PCB Order settings

- Layer count: 4
- Stackup nb: JLC04161-H-7628

PCB Decription

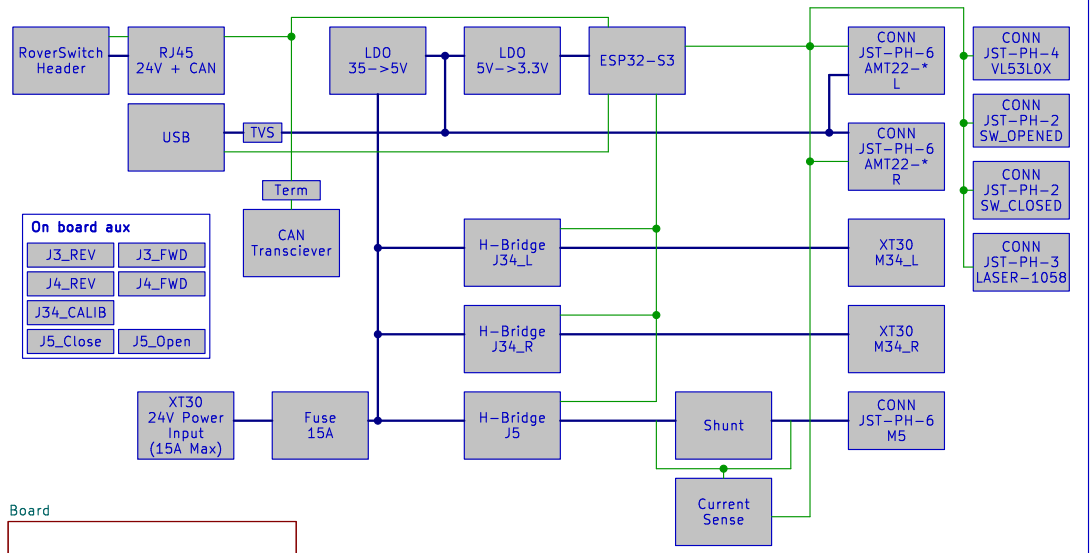
The ArmJ345 interface 3 low amp (<6A) motor drivers to drive the differential wrist and the gripper.
The gripper is torque controlled with a current sensor on the driver's output.
There's also a lidar in the gripper to evaluate the position of the object we're trying to grab.
This PCB allows a RoverSwitch PCB to be stack over it to share 24V and CAN

Off board parts to order

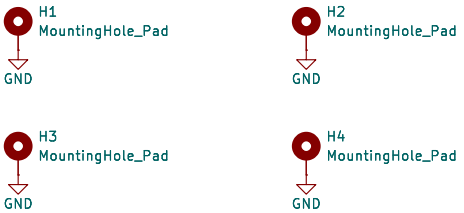
TODO

ST0242	1528-1403-ND
JUMPER 2PINS (QPC02SXGN-RC)	
PHR-2	PHR-2
PHR-3	PHR-4
PHR-6	PHR-6
PHR-6	

Board block schematic



Mechanical parts



Title: ArmJ345

By: Philippe Michaud

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ROVUS

Sheet: ArmJ345/

Size: A5

Date: 2025-04-28

REV0

external_connections

File: external_connections.kicad_sch

canbus

File: canbus.kicad_sch

alims

File: alims.kicad_sch

esp32

File: esp32.kicad_sch

drive_j5

File: drive_j5.kicad_sch

drive_j34

File: drive_j34.kicad_sch

aux

File: aux.kicad_sch

Title: ArmJ345

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Sheet: ArmJ345/Board/

Size: A4

Date: 2025-04-28

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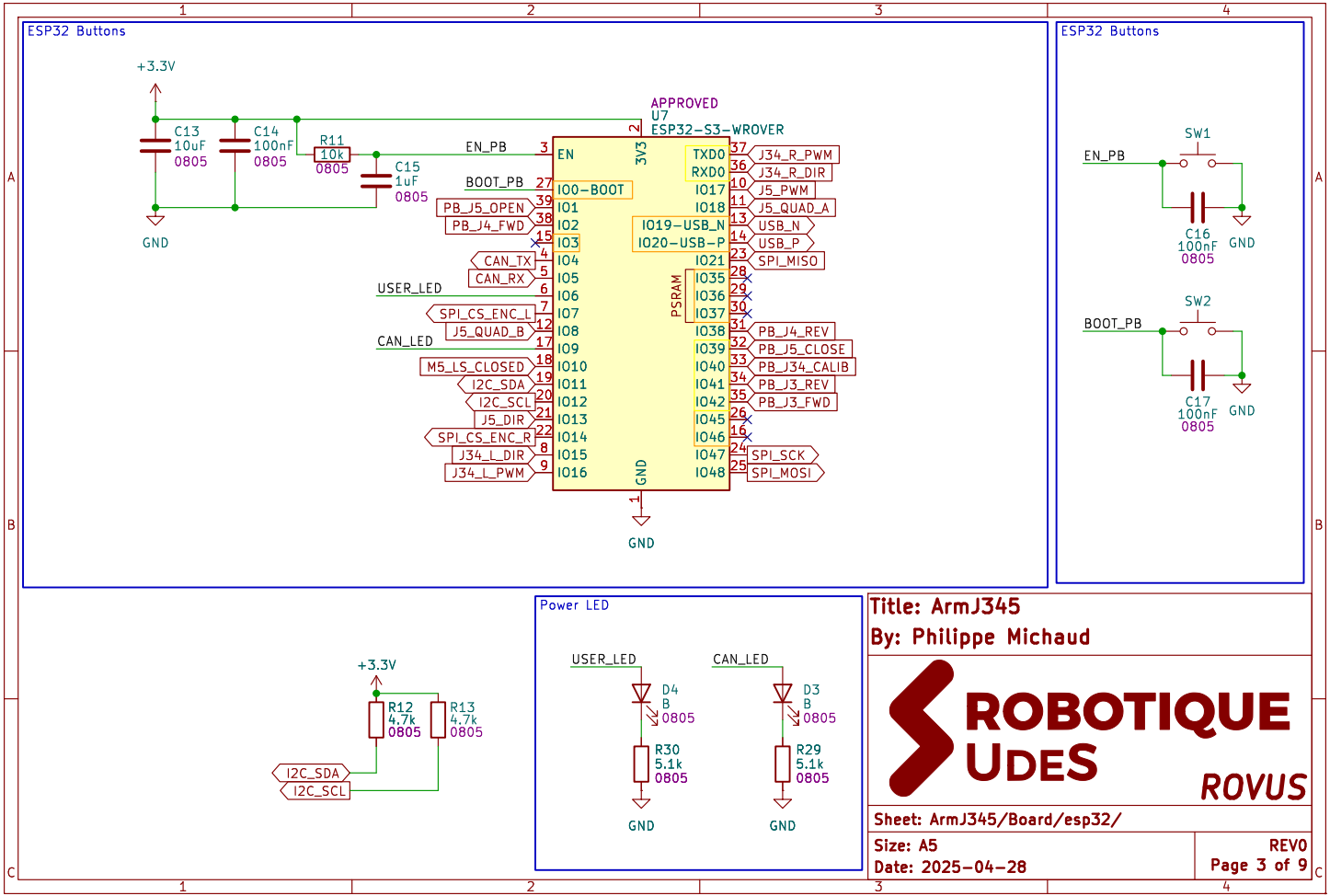

Title: ArmJ345

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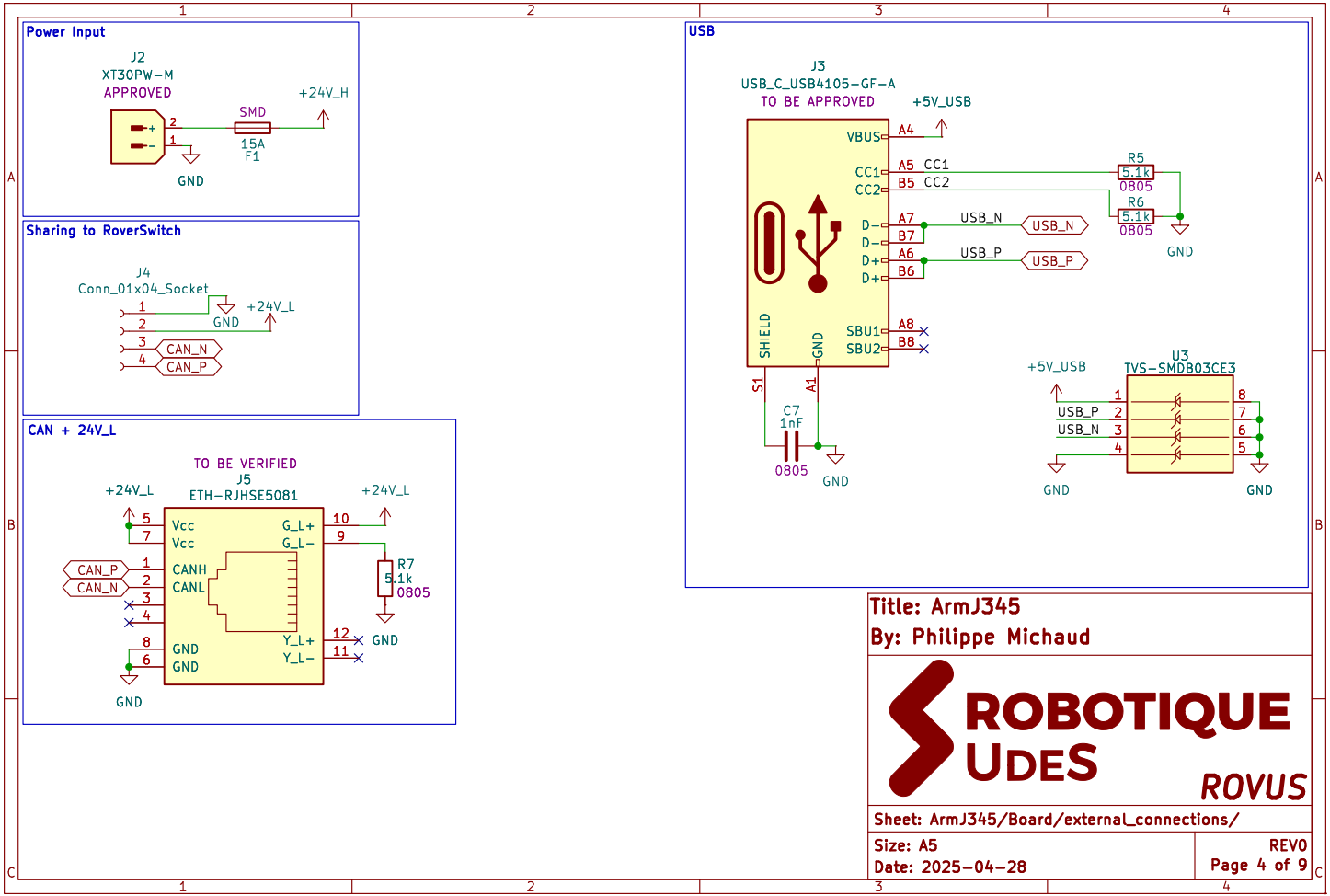
Sheet: ArmJ345/Board/esp32/

Size: A5

Date: 2025-04-28

REV0


Power Input
J2
XT30PW-M
APPROVED
SMD
+24V_H
15A
F1
GND
Sharing to RoverSwitch
J4
Conn_01x04_Socket
+24V_L
GND
CAN_N
CAN_P
CAN + 24V_L
TO BE VERIFIED
J5
ETH-RJHSE5081
+24V_L
Vcc
Vcc
CANH
CANL
GND
GND
G_L+
G_L-
Y_L+
Y_L-
R7
5.1k
0805
USB
J3
USB_C_USB4105-GF-A
TO BE APPROVED
+5V_USB
VBUS
CC1
CC2
D-
D-
D+
D+
SHIELD
GND
SBU1
SBU2
USB_N
USB_P
R5
R6
5.1k
0805
C7
1nF
U3
TVS-SMDB03CE3
Title: ArmJ345
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Sheet: ArmJ345/Board/external_connections/
Size: A5
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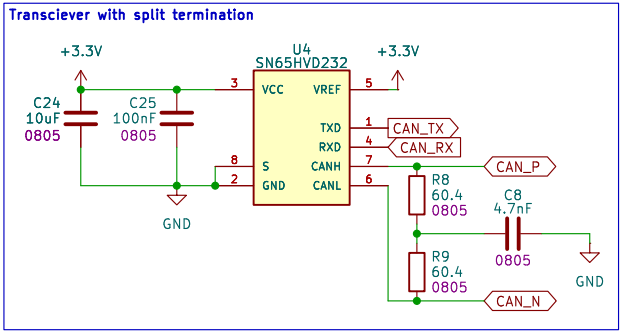

Title: ArmJ345

By: Philippe Michaud

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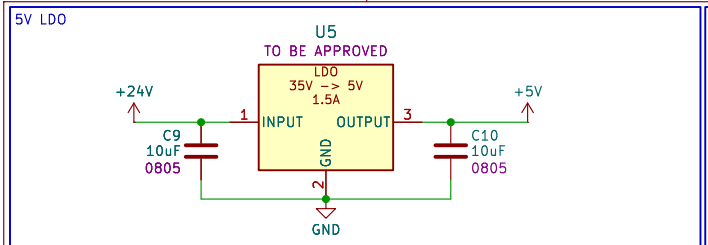
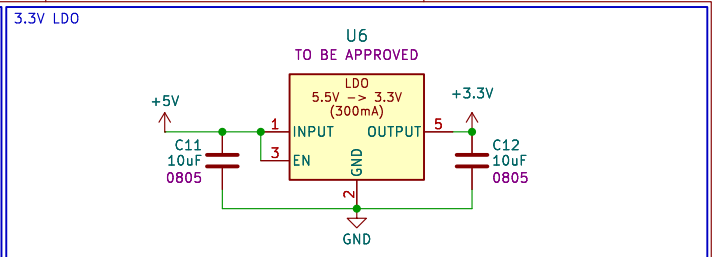
Sheet: ArmJ345/Board/canbus/

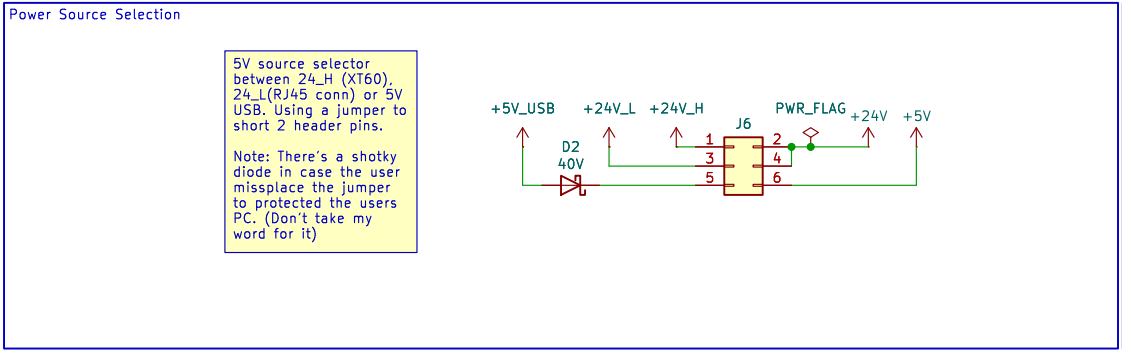
Size: A5

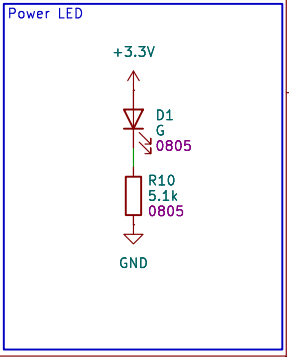
Date: 2025-04-28

REV0









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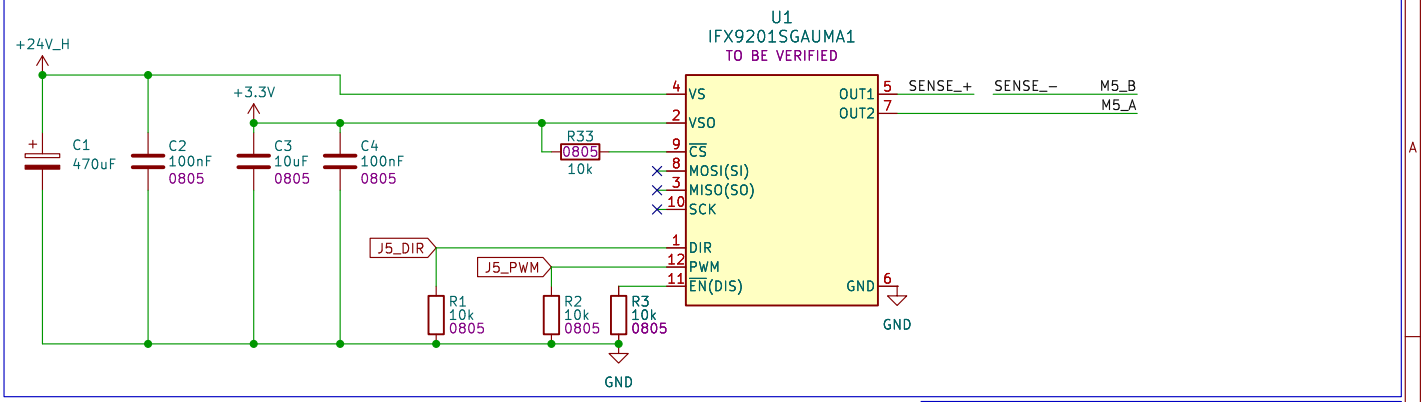
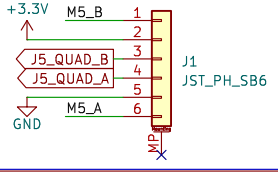
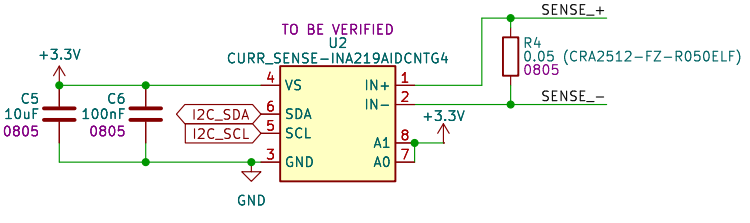
J5 Motor Driver



J5 Motor Connector



J5 Motor Current Sensing



I2C Address: 0x85

Configuration bits:
0|X|11|0X11|0X11|111|

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Sheet: ArmJ345/Board/drive_j5/

Size: A5

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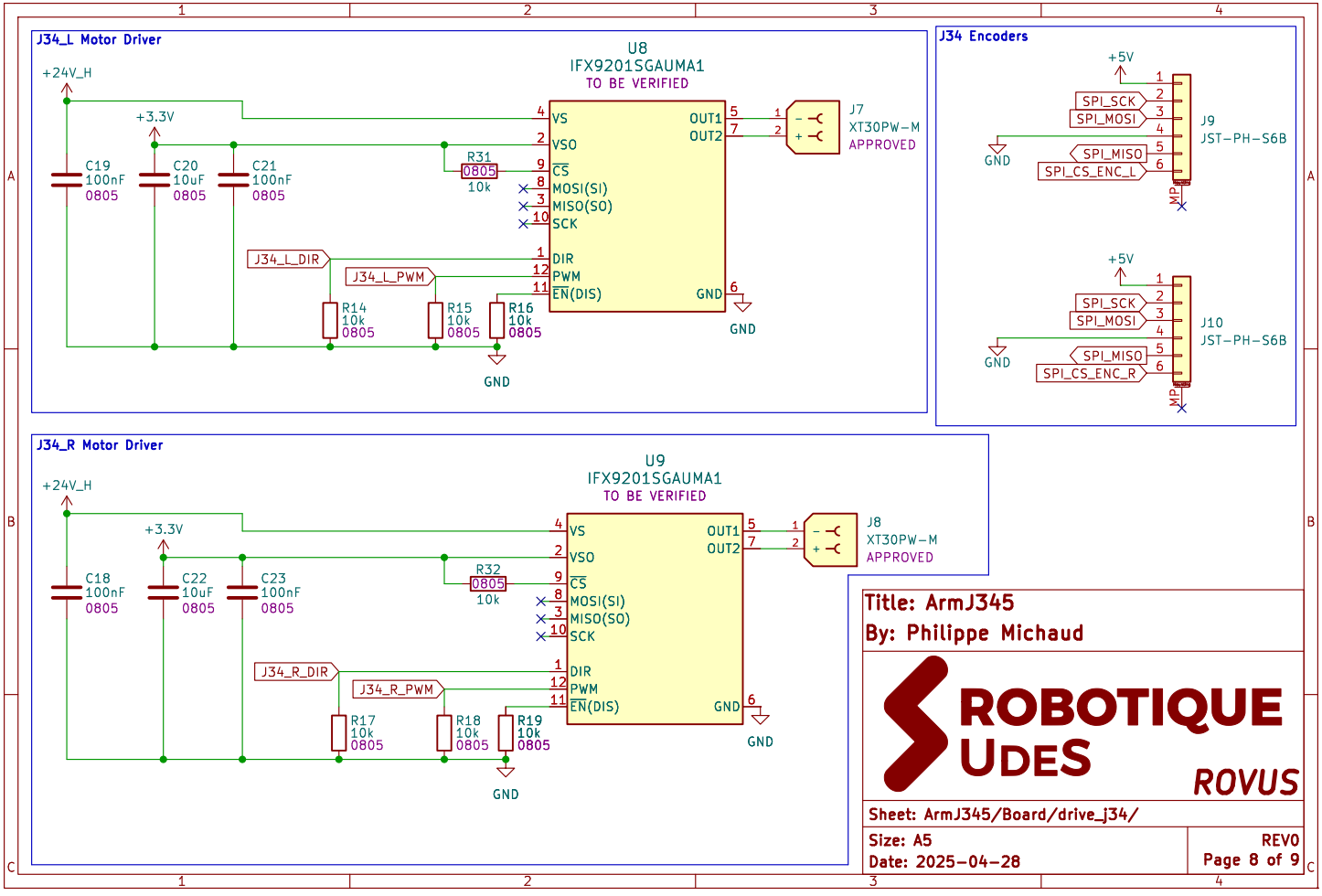
J34_L Motor Driver
U8
IFX9201SGAUMA1
TO BE VERIFIED
+24V_H
+3.3V
C19
100nF
0805
C20
10uF
0805
C21
100nF
0805
R31
0805
10k
VS
VSO
CS
MOSI(SI)
MISO(SO)
SCK
DIR
PWM
EN(DIS)
OUT1
OUT2
GND
J7
XT30PW-M
APPROVED
J34_L_DIR
J34_L_PWM
R14
10k
0805
R15
10k
0805
R16
10k
0805
GND
J34 Encoders
+5V
SPI_SCK
SPI_MOSI
SPI_MISO
SPI_CS_ENC_L
J9
JST-PH-S6B
SPI_CS_ENC_R
J10
J34_R Motor Driver
U9
IFX9201SGAUMA1
TO BE VERIFIED
C18
100nF
0805
C22
10uF
0805
C23
100nF
0805
R32
0805
10k
J8
XT30PW-M
APPROVED
J34_R_DIR
J34_R_PWM
R17
10k
0805
R18
10k
0805
R19
10k
0805
Title: ArmJ345
By: Philippe Michaud
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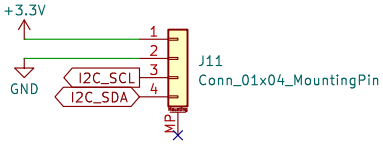
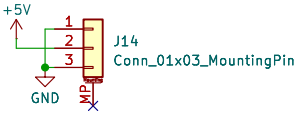
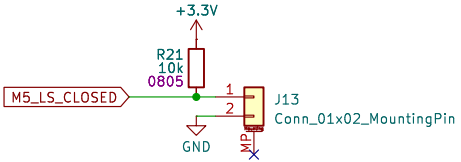
TOF Connector



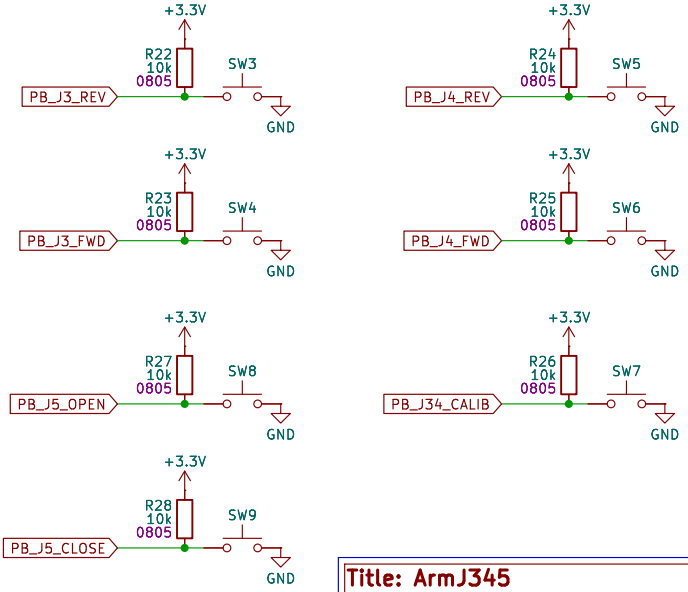
Laser Connector



Joint limit switches



Push buttons



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Size: A5

Date: 2025-04-28

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