

Quadcopter

SCHEMATIC STATUS: **RELEASED**

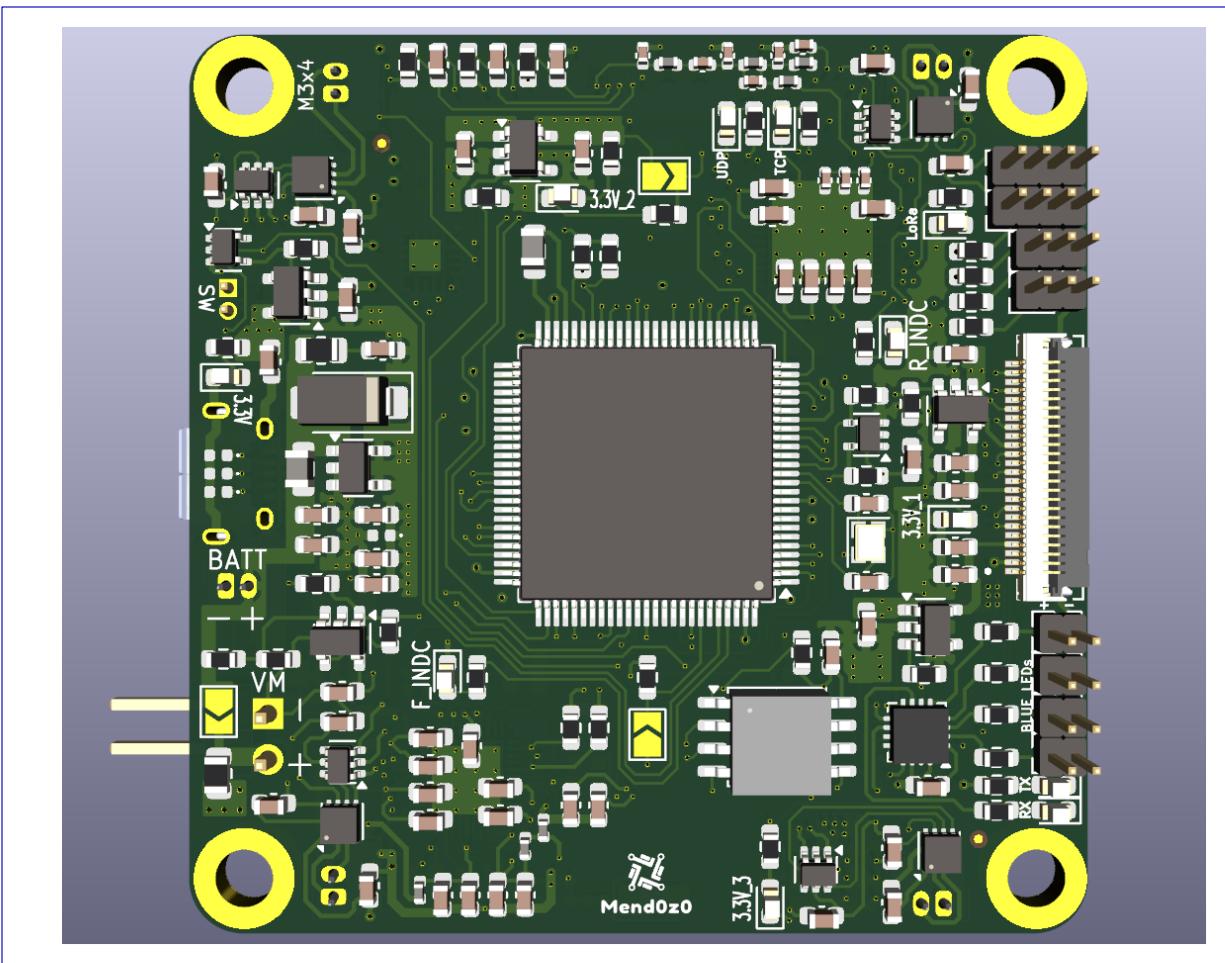
Page	Index
1	COVER PAGE FBD_Quadcopter
2	FBD_QCOPPER File: [02] - FBD_Quadcopter.kicad_sch
3	FBD_FlightController
4	FBD_RadioController
5	FBD_PowerSupply
6	Debug UART (FCTRL)
7	Battery Voltage Sampler
8	GPIO Expander
9-11	PI4IOE5V9554 Driver
12	ICM-20948 Driver

Page	Index
13	BME280 Driver
14	LEDs Driver
15-18	CHASSIS LED Driver
19	W25Q64 Driver
20	OV2640 Driver
21	Motor Driver
22-25	DRV8837 Driver
26	STM32WLE5 Driver
27	DEBUG UART (RCTRL)
28	Antenna Driver

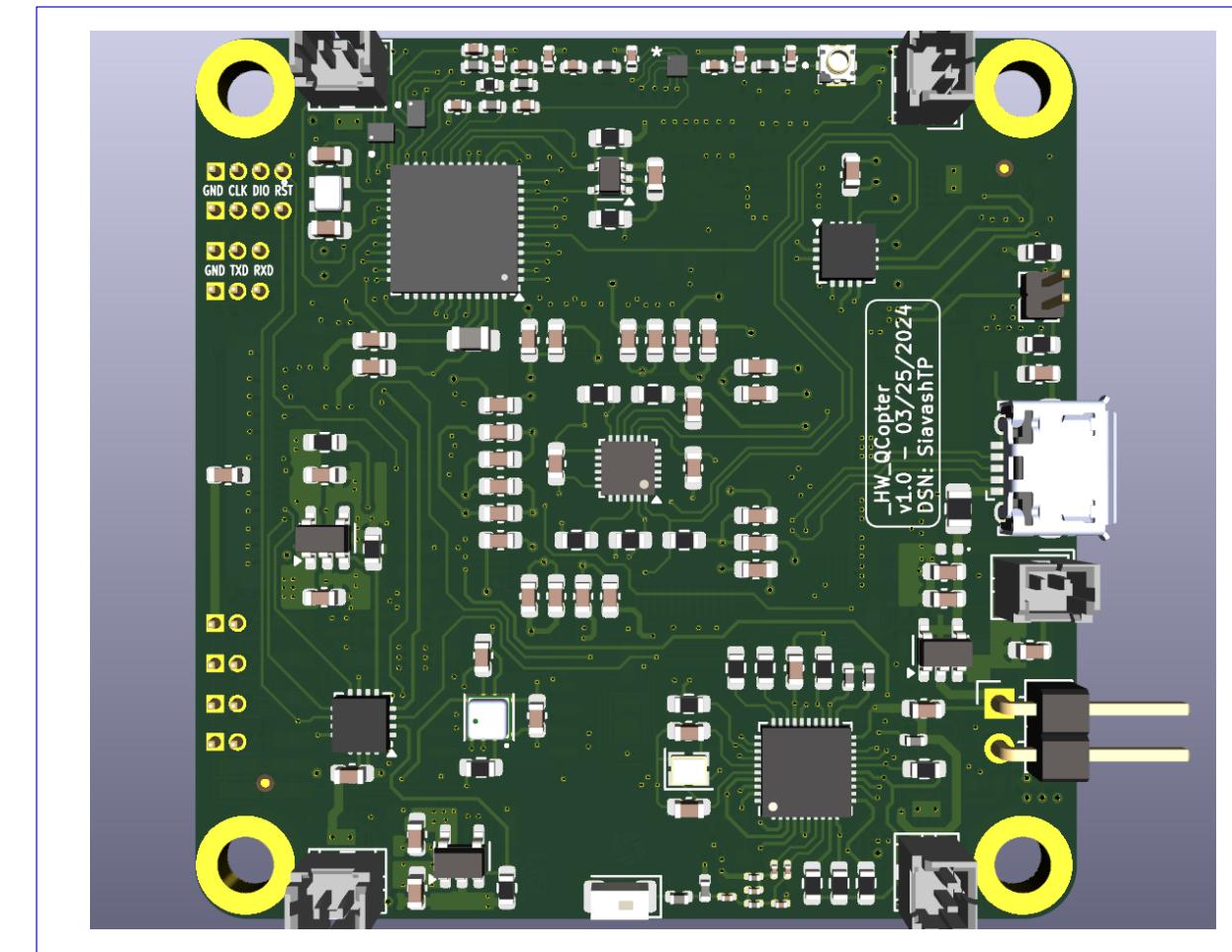
01
2024-03-27
VARIANT: N/A

Page	Index
29	Activity LEDs Driver
30	ATWILC1000C Driver
31	BATTERY CHARGER
32	SMPS DCDC BOOST +5VDC
33-36	LDO +3V3 MECHANICAL PARTS File: [03] - MECHANICAL_PARTS.kicad_sch
37	MECHANICAL PARTS File: [04] - Power Sequence.kicad_sch
38	PWR SEQUENCE File: [04] - Power Sequence.kicad_sch
39	REVISION HISTORY File: [05] - Revision History.kicad_sch

3D Preview TOP



3D Preview BOTTOM



RELEASED

TEMPLATE NOTES

Set Project Parameters

- 1 Go to View -> Pge Preview Setting
- 2 Set Parameters based on the following Info
COMMENT 1: Project Version
COMMENT 2: Document Status
COMMENT 3: Doc. Approval Eng.
COMMENT 4: BOM Ref. DOC.
COMMENT 5: PCB Ref. DOC.
COMMENT 6: GBR Ref. DOC.
COMMENT 7: ASM Ref. DOC.
COMMENT 8: Variant Name
COMMENT 9: Revision Description

Symbols and Labels

Mark Not Fitted Components as --> **DNF**
Differential Signal Example
Net Class Example

SCHEMATIC STATUS:

- | | |
|-------------|---|
| DRAFT | - Very Early Stage of Schematic |
| PRELIMINARY | - Close to Final Schematic |
| CHECKED | - There Should Not Be Any Mistakes |
| RELEASED | - A Board with This Schematic Has Been Produced |

DESIGN CONSIDERATION

INFO: Example text for informational design notes.	CAUTIONARY: Example text for cautionary design notes.	DESIGN NOTE: Example text for critical design notes.	LAYOUT NOTE: Example text for critical layout guidelines.
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Board Statistics Stackup Info

SPCB statistics report			

- Date: 3/27/2024 6:51:29 PM			
- Project: _Sub_HW_Qcopter			
- Board name: _Sub_HW_Qcopter			
Board			

- Width: 1964.57 mils			
- Height: 1964.57 mils			
- Area: 3847527.92 mils ²			
Pads			

- Through hole: 105			
- SMD: 1021			
- Connector: 8			
- NPTH: 0			
Vias			

- Through vias: 421			
- Blind/buried: 0			
- Micro vias: 0			
Components			

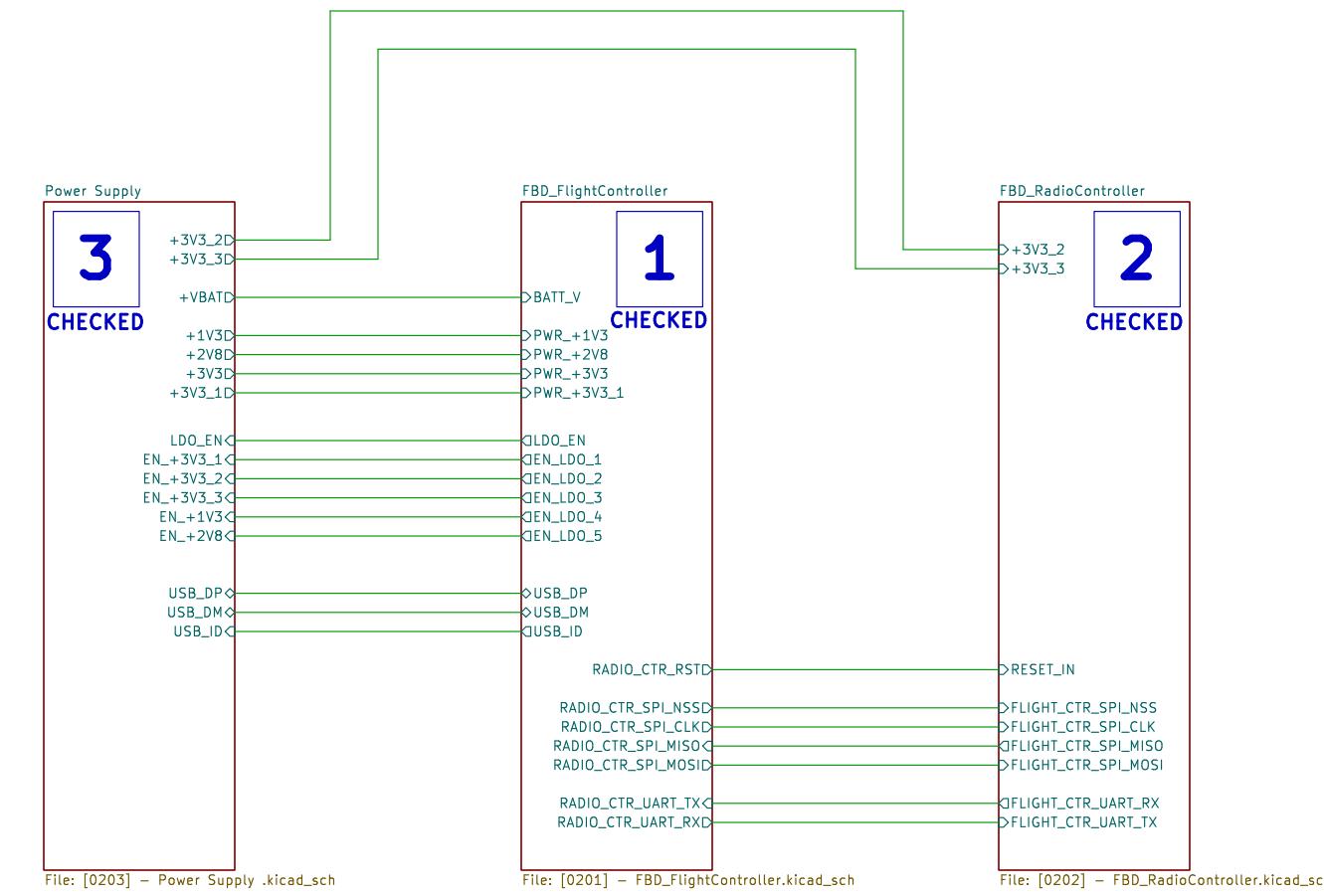
Front Side Back Side Total			
The: 154 119 273			
Unspecified: 8 0 8			
Total: 170 126 296			
Layer Stackup			
Layers: 6 Thickness: 1.6 Outer Copper Weight: 1 Inner Copper Weight: 0.5			
No requirement JLC06161H-3313 JLC06161H-7628 JLC06161H-1080			
JLC06161H-2116A JLC06161H-3313A JLC06161H-1080B			
Layer Material Type Thickness			
Prepreg 3313*1 Copper 0.035mm			
Inner Layer Copper 0.0152mm			
Core Core 0.55mm			
Inner Layer Copper 0.0152mm			
Prepreg 216*1 Copper 0.108mm			
Inner Layer Copper 0.0152mm			
Core Core 0.55mm			
Inner Layer Copper 0.0152mm			
Preprep 3313*1 Copper 0.0994mm			
Layer Copper 0.035mm			

Close Confirm			

APPROVALS	DATE	PROJECT:	Mendozo		
ENG: Sivash Taher Parvar	2024-03-27	Quadcopter	PRJ VER: 01	DOC VER: 01	DOC REV: 01
DSN: Sivash Taher Parvar	2024-03-27		TITLE: Root		
CHK: Sivash Taher Parvar	2024-03-27				
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BOM Ref. DOC.:					
PCB Ref. DOC.:					
GBR Ref. DOC.:					
ASM Ref. DOC.:					
SHEET 1 OF 40	SIZE: C	SCALE: 1:1	VARIANT NAME: N/A		

FBD_Quadcopter

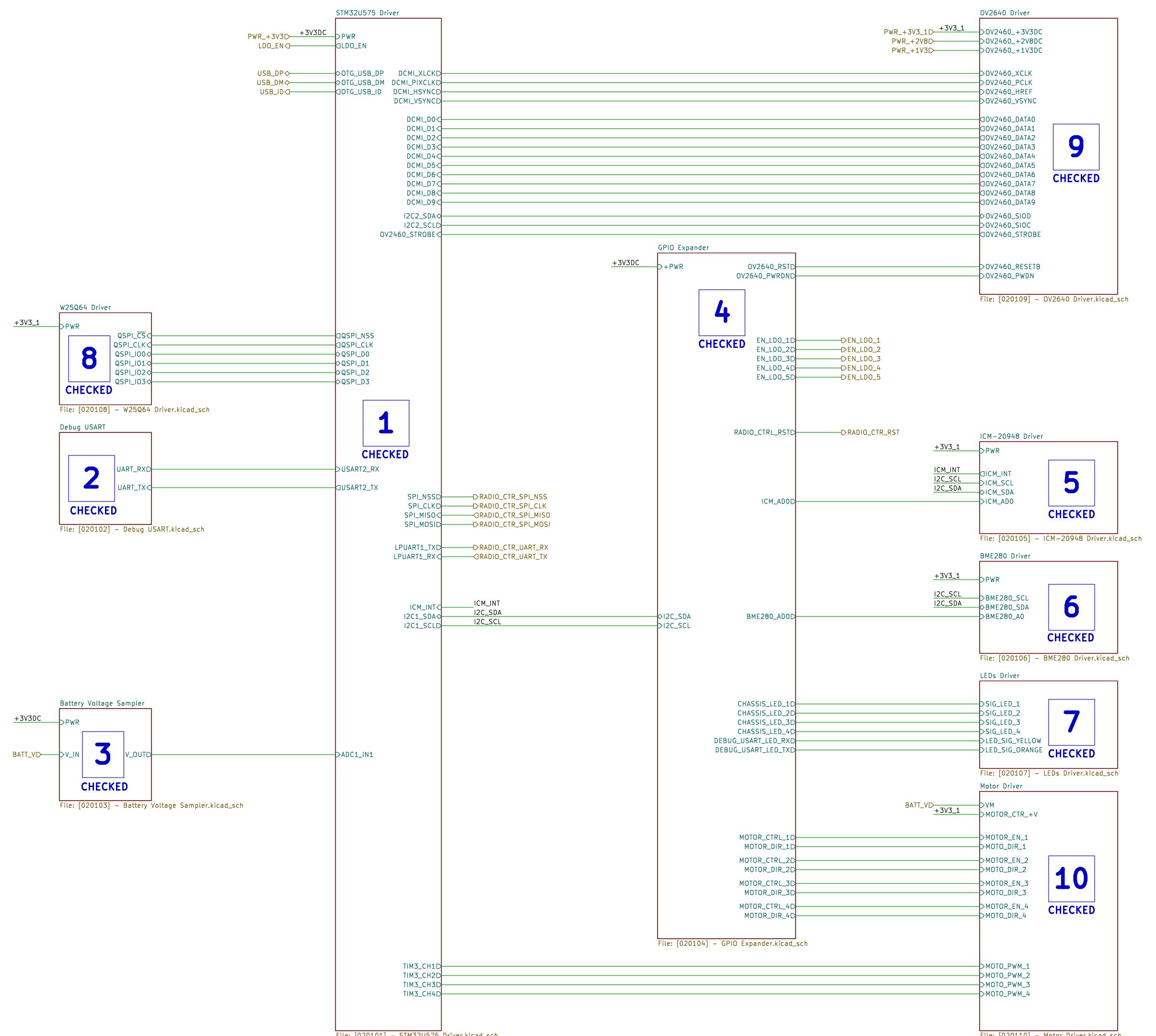
RELEASED



APPROVALS		PROJECT:	
ENG: Siavash Taher Parvar	2024-03-27	Quadcopter	
DSN: Siavash Taher Parvar	2024-03-27		
CHK: Siavash Taher Parvar	2024-03-27	PRJ VER: 01	DOC VER: 01
REFERENCE DOCUMENTS		TITLE:	
SCH Ref. DOC.: [01] - FBD_Quadcopter.kicad_sch		FBD_Quadcopter	
BOM Ref. DOC.:		FILE NAME: [02] - FBD_Quadcopter.kicad_sch	
PCB Ref. DOC.:		SHEET 2 OF 40	
GBR Ref. DOC.:		SIZE: C	SCALE: 1:1
ASM Ref. DOC.:		VARIANT NAME: N/A	
Mendozo			OPEN-SOURCE DOCUMENT

FBD_FlightController

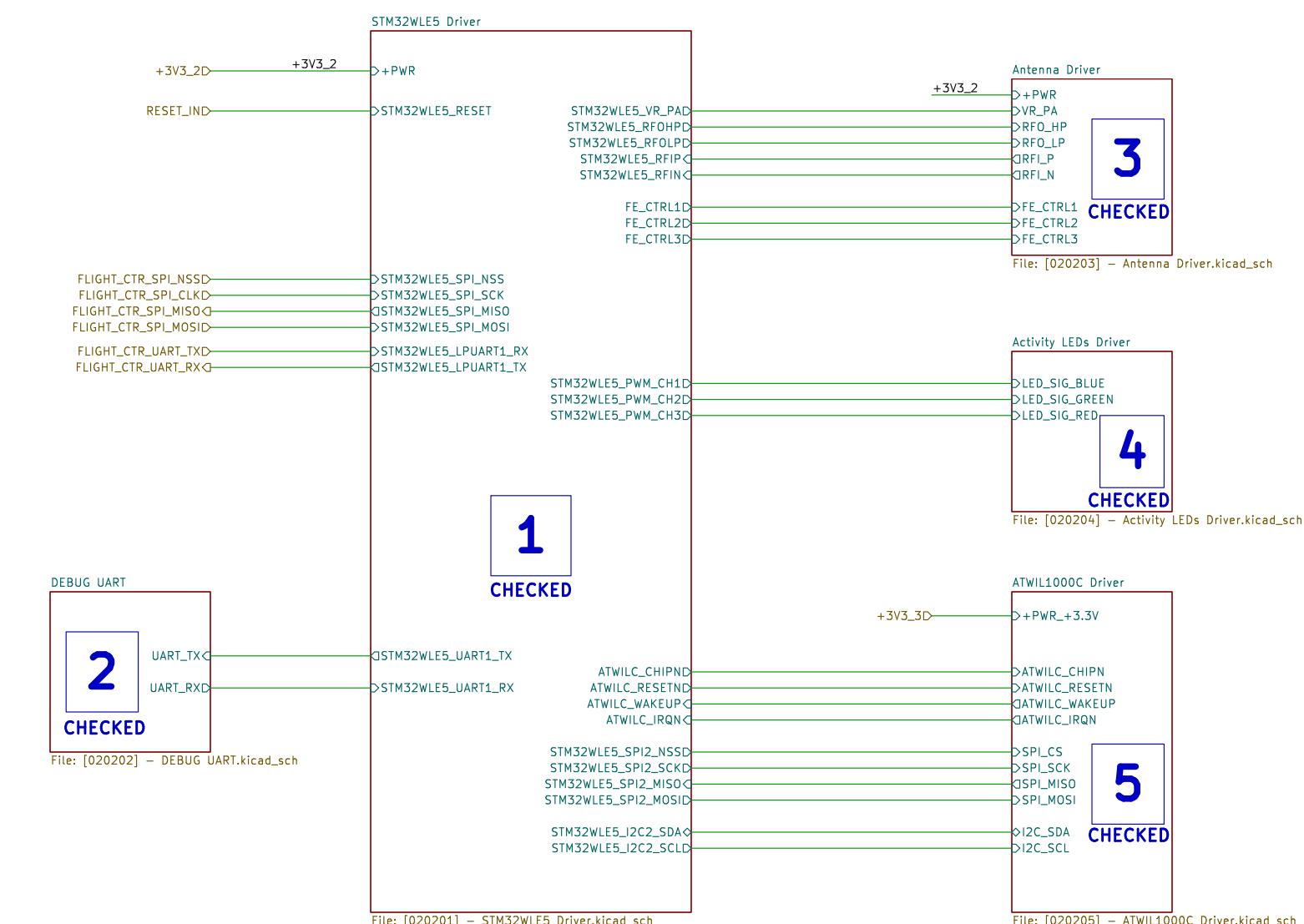
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APPROVALS	DATE	PROJECT: Quadcopter			 Mendoza
ENG: Siavash Taher Parvar	2024-03-27				
DSN: Siavash Taher Parvar	2024-03-27				
CHK: Siavash Taher Parvar	2024-03-27	PRJ VER: 01	DOC VER: 01	DOC REV: 01	
REFERENCE DOCUMENTS		TITLE: FBD_FlightController			OPEN-SOURCE DOCUMENT
SCH Ref. DOC.: [0201] - FBD_FlightController.kicad_sch					
BOM Ref. DOC.:					
PCB Ref. DOC.:		FILE NAME: [0201] - FBD_FlightController.kicad_sch			
GBR Ref. DOC.:					
ASM Ref. DOC.:		SHEET 3 OF 40	SIZE: C	SCALE: 1:1	VARIANT NAME: N/A

FBD_RadioController

RELEASED



APPROVALS		PROJECT:	
ENG:	Sivash Taher Parvar	2024-03-27	Quadcopter
DSN:	Sivash Taher Parvar	2024-03-27	
CHK:	Sivash Taher Parvar	2024-03-27	PRJ VER: 01 DOC VER: 01 DOC REV: 01
REFERENCE DOCUMENTS		TITLE:	
SCH Ref. DOC.:	[0202] - FBD_RadioController.kicad_sch	FBD_RadioController	
BOM Ref. DOC.:		OPEN-SOURCE DOCUMENT	
PCB Ref. DOC.:		FILE NAME: [0202] - FBD_RadioController.kicad_sch	
GBR Ref. DOC.:		SHEET 4 OF 40 SIZE: C SCALE: 1:1 VARIANT NAME: N/A	
ASM Ref. DOC.:			

Power Supply

RELEASED

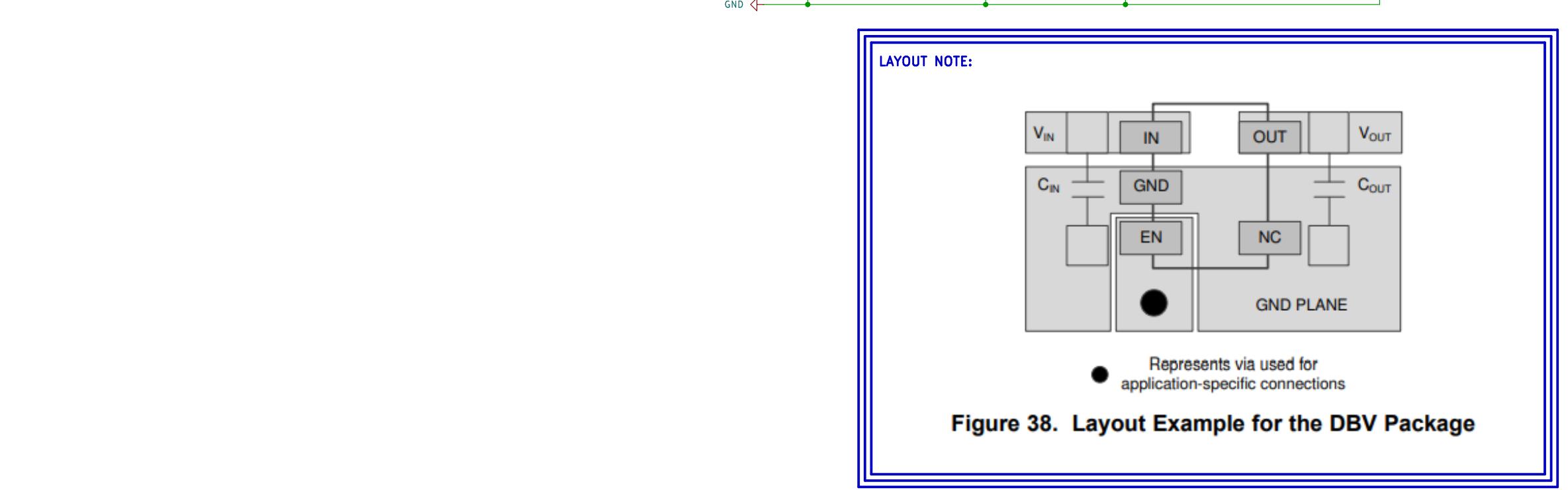
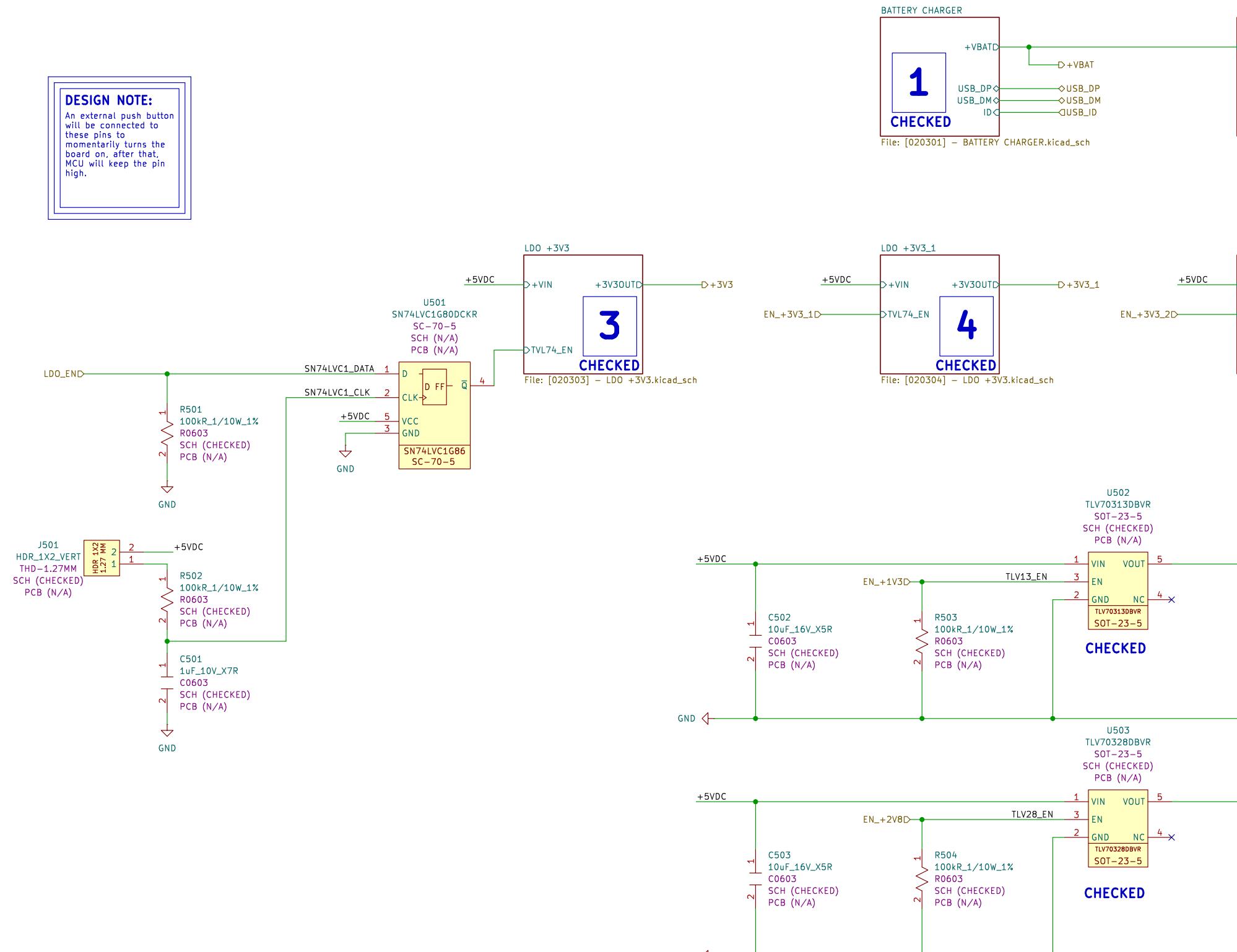
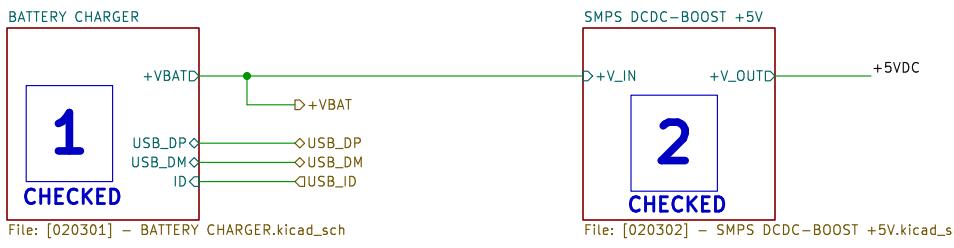
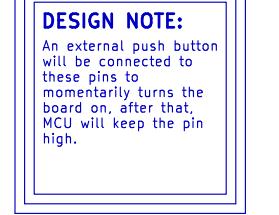
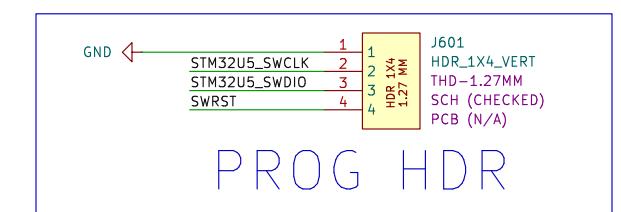
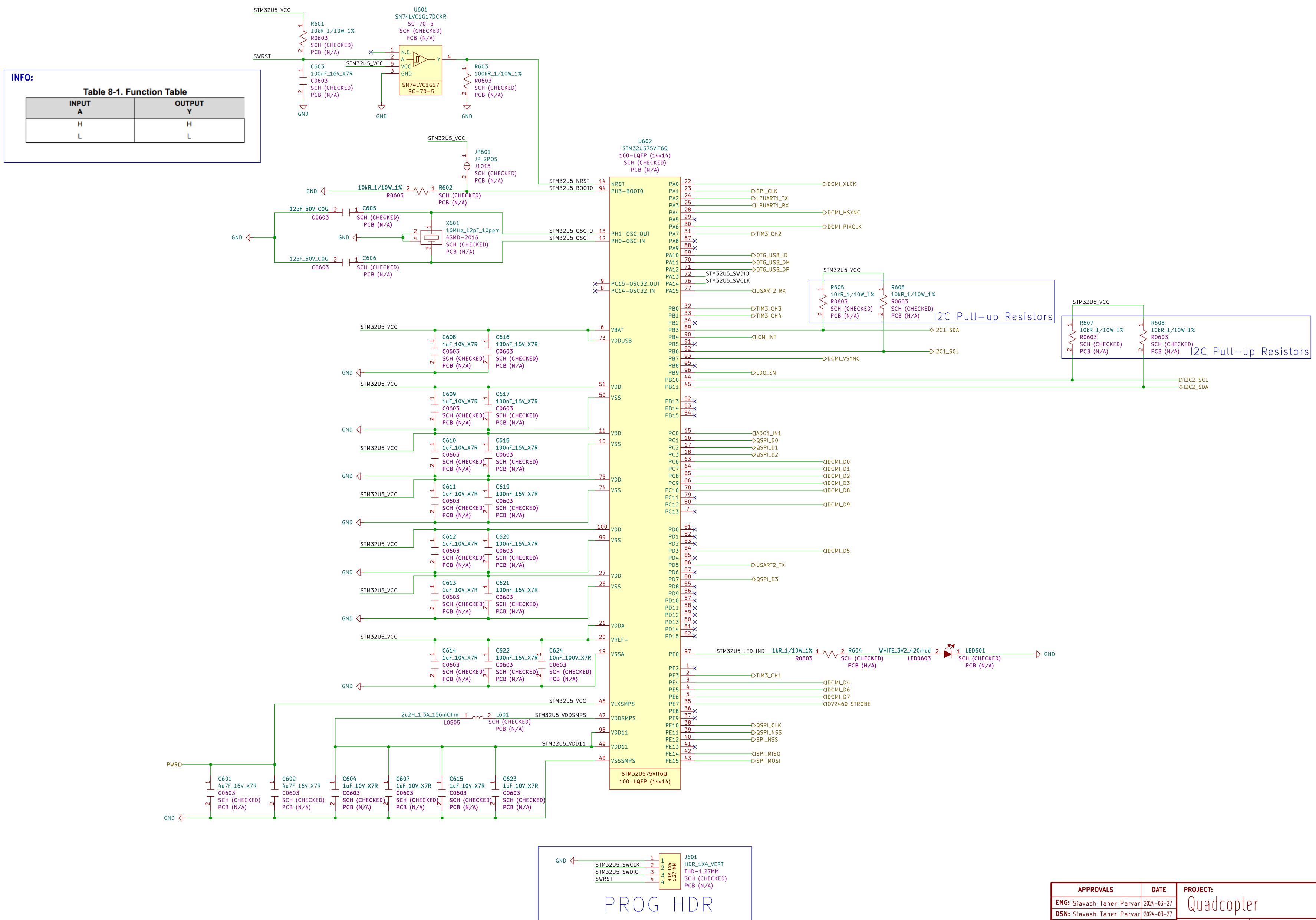


Figure 38. Layout Example for the DBV Package

APPROVALS	DATE	PROJECT: Quadcopter			 Mend0zo
ENG: Siavash Taher Parvar	2024-03-27	PRJ VER: 01	DOC VER: 01	DOC REV: 01	
DSN: Siavash Taher Parvar	2024-03-27	TITLE: Power Supply			OPEN-SOURCE DOCUMENT
CHK: Siavash Taher Parvar	2024-03-27	FILE NAME: [0203] - Power Supply .kicad_sch			
REFERENCE DOCUMENTS		PCB Ref. DOC.: GBR Ref. DOC.: ASM Ref. DOC.:			SHEET 5 OF 40 SIZE: C SCALE: 1:1 VARIANT NAME: N/A

STM32U575 Driver

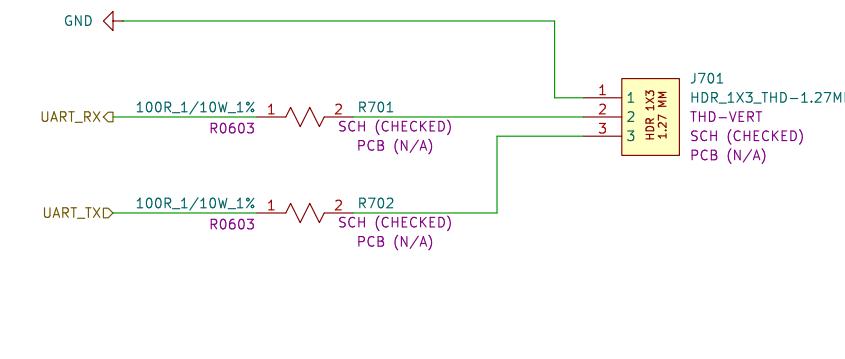
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APPROVALS		DATE	PROJECT: Quadcopter				
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REFERENCE DOCUMENTS							
SCH Ref. DOC.: [0201] - STM32U575 Driver.kicad_sch							
PCB Ref. DOC.:	GBR Ref. DOC.:	ASM Ref. DOC.:	TITLE: STM32U575 Driver				
FILE NAME: [020101] - STM32U575 Driver.kicad_sch							
SHEET 5 OF 40	SIZE: C	SCALE: 1:1	VARIANT: N/A				

Debug USART

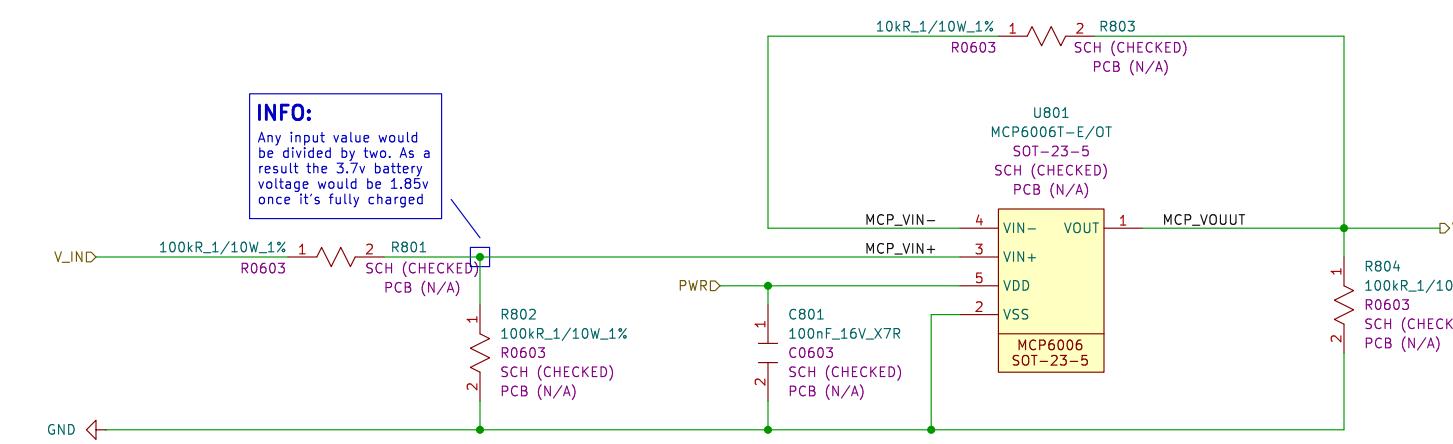
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APPROVALS	DATE	PROJECT:		
ENG: Siavash Taher Parvar	2024-03-27	Quadcopter		
DSN: Siavash Taher Parvar	2024-03-27			
CHK: Siavash Taher Parvar	2024-03-27	PRJ VER: 01	DOC VER: 01	DOC REV: 01
REFERENCE DOCUMENTS		TITLE:		
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BOM Ref. DOC.:				
PCB Ref. DOC.:		FILE NAME: [020102] - Debug USART.kicad_pcb		
GBR Ref. DOC.:				
ASM Ref. DOC.:		SHEET 6 OF 40	SIZE: C	SCALE: 1:1
		VARIANT NAME: N/A		

Battery Voltage Sampler

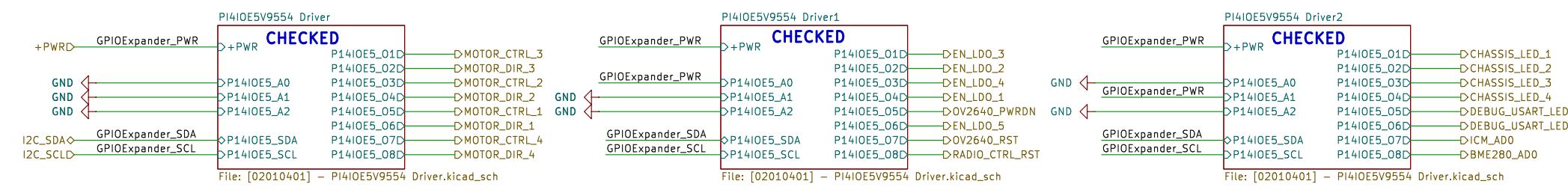
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APPROVALS		PROJECT:	
ENG: Siavash Taher Parvar	2024-03-27	Quadcopter	 Mendoza
DSN: Siavash Taher Parvar	2024-03-27		
CHK: Siavash Taher Parvar	2024-03-27	PRJ VER: 01 DOC VER: 01 DOC REV: 01	
REFERENCE DOCUMENTS		TITLE:	
SCH Ref. DOC.: [020103] - Battery Voltage Sampler.kicad_sch		Battery Voltage Sampler	
PCB Ref. DOC.:		FILE NAME: [020103] - Battery Voltage Sampler.kicad_pcb	
GBR Ref. DOC.:		SHEET 7 OF 40 SIZE: C SCALE: 1:1 VARIANT NAME: N/A	
ASM Ref. DOC.:			

GPIO Expander

RELEASED

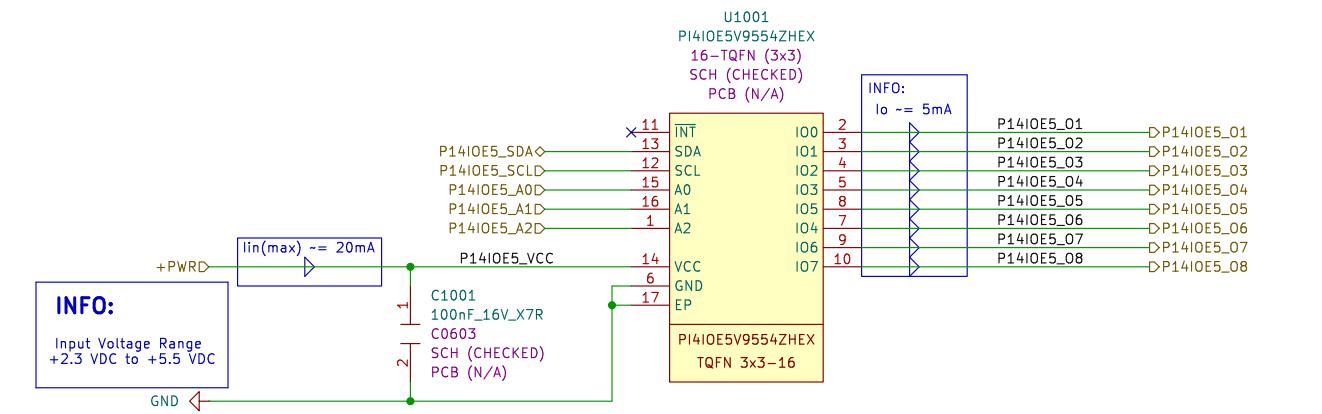


INFO:		
GROUP 1	GROUP 2	GROUP 3
MOTOR CTRL 1	P14IOE5_01D	P14IOE5_01D
MOTOR CTRL 2	P14IOE5_02D	P14IOE5_02D
MOTOR CTRL 3	P14IOE5_03D	P14IOE5_03D
MOTOR CTRL 4	P14IOE5_04D	P14IOE5_04D
MOTOR DIR 1	P14IOE5_A0	P14IOE5_A0
MOTOR DIR 2	P14IOE5_A1	P14IOE5_A1
MOTOR DIR 3	P14IOE5_A2	P14IOE5_A2
MOTOR DIR 4	P14IOE5_05D	P14IOE5_05D
I2C_SDA	GPIOExpander_SDA	GPIOExpander_SDA
I2C_SCL	GPIOExpander_SCL	GPIOExpander_SCL
	P14IOE5_06D	P14IOE5_06D
	P14IOE5_07D	P14IOE5_07D
	P14IOE5_08D	P14IOE5_08D
	MOTOR_CTRL_3	MOTOR_CTRL_3
	MOTOR_DIR_3	MOTOR_DIR_3
	MOTOR_CTRL_4	MOTOR_CTRL_4
	MOTOR_DIR_4	MOTOR_DIR_4
	DEN_LDO_3	DEN_LDO_3
	DEN_LDO_4	DEN_LDO_4
	DEN_LDO_5	DEN_LDO_5
	DEN_LDO_6	DEN_LDO_6
	DEN_LDO_7	DEN_LDO_7
	DEN_LDO_8	DEN_LDO_8
	DOV2640_PWRDN	DOV2640_PWRDN
	DOV2640_RST	DOV2640_RST
	RADIO_CTRL_RST	RADIO_CTRL_RST
	CHASSIS_LED_1	CHASSIS_LED_1
	CHASSIS_LED_2	CHASSIS_LED_2
	CHASSIS_LED_3	CHASSIS_LED_3
	CHASSIS_LED_4	CHASSIS_LED_4
	DEBUG_USART_LED_RX	DEBUG_USART_LED_RX
	IMU_CS	IMU_CS
	BME280_ADO	BME280_ADO

APPROVALS	DATE	PROJECT: Quadcopter			Mendozo
ENG: Siavash Taher Parvar	2024-03-27	PRJ VER: 01	DOC VER: 01	DOC REV: 01	
DSN: Siavash Taher Parvar	2024-03-27				
CHK: Siavash Taher Parvar	2024-03-27				
REFERENCE DOCUMENTS	TITLE: GPIO Expander	FILE NAME: [020104] - GPIO Expander.kicad_sch	OPEN-SOURCE DOCUMENT		
SCH Ref. DOC.: [020104] - GPIO Expander.kicad_sch					
PCB Ref. DOC.:					
GBR Ref. DOC.:					
ASM Ref. DOC.:					
SHEET 8 OF 40	SIZE: C	SCALE: 1:1	VARIANT: N/A		

PI4IOE5V9554 Driver

RELEASED



INFO:								
Dynamic Characteristics								
Table 3: Dynamic Characteristics								
Symbol	Parameter	Test Conditions	Standard Mode °C	Fast Mode °C	Unit			
f_{SCL}	SCL Clock Frequency	—	0	100	0	400	kHz	
t_{HF}	Hold Time Free Time Between a STOP and START Condition	—	4.7	—	1.3	—	μs	
t_{HSTA}	Hold Time (Repeated) START Condition	—	4.0	—	0.6	—	μs	
t_{USTA}	Setup Time for a Repeated START Condition	—	4.7	—	0.6	—	μs	
t_{STOP}	Setup Time for STOP Condition	—	4.0	—	0.6	—	μs	
t_{VALACK} ^[1]	Data Valid Acknowledge Time	—	—	3.45	—	0.9	μs	
t_{DHDT} ^[2]	Data Hold Time	—	0	—	0	—	ns	
t_{VDAT}	Data Valid Time	—	—	3.45	—	0.9	μs	
t_{SUDAT}	Data Setup Time	—	250	—	100	—	ns	
t_{LOW}	LOW Period of the SCL Clock	—	4.7	—	1.3	—	μs	
t_{HIGH}	HIGH Period of the SCL Clock	—	4.0	—	0.6	—	μs	
t_r	Rise Time of Both SDA and SCL Signals	—	—	300	—	300	ns	
t_f	Fall Time of Both SDA and SCL Signals	—	—	1000	—	300	ns	
t_{sp}	Pulse Width of Spikes that must be Suppressed by the Input Filter	—	—	50	—	50	ns	
Port Timing								
t_{dQ}	Data Output Valid Time ^[3]	—	—	200	—	200	ns	
t_{dD}	Data Input Setup Time	—	100	—	100	—	ns	
t_{dH}	Data Input Hold Time	—	1	—	1	—	μs	
Interrupt Timing								
t_{INT}	Valid Time on pin INT	—	—	4	—	4	μs	
t_{RESET}	Reset Time on pin INT	—	—	4	—	4	μs	

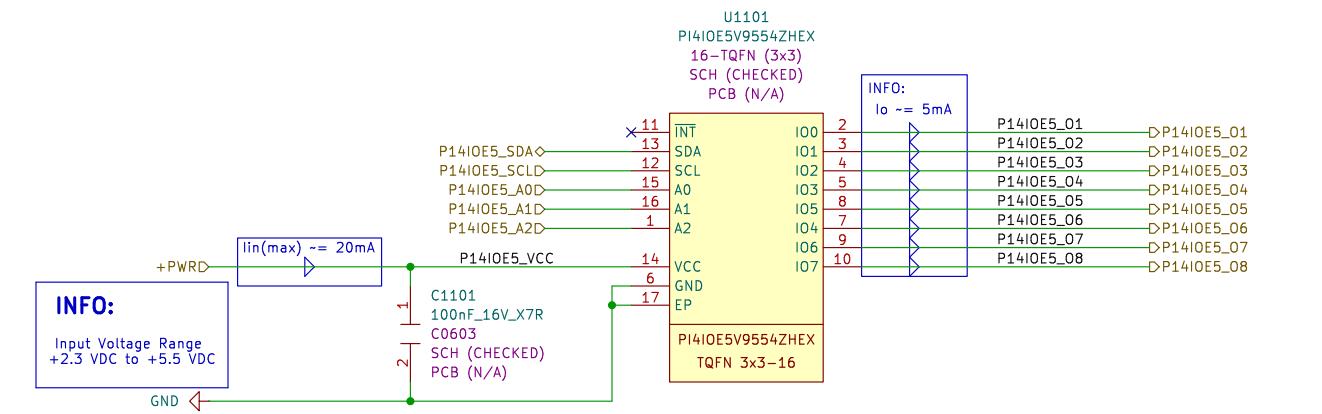
INFO:								
Table 4: Device Address Byte								
	b7(MSB)	b6	b5	b4	b3	b2	b1	b0
PI4IOE5V9554	0	1	0	0	A2	A1	A0	R/W
PI4IOE5V9554A	0	1	1	1	A2	A1	A0	R/W

Note: Read "1", Write "0"

APPROVALS	DATE	PROJECT: Quadcopter			Mendozo
ENG: Siavash Taher Parvar	2024-03-27				
DSN: Siavash Taher Parvar	2024-03-27				
CHK: Siavash Taher Parvar	2024-03-27	PRJ VER: 01	DOC VER: 01	DOC REV: 01	
REFERENCE DOCUMENTS					
SCH Ref. DOC.: [02010401] - PI4IOE5V9554_Driver.kicad_sch					
BOM Ref. DOC.:					
PCB Ref. DOC.:					
GBR Ref. DOC.:					
ASM Ref. DOC.:					
FILE NAME: [02010401] - PI4IOE5V9554_Driver.kicad_sch					
SHEET 9 OF 40	SIZE: C	SCALE: 1:1	VARIANT NAME: N/A		

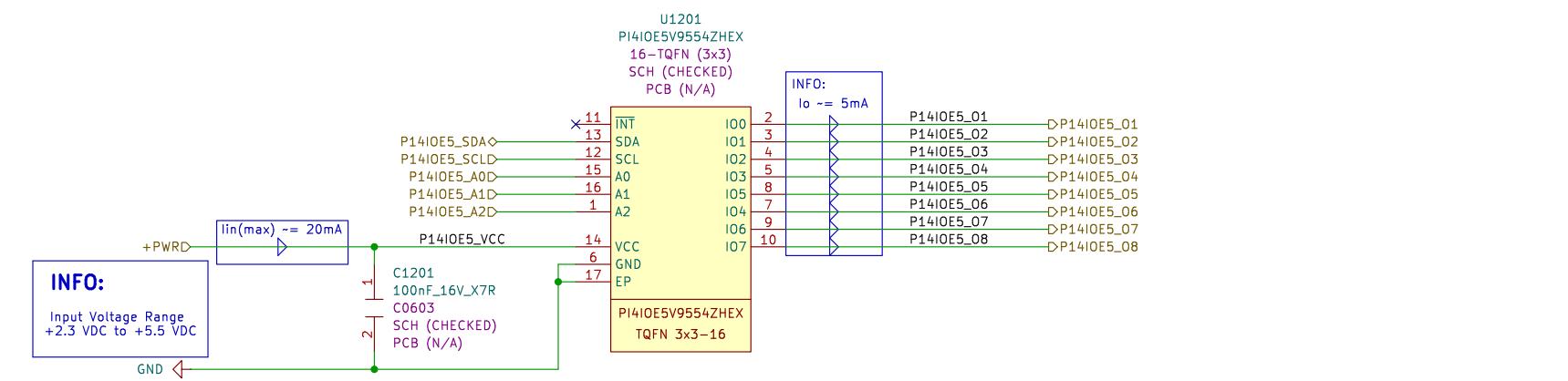
PI4IOE5V9554 Driver1

RELEASED



PI4IOE5V9554 Driver2

RELEASED



INFO:								
Dynamic Characteristics								
Table 3: Dynamic Characteristics								
Symbol	Parameter	Test Conditions	Standard Mode f_C	Fast Mode f_C	Unit			
f_{SCL}	SCL Clock Frequency	—	0	100	0	400	kHz	
t_{HFS}	SCL Free Time Between a STOP and START Condition	—	4.7	—	1.3	—	μs	
t_{HSTA}	Hold Time (Repeated) START Condition	—	4.0	—	0.6	—	μs	
t_{USTA}	Setup Time for a Repeated START Condition	—	4.7	—	0.6	—	μs	
t_{VDACK} ^[1]	Data Valid Acknowledge Time	—	—	3.45	—	0.9	μs	
t_{VDATA} ^[2]	Data Valid Time	—	—	3.45	—	0.9	μs	
t_{UDAT}	Data Setup Time	—	250	—	100	—	ns	
t_{LOW}	LOW Period of the SCL Clock	—	4.7	—	1.3	—	μs	
t_{HIGH}	HIGH Period of the SCL Clock	—	4.0	—	0.6	—	μs	
t_r	Rise Time of Both SDA and SCL Signals	—	—	300	—	300	ns	
t_{tp}	Pulse Width of Spikes that must be Suppressed by the Input Filter	—	—	50	—	50	ns	
Port Timing								
t_{dQ}	Data Output Valid Time ^[3]	—	—	200	—	200	ns	
t_{idQ}	Data Input Setup Time	—	100	—	100	—	ns	
t_{idH}	Data Input Hold Time	—	1	—	1	—	μs	
Interrupt Timing								
t_{qINT}	Valid Time on pin INT	—	—	4	—	4	μs	
t_{rcqINT}	Reset Time on pin INT	—	—	4	—	4	μs	

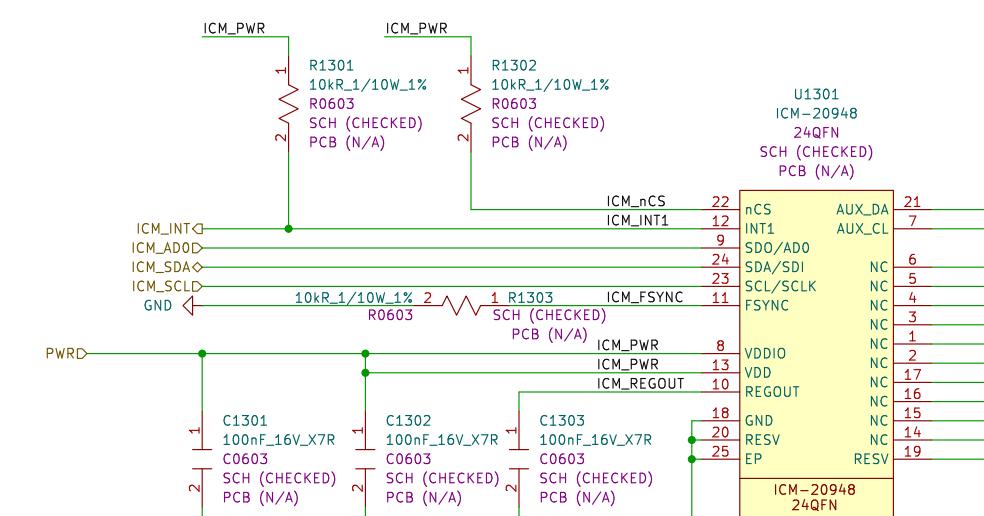
INFO:								
Table 4: Device Address Byte								
	b7(MSB)	b6	b5	b4	b3	b2	b1	b0
PI4IOE5V9554	0	1	0	0	A2	A1	A0	R/W
PI4IOE5V9554A	0	1	1	1	A2	A1	A0	R/W

Note: Read "1", Write "0"

APPROVALS	DATE	PROJECT: Quadcopter			Mendozo
ENG: Sivash Taher Parvar	2024-03-27				
DSN: Sivash Taher Parvar	2024-03-27				
CHK: Sivash Taher Parvar	2024-03-27	PRJ VER: 01	DOC VER: 01	DOC REV: 01	
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BOM Ref. DOC.:					
PCB Ref. DOC.:					
GBR Ref. DOC.:					
ASM Ref. DOC.:					
FILE NAME: [02010401] - PI4IOE5V9554_Driver.kicad_sch					
SHEET 11 OF 40	SIZE: C	SCALE: 1:1	VARIANT NAME: N/A		

ICM-20948 Driver

RELEASED



CAUTIONARY:
Power up with SDA/SCLK and nCS pins held high to a supported user logic level. In case this power up approach is used, software reset is required using the PWR_MGMT_1 register, prior to initialization.

INFO:

The slave address of the ICM-20948 is b110100X which is 7 bits long. The LSB bit of the 7-bit address is determined by the logic level on pin ADO. This allows two ICM-20948 devices to be connected to the same I2C bus. When used in this configuration, the address of the one of the devices should be b1101000 (pin ADO is logic low) and the address of the other should be b1101001 (pin ADO is logic high).

INFO:

PARAMETER	CONDITIONS	MIN	TYP	MAX	UNITS	NOTES
ACCELEROMETER SENSITIVITY						
Full-Scale Range	ACCEL_FS=0	±2	G	1		
	ACCEL_FS=1	±4	G	1		
	ACCEL_FS=2	±8	G	1		
	ACCEL_FS=3	±16	G	1		
ADC Word Length	Output in two's complement format	16	Bits	1		
	ACCEL_FS=0	16,384	LSB/g	1		
Sensitivity Scale Factor	ACCEL_FS=1	8,192	LSB/g	1		
	ACCEL_FS=2	4,096	LSB/g	1		
	ACCEL_FS=3	2,048	LSB/g	1		
Initial Tolerance	Component-level	±0.5	%	2		
Sensitivity Change vs. Temperature	-40°C to +85°C ACCEL_FS=0	±0.026	%/°C	2		
Nonlinearity	Best Fit Straight Line	±0.5	%	2, 3		
Cross-Axis Sensitivity		±2	%	2, 3		
ZERO-G OUTPUT						
Initial Tolerance	Component-level, all axes	±25	mg	2		
Initial Tolerance	Board-level, all axes	±50	mg	2		
Zero-G Level Change vs. Temperature	0°C to +85°C	±0.80	mg/°C	2		
ACCELEROMETER NOISE PERFORMANCE						
Noise Spectral Density	Based on Noise Bandwidth = 10 Hz	230			µg/√Hz	2
LOW PASS FILTER RESPONSE	Programmable Range	5.7	246	Hz	1, 3	
	From Sleep mode	20	ms	2, 3		
ACCELEROMETER STARTUP TIME	From Cold Start, 1 ms V _{DD} ramp	30	ms	2, 3		
	Low-Power Mode	0.27	562.5	Hz		
OUTPUT DATA RATE	Low-Noise Mode ACCEL_FCHOICE=1; ACCEL_DLPCFG=x	4.5	1.125k	Hz		1
	Low-Noise Mode ACCEL_FCHOICE=0; ACCEL_DLPCFG=x			4.5k	Hz	

Table 2. Accelerometer Specifications

PARAMETER	CONDITIONS	MIN	TYP	MAX	UNITS	NOTES
GYROSCOPE SENSITIVITY						
Full-Scale Range	GYRO_FS_SEL=0	±250			dps	1
	GYRO_FS_SEL=1	±500			dps	1
	GYRO_FS_SEL=2	±1000			dps	1
	GYRO_FS_SEL=3	±2000			dps	1
Gyroscope ADC Word Length		16	bits	1		
Sensitivity Scale Factor	GYRO_FS_SEL=0	131	LSB/dps	1		
	GYRO_FS_SEL=1	65.5	LSB/dps	1		
	GYRO_FS_SEL=2	32.8	LSB/dps	1		
	GYRO_FS_SEL=3	16.4	LSB/dps	1		
Sensitivity Scale Factor Tolerance	25°C	±1.5	%	2		
Sensitivity Scale Factor Variation Over Temperature	-40°C to +85°C	±3	%	2		
Nonlinearity	Best fit straight line; 25°C	±0.1	%	2, 3		
Cross-Axis Sensitivity		±2	%	2, 3		
ZERO-RATE OUTPUT (ZRO)						
Initial ZRO Tolerance	25°C (Component-level)	±5	dps	2		
ZRO Variation Over Temperature	-40°C to +85°C	±0.05	dps/°C	2		
GYROSCOPE NOISE PERFORMANCE (GYRO_FS_SEL=0)						
Noise Spectral Density	Based on Noise Bandwidth = 10 Hz	0.015			dps/√Hz	2
GYROSCOPE MECHANICAL FREQUENCIES		25	27	29	kHz	2
LOW PASS FILTER RESPONSE	Programmable Range	5.7	197	Hz	1, 3	
GYROSCOPE START-UP TIME	From Full-Chip Sleep mode	35	ms	2, 3		
	Low-Power Mode	4.4	562.5	Hz		
OUTPUT DATA RATE	Low-Noise Mode GYRO_FCHOICE=1; GYRO_DLPCFG=x	4.4	1.125k	Hz		1
	Low-Noise Mode GYRO_FCHOICE=0; GYRO_DLPCFG=x			9k	Hz	

Table 1. Gyroscope Specifications

PARAMETER	CONDITIONS	MIN	TYP	MAX	UNITS	NOTES
MAGNETOMETER SENSITIVITY						
Full-Scale Range		±4900			µT	1
Output Resolution		16	bits	1		
Sensitivity Scale Factor		0.15	µT / LSB	1		
ZERO-FIELD OUTPUT						
Initial Calibration Tolerance		-2000		+2000	LSB	2
OTHER						
Output Data Rate				100	Hz	1

Table 3. Magnetometer Specifications

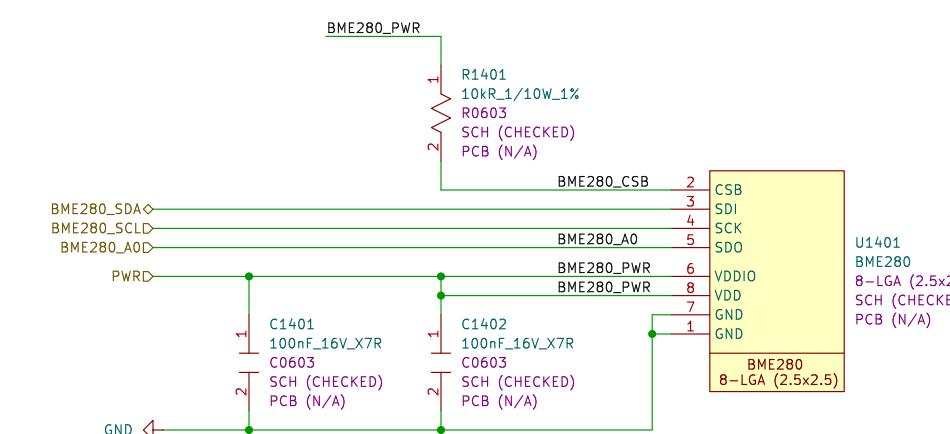
PARAMETERS	CONDITIONS	MIN	TYPICAL	MAX	UNITS	NOTES
I ^C TIMING						
f _{SCL} , SCL Clock Frequency				400	kHz	1, 2
t _{H0 STA} , (Repeated) START Condition Hold Time		0.6			µs	1, 2
t _{L0} , SCL Low Period		1.3			µs	1, 2
t _{H0} , SCL High Period		0.6			µs	1, 2
t _{S0 STA} , Repeated START Condition Setup Time		0.6			µs	1, 2
t _{H0 DAT} , SDA Data Hold Time		0			µs	1, 2
t _{S0 DAT} , SDA Data Setup Time		100			ns	1, 2
t _r , SDA and SCL Rise Time	C _b bus cap. from 10 to 400 pF	20+0.1C _b		300	ns	1, 2
t _f , SDA and SCL Fall Time	C _b bus cap. from 10 to 400 pF	20+0.1C _b		300	ns	1, 2
t _{S1 STA} , STOP Condition Setup Time		0.6			µs	1, 2
t _{B0} , Bus Free Time Between STOP and START Condition		1.3			µs	1, 2
C _b , Capacitive Load for each Bus Line			< 400		pF	1, 2
t _{D0 DAT} , Data Valid Data Time				0.9	µs	1, 2
t _{D0 ACK} , Data Valid Acknowledge Time				0.9	µs	1, 2

Table 7. I^C Timing Characteristics

APPROVALS	DATE	PROJECT: Quadcopter		 Mendozo OPEN-SOURCE DOCUMENT
ENG: Sivash Taher Parvar	2024-03-27	PRJ VER: 01	DOC VER: 01	
DSN: Sivash Taher Parvar	2024-03-27			
CHK: Sivash Taher Parvar	2024-03-27			
REFERENCE DOCUMENTS		TITLE: ICM-20948 Driver		
SCH Ref. DOC.: [020105] - ICM-20948 Driver.kicad_sch		FILE NAME: [020105] - ICM-20948 Driver.kicad_sch		
BOM Ref. DOC.:				
PCB Ref. DOC.:				
GBR Ref. DOC.:				
ASM Ref. DOC.:				
SHEET 12 OF 40	SIZE: C	SCALE: 1:1	VARIANT:N/A	

BME280 Driver

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INFO:

The 7-bit address is 111011x. The 6 MSB bits are fixed. The last bit is changeable by SDO value and can be changed during operation. Connecting SDO to ground results in slave address 1110110 (0x76); connecting it to VDDIO results in slave address 1110111 (0x77), which is the same as BMP280's I²C address.

CAUTIONARY:

The SDO pin cannot be left floating; if left floating, the I²C address will be undefined.

INFO:

Table 35: Pin description

Pin	Name	I/O Type	Description	Connect to		
				SPI 4W	SPI 3W	I ² C
1	GND	Supply	Ground			GND
2	CSB	In	Chip select	CSB	CSB	V _{DDIO}
3	SDI	In/Out	Serial data input	SDI	SDI/SDO	SDA
4	SCK	In	Serial clock input	SCK	SCK	SCL
5	SDO	In/Out	Serial data output	SDO	DNC	GND for default address
6	V _{DDIO}	Supply	Digital / Interface supply			V _{DDIO}
7	GND	Supply	Ground			GND
8	V _{DD}	Supply	Analog supply			V _{DD}

Table 33: I²C timings

Parameter	Symbol	Condition	Min	Typ	Max	Unit
SDI setup time	t _{SDI;DAT}	S&F Mode HS mode	160			ns
			30			ns
SDI hold time	t _{HD;DAT}	S&F Mode, C _b ≤100 pF	80			ns
		S&F Mode, C _b ≤400 pF	90			ns
		HS mode, C _b ≤100 pF	18		115	ns
		HS mode, C _b ≤400 pF	24		150	ns
SCK low pulse	t _{LOW}	HS mode, C _b ≤100 pF	160			ns
		V _{DDIO} = 1.62 V				
SCK low pulse	t _{LOW}	HS mode, C _b ≤100 pF	210			ns
		V _{DDIO} = 1.2 V				

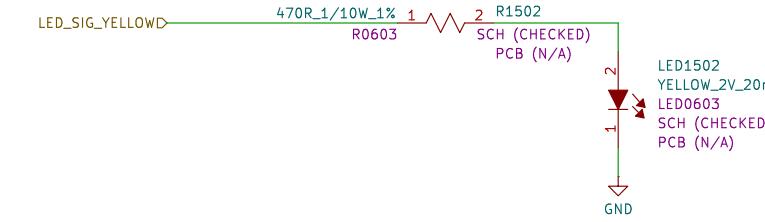
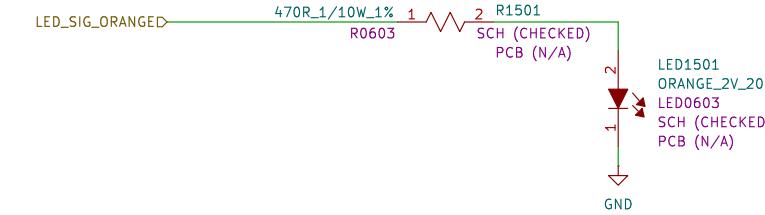
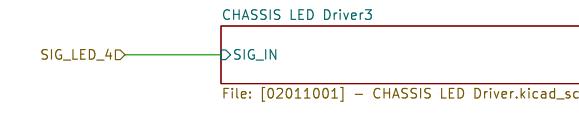
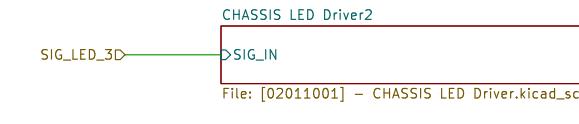
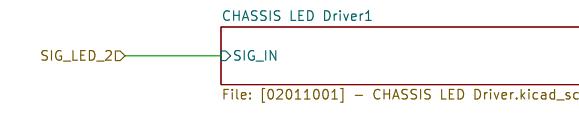
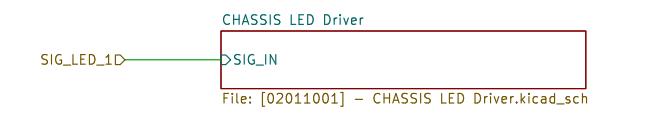
The above-mentioned I²C specific timings correspond to the following internal added delays:

- Input delay between SDI and SCK inputs: SDI is more delayed than SCK by typically 100 ns in Standard and Fast Modes and by typically 20 ns in High Speed Mode.
- Output delay from SCK falling edge to SDI output propagation is typically 140 ns in Standard and Fast Modes and typically 70 ns in High Speed Mode.

APPROVALS	DATE	PROJECT: Quadcopter			Mendozo	
ENG: Sivash Taher Parvar	2024-03-27					
DSN: Sivash Taher Parvar	2024-03-27					
CHK: Sivash Taher Parvar	2024-03-27	PRJ VER: 01	DOC VER: 01	DOC REV: 01		
REFERENCE DOCUMENTS	TITLE: BME280 Driver					
SCH Ref. DOC.: [020106] - BME280 Driver.kicad_sch						
PCB Ref. DOC.:						
GBR Ref. DOC.:						
ASM Ref. DOC.:	FILE NAME: [020106] - BME280 Driver.kicad_sch					
	SHEET 13 OF 40	SIZE: C	SCALE: 1:1	VARIANT: N/A		

LEDs Driver

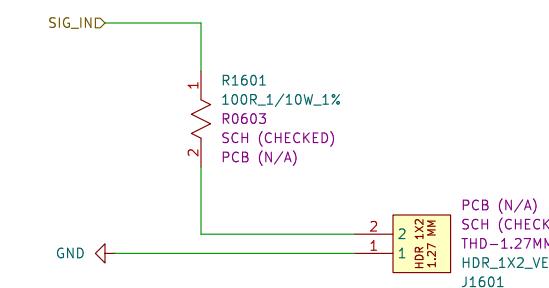
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APPROVALS		DATE	PROJECT:		
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DSN:	Siavash Taher Parvar	2024-03-27			
CHK:	Siavash Taher Parvar	2024-03-27	PRJ VER: 01	DOC VER: 01	DOC REV: 01
REFERENCE DOCUMENTS			TITLE:		
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BOM Ref. DOC.:					
PCB Ref. DOC.:			FILE NAME: [020107] - LEDs Driver.kicad_sch		
GBR Ref. DOC.:					
ASM Ref. DOC.:			SHEET 14 OF 40 SIZE: C SCALE: 1:1 VARIANT NAME: N/A		
Mendoza			OPEN-SOURCE DOCUMENT		

CHASSIS LED Driver

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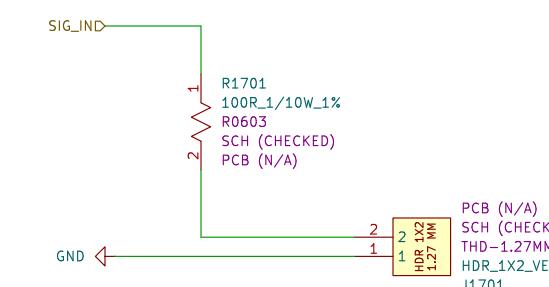
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CHK: Siavash Taher Parvar	2024-03-27	Mendozo		
REFERENCE DOCUMENTS	TITLE:			OPEN-SOURCE DOCUMENT
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BOM Ref. DOC.:	FILE NAME: [02011001] - CHASSIS LED Driver.kicad_sch			
PCB Ref. DOC.:	SHEET 15 OF 40 SIZE: C SCALE: 1:1 VARIANT NAME: N/A			
GBR Ref. DOC.:				
ASM Ref. DOC.:				

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CHASSIS LED Driver1

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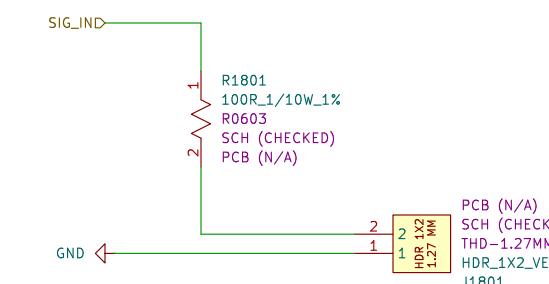
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CHK:	Siavash Taher Parvar	2024-03-27	PRJ VER: 01	DOC VER: 01	DOC REV: 01
REFERENCE DOCUMENTS		TITLE:			
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BOM Ref. DOC.:		FILE NAME: [02011001] - CHASSIS LED Driver.kicad_sch			
PCB Ref. DOC.:		SCALE: 1:1			
GBR Ref. DOC.:		VARIANT NAME: N/A			
ASM Ref. DOC.:		SHEET 16 OF 40	SIZE: C	SCALE: 1:1	VARIANT NAME: N/A

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REVISION	DESCRIPTION	DATE	APPROVED
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CHASSIS LED Driver2

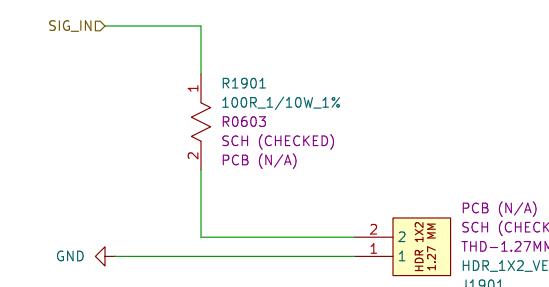
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APPROVALS		DATE	PROJECT:						
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DSN:	Siavash Taher Parvar	2024-03-27							
CHK:	Siavash Taher Parvar	2024-03-27	PRJ VER: 01	DOC VER: 01	DOC REV: 01				
REFERENCE DOCUMENTS		TITLE:							
SCH Ref. DOC.:	[02011001] - CHASSIS LED Driver.kicad_sch	CHASSIS LED Driver2							
BOM Ref. DOC.:		FILE NAME: [02011001] - CHASSIS LED Driver.kicad_sch							
PCB Ref. DOC.:		SHEET 17 OF 40 SIZE: C SCALE: 1:1 VARIANT NAME: N/A							
GBR Ref. DOC.:									
ASM Ref. DOC.:									
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CHASSIS LED Driver3

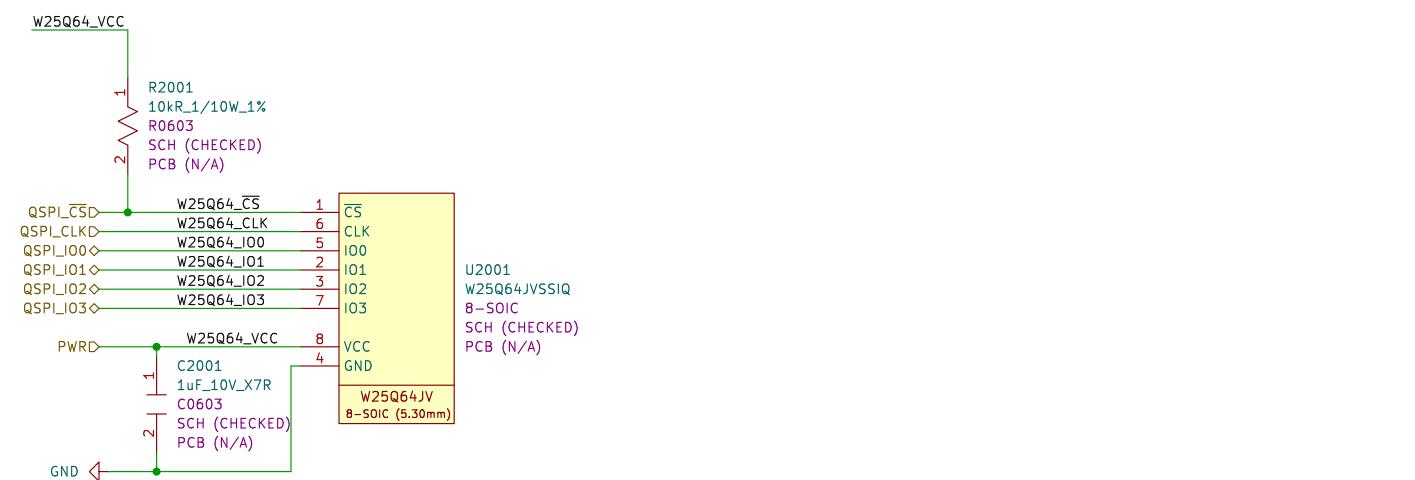
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DSN:	Siavash Taher Parvar	2024-03-27							
CHK:	Siavash Taher Parvar	2024-03-27	PRJ VER: 01	DOC VER: 01	DOC REV: 01				
REFERENCE DOCUMENTS		TITLE:							
SCH Ref. DOC.:	[02011001] - CHASSIS LED Driver.kicad_sch	CHASSIS LED Driver3							
BOM Ref. DOC.:		FILE NAME: [02011001] - CHASSIS LED Driver.kicad_sch							
PCB Ref. DOC.:		SHEET 18 OF 40 SIZE: C SCALE: 1:1 VARIANT NAME: N/A							
GBR Ref. DOC.:									
ASM Ref. DOC.:									
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W25Q64 Driver

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INFO:

9.6 AC Electrical Characteristics⁽⁶⁾

DESCRIPTION	SYMBOL	ALT	SPEC			UNIT
			MIN	TYP	MAX	
Clock frequency except for Read Data (03h) instructions (3.0V-3.6V)	f_R	f_{C1}	D.C.		133	MHz
Clock frequency except for Read Data (03h) instructions(2.7V-3.0V)	f_R	f_{C2}	D.C.		104	MHz
Clock frequency for Read Data instruction (03h)	f_R		D.C.		50	MHz
Clock High, Low Time for all instructions except for Read Data (03h)	$t_{CLH}, t_{CLL}^{(1)}$		45% PC			ns
Clock High, Low Time for Read Data (03h) instruction	$t_{CRLH}, t_{CRLL}^{(1)}$		45% PC			ns
Clock Rise Time peak to peak	$t_{CLH}^{(2)}$		0.1			V/ns
Clock Fall Time peak to peak	$t_{CHL}^{(2)}$		0.1			V/ns
/CS Active Setup Time relative to CLK	t_{SLCH}	t_{CSS}	3			ns
/CS Not Active Hold Time relative to CLK	t_{CHSL}		3			ns
Data In Setup Time	t_{DVCH}	t_{DSU}	1			ns
Data In Hold Time	t_{CHDX}	t_{DH}	2			ns
/CS Active Hold Time relative to CLK	t_{SHSH}		3			ns
/CS Not Active Setup Time relative to CLK	t_{SHSH}		3			ns
/CS Deselect Time (for Read)	t_{SHSL1}	t_{CSH}	10			ns
/CS Deselect Time (for Erase or Program or Write)	t_{SHSL2}	t_{CSH}	50			ns
Output Disable Time	$t_{HQZ}^{(2)}$	t_{DIS}		7		ns
Clock Low to Output Valid 2.7V-3.6V	t_{CLOV}	t_{V}		6		ns
Output Hold Time	t_{CLOX}	t_{HO}	1.5			ns

APPROVALS		PROJECT:	
ENG: Siavash Taher Parvar	2024-03-27	Quadcopter	
DSN: Siavash Taher Parvar	2024-03-27		
CHK: Siavash Taher Parvar	2024-03-27	PRJ VER: 01	DOC VER: 01
REFERENCE DOCUMENTS		TITLE:	
SCH Ref. DOC.: [020108] - W25Q64_Universal.sch		W25Q64 Driver	
BOM Ref. DOC.:		FILE NAME: [020108] - W25Q64_Driver.kicad_sch	
PCB Ref. DOC.:		SCALE: 1:1	
GBR Ref. DOC.:		VARIANT NAME: N/A	
ASM Ref. DOC.:		SHEET 19 OF 40	SIZE: C



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OV2640 Driver

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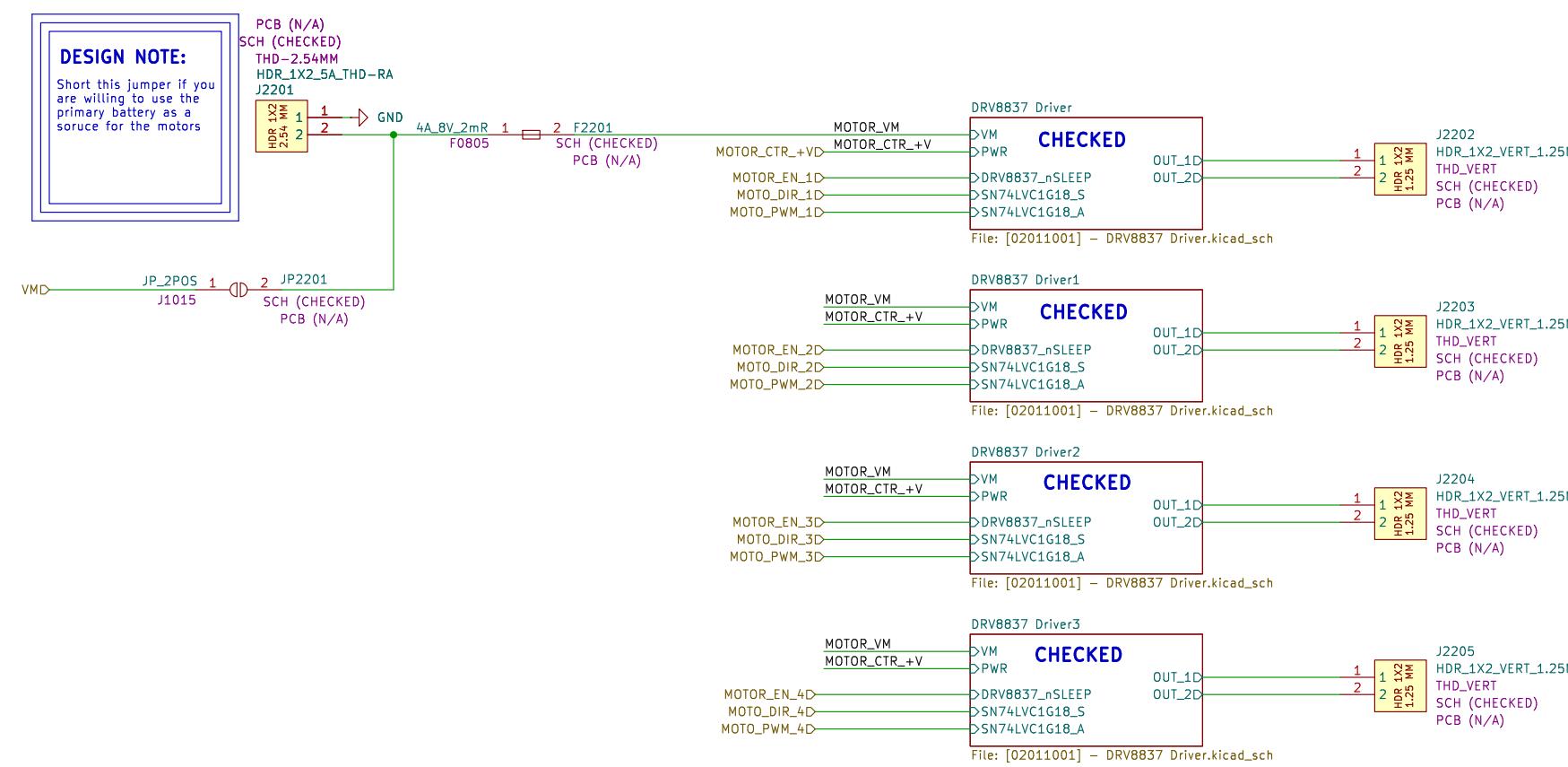
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Motor Driver

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APPROVALS		PROJECT:	
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DSN: Sivash Taher Parvar	2024-03-27		
CHK: Sivash Taher Parvar	2024-03-27	PRJ VER: 01 DOC VER: 01 DOC REV: 01	
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SCH Ref. DOC.: [020110] - Motor_Driver.kicad_sch		Motor Driver	
BOM Ref. DOC.:		FILE NAME: [020110] - Motor_Driver.kicad_sch	
PCB Ref. DOC.:		SHEET 21 OF 40 SIZE: C SCALE: 1:1 VARIANT NAME: N/A	
GBR Ref. DOC.:			
ASM Ref. DOC.:			

DRV8837 Driver

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INFO:			
Table 1. Function Table			
INPUTS	OUTPUTS	Y0	Y1
L	L	L	Z
L	H	H	Z
H	L	Z	L
H	H	Z	H

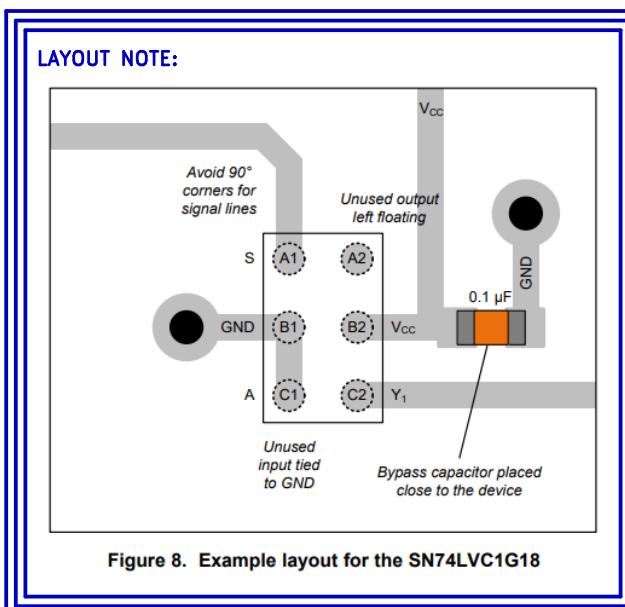
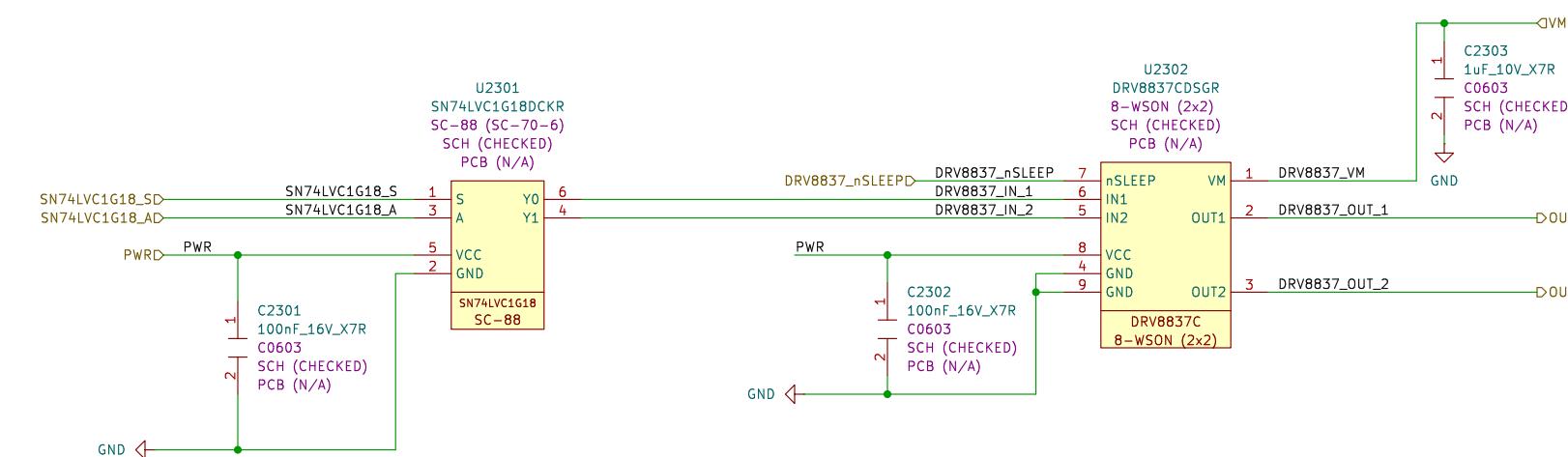


Figure 8. Example layout for the SN74LVC1G18

INFO:					
Table 1. DRV8837C Device Logic					
nSLEEP	IN1	IN2	OUT1	OUT2	FUNCTION (DC MOTOR)
0	X	X	Z	Z	Coast
1	0	0	Z	Z	Coast
1	0	1	L	H	Reverse
1	1	0	H	L	Forward
1	1	1	L	L	Brake

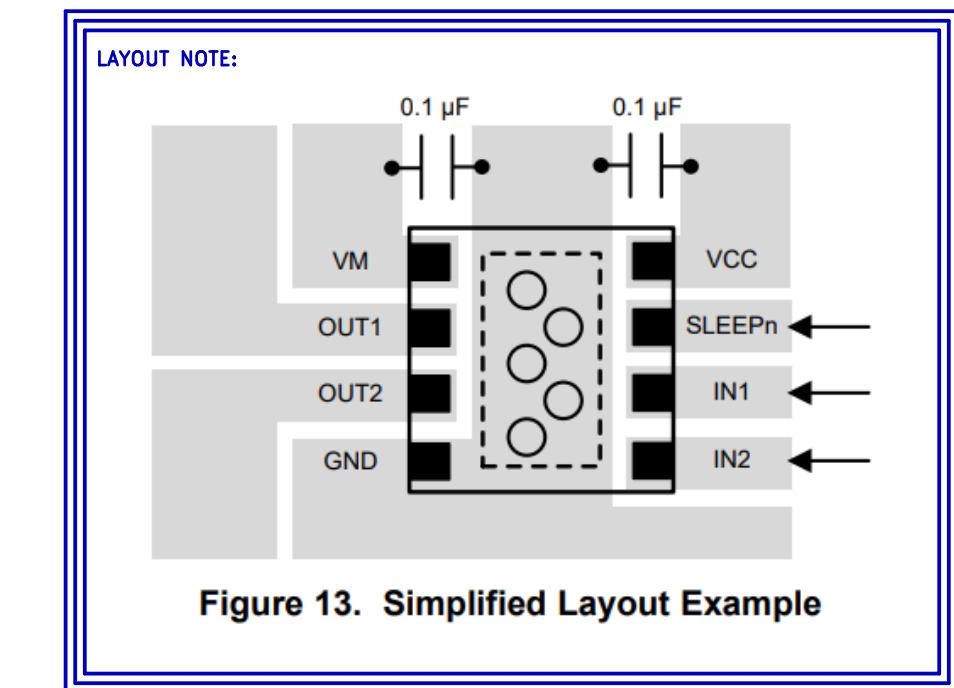


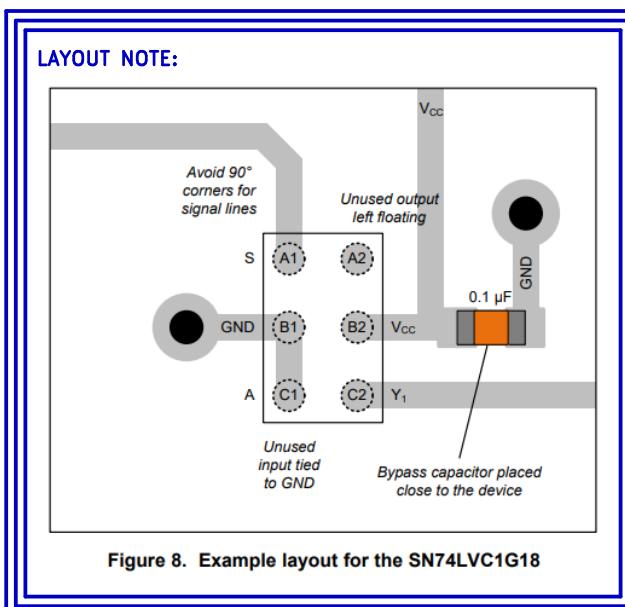
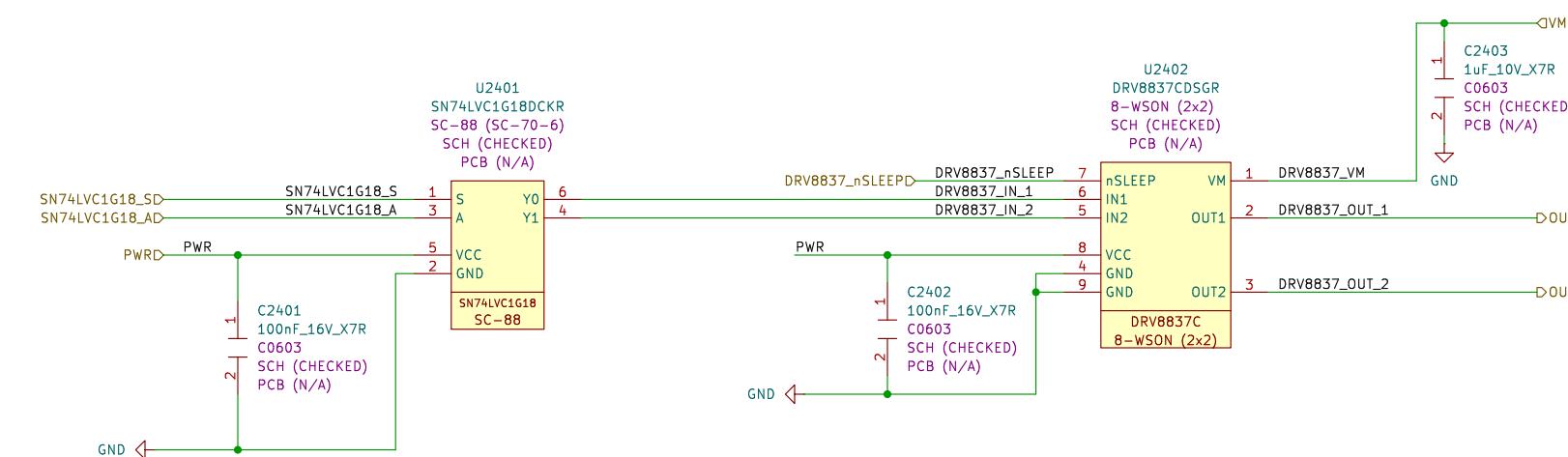
Figure 13. Simplified Layout Example

APPROVALS	DATE	PROJECT: Quadcopter			Mendozo								
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REFERENCE DOCUMENTS													
SCH Ref. DOC.: [02011001] - DRV8837_Driver.kicad_sch	PRJ VER: 01	DOC VER: 01	DOC REV: 01										
BOM Ref. DOC.:	TITLE: DRV8837 Driver												
PCB Ref. DOC.:	FILE NAME: [02011001] - DRV8837_Driver.kicad_pcb												
GBR Ref. DOC.:	SHEET 22 OF 40												
ASM Ref. DOC.:	SIZE: C												
SCALE: 1:1													
VARIANT NAME: N/A													

DRV8837 Driver1

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INFO:			
Table 1. Function Table			
INPUTS	OUTPUTS	Y0	Y1
L	L	L	Z
L	H	H	Z
H	L	Z	L
H	H	Z	H



INFO:					
Table 1. DRV8837C Device Logic					
nSLEEP	IN1	IN2	OUT1	OUT2	FUNCTION (DC MOTOR)
0	X	X	Z	Z	Coast
1	0	0	Z	Z	Coast
1	0	1	L	H	Reverse
1	1	0	H	L	Forward
1	1	1	L	L	Brake

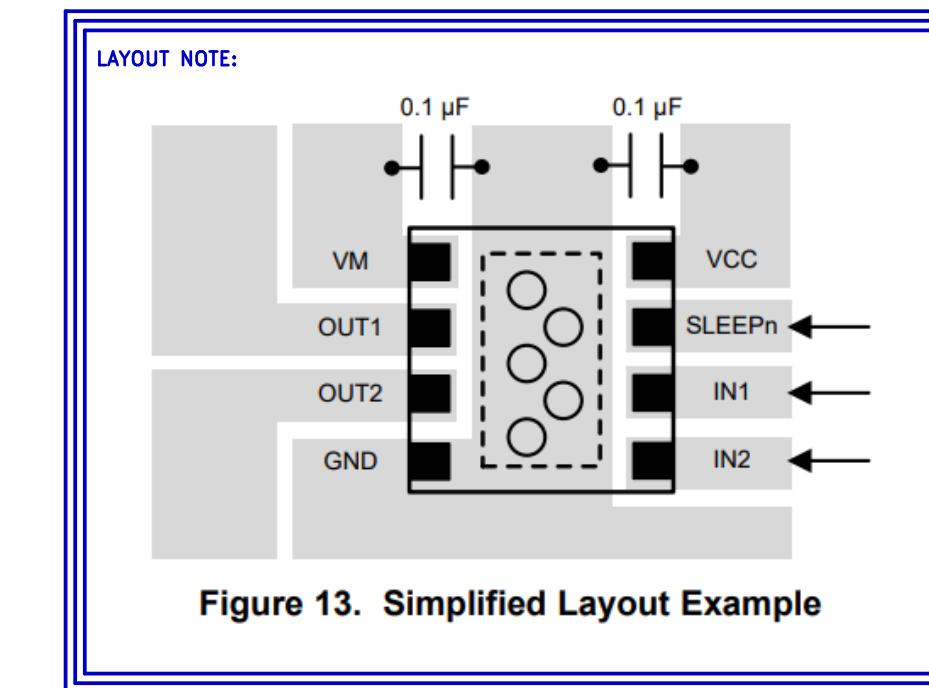


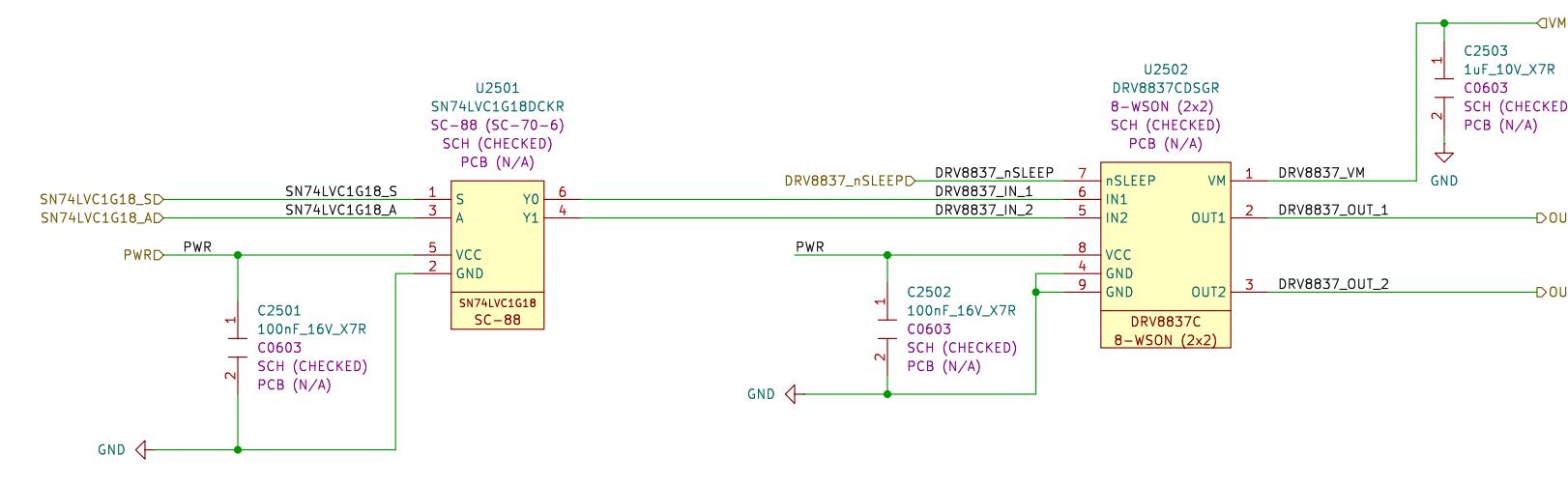
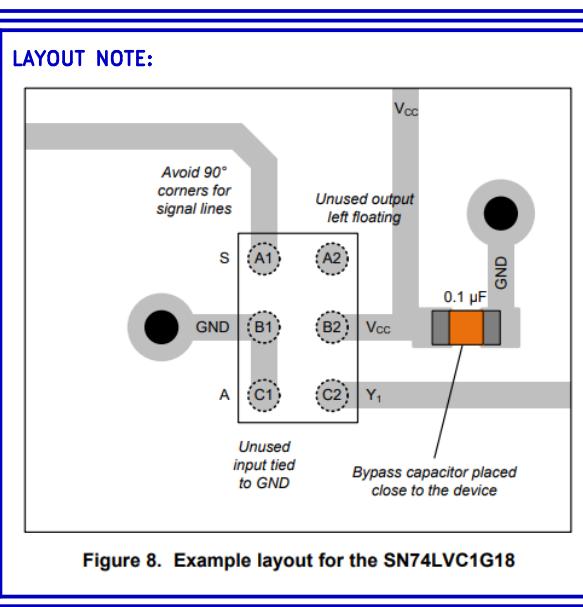
Figure 13. Simplified Layout Example

APPROVALS	DATE	PROJECT: Quadcopter			Mendozo								
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PCB Ref. DOC.:	FILE NAME: [02011001] - DRV8837_Driver.kicad_pcb												
GBR Ref. DOC.:	SHEET 23 OF 40												
ASM Ref. DOC.:	SIZE: C												
SCALE: 1:1													
VARIANT NAME: N/A													

DRV8837 Driver2

RELEASED

INFO:			
Table 1. Function Table			
INPUTS	OUTPUTS	Y0	Y1
L	L	L	Z
L	H	H	Z
H	L	Z	L
H	H	Z	H



INFO:					
Table 1. DRV8837C Device Logic					
nSLEEP	IN1	IN2	OUT1	OUT2	FUNCTION (DC MOTOR)
0	X	X	Z	Z	Coast
1	0	0	Z	Z	Coast
1	0	1	L	H	Reverse
1	1	0	H	L	Forward
1	1	1	L	L	Brake

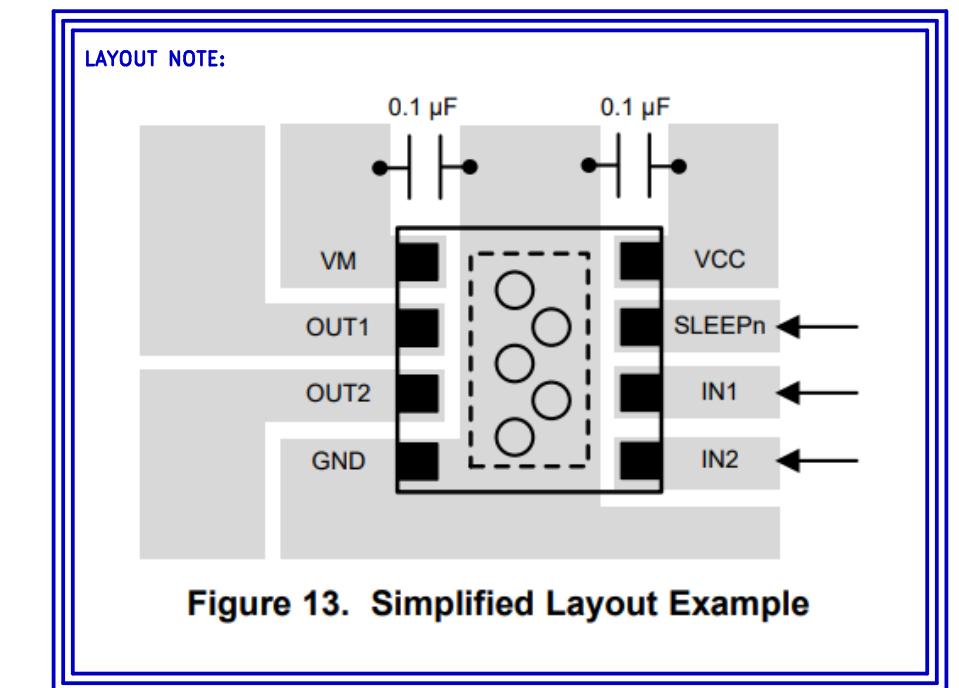


Figure 13. Simplified Layout Example

APPROVALS	DATE	PROJECT: Quadcopter			Mendozo	
ENG: Siavash Taher Parvar	2024-03-27	PRJ VER: 01	DOC VER: 01	DOC REV: 01		
DSN: Siavash Taher Parvar	2024-03-27	REFERENCE DOCUMENTS				
CHK: Siavash Taher Parvar	2024-03-27	SCH Ref. DOC.: [02011001] - DRV8837_Driver.kicad_sch				
BOM Ref. DOC.:		BOM Ref. DOC.: [02011001] - DRV8837_Driver.bom				
PCB Ref. DOC.:		PCB Ref. DOC.: [02011001] - DRV8837_Driver.kicad_pcb				
GBR Ref. DOC.:		GBR Ref. DOC.: [02011001] - DRV8837_Driver.gbr				
ASM Ref. DOC.:		ASM Ref. DOC.: [02011001] - DRV8837_Driver.asm				
FILE NAME: [02011001] - DRV8837_Driver.kicad_sch						
SHEET 24 OF 40	SIZE: C	SCALE: 1:1	VARIANT NAME: N/A	OPEN-SOURCE DOCUMENT		

DRV8837 Driver3

RELEASED

INFO:			
Table 1. Function Table			
INPUTS	OUTPUTS	Y0	Y1
L	L	L	Z
L	H	H	Z
H	L	Z	L
H	H	Z	H

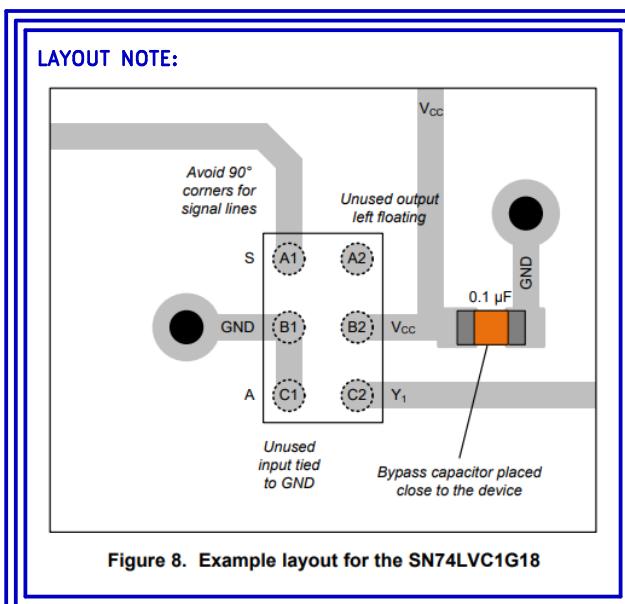
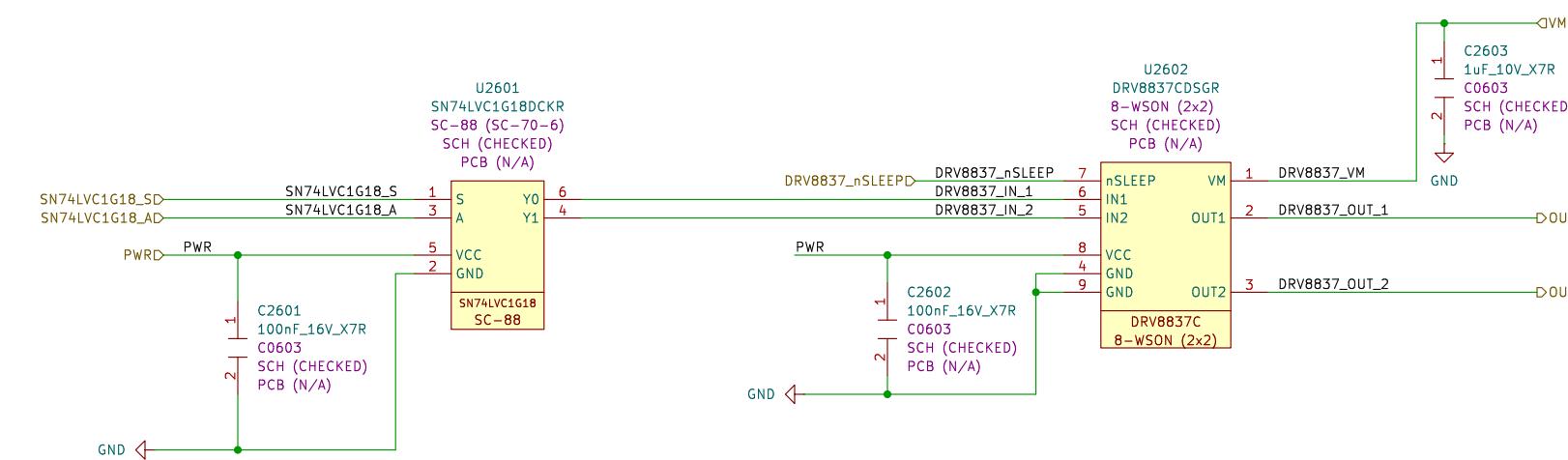


Figure 8. Example layout for the SN74LVC1G18

INFO:					
Table 1. DRV8837C Device Logic					
nSLEEP	IN1	IN2	OUT1	OUT2	FUNCTION (DC MOTOR)
0	X	X	Z	Z	Coast
1	0	0	Z	Z	Coast
1	0	1	L	H	Reverse
1	1	0	H	L	Forward
1	1	1	L	L	Brake

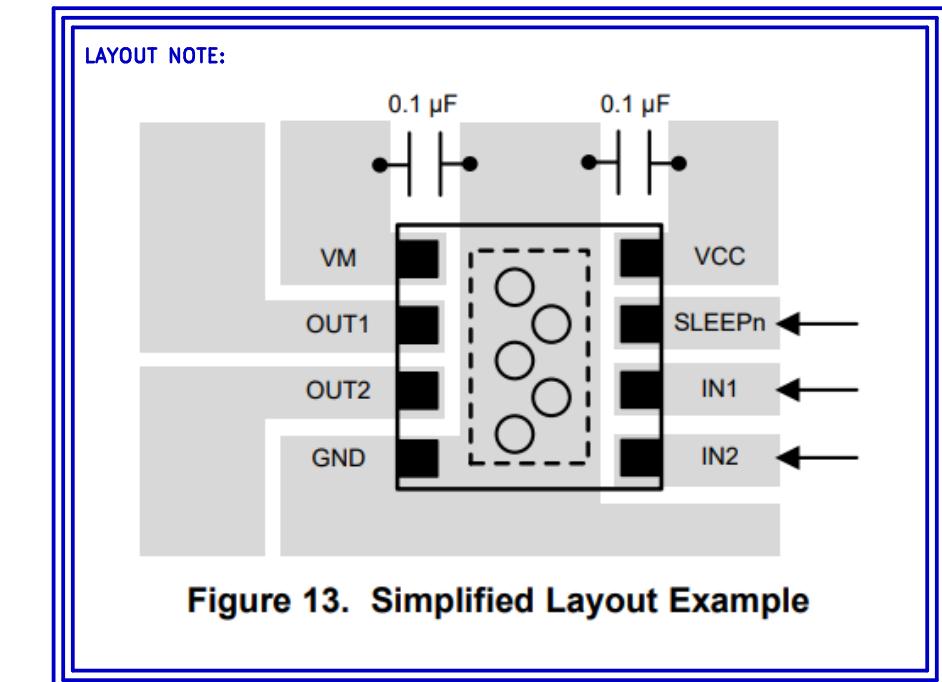


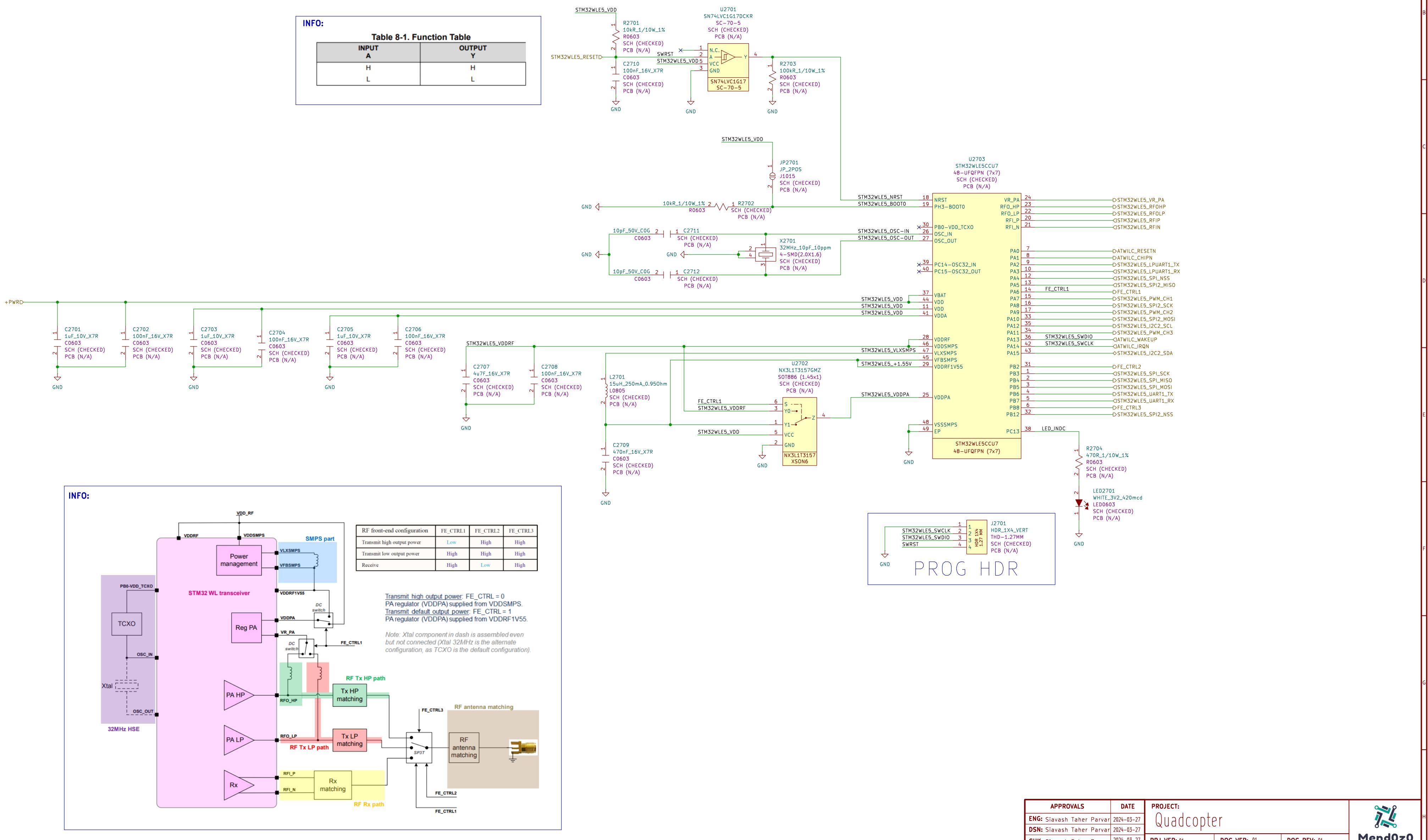
Figure 13. Simplified Layout Example

APPROVALS	DATE	PROJECT: Quadcopter			Mendozo			
ENG: Siavash Taher Parvar	2024-03-27	DSN: Siavash Taher Parvar	2024-03-27	CHK: Siavash Taher Parvar				
REFERENCE DOCUMENTS								
SCH Ref. DOC.: [02011001] - DRV8837.Driver.kicad_sch	PRJ VER: 01	DOC VER: 01	DOC REV: 01					
BOM Ref. DOC.:	TITLE: DRV8837 Driver3							
PCB Ref. DOC.:	FILE NAME: [02011001] - DRV8837.Driver.kicad_pcb							
GBR Ref. DOC.:	SHEET 25	OF 40	SIZE: C	SCALE: 1:1	VARIANT NAME: N/A			
ASM Ref. DOC.:								

STM32WLE5 Driver

RELEASED

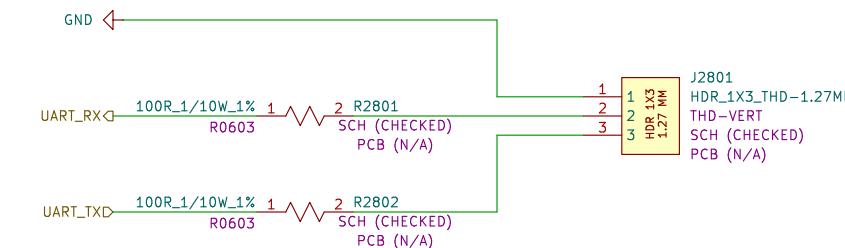
INFO:	
Table 8-1. Function Table	
INPUT A	OUTPUT Y
H	H
L	L



APPROVALS	DATE	PROJECT:
ENG: Sivash Taher Parvar	2024-03-27	Quadcopter
DSN: Sivash Taher Parvar	2024-03-27	
CHK: Sivash Taher Parvar	2024-03-27	
REF. DOC.: SCH Ref. Doc.: [02021] - STM32WLE5_Driver.kicad_sch		TITLE: STM32WLE5 Driver
BOM Ref. Doc.:		FILE NAME: [020201] - STM32WLE5_Driver.kicad_sch
PCB Ref. Doc.:		Sheet 26 of 40 SIZE: C SCALE: 1:1 VARIANT: N/A
GBR Ref. Doc.:		
ASM Ref. Doc.:		

DEBUG UART

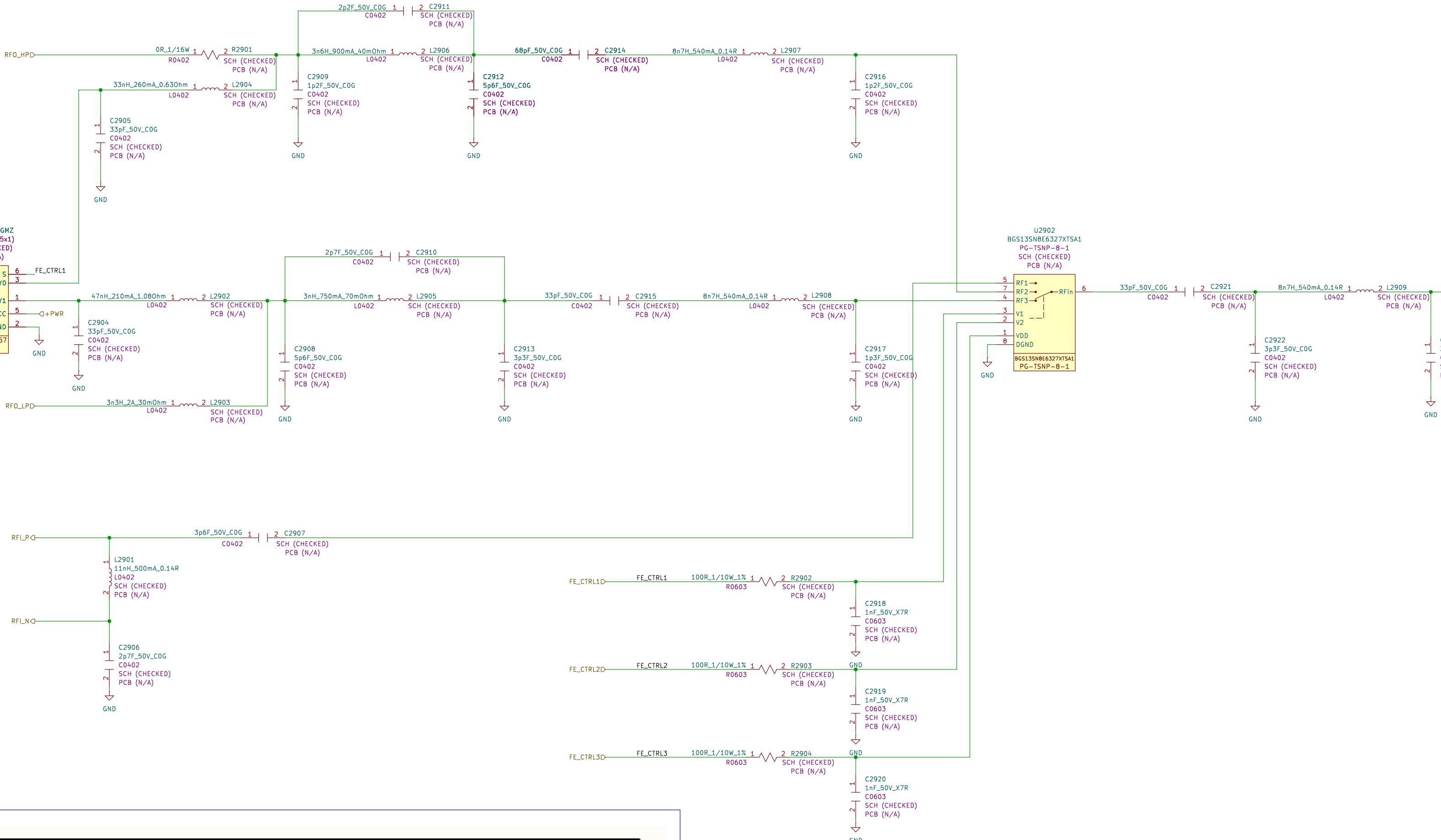
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APPROVALS	DATE	PROJECT:			Mendozo
ENG: Siavash Taher Parvar	2024-03-27	Quadcopter			
DSN: Siavash Taher Parvar	2024-03-27	PRJ VER: 01			
CHK: Siavash Taher Parvar	2024-03-27	DOC VER: 01			
DOC REV: 01					
REFERENCE DOCUMENTS	TITLE:	OPEN-SOURCE DOCUMENT			
SCH Ref. DOC.: [0202] - DEBUG_UART.kicad_sch	DEBUG UART				
BOM Ref. DOC.:					
PCB Ref. DOC.:					
GBR Ref. DOC.:					
ASM Ref. DOC.:	FILE NAME: [0202] - DEBUG_UART.kicad_sch				
	SHEET 27 OF 40	SIZE: C	SCALE: 1:1	VARIANT NAME: N/A	

Antenna Driver

RELEASED



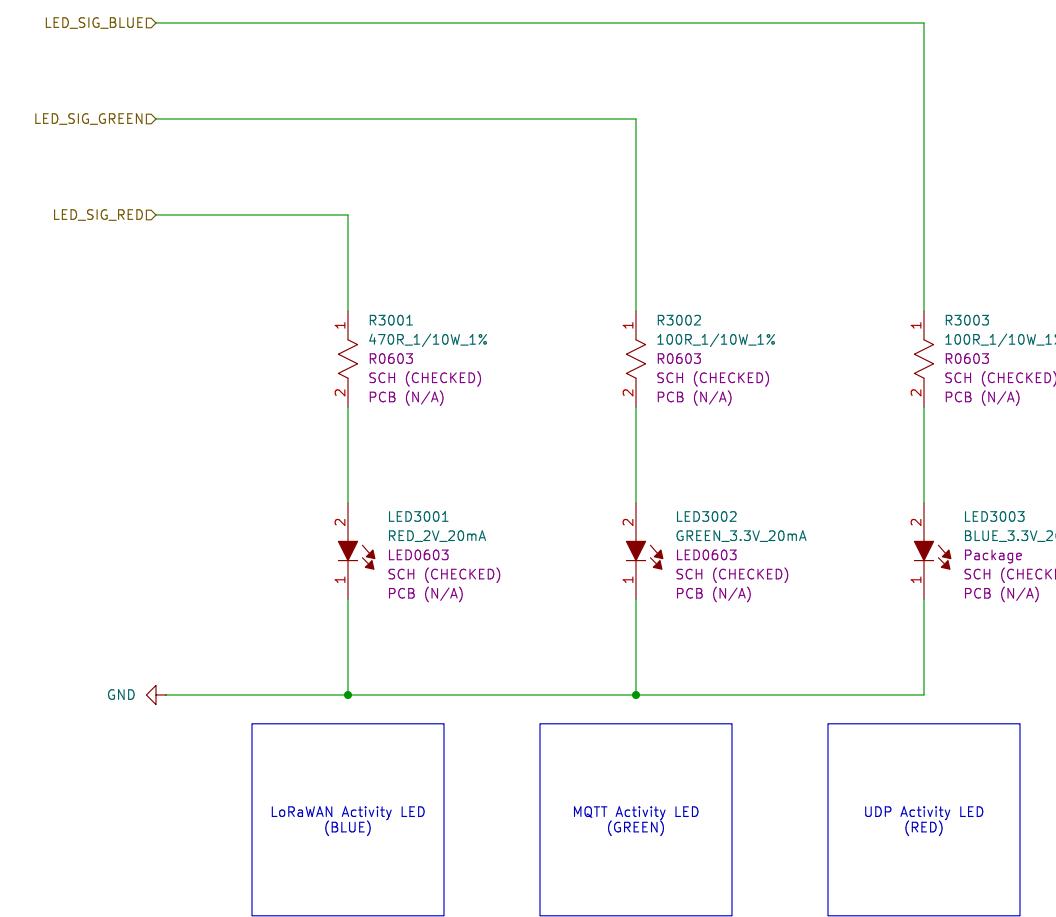
INFO:

RF front-end configuration	FE_CTRL1	FE_CTRL2	FE_CTRL3
Transmit high output power	Low	High	High
Transmit low output power	High	High	High
Receive	High	Low	High

APPROVALS		DATE	PROJECT: Quadcopter			
ENG: Sivash Taher Parvar		2024-03-27	PRJ VER: 01	DOC VER: 01	DOC REV: 01	
DSN: Sivash Taher Parvar		2024-03-27				
CHK: Sivash Taher Parvar		2024-03-27				
REFERENCE DOCUMENTS						
SCH Ref. DOC.: [020203] - Antenna Driver.kicad_sch						
BOM Ref. DOC.:						
PCB Ref. DOC.:						
GBR Ref. DOC.:						
ASM Ref. DOC.:						
FILE NAME: [020203] - Antenna Driver.kicad_sch						
SHEET 28	OF 40	SIZE: C	SCALE: 1:1	VARIANT: N/A		

Activity LEDs Driver

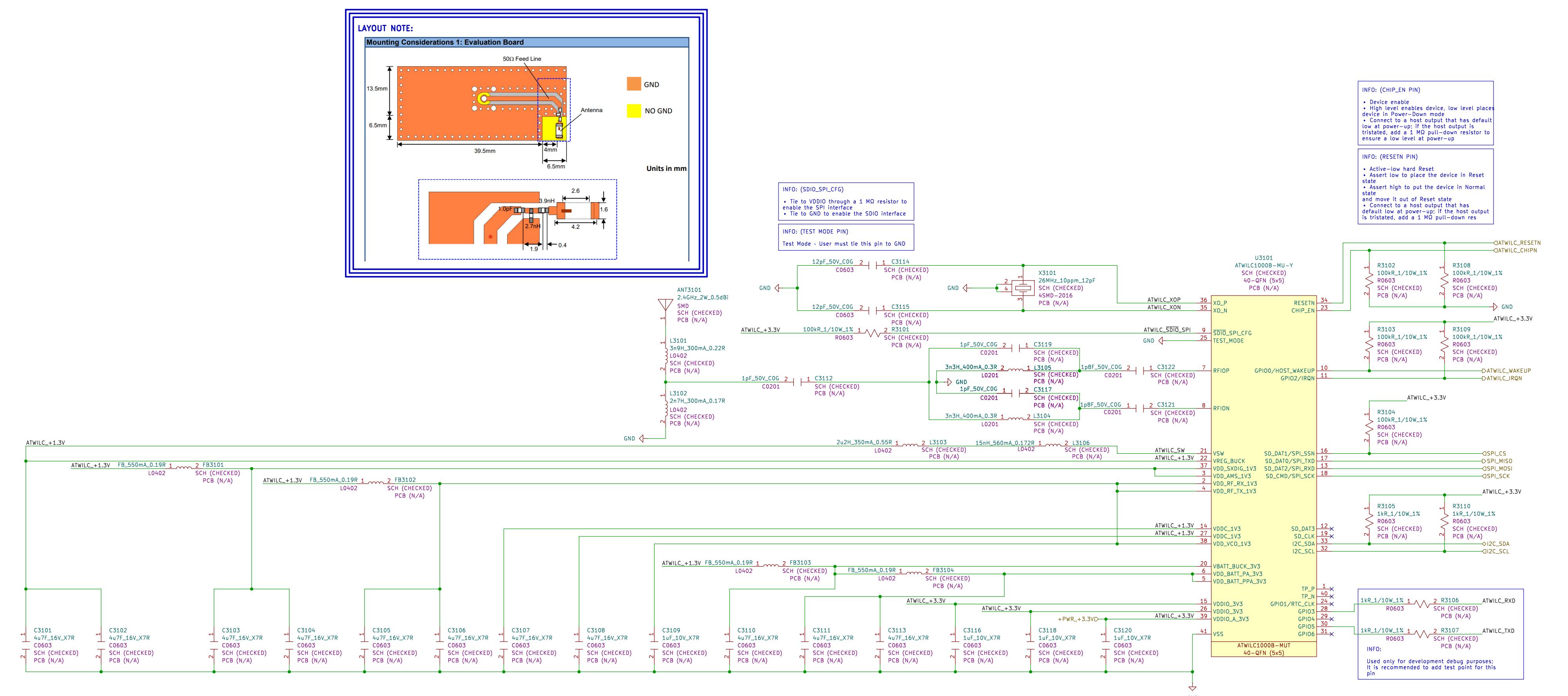
RELEASED



APPROVALS		DATE	PROJECT:		
ENG:	Siavash Taher Parvar	2024-03-27	Quadcopter		
DSN:	Siavash Taher Parvar	2024-03-27			
CHK:	Siavash Taher Parvar	2024-03-27	PRJ VER: 01	DOC VER: 01	DOC REV: 01
REFERENCE DOCUMENTS		TITLE:			
SCH Ref. DOC.:	(0204) - Activity LEDs Driver.kicad_sch	Activity LEDs Driver			
BOM Ref. DOC.:					
PCB Ref. DOC.:					
GBR Ref. DOC.:					
ASM Ref. DOC.:					
FILE NAME: (0204) - Activity LEDs Driver.kicad_sch			SHEET: 29	OF: 40	SIZE: C
			SCALE: 1:1		VARIANT NAME: N/A
Mendozo					
OPEN-SOURCE DOCUMENT					

ATWIL1000C Driver

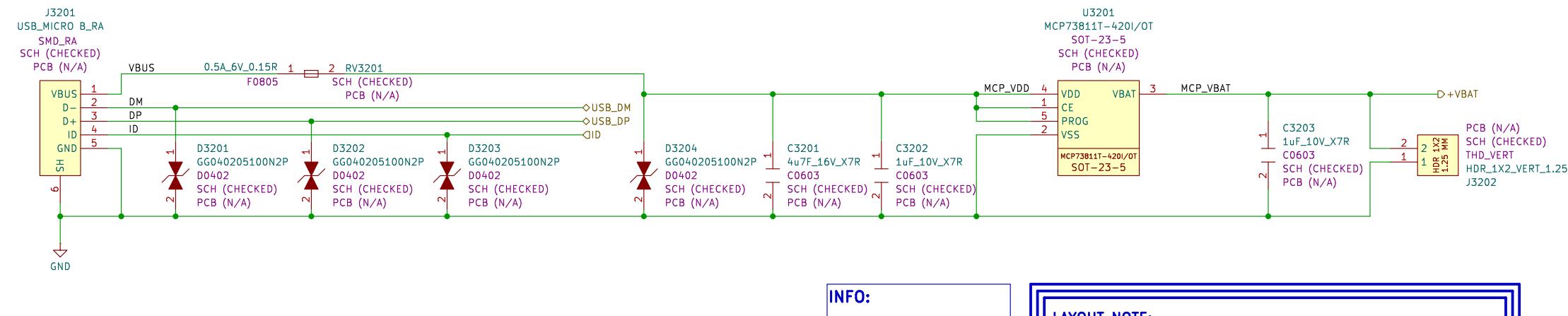
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APPROVALS		DATE	PROJECT: Quadcopter			
ENG: Sivash Taher Parvar		2024-03-27	PRJ VER: 01	DOC VER: 01	DOC REV: 01	
DSN: Sivash Taher Parvar		2024-03-27	TITLE: ATWIL1000C Driver			
CHK: Sivash Taher Parvar		2024-03-27	FILE NAME: [020205] - ATWIL1000C.Driver.kicad_sch			
REFERENCE DOCUMENTS			OPEN-SOURCE DOCUMENT			
SCH Ref. DOC.: [020205] - ATWIL1000C.Driver.kicad_sch			Mendozo			
BOM Ref. DOC.:			OPEN-SOURCE DOCUMENT			
PCB Ref. DOC.:			OPEN-SOURCE DOCUMENT			
GBR Ref. DOC.:			OPEN-SOURCE DOCUMENT			
ASM Ref. DOC.:			OPEN-SOURCE DOCUMENT			
SHEET 30 OF 40	SIZE: C	SCALE: 1:1	VARIANT: N/A			

BATTERY CHARGER

RELEASED



INFO:

For the MCP73811, the current regulation set input (PROG) functions as a digital input selection. A logic Low selects a 85 mA charge current; a logic High selects a 450 mA charge current.

INFO:
A logic High enables battery charging. A logic Low disables battery charging. The charge enable input is compatible 1.8V logic.

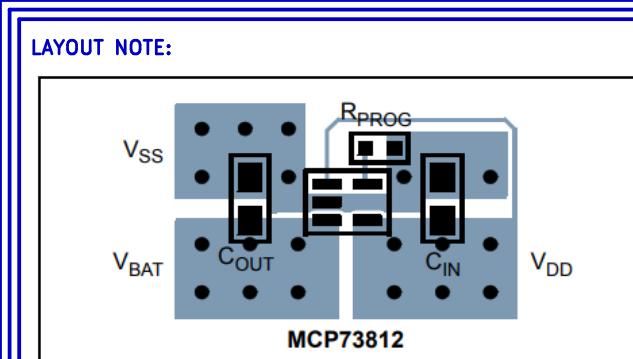


FIGURE 6-3: Typical Layout (Top)

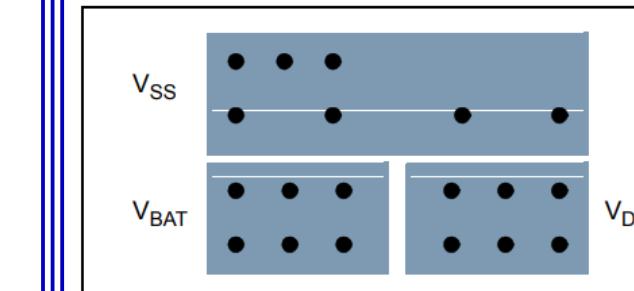
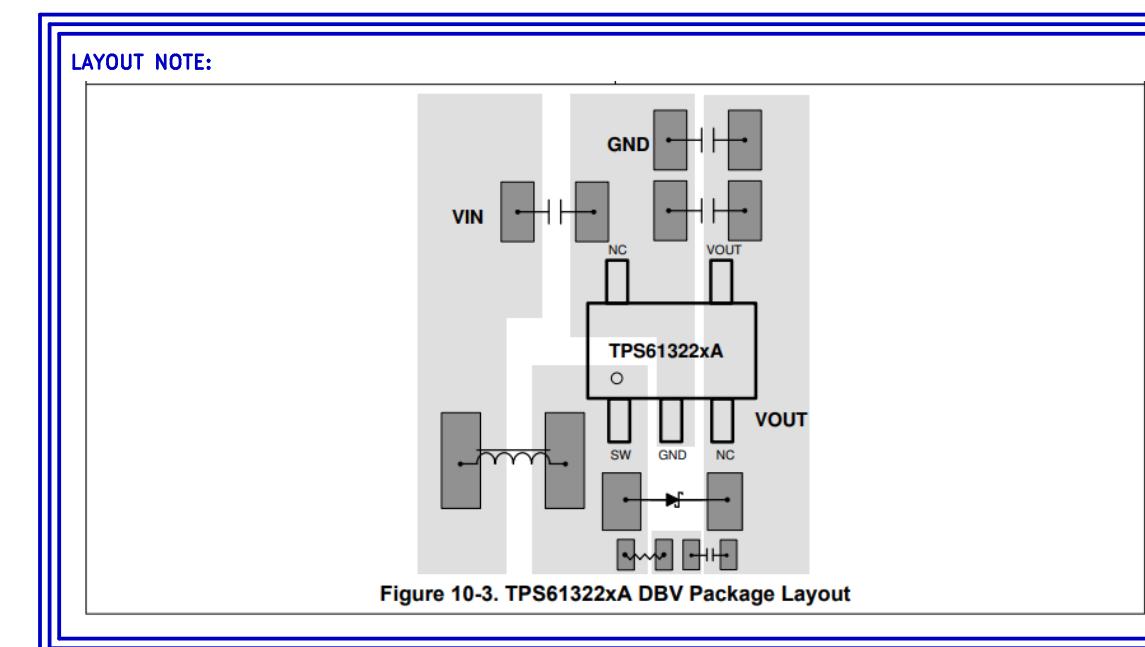
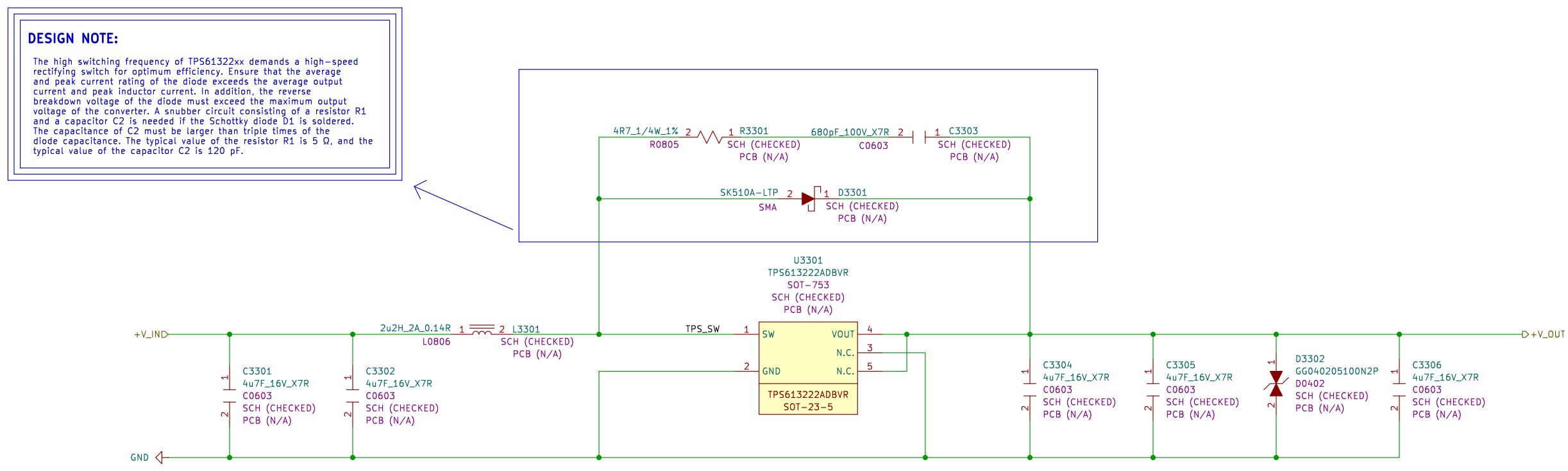


FIGURE 6-4: Typical Layout (Bottom)

APPROVALS	DATE	PROJECT: Quadcopter			 MendOzo
ENG: Siavash Taher Parvar	2024-03-27	DSN: Siavash Taher Parvar	2024-03-27	CHK: Siavash Taher Parvar	
		PRJ VER: 01	DOC VER: 01	DOC REV: 01	
REFERENCE DOCUMENTS		TITLE: BATTERY CHARGER			OPEN-SOURCE DOCUMENT
SCH Ref. DOC.: [020301] – BATTERY CHARGER.kicad_sch	BOM Ref. DOC.:	FILE NAME: [020301] – BATTERY CHARGER.kicad_sch			
PCB Ref. DOC.:	GBR Ref. DOC.:	SHEET 31 OF 40	SIZE: C	SCALE: 1:1	VARIANT NAME: N/A
ASM Ref. DOC.:					

SMPS DCDC-BOOST +5V

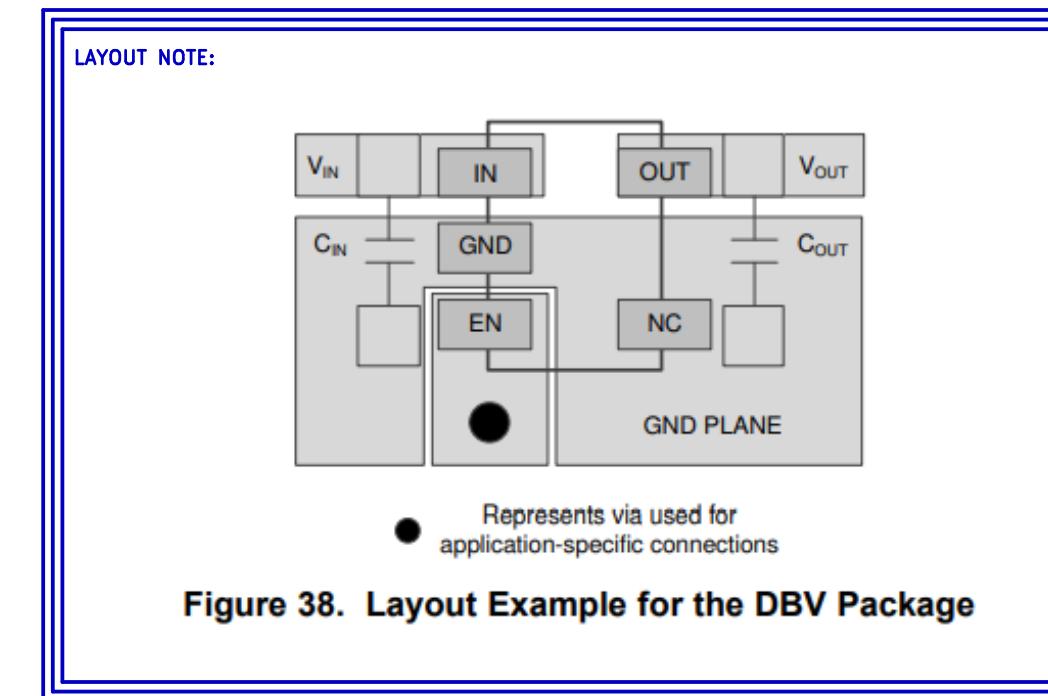
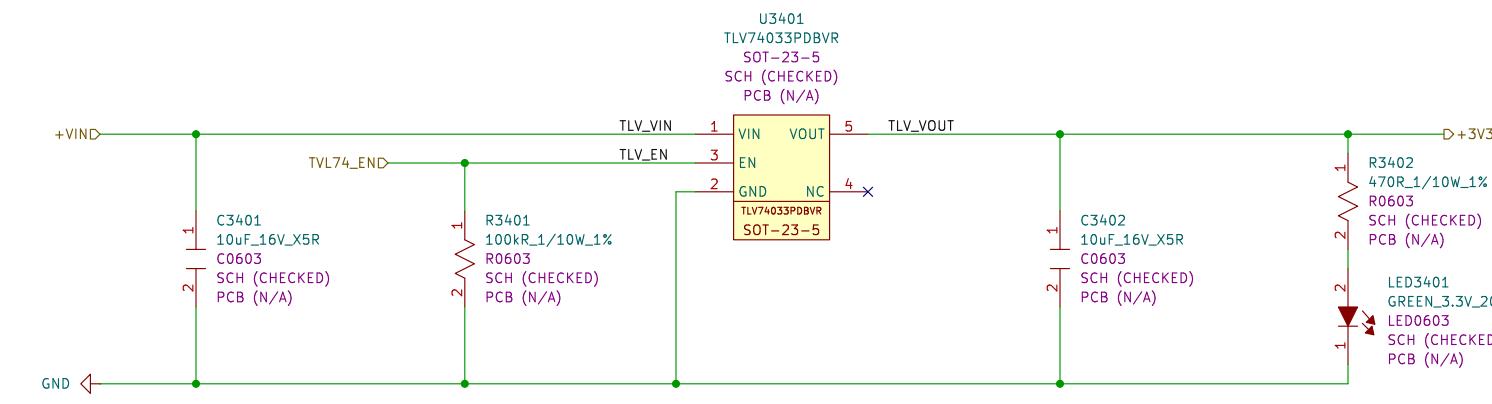
RELEASED



APPROVALS		DATE	PROJECT:		
ENG:	Sivash Taher Parvar	2024-03-27	Quadcopter		
DSN:	Sivash Taher Parvar	2024-03-27			
CHK:	Sivash Taher Parvar	2024-03-27	PRJ VER:	01	DOC VER: 01
REFERENCE DOCUMENTS		TITLE:			Mendozo
SCH Ref. DOC.:	[020302] - SMPS DCDC-BOOST +5V.kicad.sch	SMPS DCDC-BOOST +5V			OPEN-SOURCE DOCUMENT
BOM Ref. DOC.:					
PCB Ref. DOC.:					
GBR Ref. DOC.:					
ASM Ref. DOC.:					
FILE NAME: [020302] - SMPS DCDC-BOOST +5V.kicad_sch			SCALE: 1:1		
SHEET 32 OF 40		SIZE: C	VARIANT NAME: N/A		

LDO +3V3

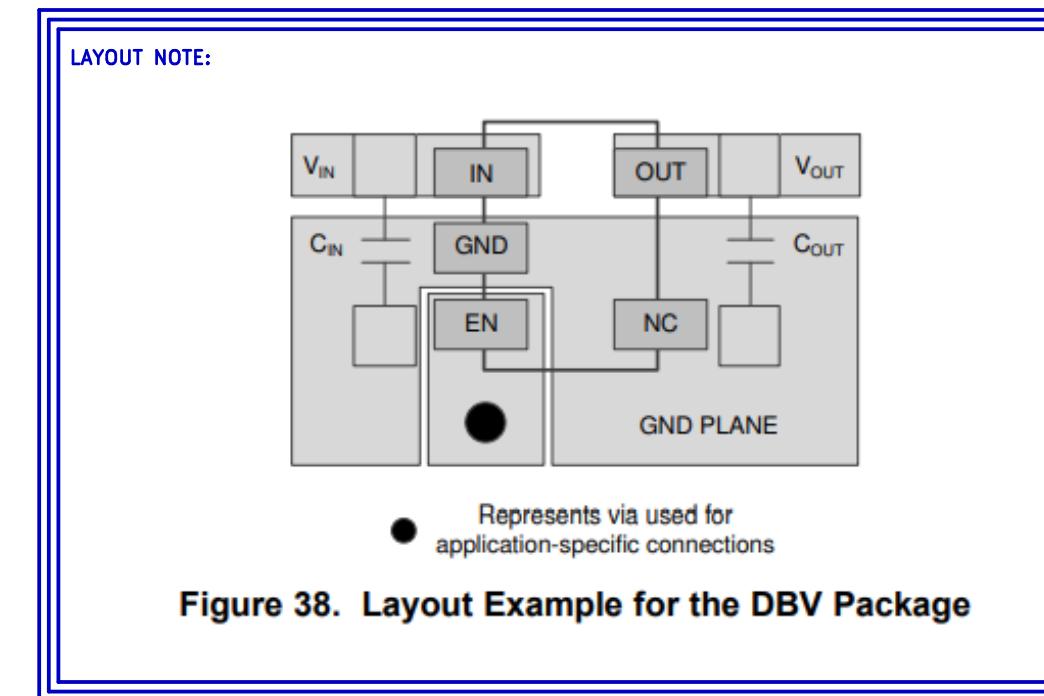
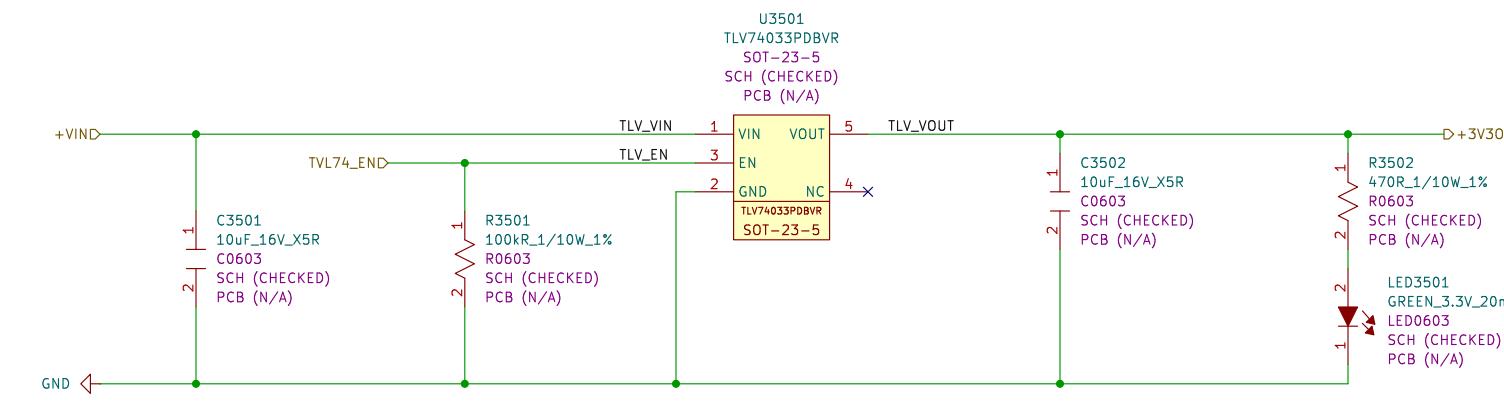
RELEASED



APPROVALS		DATE	PROJECT: Quadcopter				
ENG: Siavash Taher Parvar	2024-03-27	DSN: Siavash Taher Parvar	2024-03-27	CHK: Siavash Taher Parvar	2024-03-27		
PRJ VER: 01			DOC VER: 01	DOC REV: 01			
REFERENCE DOCUMENTS			TITLE: LDO +3V3				
SCH Ref. DOC.: [020303] - LDO +3V3.kicad_sch	BOM Ref. DOC.:	PCB Ref. DOC.:	GBR Ref. DOC.:	ASM Ref. DOC.:	FILE NAME: [020303] - LDO +3V3.kicad_sch		
SHEET 33 OF 40			SIZE: C	SCALE: 1:1	VARIANT NAME: N/A	OPEN-SOURCE DOCUMENT	

LDO +3V3_1

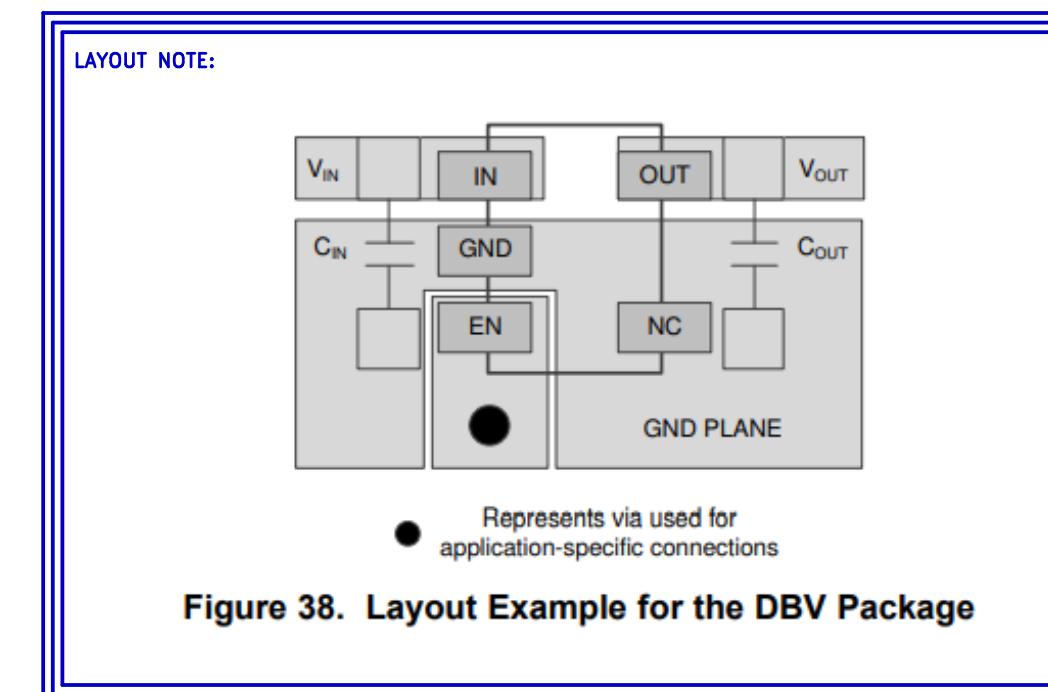
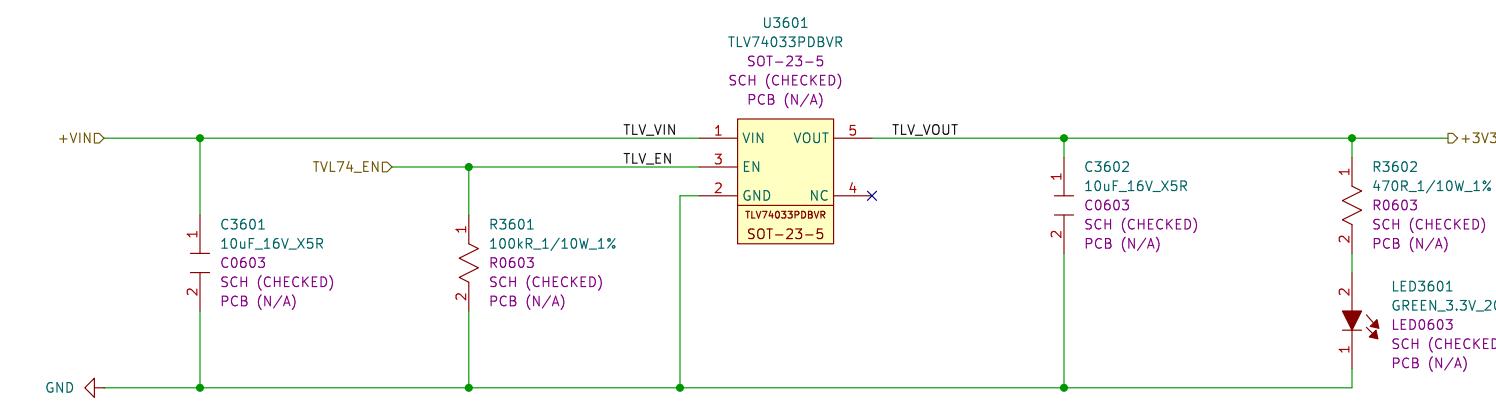
RELEASED



APPROVALS		DATE	PROJECT: Quadcopter				
ENG: Siavash Taher Parvar	2024-03-27	DSN: Siavash Taher Parvar	2024-03-27	CHK: Siavash Taher Parvar	2024-03-27		
PRJ VER: 01			DOC VER: 01	DOC REV: 01			
REFERENCE DOCUMENTS			TITLE: LDO +3V3_1				
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SHEET 34 OF 40			SIZE: C	SCALE: 1:1	VARIANT NAME: N/A	OPEN-SOURCE DOCUMENT	

LDO +3V3_2

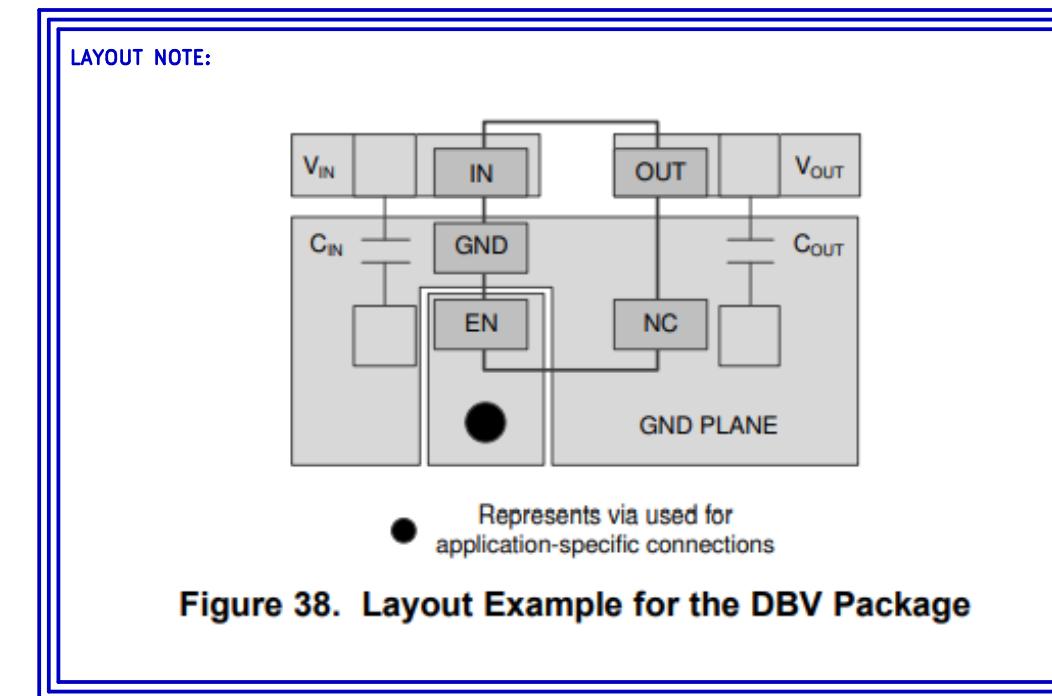
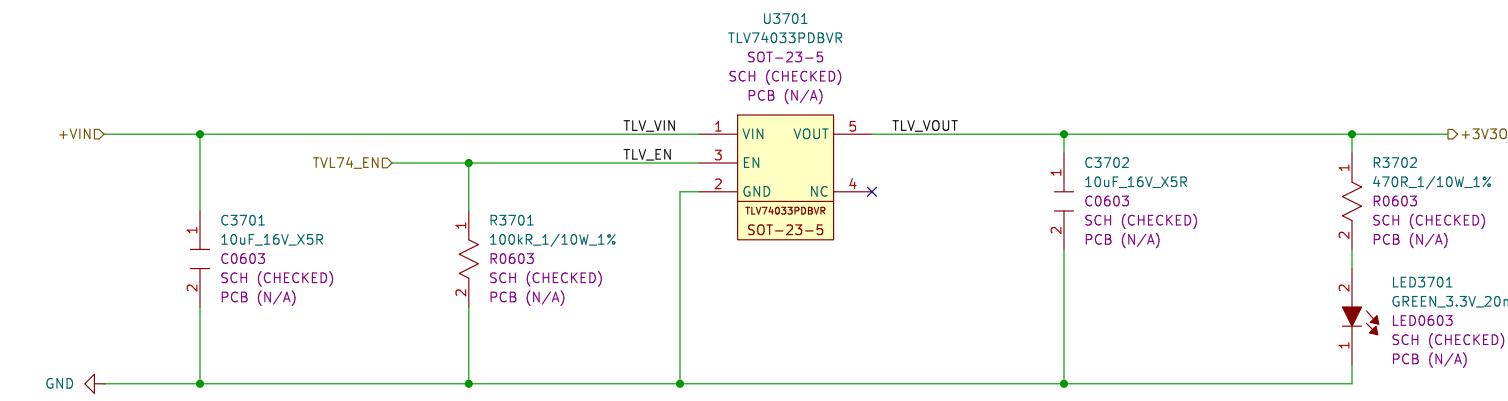
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APPROVALS		PROJECT:	
ENG: Siavash Taher Parvar	2024-03-27	Quadcceptor	
DSN: Siavash Taher Parvar	2024-03-27		
CHK: Siavash Taher Parvar	2024-03-27	PRJ VER: 01	DOC VER: 01
REFERENCE DOCUMENTS		TITLE: LDO +3V3_2	
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PCB Ref. DOC.:	GBR Ref. DOC.:		
ASM Ref. DOC.:		SHEET 35 OF 40	SIZE: C
		SCALE: 1:1	VARIANT NAME: N/A

LDO +3V3_3

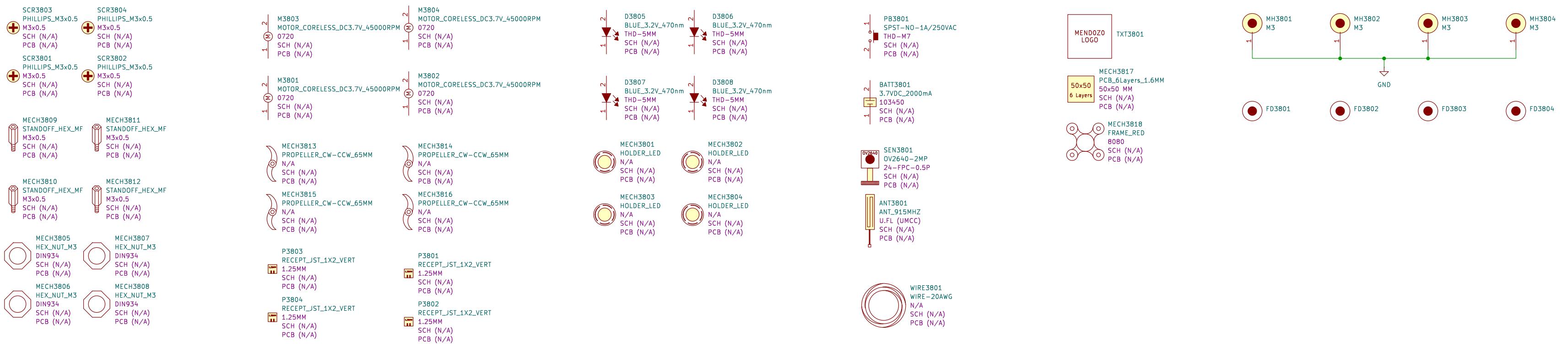
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APPROVALS		DATE	PROJECT: Quadcopter				
ENG: Siavash Taher Parvar	2024-03-27	DSN: Siavash Taher Parvar	2024-03-27	CHK: Siavash Taher Parvar	2024-03-27		
PRJ VER: 01			DOC VER: 01	DOC REV: 01			
REFERENCE DOCUMENTS			TITLE: LDO +3V3_3				
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OPEN-SOURCE DOCUMENT			SHEET 36 OF 40 SIZE: C SCALE: 1:1 VARIANT NAME: N/A				

MECHANICAL PARTS

RELEASED



APPROVALS		DATE	PROJECT:		
ENG:	Sivash Taher Parvar	2024-03-27	Quadcopter		
DSN:	Sivash Taher Parvar	2024-03-27			
CHK:	Sivash Taher Parvar	2024-03-27	PRJ VER: 01	DOC VER: 01	DOC REV: 01
REFERENCE DOCUMENTS			TITLE:		
SCH Ref. DOC.: [03] - MECHANICAL PARTS.kicad_sch			MECHANICAL PARTS		
PCB Ref. DOC.:			FILE NAME: [03] - MECHANICAL PARTS.kicad_sch		
GBR Ref. DOC.:			SHEET 37 OF 40		
ASM Ref. DOC.:			SIZE: C	SCALE: 1:1	VARIANT NAME: N/A



Mendozo

OPEN-SOURCE
DOCUMENT

1 2 3 4 5 6 7 8 9 10 11

THIS DOCUMENT AND THE DATA DISCLOSED
HEREIN OR HEREWITH ARE ALL OPEN-SOURCE
AND THERE IS NO RESPONSIBILITY FOR
PROBABLE FAILURE OR INJURY

REVISION	DESCRIPTION	DATE	APPROVED
01	First Version	2024-03-27	Siavash Taher Parvar

Power Sequence

RELEASED

APPROVALS	DATE	PROJECT:	OPEN-SOURCE DOCUMENT
ENG: Siavash Taher Parvar	2024-03-27	Quadcopter	
DSN: Siavash Taher Parvar	2024-03-27		
CHK: Siavash Taher Parvar	2024-03-27	PRJ VER: 01	DOC VER: 01
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GBR Ref. DOC.:			
ASM Ref. DOC.:		SHEET 38 OF 40	SCALE: 1:1
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THIS DOCUMENT AND THE DATA DISCLOSED
HEREIN OR HEREWITH ARE ALL OPEN-SOURCE
AND THERE IS NO RESPONSIBILITY FOR
PROBABLE FAILURE OR INJURY

REVISION	DESCRIPTION	DATE	APPROVED
01	First Version	2024-03-27	Siavash Taher Parvar

Revision History

RELEASED

APPROVALS	DATE	PROJECT:	MendOzo		
ENG: Siavash Taher Parvar	2024-03-27	Quadcopter			
DSN: Siavash Taher Parvar	2024-03-27		PRJ VER: 01	DOC VER: 01	DOC REV: 01
CHK: Siavash Taher Parvar	2024-03-27				
REFERENCE DOCUMENTS		TITLE:	Revision History		
SCH Ref. DOC.: [06] - Revision History.kicad_sch			FILE NAME: [05] - Revision History.kicad_sch		
BOM Ref. DOC.:			SHEET 39 OF 40 SIZE: C SCALE: 1:1 VARIANT NAME: N/A		
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GBR Ref. DOC.:					
ASM Ref. DOC.:					