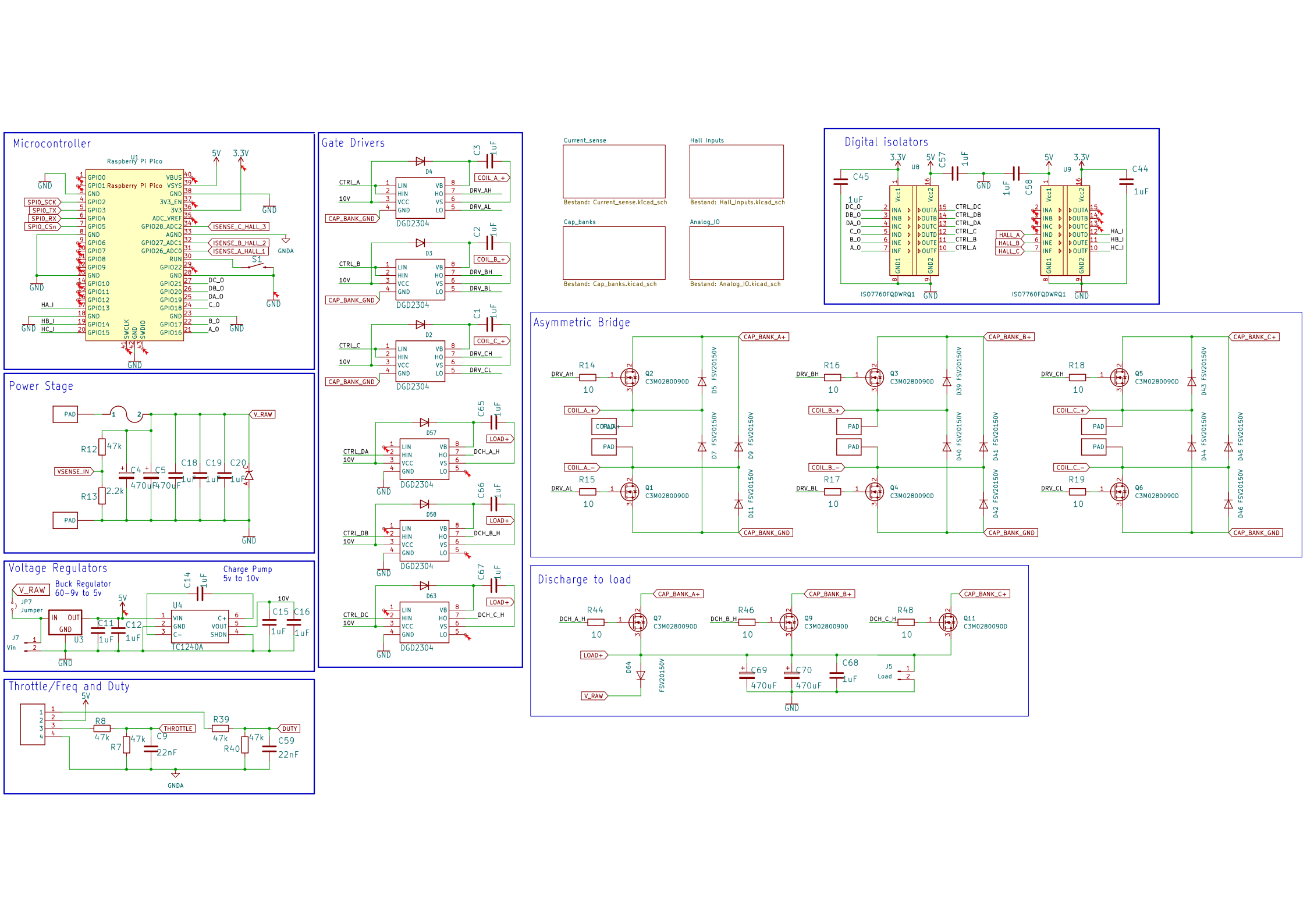
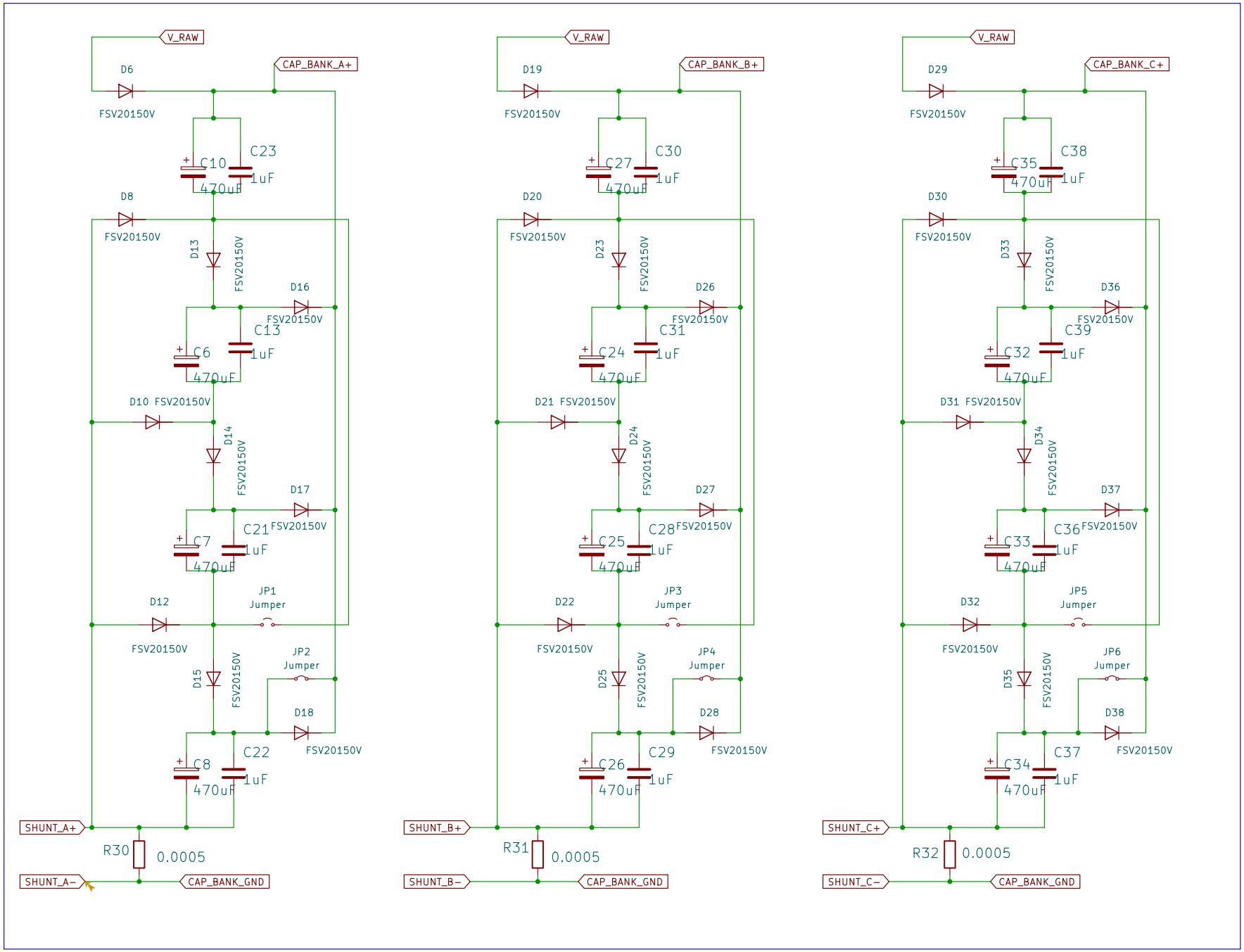
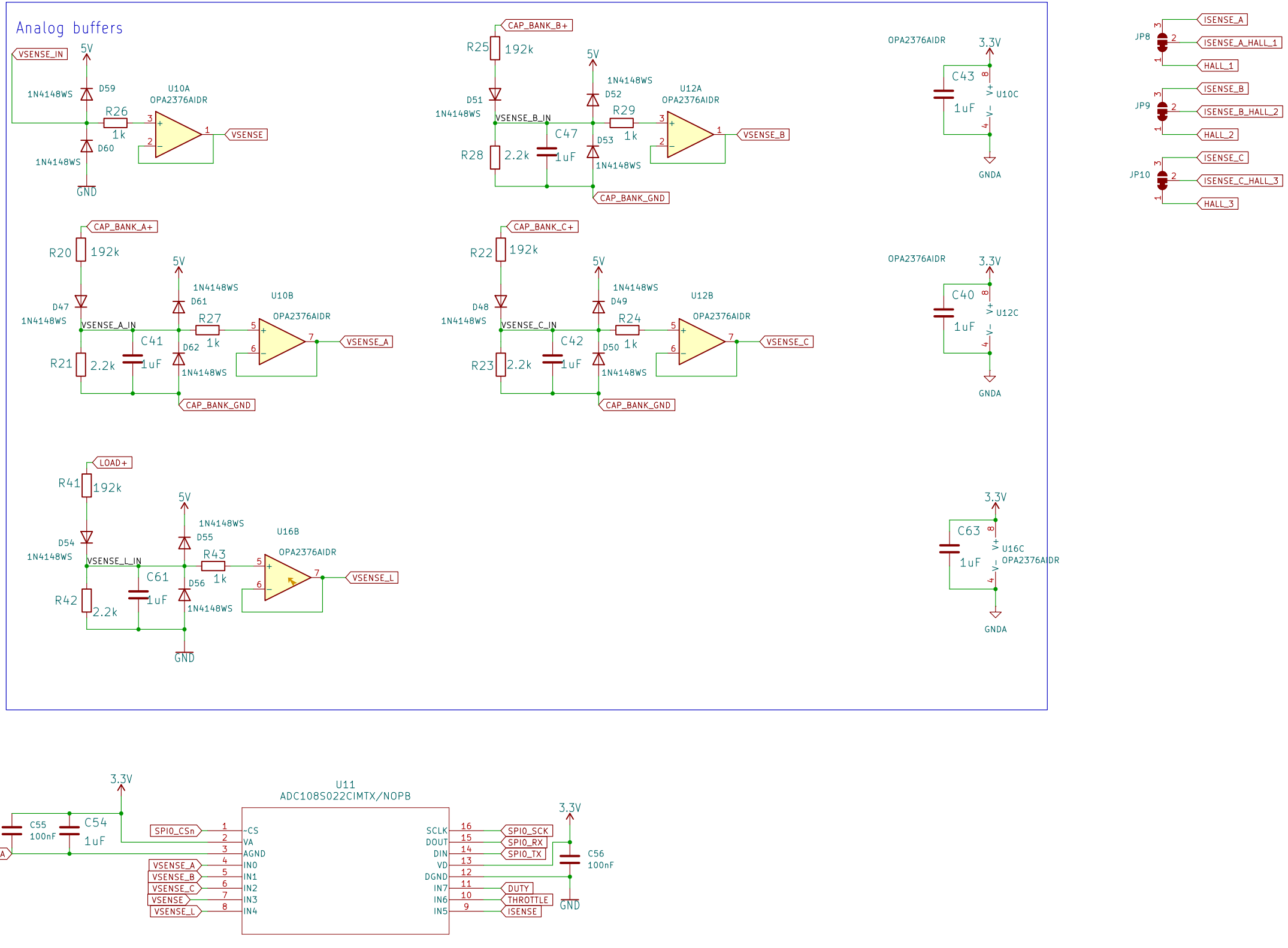
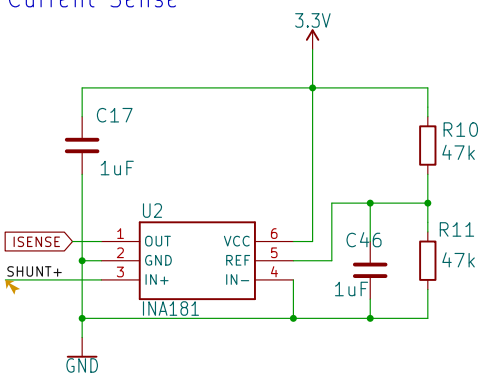

Microcontroller
Raspberry Pi Pico
Power Stage
Voltage Regulators
Buck Regulator
60-9v to 5v
Charge Pump
5v to 10v
Throttle/Freq and Duty
Gate Drivers
DGD2304
Current_sense
Bestand: Current_sense.kicad_sch
Hall Inputs
Bestand: Hall_Inputs.kicad_sch
Cap_banks
Bestand: Cap_banks.kicad_sch
Analog_IO
Bestand: Analog_IO.kicad_sch
Digital isolators
ISO7760FQDWRQ1
Asymmetric Bridge
Discharge to load

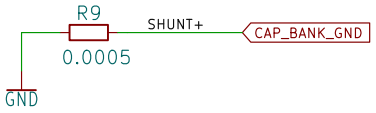
Cap Banks

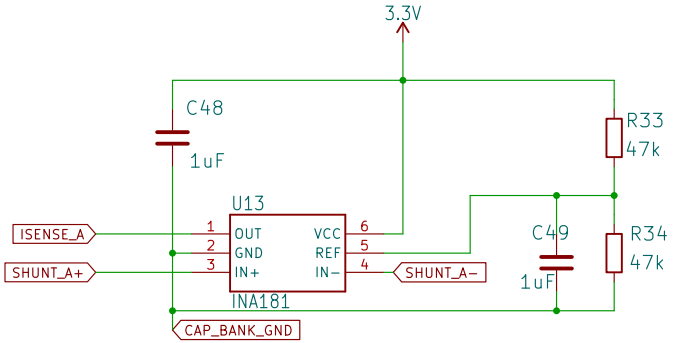

V_RAW
CAP_BANK_A+
D6
FSV20150V
C10
470uF
C23
1uF
D8
FSV20150V
D13
FSV20150V
D16
FSV20150V
C6
470uF
C13
1uF
D10 FSV20150V
D14
FSV20150V
D17
FSV20150V
C7
470uF
C21
1uF
D12
FSV20150V
JP1
Jumper
D15
FSV20150V
JP2
Jumper
D18
FSV20150V
C8
470uF
C22
1uF
SHUNT_A+
R30
0.0005
SHUNT_A−
CAP_BANK_GND
V_RAW
CAP_BANK_B+
D19
FSV20150V
C27
470uF
C30
1uF
D20
FSV20150V
D23
FSV20150V
D26
FSV20150V
C24
470uF
C31
1uF
D21 FSV20150V
D24
FSV20150V
D27
FSV20150V
C25
470uF
C28
1uF
D22
FSV20150V
JP3
Jumper
D25
FSV20150V
JP4
Jumper
D28
FSV20150V
C26
470uF
C29
1uF
SHUNT_B+
R31
0.0005
SHUNT_B−
CAP_BANK_GND
V_RAW
CAP_BANK_C+
D29
FSV20150V
C35
470uF
C38
1uF
D30
FSV20150V
D33
FSV20150V
D36
FSV20150V
C32
470uF
C39
1uF
D31 FSV20150V
D34
FSV20150V
D37
FSV20150V
C33
470uF
C36
1uF
D32
FSV20150V
JP5
Jumper
D35
FSV20150V
JP6
Jumper
D38
FSV20150V
C34
470uF
C37
1uF
SHUNT_C+
R32
0.0005
SHUNT_C−
CAP_BANK_GND

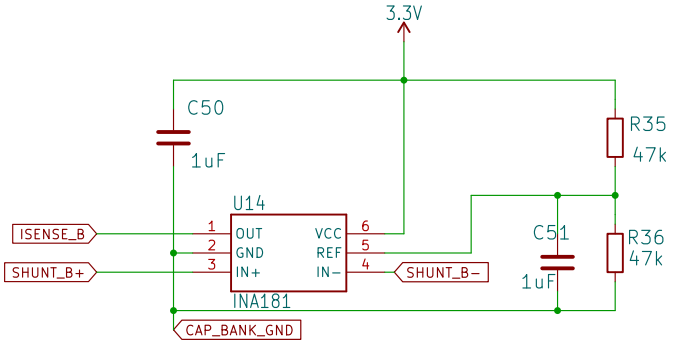

Analog buffers
VSENSE_IN
5V
1N4148WS
D59
R26
1k
D60
1N4148WS
GND
U10A
OPA2376AIDR
VSENSE
CAP_BANK_B+
R25
192k
D51
1N4148WS
VSENSE_B_IN
R28
2.2k
C47
1uF
5V
D52
1N4148WS
R29
1k
D53
1N4148WS
U12A
OPA2376AIDR
VSENSE_B
CAP_BANK_GND
OPA2376AIDR
3.3V
C43
1uF
U10C
GNDA
ISENSE_A
JP8
ISENSE_A_HALL_1
HALL_1
ISENSE_B
JP9
ISENSE_B_HALL_2
HALL_2
ISENSE_C
JP10
ISENSE_C_HALL_3
HALL_3
CAP_BANK_A+
R20
192k
D47
1N4148WS
VSENSE_A_IN
R21
2.2k
C41
1uF
5V
1N4148WS
D61
R27
1k
D62
1N4148WS
U10B
OPA2376AIDR
VSENSE_A
CAP_BANK_GND
CAP_BANK_C+
R22
192k
D48
1N4148WS
VSENSE_C_IN
R23
2.2k
C42
1uF
5V
1N4148WS
D49
R24
1k
D50
1N4148WS
U12B
OPA2376AIDR
VSENSE_C
CAP_BANK_GND
OPA2376AIDR
3.3V
C40
1uF
U12C
GNDA
LOAD+
R41
192k
D54
1N4148WS
VSENSE_L_IN
R42
2.2k
C61
1uF
5V
1N4148WS
D55
R43
1k
D56
1N4148WS
U16B
OPA2376AIDR
VSENSE_L
GND
3.3V
C63
1uF
U16C
OPA2376AIDR
GNDA
3.3V
C55
100nF
C54
1uF
GNDA
U11
ADC108S022CIMTX/NOPB
SPI0_CSn
VSENSE_A
VSENSE_B
VSENSE_C
VSENSE
VSENSE_L
~CS
VA
AGND
IN0
IN1
IN2
IN3
IN4
SCLK
DOUT
DIN
VD
DGND
IN7
IN6
IN5
SPI0_SCK
SPI0_RX
SPI0_TX
DUTY
THROTTLE
ISENSE
3.3V
C56
100nF
GND

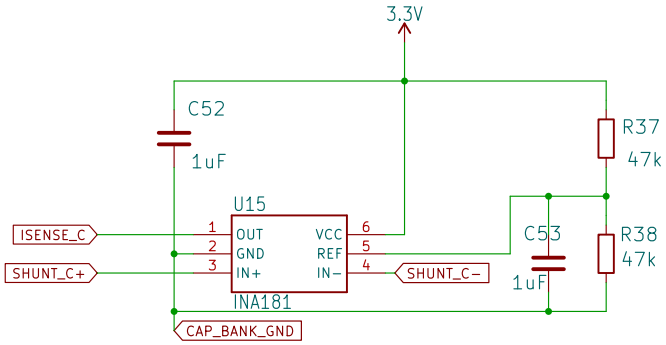
Current Sense

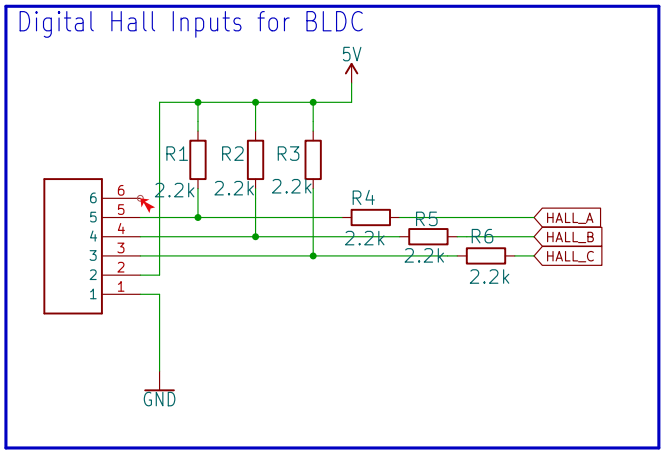


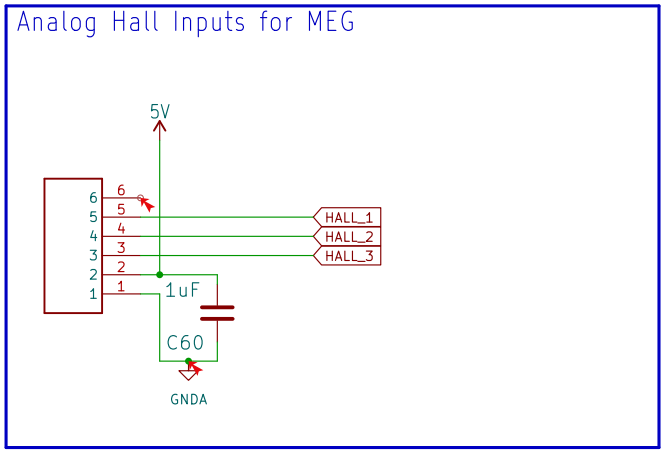









Digital Hall Inputs for BLDC
5V
R1
2.2k
R2
2.2k
R3
2.2k
R4
2.2k
R5
2.2k
R6
2.2k
6
5
4
3
2
1
HALL_A
HALL_B
HALL_C
GND


Analog Hall Inputs for MEG
5V
6
5
4
3
2
1
HALL_1
HALL_2
HALL_3
1uF
C60
GNDA