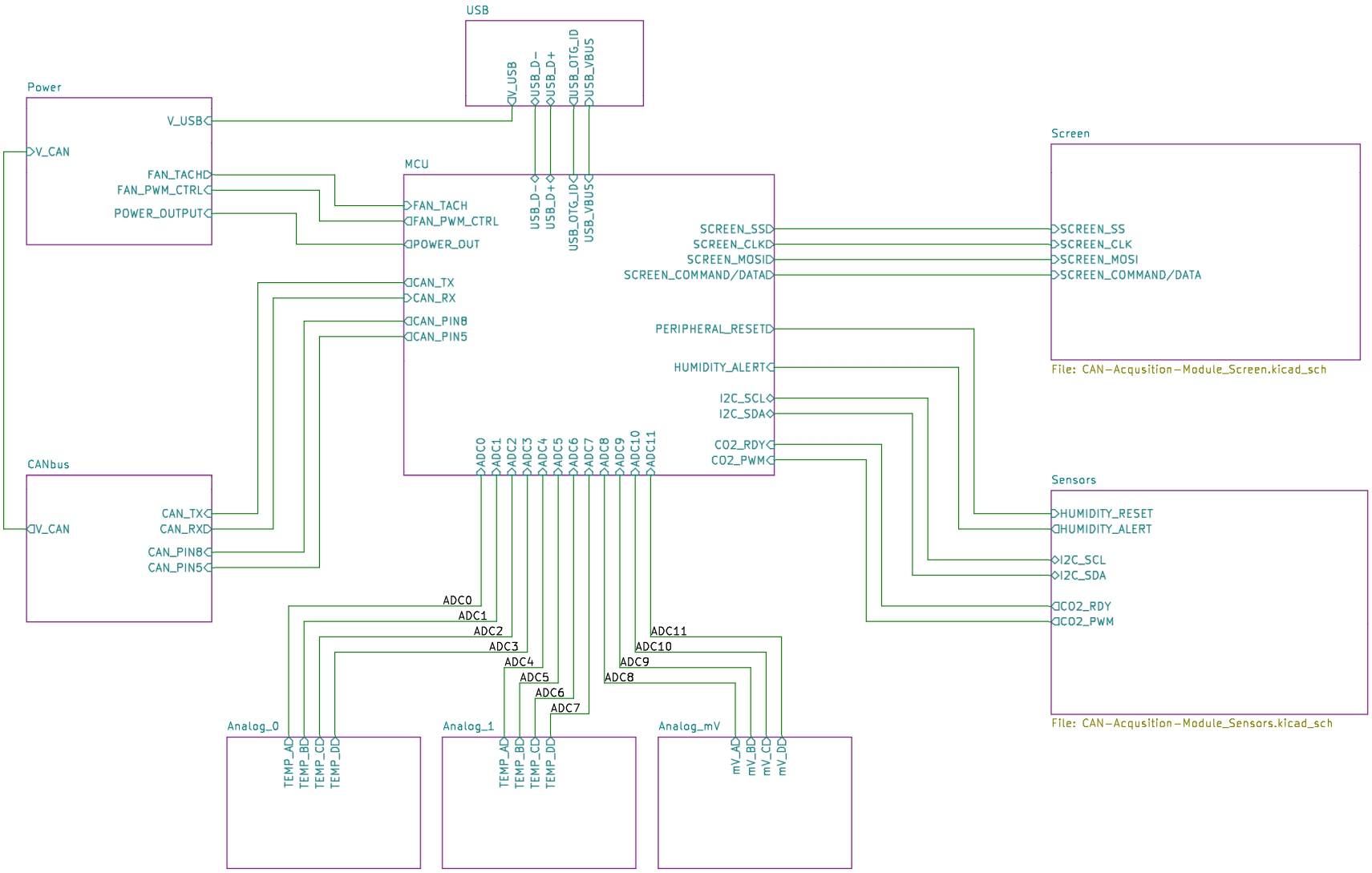
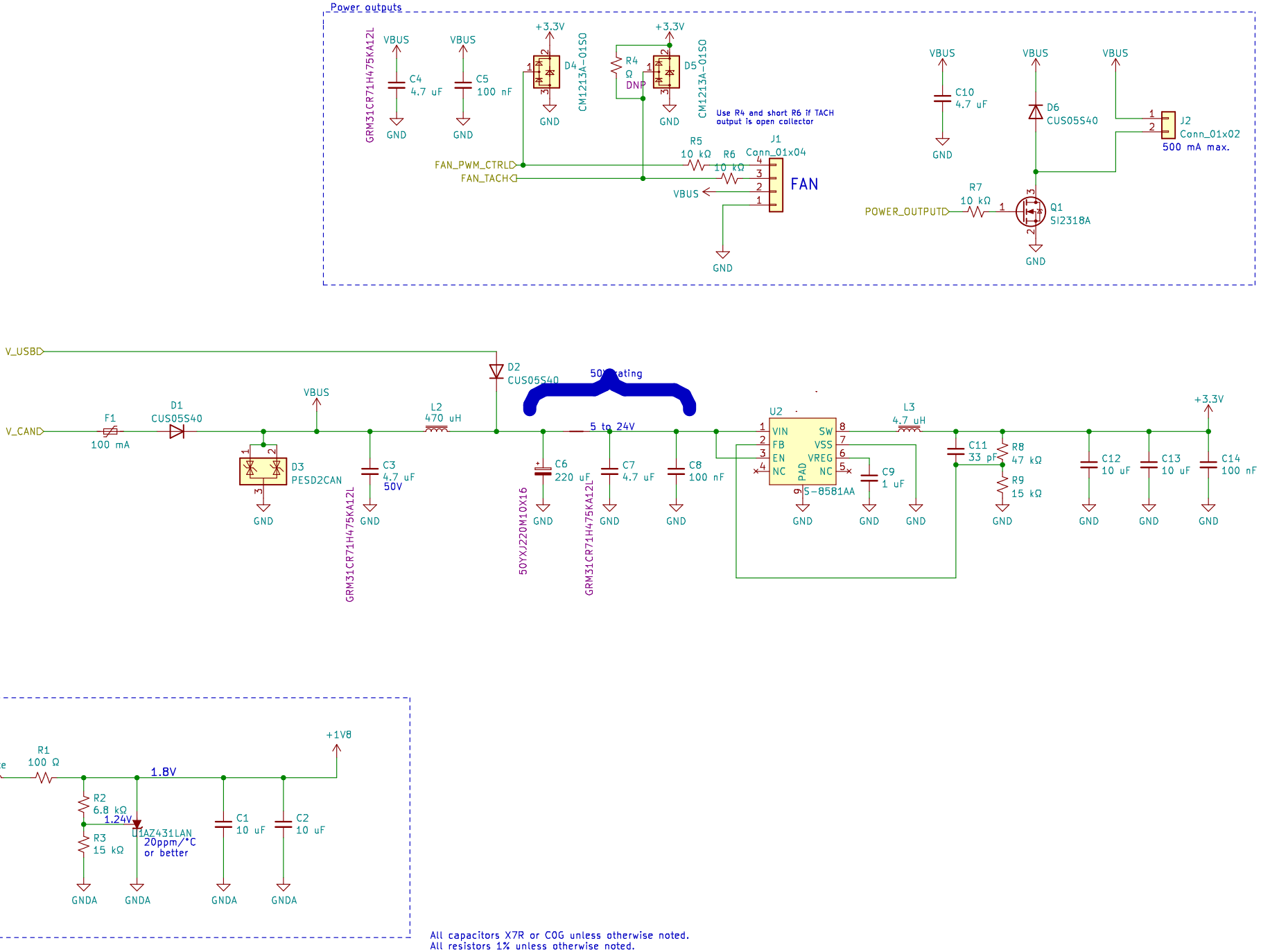
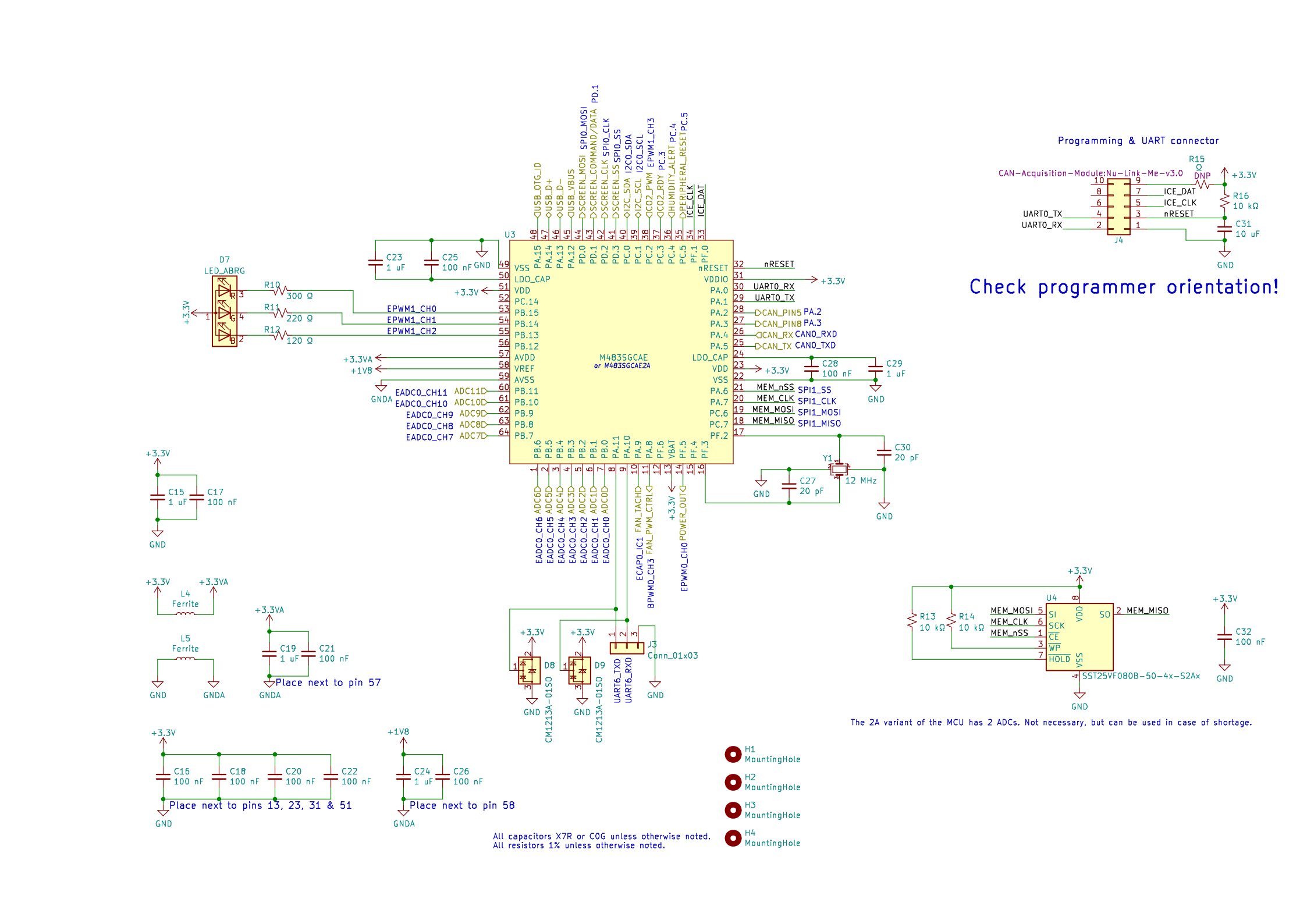
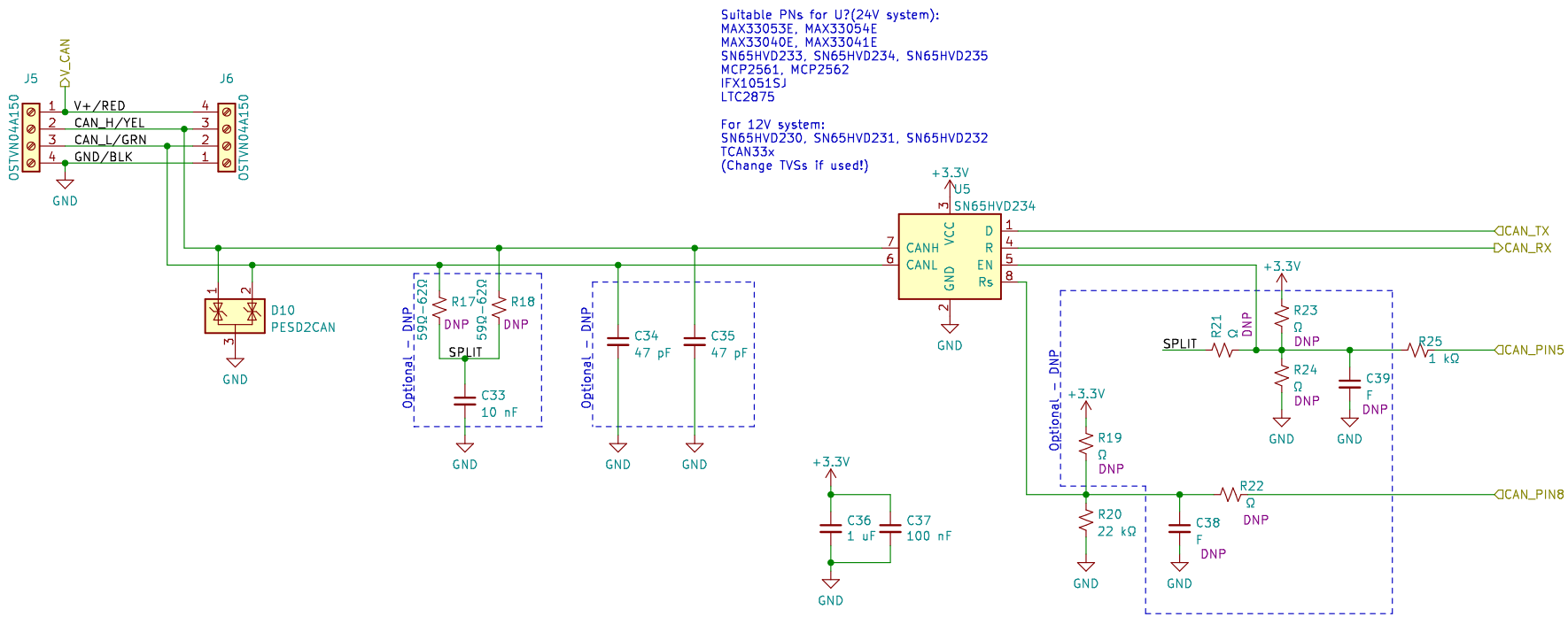
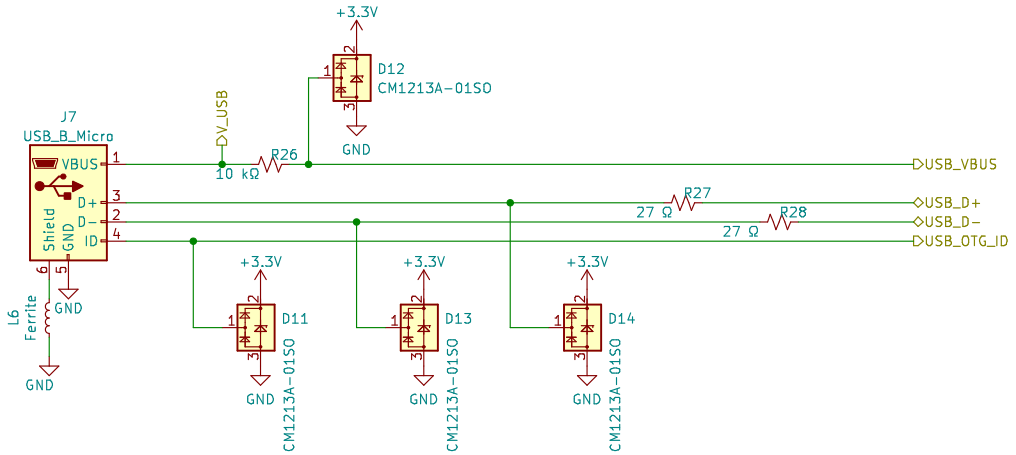


--- Revision History ---
A1: Initial release
A2:
- VUSB bypasses inductor L2
- Reduce screw terminal hole size
- Thermally isolate SHT3x
- U1 footprint fix

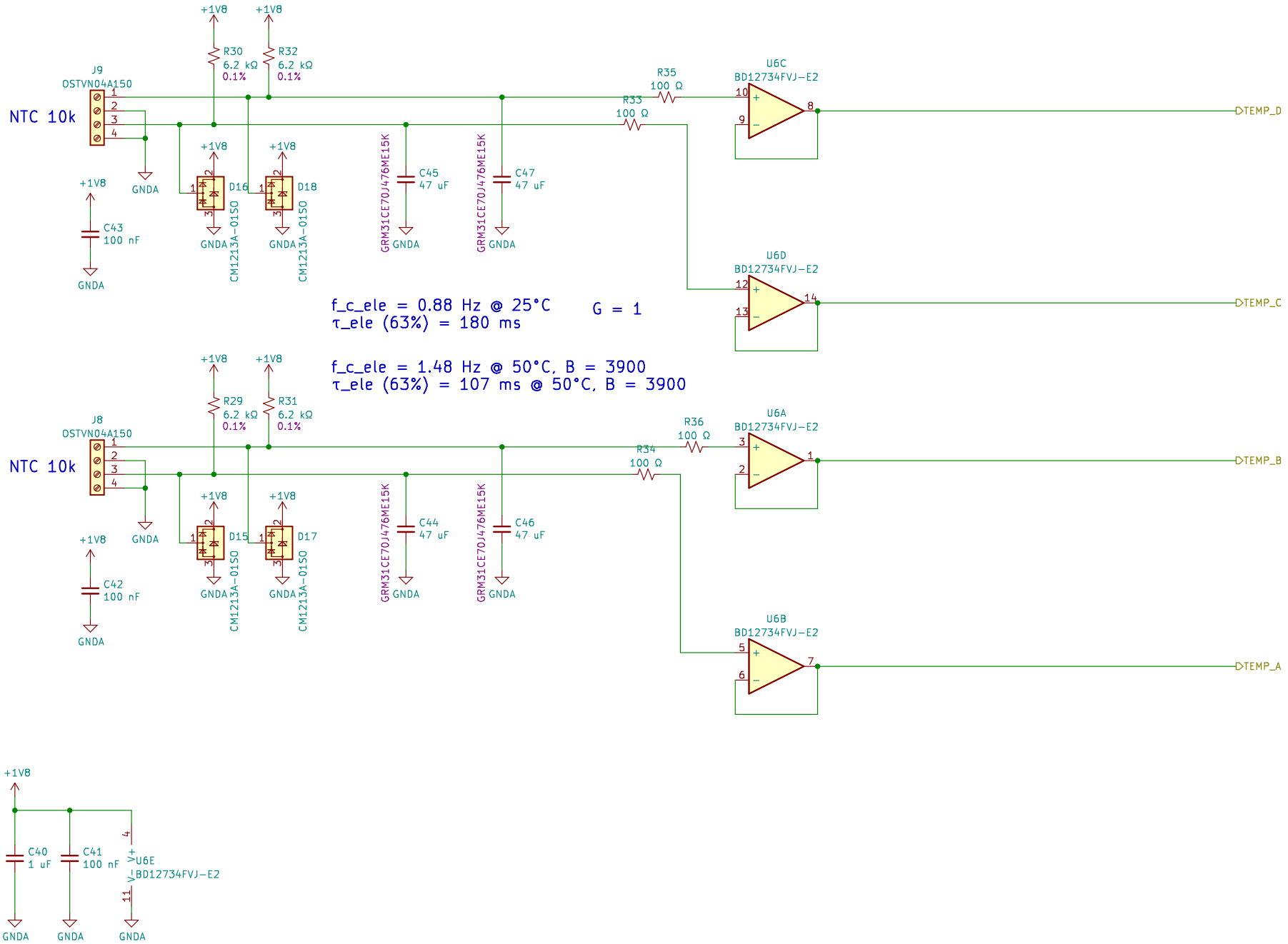

Power outputs
VBUS
C4
4.7 uF
GND
C5
100 nF
+3.3V
D4
CM1213A-01SO
R4
0
DNP
D5
Use R4 and short R6 if TACH output is open collector
GRM31CR71H475KA12L
FAN_PWM_CTRL
FAN_TACH
R5
10 kΩ
R6
10 kΩ
J1
Conn_01x04
FAN
C10
4.7 uF
D6
CUS05S40
J2
Conn_01x02
500 mA max.
R7
10 kΩ
POWER_OUTPUT
Q1
SI2318A
V_USB
V_CAN
F1
100 mA
D1
CUS05S40
D2
CUS05S40
50 rating
5 to 24V
L2
470 uH
D3
PESD2CAN
C3
4.7 uF
50V
C6
220 uF
C7
4.7 uF
C8
100 nF
50YXJ220M10X16
U2
VIN
FB
EN
NC
SW
VSS
VREG
PAD
5-8581AA
C9
1 uF
L3
4.7 uH
C11
33 pF
R8
47 kΩ
R9
15 kΩ
C12
10 uF
C13
10 uF
C14
100 nF
Analog
+3.3VA
L1
Ferrite
R1
100 Ω
1.8V
+1V8
R2
6.8 kΩ
1.24V
R3
15 kΩ
U1AZ431LAN
20ppm/°C
or better
C1
10 uF
C2
10 uF
GNDA
All capacitors X7R or C0G unless otherwise noted.
All resistors 1% unless otherwise noted.


Programming & UART connector
CAN-Acquisition-Module:Nu-Link-Me-v3.0
R15
Ω
DNP
R16
10 kΩ
C31
10 uF
J4
UART0_TX
UART0_RX
ICE_DAT
ICE_CLK
nRESET
+3.3V
GND
Check programmer orientation!
U3
M4835GCAE
or M4835GCAEZA
D7
LED_ABRG
R10
300 Ω
R11
220 Ω
R12
120 Ω
EPWM1_CH0
EPWM1_CH1
EPWM1_CH2
C23
1 uF
C25
100 nF
C28
100 nF
C29
1 uF
C30
20 pF
C27
20 pF
Y1
12 MHz
C15
1 uF
C17
100 nF
L4
Ferrite
L5
Ferrite
C19
1 uF
C21
100 nF
Place next to pin 57
D8
D9
CM1213A-01SO
J3
Conn_01x03
UART6_TXD
UART6_RXD
C16
100 nF
C18
100 nF
C20
100 nF
C22
100 nF
Place next to pins 13, 23, 31 & 51
C24
1 uF
C26
100 nF
Place next to pin 58
U4
SST25VF080B-50-4x-S2Ax
R13
10 kΩ
R14
10 kΩ
C32
100 nF
MEM_MOSI
MEM_CLK
MEM_nSS
MEM_MISO
The 2A variant of the MCU has 2 ADCs. Not necessary, but can be used in case of shortage.
All capacitors X7R or C0G unless otherwise noted.
All resistors 1% unless otherwise noted.
H1 MountingHole
H2 MountingHole
H3 MountingHole
H4 MountingHole

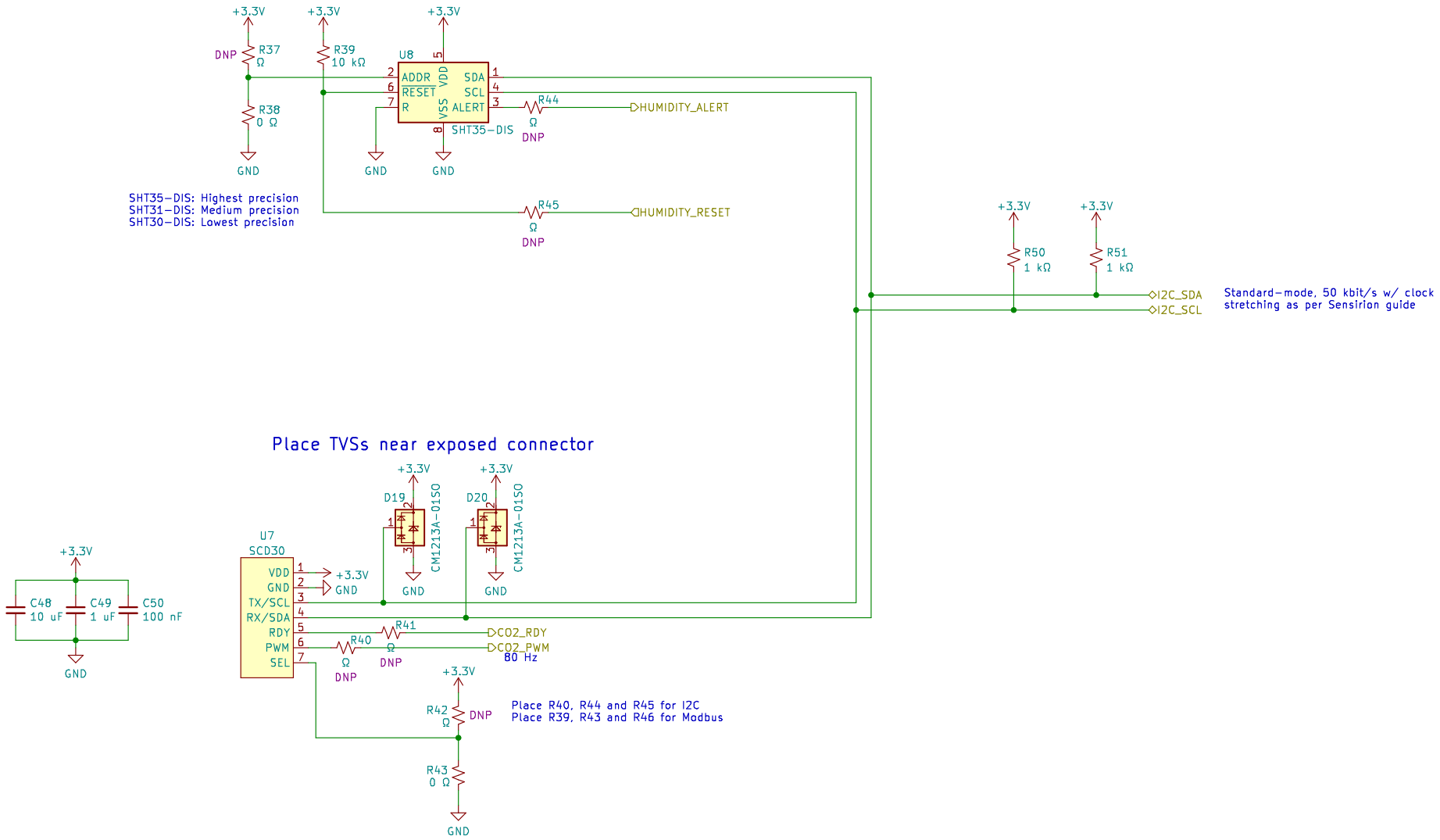

Suitable PNs for U?(24V system):
MAX33053E, MAX33054E
MAX33040E, MAX33041E
SN65HVD233, SN65HVD234, SN65HVD235
MCP2561, MCP2562
IFX1051SJ
LTC2875
For 12V system:
SN65HVD230, SN65HVD231, SN65HVD232
TCAN33x
(Change TVSs if used!)
J5
J6
OSTVN04A150
V_CAN
V+/RED
CAN_H/YEL
CAN_L/GRN
GND/BLK
GND
D10
PESD2CAN
R17
R18
59Ω-62Ω
DNP
SPLIT
C33
10 nF
Optional - DNP
C34
47 pF
C35
47 pF
U5
SN65HVD234
CANH
CANL
VCC
GND
D
R
EN
Rs
+3.3V
CAN_TX
CAN_RX
R21
R23
R24
R25
1 kΩ
C39
F
CAN_PIN5
R19
R20
22 kΩ
R22
C38
CAN_PIN8
C36
1 uF
C37
100 nF
All capacitors X7R or C0G unless otherwise noted.
All resistors 1% unless otherwise noted.

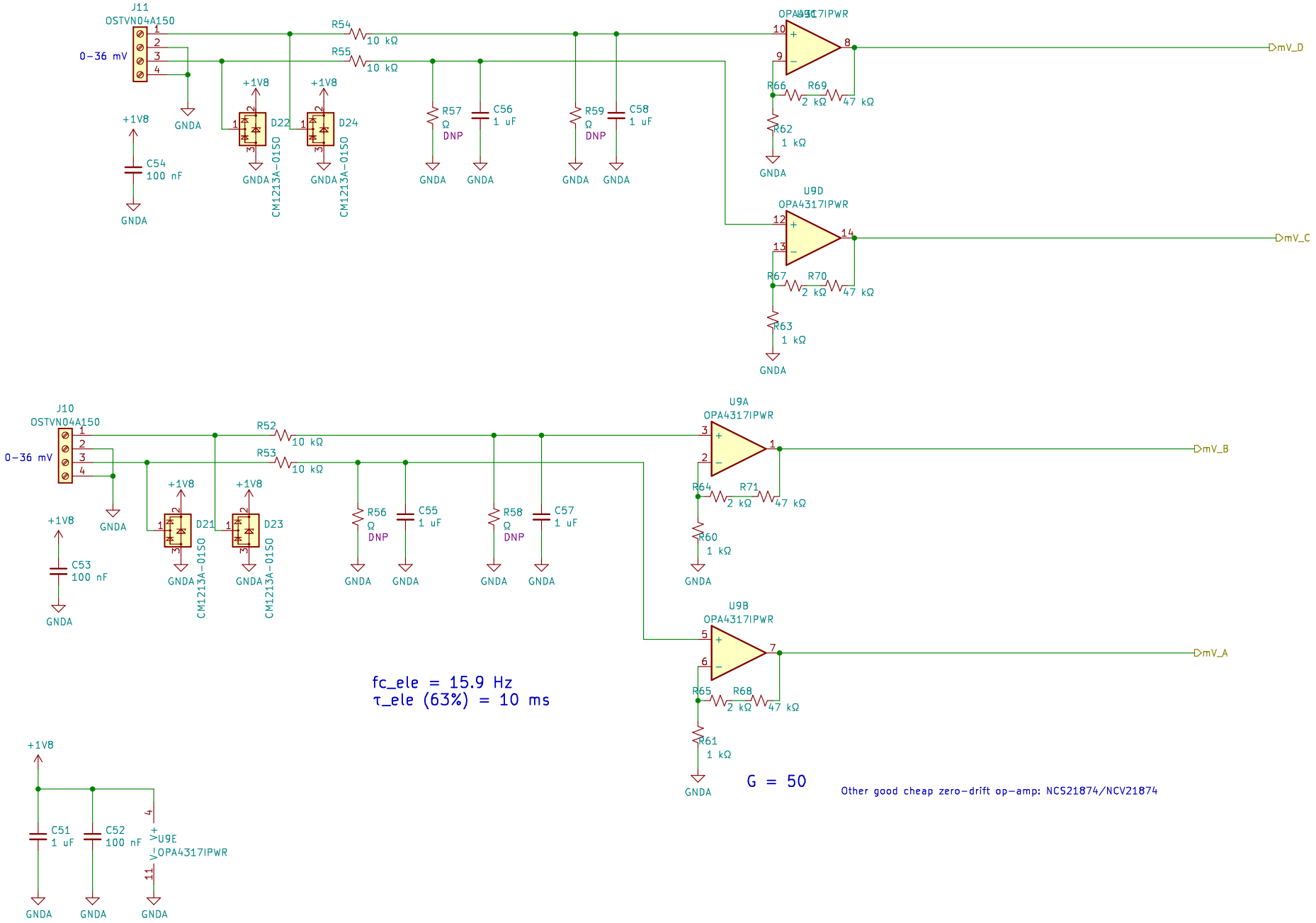


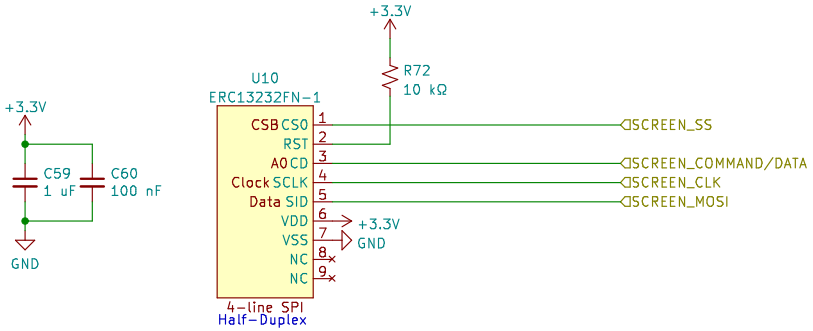
All capacitors X7R or COG unless otherwise noted.
All resistors 1% unless otherwise noted.



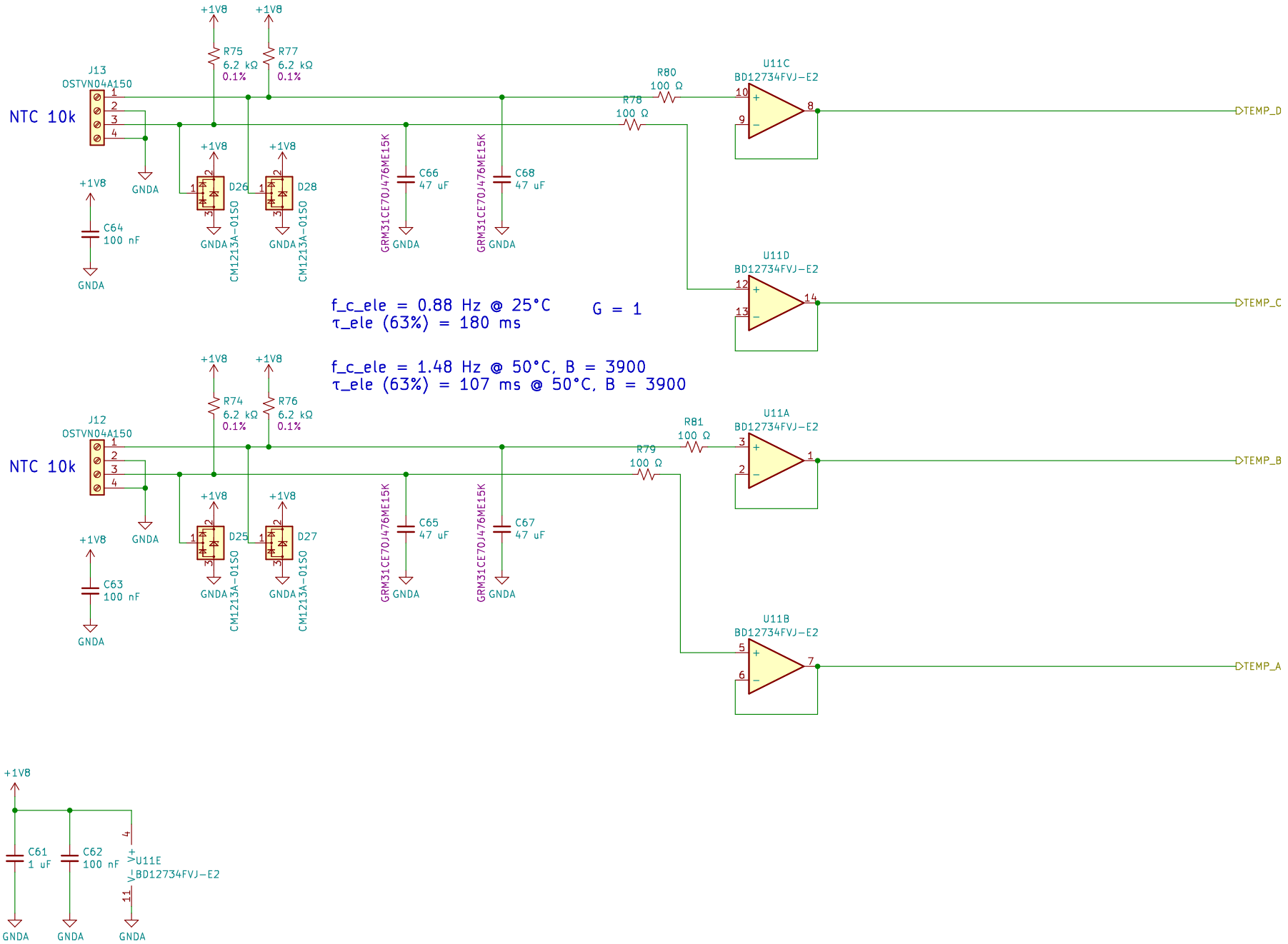
All capacitors X7R or C0G unless otherwise noted.
All resistors 1% unless otherwise noted.


+3.3V
DNP
R37
Ω
R38
0 Ω
GND
+3.3V
R39
10 kΩ
+3.3V
U8
ADDR
RESET
R
VDD
VSS
SDA
SCL
ALERT
SHT35-DIS
R44
Ω
DNP
HUMIDITY_ALERT
GND
GND
SHT35-DIS: Highest precision
SHT31-DIS: Medium precision
SHT30-DIS: Lowest precision
R45
Ω
DNP
HUMIDITY_RESET
+3.3V
R50
1 kΩ
+3.3V
R51
1 kΩ
I2C_SDA
I2C_SCL
Standard-mode, 50 kbit/s w/ clock stretching as per Sensirion guide
Place TVSs near exposed connector
+3.3V
D19
CM1213A-01SO
GND
+3.3V
D20
CM1213A-01SO
GND
+3.3V
C48
10 uF
C49
1 uF
C50
100 nF
GND
U7
SCD30
VDD
GND
TX/SCL
RX/SDA
RDY
PWM
SEL
+3.3V
GND
R41
Ω
DNP
CO2_RDY
R40
Ω
DNP
CO2_PWM
80 Hz
+3.3V
R42
Ω
DNP
R43
0 Ω
GND
Place R40, R44 and R45 for I2C
Place R39, R43 and R46 for Modbus
All capacitors X7R or C0G unless otherwise noted.
All resistors 1% unless otherwise noted.


J11
OSTVN04A150
0–36 mV
R54
10 kΩ
R55
10 kΩ
+1V8
D22
D24
CM1213A-01SO
GNDA
R57
Ω
DNP
C56
1 uF
R59
Ω
DNP
C58
1 uF
C54
100 nF
U9C
OPA4317IPWR
R66
2 kΩ
R69
47 kΩ
R62
1 kΩ
mV_D
U9D
OPA4317IPWR
R67
2 kΩ
R70
47 kΩ
R63
1 kΩ
mV_C
J10
OSTVN04A150
0–36 mV
R52
10 kΩ
R53
10 kΩ
D21
D23
R56
Ω
DNP
C55
1 uF
R58
Ω
DNP
C57
1 uF
C53
100 nF
U9A
OPA4317IPWR
R64
2 kΩ
R71
47 kΩ
R60
1 kΩ
mV_B
U9B
OPA4317IPWR
R65
2 kΩ
R68
47 kΩ
R61
1 kΩ
mV_A
fc_ele = 15.9 Hz
τ_ele (63%) = 10 ms
G = 50
Other good cheap zero-drift op-amp: NCS21874/NCV21874
C51
1 uF
C52
100 nF
U9E
OPA4317IPWR
All capacitors X7R or C0G unless otherwise noted.
All resistors 1% unless otherwise noted.



All capacitors X7R or C0G unless otherwise noted.
All resistors 1% unless otherwise noted.



All capacitors X7R or C0G unless otherwise noted.
All resistors 1% unless otherwise noted.