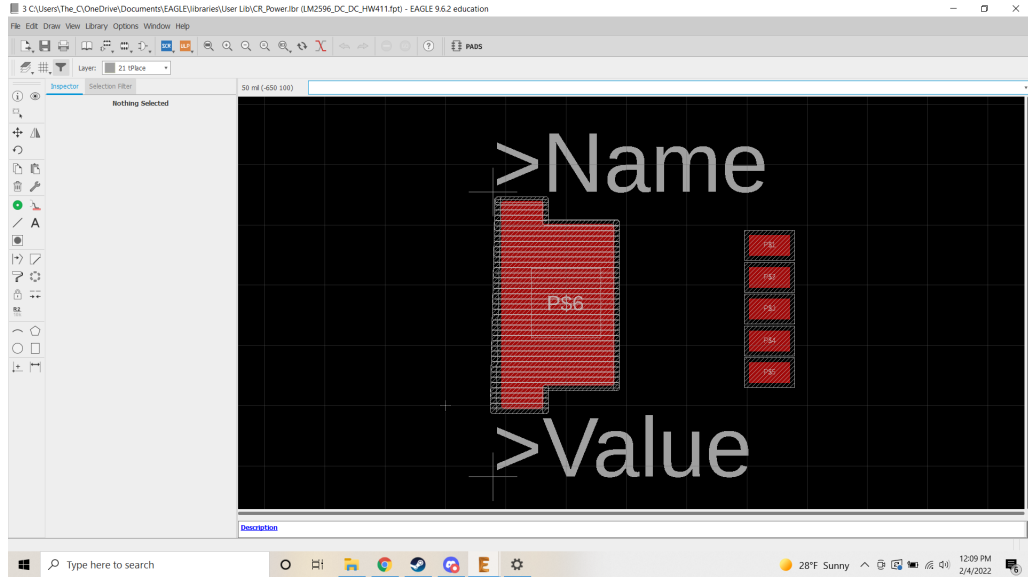
4.7uF Capacitor:



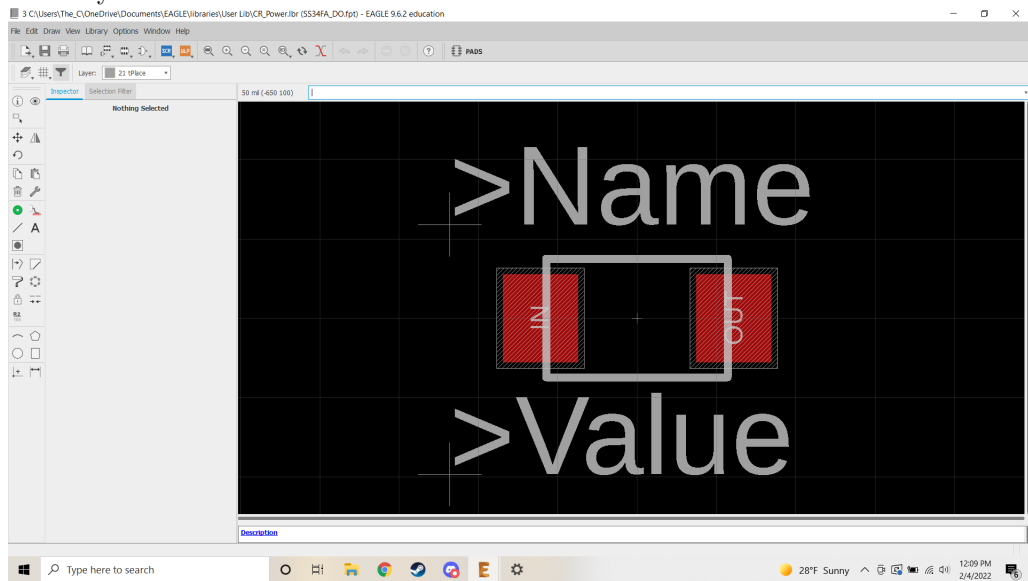
Inductor:



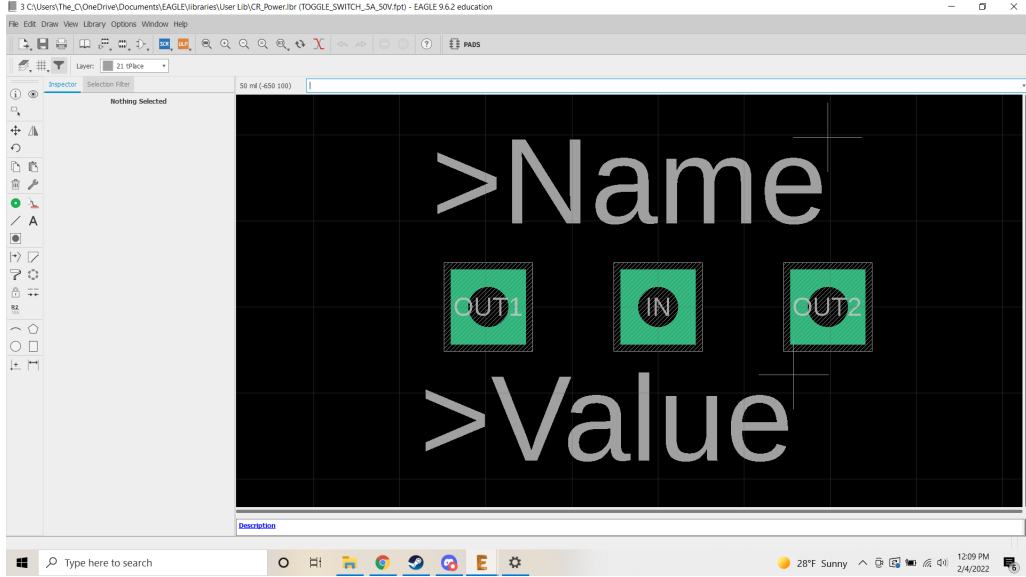
LM2596:



Schottky Diode:

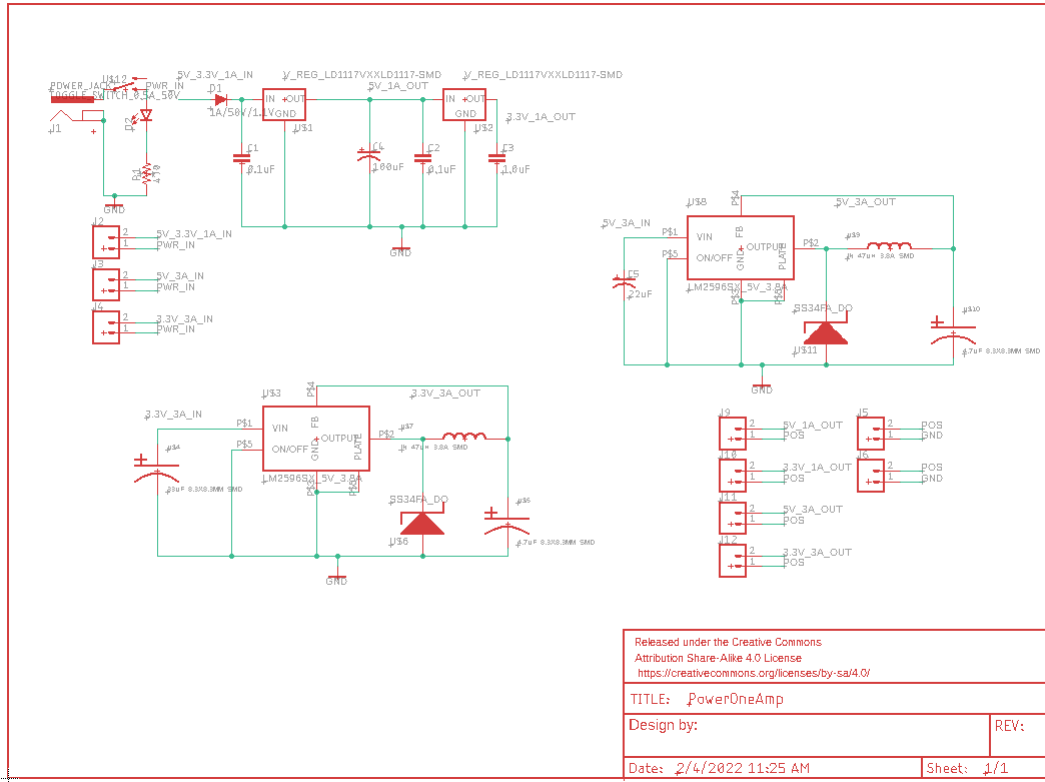


Switch:



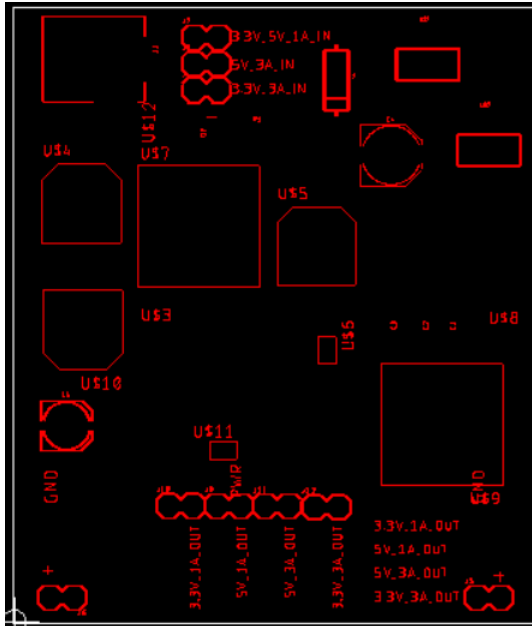
3.2 Schematic / Board

Schematic:

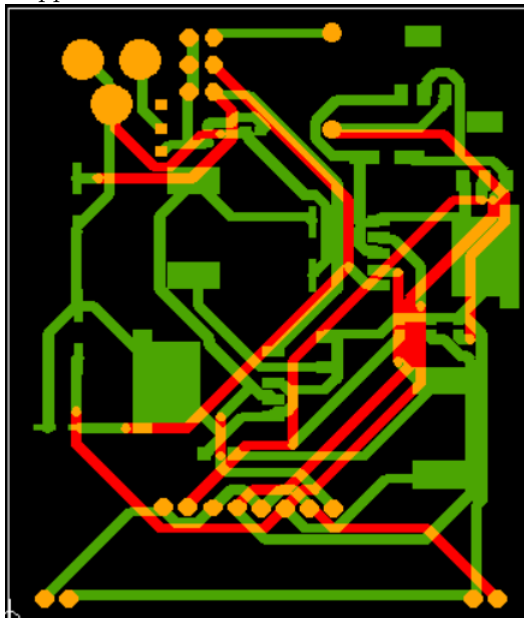


3.3 Gerber File

Silkscreen:



Copper:



4 Discussion

This was a very fun project albeit very time consuming. I triple checked my measurements and the had no DRC or ERC errors besides the value warnings. It is difficult to see in some the images, but there is tstop on all the pads. For future reference, the outer distance between the 2 positive terminals on the breadboard is 47.5mm and the distance between the positive and negative on both sides are 2.55mm. I followed the part placement and connections from the video tutorial and replaced the Schottky diode with the one you emailed us.