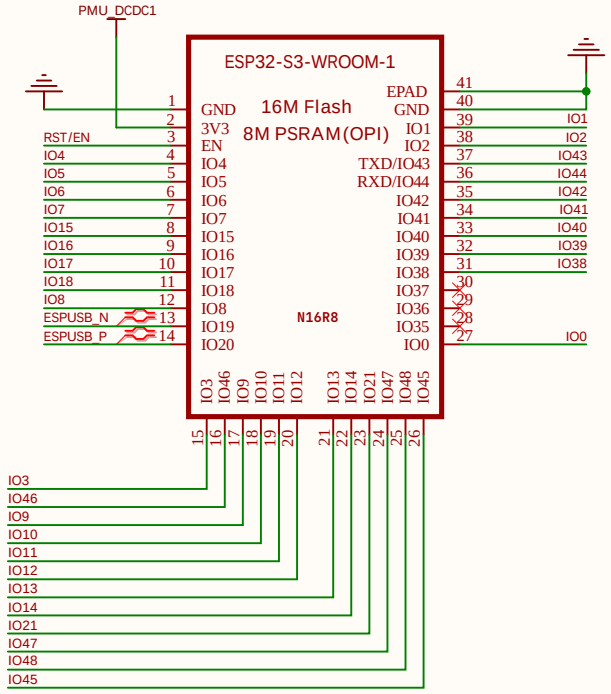
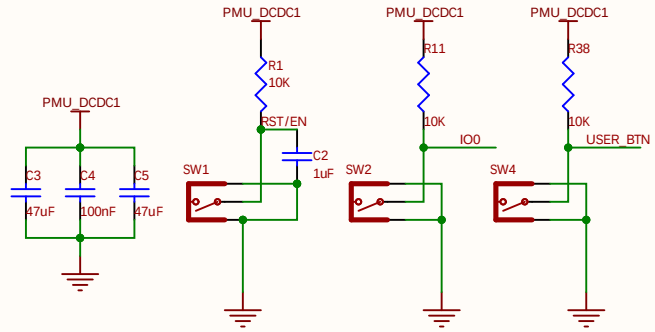
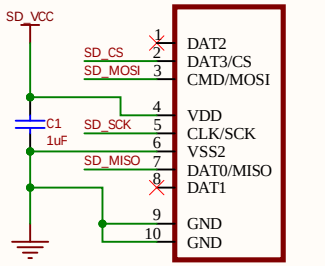
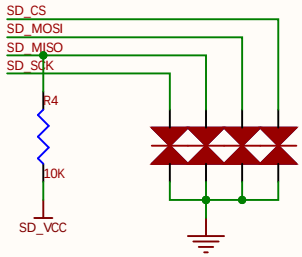


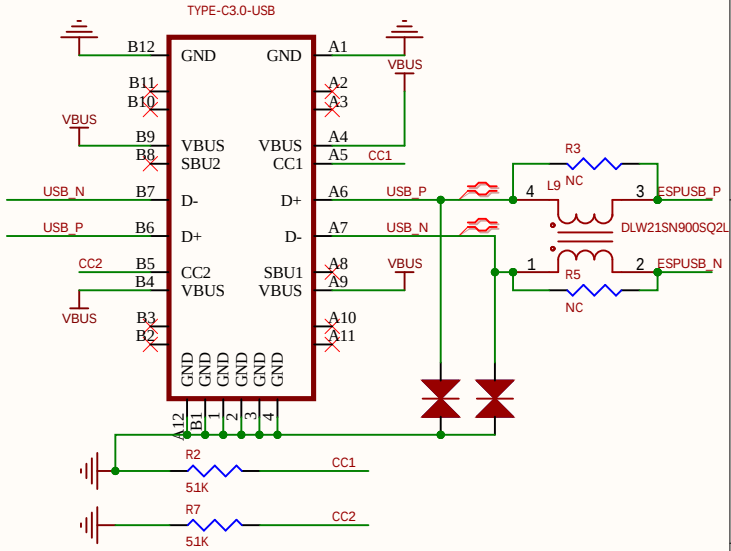

# SOC

**N16R8:Octal SPI occupies 5 more GPIOs than Quad SPI, namely GPIO33~GPIO37**

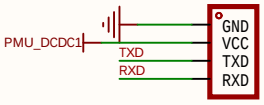


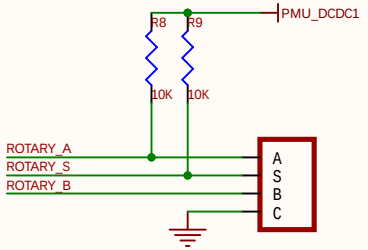

# TF Card holder



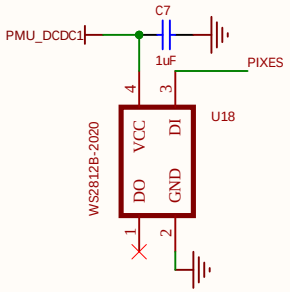

# USB-C




# External download

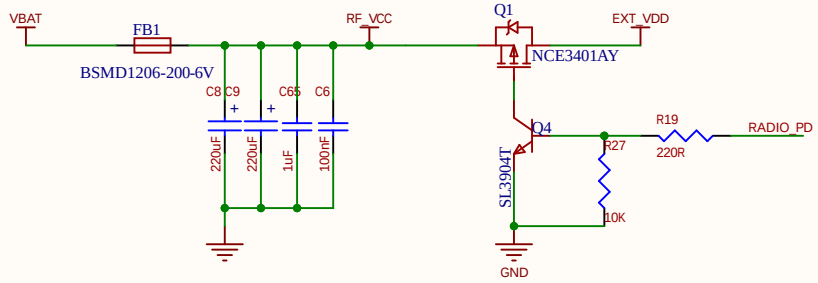



# Encoder



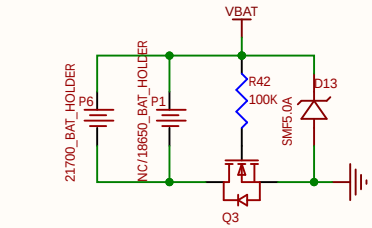

# Pixels

| | | | |
|---|---|---|---|
| Title | PCB_SOC_LILYGO | | |
| Size: A4 | Number | | Revision: V2.1 |
| Date: 3/08/2024 | | Sheet of | 1/7 |
| File: C:\Users\..\1.SOC.SchDoc | | Drawn By: | LewisHe |



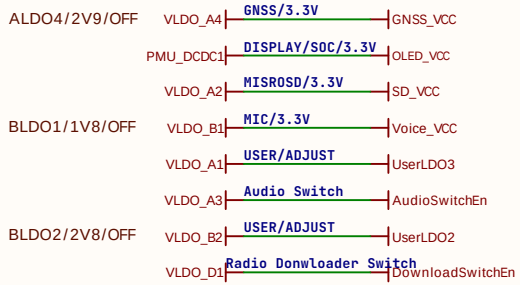

# Radio Power

Rev2.1 version uses SA868 and needs to be powered by a battery, removing the DC power supply method of the Rev2.0 version. This method can reduce most power supply noise.

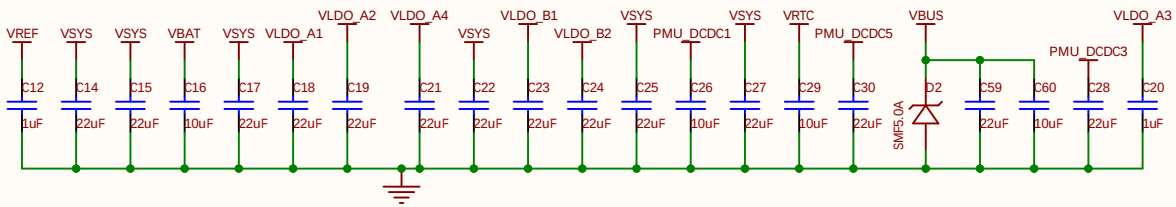


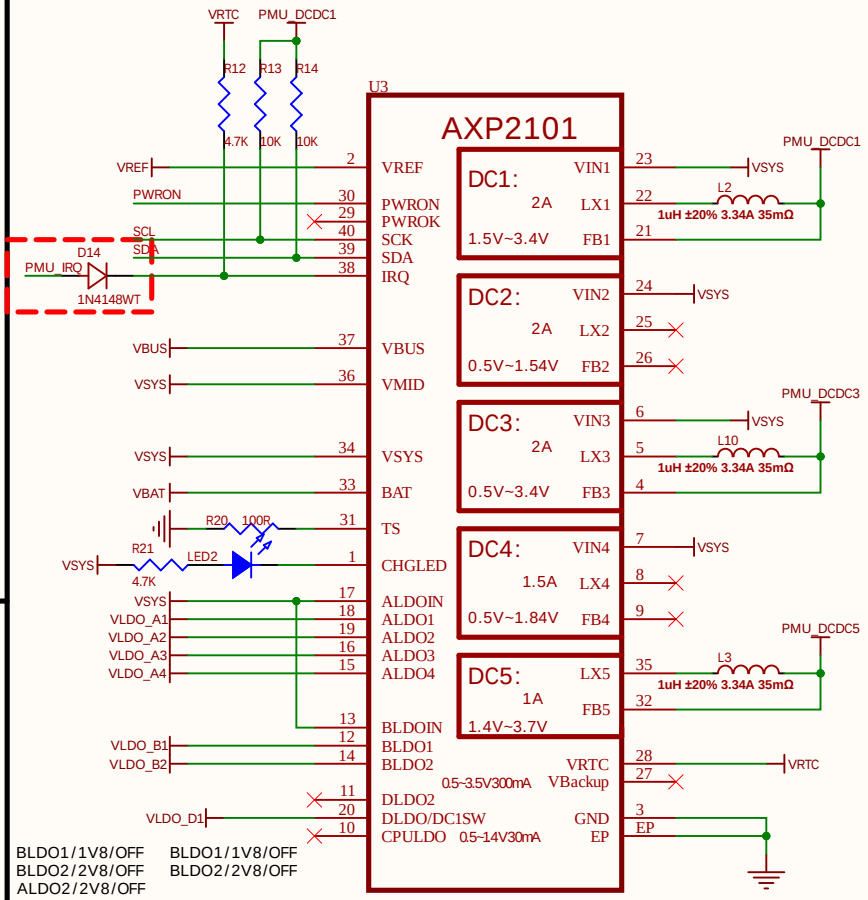

Use 21700 battery holder by default

# Battery Input




# Power Domain

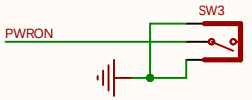



BLDO1/1V8/OFF
BLDO2/2V8/OFF
ALDO2/2V8/OFF
ALDO1/1V8/ON
ALDO3/3V3/ON
ALDO4/2V9/OFF
DC1/3V3/ON
DC2/0V9/ON
DC3/0V9/ON
DC4/1V1/ON
DC5/1V2/OFF
DLDO1/3V3/OFF

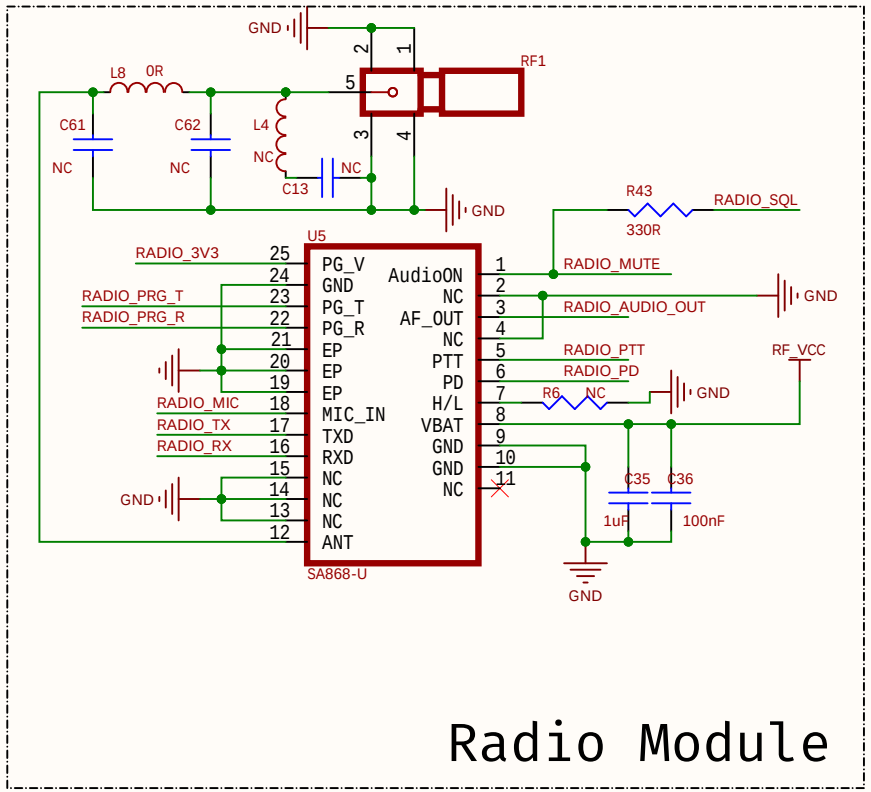
BLDO1/1V8/OFF
BLDO2/2V8/OFF
ALDO4/2V9/OFF

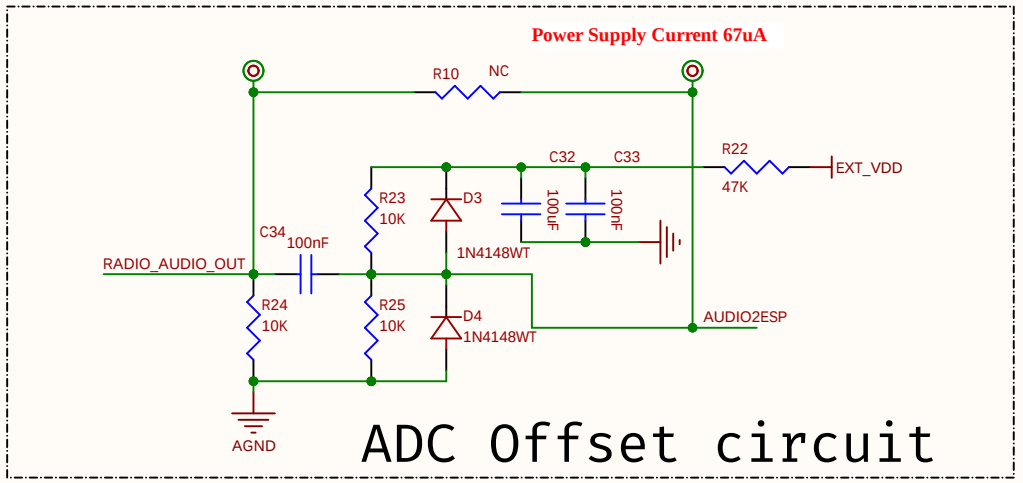
AXP2101

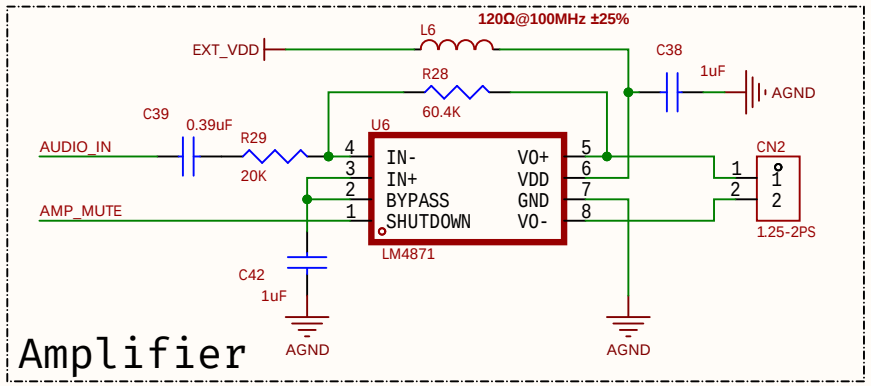


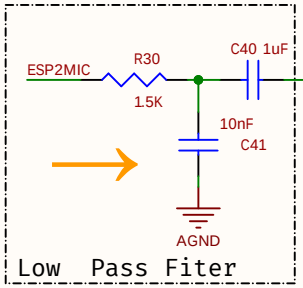

# PMU

| | | |
|---|---|---|
| Title | PCB_PMU_LILYGO | |
| Size: A4 | Number: | Revision: V2.1 |
| Date: 3/08/2024 | | Sheet of 2/7 |
| File: C:\Users\..\2.PMU.SchDoc | | Drawn By: LewisHe |



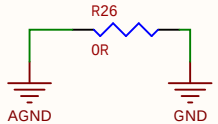







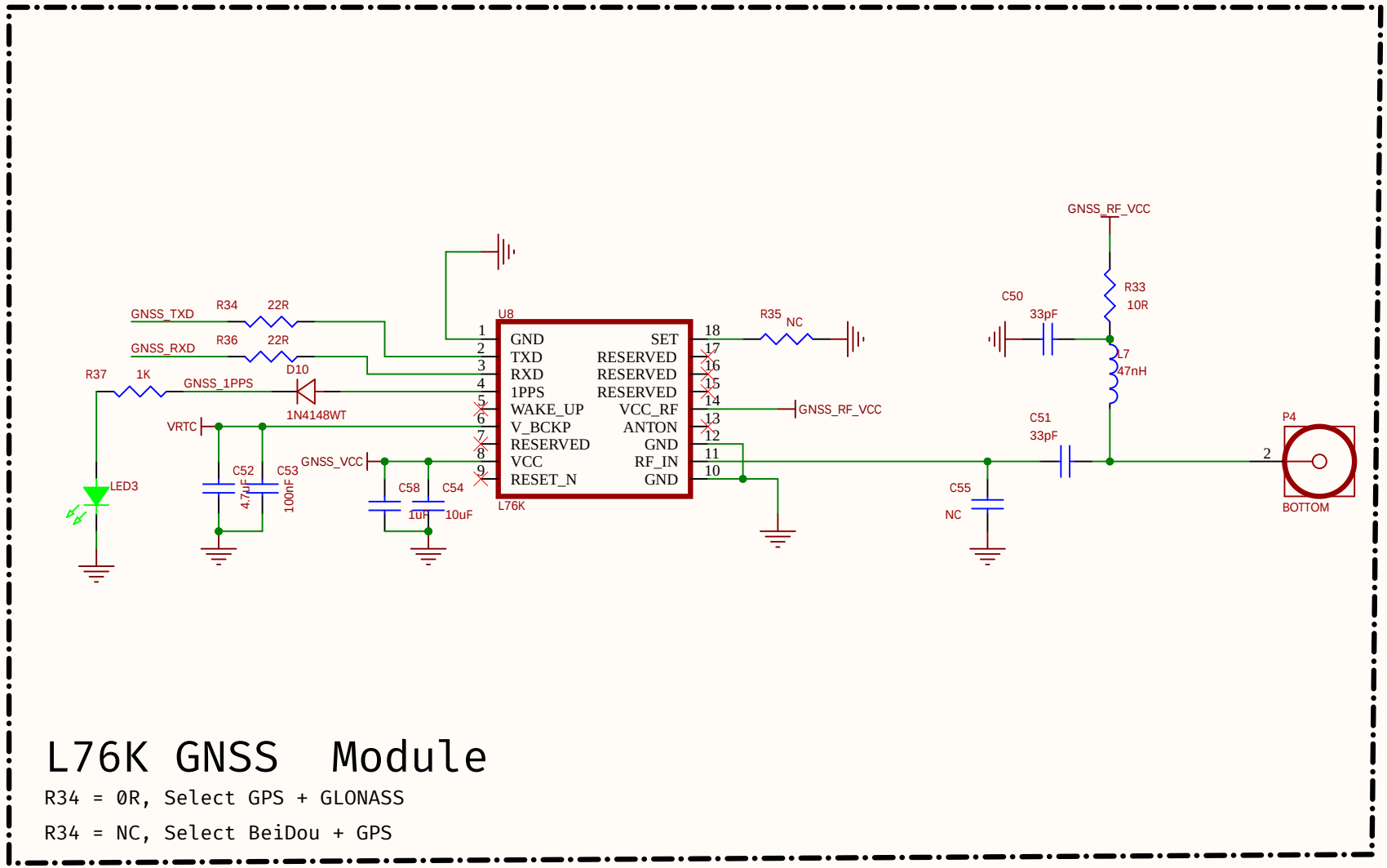



**Consumption current and power are for reference only, subject to actual conditions**

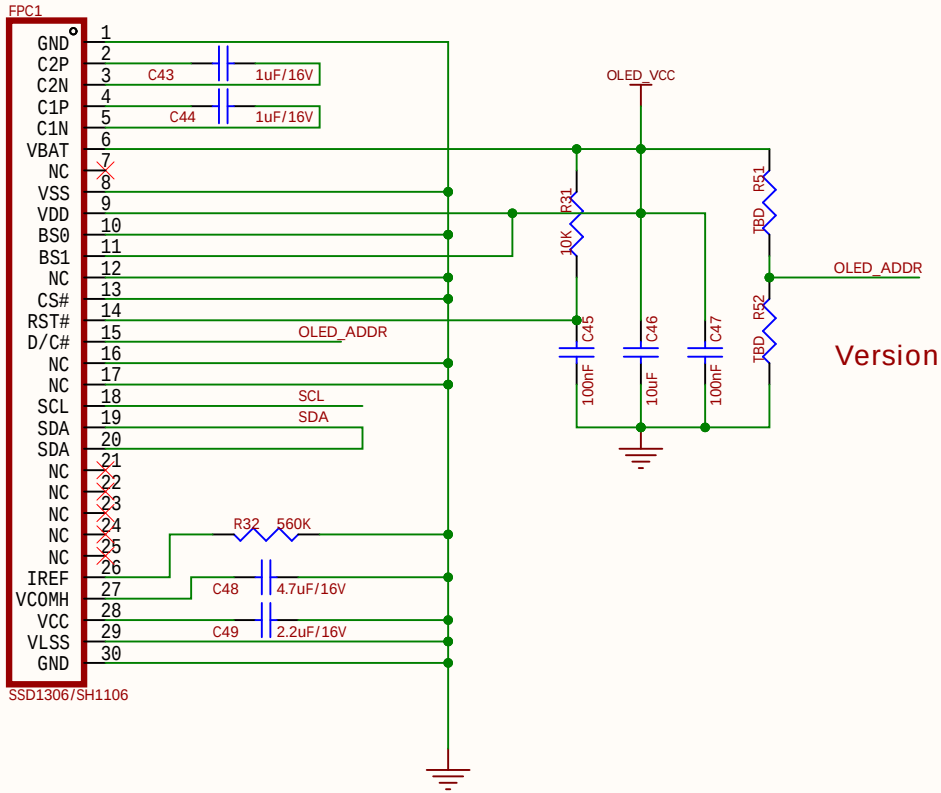
## Use AT+DMOSETGROUP=0 or 1, set TXPower

AT+DMOSETGROUP=1,Use Low Power VHF 300mA~1.2A (14dbm~32dbm)
AT+DMOSETGROUP=0,Use High Power UHF 500mA~1.4A (22dbm~32dbm)

| | | |
|---|---|---|
| Title | PCB_RADIO_LILYGO | |
| Size: A | Number | Revision: V2.1 |
| Date: 3/08/2024 | | Sheet of 3/7 |
| File: C:\Users\..\3.RADIO.SchDoc | | Drawn By: LewisHe |




| | | |
|---|---|---|
| Title | PCB_GNSS_LILYGO | |
| Size: A | Number: | Revision: V2.1 |
| Date: 3/08/2024 | | Sheet of 4/7 |
| File: C:\Users\..\4.GNSS.SchDoc | | Drawn By: LewisHe |



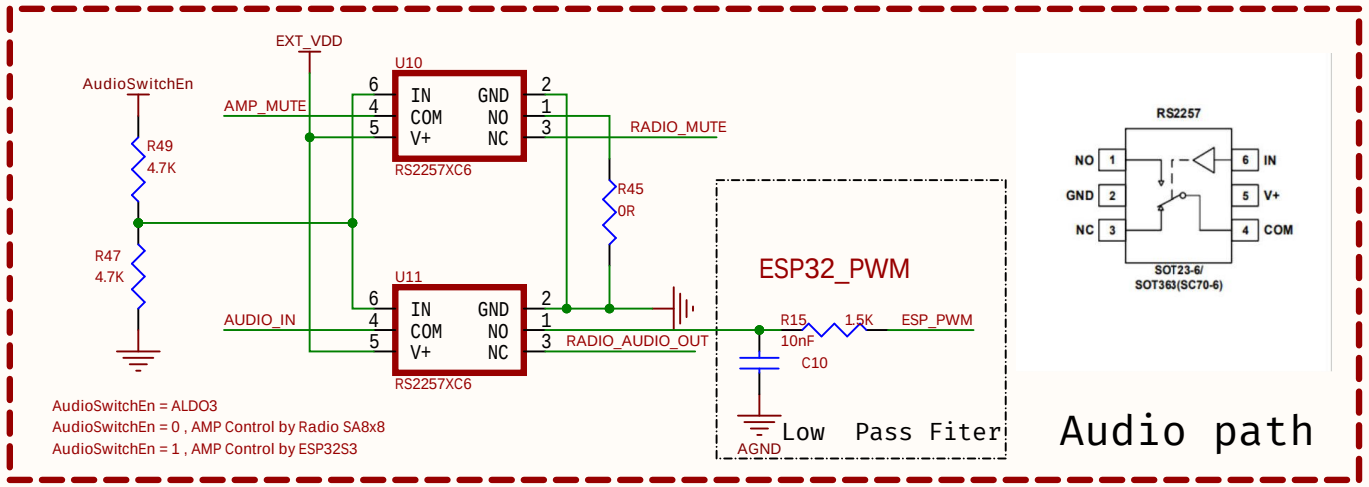

# OLED Display

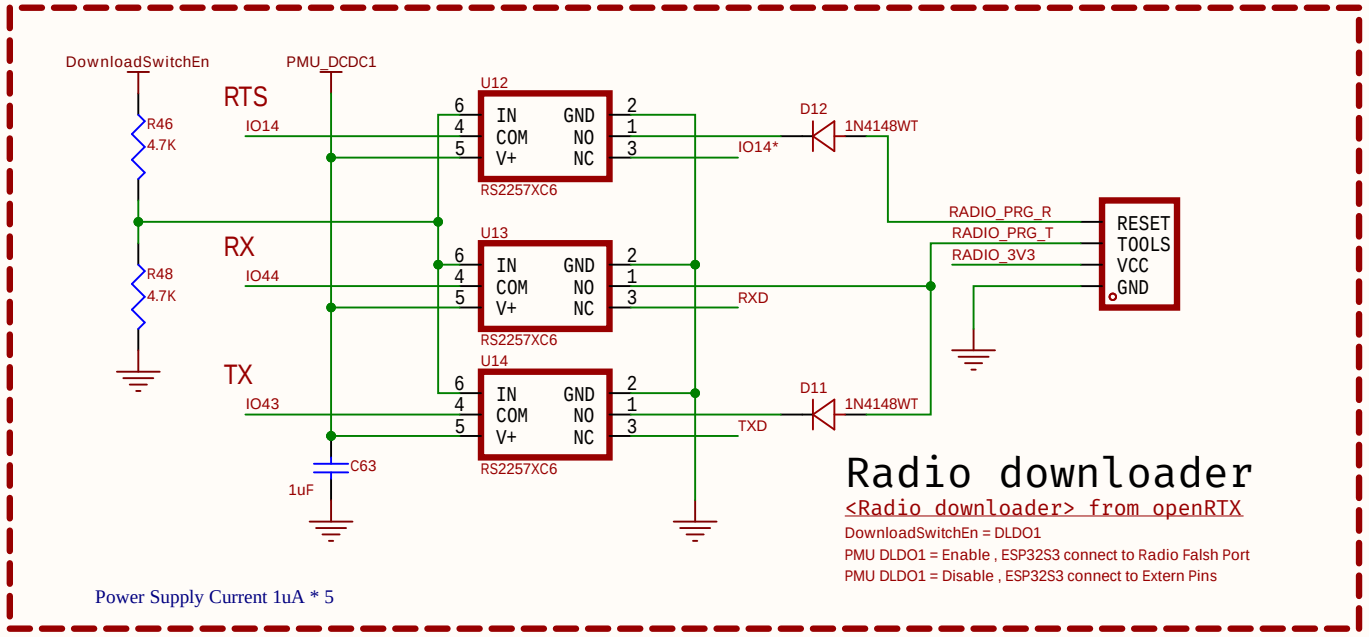
Slave 7 bit address definition:

VHF: R52 = 0R R51 = NC 0X3C

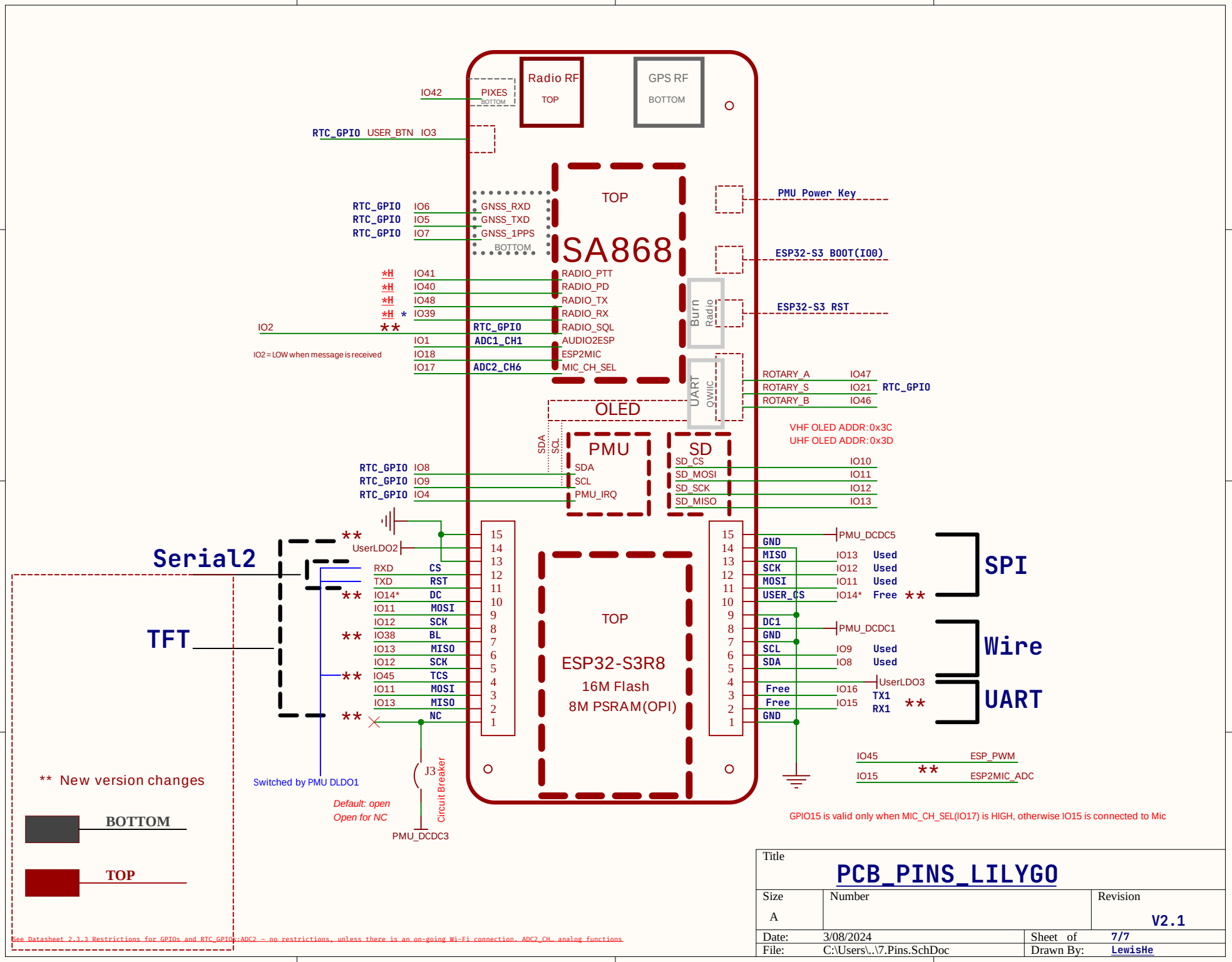
UHF: R52 = NC R51 = 0R 0X3D

| | | |
|---|---|---|
| Title: PCB_DISPLAY_LILYGO | | |
| Size: A | Number: | Revision: V2.1 |
| Date: 3/08/2024 | | Sheet of 5/7 |
| File: C:\Users\..\5.DISPLAY.SchDoc | | Drawn By: LewisHe |




| | | |
|---|---|---|
| Title | PCB_SA8X8_LILYGO | |
| Size: A | Number: | Revision: V2.1 |
| Date: 3/08/2024 | | Sheet of 6/7 |
| File: C:\Users\..\6.SA8X8.SchDoc | | Drawn By: LewisHe |


Radio RF
TOP
GPS RF
BOTTOM
PIXES
BOTTOM
IO42
RTC_GPIO USER_BTN IO3
TOP
SA868
BOTTOM
RTC_GPIO IO6 GNSS_RXD
RTC_GPIO IO5 GNSS_TXD
RTC_GPIO IO7 GNSS_1PPS
*H IO41 RADIO_PTT
*H IO40 RADIO_PD
*H IO48 RADIO_TX
*H * IO39 RADIO_RX
IO2 ** RTC_GPIO RADIO_SQL
IO1 ADC1_CH1 AUDIO2ESP
IO18 ESP2MIC
IO17 ADC2_CH6 MIC_CH_SEL
IO2 = LOW when message is received
Burn Radio
UART QWIIC
PMU Power Key
ESP32-S3 BOOT(IO0)
ESP32-S3 RST
ROTARY_A IO47
ROTARY_S IO21 RTC_GPIO
ROTARY_B IO46
OLED
VHF OLED ADDR:0x3C
UHF OLED ADDR:0x3D
SDA
SCL
PMU
RTC_GPIO IO8 SDA
RTC_GPIO IO9 SCL
RTC_GPIO IO4 PMU_IRQ
SD
SD_CS IO10
SD_MOSI IO11
SD_SCK IO12
SD_MISO IO13
Serial2
TFT
** UserLDO2
RXD CS
TXD RST
** IO14* DC
IO11 MOSI
IO12 SCK
** IO38 BL
IO13 MISO
IO12 SCK
** IO45 TCS
IO11 MOSI
IO13 MISO
** NC
Switched by PMU DLDO1
J3
Circuit Breaker
Default: open
Open for NC
PMU_DCDC3
TOP
ESP32-S3R8
16M Flash
8M PSRAM(OPI)
PMU_DCDC5
GND
MISO IO13 Used
SCK IO12 Used
MOSI IO11 Used
USER_CS IO14* Free **
SPI
DC1
PMU_DCDC1
GND
SCL IO9 Used
SDA IO8 Used
Wire
UserLDO3
Free IO16 TX1
Free IO15 RX1 **
UART
GND
IO45 ESP_PWM
** IO15 ESP2MIC_ADC
GPIO15 is valid only when MIC_CH_SEL(IO17) is HIGH, otherwise IO15 is connected to Mic
** New version changes
BOTTOM
TOP
See Datasheet 2.3.3 Restrictions for GPIOs and RTC_GPIOs:ADC2 – no restrictions, unless there is an on-going Wi-Fi connection. ADC2_CH… analog functions
Title
PCB_PINS_LILYGO
Size A
Number
Revision V2.1
Date: 3/08/2024
Sheet of 7/7
File: C:\Users\..\7.Pins.SchDoc
Drawn By: LewisHe