# MCU

Danger free pins:

GPIO_03
GPIO_45
GPIO_46
BOOT

Free safe pins:

ESP32-S3 has four strapping pins:
- GPIO0 / BOOT
- GPIO45
- GPIO46
- GPIO3

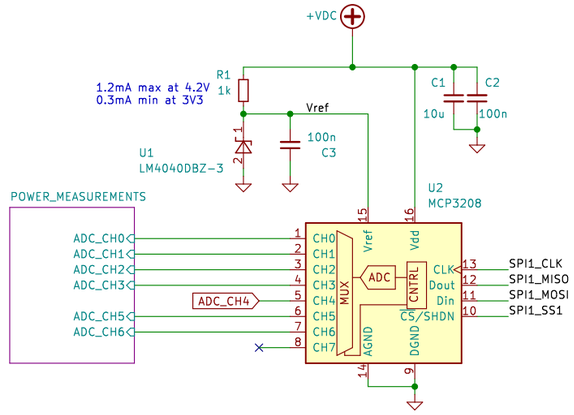
GPIO0, GPIO45 and GPIO46 are connected to the chip's internal weak pull-up/pull-down during the chip reset.
GPIO3 is floating by default

Internal Pull-up/down 45k
Max IC typical current:
source 40mA
sink 28mA

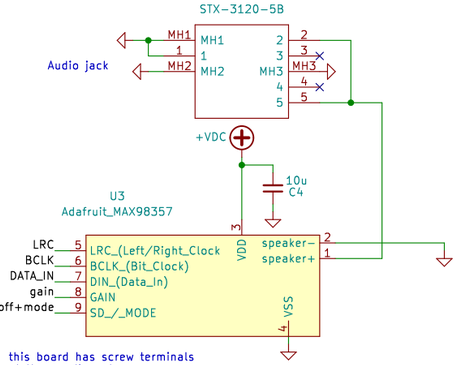
EN pin TTL:
0.75*Vcc+ HIGH
0.25*Vcc- LOW

U4
ESP32-S3-WROOM-1

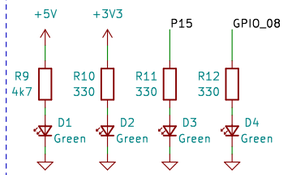
# ADC




# AUDIO Board + JACK

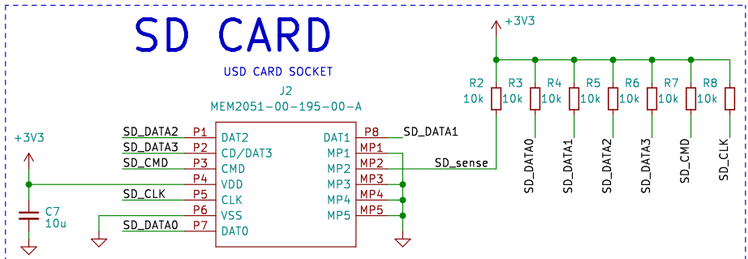



# Power indicator leds




# SD CARD

USD CARD SOCKET
J2
MEM2051-00-195-00-A




## I2C

GPIO_18 SDA
GPIO_17 SCL

## ADC

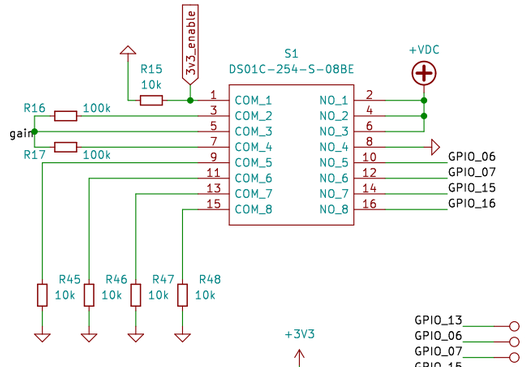
GPIO_14 SPI1_CLK
GPIO_21 SPI1_MISO
GPIO_47 SPI1_MOSI
GPIO_48 SPI1_SS1

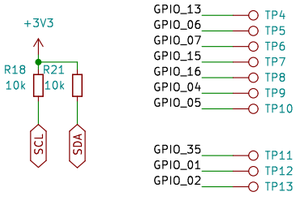
## Audio

GPIO_09 on/off+mode
GPIO_10 DATA_IN
GPIO_11 BCLK
GPIO_12 LRC

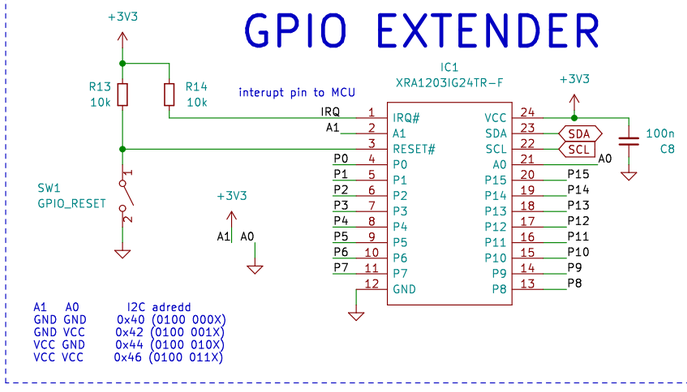
## SD card

GPIO_36 SD_sense
GPIO_37 SD_DATA1
GPIO_38 SD_DATA0
GPIO_39 SD_CLK
GPIO_40 SD_CMD
GPIO_41 SD_DATA3
GPIO_42 SD_DATA2

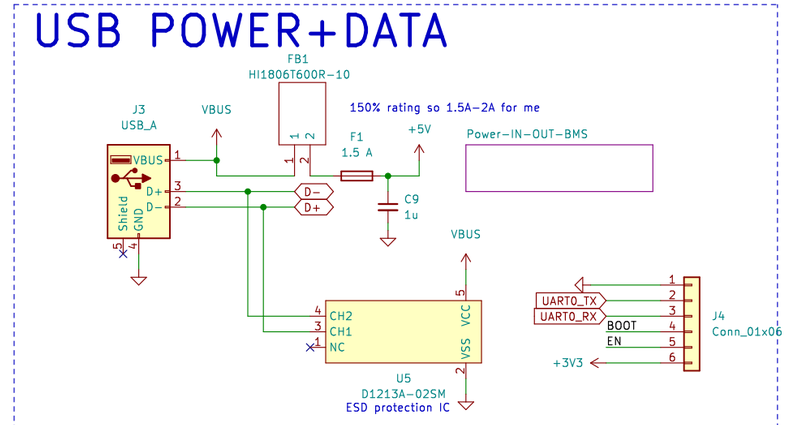


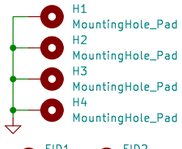

# GPIO EXTENDER




# USB POWER+DATA

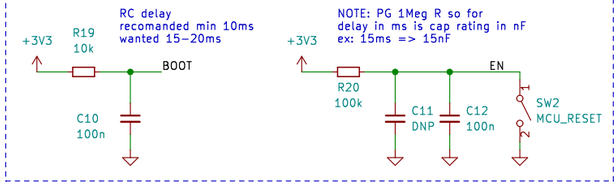



# graphics+ mechanical

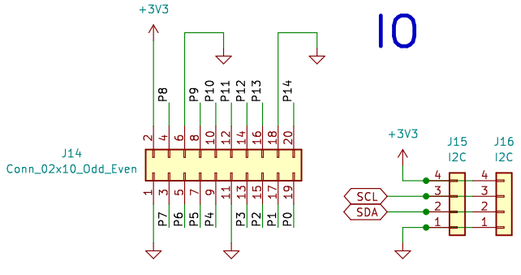



FID1 Fiducial
FID2 Fiducial
FID3 Fiducial
FID4 Fiducial
FID5 Fiducial

# BOOOT & RESET

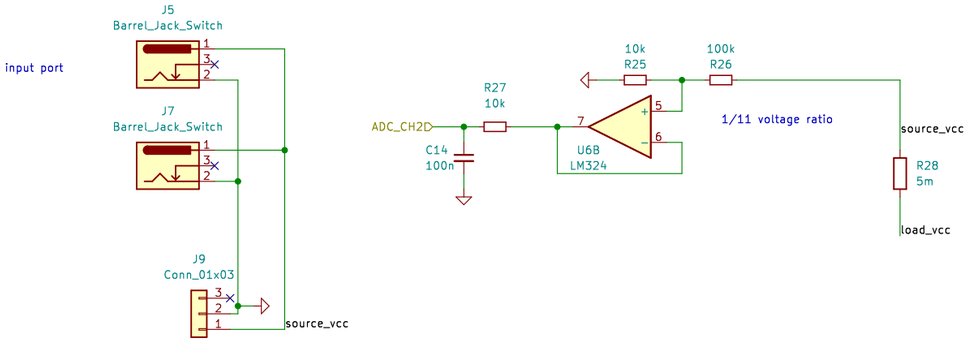


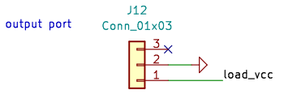

# IO



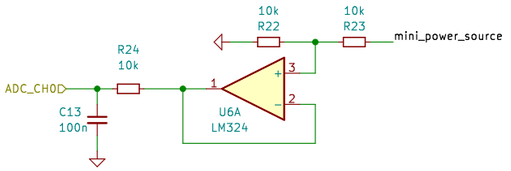

| | | |
|---|---|---|
| Sheet: / | | |
| File: ESP32_power_meter_MP3_player_WIFI_radio_V2.kicad_sch | | |
| **Title: ESP32 MP3 player/web radio+power meter+uSD datalogger** | | |
| Size: A3 | Date: 2022-06-30 | **Rev: 2** |
| KiCad E.D.A. kicad (6.0.9) | | Id: 1/4 |

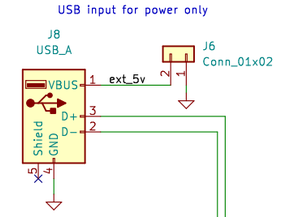
# LARGE CURRENT
# 24V 3A MAX

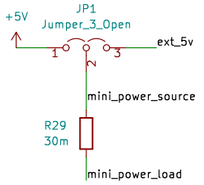


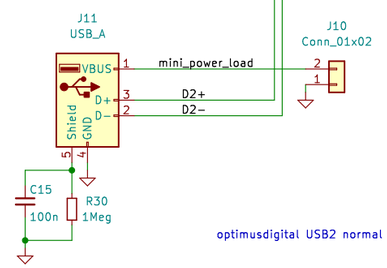




# SMALL CURRENT
# 5V OR LESS



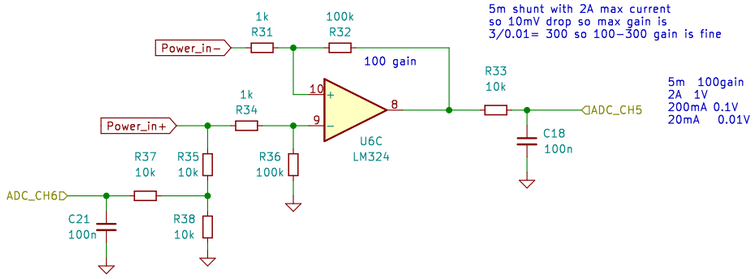



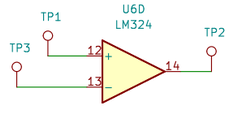



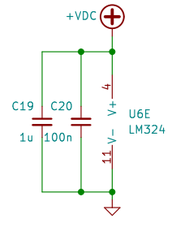

optimusdigital USB2 normal

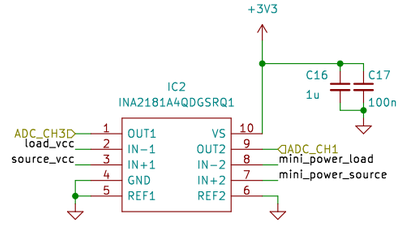
# SELF POWER CONSUMPTION
# + LI ION CHARGEING CURRENT



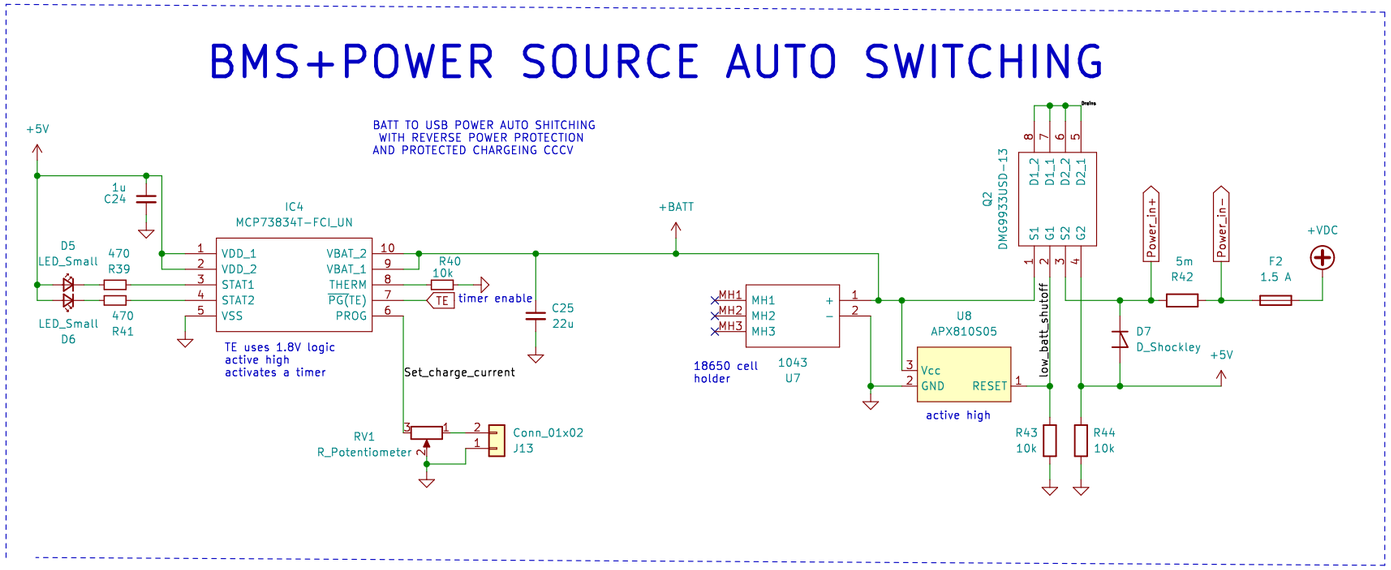

# MAIN ICs POWER AND CIRCUITRY

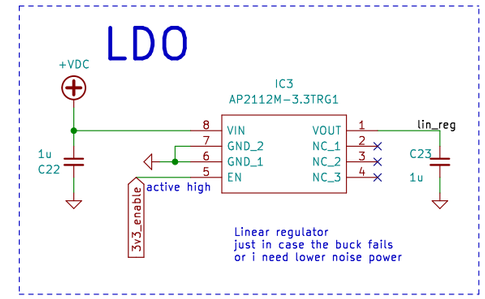


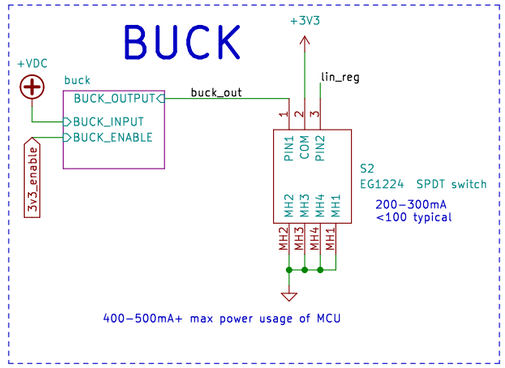




| | | |
|---|---|---|
| Sheet: /POWER_MEASUREMENTS/ | | |
| File: untitled.kicad_sch | | |
| **Title: ESP32 MP3 player/web radio+power meter+uSD datalogger** | | |
| Size: A3 | Date: | **Rev: 2** |
| KiCad E.D.A. kicad (6.0.9) | | Id: 2/4 |

# BMS+POWER SOURCE AUTO SWITCHING



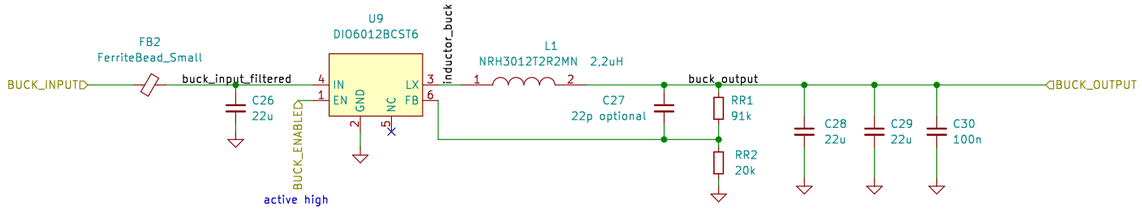




Sheet: /Power-IN-OUT-BMS/
File: Power-IN-OUT-BMS.kicad_sch

**Title: ESP32 MP3 player/web radio+power meter+uSD datalogger**

| Size: A3 | Date: | **Rev: 2** |
|---|---|---|
| KiCad E.D.A. kicad (6.0.9) | | Id: 3/4 |




RR2=0,6*RR1/(Vout−0,6)

| RR1 | RR2 | |
|---|---|---|
| 81.81k | 18.19k | −100k pot |
| 100k | 450k | |
| 222k | 1M | |
| 47k | 211.5k | |
| 10k | 2k22 | |
| 47k | 10k444 | |
| 91k | 20k222 | |

for rr1 47k and rr2 10k we have : 3.42V

for rr1 91k and rr2 20k we have : 3.33V

Sheet: /Power−IN−OUT−BMS/buck/
File: buck.kicad_sch

**Title: ESP32 MP3 player/web radio+power meter+uSD datalogger**

| Size: A3 | Date: | **Rev: 2** |
|---|---|---|
| KiCad E.D.A. kicad (6.0.9) | | Id: 4/4 |