Band data

File: band_data.kicad_sch

SWR

File: SWR.kicad_sch

Current_meas

File: Current_meas.kicad_sch

cpu

File: cpu.kicad_sch

FAN_CNTRL

File: fancntrl.kicad_sch

POWER

File: power.kicad_sch

PTT

File: ptt.kicad_sch

CONNECTORS

File: connectors.kicad_sch

RRIO OPAMP "MCP6241U"

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Sheet: /

File: LDMOS_control_v5.2CAT.kicad_sch

Title: LDMOS control unit

Size: A4	Date: 2024-04-28	**Rev: v5.2**
KiCad E.D.A. 10.0.1		Id: 1/9

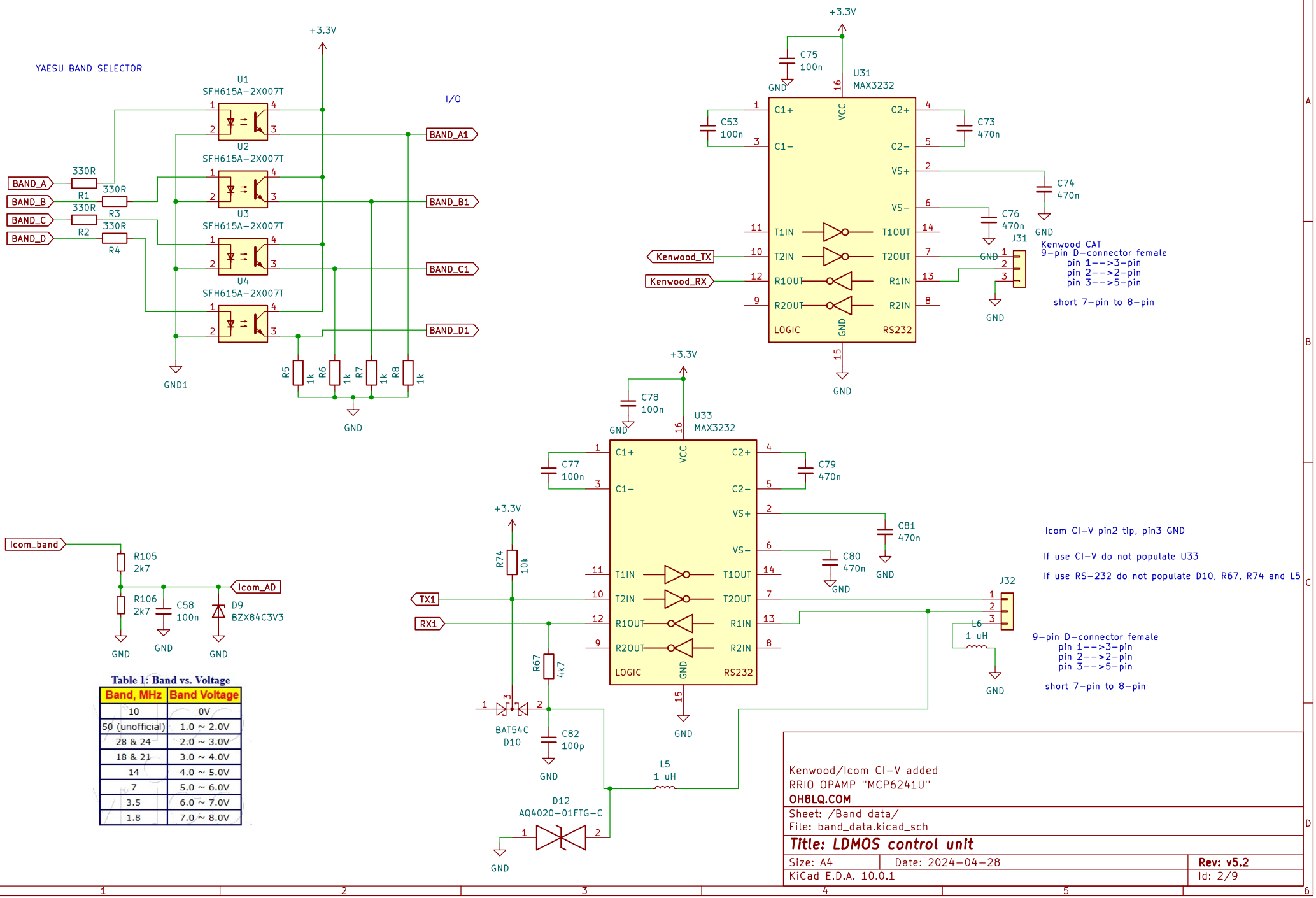

Table 1: Band vs. Voltage

Band, MHz	Band Voltage
10	0V
50 (unofficial)	1.0 ~ 2.0V
28 & 24	2.0 ~ 3.0V
18 & 21	3.0 ~ 4.0V
14	4.0 ~ 5.0V
7	5.0 ~ 6.0V
3.5	6.0 ~ 7.0V
1.8	7.0 ~ 8.0V

Kenwood/Icom CI−V added
RRIO OPAMP "MCP6241U"
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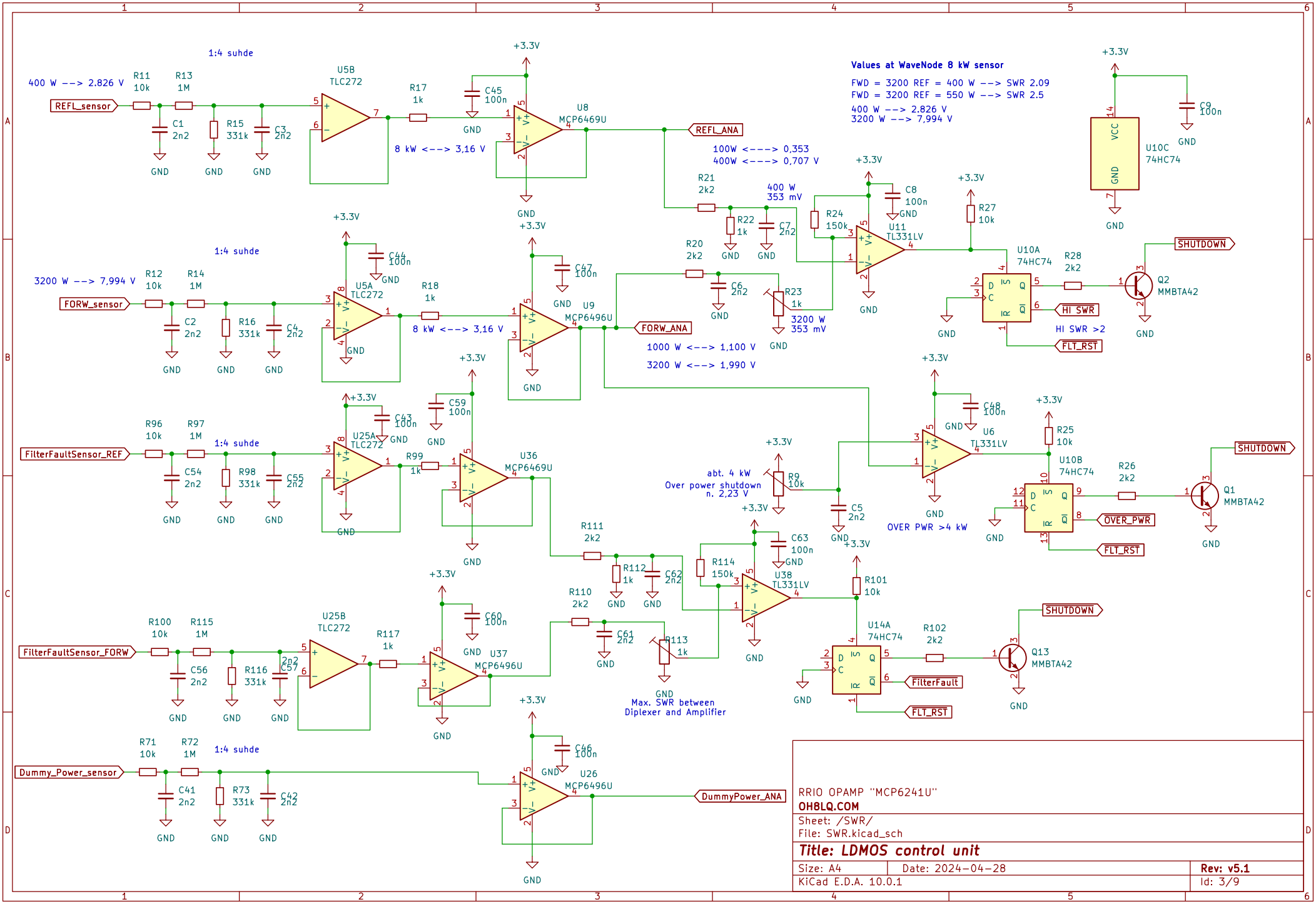
Sheet: /Band data/
File: band_data.kicad_sch

Title: LDMOS control unit

Size: A4	Date: 2024−04−28	**Rev: v5.2**
KiCad E.D.A. 10.0.1		Id: 2/9


1:4 suhde
400 W --> 2.826 V
R11 10k
R13 1M
U5B TLC272
REFL_sensor
C1 2n2
R15 331k
C3 2n2
R17 1k
C45 100n
U8 MCP6469U
8 kW <--> 3,16 V
REFL_ANA
+3.3V
GND
Values at WaveNode 8 kW sensor
FWD = 3200 REF = 400 W --> SWR 2.09
FWD = 3200 REF = 550 W --> SWR 2.5
400 W --> 2.826 V
3200 W --> 7,994 V
100W <---> 0,353
400W <---> 0,707 V
R21 2k2
R22 1k
C7 2n2
400 W
353 mV
R24 150k
C8 100n
U11 TL331LV
R27 10k
U10C 74HC74
C9 100n
VCC
1:4 suhde
3200 W --> 7,994 V
R12 10k
R14 1M
FORW_sensor
C2 2n2
R16 331k
C4 2n2
U5A TLC272
C44 100n
R18 1k
C47 100n
U9 MCP6496U
FORW_ANA
R20 2k2
C6 2n2
R23 1k
3200 W
353 mV
1000 W <--> 1,100 V
3200 W <--> 1,990 V
U10A 74HC74
R28 2k2
Q2 MMBTA42
SHUTDOWN
HI SWR
HI SWR >2
FLT_RST
FilterFaultSensor_REF
R96 10k
R97 1M
C54 2n2
R98 331k
C55 2n2
U25A TLC272
C43 100n
R99 1k
C59 100n
U36 MCP6469U
abt. 4 kW
Over power shutdown
n. 2,23 V
R9 10k
C5 2n2
U6 TL331LV
C48 100n
OVER PWR >4 kW
R25 10k
U10B 74HC74
R26 2k2
Q1 MMBTA42
OVER_PWR
FilterFaultSensor_FORW
R100 10k
R115 1M
C56 2n2
R116 331k
2n2
C57
U25B TLC272
R117 1k
C60 100n
U37 MCP6496U
R111 2k2
R112 1k
C62 2n2
R110 2k2
C61 2n2
R113 1k
R114 150k
C63 100n
U38 TLC331LV
R101 10k
U14A 74HC74
R102 2k2
Q13 MMBTA42
FilterFault
Max. SWR between
Diplexer and Amplifier
Dummy_Power_sensor
R71 10k
R72 1M
C41 2n2
R73 331k
C42 2n2
C46 100n
U26 MCP6496U
DummyPower_ANA
RRIO OPAMP "MCP6241U"
OH8LQ.COM
Sheet: /SWR/
File: SWR.kicad_sch
Title: LDMOS control unit
Size: A4
Date: 2024-04-28
Rev: v5.1
KiCad E.D.A. 10.0.1
Id: 3/9

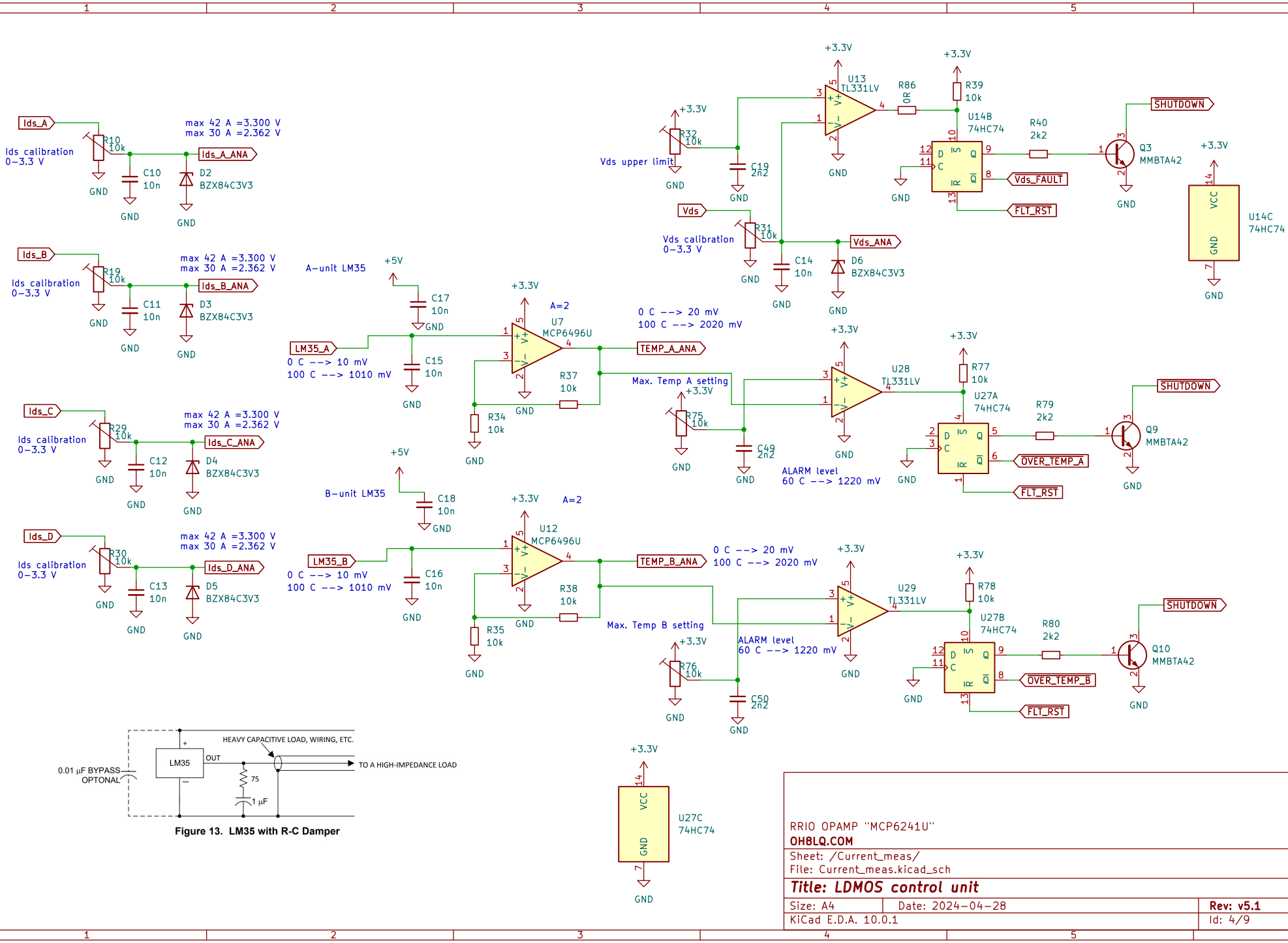


Figure 13. LM35 with R-C Damper

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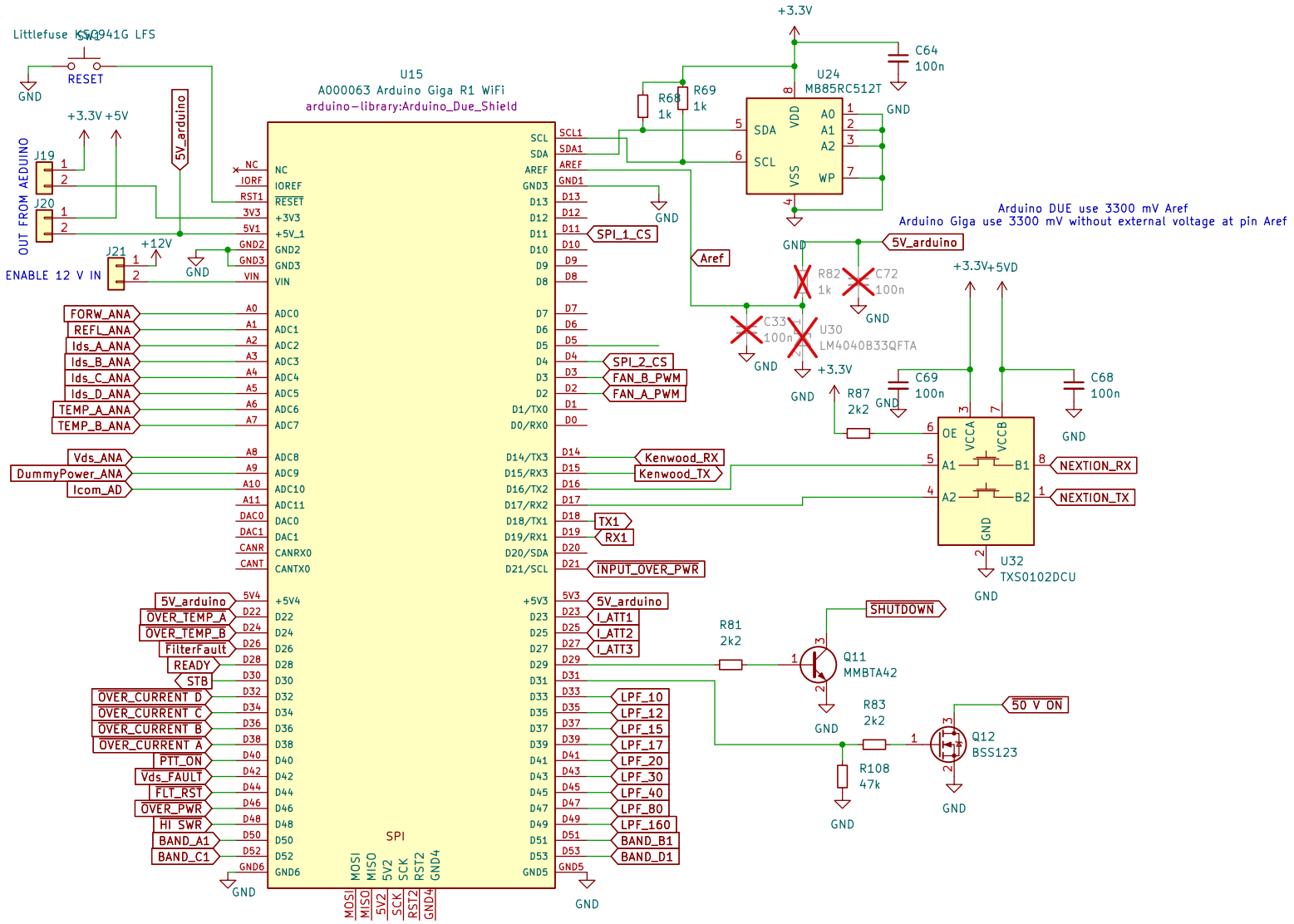
Sheet: /Current_meas/

File: Current_meas.kicad_sch

Title: LDMOS control unit

Size: A4	Date: 2024-04-28	**Rev: v5.1**
KiCad E.D.A. 10.0.1		Id: 4/9



v5.2 Reset buttom and Bias open drain added
U30 type changed LM4040B33QFTA
v5.0-->v5.1 R87 is routed like pull-up
RRIO OPAMP "MCP6241U"
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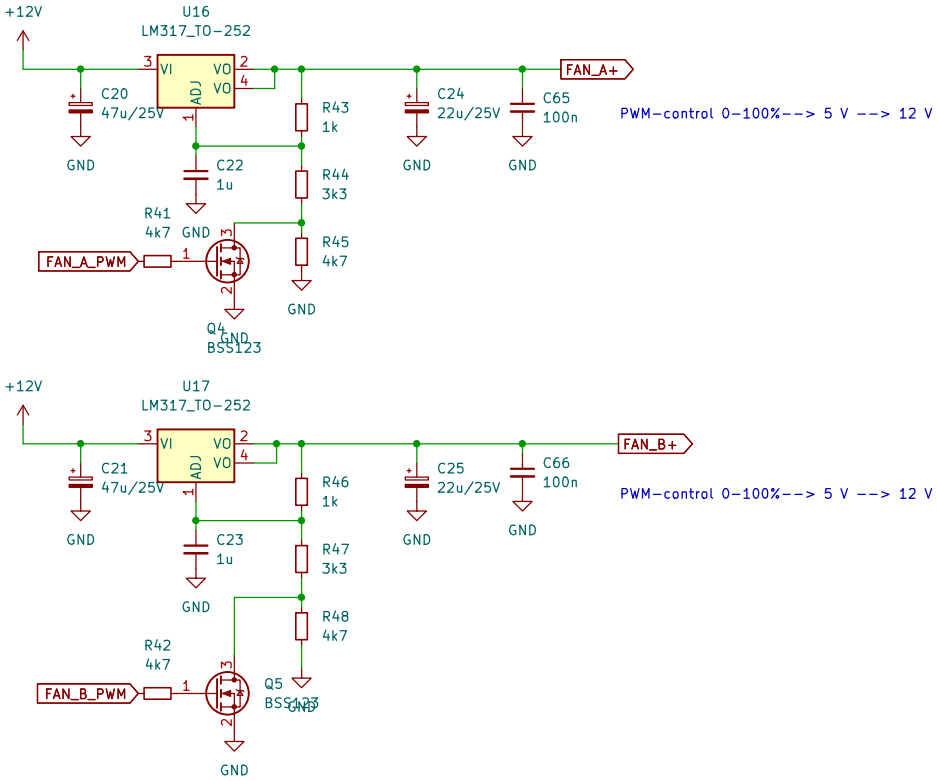
Sheet: /cpu/
File: cpu.kicad_sch

Title: LDMOS control unit

Size: A4	Date: 2024-04-28	**Rev: v5.2**
KiCad E.D.A. 10.0.1		Id: 5/9



RRIO OPAMP "MCP6241U"

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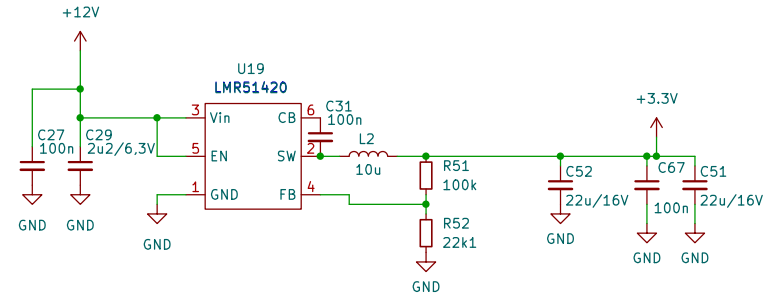
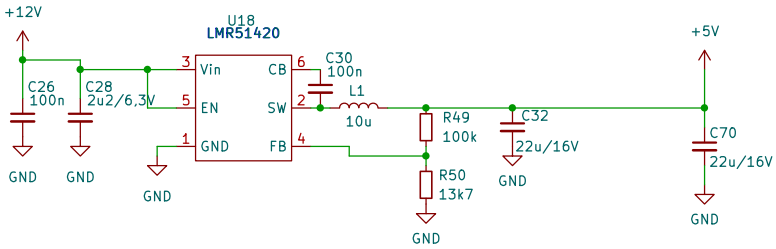
Sheet: /FAN_CNTRL/

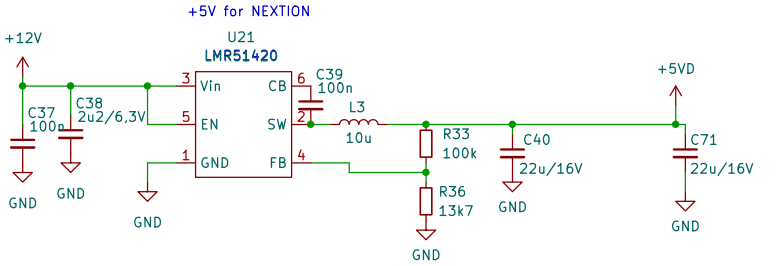
File: fancntrl.kicad_sch

Title: LDMOS control unit

Size: A4	Date: 2024-04-28	**Rev: v5.1**
KiCad E.D.A. 10.0.1		Id: 6/9







RRIO OPAMP "MCP6241U"

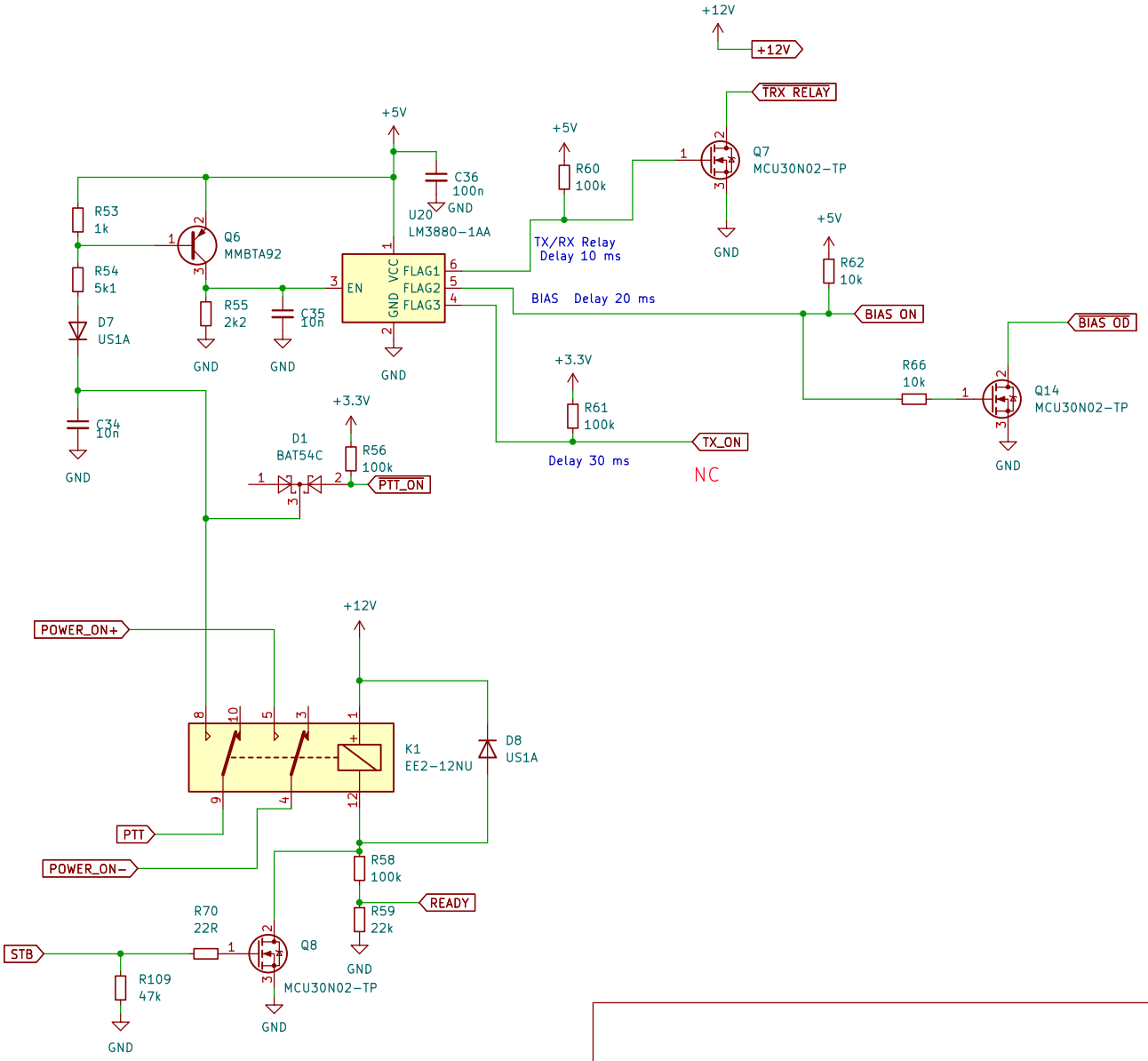
OH8LQ.COM

Sheet: /POWER/

File: power.kicad_sch

Title: LDMOS control unit

Size: A4	Date: 2024-04-28	**Rev: v5.1**
KiCad E.D.A. 10.0.1		Id: 7/9



RRIO OPAMP "MCP6241U"

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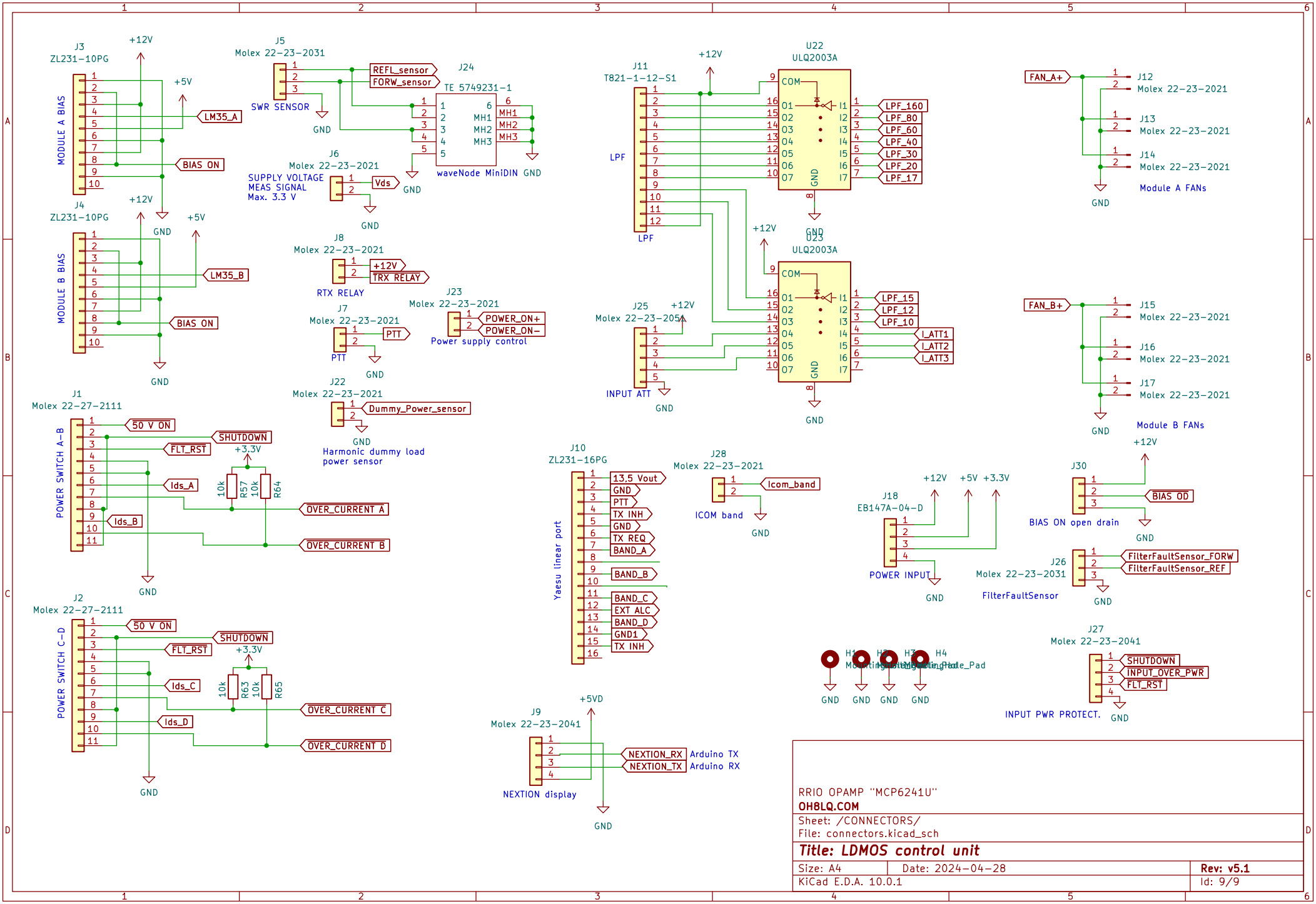
Sheet: /PTT/

File: ptt.kicad_sch

Title: LDMOS control unit

Size: A4	Date: 2024-04-28	**Rev: v5.1**
KiCad E.D.A. 10.0.1		Id: 8/9


J3
ZL231-10PG
MODULE A BIAS
LM35_A
BIAS ON
J4
ZL231-10PG
MODULE B BIAS
LM35_B
BIAS ON
J5
Molex 22-23-2031
SWR SENSOR
REFL_sensor
FORW_sensor
J24
TE 5749231-1
waveNode MiniDIN
J6
Molex 22-23-2021
SUPPLY VOLTAGE
MEAS SIGNAL
Max. 3.3 V
Vds
J8
Molex 22-23-2021
RTX RELAY
+12V
TRX RELAY
J7
Molex 22-23-2021
PTT
J23
Molex 22-23-2021
POWER_ON+
POWER_ON-
Power supply control
J22
Molex 22-23-2021
Dummy_Power_sensor
Harmonic dummy load
power sensor
J1
Molex 22-27-2111
POWER SWITCH A-B
50 V ON
SHUTDOWN
FLT_RST
Ids_A
Ids_B
R57
R64
OVER_CURRENT A
OVER_CURRENT B
J2
Molex 22-27-2111
POWER SWITCH C-D
50 V ON
SHUTDOWN
FLT_RST
Ids_C
Ids_D
R63
R65
OVER_CURRENT C
OVER_CURRENT D
J11
T821-1-12-S1
LPF
U22
ULQ2003A
LPF_160
LPF_80
LPF_60
LPF_40
LPF_30
LPF_20
LPF_17
U23
ULQ2003A
LPF_15
LPF_12
LPF_10
I_ATT1
I_ATT2
I_ATT3
J25
Molex 22-23-2051
INPUT ATT
J10
ZL231-16PG
Yaesu linear port
13,5 Vout
PTT
TX INH
TX REQ
BAND_A
BAND_B
BAND_C
EXT ALC
BAND_D
GND1
J28
Molex 22-23-2021
Icom_band
ICOM band
J18
EB147A-04-D
POWER INPUT
J26
Molex 22-23-2031
FilterFaultSensor
FilterFaultSensor_FORW
FilterFaultSensor_REF
J30
BIAS OD
BIAS ON open drain
J12
J13
J14
Molex 22-23-2021
FAN_A+
Module A FANs
J15
J16
J17
FAN_B+
Module B FANs
J27
Molex 22-23-2041
SHUTDOWN
INPUT_OVER_PWR
FLT_RST
INPUT PWR PROTECT.
J9
Molex 22-23-2041
NEXTION_RX
NEXTION_TX
Arduino TX
Arduino RX
NEXTION display
H1
H2
H3
H4
MountingHole_Pad
+12V
+5V
+3.3V
+5VD
GND
RRIO OPAMP "MCP6241U"
OH8LQ.COM
Sheet: /CONNECTORS/
File: connectors.kicad_sch
Title: LDMOS control unit
Size: A4
Date: 2024-04-28
Rev: v5.1
KiCad E.D.A. 10.0.1
Id: 9/9