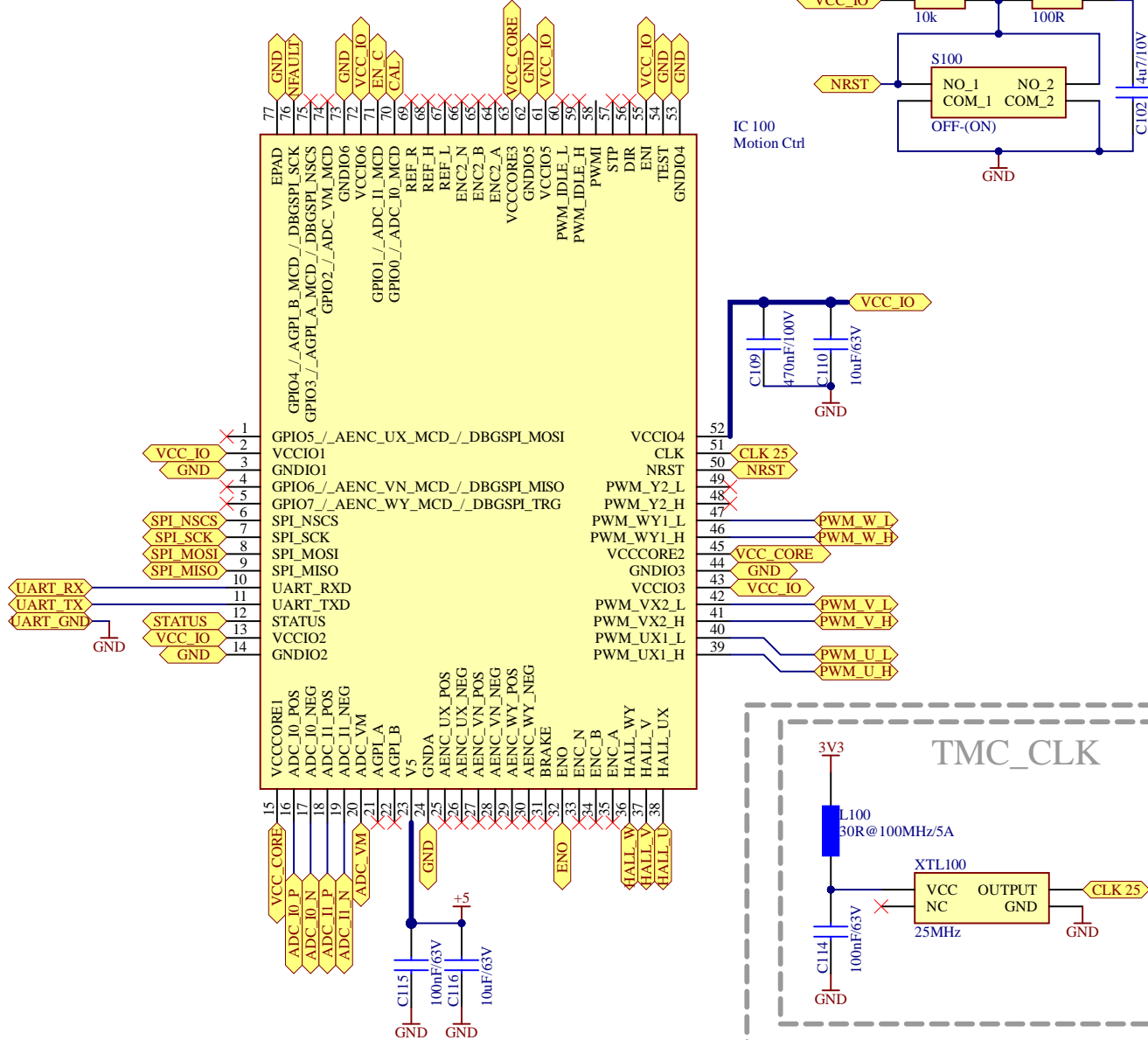
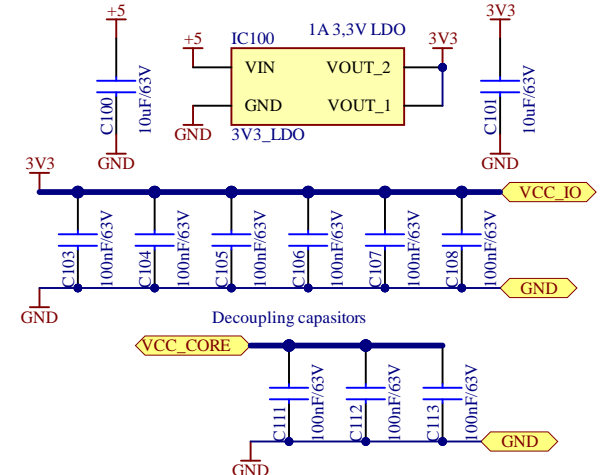


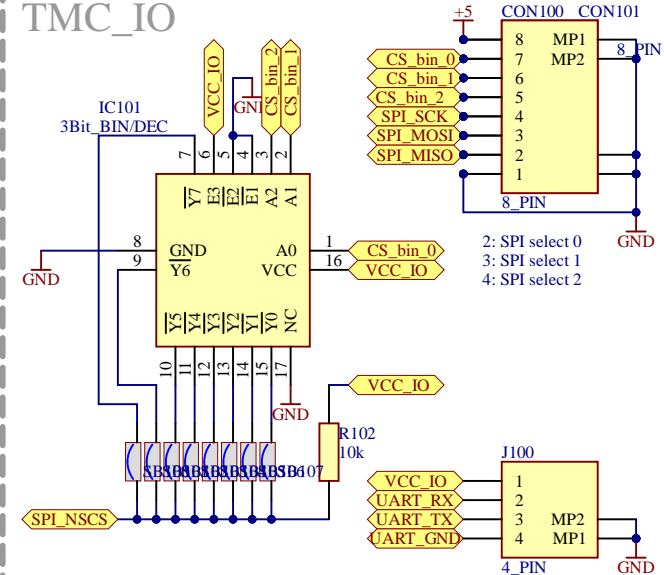
## TMC\_4671



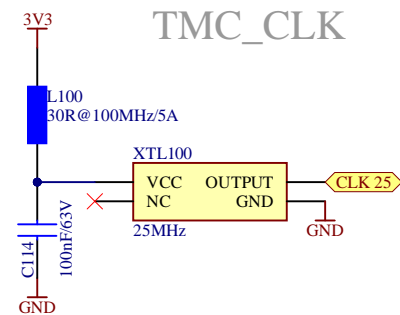
## TMC\_Power




## TMC\_IO



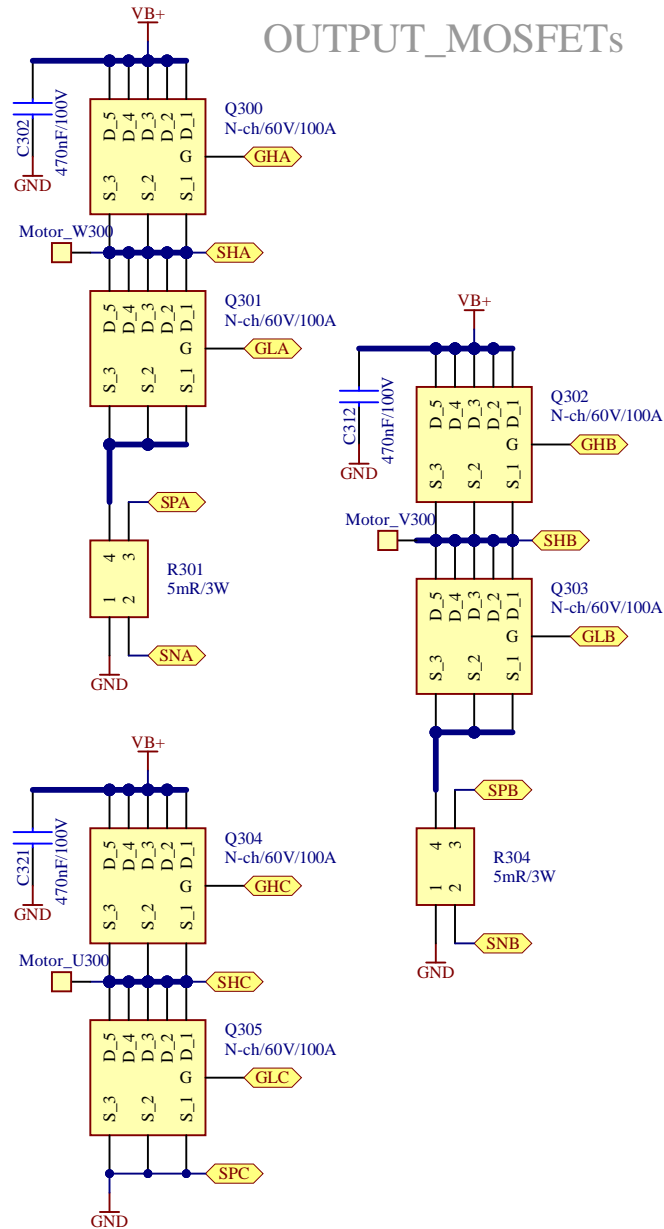
## TMC\_CLK



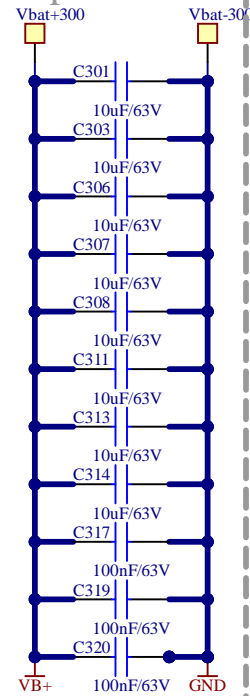
|  |                       |                            |                                  |   |
|--|-----------------------|----------------------------|----------------------------------|---|
| Title: <b>modFOC-Motion_Controller</b>   |                       |                            | HTL St. Pölten<br>Mathias Giller |  |
| Size: <b>A4</b>  | Number: <b>1</b>      | Revision: <b>1</b>         |                                  |   |
| Date: <b>06.04.2021</b>  | Time: <b>16:54:25</b> | Sheet <b>1</b> of <b>3</b> |                                  |   |
| File: <b>C:\Users\Thomas\Documents\GitHub\modFOC\Hardware\modFOC-ESC\modFOC-Motion_Controller\SchDoc</b> |                       |                            |                                  |   |



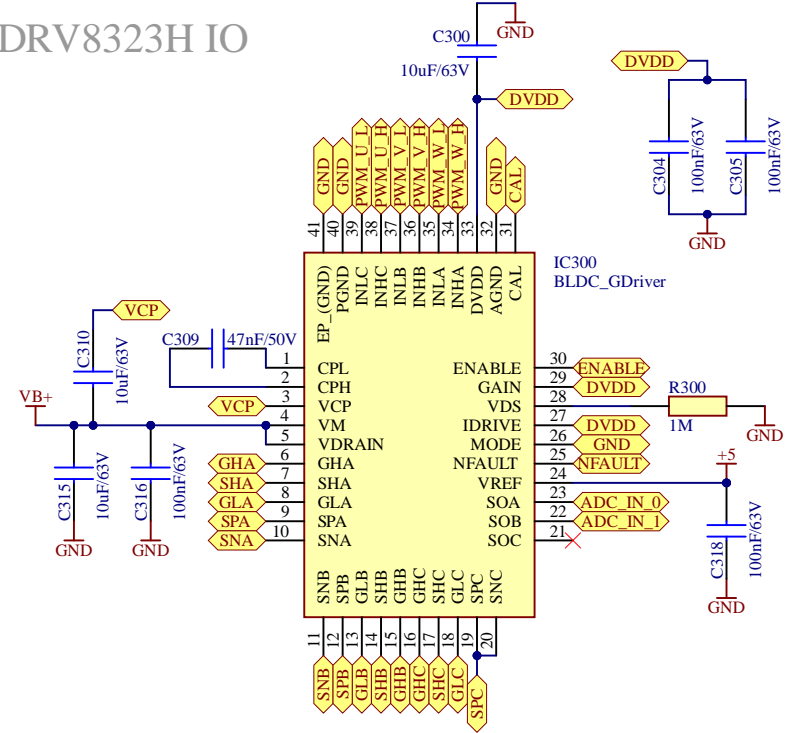
## OUTPUT\_MOSFETs



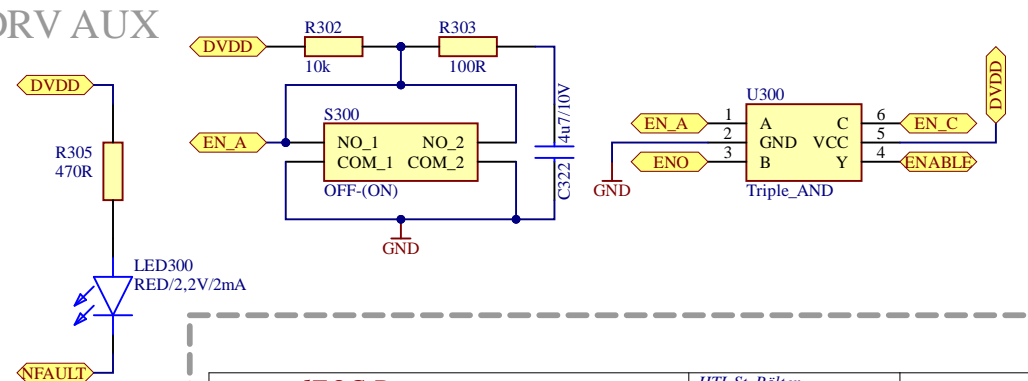
## Input Buffer



## DRV8323H IO



## DRV AUX

Title **modFOC-Powerstage**HTL St. Pölten  
Mathias Giller

Size: A4

Number: 3

Revision: 1

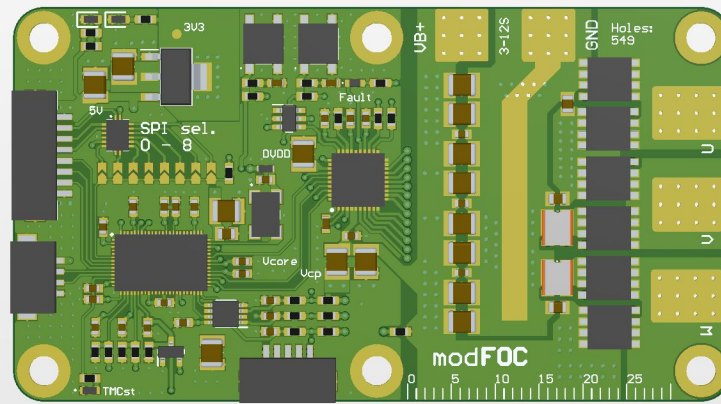
Date: 06.04.2021

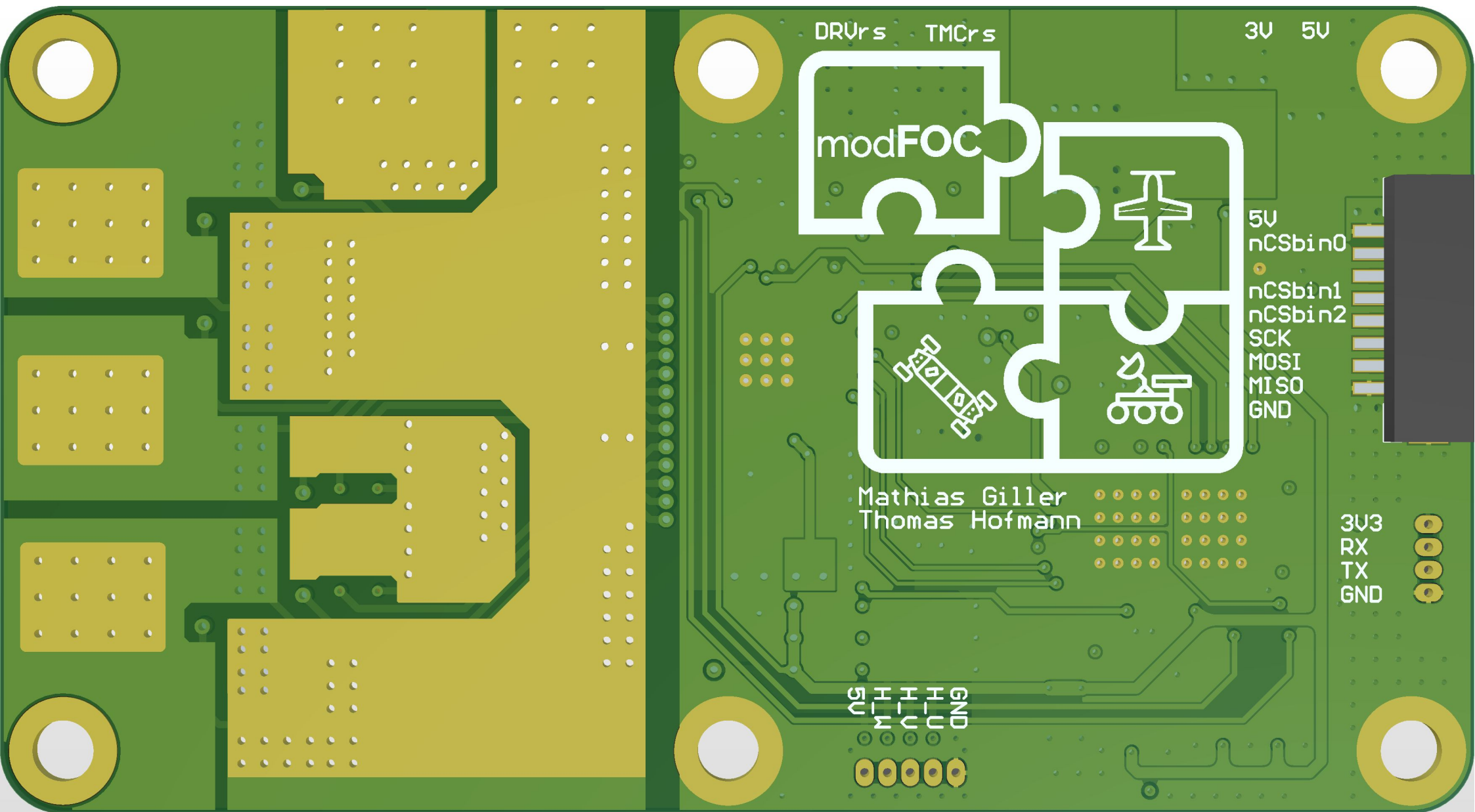
Time: 16:54:26

Sheet 3 of 3

File: C:\Users\Thomas\Documents\GitHub\modFOC\Hardware\modFOC-ESC\modFOC-Powerstage.SchDoc

**Altium**

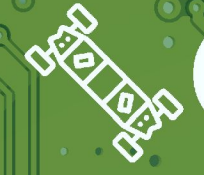




DRVrs TMCrs

3V 5V

modFOC

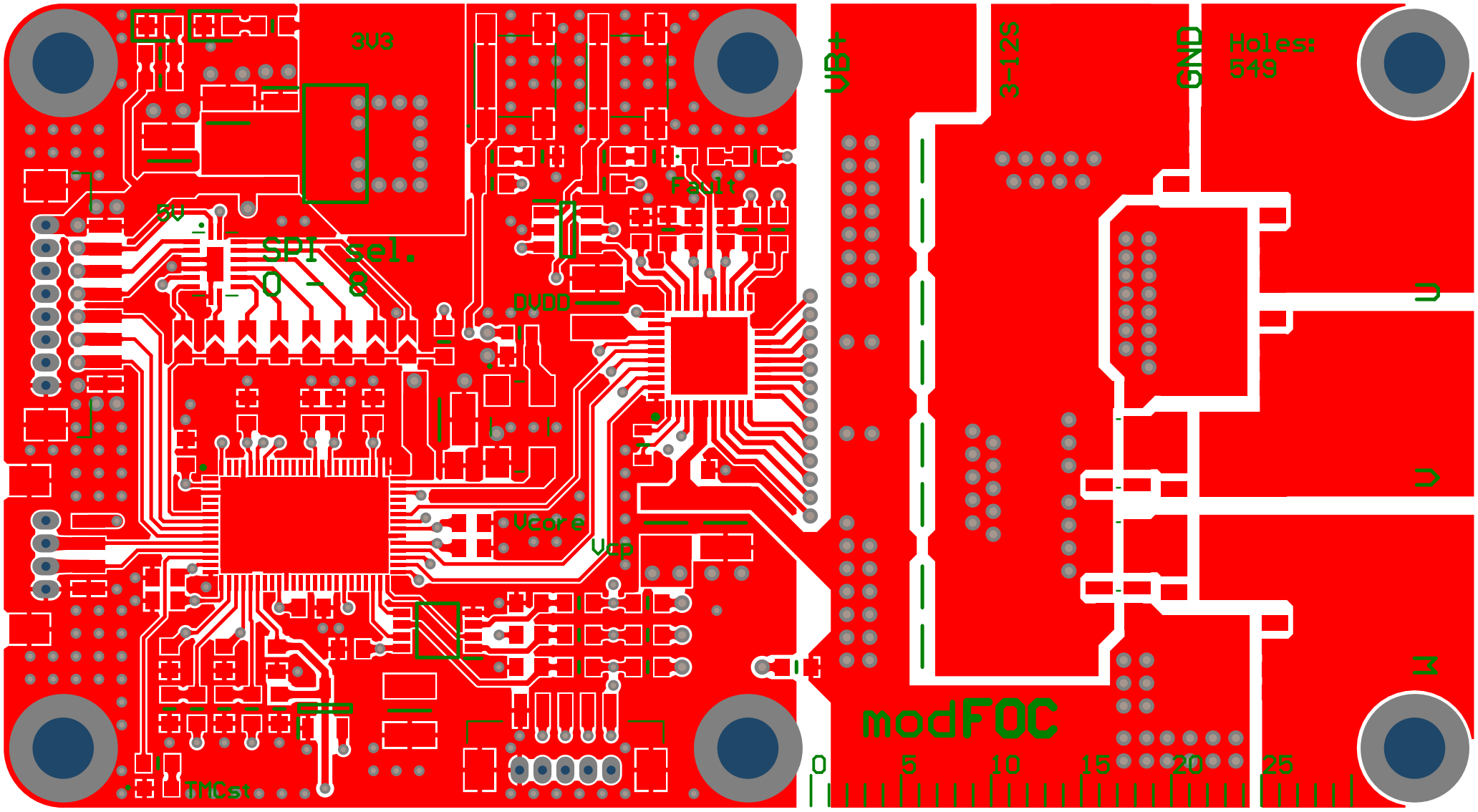


5V  
nCSbin0  
nCSbin1  
nCSbin2  
SCK  
MOSI  
MISO  
GND

Mathias Giller  
Thomas Hofmann

3V3  
RX  
TX  
GND

5V  
I1  
I2  
I3  
I4  
GND



3V3

VB+

3-12S

GND

Holes:  
549

5V

SPI sel.  
0 8

FAN1

DVDD

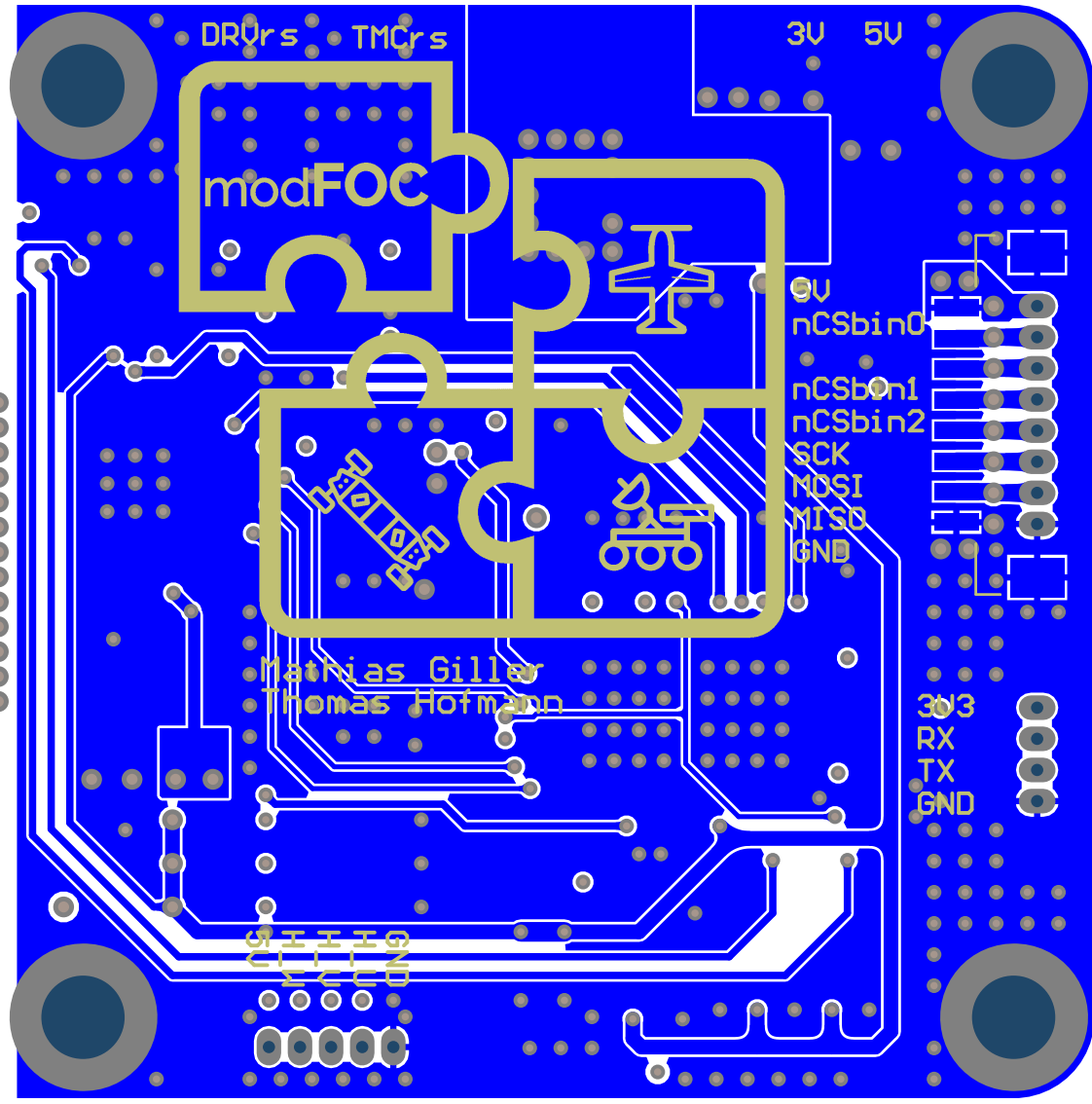
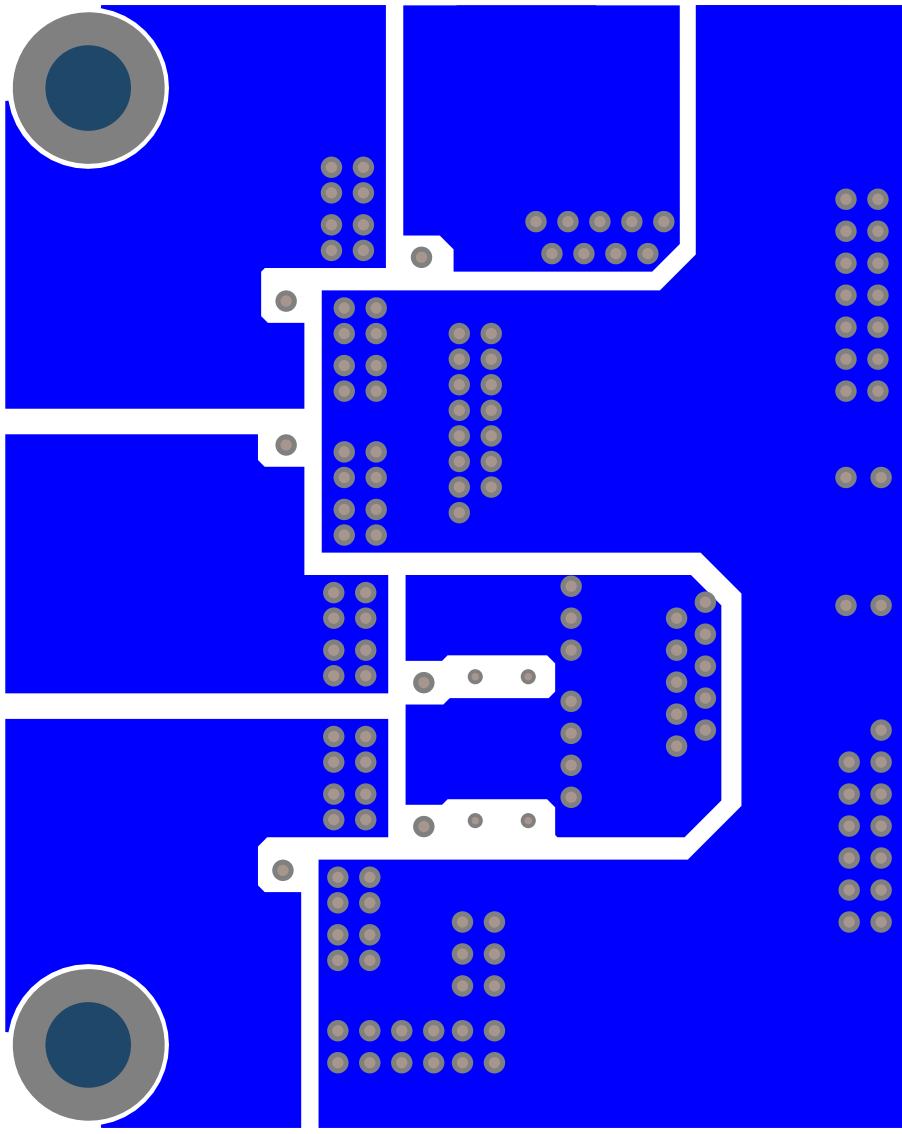
Vcore

Vcp

modFOC

0 5 10 15 20 25

TMCst



| Designator   | Description  | Comment                                   | Manufacturer_Name         | Manufacturer_Part_Number | Footprint  | Quantity |
|--|--|---|---------------------------|--------------------------|--|----------|
| C100, C101, C110, C116, C300, C301, C303, C306, C307, C308, C310, C311, C313, C314, C315                               | Capacitor  | 10uF/63V                                  | Samsung Electro-Mechanics | CL32B106KMVNNWE          | CAPC3225X280N  | 15       |
| C102, C322   | Capacitor  | 4u7/10V                                   | Samsung Electro-Mechanics | CL10A475KP8NNNC          | CAPC1608X90N   | 2        |
| C103, C104, C105, C106, C107, C108, C111, C112, C113, C114, C115, C200, C205, C304, C305, C316, C317, C318, C319, C320 | Capacitor  | 100nF/63V                                 | Vishay                    | VJ0603Y104JXJAC          | CAPC1608X97N   | 20       |
| C109, C302, C312, C321   | Capacitor  | 470nF/100V                                | AVX                       | 08051C474KAT2A           | CAPC2012X140N  | 4        |
| C201, C202, C203   | Capacitor  | 1nF/25V                                   | Murata Electronics        | GRM033R71E102KA01D       | CAPC1608X97N   | 3        |
| C204, C206   | Capacitor  | 100pF/63V                                 | Kemet                     | C0603C101K1HAC TU        | CAPC1608X87N   | 2        |
| C309   | Capacitor  | 47nF/50V                                  | TDK                       | CGA3E2X7R1H473K080AA     | CAPC1608X90N   | 1        |
| CON100, CON101   | Connector  | 8_PIN                                     | Hirose                    | DF13A-8P-1.25H(21)       | DF13A8P125H21  | 2        |
| D200   | Schottky Diode                                     | 30V/200mA                                 | Rectron                   | BAT54S                   | SOT95P240X110-3N   | 1        |
| IC100  | Integrated Circuit                                 | 3V3_LDO                                   | Diodes Inc.               | AP2114H-3.3TRG1          | SOT230P700X180-4N  | 1        |
| IC101  | Integrated Circuit                                 | 3Bit_BIN/DEC                              | Nexperia                  | 74LVC138ABQ,115          | 74HCT595BQ115  | 1        |
| IC200  | Integrated Circuit                                 | S-Trigger                                 | Nexperia                  | 74LVC3G17DP,125          | SOP65P400X110-8N   | 1        |
| IC300  | Integrated Circuit                                 | BLDC_GDriver                              | Texas Instruments         | DRV8323HRTAR             | QFN50P600X600X80-41N-D                                   | 1        |
| IC 100, Motor_U300, Motor_V300, Motor_W300, Vbat-300, Vbat+300, XTL100   | FOC Motion Controller, [NoValue], 25Mhz Oscillator | Motion Ctrl, PowerPad, PW_PAD_SMOL, 25MHz |                           |                          | QFN40P1050X650X90-77N, POWER_PAD, PW_PAD_SMOL, FOX924B25 | 7        |
| J100   | Connector  | 4_PIN                                     | Hirose                    | DF13A-4P-1.25H(21)       | DF13A4P125H21  | 1        |
| J200   | Connector  | 5_PIN                                     | Hirose                    | DF13A-5P-1.25H(21)       | DF13A5P125H21  | 1        |
| L100   | Ferrite Bead                                       | 30R@100MHz/5A                             | Murata Electronics        | BLM18KG300TH1D           | BLM18KG101TH1D   | 1        |
| LED300   | LED  | RED/2,2V/2mA                              | OSRAM                     | LS L29K-G1J2-1-Z         | LSL29KG1J21Z   | 1        |
| LED_Amber200   | LED  | AMBER/2V/20mA                             | Avago Technologies        | ASMT-RA45-AP932          | LEDC1608X55N   | 1        |
| LED_Blue200  | LED  | BLUE/2,85V/5mA                            | OSRAM                     | LB Q39G-L200-35-1        | LEDC1608X40N   | 1        |
| LED_Green200   | LED  | GREEN/2,4V/20mA                           | OSRAM                     | LG Q396-PS-35            | LGQ396PS35   | 1        |
| Q300, Q301, Q302, Q303, Q304, Q305   | MOSFET (N-Channel)                                 | N-ch/60V/100A                             | Toshiba                   | TPH2R506PL,L1Q           | TPHR9003NLL1Q  | 6        |
| R100, R102, R211, R212, R216, R217, R302   | Resistor   | 10k                                       | YAGEO (PHYCOMP)           | RC0603FR-0710KL          | RESC1608X55N   | 7        |
| R101, R205, R210, R215, R303   | Resistor   | 100R                                      | Vishay                    | CRCW0603100RFEAC         | RESC1608X55N   | 5        |
| R200, R201, R202, R207, R208, R209   | Resistor   | 4k7                                       | Vishay                    | CRCW06034K70JNEAC        | RESC1608X55N   | 6        |
| R203, R204, R214   | Resistor   | 1k5                                       | Panasonic                 | ERJ1GNF1501C             | RESC1608X55N   | 3        |
| R206   | Resistor   | 150R                                      | ROHM Semiconductor        | SFR03EZPF1500            | RESC1608X55N   | 1        |
| R213   | Resistor   | 100k                                      | Panasonic                 | ERJ1GNF1003C             | RESC1608X55N   | 1        |
| R300   | Resistor   | 1M  | YAGEO (PHYCOMP)           | RC0603FR-071ML           | RESC1608X55N   | 1        |
| R301, R304   | Resistor   | 5mR/3W                                    | Vishay                    | WSK1216L5000FEA          | WSK1216L1000FEA  | 2        |
| R305   | Resistor   | 470R                                      | YAGEO (PHYCOMP)           | RC0603FR-10470RL         | RESC1608X55N   | 1        |
| S100, S300   | Switch   | OFF-(ON)                                  | C & K COMPONENTS          | PTS647SK38SMTR2LFS       | PTS647SK38SMTR2LFS                                       | 2        |
| SB100, SB101, SB102, SB103, SB104, SB105, SB106, SB107   | Solder Bridge                                      | Solder Bridge                             |                           | RC0603JR-070RL           | SOLDER-BRIDGE_R0603-0R                                   | 8        |
| U300   | 3 Input AND Gate                                   | Triple_AND                                | Diodes Inc.               | 74LVC1G11W6-7            | SOT95P285X140-6N   | 1        |