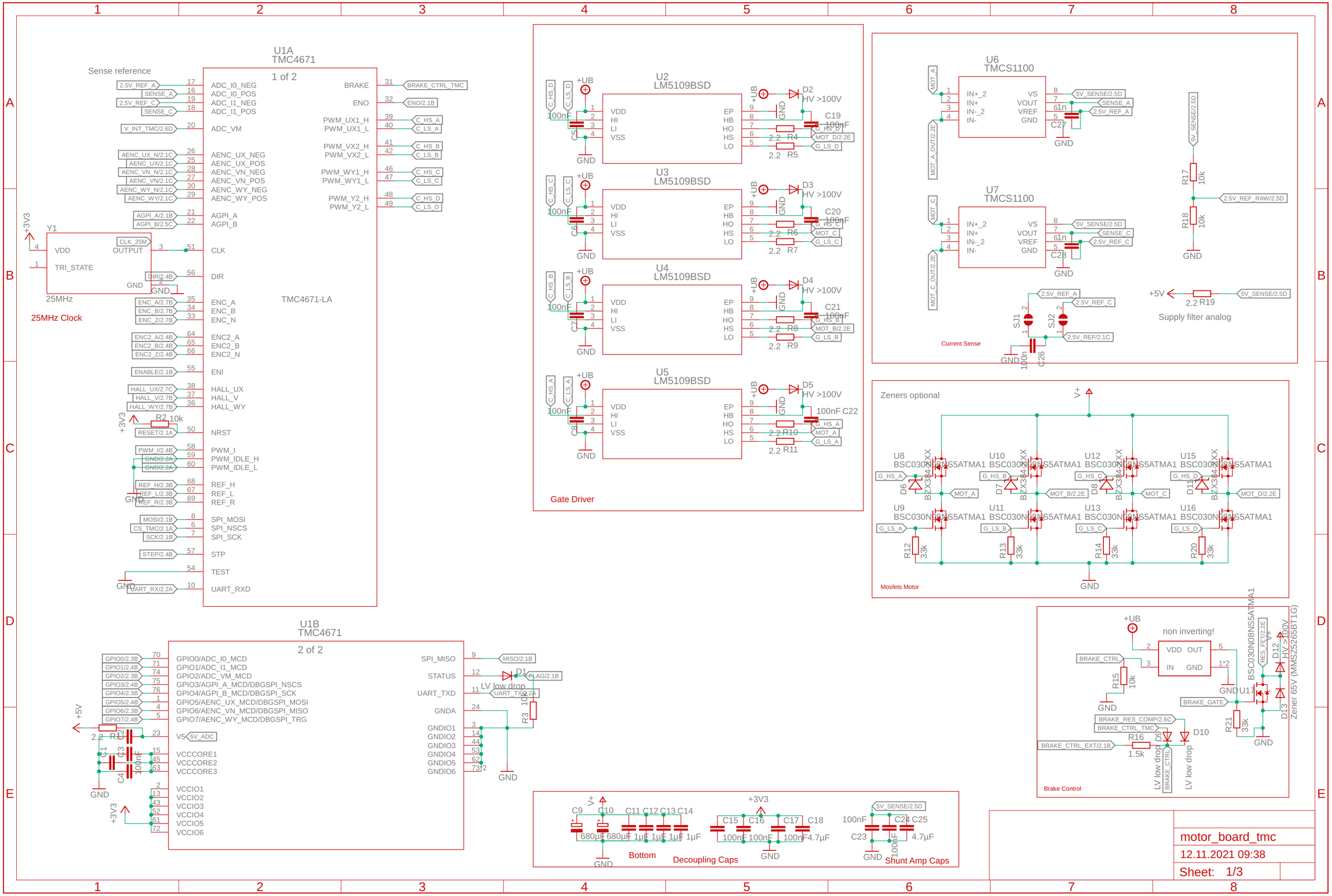
U1A
TMC4671
1 of 2
Sense reference
2.5V_REF_A
SENSE_A
2.5V_REF_C
SENSE_C
V_INT_TMC/2.6D
ADC_I0_NEG
ADC_I0_POS
ADC_I1_NEG
ADC_I1_POS
ADC_VM
AENC_UX_N/2.1C
AENC_UX/2.1C
AENC_VN_N/2.1C
AENC_VN/2.1C
AENC_WY_N/2.1C
AENC_WY/2.1C
AENC_UX_NEG
AENC_UX_POS
AENC_VN_NEG
AENC_VN_POS
AENC_WY_NEG
AENC_WY_POS
AGPI_A/2.1B
AGPI_B/2.5C
AGPI_A
AGPI_B
+3V3
Y1
VDD
TRI_STATE
CLK_25M
OUTPUT
GND
25MHz
25MHz Clock
CLK
DIR/2.4B
DIR
TMC4671-LA
ENC_A/2.7B
ENC_B/2.7B
ENC_Z/2.7B
ENC_A
ENC_B
ENC_N
ENC2_A/2.4B
ENC2_B/2.4B
ENC2_Z/2.4B
ENC2_A
ENC2_B
ENC2_N
ENABLE/2.1B
ENI
HALL_UX/2.7C
HALL_V/2.7B
HALL_WY/2.7B
HALL_UX
HALL_V
HALL_WY
R2 10k
RESET/2.1A
NRST
PWM_I/2.4B
GND/2.2A
GND/2.2A
PWM_I
PWM_IDLE_H
PWM_IDLE_L
REF_H/2.3B
REF_L/2.3B
REF_R/2.3B
REF_H
REF_L
REF_R
MOSI/2.1B
CS_TMC/2.1A
SCK/2.1B
SPI_MOSI
SPI_NSCS
SPI_SCK
STEP/2.4B
STP
TEST
UART_RX/2.2A
UART_RXD
BRAKE
BRAKE_CTRL_TMC
ENO
ENO/2.1B
PWM_UX1_H
PWM_UX1_L
C_HS_A
C_LS_A
PWM_VX2_H
PWM_VX2_L
C_HS_B
C_LS_B
PWM_WY1_H
PWM_WY1_L
C_HS_C
C_LS_C
PWM_Y2_H
PWM_Y2_L
C_HS_D
C_LS_D
U1B
TMC4671
2 of 2
GPIO0/2.3B
GPIO1/2.4B
GPIO2/2.3B
GPIO3/2.4B
GPIO4/2.3B
GPIO5/2.4B
GPIO6/2.3B
GPIO7/2.4B
GPIO0/ADC_I0_MCD
GPIO1/ADC_I1_MCD
GPIO2/ADC_VM_MCD
GPIO3/AGPI_A_MCD/DBGSPI_NSCS
GPIO4/AGPI_B_MCD/DBGSPI_SCK
GPIO5/AENC_UX_MCD/DBGSPI_MOSI
GPIO6/AENC_VN_MCD/DBGSPI_MISO
GPIO7/AENC_WY_MCD/DBGSPI_TRG
+5V
R1 2.2
C1
C2
C3
C4
100nF
V5
5V_ADC
VCCCORE1
VCCCORE2
VCCCORE3
VCCIO1
VCCIO2
VCCIO3
VCCIO4
VCCIO5
VCCIO6
SPI_MISO
MISO/2.1B
STATUS
D1
FLAG/2.1B
LV low drop
UART_TXD
UART_TX/2.2A
R3 10k
GNDA
GNDIO1
GNDIO2
GNDIO3
GNDIO4
GNDIO5
GNDIO6
U2
LM5109BSD
U3
LM5109BSD
U4
LM5109BSD
U5
LM5109BSD
+UB
100nF
VDD
HI
LI
VSS
EP
HB
HO
HS
LO
D2
D3
D4
D5
HV >100V
C19
C20
C21
100nF C22
2.2 R4
2.2 R5
2.2 R6
2.2 R7
2.2 R8
2.2 R9
2.2 R10
2.2 R11
MOT_D/2.2E
MOT_C
MOT_B/2.2E
MOT_A
Gate Driver
U6
TMCS1100
U7
TMCS1100
IN+_2
IN+
IN-_2
IN-
VS
VOUT
VREF
GND
5V_SENSE/2.5D
SENSE_A
SENSE_C
2.5V_REF_A
2.5V_REF_C
61n
C27
C28
MOT_A
MOT_C
MOT_A_OUT/2.2E
MOT_C_OUT/2.2E
R17 10k
R18 10k
2.5V_REF_RAW/2.5D
+5V
2.2 R19
Supply filter analog
SJ1
SJ2
2.5V_REF/2.1C
100n
C26
Current Sense
Zeners optional
V+
U8
U9
U10
U11
U12
U13
U15
U16
BSC030N08NS5ATMA1
BZX384-XX
D6
D7
D8
D11
G_HS_A
G_LS_A
G_HS_B
G_LS_B
G_HS_C
G_LS_C
G_HS_D
G_LS_D
R12 33k
R13 33k
R14 33k
R20 33k
Mosfets Motor
C9
C10
680µF
C11
C12
C13
C14
1µF
Bottom
Decoupling Caps
C15
C16
C17
C18
100nF
4.7µF
C23
C24
C25
Shunt Amp Caps
+UB
non inverting!
VDD
OUT
IN
GND
BRAKE_CTRL
R15 10k
BRAKE_GATE
BRAKE_RES_COMP/2.6C
BRAKE_CTRL_TMC
BRAKE_CTRL_EXT/2.1B
R16 1.5k
D9
D10
LV low drop
R21 33k
U17
BSC030N08NS5ATMA1
RES_FET/2.2E
D12
HV >100V
D13
Zener 65V (MMSZ5265BT1G)
Brake Control
motor_board_tmc
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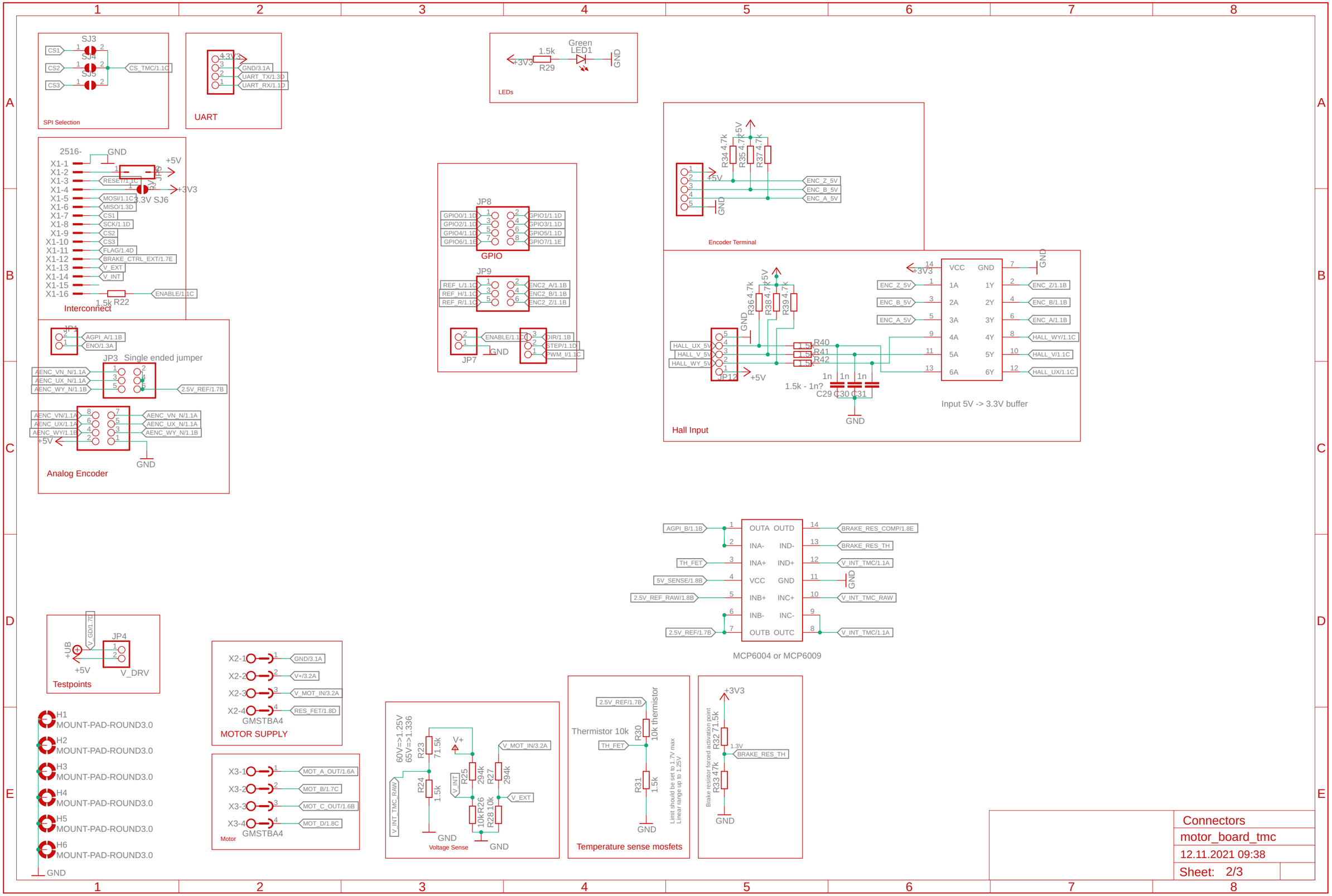

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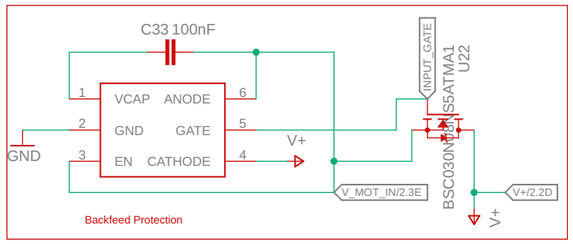
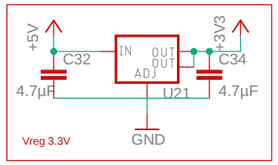
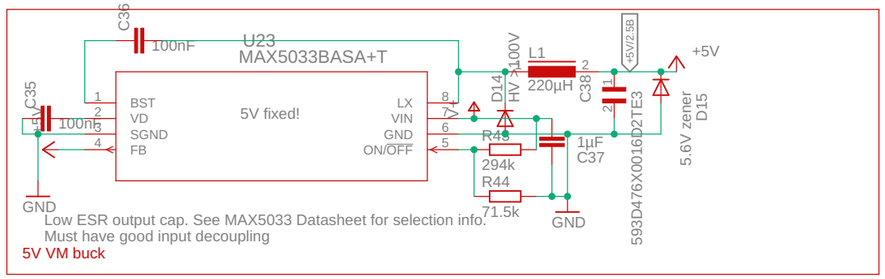
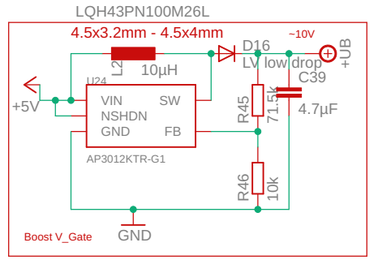






https://datasheets.maximintegrated.com/en/ds/MAX5033.pdf
MAX5033



motor_board_tmc	
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