Power

File: Nathophone_pcb_Power.kicad_sch

Data+Power Connections

File: Nathophone_PCB_Data.kicad_sch

Drivers A

File: DriversA.kicad_sch

Drivers B

File: DriversB.kicad_sch

Drivers C

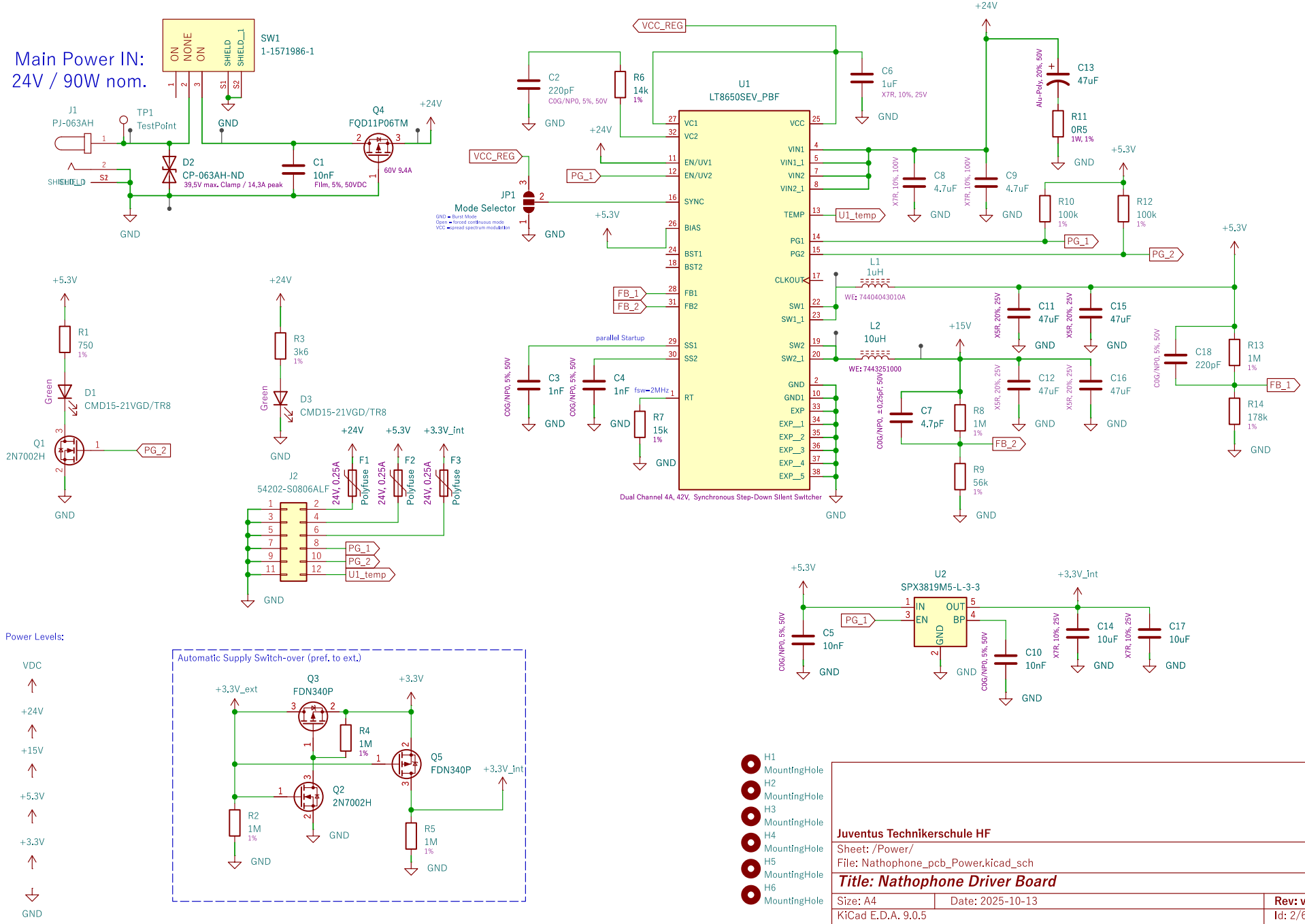
File: DriversC.kicad_sch

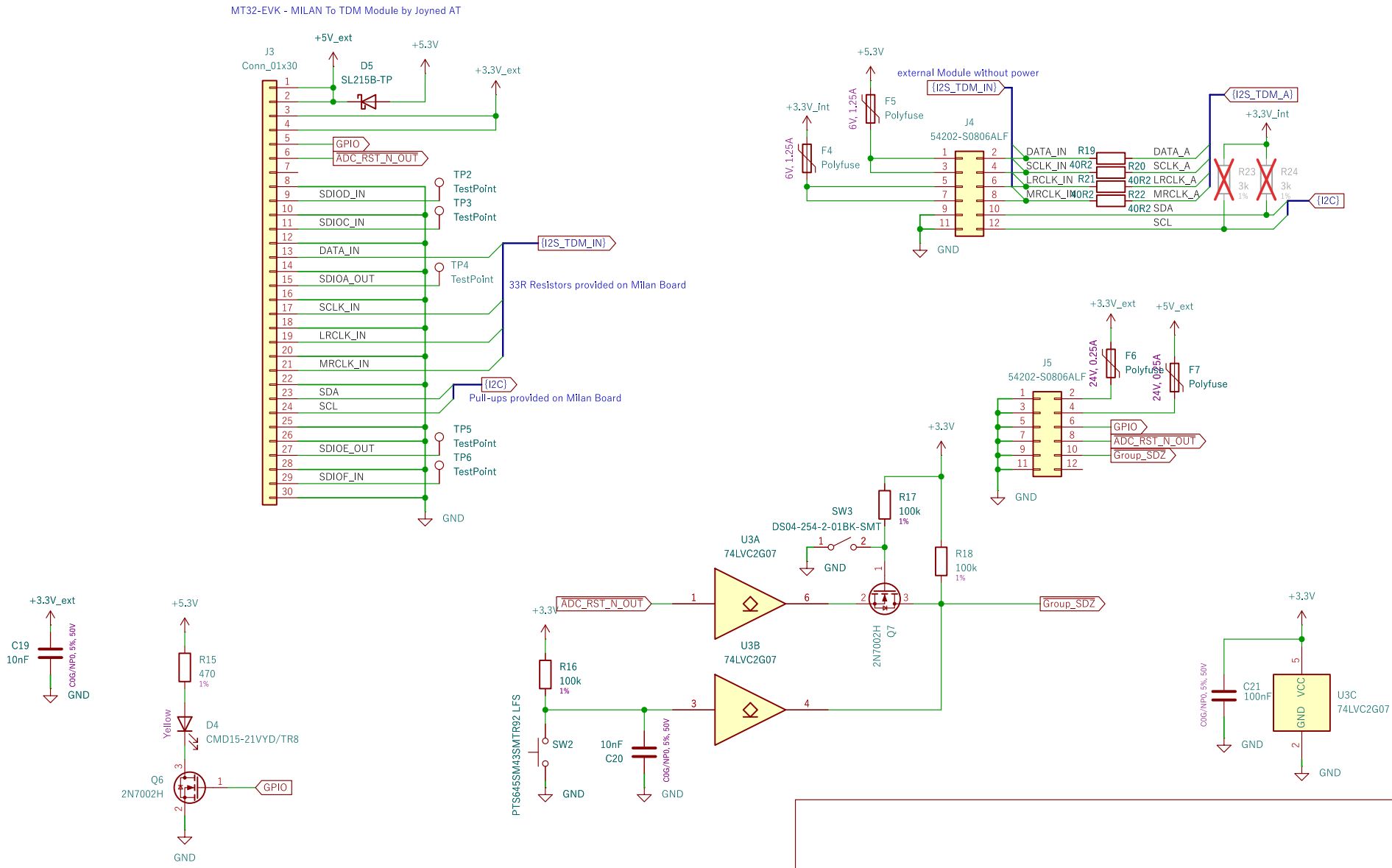
Juventus Technikerschule HF

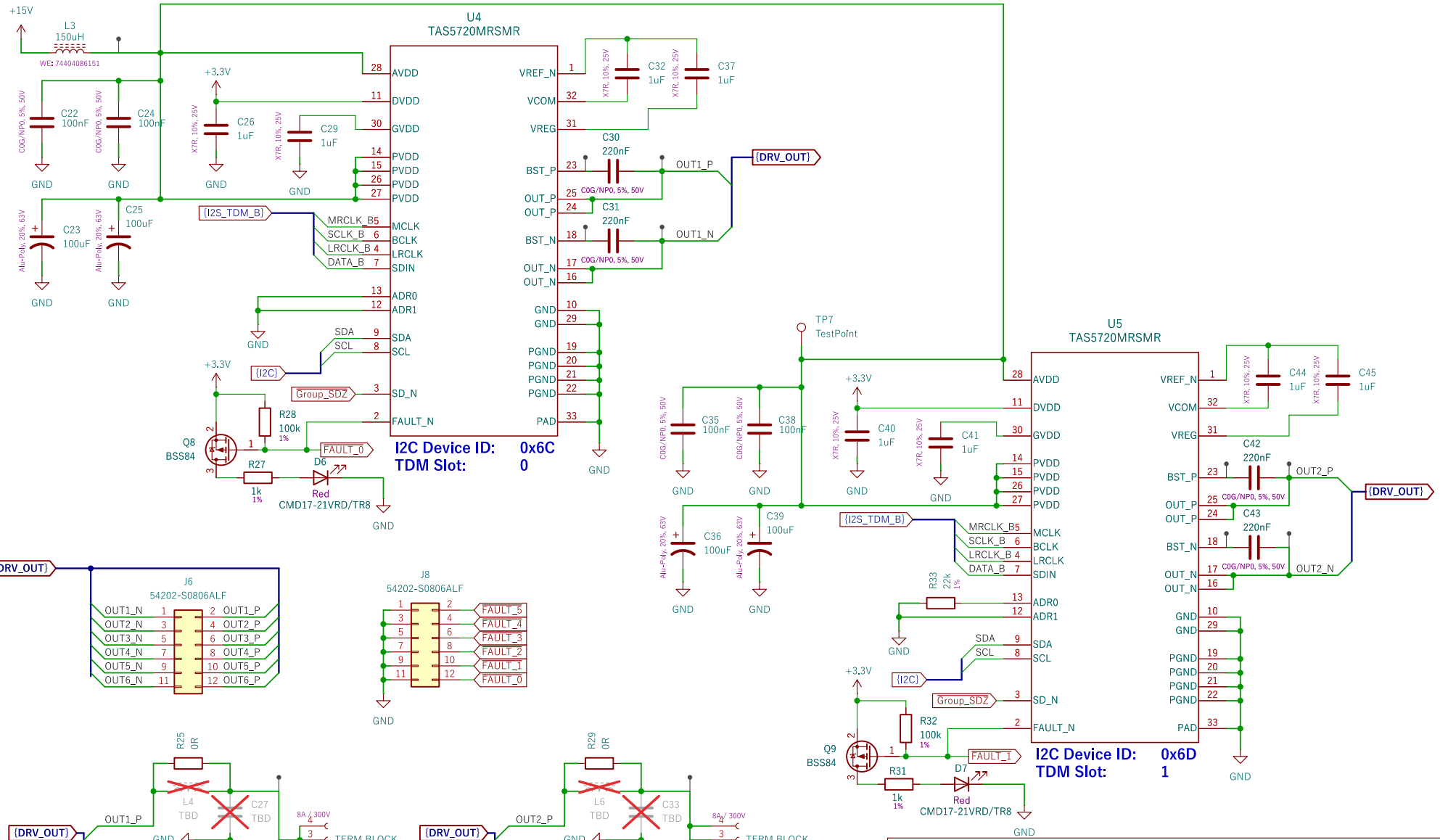
Sheet: /
File: Nathophone_driver_board.kicad_sch

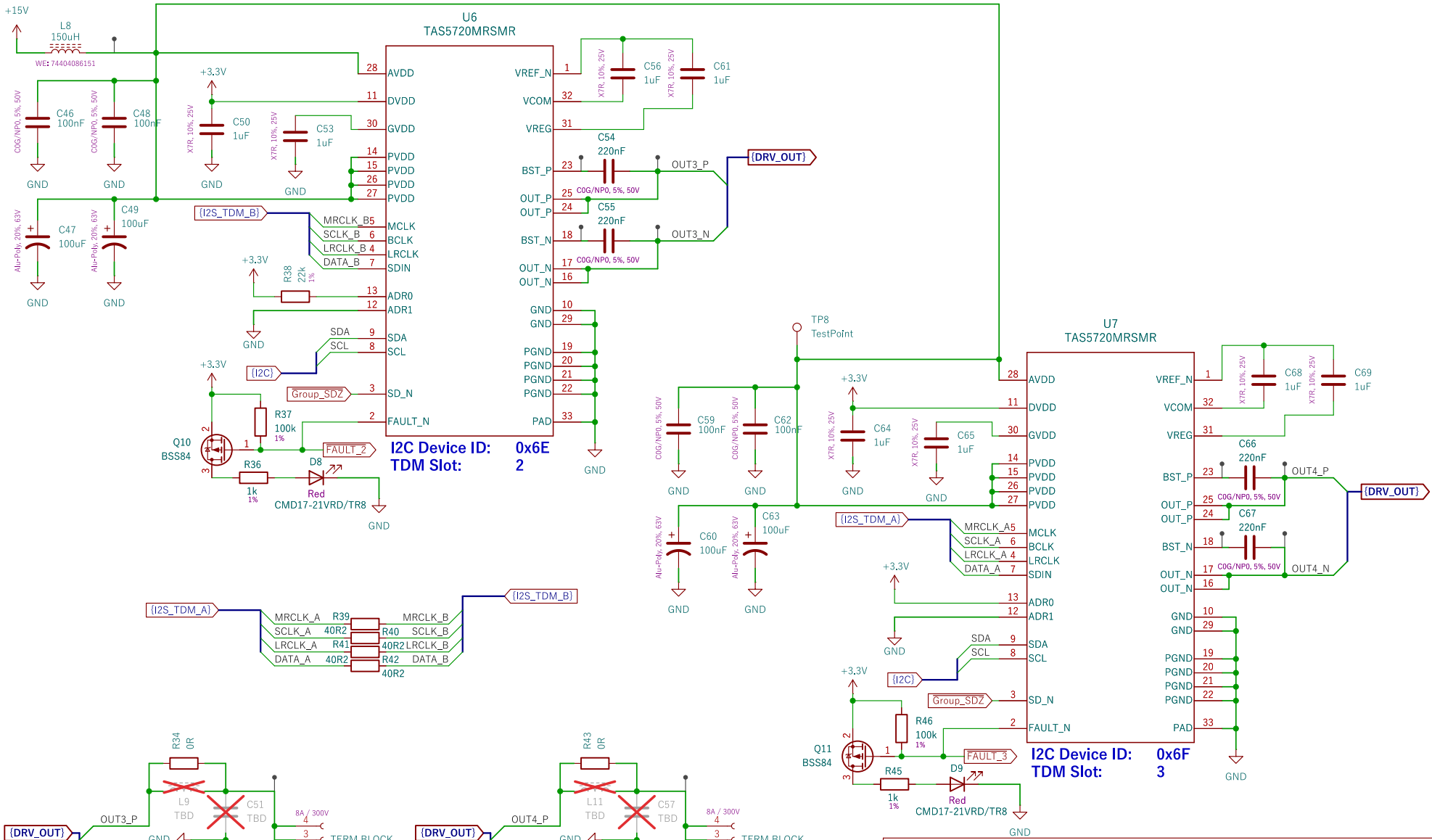
Title: Nathophone Driver Board

Size: A4	Date: 2025-10-13	**Rev: v0**
KiCad E.D.A. 9.0.5		**Id:** 1/6

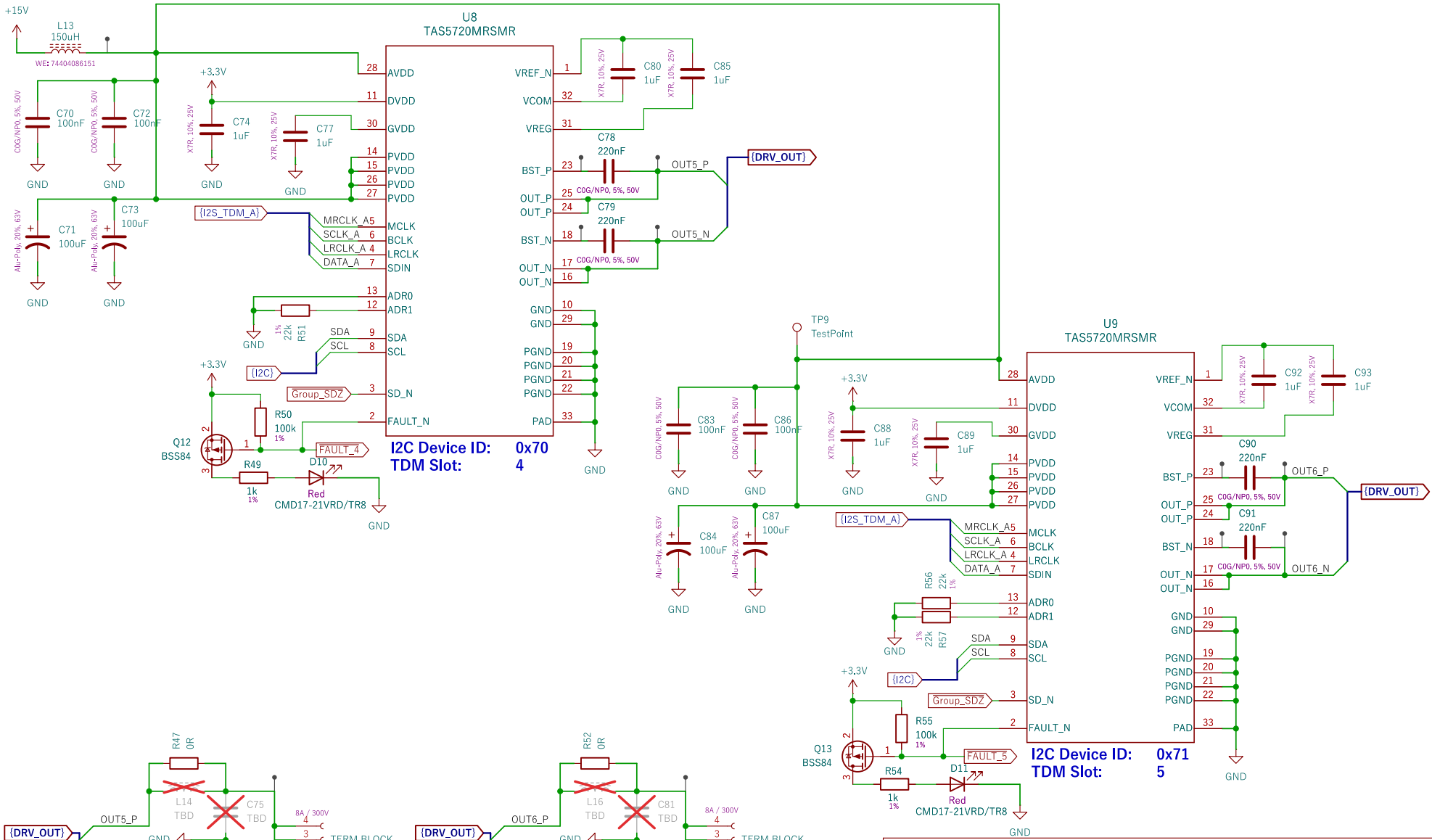

Main Power IN:
24V / 90W nom.
SW1
1-1571986-1
J1
PJ-063AH
TP1
TestPoint
GND
D2
CP-063AH-ND
39,5V max. Clamp / 14,3A peak
C1
10nF
Film, 5%, 50VDC
Q4
FQD11P06TM
60V 9.4A
+24V
SHIELD
S2
VCC_REG
C2
220pF
COG/NP0, 5%, 50V
R6
14k
1%
U1
LT8650SEV_PBF
C6
1uF
X7R, 10%, 25V
C13
47uF
Alu-Poly, 20%, 50V
R11
0R5
1W, 1%
JP1
Mode Selector
GND = Burst Mode
Open = forced continuous mode
VCC = spread spectrum modulation
PG_1
PG_2
U1_temp
+5.3V
C8
4.7uF
C9
4.7uF
R10
100k
1%
R12
100k
1%
L1
1uH
WE: 74404043010A
L2
10uH
WE: 7443251000
+15V
C11
47uF
C15
47uF
C12
47uF
C16
47uF
C18
220pF
R13
1M
1%
R14
178k
1%
FB_1
FB_2
C3
1nF
C4
1nF
fsw=2MHz
R7
15k
1%
parallel Startup
C7
4.7pF
R8
1M
1%
R9
56k
1%
Dual Channel 4A, 42V, Synchronous Step-Down Silent Switcher
R1
750
1%
D1
CMD15-21VGD/TR8
Green
Q1
2N7002H
R3
3k6
1%
D3
CMD15-21VGD/TR8
J2
54202-S0806ALF
F1
F2
F3
24V, 0.25A
Polyfuse
+3.3V_int
U2
SPX3819M5-L-3-3
C5
10nF
C10
10nF
C14
10uF
C17
10uF
Power Levels:
VDC
+3.3V
Automatic Supply Switch-over (pref. to ext.)
+3.3V_ext
Q3
FDN340P
Q5
FDN340P
Q2
2N7002H
R4
1M
R2
1M
R5
1M
H1
MountingHole
H2
MountingHole
H3
MountingHole
H4
MountingHole
H5
MountingHole
H6
MountingHole
Juventus Technikerschule HF
Sheet: /Power/
File: Nathophone_pcb_Power.kicad_sch
Title: Nathophone Driver Board
Size: A4
Date: 2025-10-13
Rev: v0
KiCad E.D.A. 9.0.5
Id: 2/6


MT32-EVK - MILAN To TDM Module by Joyned AT
J3
Conn_01x30
+5V_ext
+5.3V
+3.3V_ext
D5
SL215B-TP
GPIO
ADC_RST_N_OUT
SDIOD_IN
SDIOC_IN
DATA_IN
SDIOA_OUT
SCLK_IN
LRCLK_IN
MRCLK_IN
SDA
SCL
SDIOE_OUT
SDIOF_IN
TP2
TestPoint
TP3
TestPoint
TP4
TestPoint
TP5
TestPoint
TP6
TestPoint
{I2S_TDM_IN}
33R Resistors provided on Milan Board
{I2C}
Pull-ups provided on Milan Board
GND
+5.3V
external Module without power
{I2S_TDM_IN}
+3.3V_int
6V, 1.25A
F5
Polyfuse
F4
Polyfuse
J4
54202-S0806ALF
DATA_IN
SCLK_IN
LRCLK_IN
MRCLK_IN
R19
R20
R21
R22
40R2
DATA_A
SCLK_A
LRCLK_A
MRCLK_A
SDA
SCL
{I2S_TDM_A}
+3.3V_int
R23
3k
1%
R24
3k
1%
{I2C}
GND
+3.3V_ext
+5V_ext
J5
54202-S0806ALF
24V, 0.25A
F6
Polyfuse
F7
Polyfuse
GPIO
ADC_RST_N_OUT
Group_SDZ
GND
+3.3V
SW3
DS04-254-2-01BK-SMT
R17
100k
1%
R18
100k
1%
U3A
74LVC2G07
U3B
74LVC2G07
2N7002H
Q7
ADC_RST_N_OUT
Group_SDZ
GND
+3.3V
R16
100k
1%
SW2
PTS645SM43SMTR92 LFS
10nF
C20
COG/NP0, 5%, 50V
GND
+3.3V_ext
C19
10nF
COG/NP0, 5%, 50V
GND
+5.3V
R15
470
1%
Yellow
D4
CMD15-21VYD/TR8
Q6
2N7002H
GPIO
GND
+3.3V
C21
100nF
COG/NP0, 5%, 50V
U3C
74LVC2G07
VCC
GND
GND
Juventus Technikerschule HF
Sheet: /Data+Power Connections/
File: Nathophone_PCB_Data.kicad_sch
Title: Nathophone Driver Board
Size: A4
Date: 2025-10-13
Rev: v0
KiCad E.D.A. 9.0.5
Id: 3/6


+15V
L3
150uH
WE: 74404086151
U4
TAS5720MRSMR
AVDD
DVDD
GVDD
PVDD
VREF_N
VCOM
VREG
BST_P
OUT_P
BST_N
OUT_N
GND
PGND
PAD
MCLK
BCLK
LRCLK
SDIN
ADR0
ADR1
SDA
SCL
SD_N
FAULT_N
C22 100nF
C24 100nF
C26 1uF
C29 1uF
C32 1uF
C37 1uF
C30 220nF
C31 220nF
C23 100uF
C25 100uF
{I2S_TDM_B}
MRCLK_B
SCLK_B
LRCLK_B
DATA_B
{I2C}
Group_SDZ
R28 100k
Q8 BSS84
R27 1k
D6 Red
CMD17-21VRD/TR8
FAULT_0
I2C Device ID: 0x6C
TDM Slot: 0
{DRV_OUT}
OUT1_P
OUT1_N
TP7
TestPoint
U5
TAS5720MRSMR
C35 100nF
C38 100nF
C40 1uF
C41 1uF
C36 100uF
C39 100uF
C44 1uF
C45 1uF
C42 220nF
C43 220nF
OUT2_P
OUT2_N
R33 22k
R32 100k
Q9 BSS84
R31 1k
D7 Red
CMD17-21VRD/TR8
FAULT_1
I2C Device ID: 0x6D
TDM Slot: 1
J6
54202-S0806ALF
OUT1_N
OUT2_N
OUT3_N
OUT4_N
OUT5_N
OUT6_N
OUT1_P
OUT2_P
OUT3_P
OUT4_P
OUT5_P
OUT6_P
J8
54202-S0806ALF
FAULT_5
FAULT_4
FAULT_3
FAULT_2
FAULT_1
FAULT_0
R25 0R
R26 0R
L4 TBD
L5 TBD
C27 TBD
C28 TBD
TERM BLOCK J7
R29 0R
R30 0R
L6 TBD
L7 TBD
C33 TBD
C34 TBD
TERM BLOCK J9
Juventus Technikerschule HF
Sheet: /Drivers A/
File: DriversA.kicad_sch
Title: Nathophone Driver Board
Size: A4
Date: 2025-10-13
Rev: v0
KiCad E.D.A. 9.0.5
Id: 4/6



Juventus Technikerschule HF		
Sheet: /Drivers B/		
File: DriversB.kicad_sch		
Title: Nathophone Driver Board		
Size: A4	Date: 2025-10-13	**Rev: v0**
KiCad E.D.A. 9.0.5		Id: 5/6



Juventus Technikerschule HF	
Sheet: /Drivers C/	
File: DriversC.kicad_sch	
Title: Nathophone Driver Board	
Size: A4	Date: 2025-10-13
KiCad E.D.A. 9.0.5	**Rev: v0**
	Id: 6/6