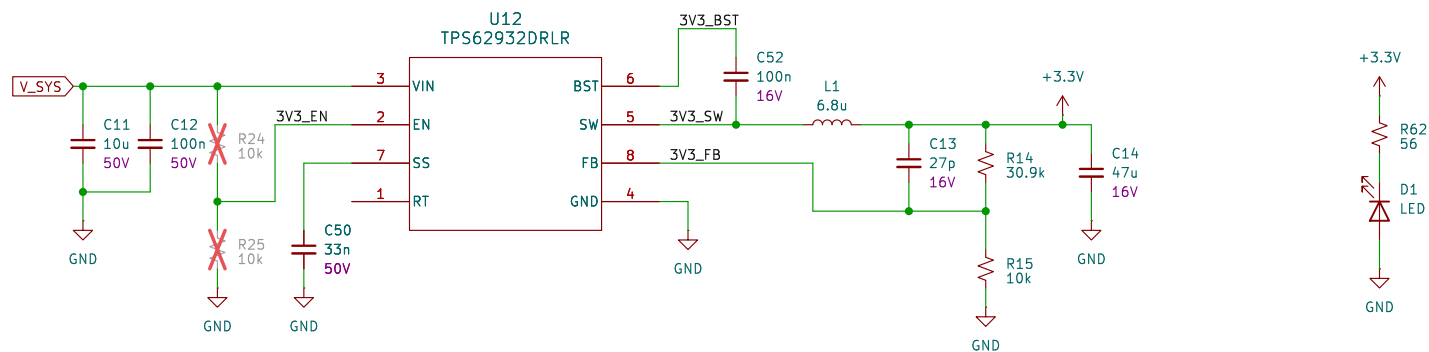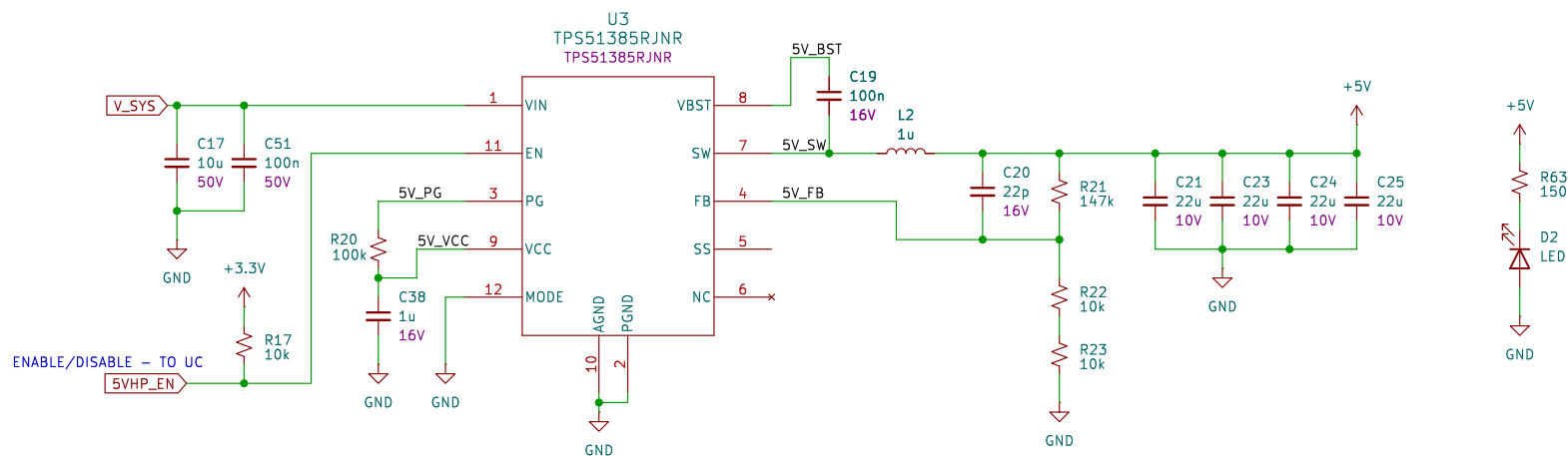Power_Input

File: Power_Input.kicad_sch

Power_Converters

File: Power_Converters.kicad_sch
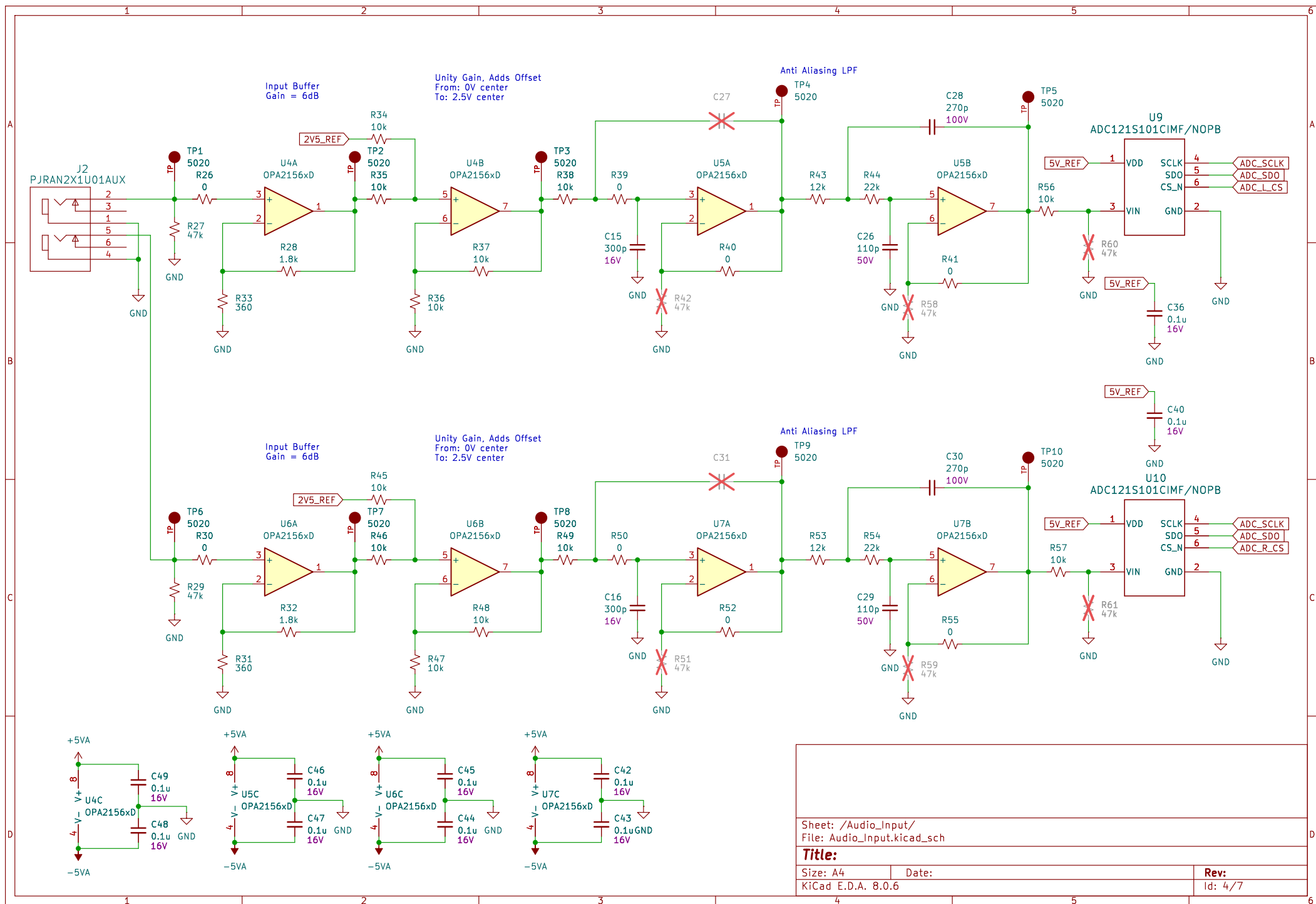
Audio_Input

File: Audio_Input.kicad_sch
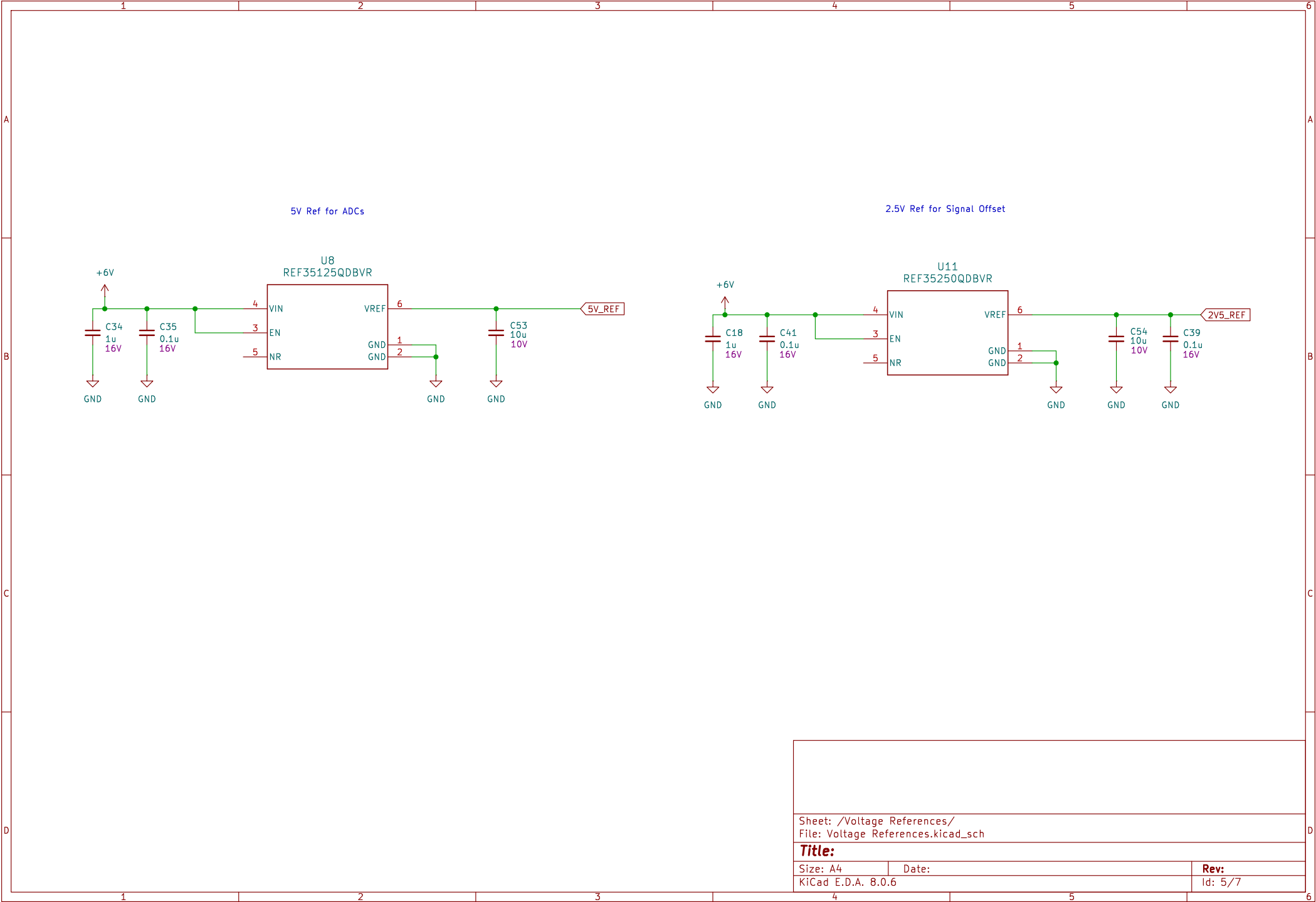
Voltage References

File: Voltage References.kicad_sch

Microcontroller

File: microcontroller.kicad_sch

Split Rail

File: Split_Rail.kicad_sch

Sheet: /
File: Power.kicad_sch
Title:
Size: A4   Date:
KiCad E.D.A. 8.0.6
Rev:
Id: 1/7

U1
TPS25730SRSMR
TPS25730DREFR

V_SYS — 20 PPHV
21 PPHV
22 PPHV

LDO_3V3

R64 3.3k   R1 3.3k

9 I2Ct_SCL
8 I2Ct_SDA

VIN_3V3 — 38 VIN_3V3

C6 10u 10V
GND

37 PLUG_EVENT
13 PLUG_FLIP
18 FAULT_IN_N

LDO_1V5 — 4 LDO_1V5

C8 4.7u 10V
GND

36 Reserved
26 Reserved
27 Reserved

R3 10k   R4 10k   R5 10k
GND   GND   GND

LDO_3V3

C7 10u 10V
GND

LDO_3V3 ADCIN4 ADCIN3 ADCIN2 ADCIN1
7   5   3   2
ADC4_IN   ADC3_IN   ADC2_IN   ADC1_IN

R6 191k   R8 162k   R11 9.76k   R12 180k
R7 9.76k R9 39k   R10 191k   R13 22k
GND

VBUS_IN 25
VBUS_IN 24
VBUS_IN 23   USBC_VBUS

VBUS 33
VBUS 32

SINK_EN_N 19
DBG_ACC 10

CC1 28
CC2 29

CAP_MIS 6

DRAIN 15
DRAIN 30
DRAIN_PAD 40

GND 11
GND 12
GND 14
GND 16
GND 17
GND 31
GND 34
GND 35
GND_PAD 39

C10 4.7u 50V   C9 0.01u 50V   C5 0.01u 50V   C3 0.01u 50V   C4 0.01u 50V
GND

U18 TVS2200DRV
Det & Drv
4
1
GND

C1 330p 50V   C2 330p 50V
GND   GND

USBC_CC1
USBC_CC2

GND

J4
USB4125-GF-A-0190

B9 VBUS
A9 VBUS

USBC_VBUS

A5 CC1
B5 CC2

A12 GND
B12 GND
8 SHELL
7 SHELL
9 SHELL
10 SHELL

GND

3.3V GENERAL PURPOSE CONVERTER

U12
TPS62932DRLR

Pin	Signal		Pin	Signal
3	VIN		6	BST
2	EN		5	SW
7	SS		8	FB
1	RT		4	GND

V_SYS

C11 10u 50V
C12 100n 50V
R24 10k
R25 10k
C50 33n 50V
3V3_EN
3V3_BST
C52 100n 16V
L1 6.8u
3V3_SW
3V3_FB
C13 27p 16V
R14 30.9k
R15 10k
C14 47u 16V
+3.3V

R62 56
D1 LED
+3.3V
GND

GND

5V 5A Converter for LED Power

U3
TPS51385RJNR
TPS51385RJNR

Pin	Signal		Pin	Signal
1	VIN		8	VBST
11	EN		7	SW
3	PG		4	FB
9	VCC		5	SS
12	MODE		6	NC
10	AGND		2	PGND

V_SYS

C17 10u 50V
C51 100n 50V
+3.3V
R20 100k
5V_PG
5V_VCC
C38 1u 16V
5V_BST
C19 100n 16V
L2 1u
5V_SW
5V_FB
C20 22p 16V
R21 147k
C21 22u 10V
C23 22u 10V
C24 22u 10V
C25 22u 10V
+5V
R22 10k
R23 10k

R17 10k

ENABLE/DISABLE — TO UC
5VHP_EN

R63 150
D2 LED
+5V
GND

GND

5V Ref for ADCs

U8
REF35125QDBVR

+6V

C34
1u
16V

C35
0.1u
16V

GND GND

4 VIN
3 EN
5 NR

VREF 6

GND 1
GND 2

GND

C53
10u
10V

GND

5V_REF

2.5V Ref for Signal Offset

U11
REF35250QDBVR

+6V

C18
1u
16V

C41
0.1u
16V

GND GND

4 VIN
3 EN
5 NR

VREF 6

GND 1
GND 2

GND

C54
10u
10V

C39
0.1u
16V

GND GND

2V5_REF

CONNECTION TO DISPLAY PCB

I2C LEVEL SHIFTING

+3.3V

R72
10k

C75
0.1u
16V

GND

SWITCH_IN

J1
SHF-106-01-L-D-TH

+5V

01	01	02	02
03	03	04	04	ENC_A
05	05	06	06	ENC_B
07	07	08	08
09	09	10	10
11	11	12	12

GND

GND

+5V +3.3V

C33
100n
50V

C32
100n
50V

GND

GND

I2C_LED_SCL

I2C_LED_SDA

+3.3V

UC_SPI_CLK

R16
3.3k

R18
3.3k

U13
TCA9517D

8	VCCB	VCCA	1
7	SCLB	SCLA	2
6	SDAB	SDAA	3
5	EN	GND	4

+3.3V

R2
3.3k

GND

U2
Arduino Nano ESP32

J3

1	1	SCK	MISO	15	15	UC_SPI_DIN
2	2	3V3	MOSI	14	14	UC_SPI_DATA_OUT
3	3	AREF	D10	13	13	UC_ADC_L_CS
4	4	A0	D9	12	12	UC_ADC_R_CS
5	5	A1	D8	11	11	SWITCH_IN
6	6	A2	D7	10	10	ENC_A
7	7	A3	D6	9	9	ENC_B
8	8	A4/SDA	D5	8	8	5VHP_EN
9	9	A5/SCL	D4	7	7	
10	10	A6	D3	6	6	
11	11	A7	D2	5	5	
12	12	USB	GN1	4	4	
13	13	RESETN	RESETN	3	3	
14	14	GND	RX	2	2	
15	15	VIN	TX	1	1	

J5

GND

GND

SPI LEVEL SHIFTING

5V_REF

+3.3V

C37
0.1u
16V

C73
0.1u
16V

R19
3.3k

GND

GND

ADC_SCLK

ADC_SDO

ADC_L_CS

ADC_R_CS

U19
TXB0106PW

15	VCCB	VCCA	2
	OE		8
16	B1	A1	1	UC_SPI_CLK
14	B2	A2	3	UC_SPI_DIN
13	B3	A3	4	UC_SPI_DATA_OUT
12	B4	A4	5	UC_ADC_L_CS
11	B5	A5	6	UC_ADC_R_CS
10	B6	A6	7	
9	GND		

GND

+6V

+5VA

−6V

−5VA

+3.3V

+5V

J6
Conn_02x05_Odd_Even

1	2
3	4
5	6
7	8
9	10

V_SYS

GND

GND

H1
MountingHole

H2
MountingHole

H3
MountingHole

H4
MountingHole

U14
LM43601PWP

C22 10u 50V
C57 1u 50V
C55 1u 50V
C56 1u 50V
GND

6V_VCC
C58 2.2u 50V
GND

V_SYS

13 VIN
14 VIN
12 EN
7 RT
4 VCC
6 SYNC
EPAD EPAD
10 AGND
15 PGND
16 PGND
GND

3 CBOOT
1 SW
2 SW
9 FB
5 BIAS
8 PGOOD
11 SS/TRK

6V_BST
C59 470n 16V
L5 33u

6V_SW
6V_FB

C60 22p 16V
R65 1M
R66 205k
GND

C61 4.7u 10V
GND

+6V
C62 22u 25V
GND
C69 1u 16V
GND

U16
TPS70950DBVR
2 IN
3 EN
5 OUT
4 FB
1 GND
GND

+5VA
C70 2.2u 16V
GND

U15
LM43601PWP

V_SYS

C63 68u 35V
C64 4.7u 50V
GND

N6V_VCC
C65 2.2u 50V
GND

13 VIN
14 VIN
12 EN
7 RT
4 VCC
6 SYNC
EPAD EPAD
10 AGND
15 PGND
16 PGND
GND

3 CBOOT
1 SW
2 SW
9 FB
5 BIAS
8 PGOOD
11 SS/TRK

N6V_BST
C66 470n 16V
L6 33u

N6V_SW
N6V_FB
N6V_BIAS

R67 105k
N6V_PG

C67 4.7u 10V

GND

R68 1M
R69 205k

C68 47u 16V

−6V

C71 1u 16V
GND

U17
TPS72301DBV
2 IN
3 EN
5 OUT
4 FB
1 GND
GND

R70 49.9k
R71 49.9k
GND

−5VA
C72 2.2u 16V
GND

Sheet: /Split Rail/
File: Split_Rail.kicad_sch

Title:

Size: A4   Date:
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