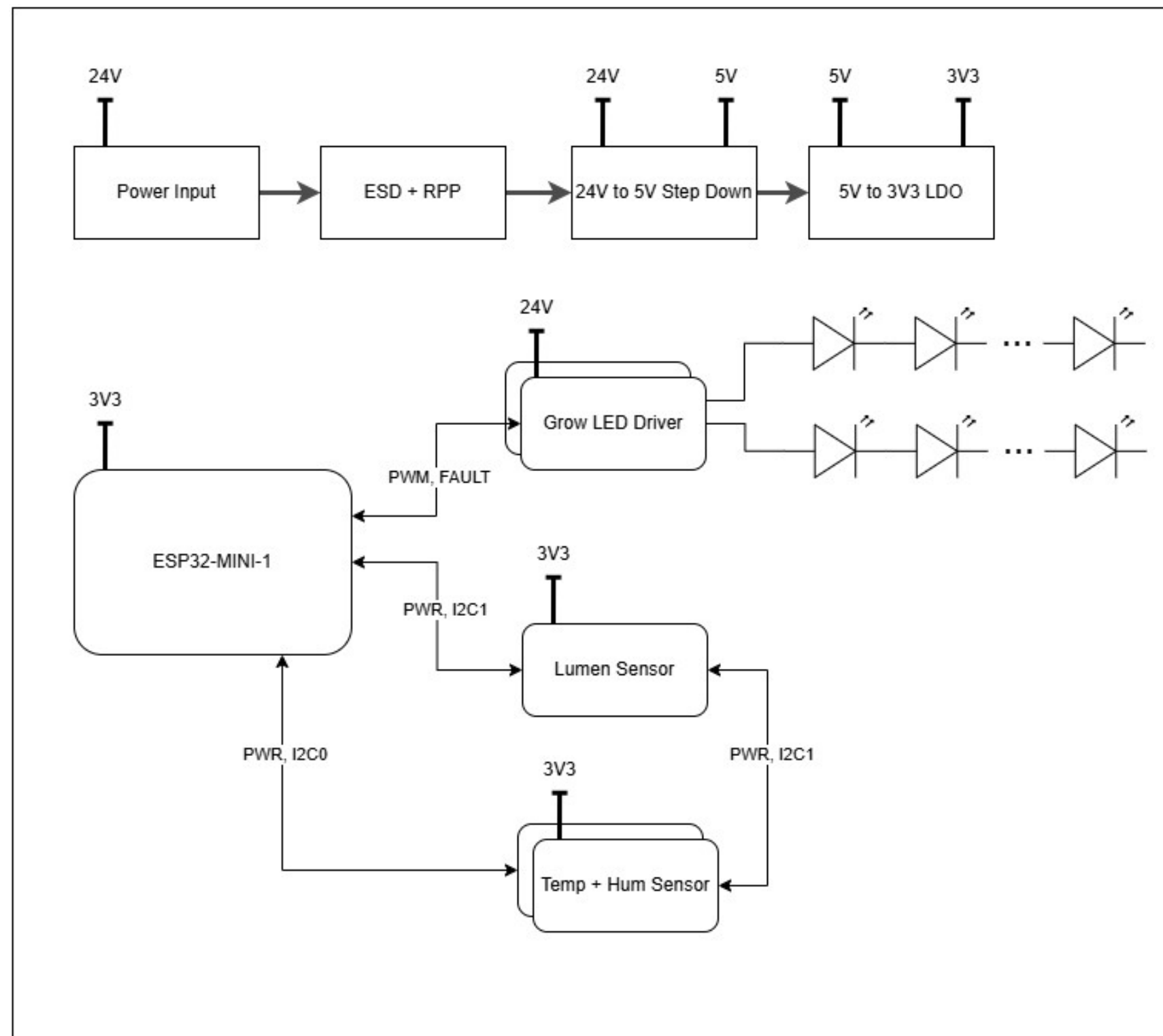


1

2

3

4



Title: Block Diagram

Designer: Akshat Doctor

Date: 2024-11-13

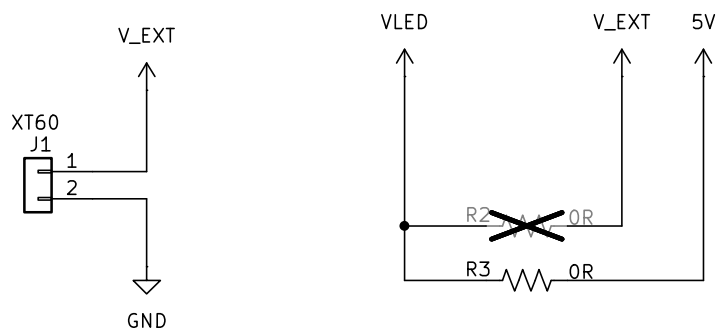
Rev: 1.0.0

Company: Demeter

Pg: 2/9

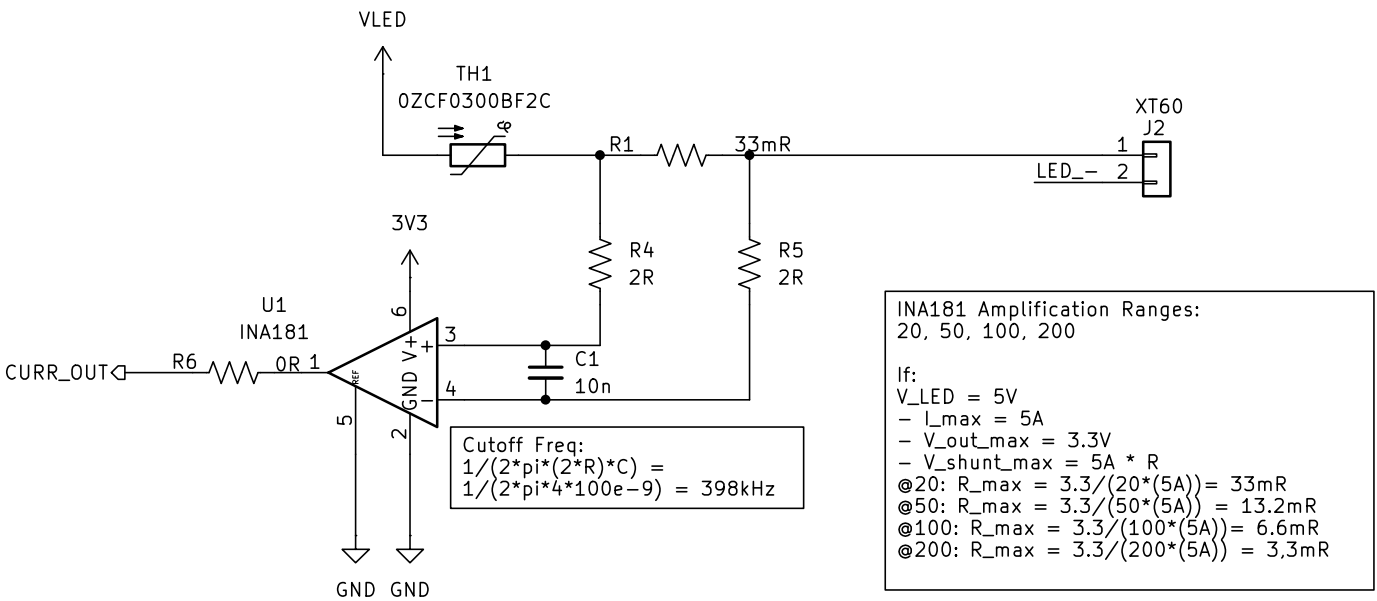


External Voltage



External Voltage Input for
different LED strips
Use 0R JUMPER to choose rail

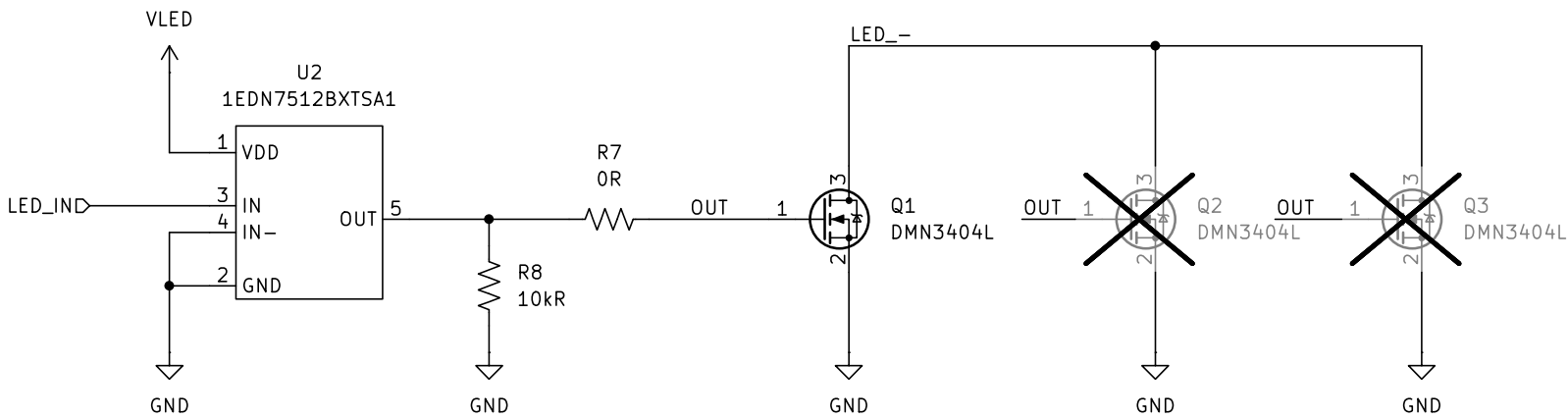
Current Sense



INA181 Amplification Ranges:
20, 50, 100, 200

If:
V_LED = 5V
- I_max = 5A
- V_out_max = 3.3V
- V_shunt_max = 5A * R
@20: R_max = 3.3/(20*(5A)) = 33mR
@50: R_max = 3.3/(50*(5A)) = 13.2mR
@100: R_max = 3.3/(100*(5A)) = 6.6mR
@200: R_max = 3.3/(200*(5A)) = 3.3mR

Low Side Driver



Title: LED Driver

Designer: Akshat Doctor

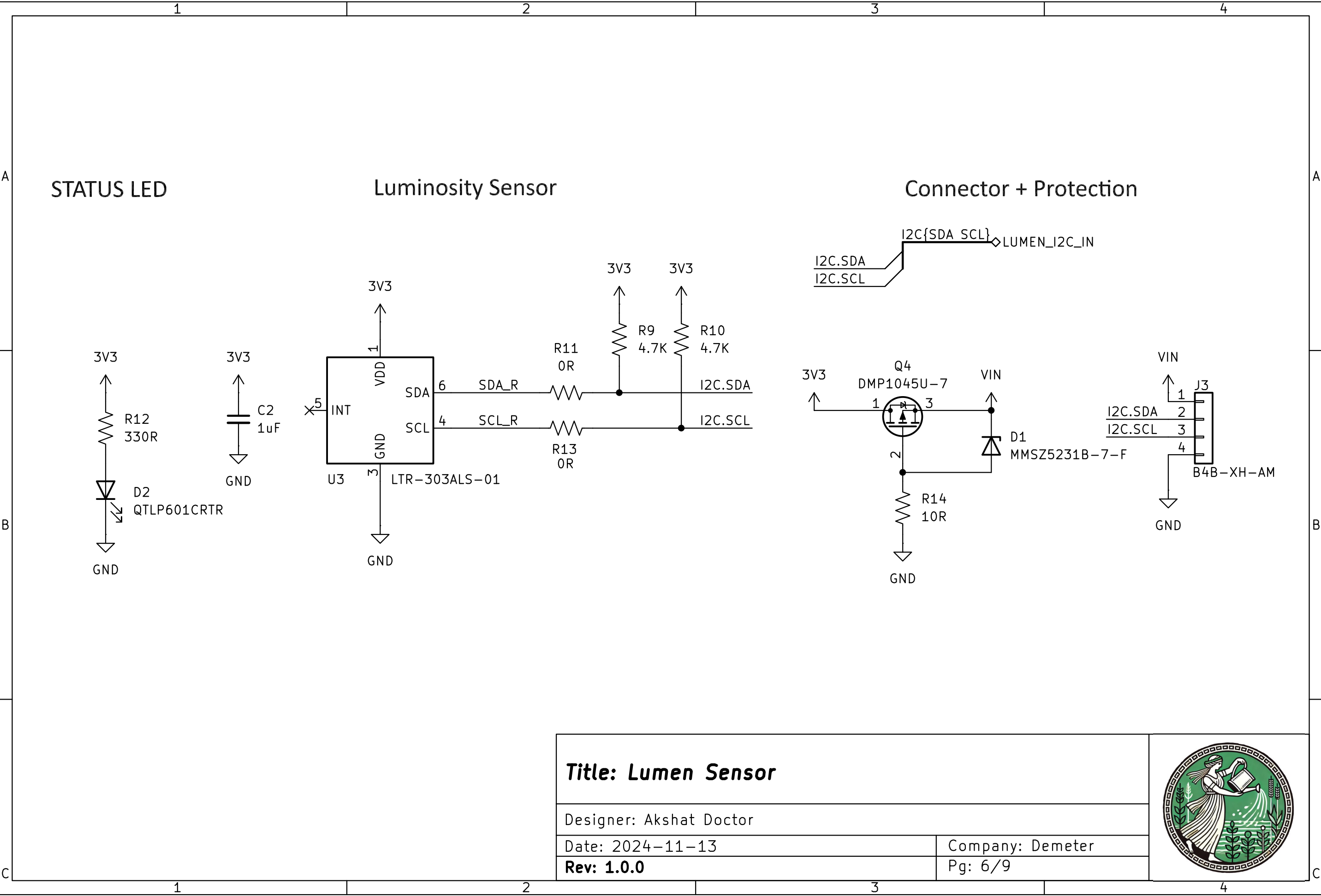
Date: 2024-11-13

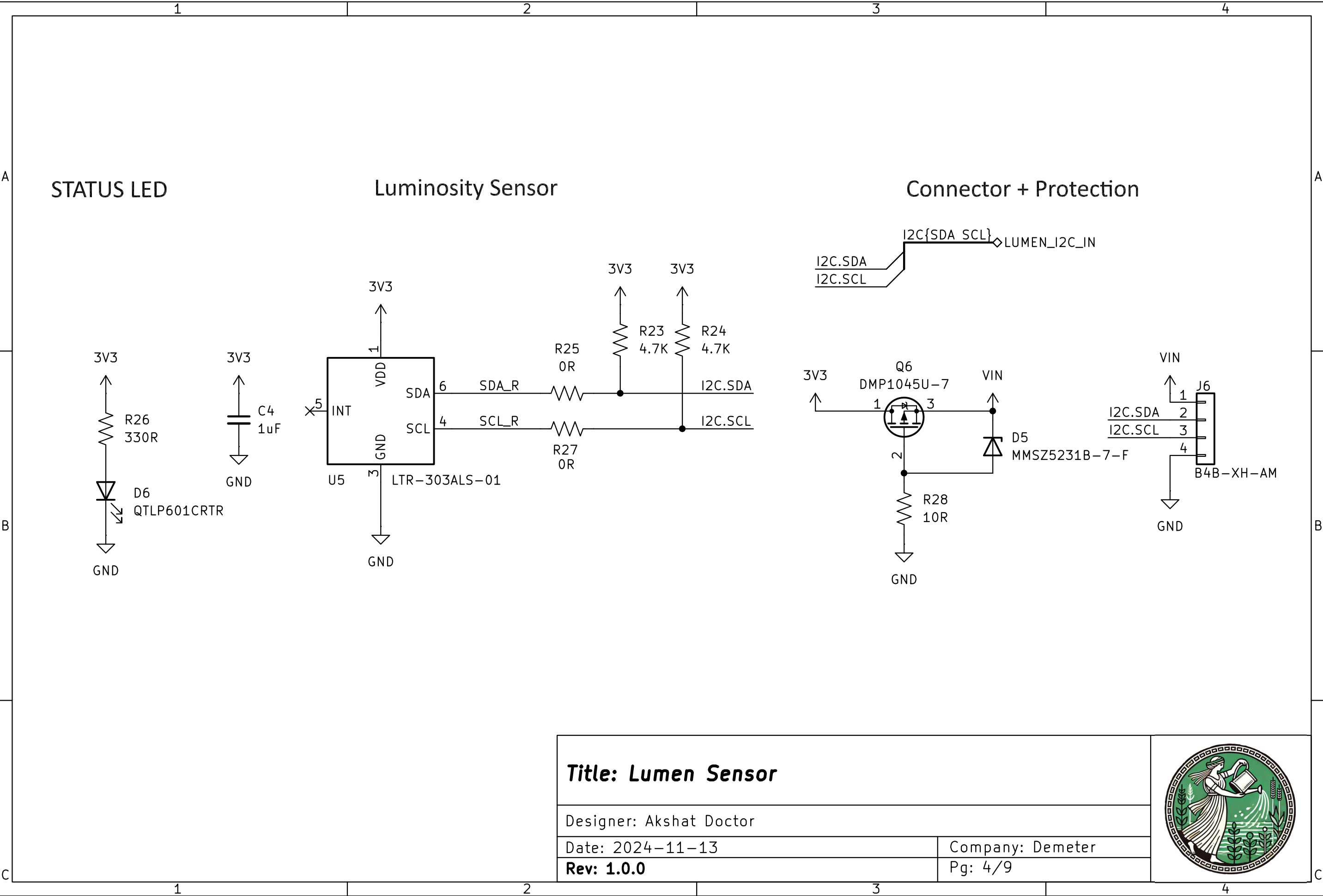
Rev: 1.0.0

Company: Demeter

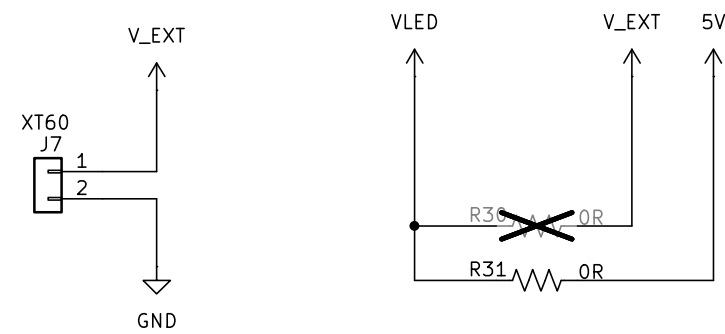
Pg: 7/9





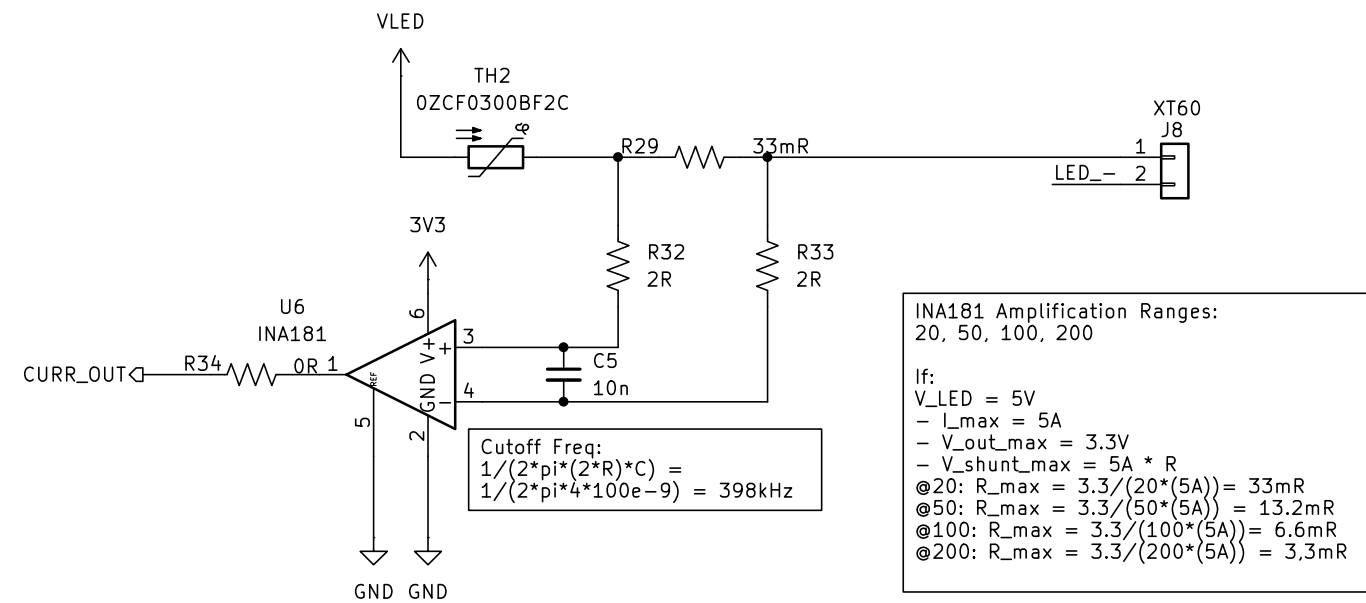


External Voltage



External Voltage Input for
different LED strips
Use OR JUMPER to choose rail

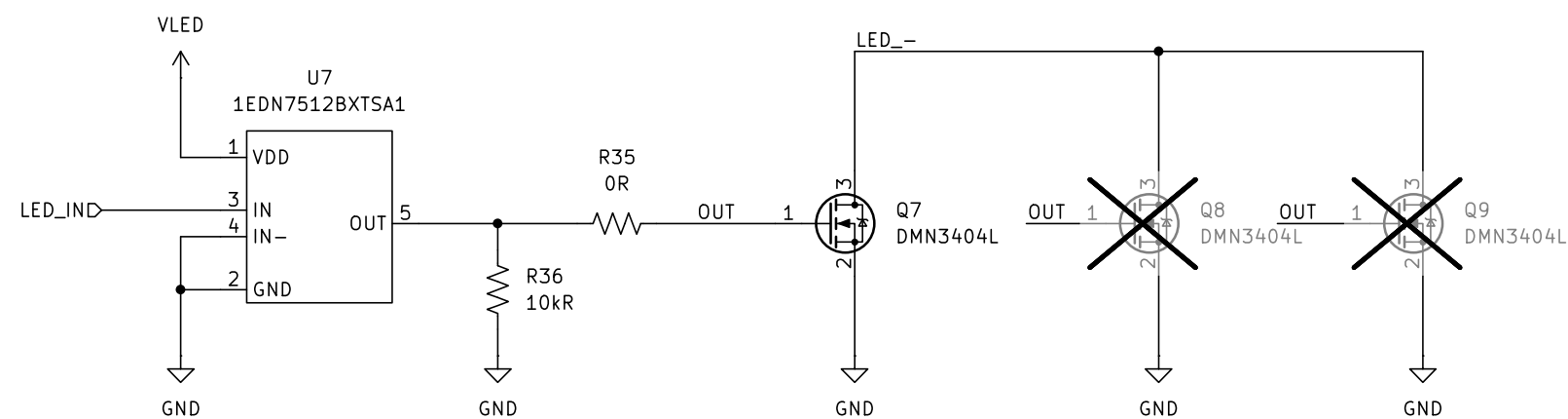
Current Sense



INA181 Amplification Ranges:
20, 50, 100, 200

```
If:
V_LED = 5V
- I_max = 5A
- V_out_max = 3.3V
- V_shunt_max = 5A * R
@20: R_max = 3.3/(20*5A) = 33mR
@50: R_max = 3.3/(50*5A) = 13.2mR
@100: R_max = 3.3/(100*5A) = 6.6mR
@200: R_max = 3.3/(200*5A) = 3.3mR
```

Low Side Driver



Title: LED Driver

Designer: Akshat Doctor

Date: 2024-11-13

Rev: 1.0.0

Company: Demeter

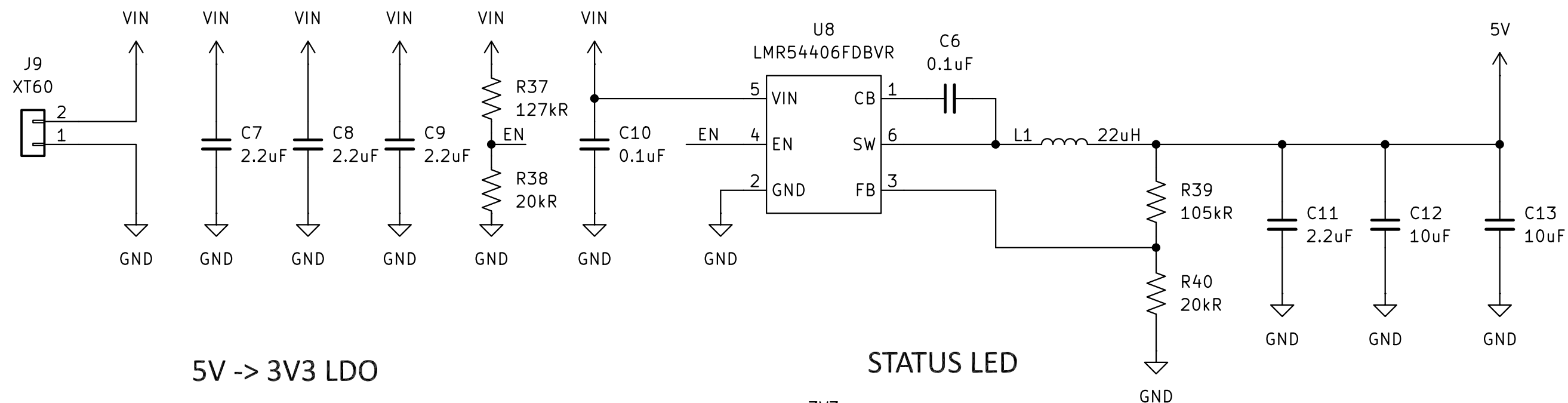
Pg: 3/9



VIN: 24V
I_{in}: 12 A

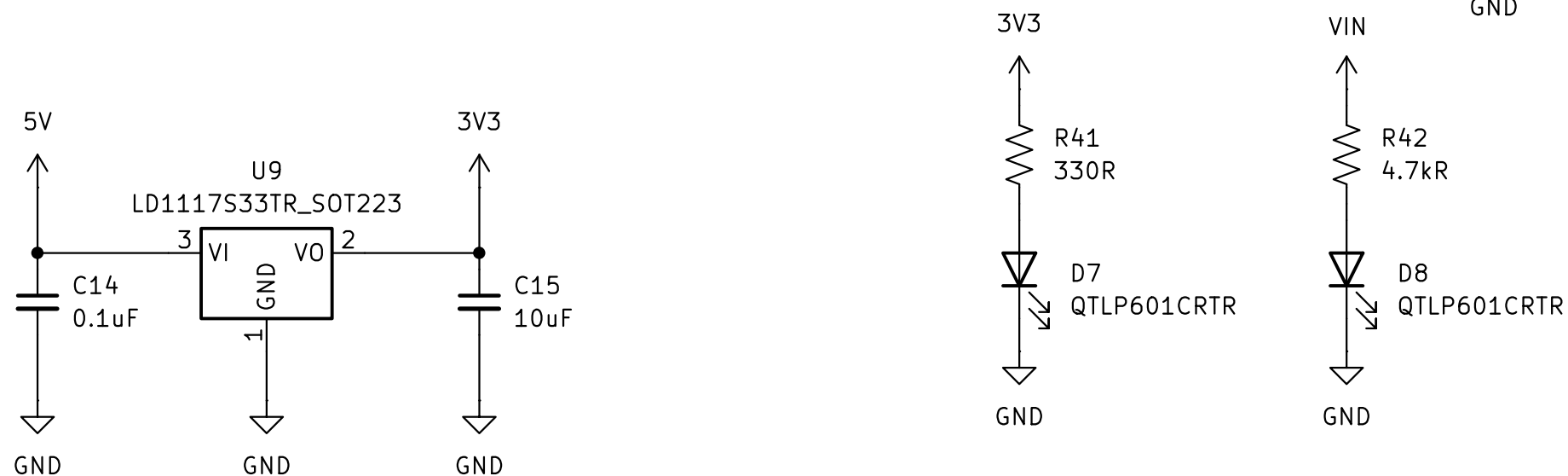
INPUT CONNECTOR

24 -> 5V Buck



5V -> 3V3 LDO

STATUS LED



Title: Power

Designer: Akshat Doctor

Date: 2024-11-13

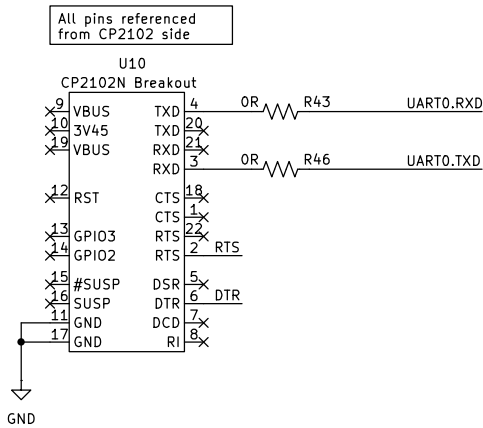
Rev: 1.0.0

Company: Demeter

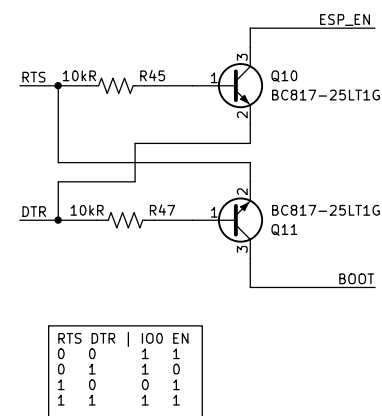
Pg: 8/9



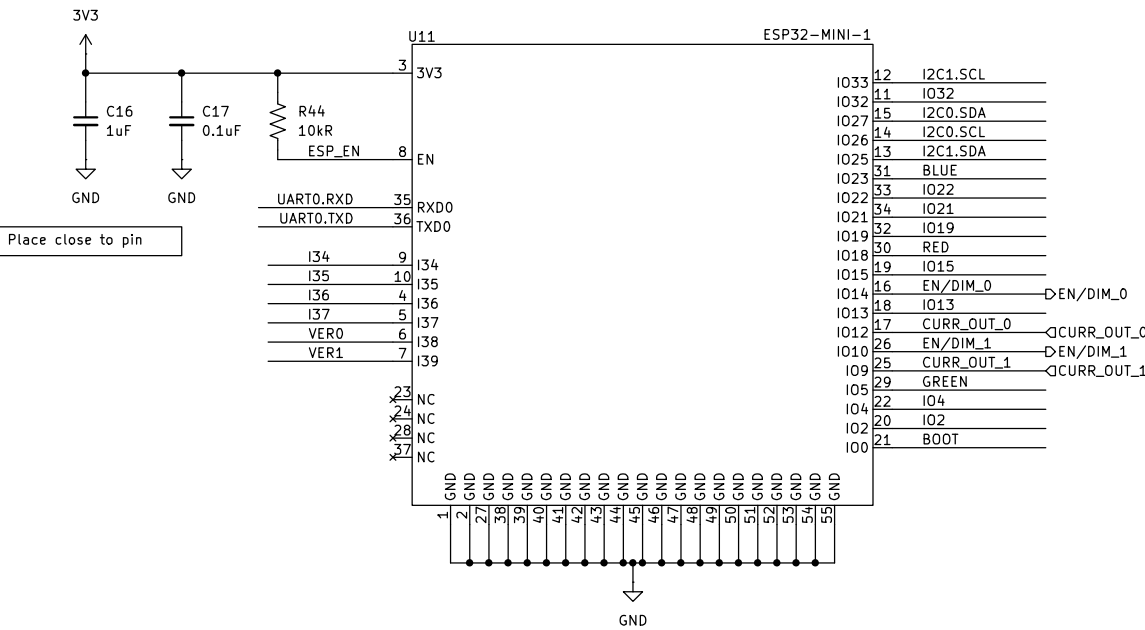
CP2102 Breakout



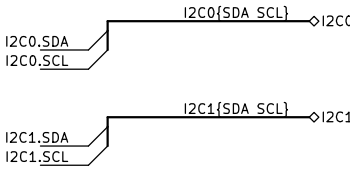
Auto-Programming Circuit



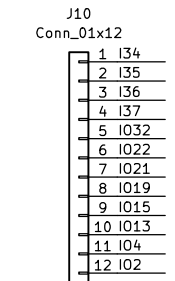
Microcontroller Module



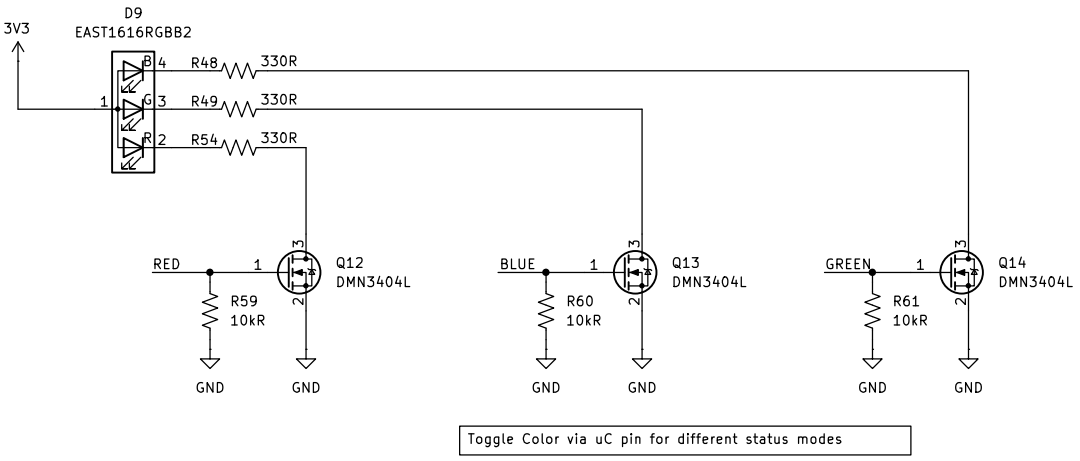
BUS DEFINITIONS



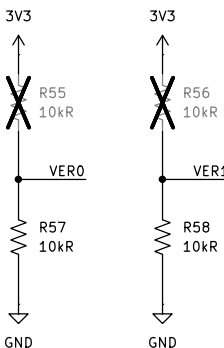
Extra IO Connector



RGB STATUS LED

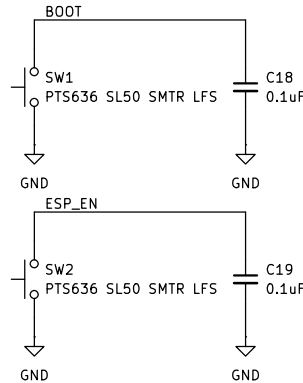


VERSIONING RESISTORS



Versioning Resistors for HW to detect SW Version. DNP appropriately

BOOT/RESET



PULLUPS

