

Sienci Longboard 32-bit CNC Controller

Sienci CNC Controller
Block_diagram.SchDoc

Sienci CNC Controller
Board_Diagram.SchDoc



Mechanical



ZZ1 Assembly Note

These assemblies are ESD sensitive, ESD precautions shall be observed.

ZZ2 Assembly Note

These assemblies must be clean and free from flux and all contaminants. Use of no clean flux is not acceptable.

ZZ3 Assembly Note

These assemblies must comply with workmanship standards IPC-A-610 Class 2, unless otherwise specified.

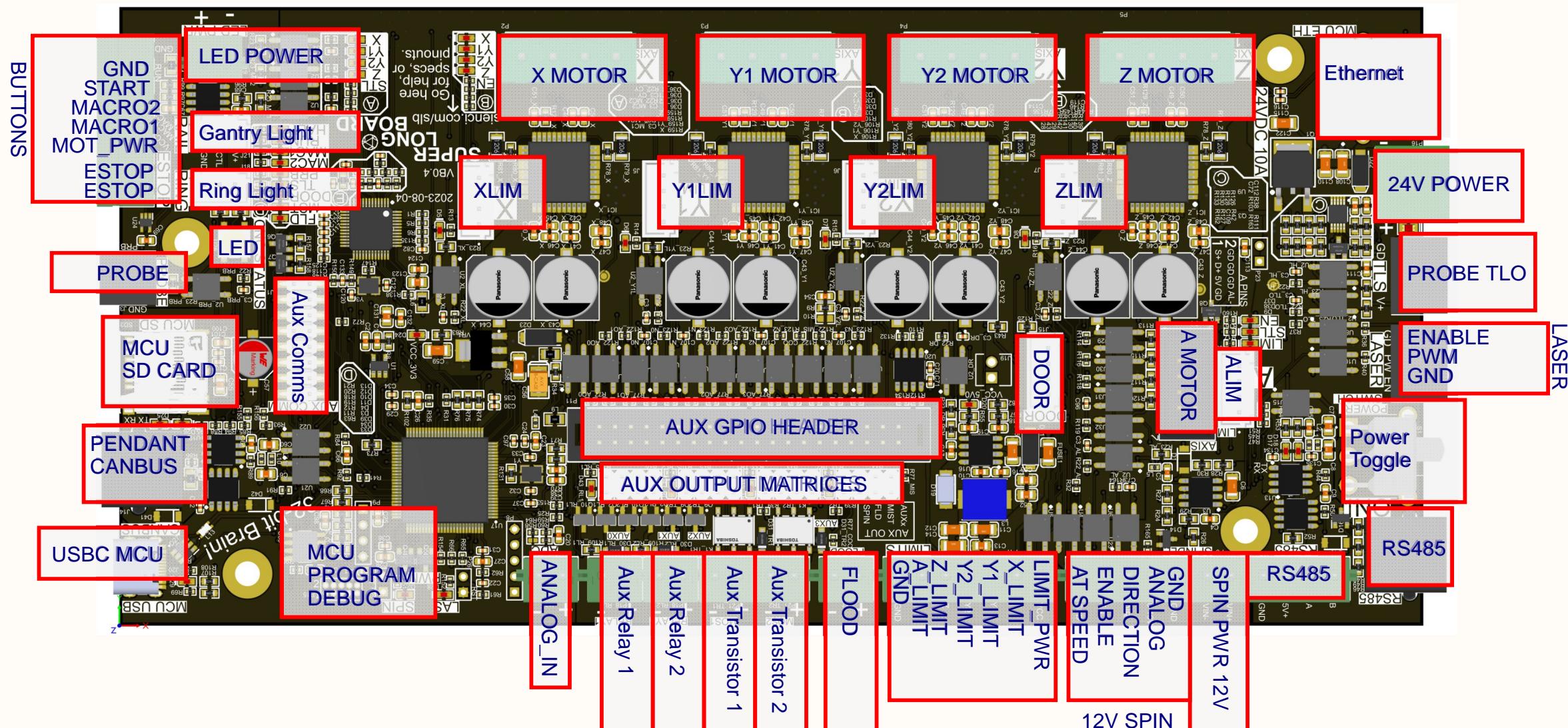
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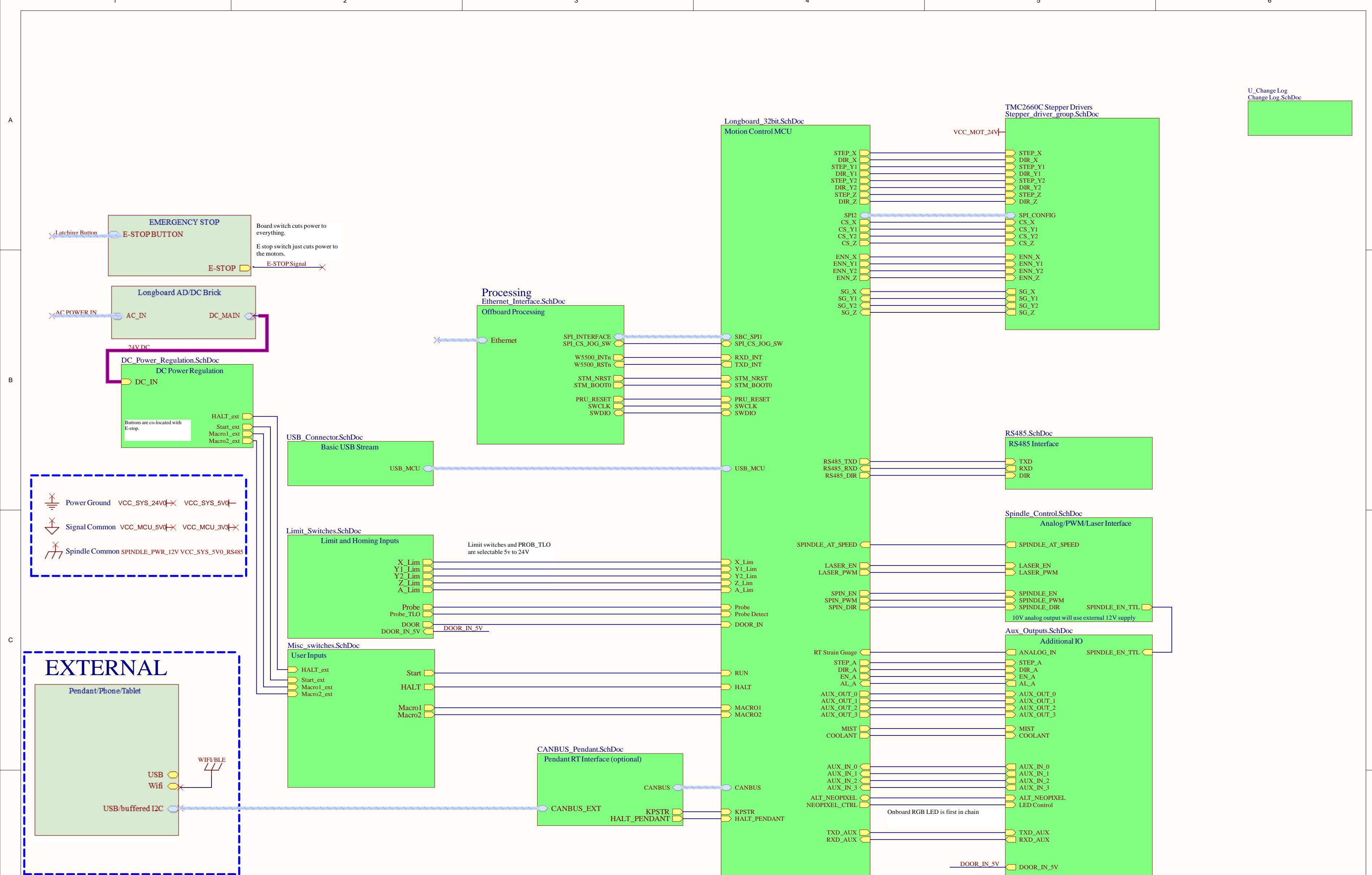


Expatria Technologies
PO Box 2084
Merritt, BC V1K 1B8
PHONE: (778) 238-9336
EMAIL: info@expatria.ca

SHEET Title Sheet		
PROJECT	DOCUMENT	REV
Longboard_32bit.PrjPCB		B4
ENGR	AM	Title Sheet.SchDoc
SIZE	MODIFIED	SHEET
B	2023-08-04:21:13 PM	1 / 26

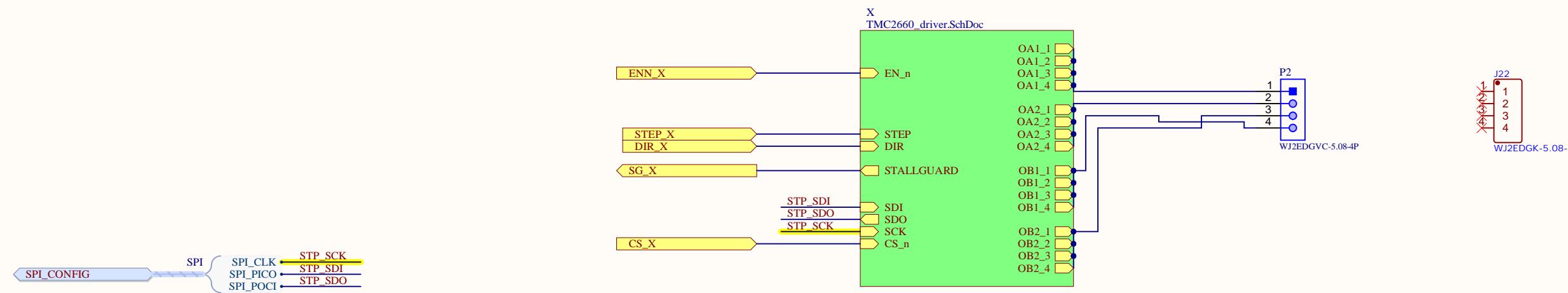
Sienci Longboard 32-bit CNC Controller



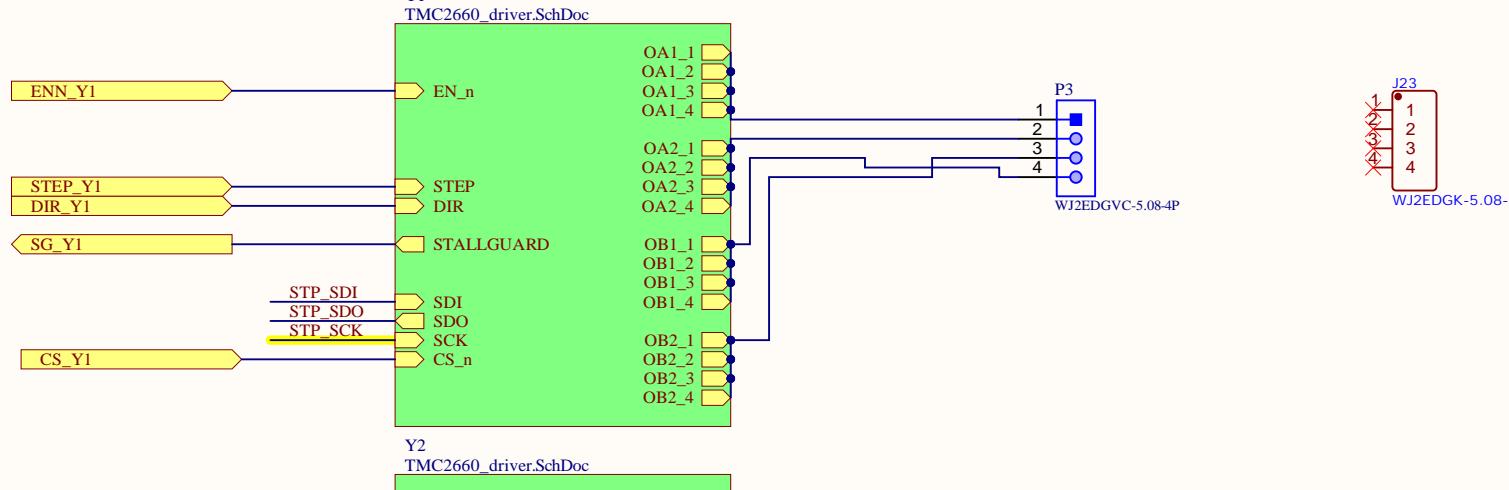


<https://resources.sienci.com/view/lmk2-longboard-details/>

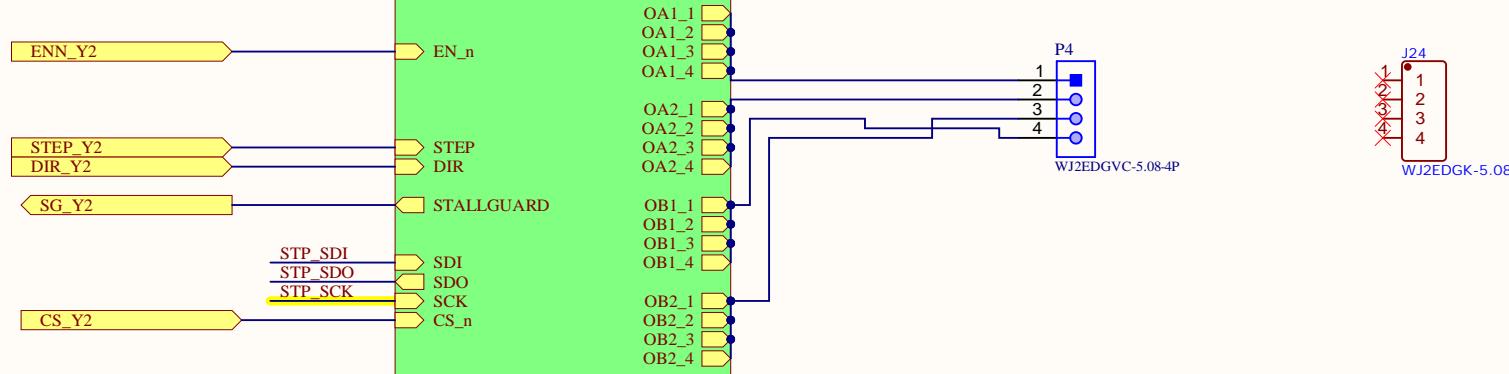
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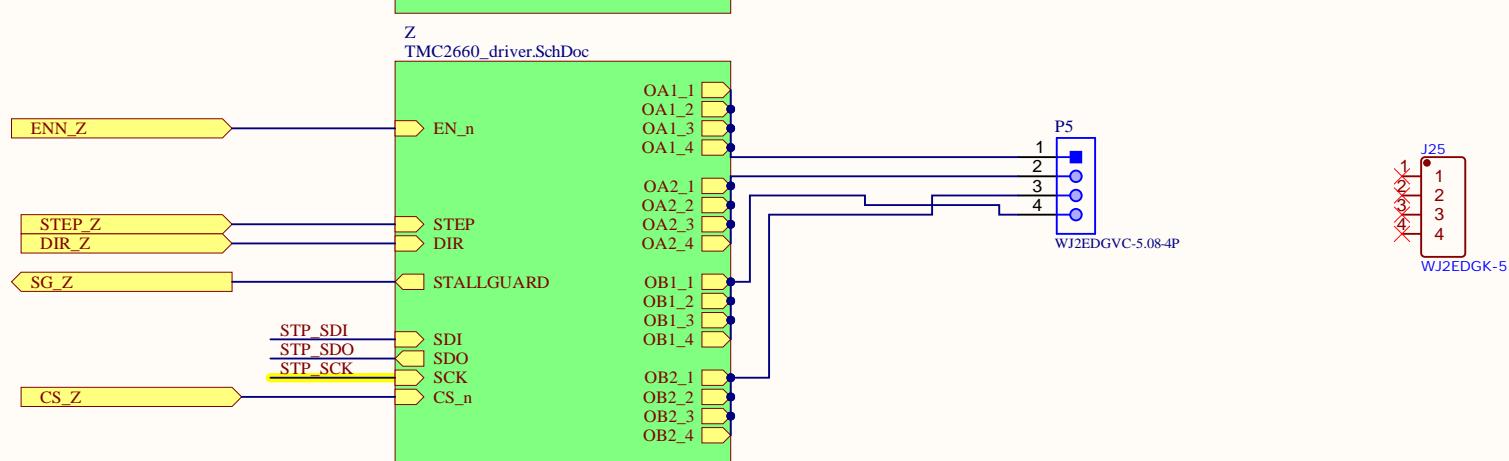
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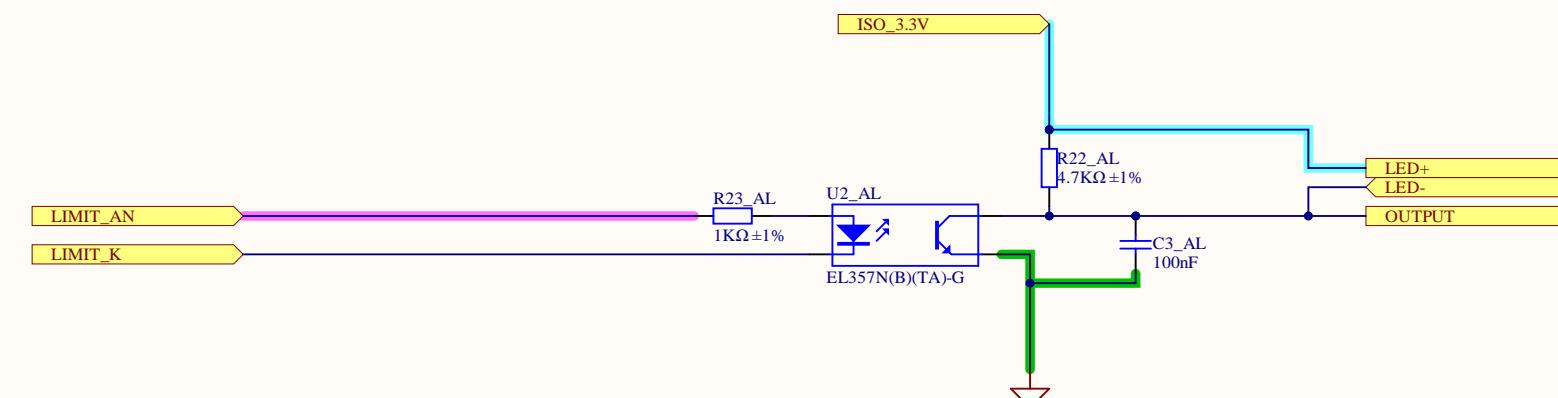
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Longboard_32bit.PrjPCB
AM Photocoupler12Vininput.SchDoc

SHEET Coupler 12V input		
PROJECT	DOCUMENT	REV
Longboard_32bit.PrjPCB		B4
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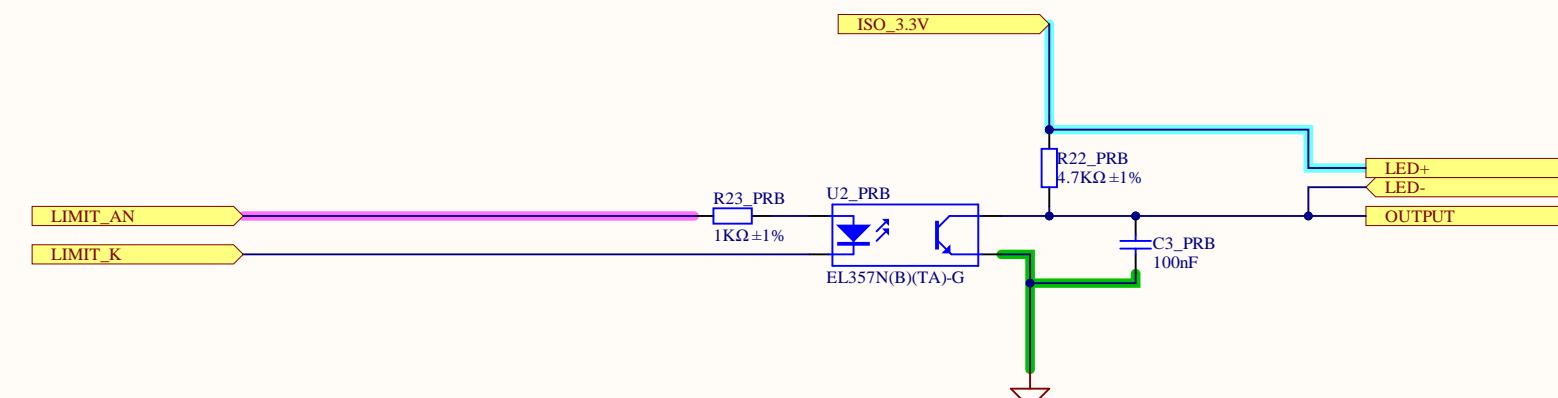
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SHEET Coupler 12V input		
PROJECT	DOCUMENT	REV
Longboard_32bit.PrjPCB		B4
ENGR AM	Photocoupler12Vinput.SchDoc	
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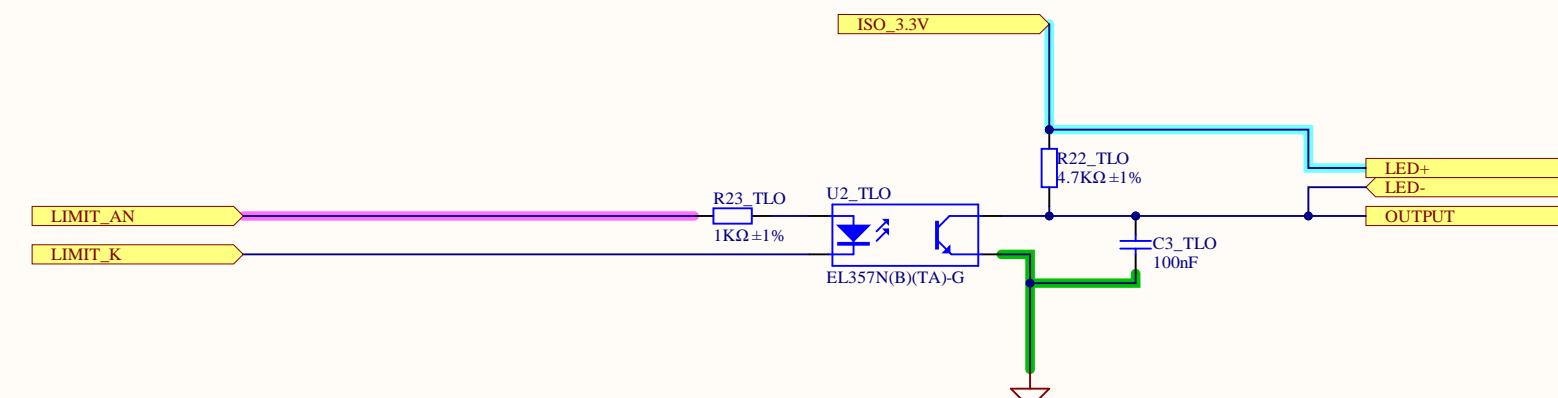
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SHEET Coupler 12V input		
PROJECT	DOCUMENT	REV
Longboard_32bit.PrjPCB		B4
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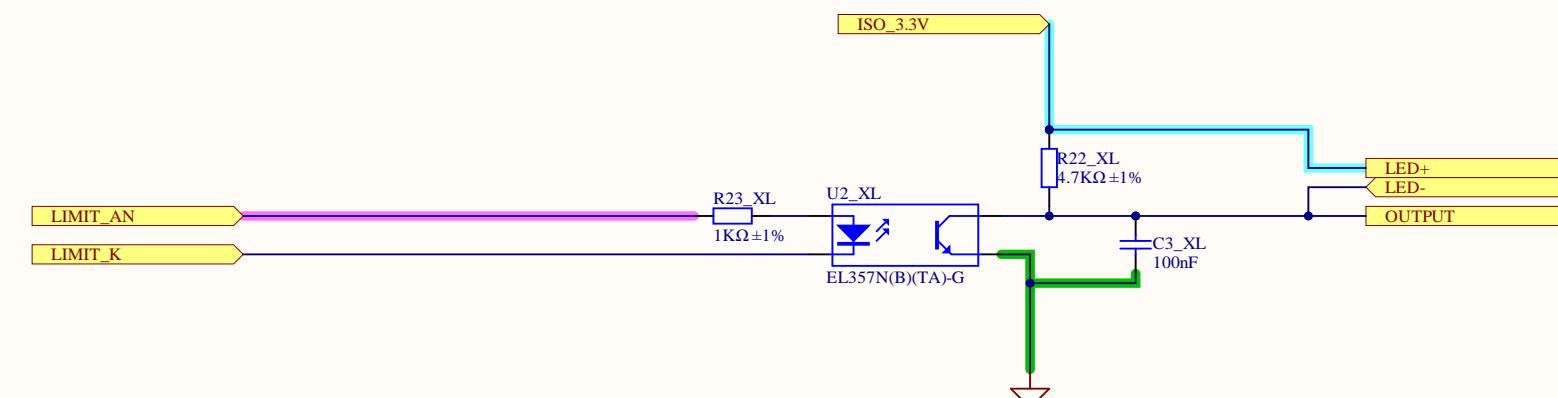
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SHEET Coupler 12V input		
PROJECT	DOCUMENT	REV
Longboard_32bit.PrjPCB		B4
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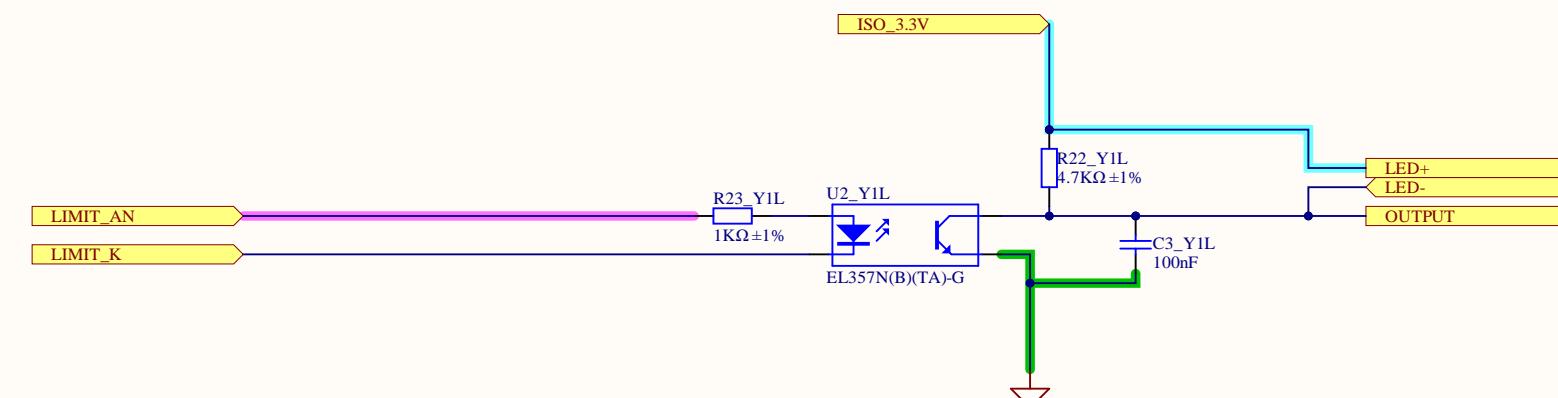
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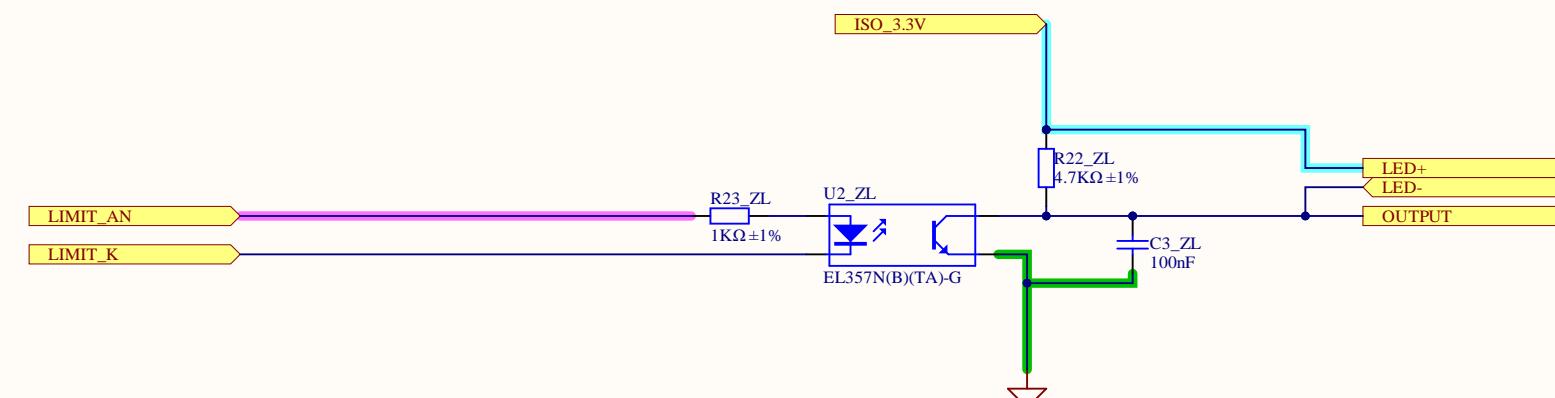
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SHEET Coupler 12V input		
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Longboard_32bit.PrjPCB		B4
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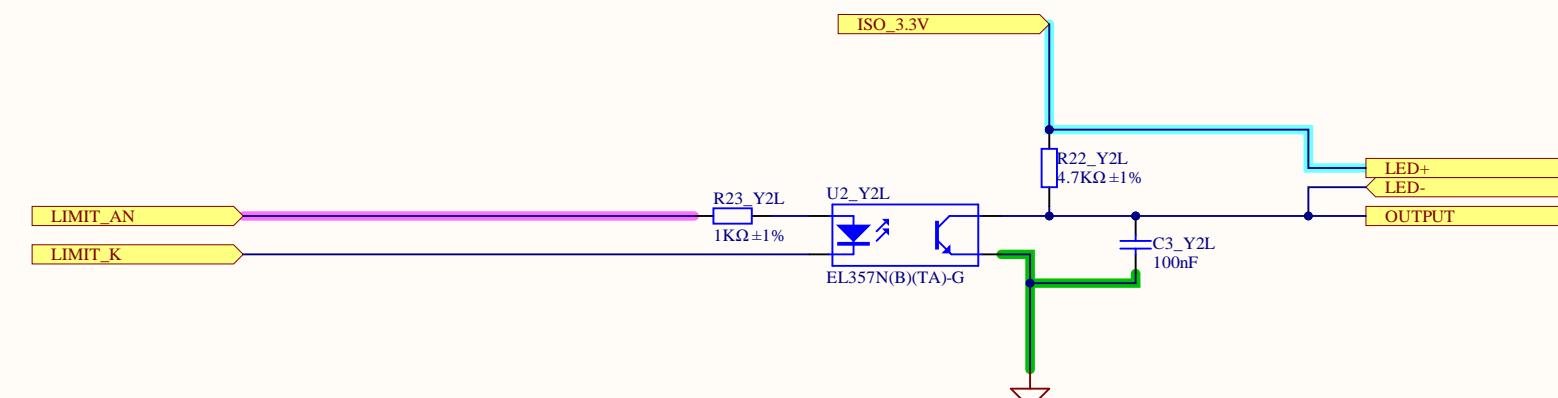
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SHEET Coupler 12V input		
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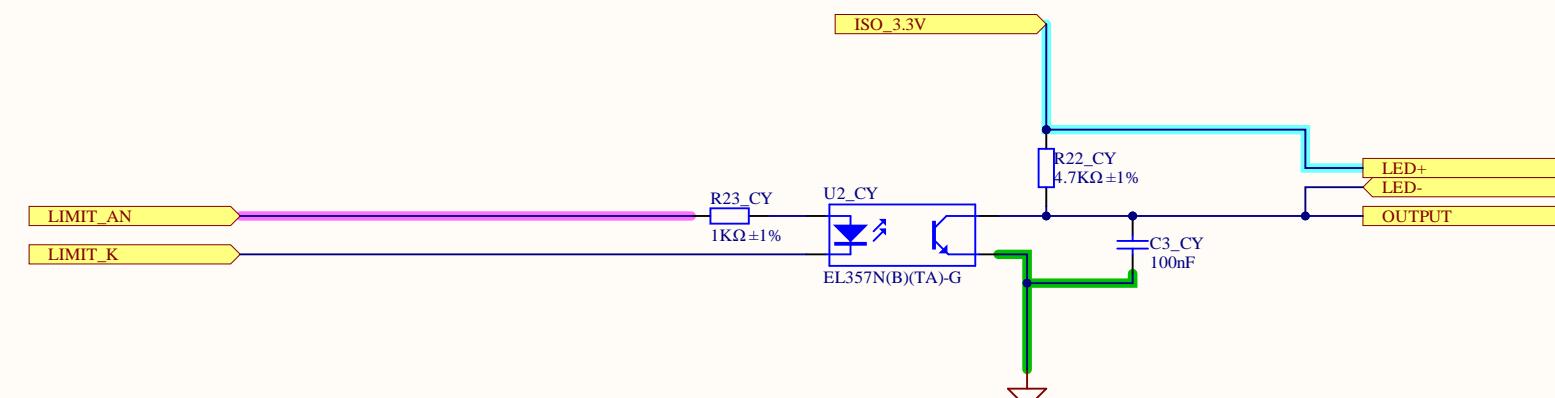
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SHEET Coupler 12V input		
PROJECT	DOCUMENT	REV
Longboard_32bit.PrjPCB		B4
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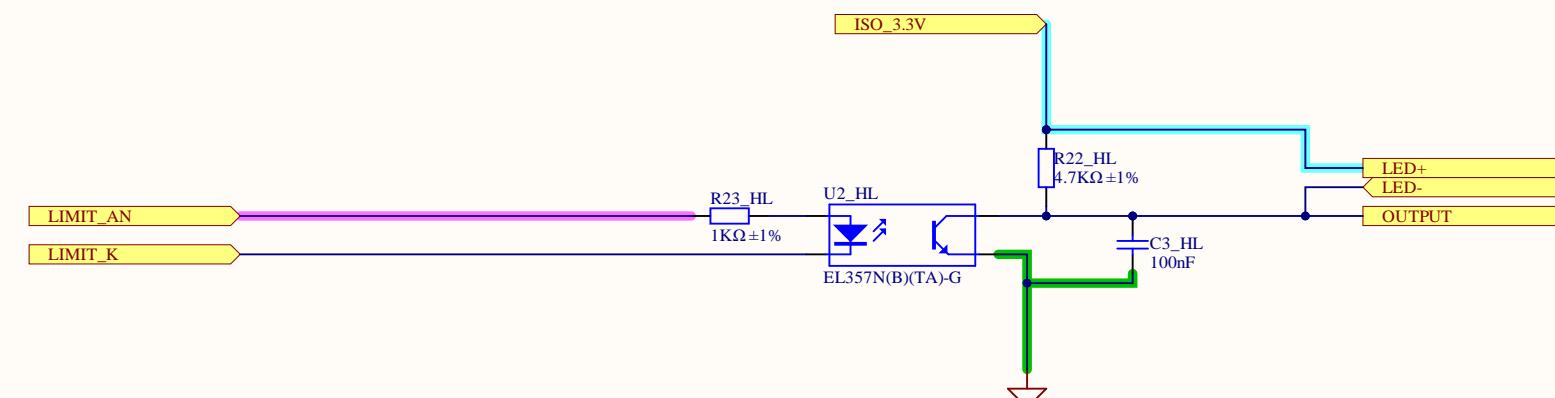
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SHEET Coupler 12V input		
PROJECT	DOCUMENT	REV
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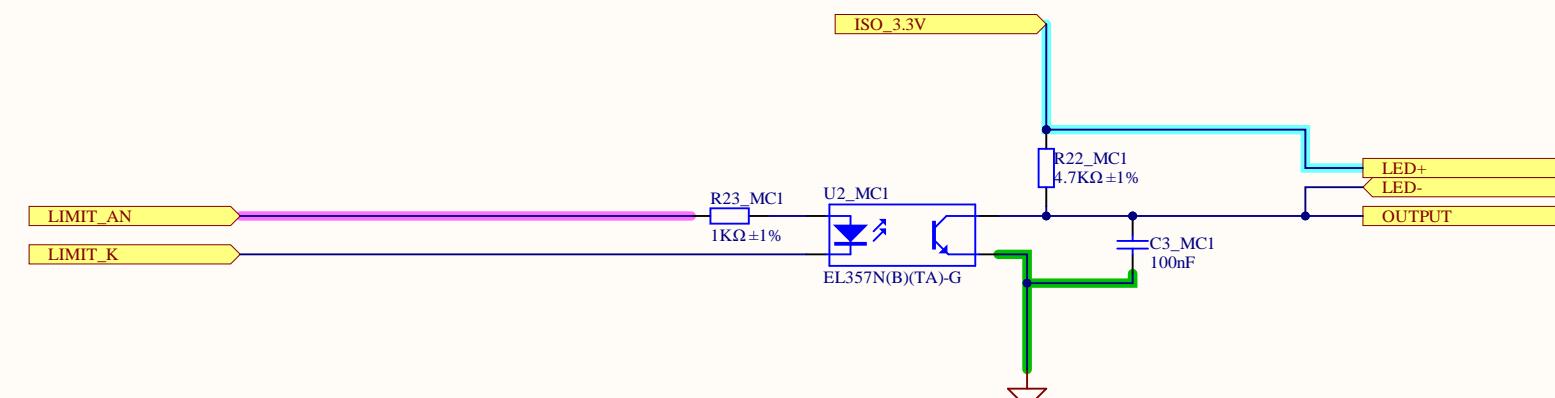
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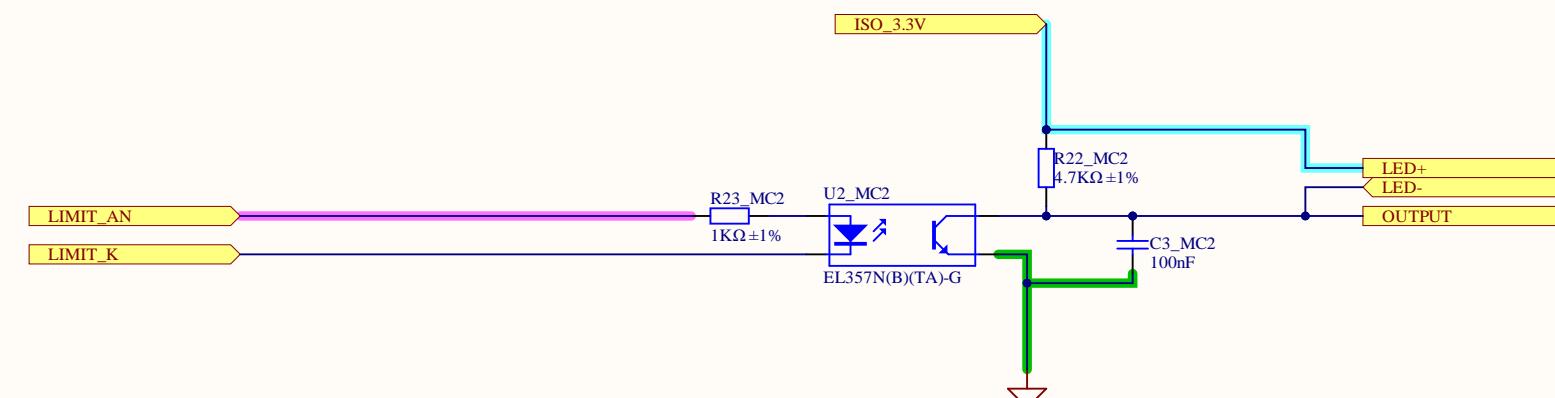
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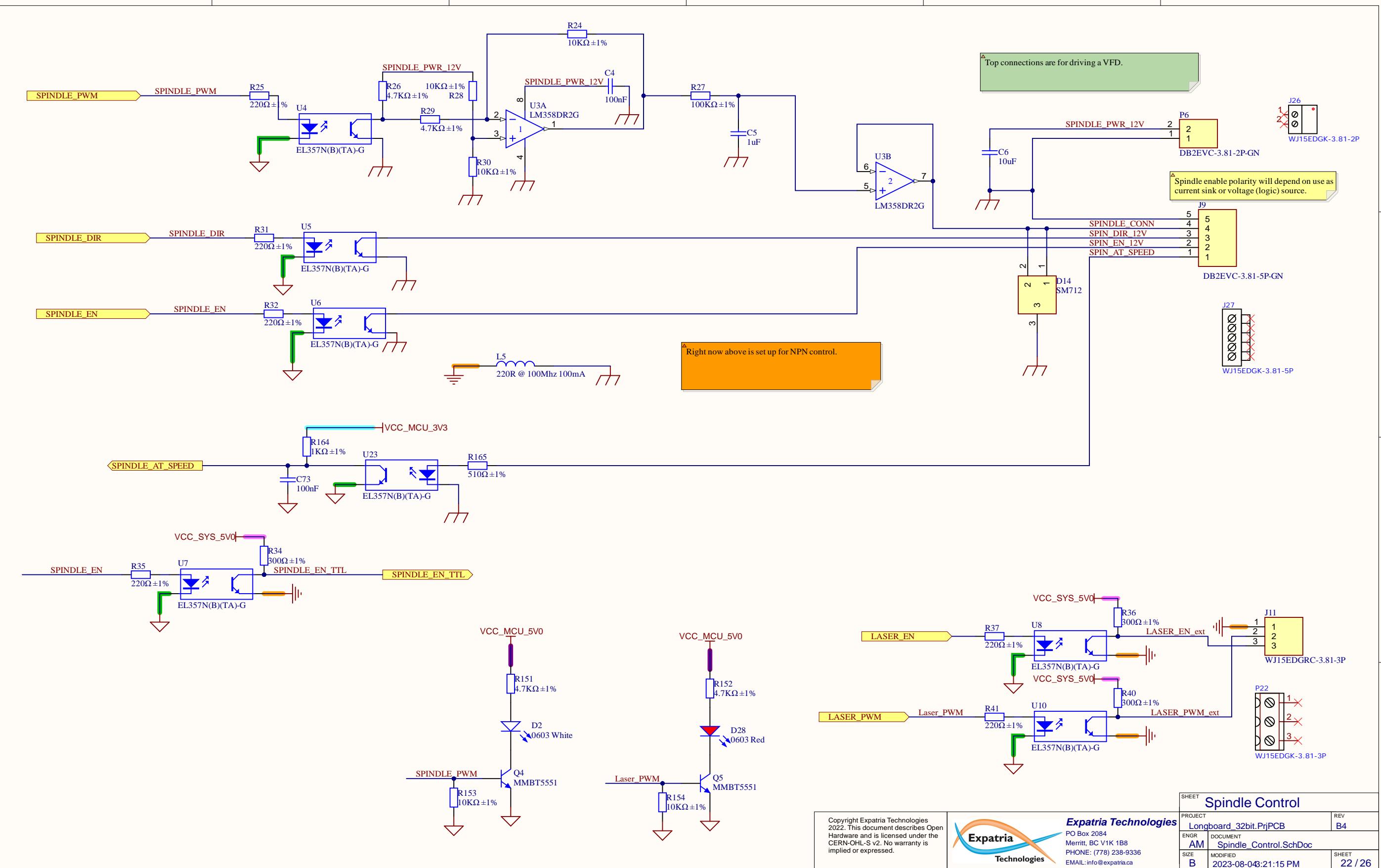


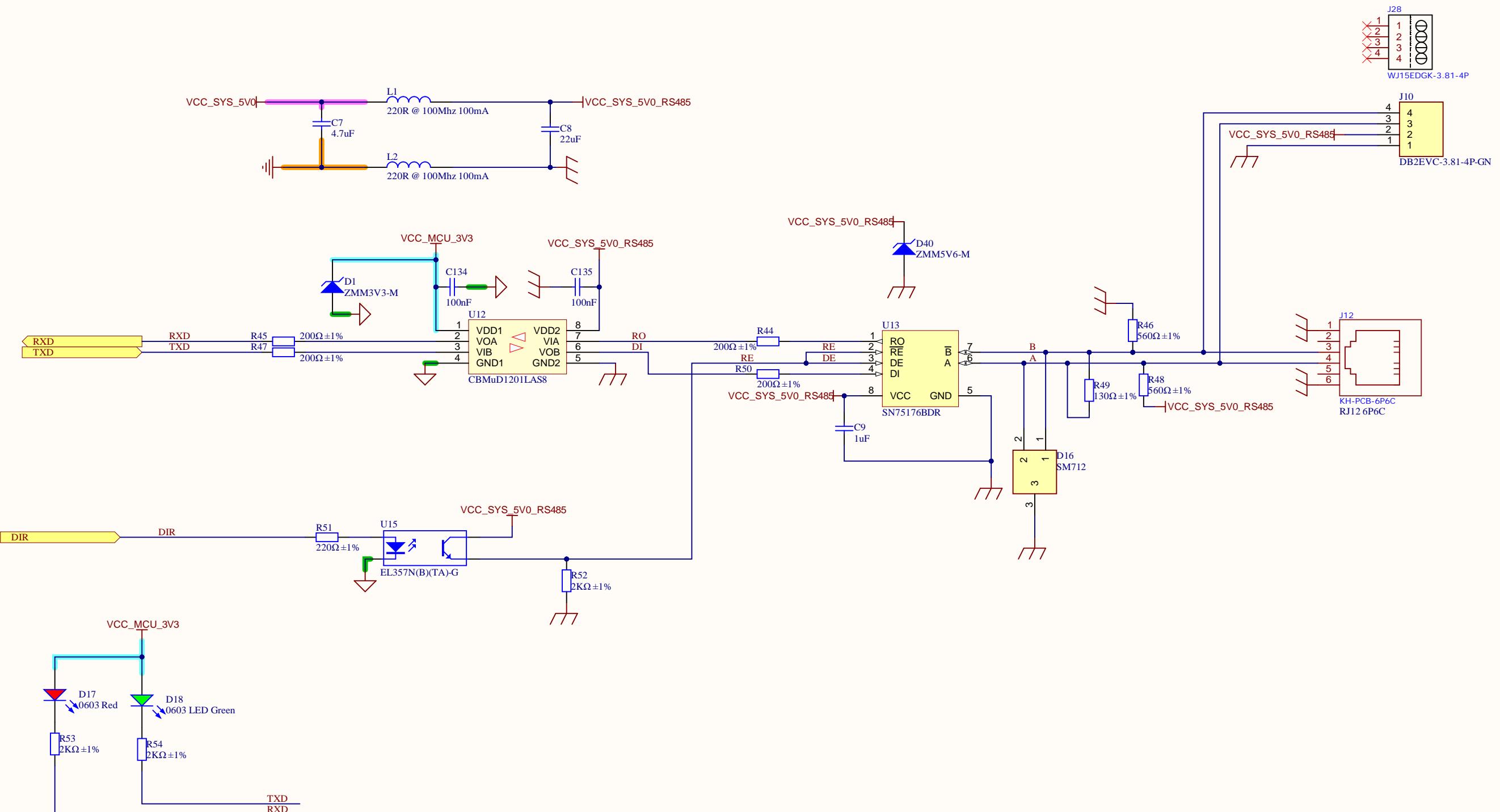
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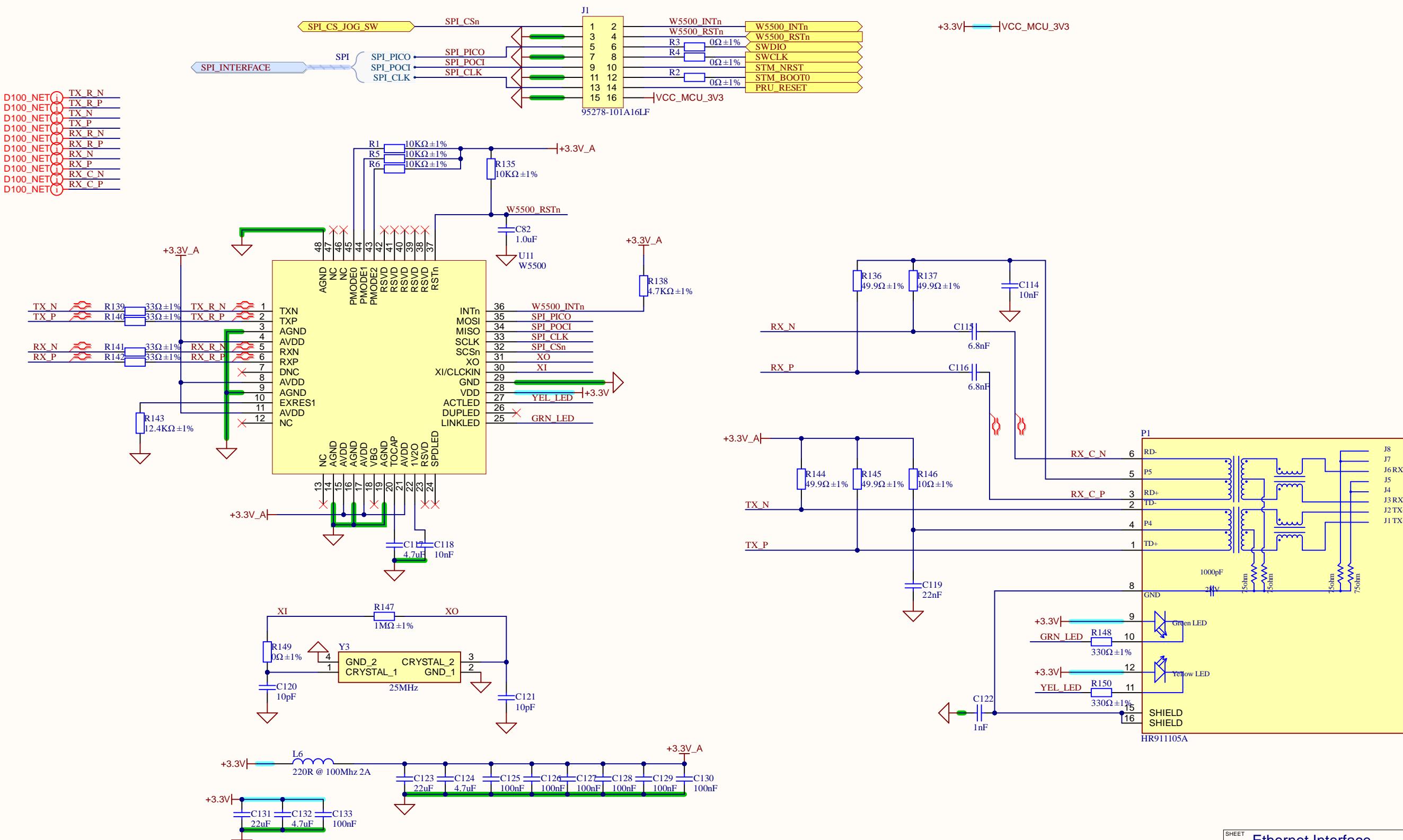


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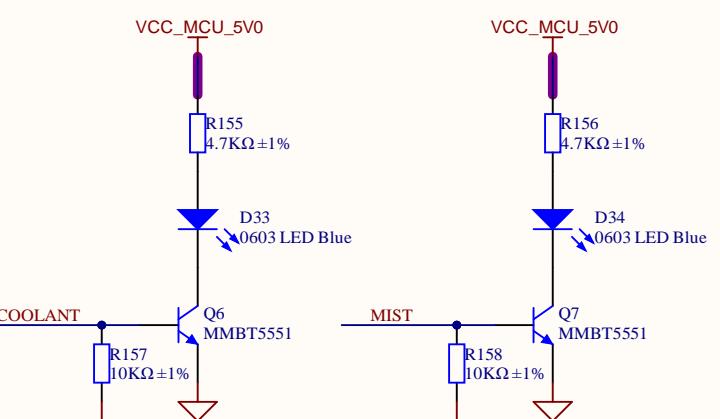
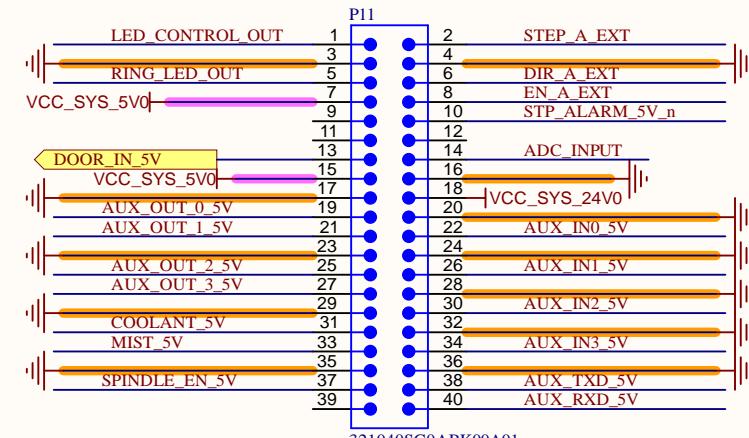
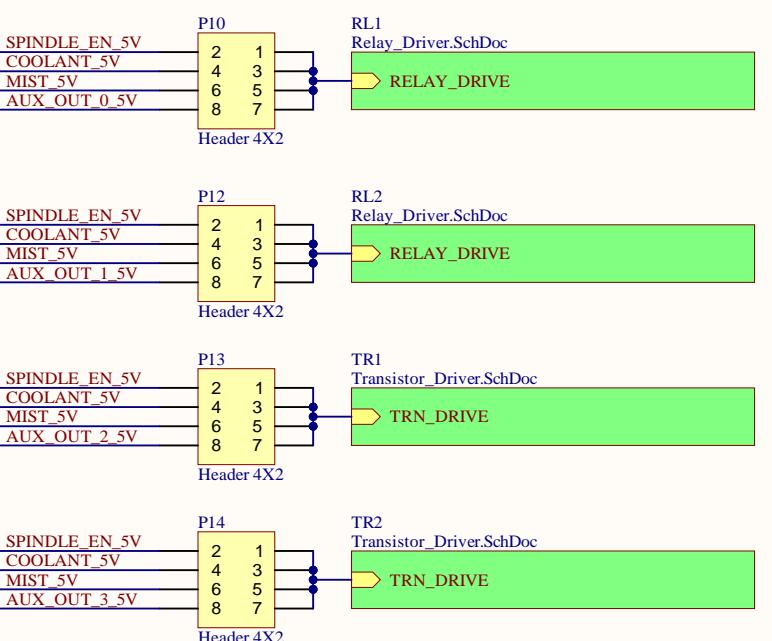
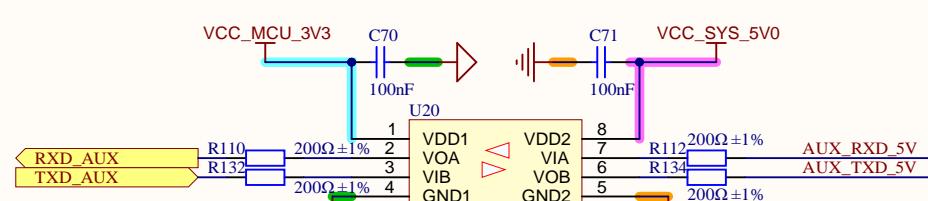
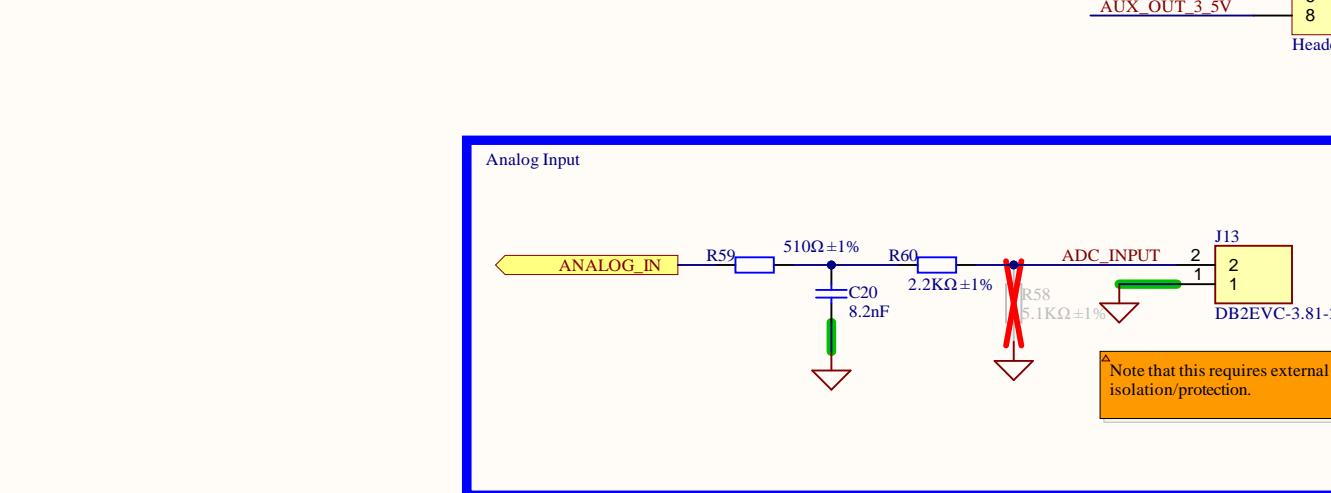
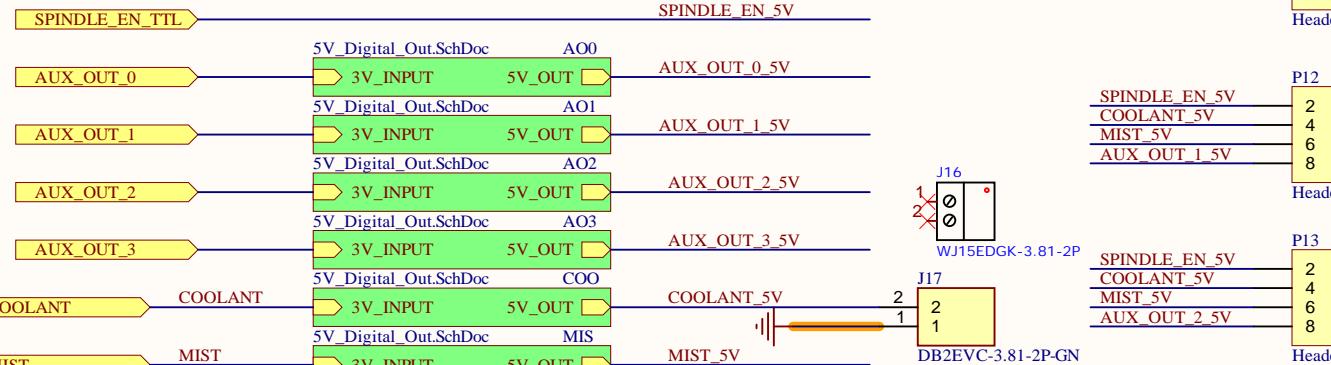
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ENGR		
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SIZE	MODIFIED	SHEET
B	2023-08-04:21:15 PM	18 / 26







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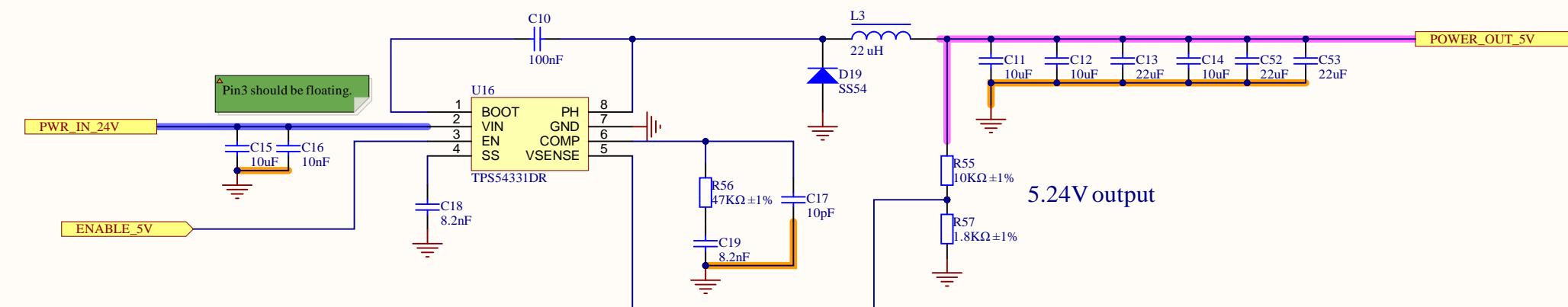
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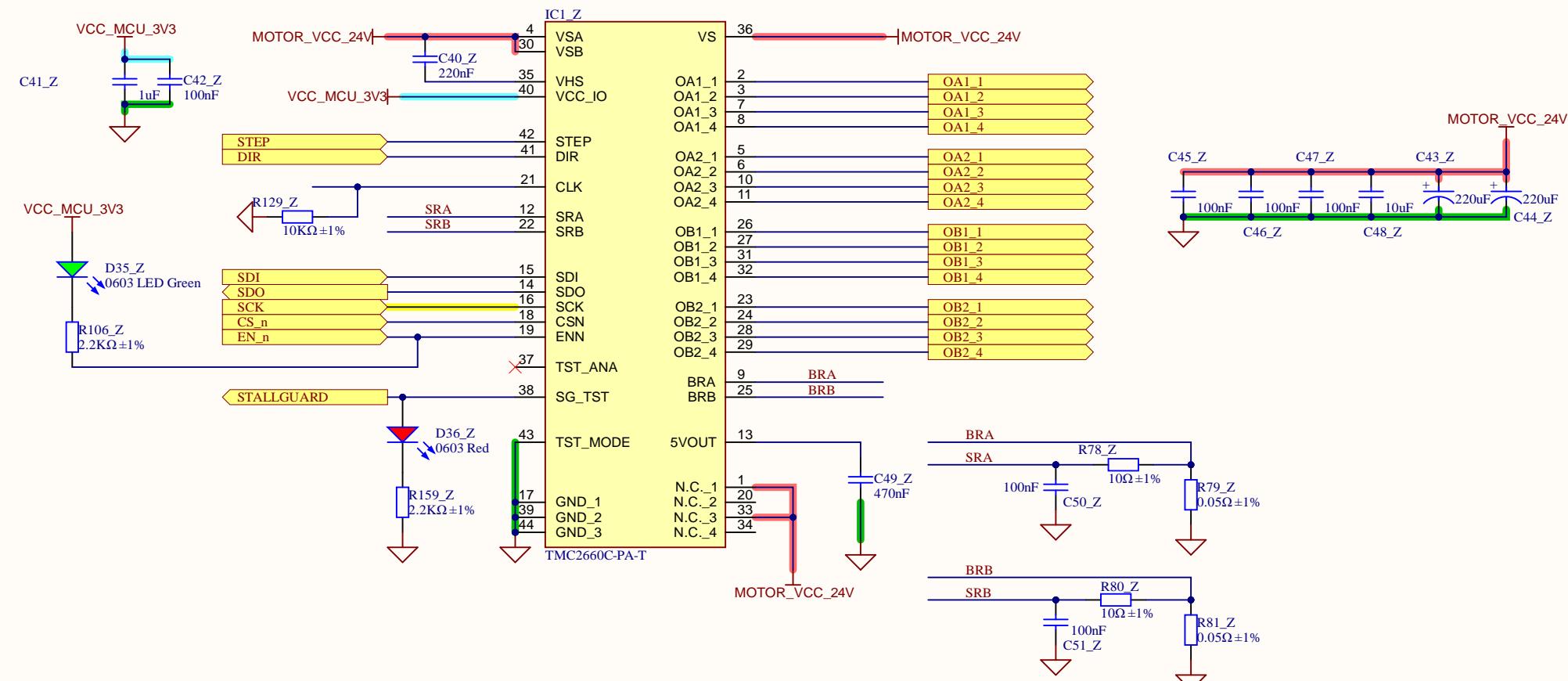
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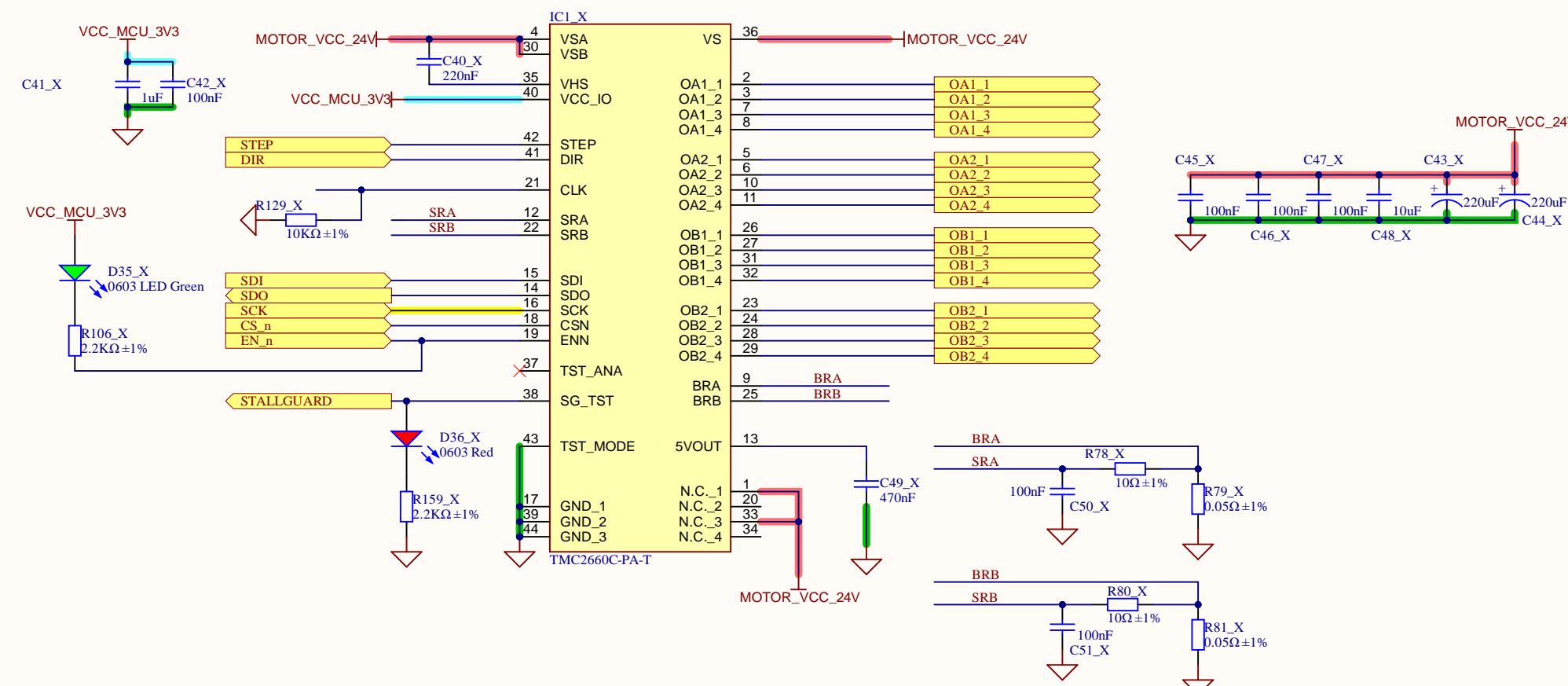
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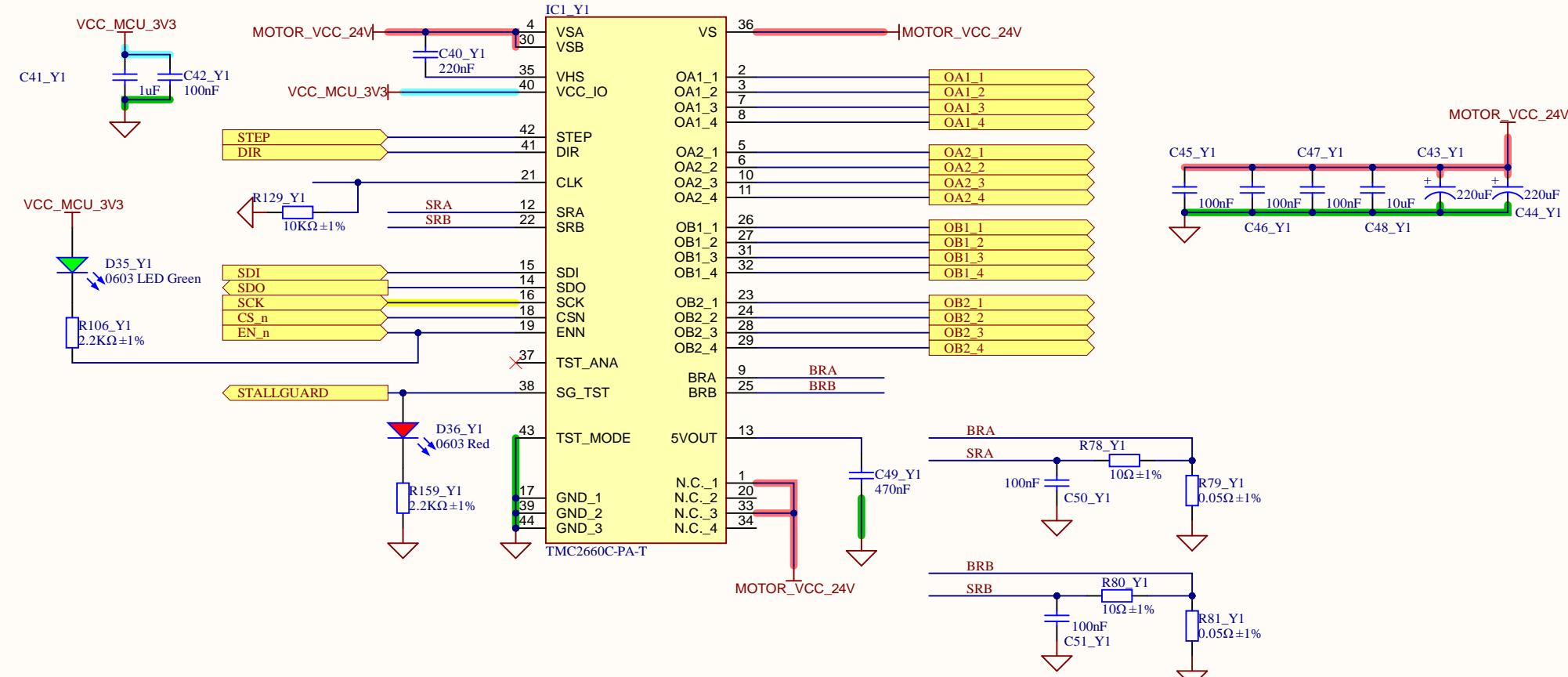
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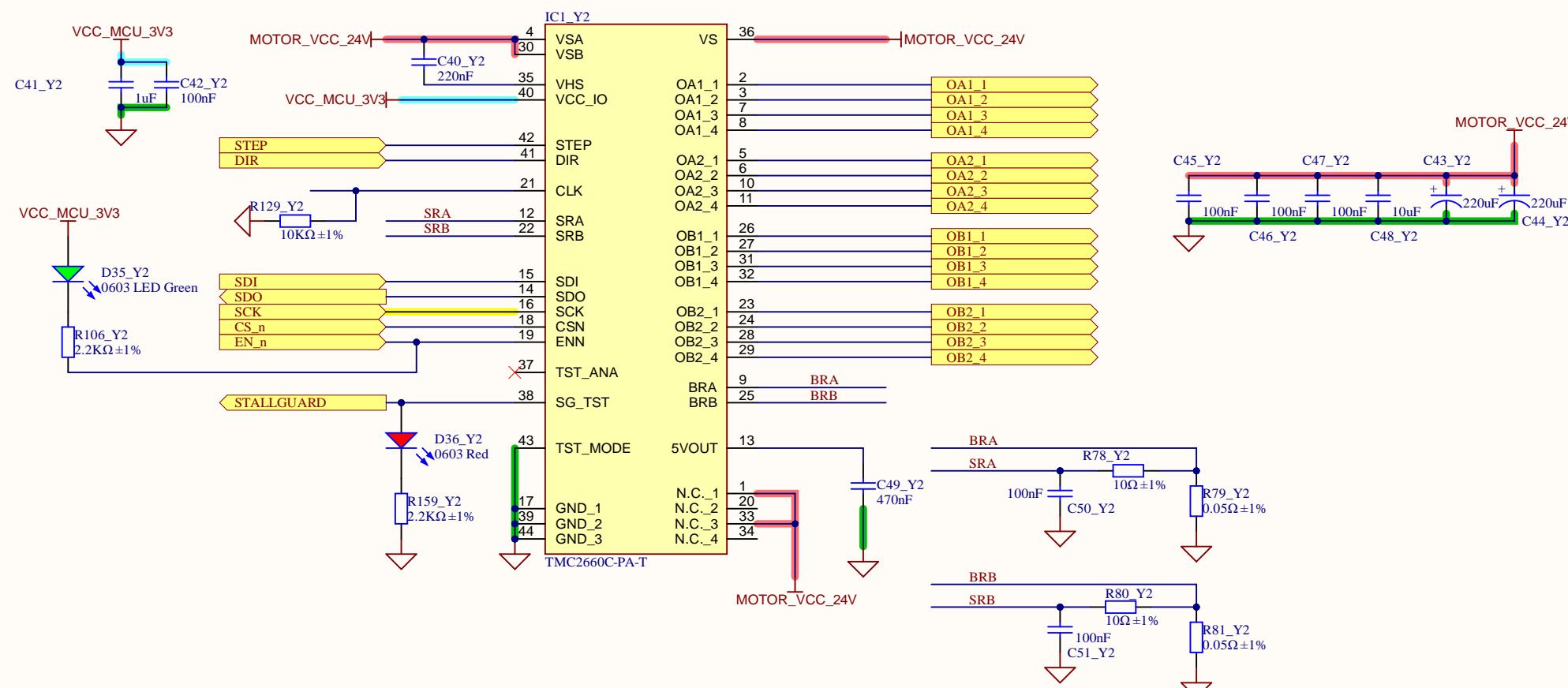






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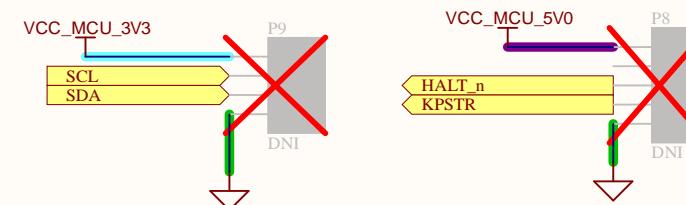
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△ Pendant is in MCU domain
HALT is active low.



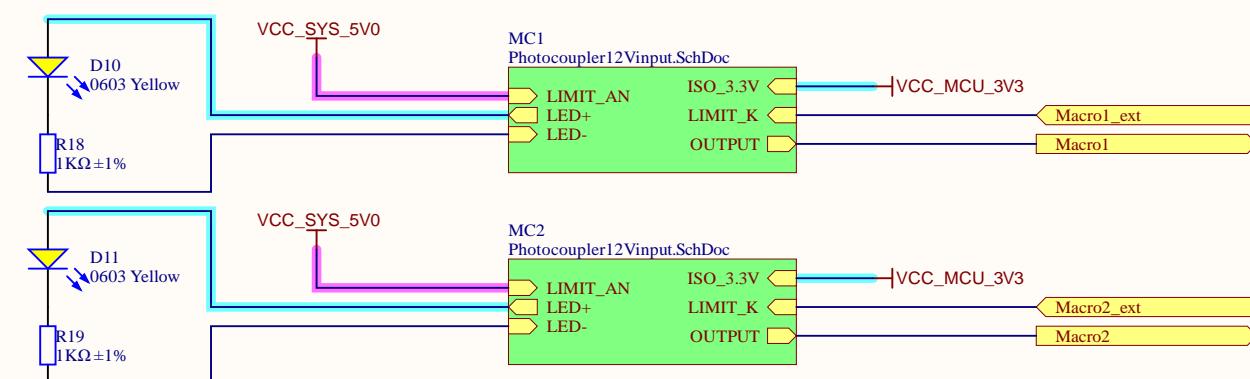
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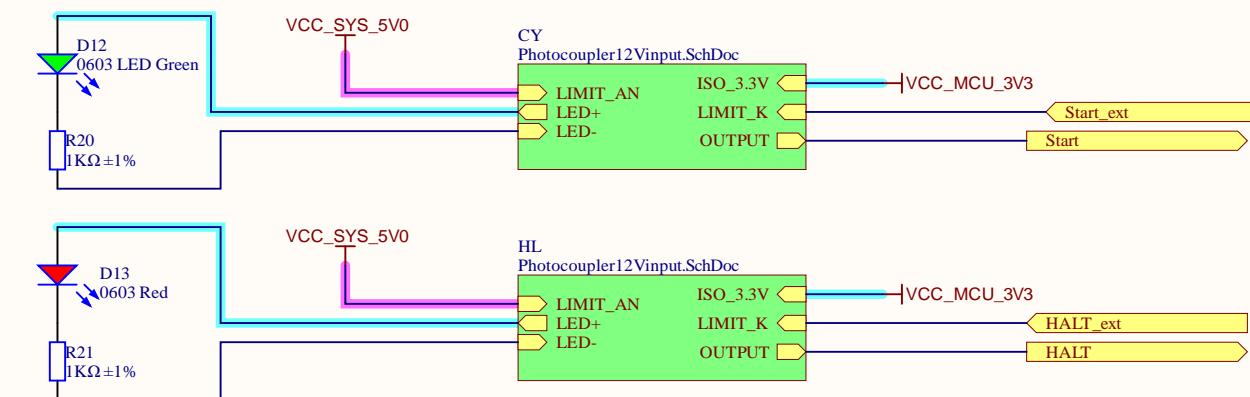
Expatria Technologies
PO Box 2084
Merritt, BC V1K 1B8
PHONE: (778) 238-9336
EMAIL: info@expatria.ca

SHEET Misc Switches		
PROJECT	DOCUMENT	REV
ENGR	AM	B4
Longboard_32bit.PrjPCB	I2C_Keypad.SchDoc	
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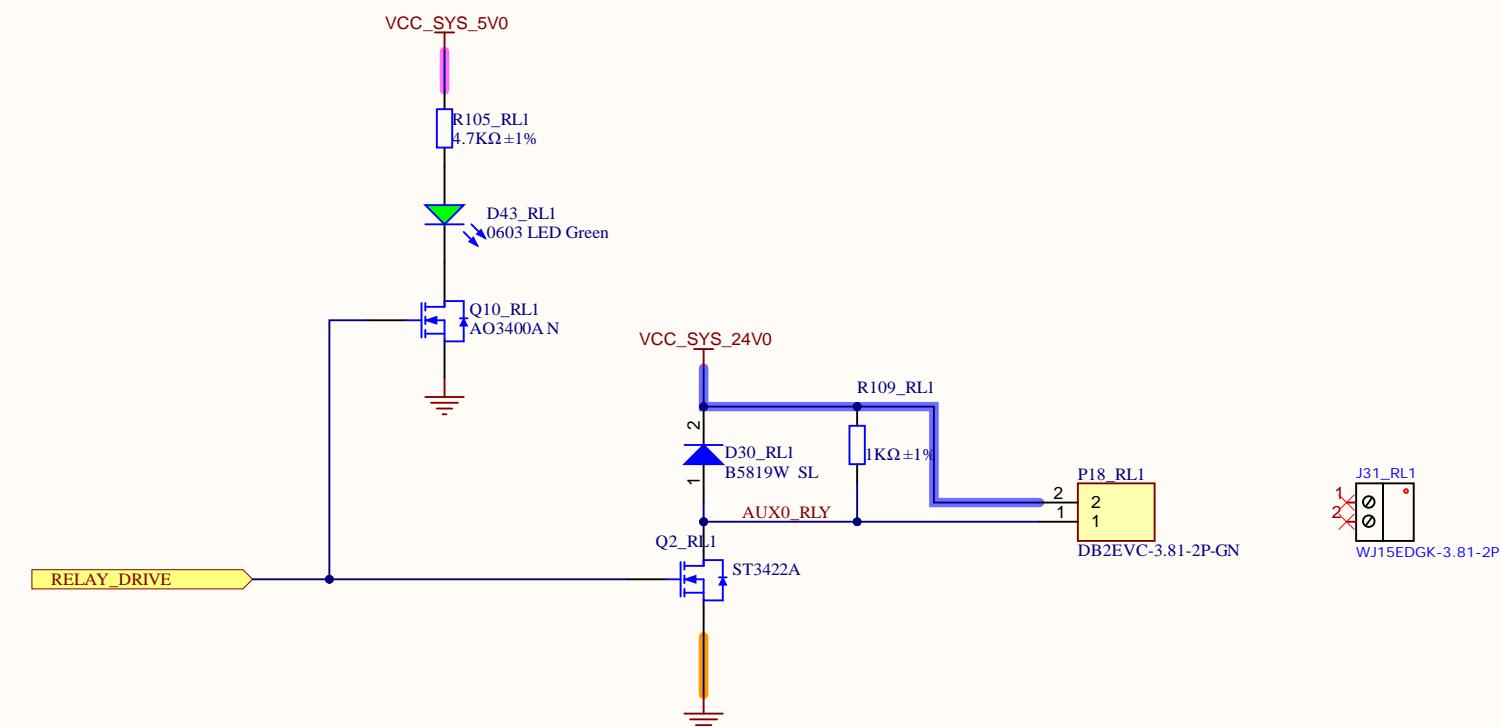
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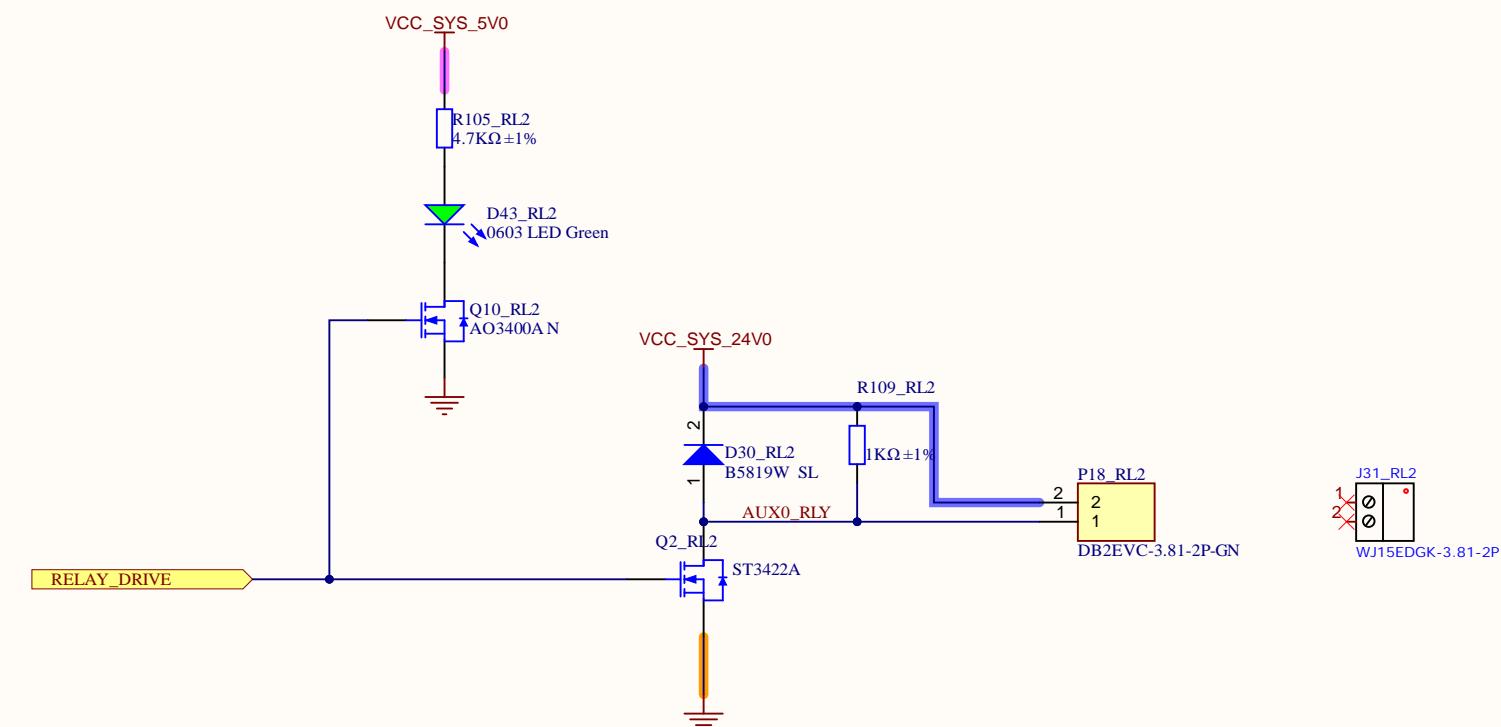


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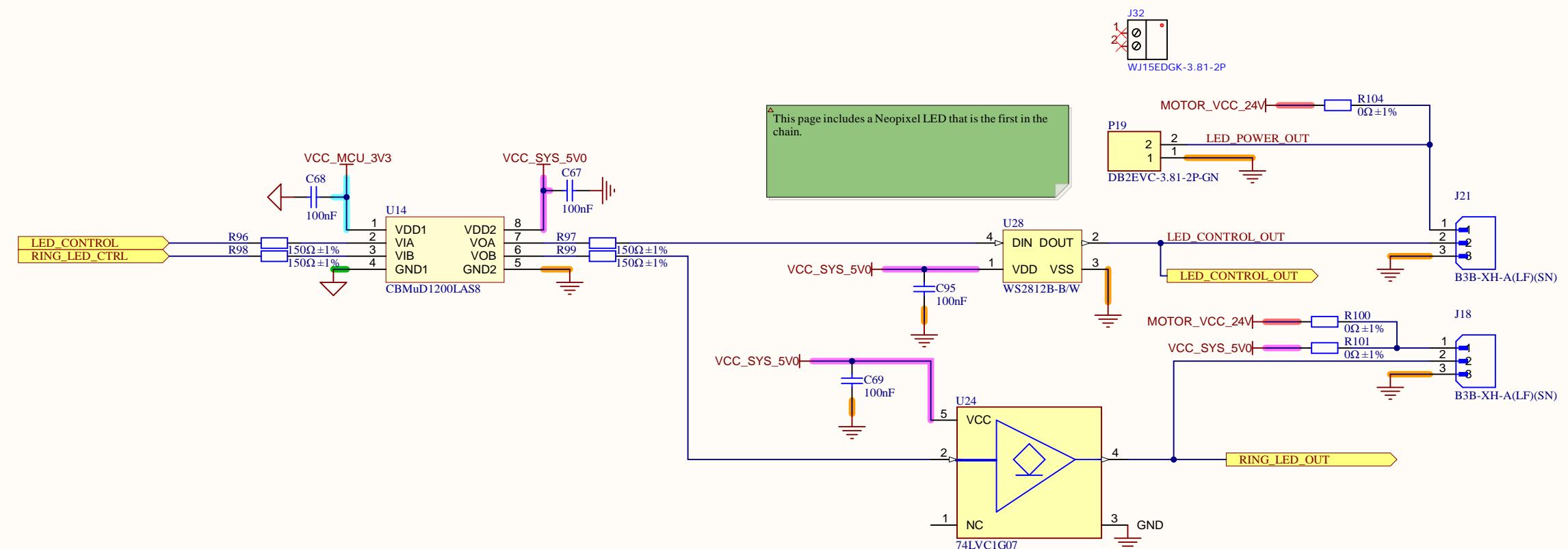
Expatria Technologies
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SHEET 1 / 26		
Relay Driver		
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ENGR	DOCUMENT	
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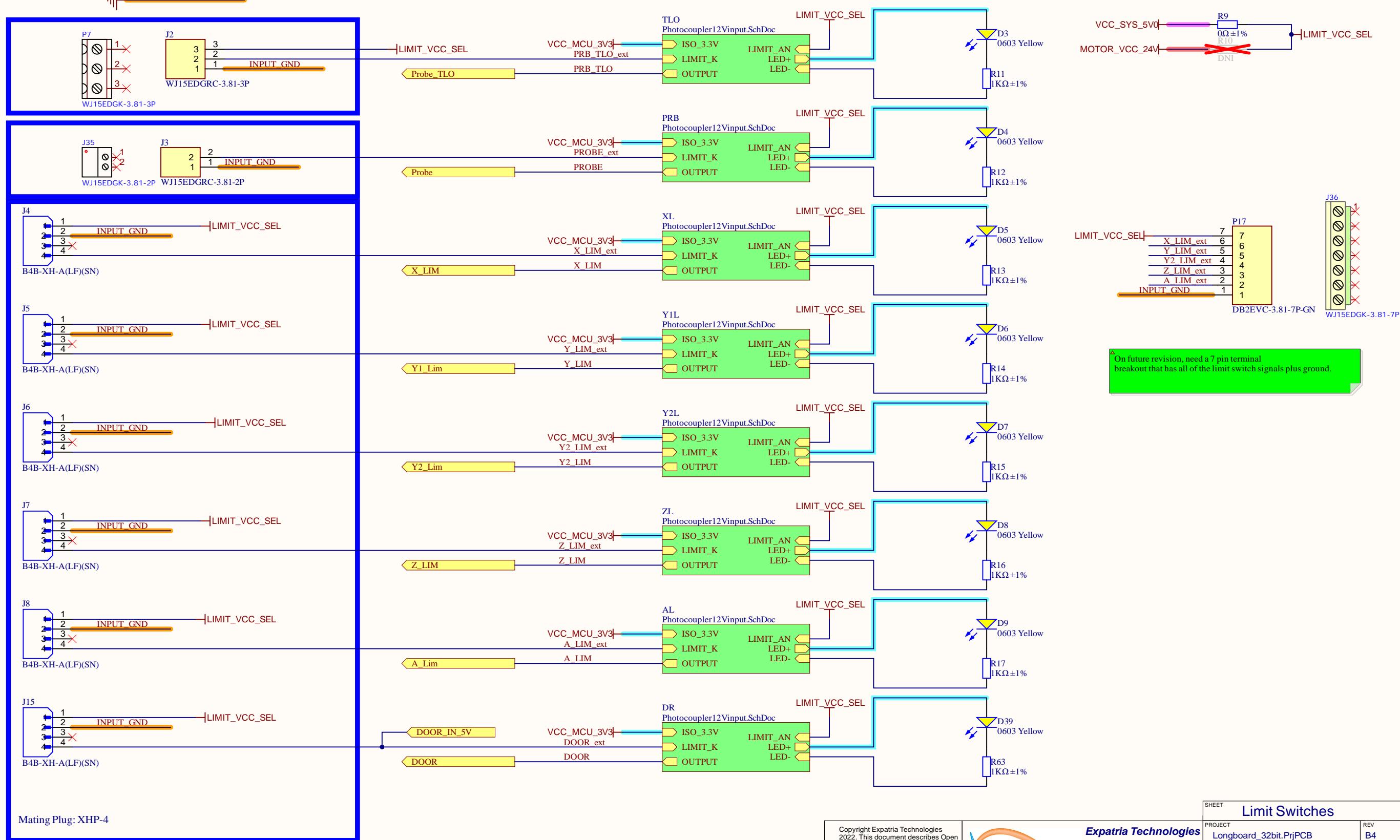
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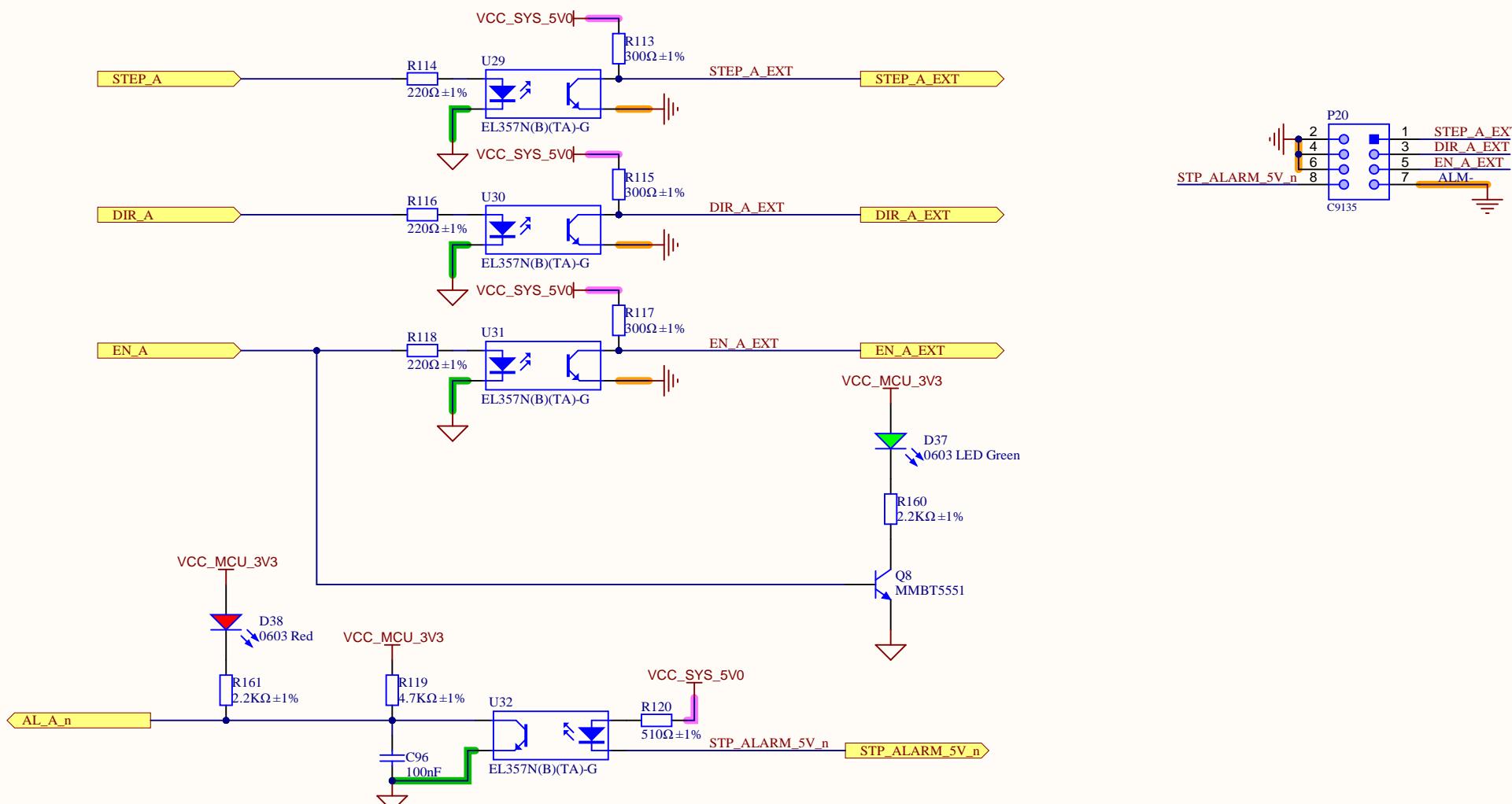


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Longboard_32bit.PrjPCB
Limit_Switches.SchDoc
EMAIL: info@expatria.ca

Limit Switches		
PROJECT	Longboard_32bit.PrjPCB	REV
ENGR	AM	DOCUMENT
SIZE	MODIFIED	SHEET
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External Stepper
Project
Longboard_32bit.PrjPCB
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SHEET 13 / 26

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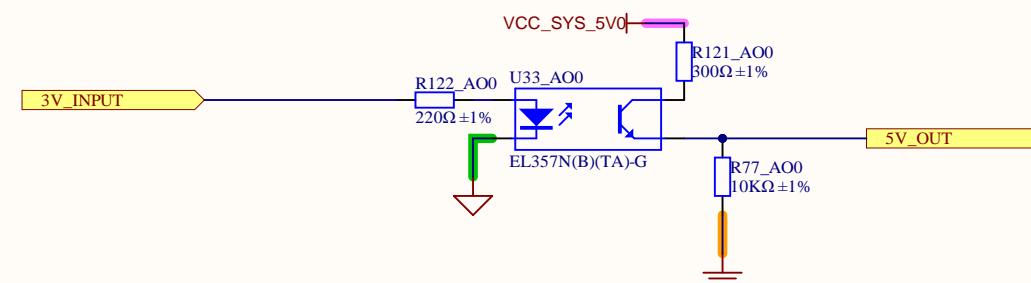
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Longboard_32bit.PrjPCB
AM 5V_Digital_Out.SchDoc

SHEET 5V Isolated Output		
PROJECT	DOCUMENT	REV
Longboard_32bit.PrjPCB		B4
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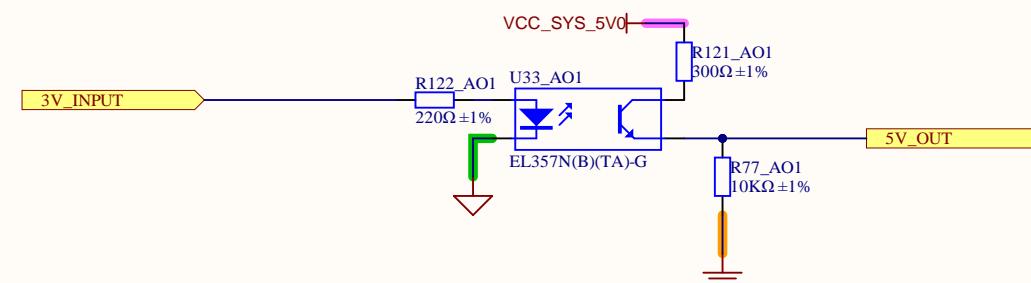
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SHEET 5V Isolated Output		
PROJECT	DOCUMENT	REV
Longboard_32bit.PrjPCB		B4
ENGR AM	5V_Digital_Out.SchDoc	
SIZE B	MODIFIED 2023-08-04:21:16 PM	SHEET 14 / 26

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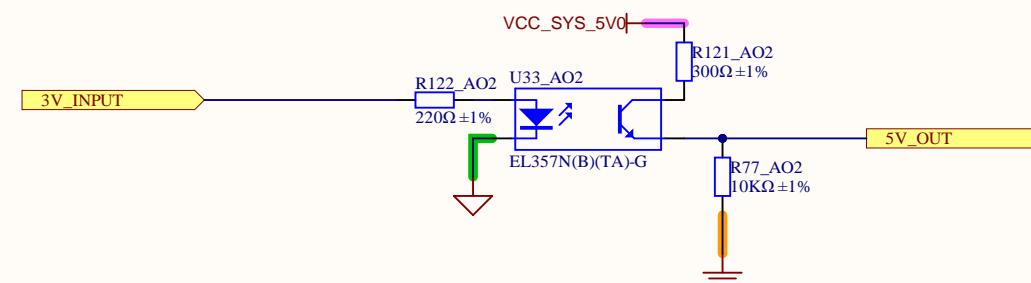
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Longboard_32bit.PrjPCB
AM 5V_Digital_Out.SchDoc

SHEET 5V Isolated Output		
PROJECT	DOCUMENT	REV
Longboard_32bit.PrjPCB		B4
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SIZE B	MODIFIED 2023-08-04:21:16 PM	SHEET 14 / 26

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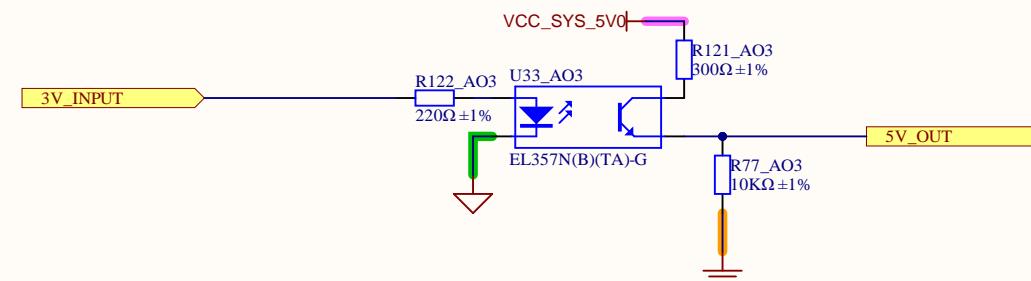
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AM 5V_Digital_Out.SchDoc

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PROJECT	DOCUMENT	REV
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SIZE B	MODIFIED 2023-08-04:21:16 PM	SHEET 14 / 26

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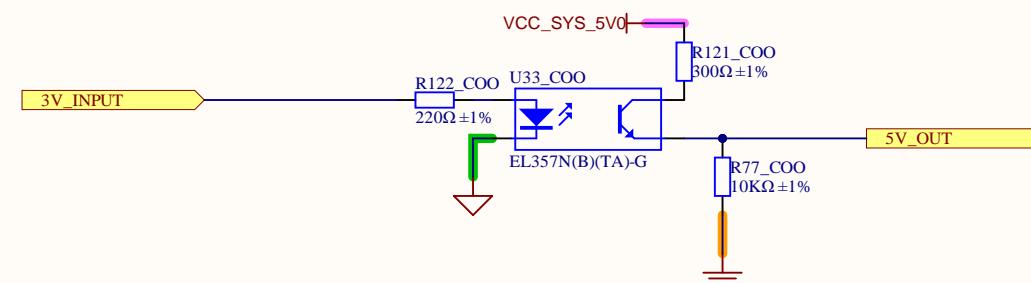
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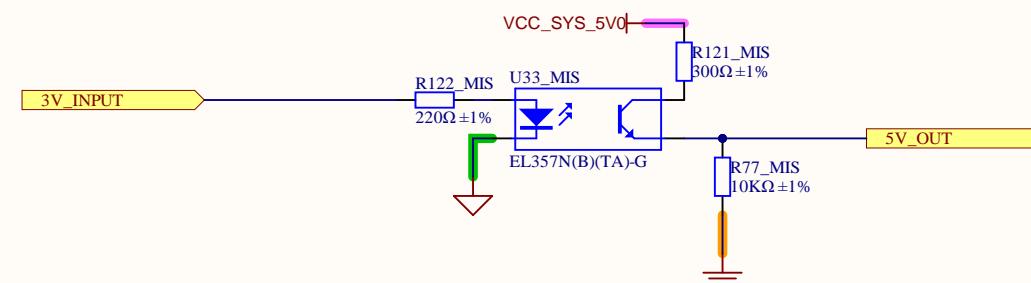
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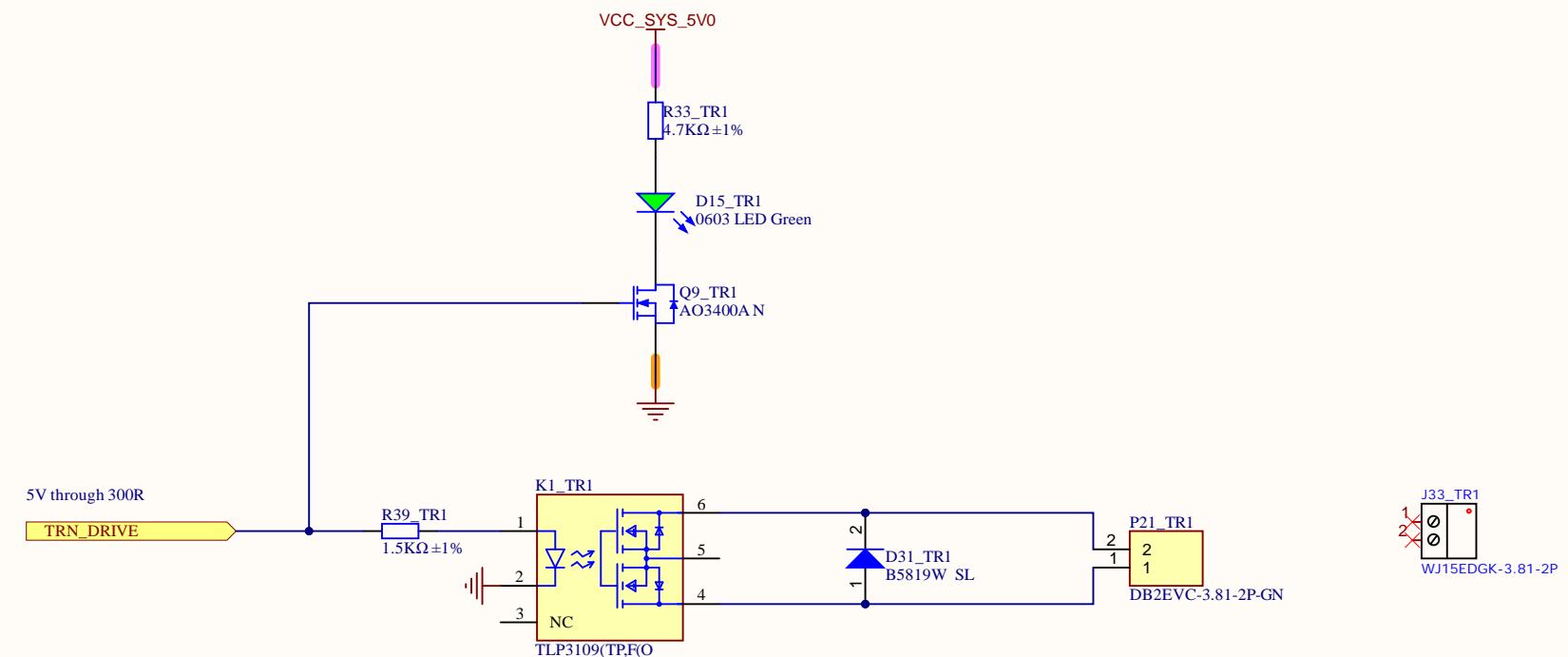


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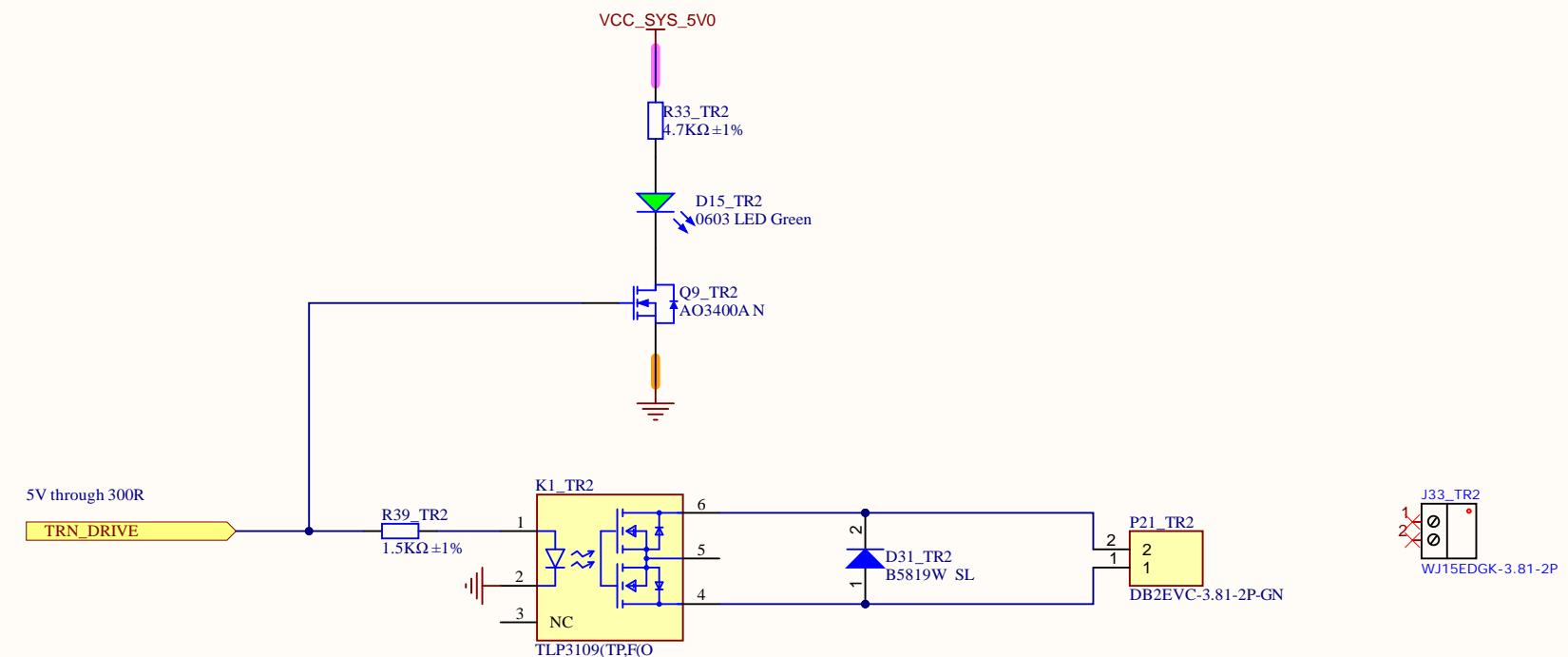


Expatria Technologies
Longboard_32bit.PrjPCB
AM Transistor_Driver.SchDoc

SHEET 1 Transistor Driver		
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ENGR	DOCUMENT	
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EMAIL: info@expatria.ca		

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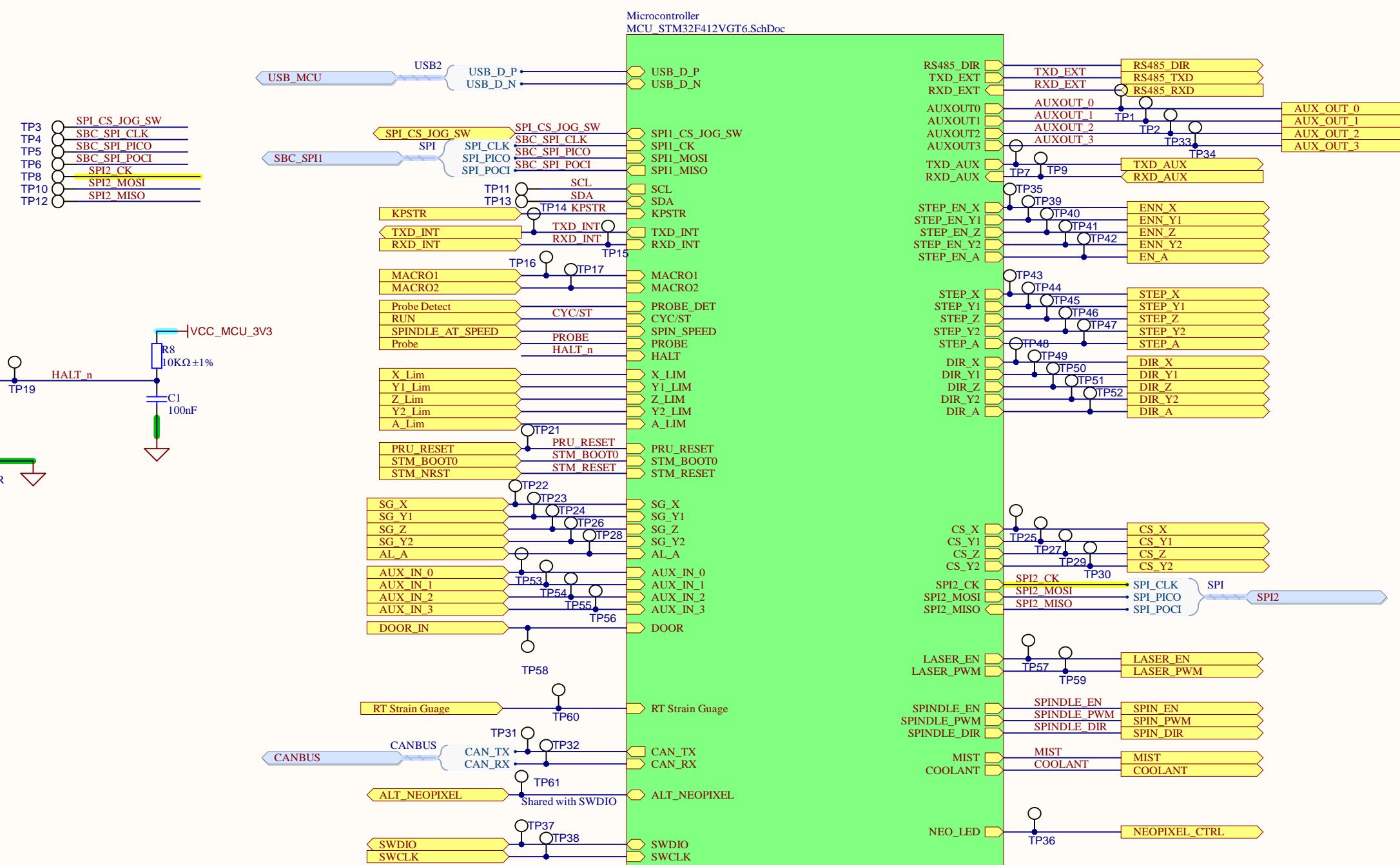
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SHEET 1 Transistor Driver		
PROJECT	DOCUMENT	REV
Longboard_32bit.PrjPCB		B4
ENGR AM	Transistor_Driver.SchDoc	
SIZE B	MODIFIED 2023-08-04:21:17 PM	SHEET 16 / 26

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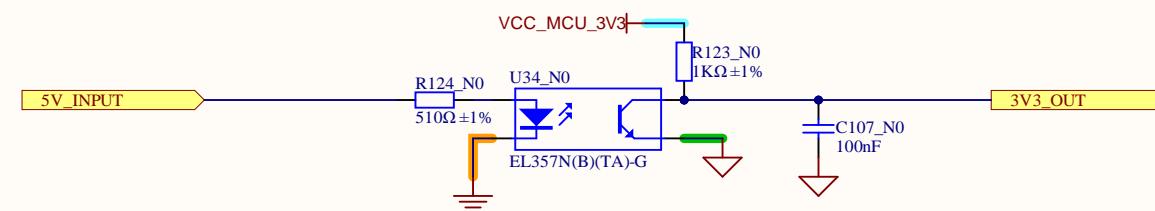
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3.3V Isolated Output		
PROJECT	DOCUMENT	REV
Longboard_32bit.PrjPCB	3V3_Digital_Out.SchDoc	B4
ENGR	AM	
SIZE	MODIFIED	SHEET
B	2023-08-04:21:17 PM	15 / 26

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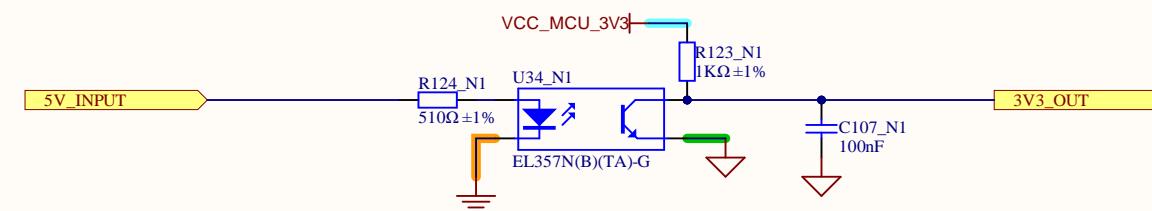
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3.3V Isolated Output		
PROJECT	DOCUMENT	REV
Longboard_32bit.PrjPCB	3V3_Digital_Out.SchDoc	B4
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SIZE	MODIFIED	SHEET
B	2023-08-04:21:17 PM	15 / 26

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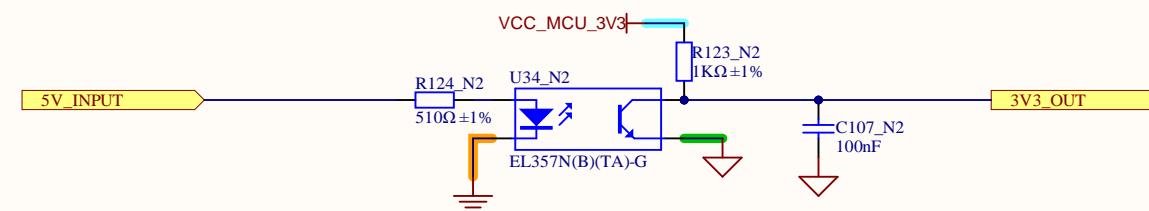
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3.3V Isolated Output		
PROJECT	DOCUMENT	REV
Longboard_32bit.PrjPCB	3V3_Digital_Out.SchDoc	B4
ENGR	AM	
SIZE	MODIFIED	SHEET
B	2023-08-04:21:17 PM	15 / 26

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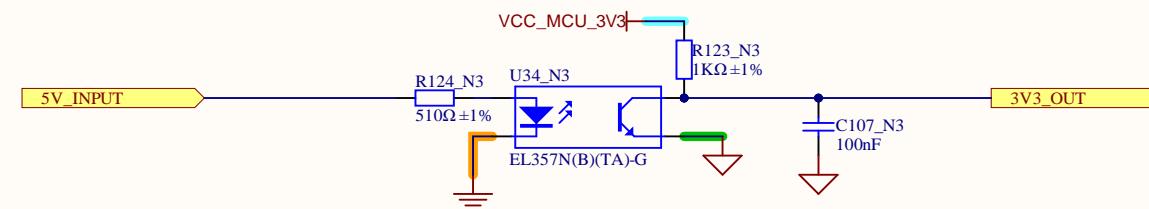
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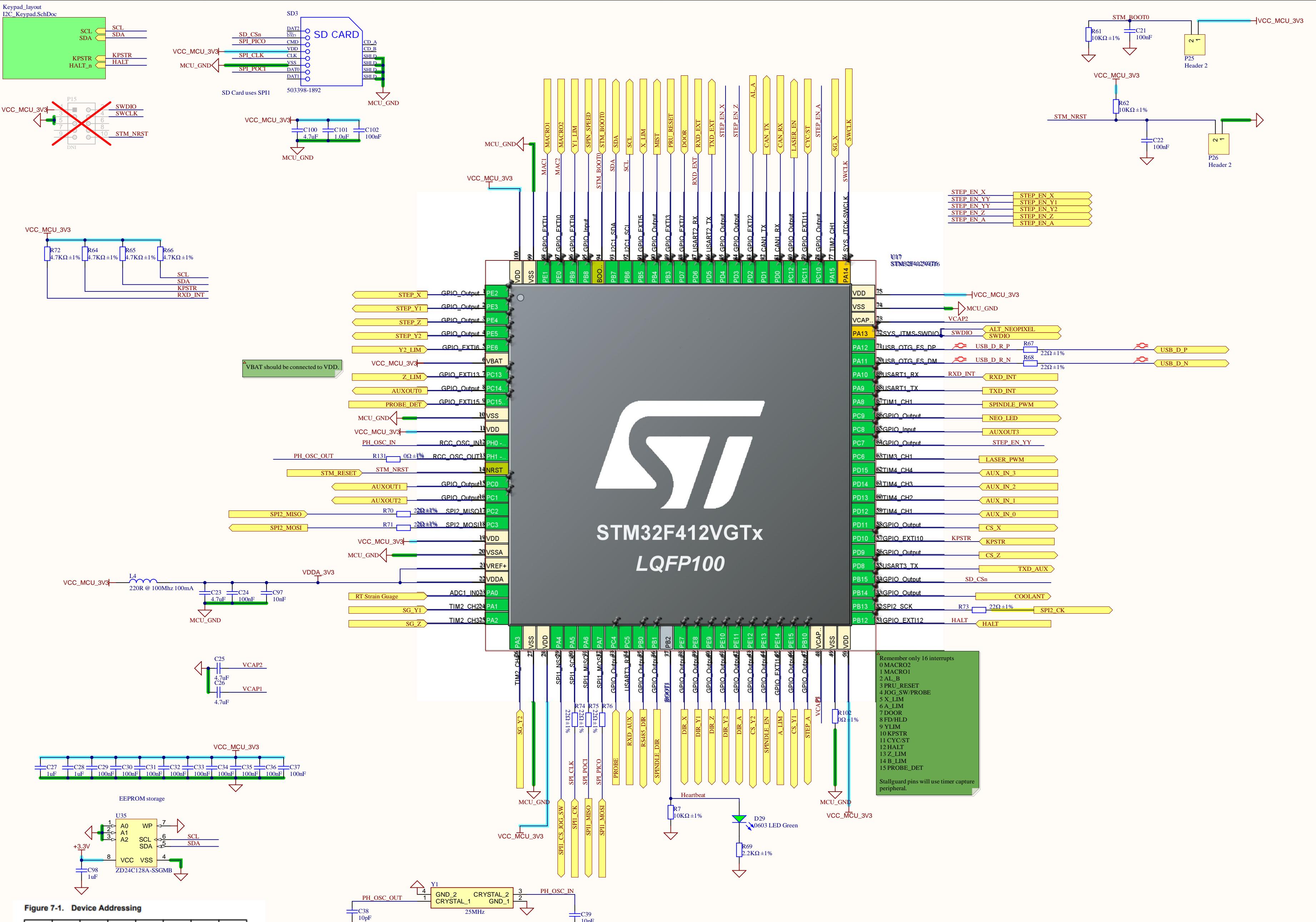


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3.3V Isolated Output		
PROJECT	DOCUMENT	REV
Longboard_32bit.PrjPCB	3V3_Digital_Out.SchDoc	B4
ENGR	AM	
SIZE	MODIFIED	SHEET
B	2023-08-04:21:17 PM	15 / 26



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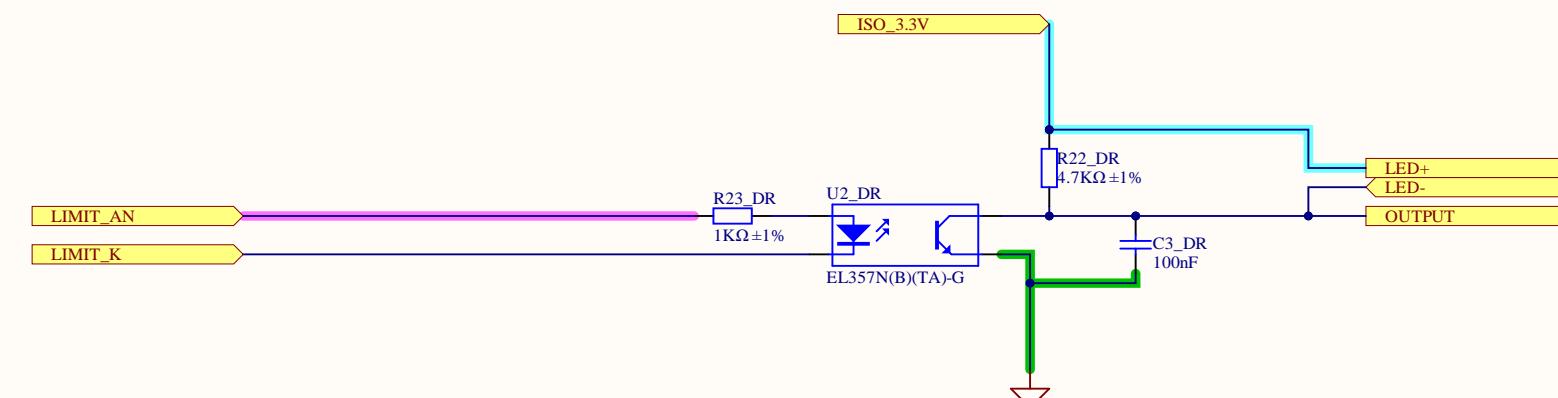
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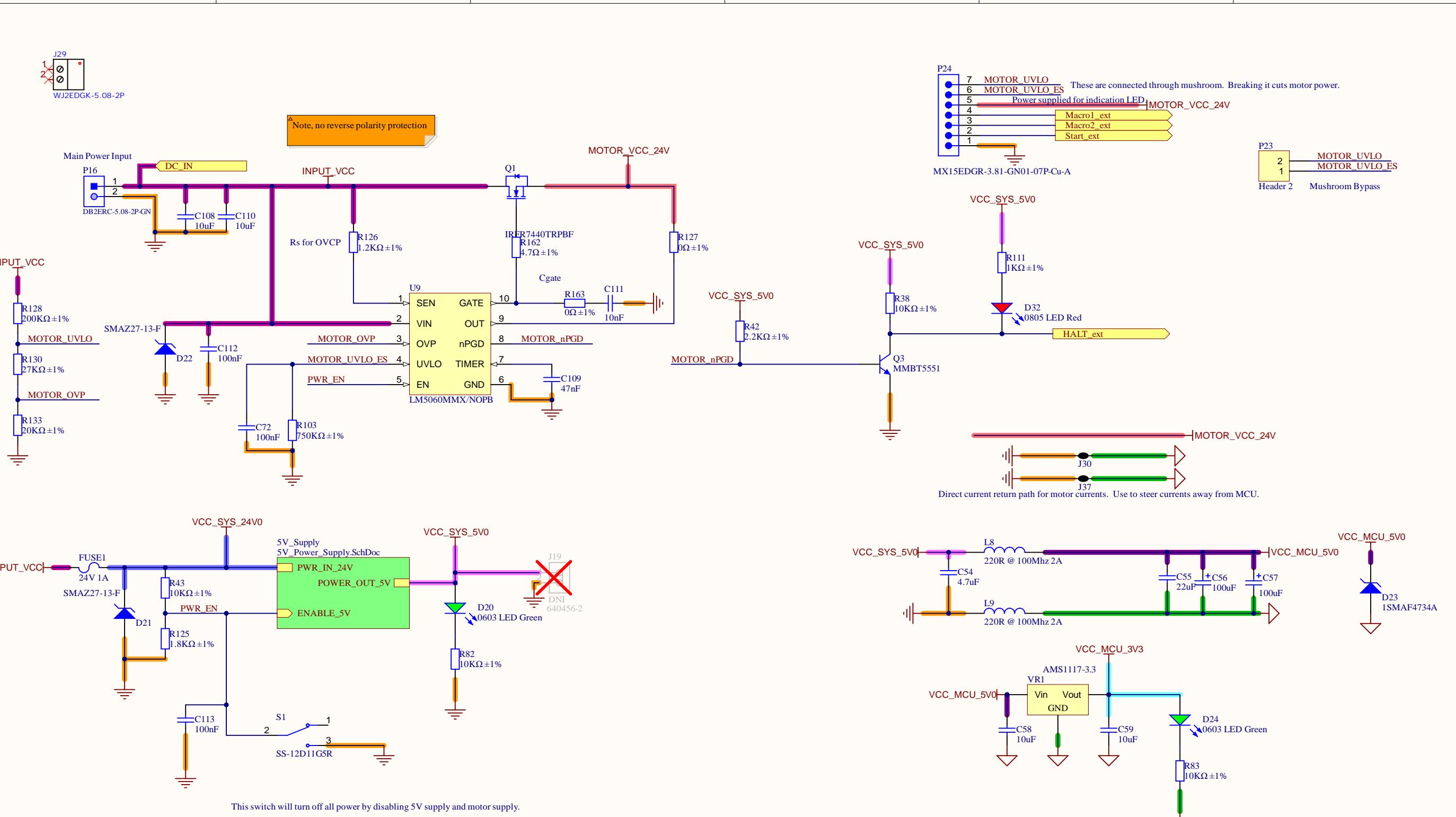


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Longboard_32bit.PrjPCB
AM Photocoupler12Vininput.SchDoc

SHEET Coupler 12V input		
PROJECT	DOCUMENT	REV
Longboard_32bit.PrjPCB		B4
ENGR AM	Photocoupler12Vininput.SchDoc	
SIZE B	MODIFIED 2023-08-04:21:17 PM	SHEET 18 / 26



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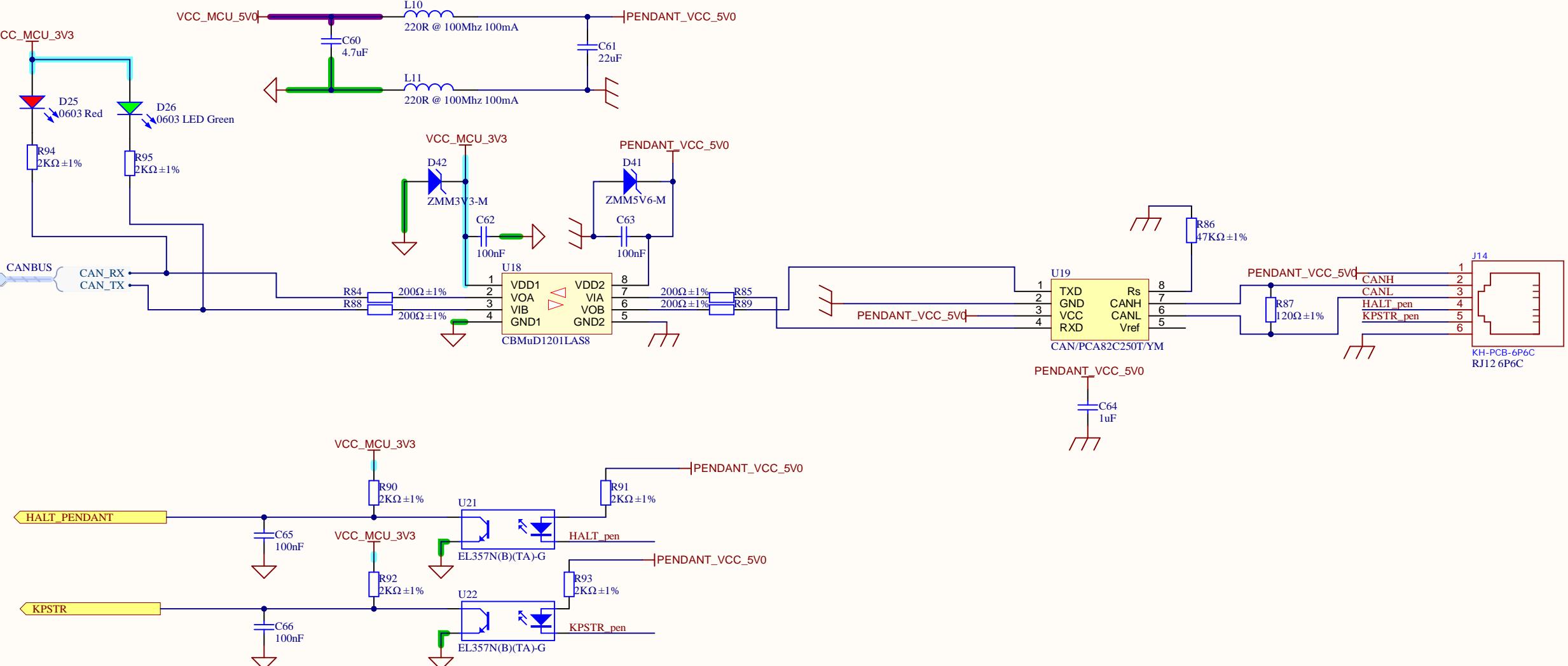
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Change Log

Date	Revision	Description
A 11/13/22	A1	Update connectors for 3.81mm and 5.08mm Update parts for BOM availability
	A2	Update parts for BOM availability Swapped connectors Replaced CM4 module with two connectors for BOM inclusion
	A3	Added A axis to aux breakout connector Connected VREF on MCU. Added test points Cleaned up block diagram Added buffer to CM4 power indicator.
B 1/2/23	A4	Update parts for availability Add L6 filter for USB Replaced J18 with ARJM11D7-502-AB-EW2 for magnetics Changed vertical DB2EVC-2.54-2P-GN to right angle DB2ERC-2.54-2P-GN Changed vertical DB2EVC-2.54-3P-GN to right angle DB2ERC-2.54-3P-GN Added matching 2.54mm plugs Change R9 to FITTED Change R10 to NOT_FITTED Changed B3B-XH-A(LF)(SN) to B4B-XH-A(LF)(SN)
	B1	Removed Compute module Fixed 5V Regulator Enable pin SL1 Fixed BOOT1 pin location SL3 Removed D22 SL4 Revised MCU Pinout SL8 Added Toggle switch Added Aux limits terminal Swapped Laser Pinout Revised spindle terminal to be RS485 Updated header pinout Changed transistor drivers to photoMOS Added 5V 2 pin flood output Added additional Neopixel drive Added net tie for motor current return path Updated EL357 resistor values
C 07/18/23	B2	Updated LED and RS485 drive to use digital isolators Added LEDs to more I/O SL28 Added additional test points SL31 Connected Ring light LED to 5V onboard supply SL32

Date	Revision	Description
07/21/23	B3	Changed programming buttons to unpopulated headers Connected BOOT0 to macro buttons so that DFU can be initiated by users Added nuclear DNI Fan header Updated rocker switch to right angle part
07/28/23	B4	Updated parts for availability

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SHEET 1 Change Log		
PROJECT	REV	
Longboard_32bit.PrjPCB	B4	
ENGR	DOCUMENT	
AM	Change Log.SchDoc	
SIZE	MODIFIED	SHEET
B	2023-08-04:21:18 PM	26 / 26

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