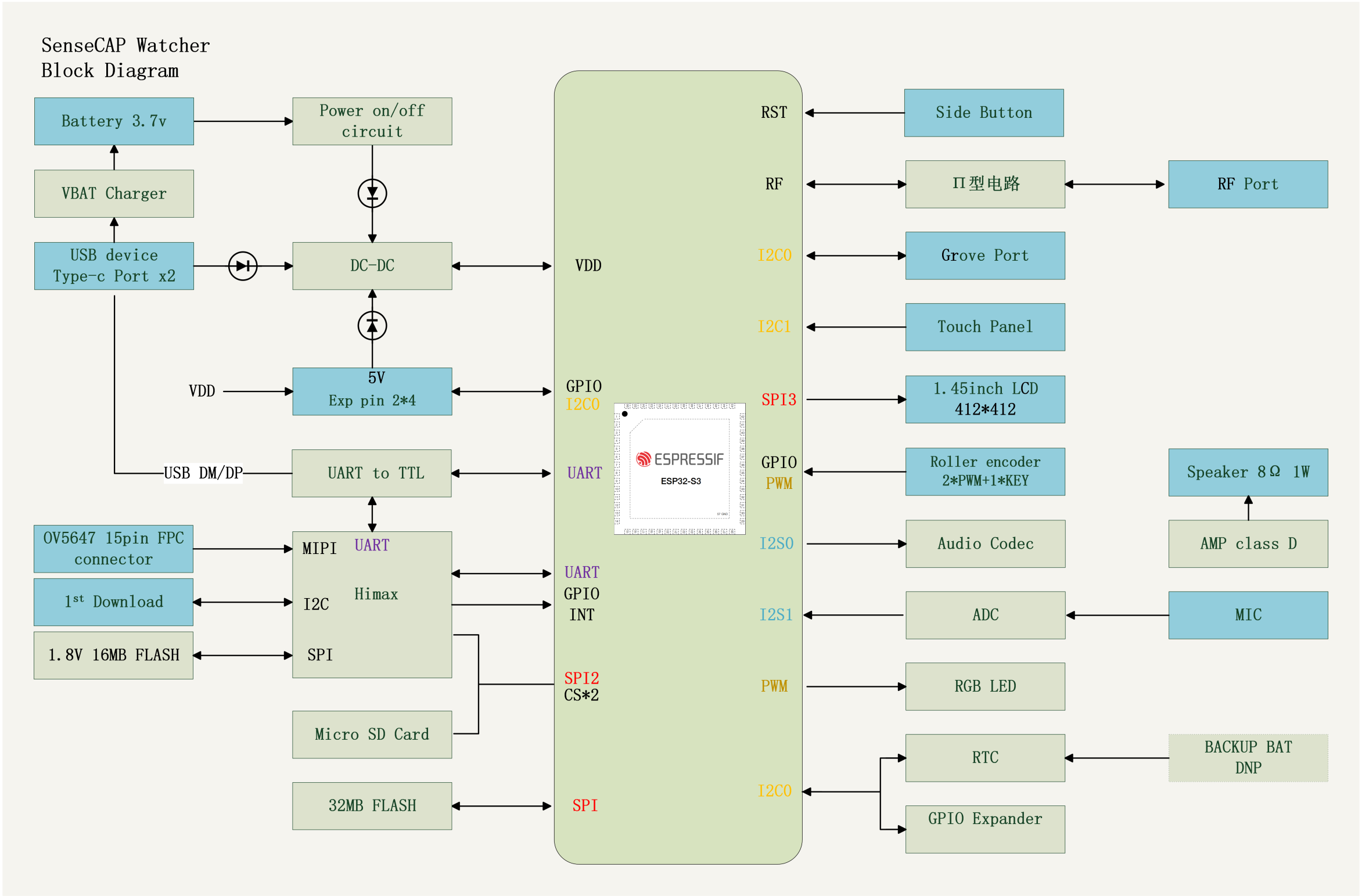
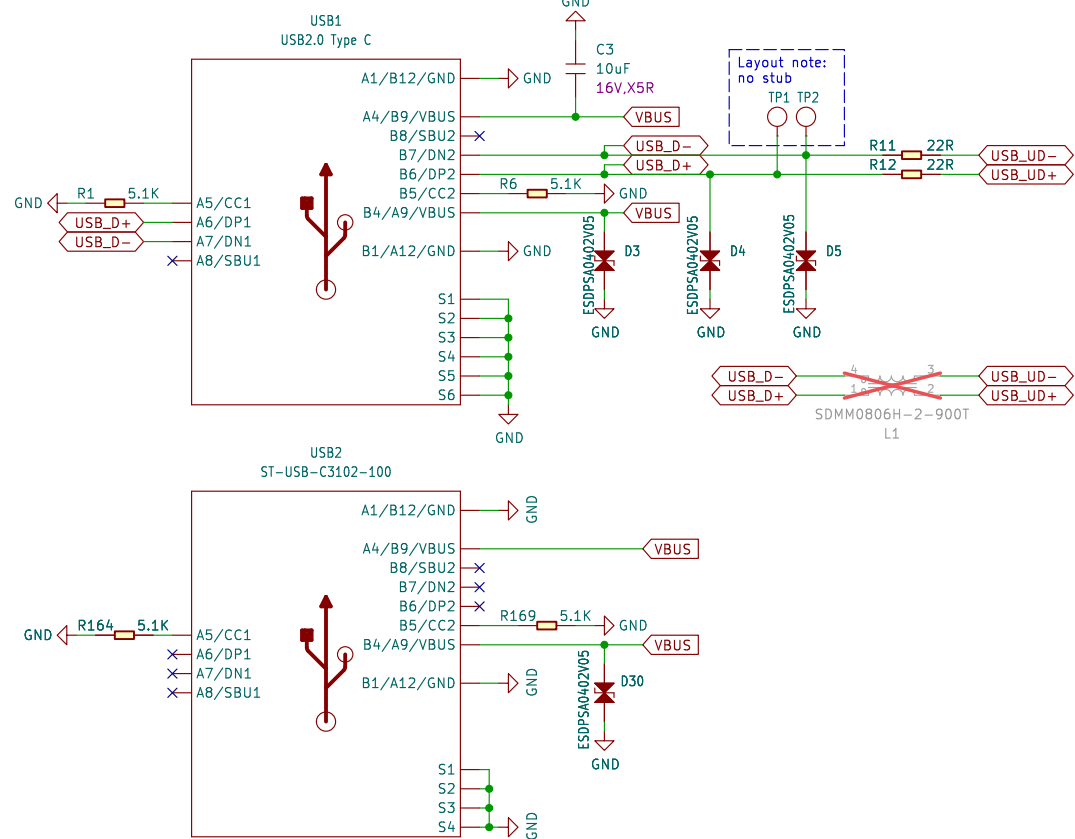




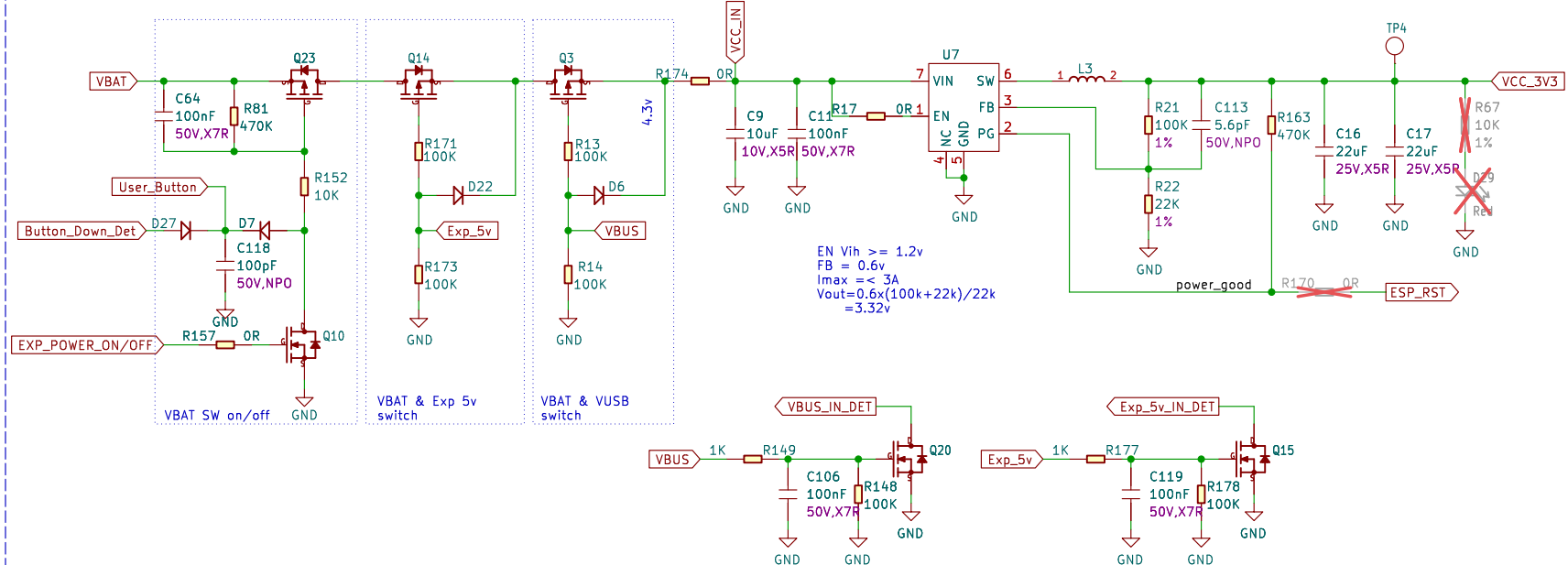
seeed studio

Sheet: /Block Diagram/ File: Block Diagram.kicad_sch			
Title: SenenCAP Watcher			CC BY-SA 4.0
Size: B	Date: 2024/1/29	Design:	Rev: A1
KiCad E.D.A. 8.0.0			Id: 2/11

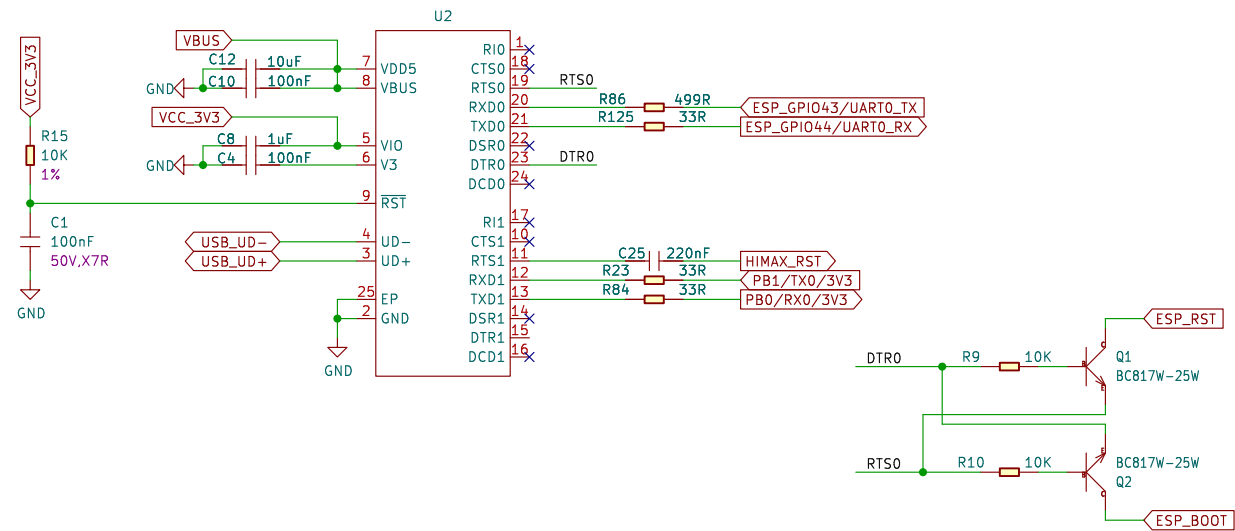
POWER IN



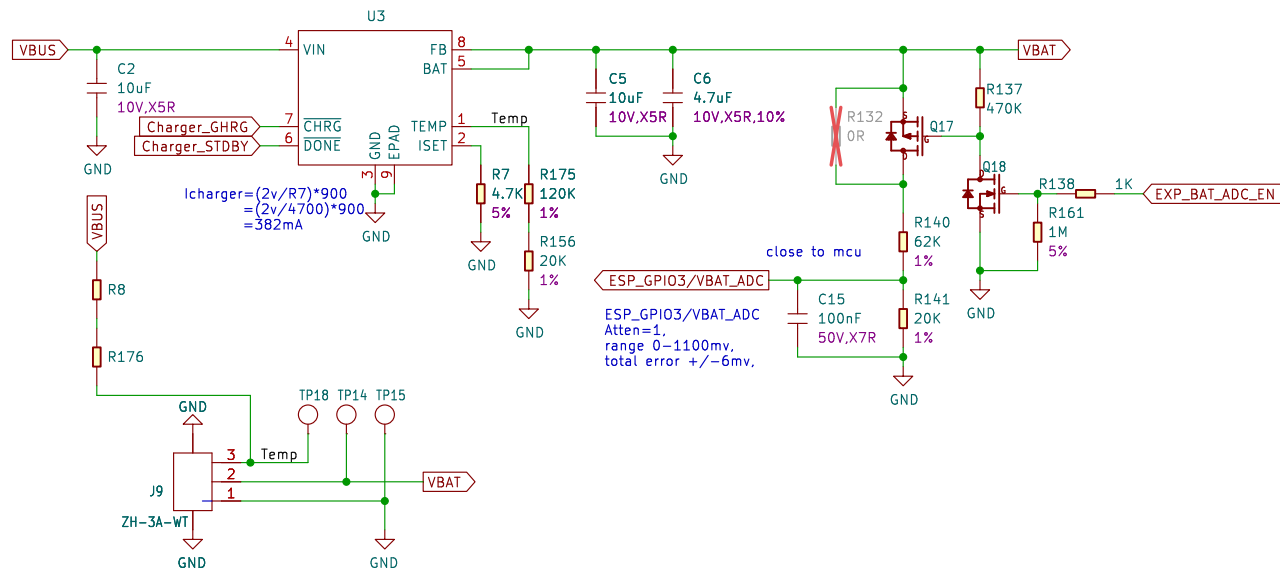
DC-DC 5 -> 3.3v FOR MCU



USB to TTL



CHARGER



seeed studio

Sheet: /Power IN & Charger/
File: Power IN & Charger.kicad_sch

Title: **SenenCAP Watcher**

CC BY-SA 4.0

Size: B

Date: 2024/1/29

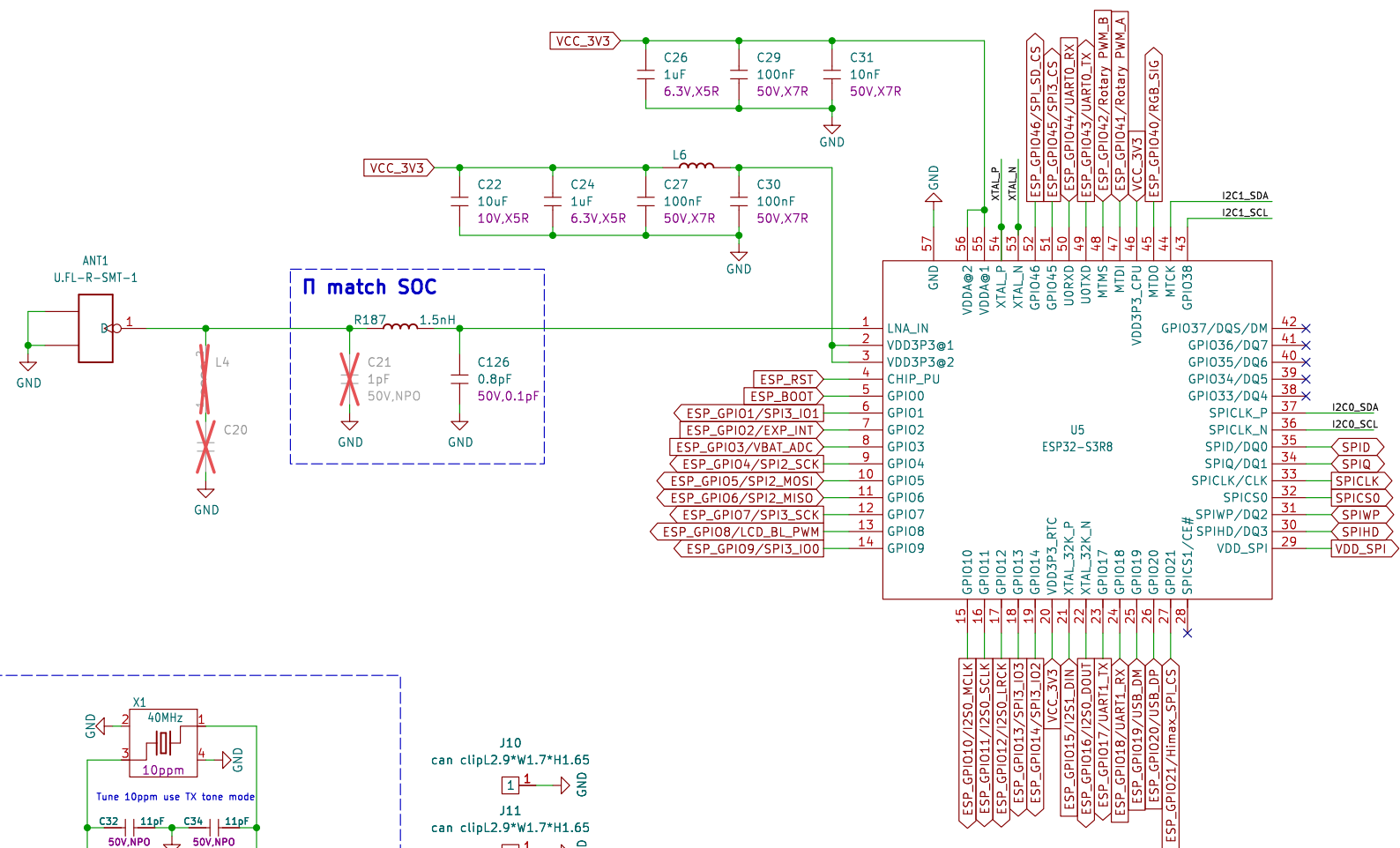
Design:

Rev: A1

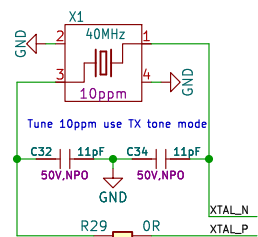
KiCad E.D.A. 8.0.0

Id: 4/11

MCU
ESP32 S3 R8



40M XTAL



J10
can clipL2.9*W1.7*H1.65


J11
can clipL2.9*W1.7*H1.65


RST DELAY & BOOT

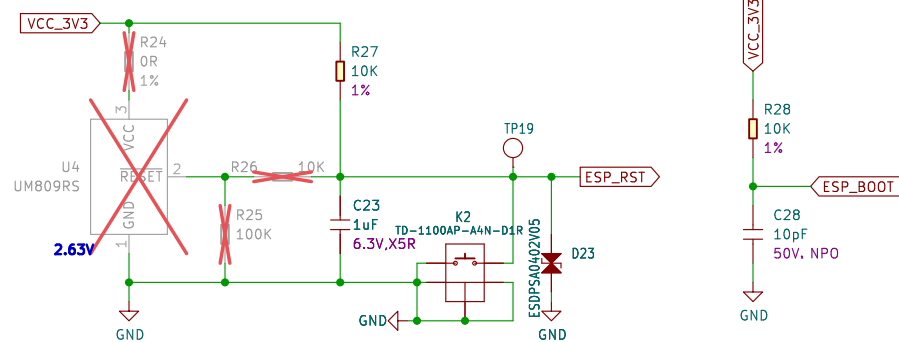


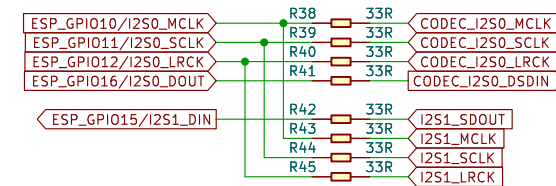
Table 2-11. Chip Boot Mode Control

Boot Mode	GPIO0	GPIO46
Default Configuration	1 (Pull-up)	0 (Pull-down)
SPI Boot (default)	1	Any value
Download Boot	0	0
Invalid combination ¹	0	1

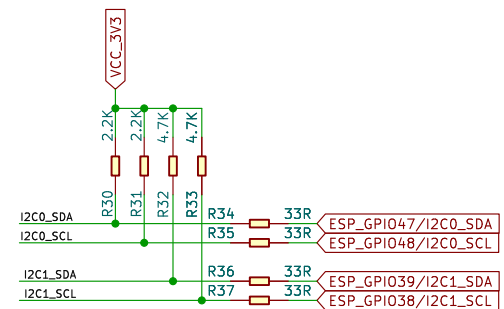
Table 2-9. Default Configuration of Strapping Pins

Strapping Pin	Default Configuration	Bit Value
GPIO0	Pull-up	1
GPIO3	Floating	–
GPIO45	Pull-down	0
GPIO46	Pull-down	0

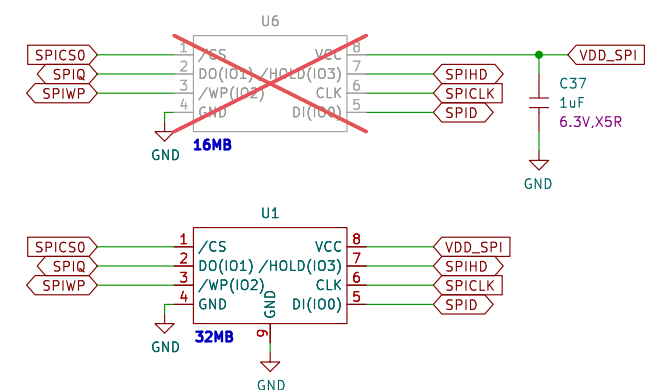
125



I2C



Nor Flash



Sheet: /ESP32 S3/
File: ESP32 S3.kicad

Title: SenenCAP Watcher

Size: B

Date: 2024/1/29

Design:

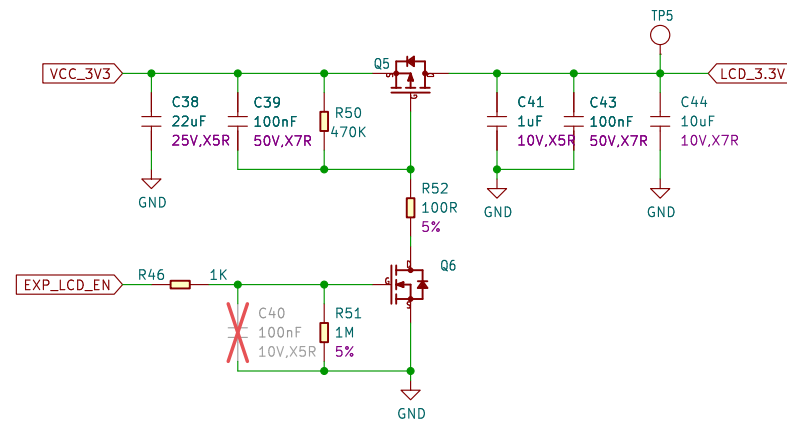
CC BY-SA 4.0

Rev: A1

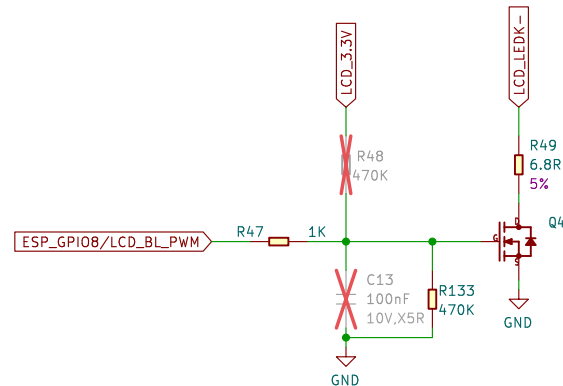
Id: 5/11

LCD POWER

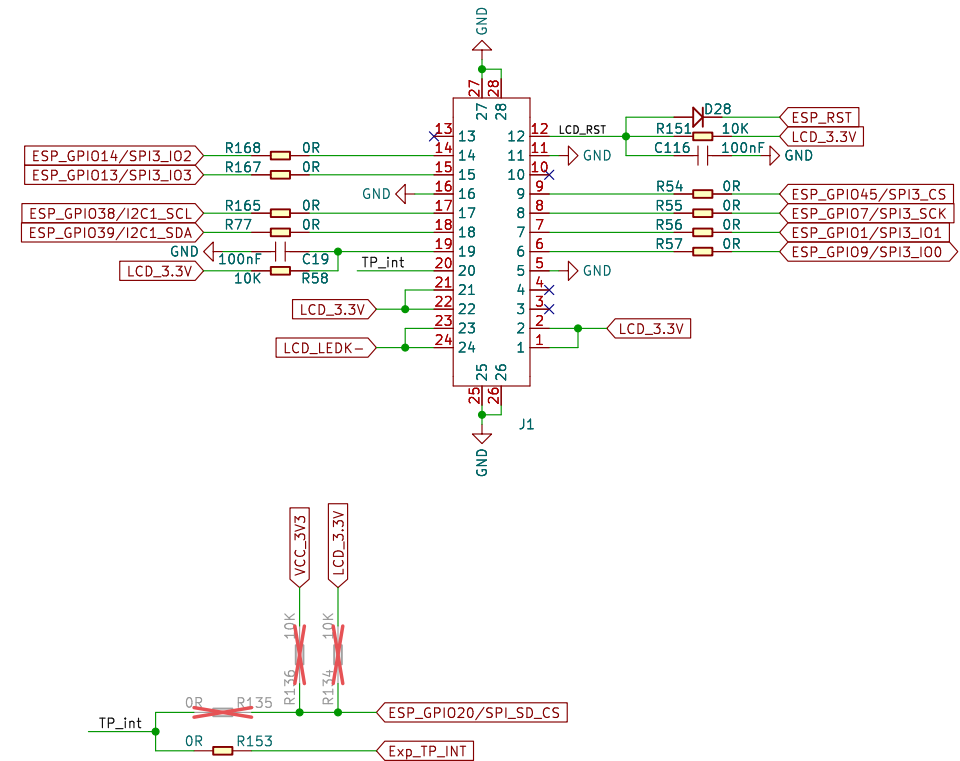
The diagram illustrates the LCD power supply circuit. It features two MOSFETs, Q5 and Q6, which act as switches. Q5 is driven by the VCC_3V3 signal through a series of capacitors (C38, C39, C41, C43, C44) and resistors (R50, R52). Q6 is driven by the EXP_LCD_EN signal through a network of capacitors (C40) and resistors (R46, R51). The output of the MOSFETs is connected to a common line that leads to a TP5 test point and an LCD_3.3V output. The circuit is grounded to GND.



The diagram illustrates the LCD BL POWER circuit. A PWM signal from ESP_GPIO8/LCD_BL_PWM is connected to a 1K resistor (R47). The other end of R47 is connected to a node that is also connected to a 3.3V supply through a 470K resistor (R48). This node is connected to ground through a 100nF capacitor (C13) and a 10V, 5% resistor (R133). The node is also connected to the gate of an N-channel MOSFET (Q4). The MOSFET's source is grounded, and its drain is connected to the LCD_LEDK+ supply through a 6.8R resistor (R49). The LCD_LEDK- supply is also shown.



LCD connector



The image shows the top section of a document. On the left is the 'seed studio' logo, with 'seed' in green and 'studio' in dark blue. To the right of the logo is a large, faint, light blue watermark that reads 'Seed Studio' diagonally. Below the logo is a white rectangular area containing a title block. The title block has a white background and a thin black border. It contains the following text: 'Sheet: /LCD & TP/' and 'File: LCD & TP.kicad_sch' in a standard black font. Below this is a row with two cells: the left cell contains 'Title: SenenCAP Watcher' in a bold, italicized black font, and the right cell contains 'CC BY-SA 4.0' in a bold black font. Below this row is another row with three cells: the first cell contains 'Size: B', the second cell contains 'Date: 2024/1/29', and the third cell contains 'Design:'. To the right of these three cells is a single cell containing 'Rev: A1'. Below this row is a final row with two cells: the left cell contains 'KiCad E.D.A. 8.0.0' and the right cell contains 'Id: 6/11'. At the very bottom of the image, there are two small black squares, one on the left and one on the right, separated by a small gap.

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Sheet: /LCD & TP/
File: LCD & TP.kicad_sch

Title: SenenCAP Watcher		CC BY-SA 4.0
Size: B	Date: 2024/1/29	Design:
KiCad E.D.A. 8.0.0		Rev: A1
		Id: 6/11

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Sheet: /LCD & TP/
File: LCD & TP.kicad_sch

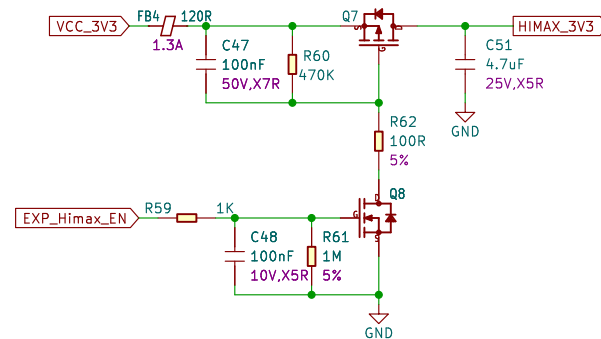
Title: SenenCAP Watcher		CC BY-SA 4.0
Size: B	Date: 2024/1/29	Design:
KiCad E.D.A. 8.0.0		Rev: A1
		Id: 6/11

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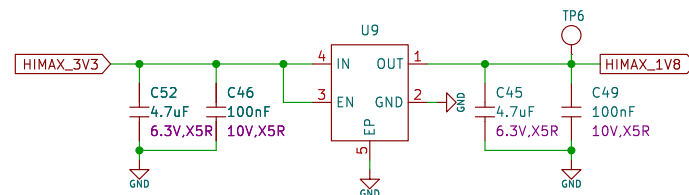
Sheet: /LCD & TP/
File: LCD & TP.kicad_sch

Title: SenenCAP Watcher		CC BY-SA 4.0
Size: B	Date: 2024/1/29	Design:
KiCad E.D.A. 8.0.0		Id: 6/11

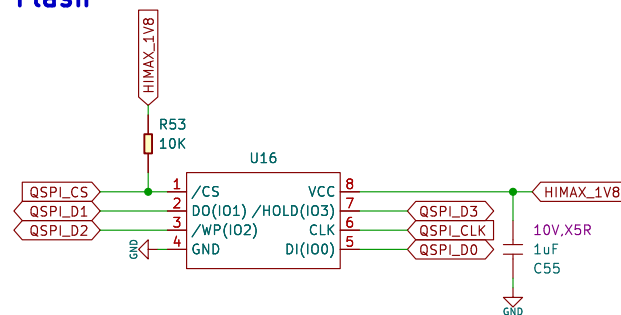
Himax 3.3V Switch



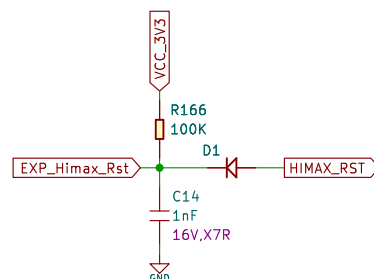
Himax 1.8V LDO



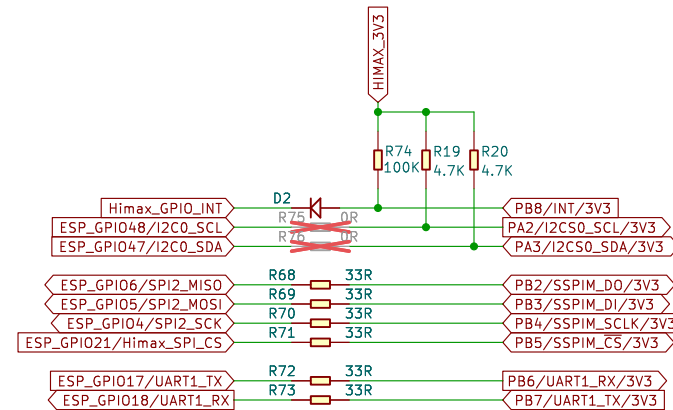
Himax Flash



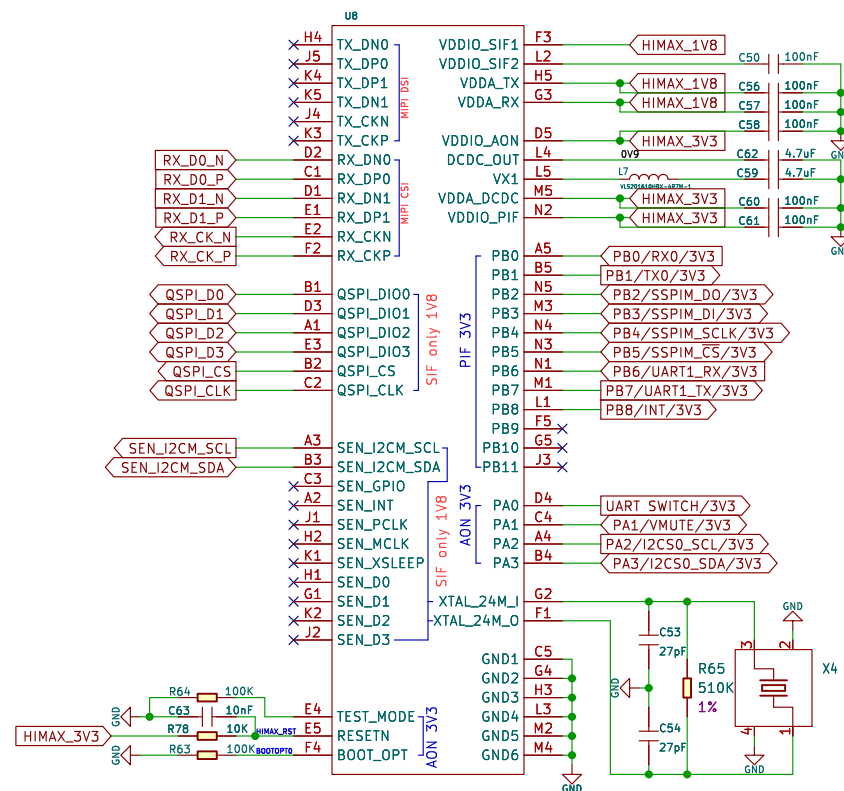
Powerdown discharge



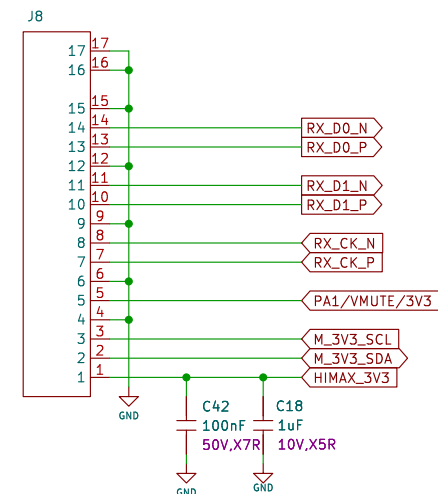
10



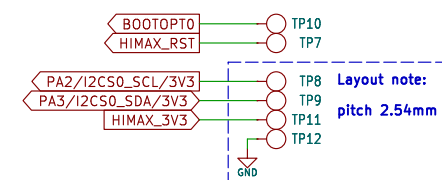
Himax soc



Camera connector



Himax download



seed studio

Sheet: /Himax soc & camera/
File: Himax soc & camera.kicad_sch

Title: SenenCAP Watcher

Size: B

Date: 2024/1/29

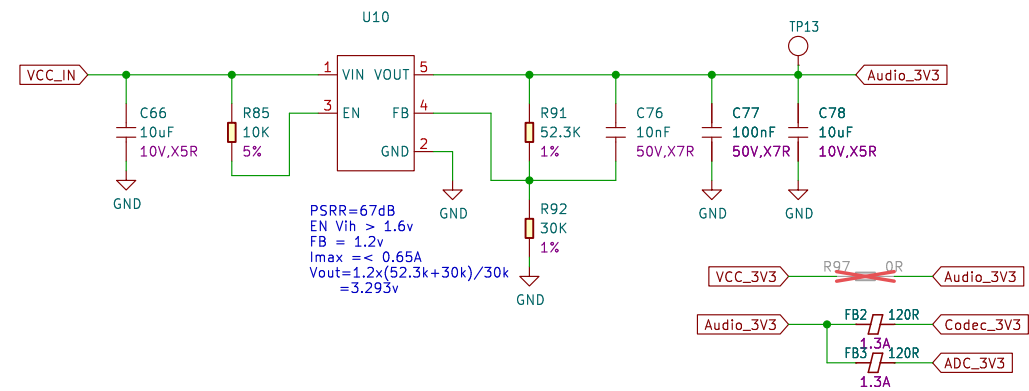
Design:

CC BY-SA 4.0

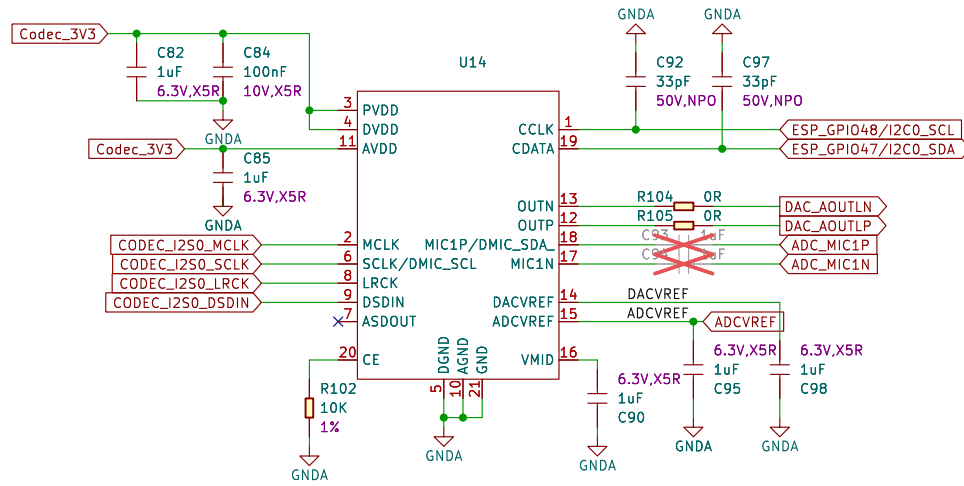
Rev: A1

Id: 7/11

AUDIO 3.3v

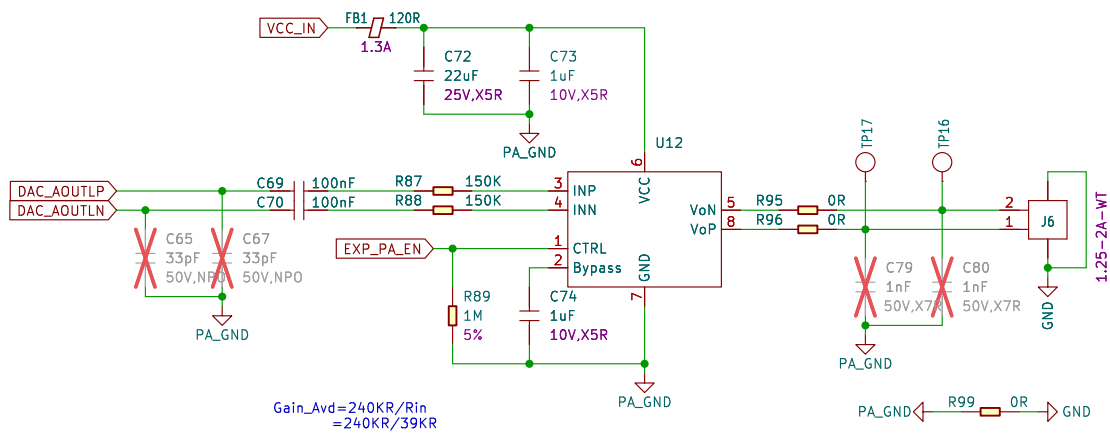


CODEC

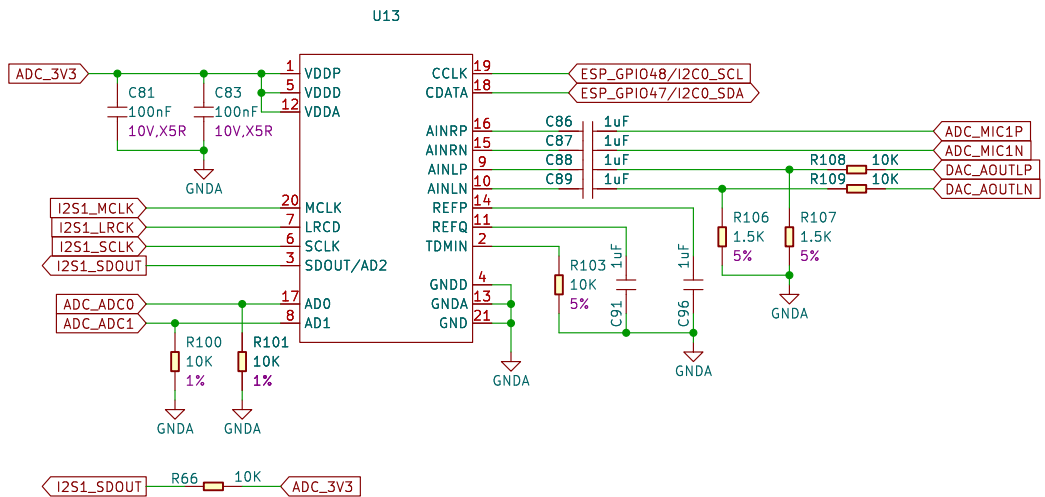


Address:0X18
default

PA & Speaker

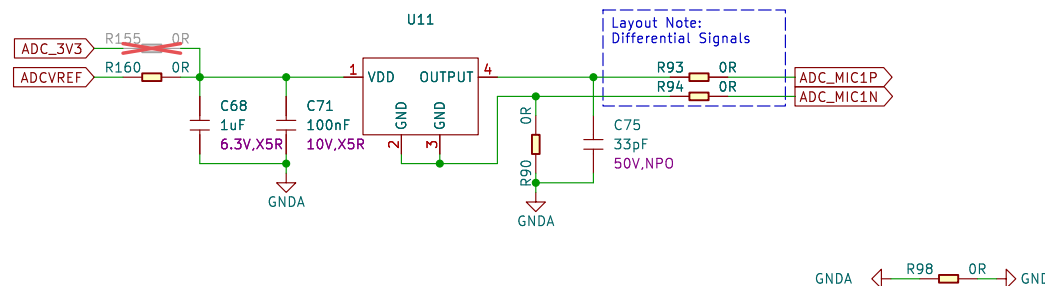


ADC

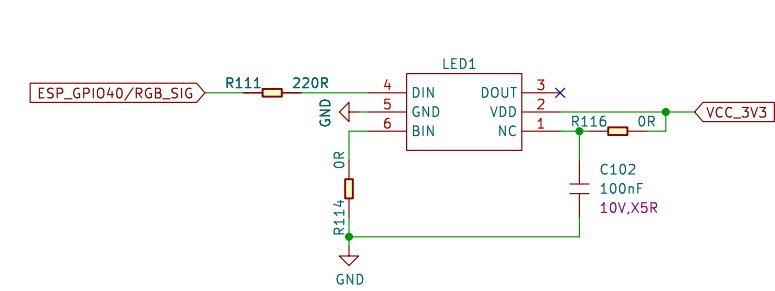


Address:0X14
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AMICx1

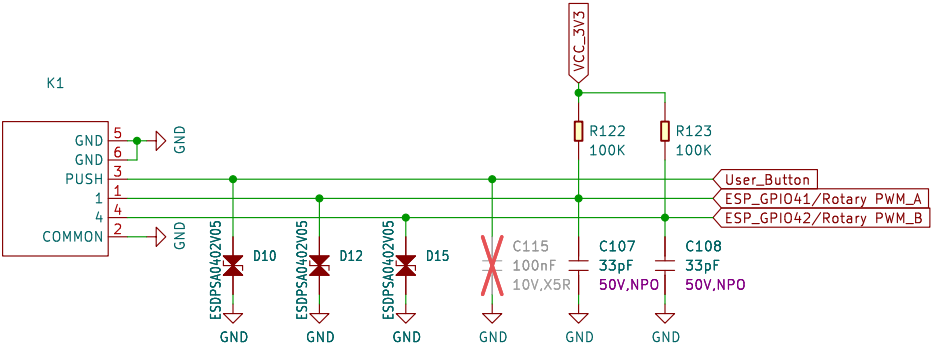


RGB LED

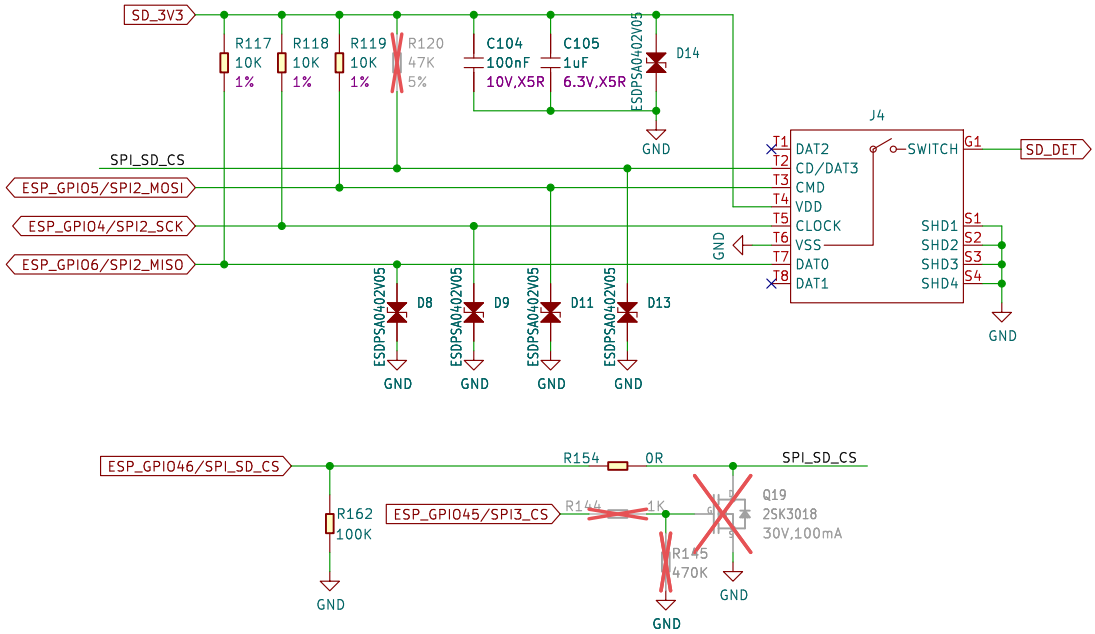
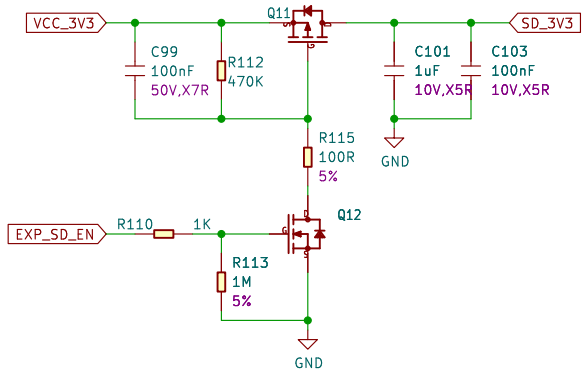


Compatible models
WS2813-Mini

Button



TF FLASH



seeed studio

Sheet: /Button & TF FLASH/ File: Button & TF FLASH.kicad_sch			
Title: SenenCAP Watcher			CC BY-SA 4.0
Size: B	Date: 2024/1/29	Design:	Rev: A1
KiCad E.D.A. 8.0.0			Id: 9/11

[illegible]

ESP32-GPI02-EXP-INT

Address: 0X21 default

GPIO Expander

Sheet: /Port & IO Exp & RTC/ File: Port & IO Exp & RTC.kicad_sch			
Title: SenenCAP Watcher			CC BY-SA 4.0
Size: B	Date: 2024/1/29	Design:	Rev: A1
KiCad E.D.A. 8.0.0			Id: 10/11

Revision History

DATE	REVISION	DESCRIPTION
2024/03/05	v0.1	1.Initial
2024/03/22	v0.2	1.Change MEMS MIC for better gain;
2024/04/19	v0.3	1.Change lcd to 1.45Inch; 2.Add Battery NTC function for temp protection; 3.Change Esp32 flash capacity to 32MB; 4.Add connector for Speaker; 5.Add rst button for Esp32;
2024/05/21	v0.4	1.Add Exp_5v Input detect; 2.Add backup Micro Battery for RTC; 3.Tune crystal load matching capacitance;

seeed studio

Sheet: /change list/
File: change list.kicad_sch

Title: SenenCAP Watcher

CC BY-SA 4.0

Size: A4

Date:

Design:

Rev: A1

KiCad E.D.A. 8.0.0

Id: 11/11