

A

A

esp-grow-2.0

ESP_Grow_Main_V2_0_Title.SchDoc
ESP_Grow_Main_V2_1_CPU.SchDoc
ESP_Grow_Main_V2_2_Pump_NeoPixel.SchDoc
ESP_Grow_Main_V2_3_Con.SchDoc
ESP_Grow_Main_V2_4_3V_5V.SchDoc
ESP_Grow_Main_V2_5_ChangeLog.SchDoc
ESP_Grow_Main_V2_B.BomDoc
ESP_Grow_Main_V2.PcbDoc
ESP_Grow_Main_V2.PCBDwf

B

B

C

C

D

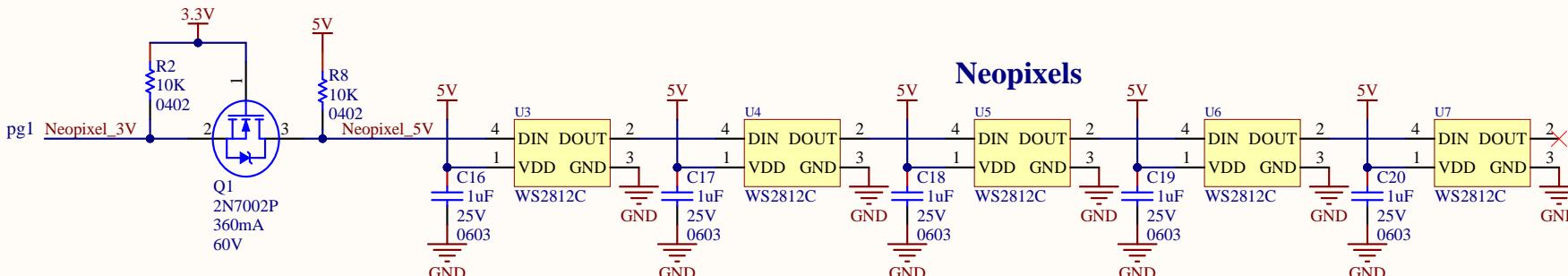
D

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Title		Revision
Size	Number	
A	*	A
Date:	4/18/2021	Sheet 0 of 5
File:	C:\github\..\ESP_Grow_Main_V2_0_Title.SchDoc	By: Kyle R

LED Level Shifter

A



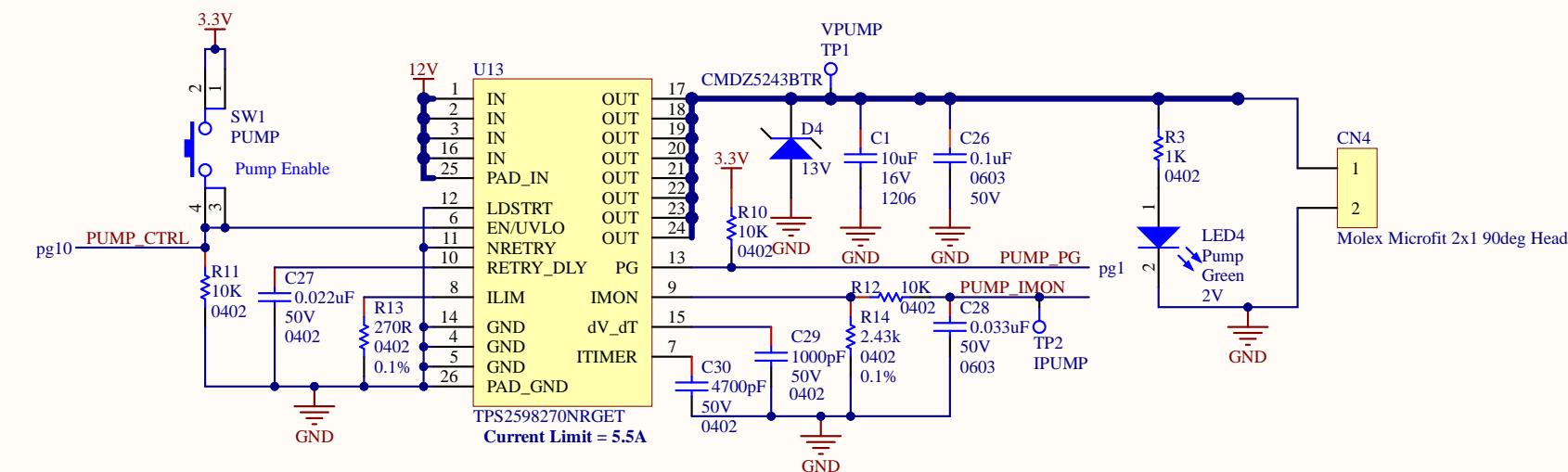
A

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RGB = 5mA, 50mA Total

B

C



C

D

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Title		Revision
	Pump_Neopixel	A
Size	Number	
A	06/02/2019	
Date:	4/18/2021	Sheet 2 of 5
File:	C:\github\..\ESP_Grow_Main_V2_2_PumpDNet\Project1\SchDoc	Kyle R.

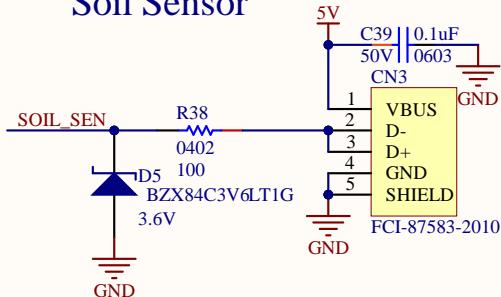
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2

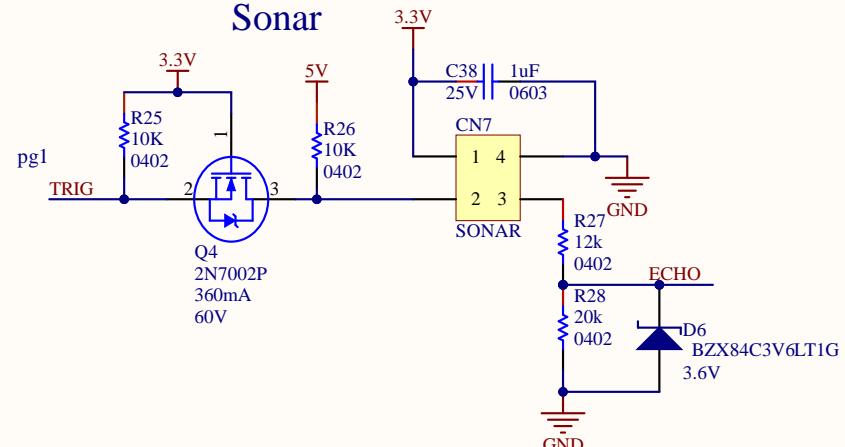
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4

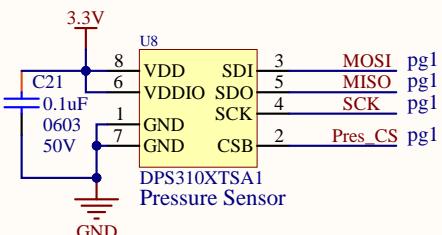
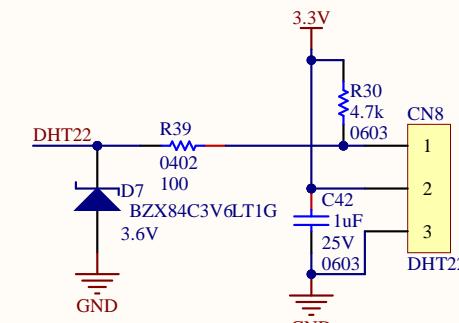
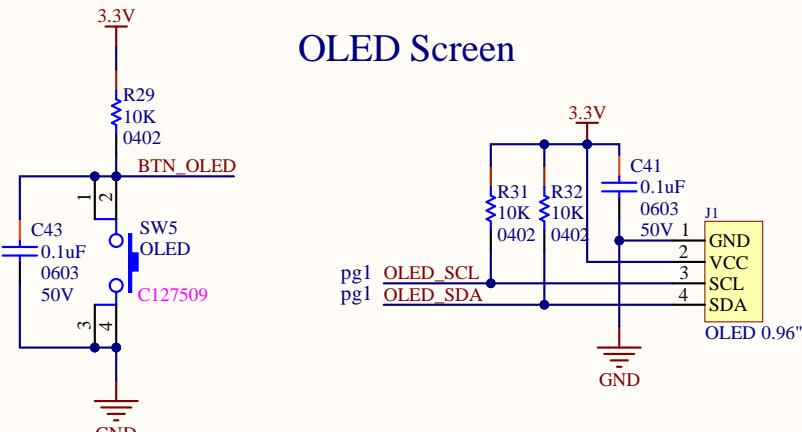
Soil Sensor



Sonar



OLED Screen

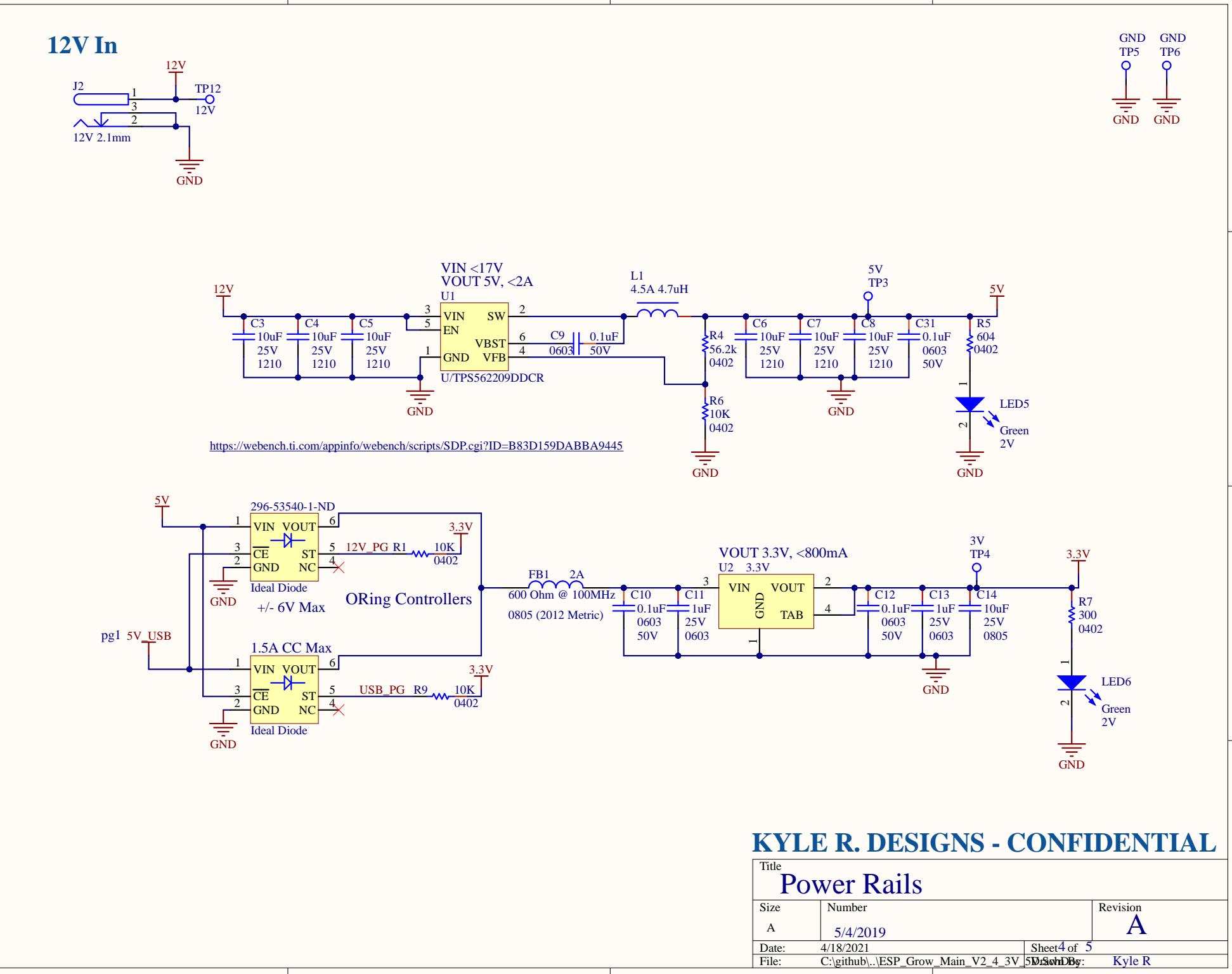


Reassign pins

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Connectors

Title	Size	Number	Revision
Connectors	A	*	A
	Date:	4/18/2021	Sheet 3 of 5
	File:	C:\github\..\ESP_Grow_Main_V2_3_Con	SoD Doc By: *



1

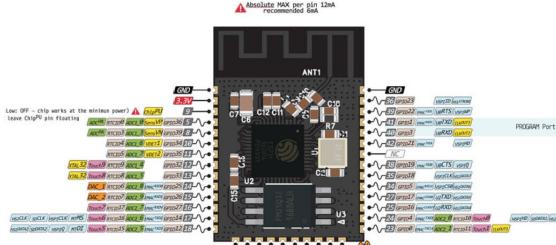
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3

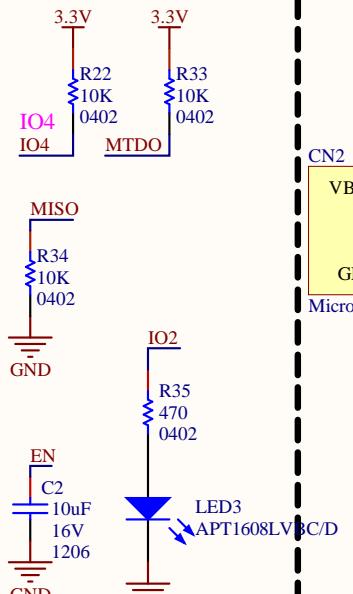
4

ESP32 Design Notes:

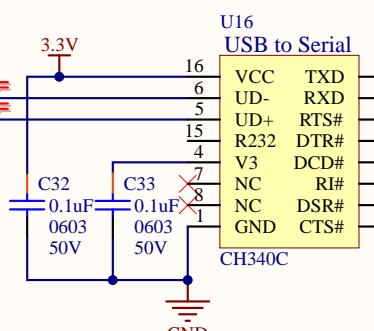
- antenna requires a keepout zone of 15mm on all sides
- IO0 short to GND to program
- MTDI, MTMS, MTCK, MTDO are JTAG Pins
- MTDI should be kept at a low electric level when powering up the module.
- ESP32 has five strapping pins (Table 4: Strapping Pins)
- MTDI, GPIO0, GPIO2, MTDO, GPIO5**
- GPIOs 34 to 39 are GPIOs – input only pins.
- IO4 requires a 10K pullup at boot
- ADC2 channels DO NOT work when WIFI is used



Strapping Resistors



USB - to - Serial



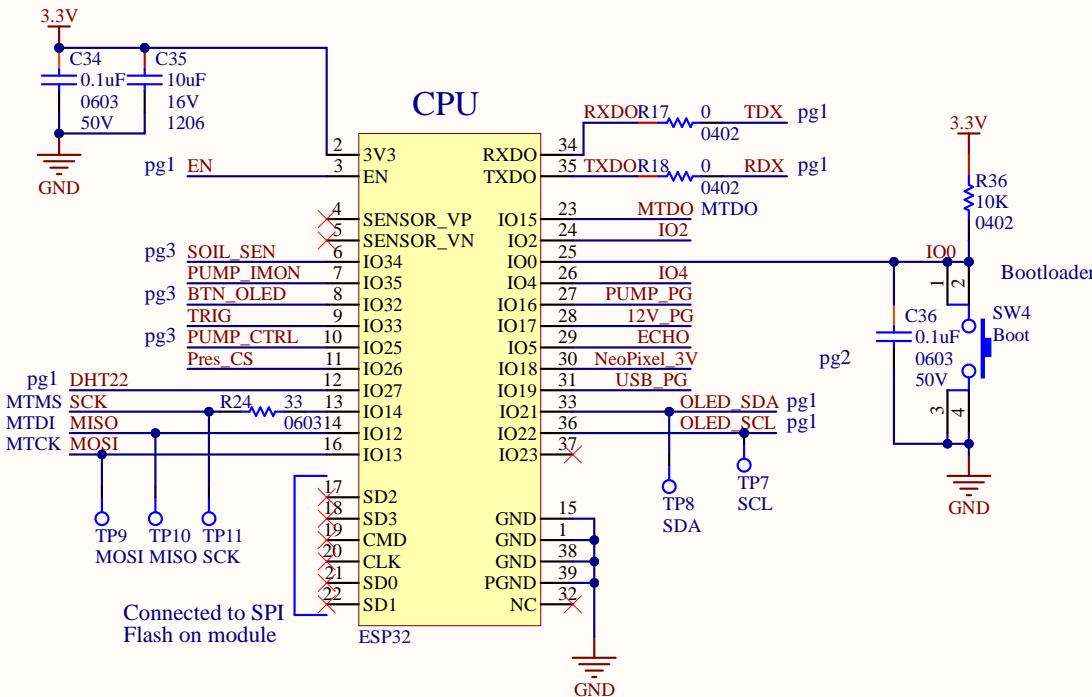
USB PCB Spec

C668623
Change to Type-C

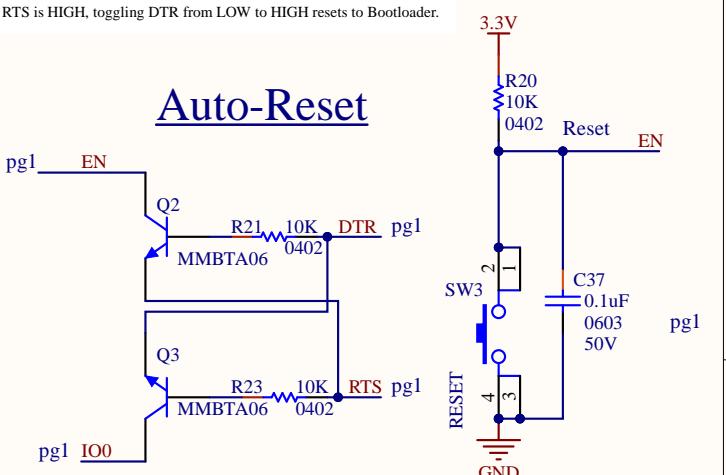
Strapping Pins
ESP32 has 6 strapping pins:

- MTDI/GPIO12: internal pull-down
- GPIO0: internal pull-up
- GPIO2: internal pull-down
- GPIO4: internal pull-down
- MTDO/GPIO15: internal pull-up

<https://github.com/espressif/esptool/wiki/ESP32-Boot-Mode-Selection>



Auto-Reset



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Title		Revision
A	*	A
Date:	4/18/2021	Sheet of 5 1
File:	C:\github..\ESP_Grow_Main_V2_1_CPU.SchDocBy:	*

1

2

3

4

A

A

Rev B Changes:

- All resistors changed to 0603 1%
- 12V Connector; holes too small
- P-CH pump fet; pull up changed to voltage divisor from 12V
- Shanks teeth added for debug
- 3-5V level shifter for ultrasonic
- LED footprints corrected
- 3.3-5V level shifter added for neopixel
- two pump buttons added

B

B

C

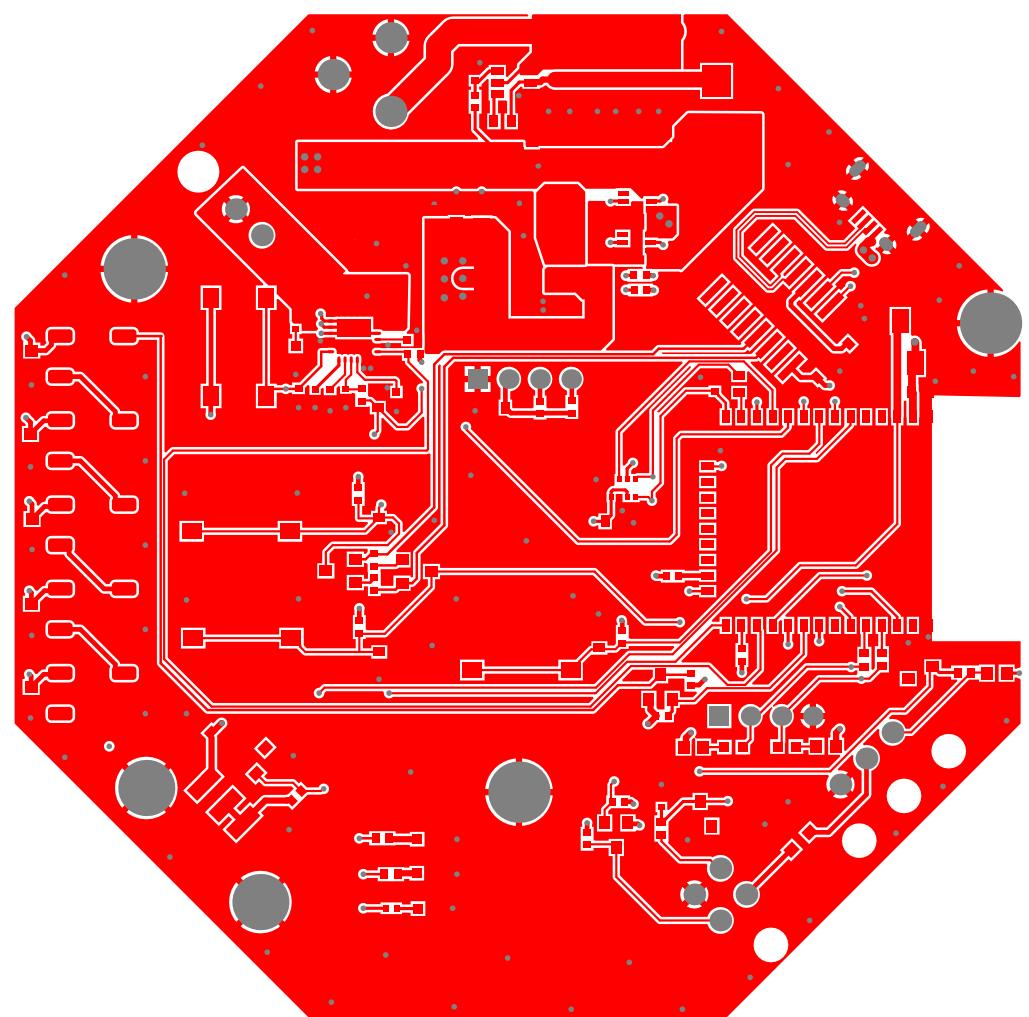
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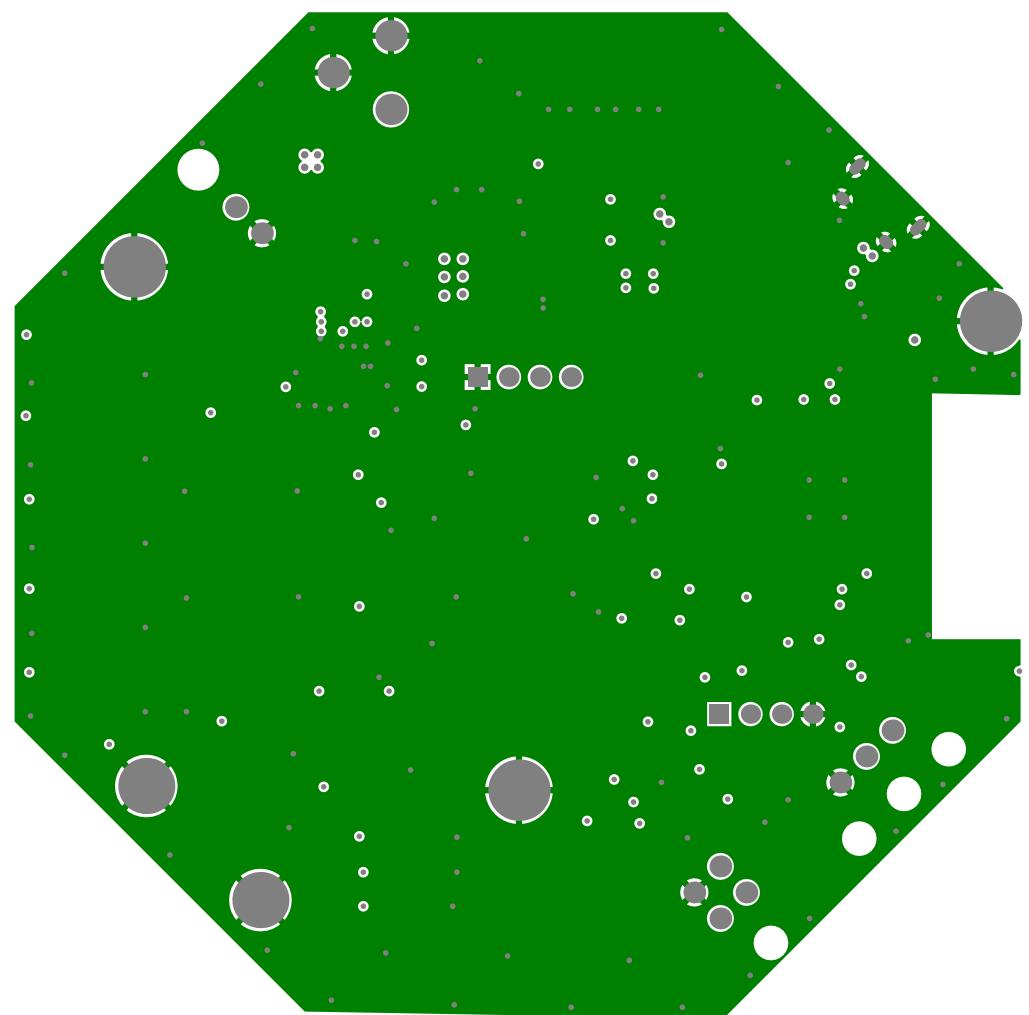
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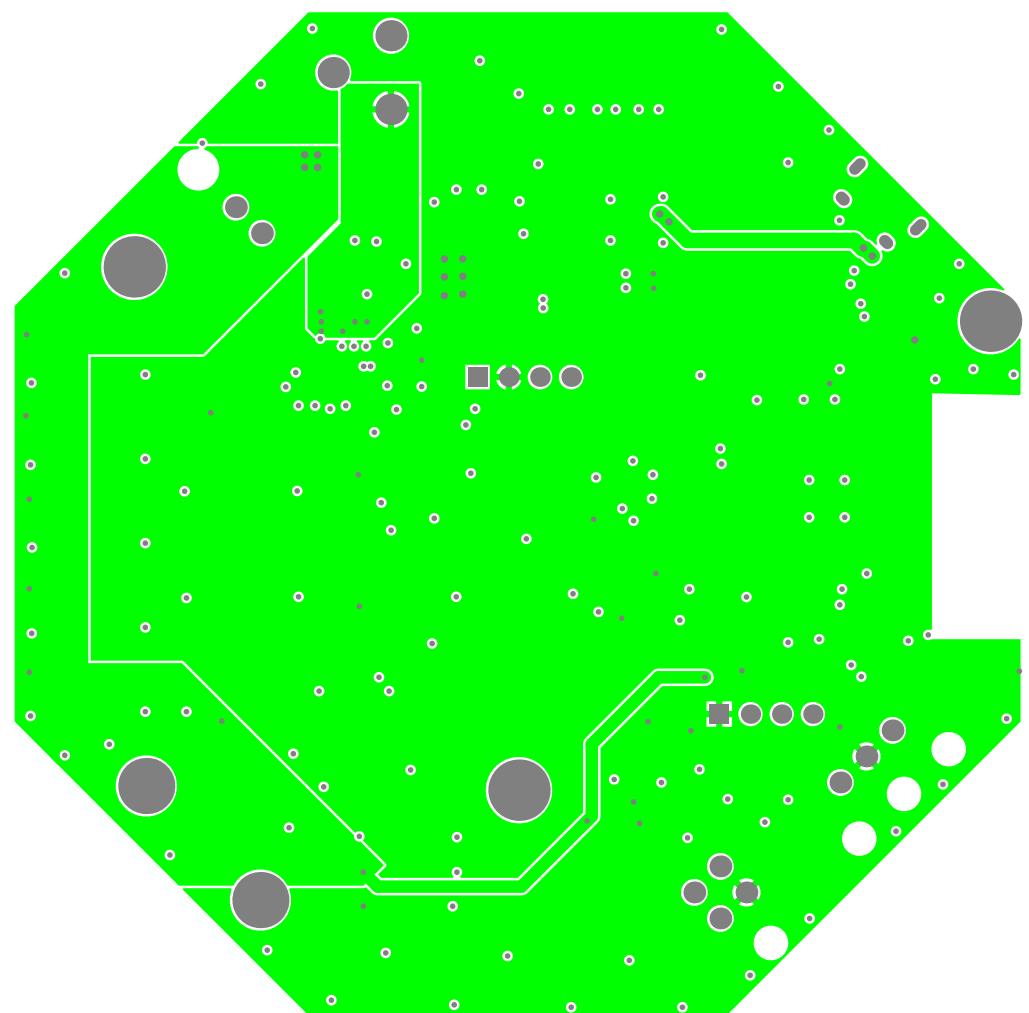
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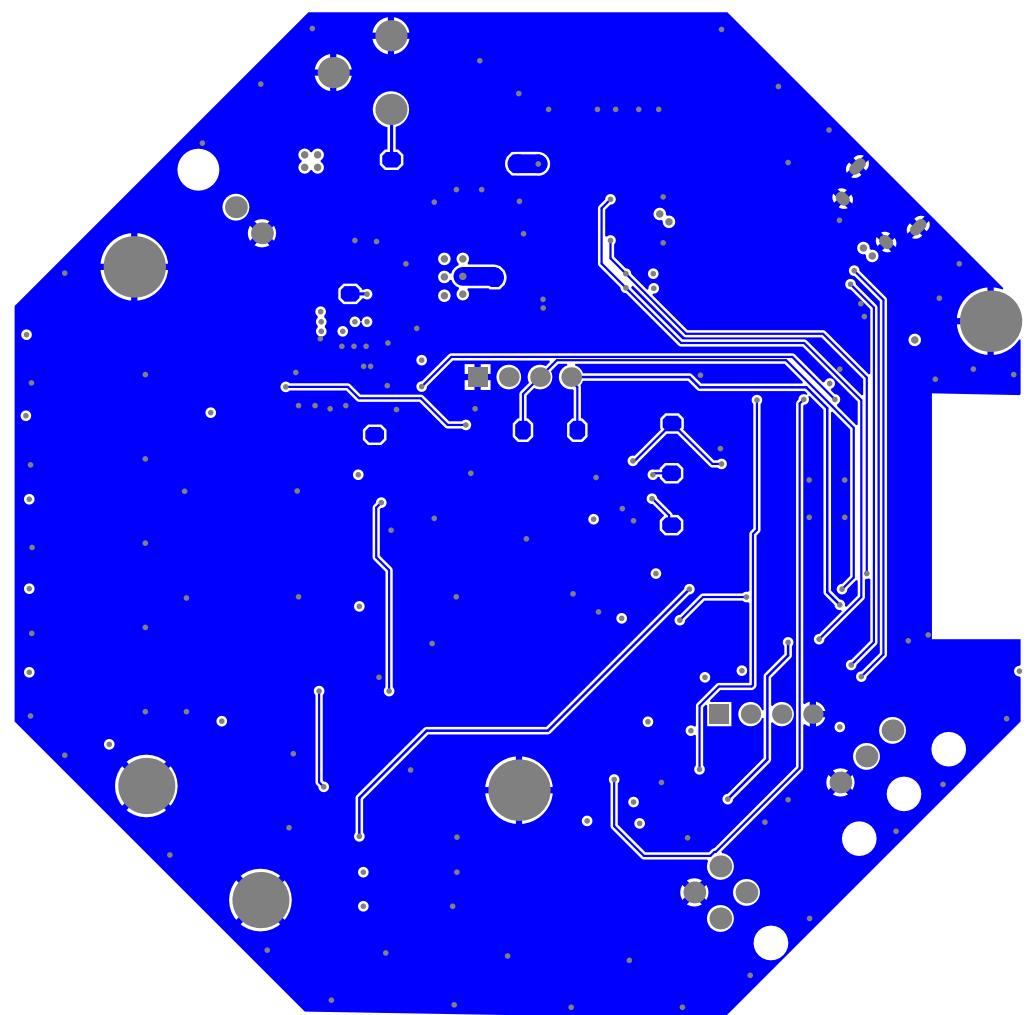
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Title *		
Size A	Number *	Revision *
Date: 4/18/2021	Sheet 8f	* *
File: C:\github\..\ESP_Grow_Main_V2_5_Changes\RevB\Doc\RevB.Doc		









Layer	Name	Material	Thickness	Constant	Board Layer Stack
	Top Overlay				
	Top Mask	Solder Resist	0.59mil	3.8	
1	Top Copper		1.38mil		
	Dielectric 1	2313	3.94mil	4.05	
2	Signal Layer 1		0.69mil		
	Core	FR-4	49.80mil	4.5	
3	Signal Layer 2		0.69mil		
	Dielectric 2	2313	3.94mil	4.05	
4	Bottom Copper		1.38mil		
	Bottom Mask	Solder Resist	0.59mil	3.8	
	Bottom Overlay				

Total board thickness:

62.99mil

