Supporting Information

Open Source Photoreactor

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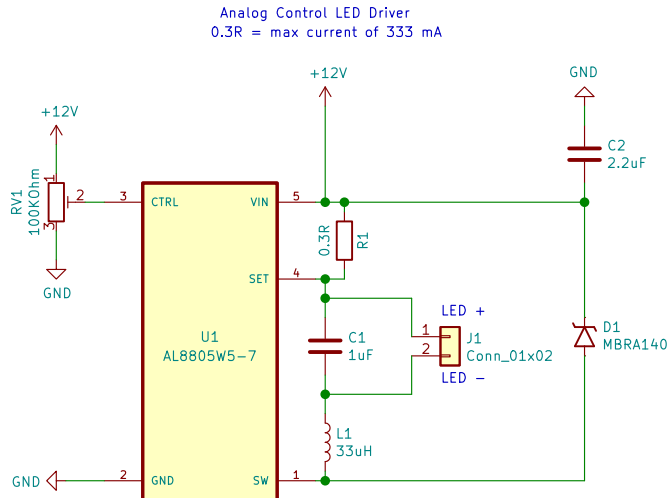*Corresponding Author
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1 Introduction

2 Mechanical Construction

3 Electronics

3.1 Analog

Analog Control LED Driver
0.3R = max current of 333 mA

+12V

+12V

GND

C2
2.2uF

RV1
100KOhm

3

2

CTRL

VIN

5

0.3R

R1

SET

4

U1
AL8805W5-7

C1
1uF

LED +

1

2

J1
Conn_01x02

D1
MBRA140

LED −

GND

2

GND

SW

1

L1
33uH

This LED driver is adapted from SparkFun femtobuck design.
I've added a trim pot to control the driver. It should output constant 330 mA to LEDs.

J2
Barrel_Jack

Board Power
PWR_FLAG

PWR_FLAG

1

+12V

+12V

2

GND

GND

J3
Barrel_Jack

Daisy Chain Power

1

+12V

2

GND

Analog Control Fan

+12V

LM2941S regulates output and allows for trim pot to control Fan speed without using PWM signal.

4

IN

OUT

5

C3
0.47uF

2

ON/OFF

U2
LM2941S

R2
8KOhm

C4
22uF

Tacho
3

M1
Fan_4pin

GND

ADJ

1

2

RV2
5kOhm1

3

PWM
4

6

GND

GND
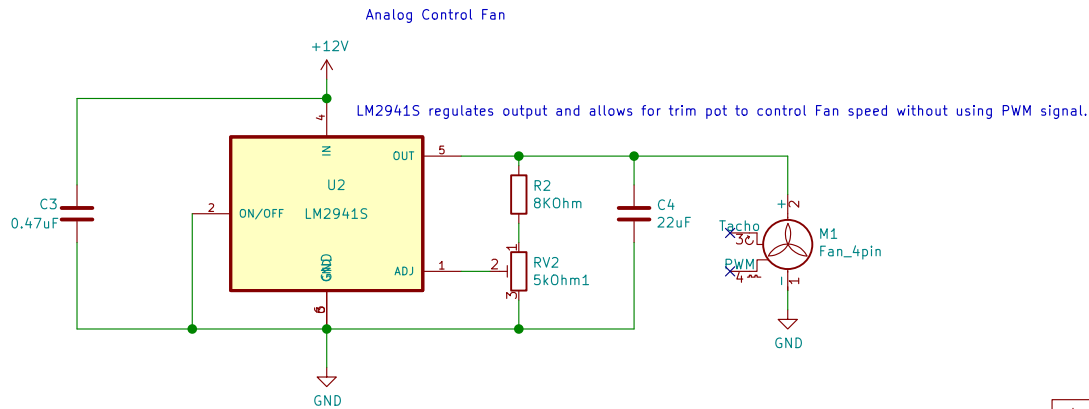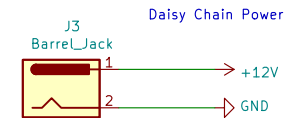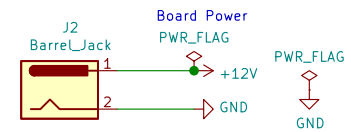
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Sheet: /
File: driver.sch

Title: Analog Photoreactor Driver

Size: USLetter | Date: 2021-01-19 | Rev: 1.0.0
KiCad E.D.A. kicad 5.1.8+dfsg1-1+b1 | Id: 1/1

3.2 Digital

3.2.1 Driver

3.2.2 Controller

4   Efficacy