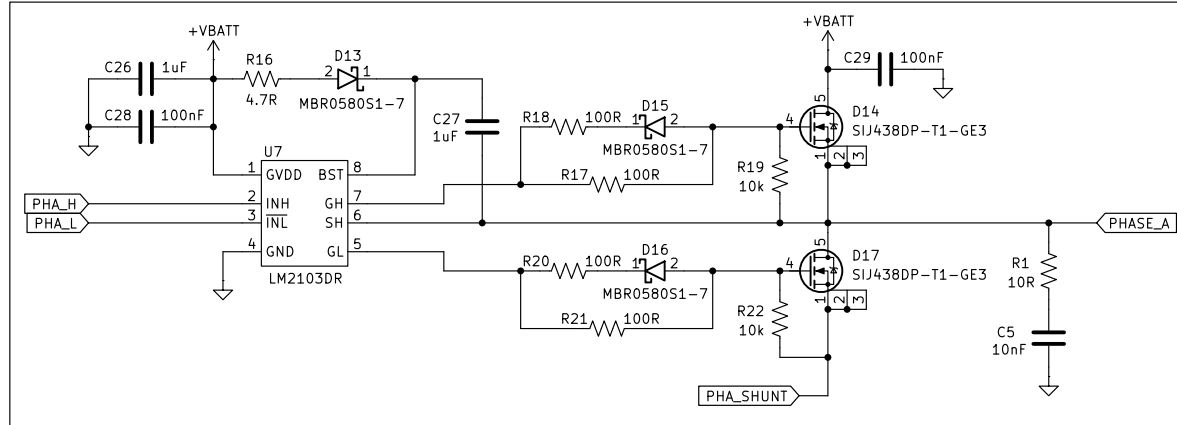
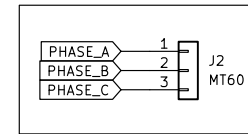


DRAWN BY: N.PHILIPENKO GITHUB: /nikphillydev		
REVIEWED BY:		
Sheet: / File: ESC_KiCAD.kicad_sch		
Title: NP1 ELECTRONIC SPEED CONTROLLER		
Size: A4	Date: 2024-08-21	Rev:
KiCad E.D.A. 8.0.6		Id: 1/5

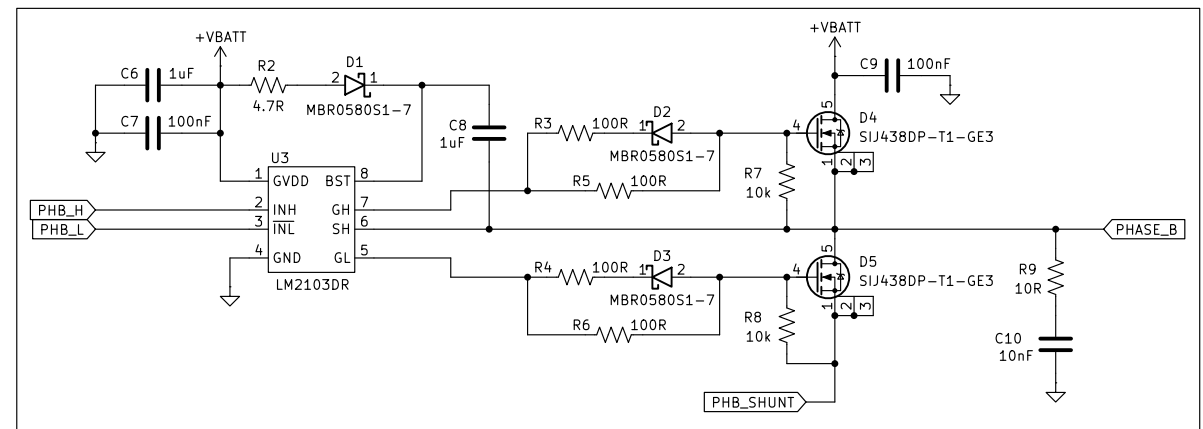
PHASE A HALF-BRIDGE



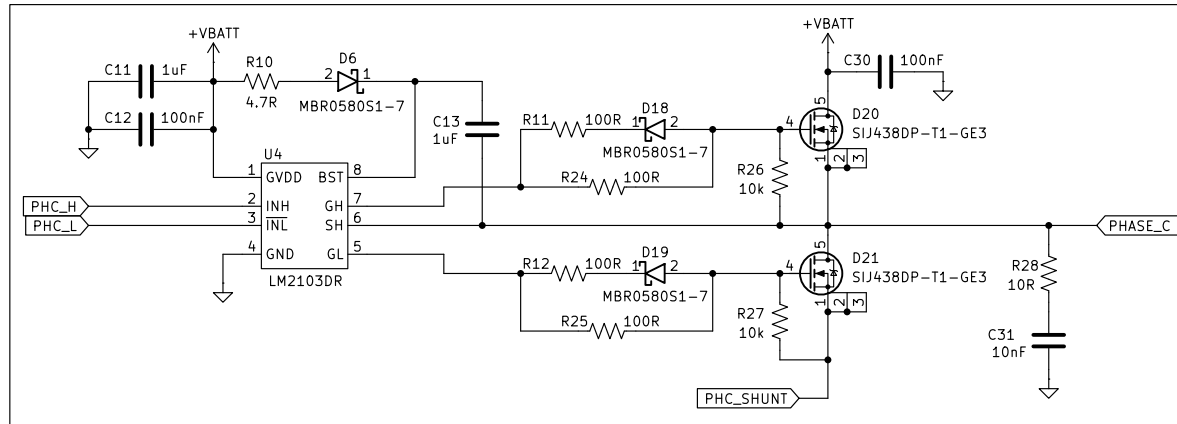
OUTPUT



PHASE B HALF-BRIDGE



PHASE C HALF-BRIDGE



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GITHUB: /nikphillydev

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Sheet: /PHASES/
File: phases.kicad_sch

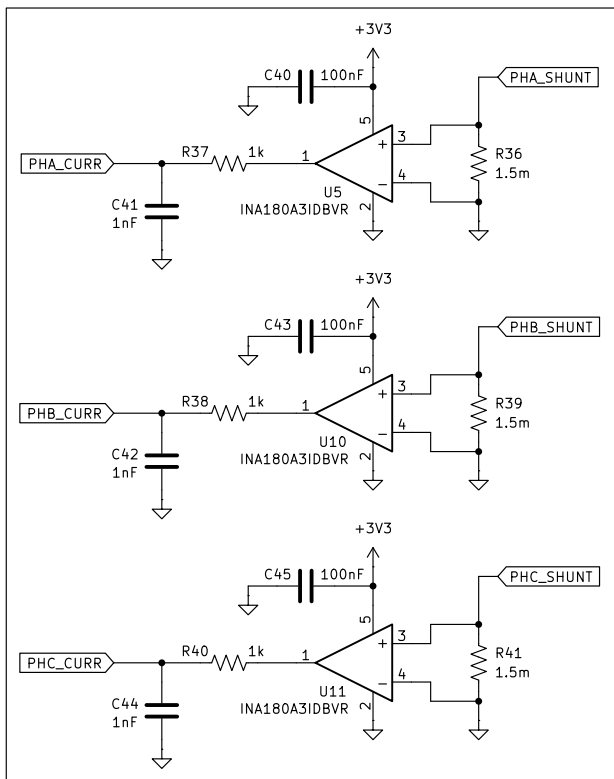
Title: 3 PHASE HALF-BRIDGE

Size: A4
KiCad E.D.A. 8.0.6

Date:

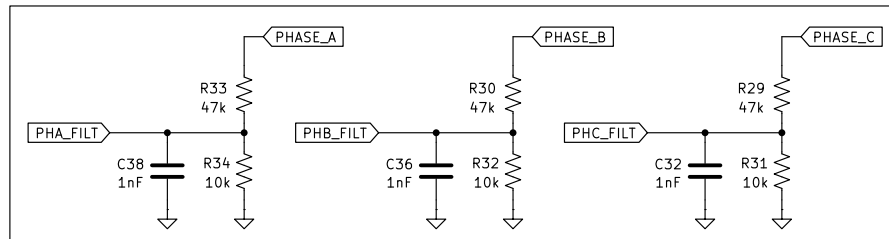
Rev:
Id: 2/5

PHASE CURRENT SENSING



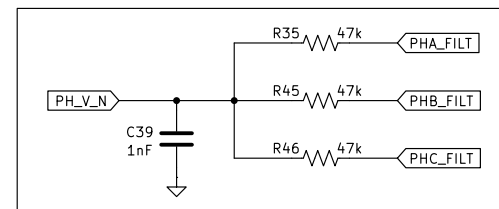
AT 20A PER PHASE, SHUNT VOLTAGE IS 0.03V WITH POWER DISSIPATION AT 0.6W.
RC LOW-PASS FILTER CUTOFF FREQUENCY AT 159.2kHz.

PHASE VOLTAGE SENSING



AT +VBATT 16.8V, PHASE VOLTAGES DIVIDED DOWN TO 2.95V.
RC LOW-PASS FILTER CUTOFF FREQUENCY AT 19.3kHz.

VIRTUAL NEUTRAL POINT (BEMF ZERO-CROSSING DETECTION)



AT +VBATT 16.8V, VIRTUAL NEUTRAL POINT DIVIDED DOWN TO 1.47V.
RC LOW-PASS FILTER CUTOFF FREQUENCY AT 6.77kHz.

DRAWN BY: N.PHILIPENKO
GITHUB: /nikphillydev

REVIEWED BY:

Sheet: /SENSING/
File: sensing.kicad_sch

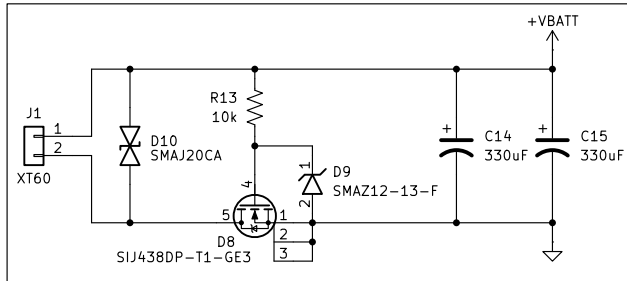
Title: VOLTAGE, CURRENT, AND BEMF SENSING

Size: A4
KiCad E.D.A. 8.0.6

Date:

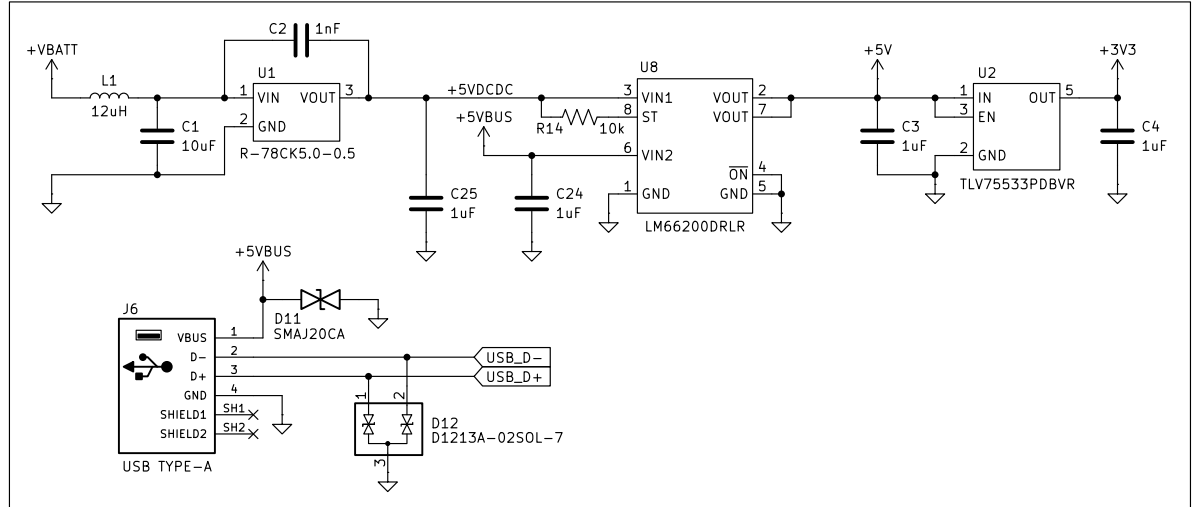
Rev:
Id: 3/5

ESD AND REVERSE POLARITY PROTECTION

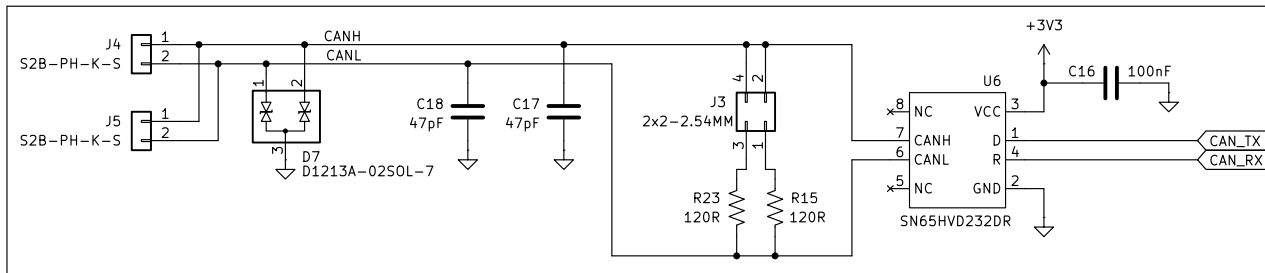


+VBATT 6V5 - 18V INPUT

USB AND POWER REGULATION



ESC CANBUS



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GITHUB: /nikphillydev

REVIEWED BY:

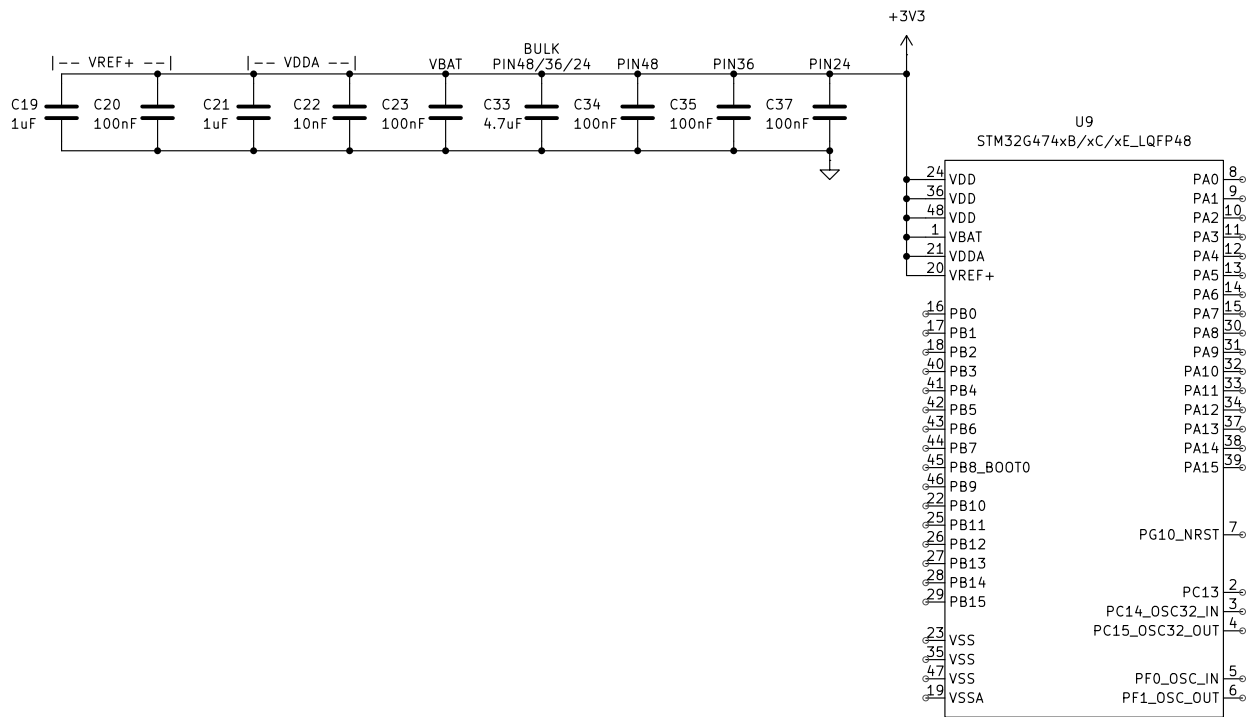
Sheet: /POWER_USB_CAN/
File: pwr_usb_can.kicad_sch

Title: POWER REGULATION, USB, AND CANBUS

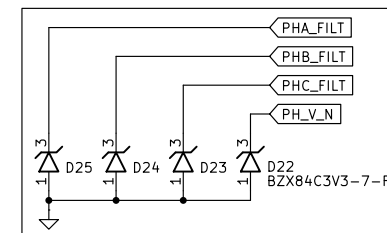
Size: A4
KiCad E.D.A. 8.0.6

Date:

Rev:
Id: 4/5



MCU INPUT PROTECTION



DRAWN BY: N.PHILIPENKO
GITHUB: /nikphillydev

REVIEWED BY:

Sheet: /MCU/
File: mcu.kicad_sch

Title: MICROCONTROLLER

Size: A4
KiCad E.D.A. 8.0.6

Date:

Rev:
Id: 5/5