

SDRR

07/04/2022

LIDO
Variant: Draft

Version and Revision
1.1

Sch. under Review

Page	Index
1	Cover Page
2	Block Diagram
3	Revision History
4	Revision History
5	Front Connector
6	Rear Connector
7	Input Voltage and Power Supplies
8	Input Stage
9	Output stage
10	Microcontroller Peripherals 1

Page	Index
11	Microcontroller Peripherals 2
12	Microcontroller and Reset
13	Security and Temperature Sensor
14	Vehicle Interface
15	Display Interface
16	Status Light Interface
17	Accessory Interfaces
18	
19	
20	

DESIGN CONSIDERATIONS

DESIGN NOTE:
Example text for informational
design notes .

DESIGN NOTE:
Example text for cautionary
design notes.




DESIGN NOTE:
Example text for debug notes.

DESIGN NOTE:
Example text for critical
design notes.

LAYOUT NOTE:
Example text for critical
layout guidelines.

TOP VIEW

BOTTOM VIEW

1	2	3	4	5	6	7	8																							
<h1>ID002 - Block Diagram</h1>																														
Cannot open file C:\Users\Juan\Downloads\LIDO Block Diagram (1).png. File does not exist.				Cannot open file C:\Users\Juan\Downloads\LIDO Pwr Block.png. File does not exist.																										
A							A																							
B							B																							
C							C																							
D							D																							
1	2	3	4	5	6	7	8																							
						<table><tr><td colspan="3">Title: *</td><td colspan="2">Dott (emTransit B.V.)</td></tr><tr><td colspan="3">Date: 11/04/2022 Engineer: FG</td><td>Part Number: *xxxxx</td><td rowspan="4"></td></tr><tr><td colspan="3">Size: A3 Sheet 2 of 18 Version: 1</td><td>Revision: .1</td></tr><tr><td colspan="3">Project: LIDO</td><td>Rev. date: *Param</td></tr><tr><td colspan="3"></td><td>File: LIDO-HW.002.BlockDiagram.SchDoc</td></tr></table>		Title: *			Dott (emTransit B.V.)		Date: 11/04/2022 Engineer: FG			Part Number: *xxxxx		Size: A3 Sheet 2 of 18 Version: 1			Revision: .1	Project: LIDO			Rev. date: *Param				File: LIDO-HW.002.BlockDiagram.SchDoc	
Title: *			Dott (emTransit B.V.)																											
Date: 11/04/2022 Engineer: FG			Part Number: *xxxxx																											
Size: A3 Sheet 2 of 18 Version: 1			Revision: .1																											
Project: LIDO			Rev. date: *Param																											
			File: LIDO-HW.002.BlockDiagram.SchDoc																											

ID003 - Revision History


Index

Date

HISTORY

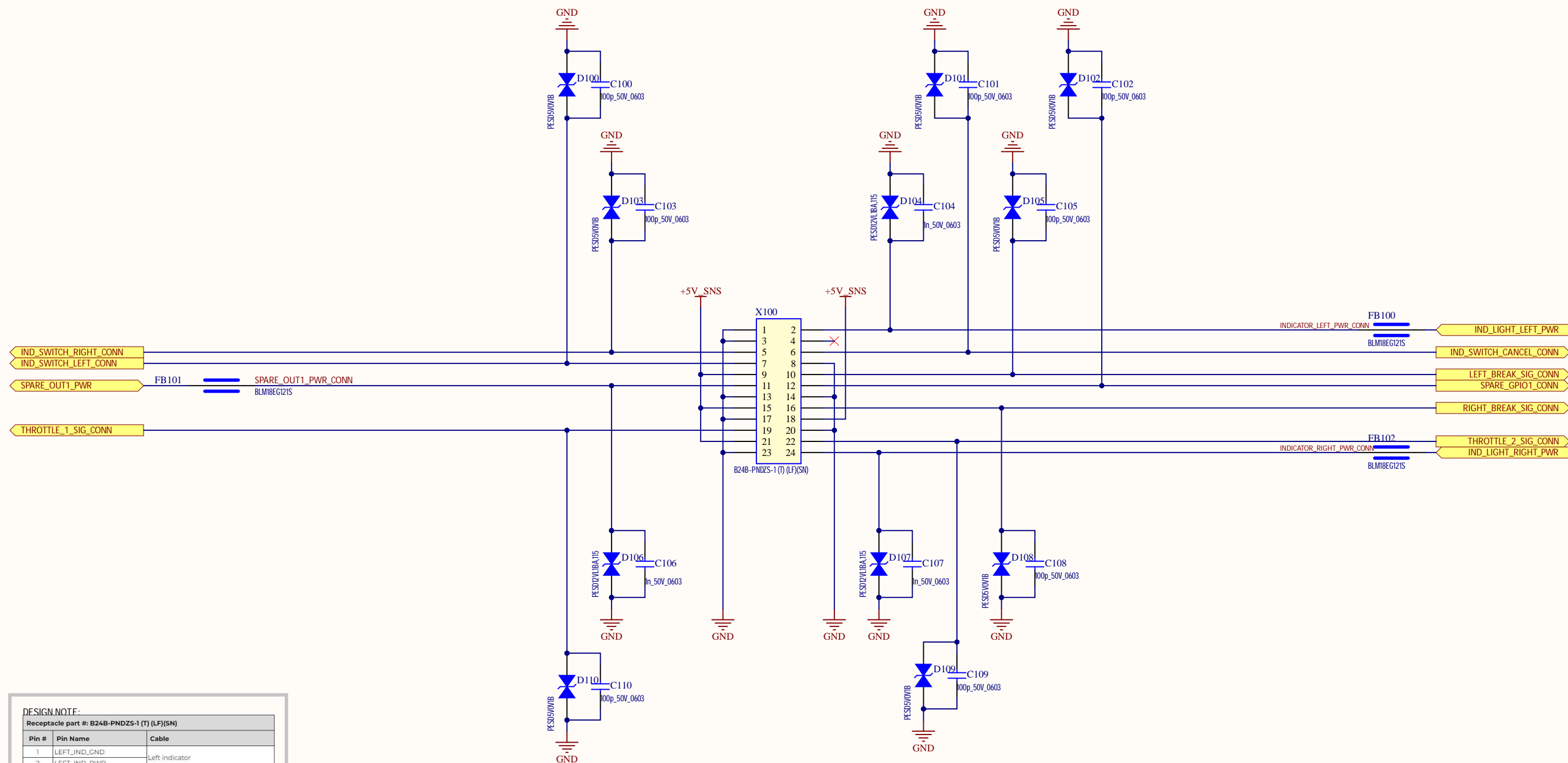
1	29/04/2022	<div><div></div><div>Draft schematic wiht symbo only ready for first reviews within team and Vladimir (external)</div></div>
2	04/05/2022	<div><div></div><div>V0.1 - Corrections based on the first sch. review meeting.</div></div>

1	2	3	4	5	6	7	8	
ID004 - Revision History								
A								A
B								B
C								C
D								D
1	2	3	4	5	6	7	8	

Title: *				Dott (emTransit B.V.)			
Date: 11/04/2022		Engineer: FG		Part Number: *xxxxx			Westerdok Van Diemenstraat 292 1013 CR, Amsterdam The Netherlands
Size: A3		Sheet 4 of 18		Revision: .1			
Version: 1		Rev. date: *		*Param			
Project: LIDO		File: LIDO-HW.004.RevisionHistory.SchDoc					



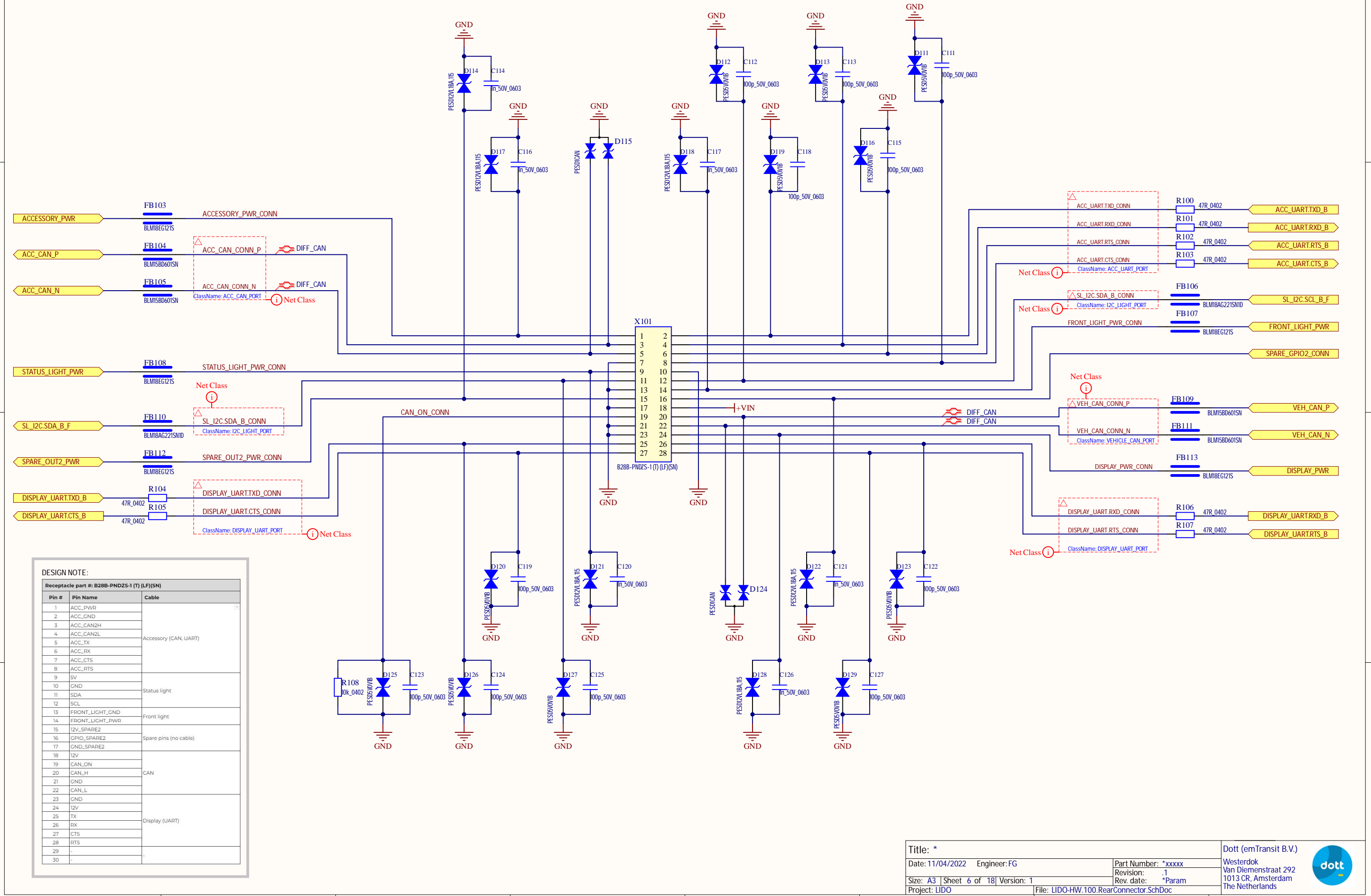
ID100 - FRONT CONNECTOR



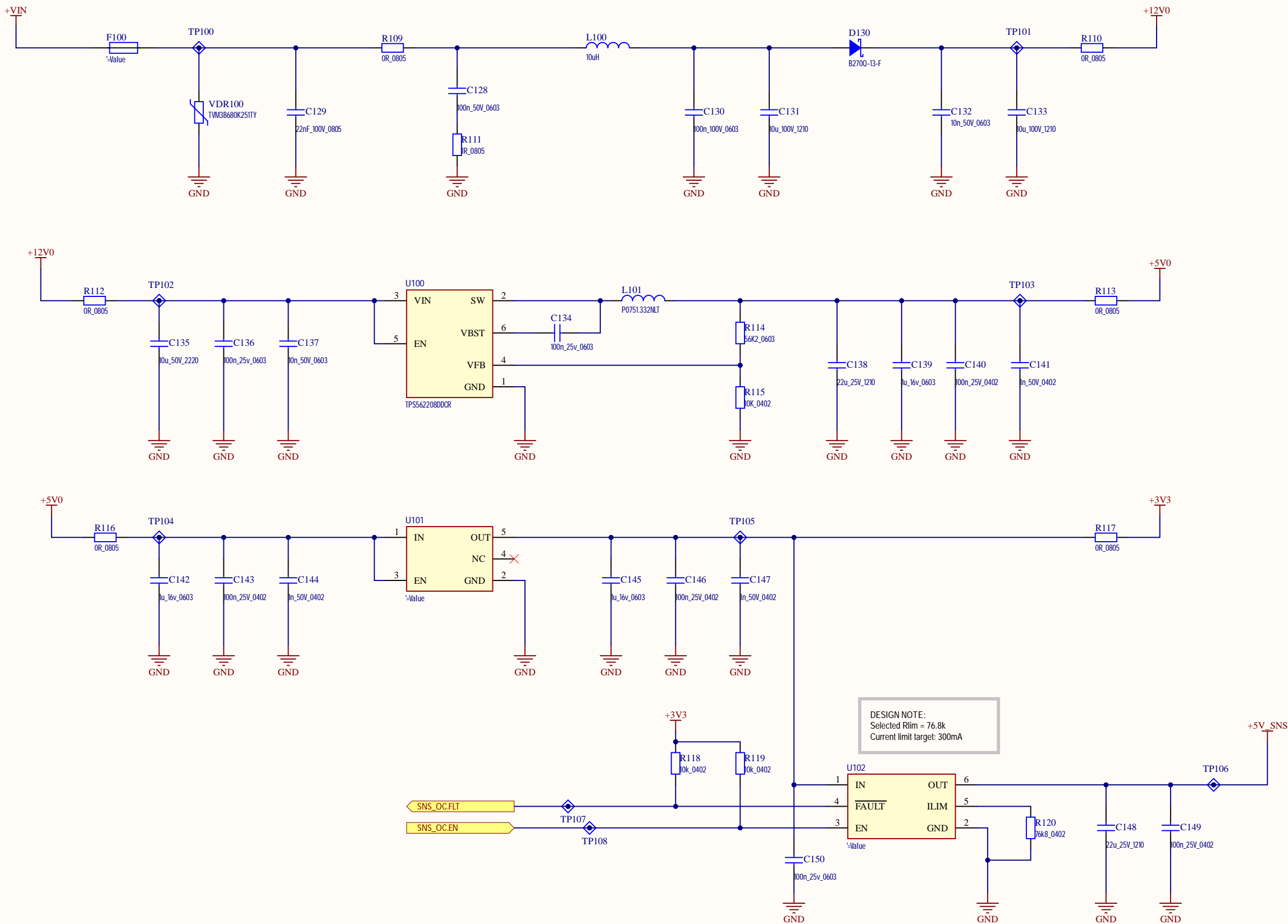
DESIGN NOTE:

Receptacle part #: B24B-PNDZS-1 (T) (LF)(SN)		
Pin #	Pin Name	Cable
1	LEFT_IND_GND	Left indicator
2	LEFT_IND_PWR	
3	SWITCH_COMMON	Control switch
4	SWITCH_HORN	
5	SWITCH_RIGHT_IND	
6	SWITCH_CANCEL	
7	SWITCH_LEFT_IND	Left brake
8	LEFT_BRAKE_GND	
9	LEFT_BRAKE_PWR	Left brake
10	LEFT_BRAKE_SIG	
11	12V_SPARE1	Spare pins (no cable)
12	GPIO_SPARE1	
13	GND_SPARE1	
14	RIGHT_BRAKE_GND	Right brake
15	RIGHT_BRAKE_PWR	
16	RIGHT_BRAKE_SIG	Throttle
17	THROTTLE_1_GND	
18	THROTTLE_1_PWR	
19	THROTTLE_1_SIG	
20	THROTTLE_2_GND	Throttle
21	THROTTLE_2_PWR	
22	THROTTLE_2_SIG	
23	RIGHT_IND_GND	Right indicator
24	RIGHT_IND_PWR	

ID100 - REAR CONENCTOR

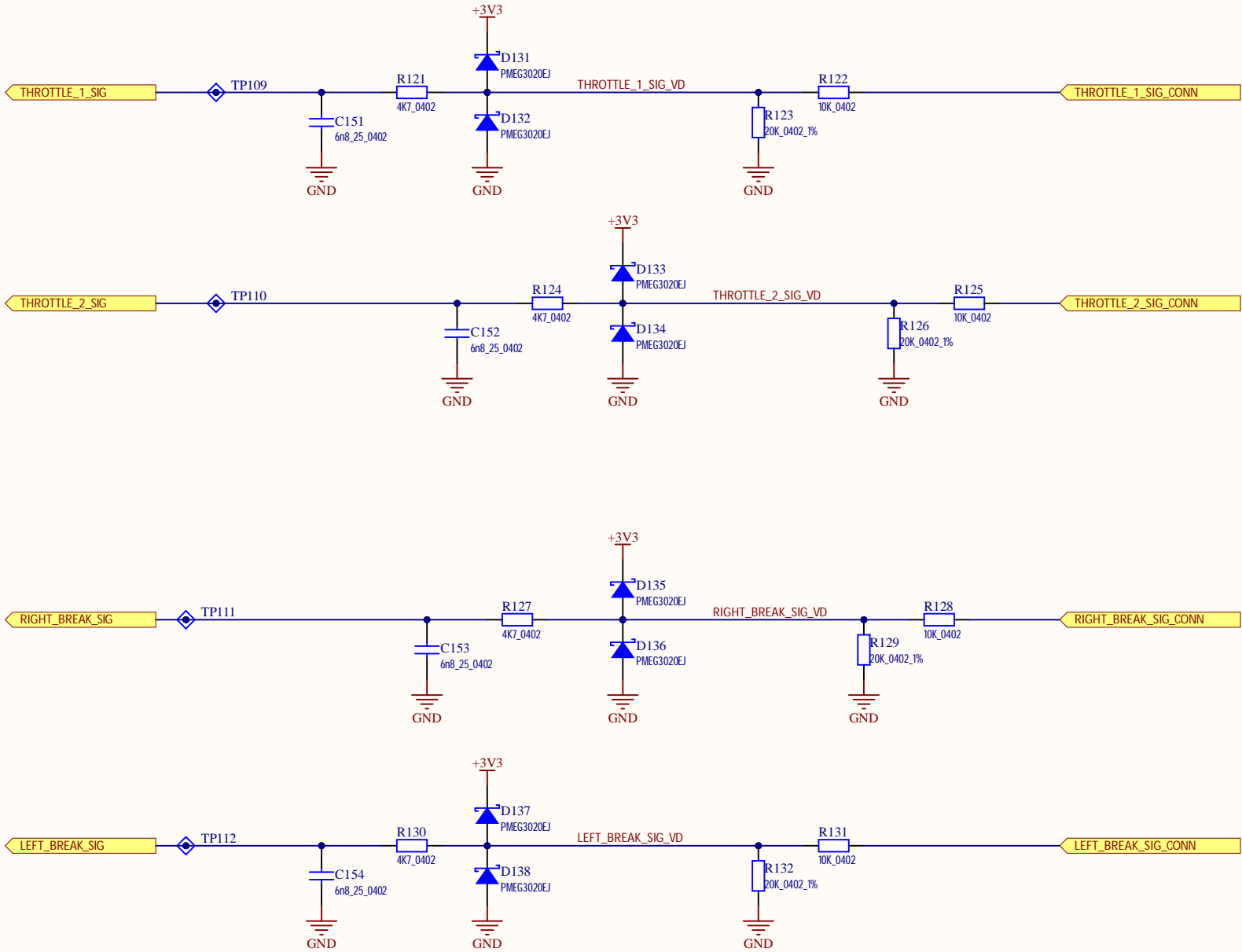


ID100 - INPUT VOLTAGE AND POWER SUPPLIES



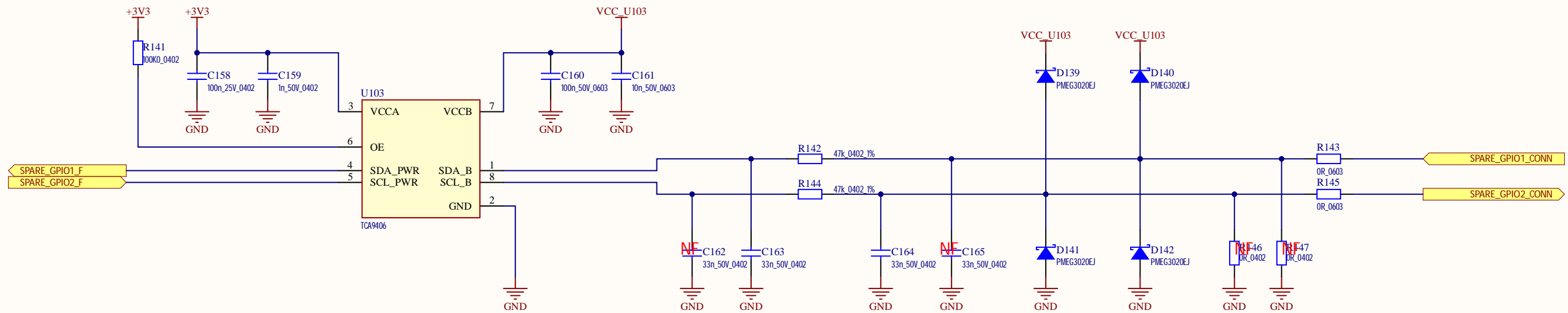
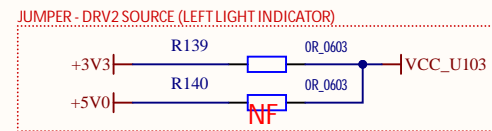
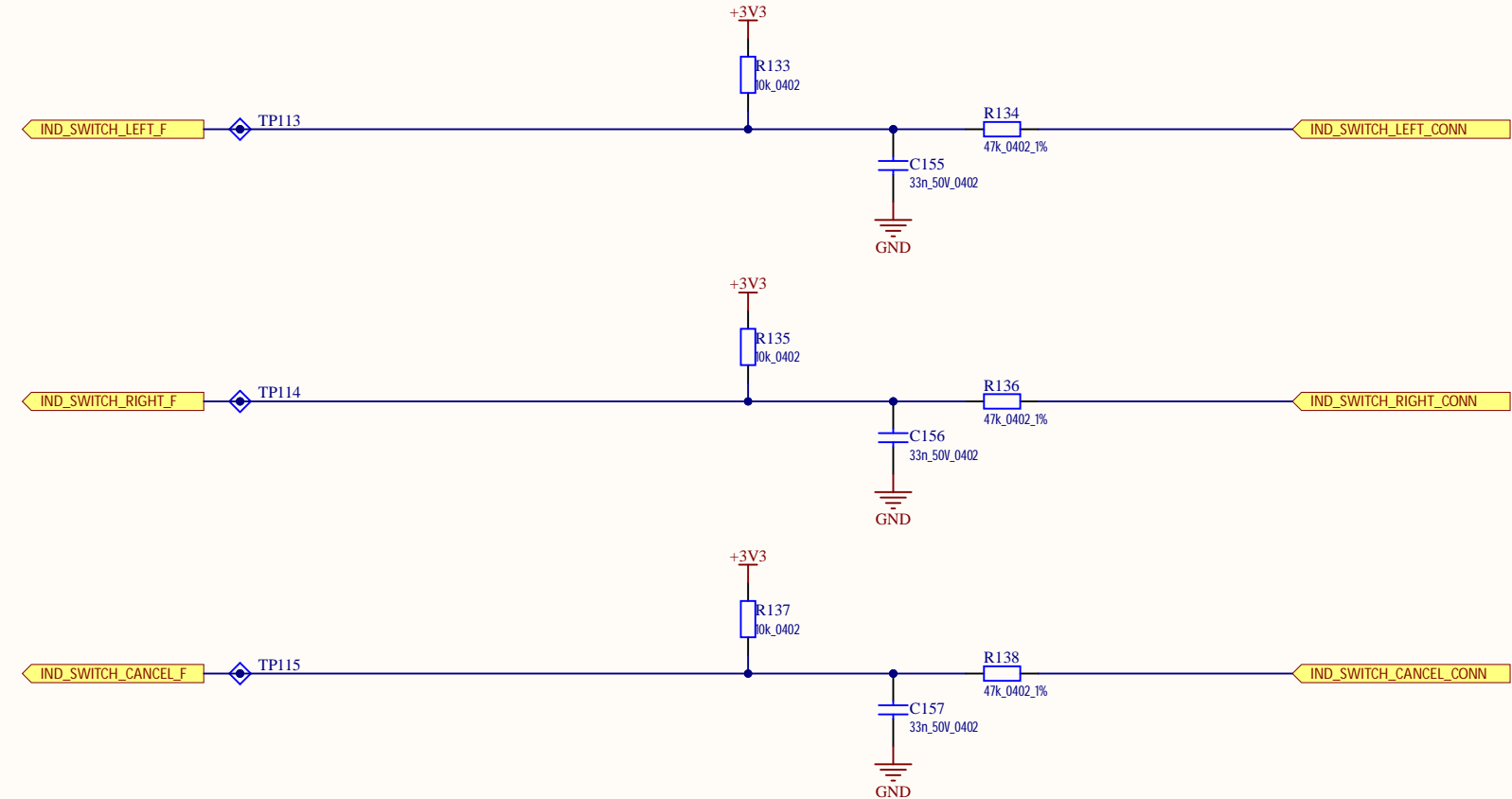
ID100 - INPUT STAGE

DESIGN NOTE:
Low-pass Filter (R= 4k7 & C= 6n8) Fc: 4k98 Hz



ID100 - INPUT STAGE

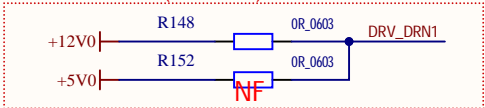
DESIGN NOTE:
Low-pass Filter (R= 47k & C= 33n) Fc: 102 Hz



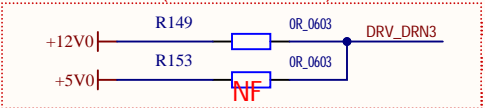
ID100 - OUTPUT STAGE

DRIVER VOLTAGE SELECTOR

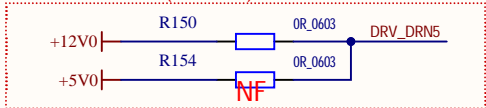
JUMPER - DRV1 SOURCE (FRONT LIGHT)



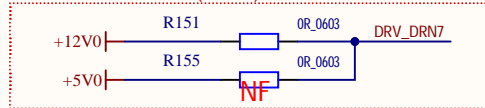
JUMPER - DRV3 SOURCE (RIGHT LIGHT INDICATOR)



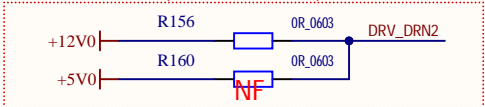
JUMPER - DRV5 SOURCE (ACCESSORY)



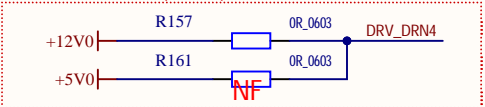
JUMPER - DRIVER 7 SOURCE (SPARE 1)



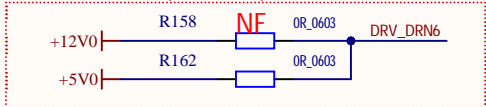
JUMPER - DRV2 SOURCE (LEFT LIGHT INDICATOR)



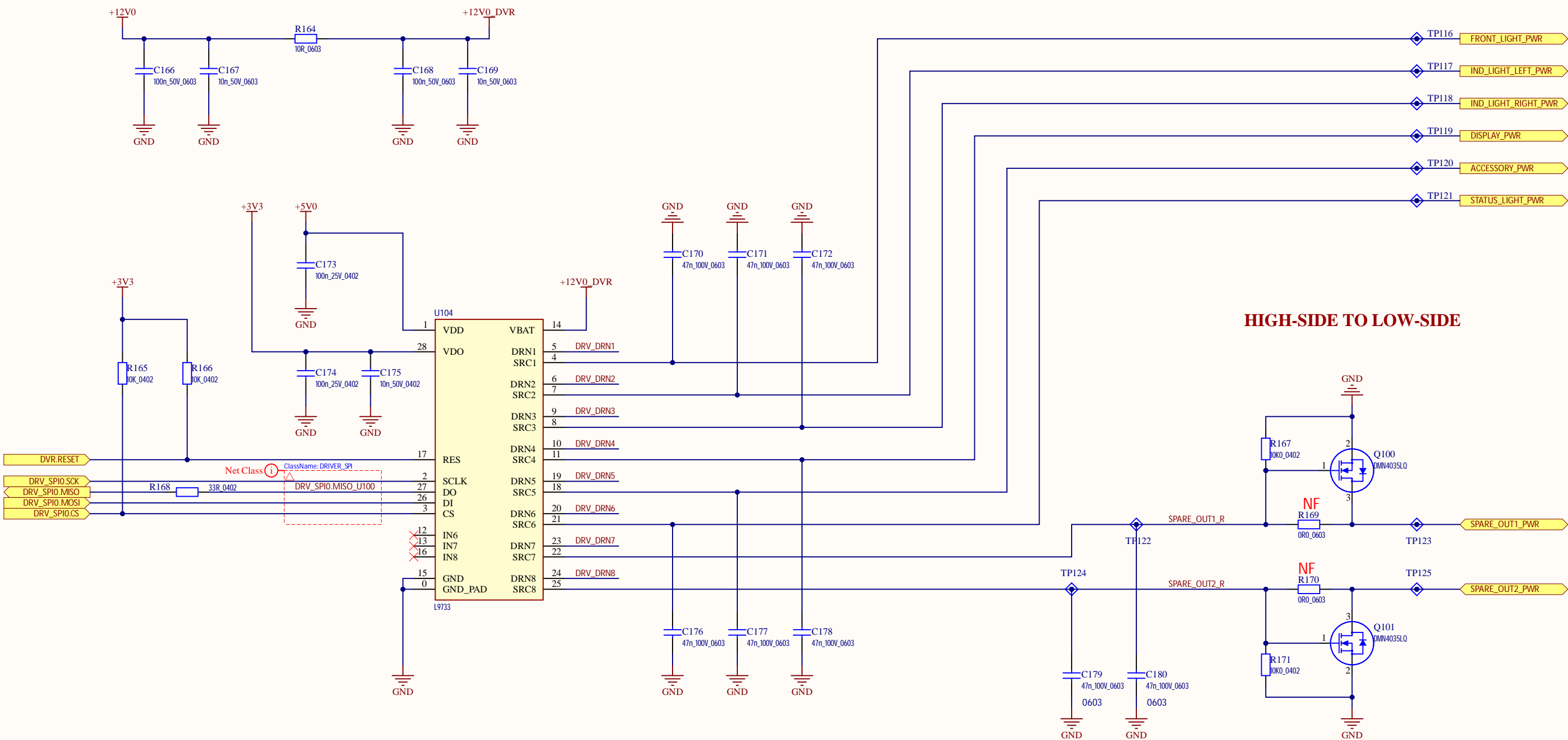
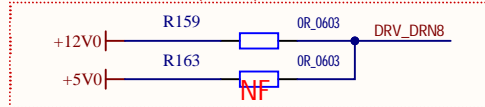
JUMPER - DRV4 SOURCE (DISPLAY)



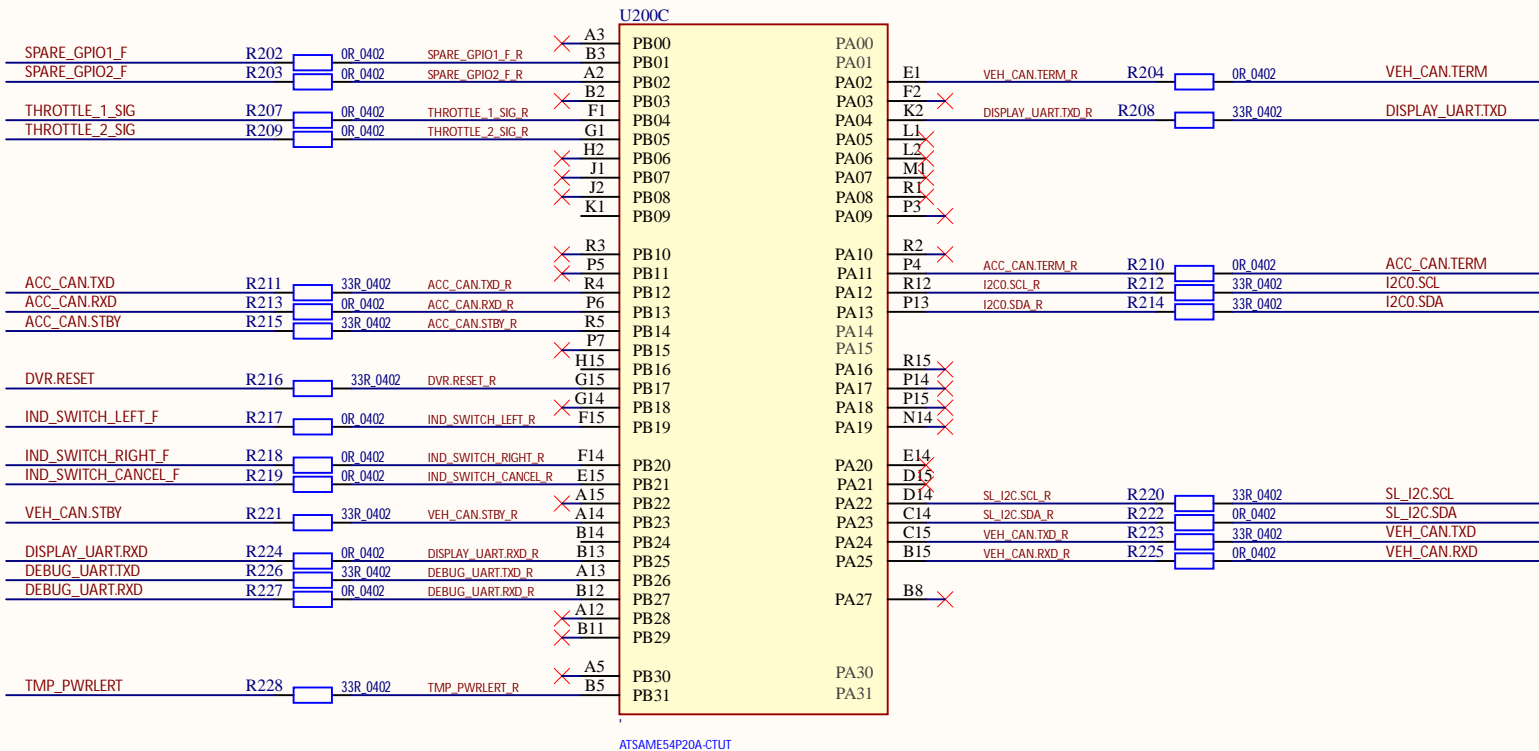
JUMPER - DRV6 SOURCE (STATUS LIGHT)



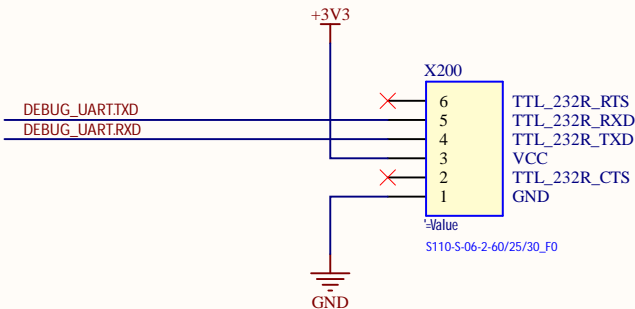
JUMPER - DRIVER 8 SOURCE (SPARE 2)



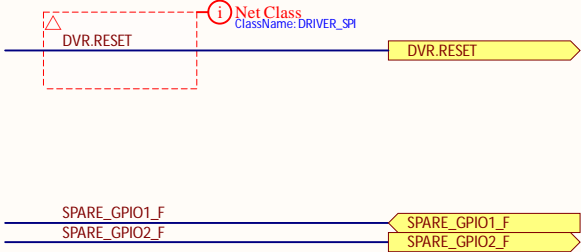
ID200 - MCU PERIPHERALS



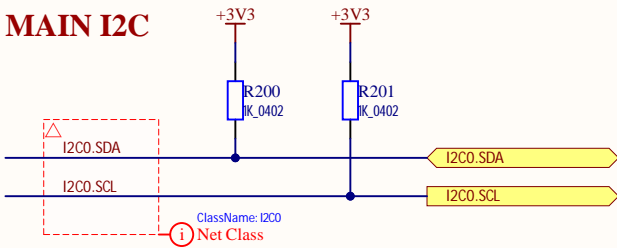
UART DEBUG CONNECTOR



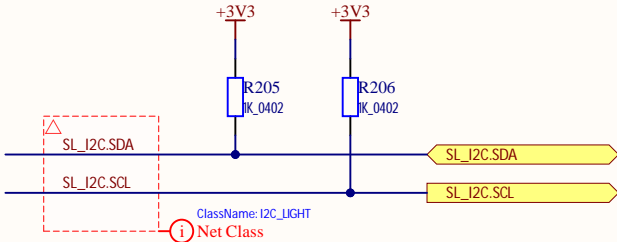
HIGH-SIDE DRIVER



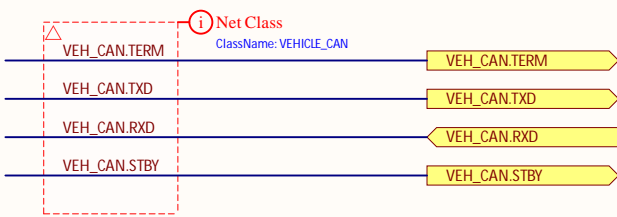
MAIN I2C



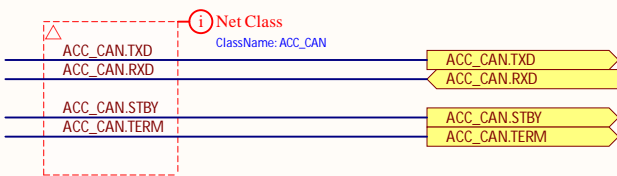
STATUS LIGHT I2C



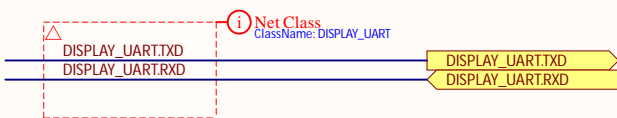
VEHICLE CAN



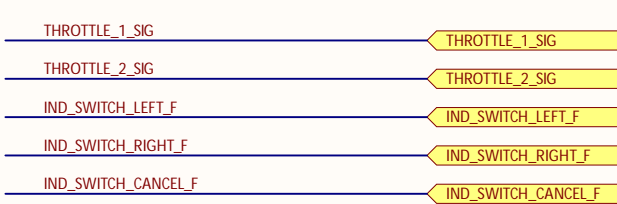
ACCESSORY CAN



DISPLAY UART



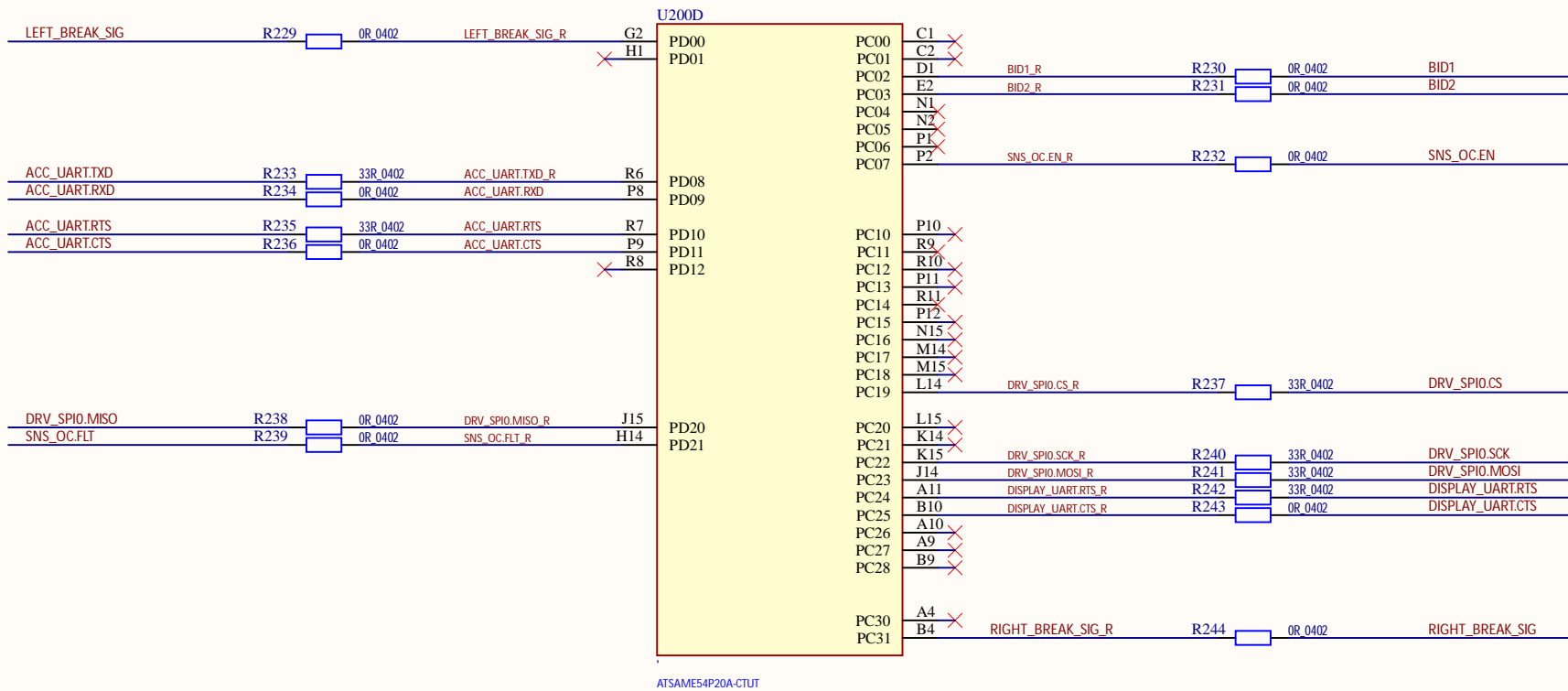
INPUT SENSORS



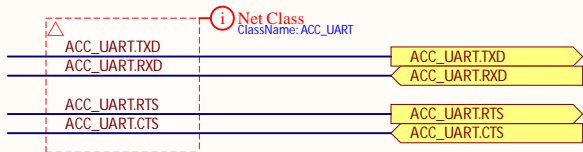
TEMP. SENSOR INTERRUPT



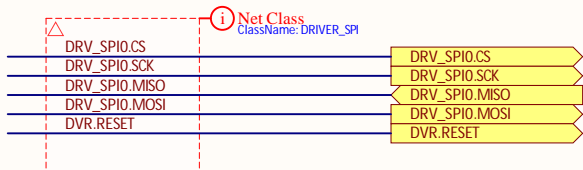
ID200 - MCU PERIPHERALS



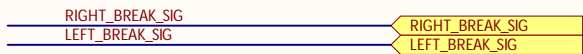
ACCESSORY UART



HIGH-SIDE DRIVER



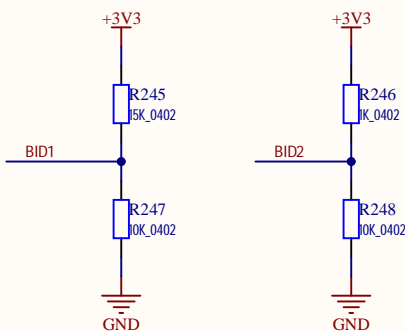
INPUT SENSORS



DISPLAY UART



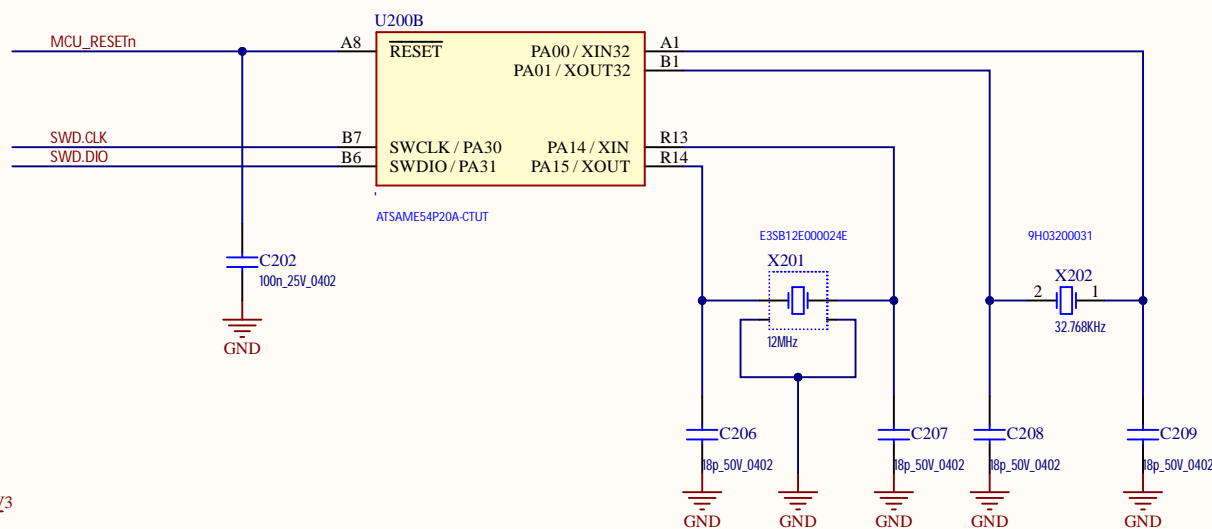
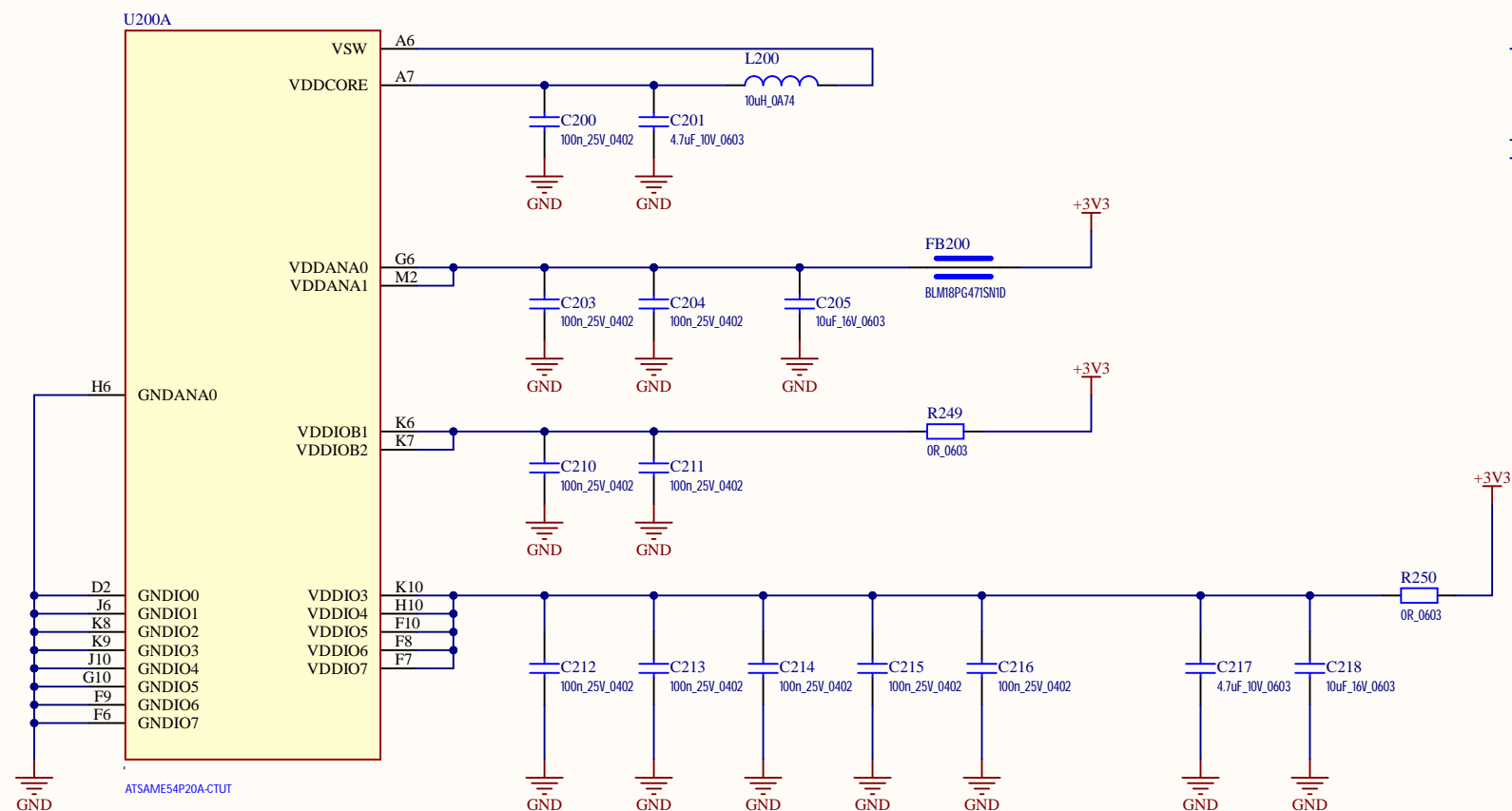
BOARD ID



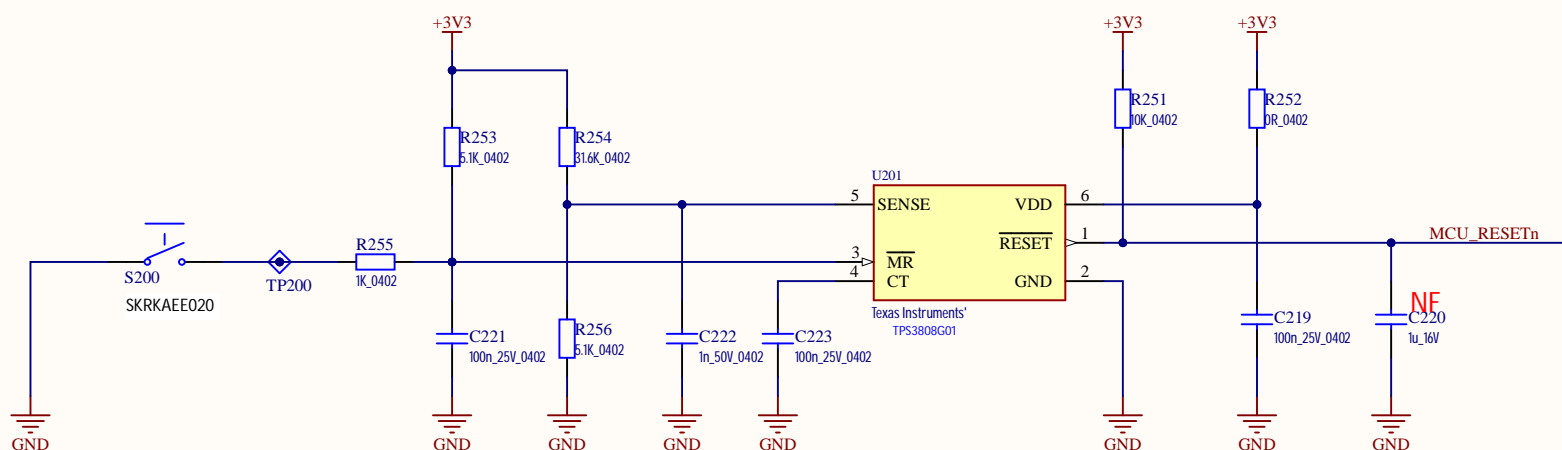
DESIGN NOTE:

Board ID:		
ID#	Res	Voltage
0	1K	3V
1	5.1K	2.18V
2	15K	1.32V
3	76.8K	0.38V

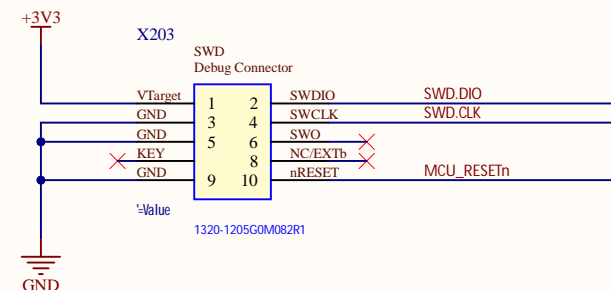
ID200 - MCU POWER, SWD AND RESET



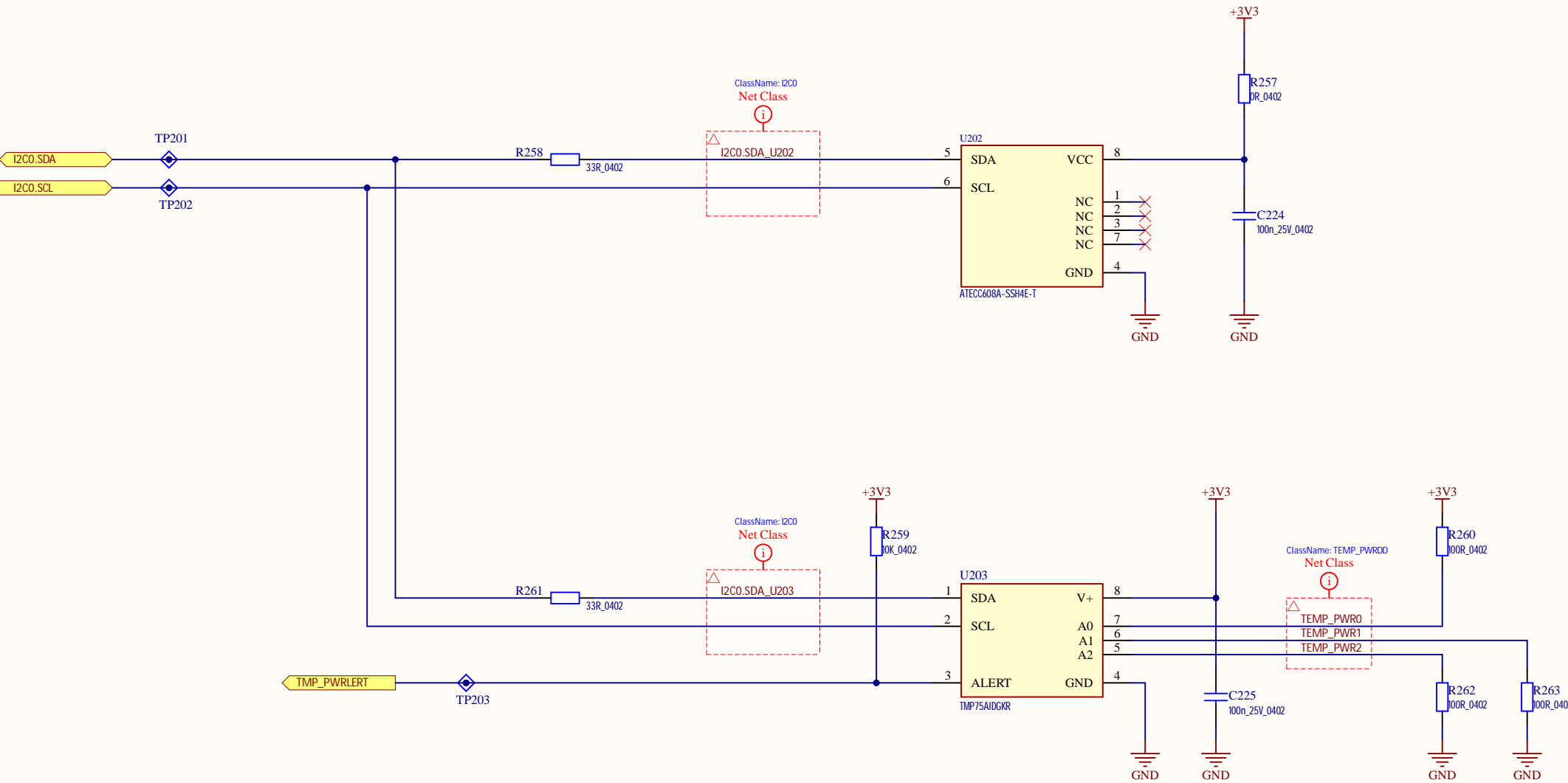
RESET SUPERVISOR



SWD DEBUG CONNECTOR

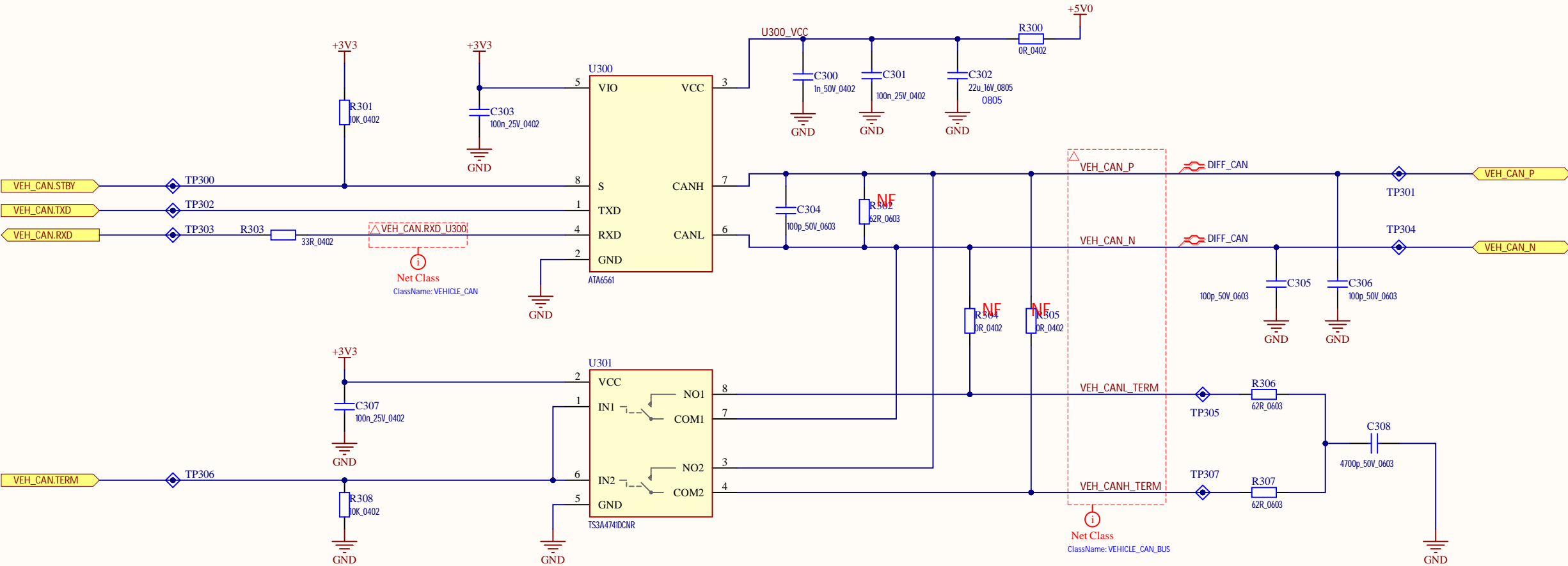


ID200 - SECURITY CHIP AND TEMPERATURE SENSOR



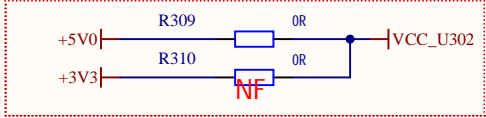
ID300 - VEHICLE INTERFACE

CAN 0 BUS

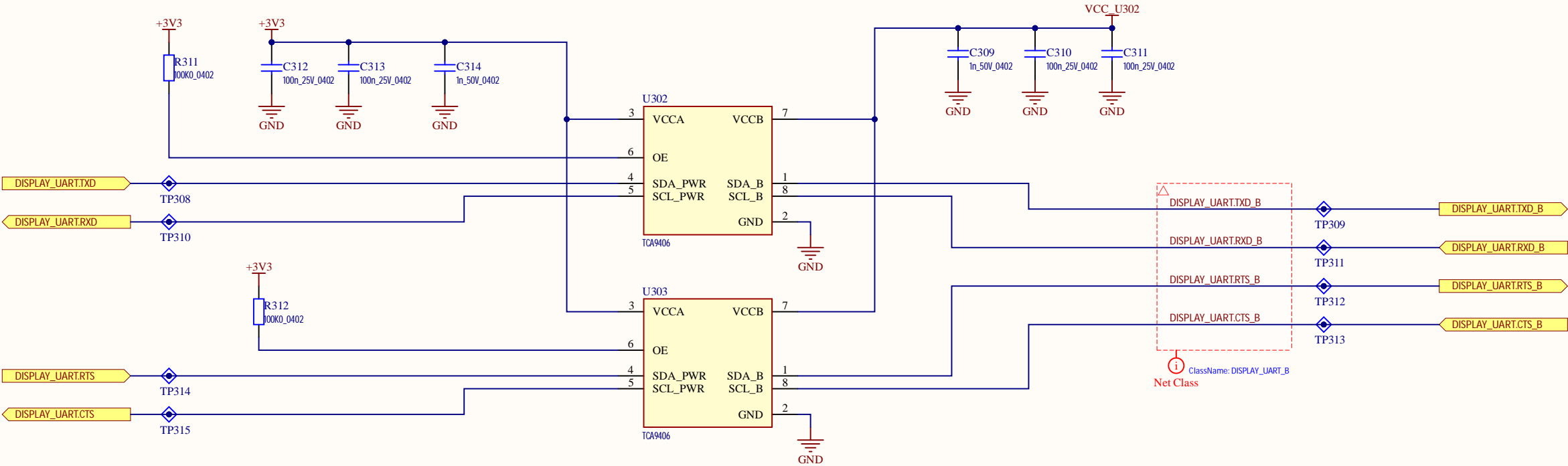


ID300 - DISPLAY INTERFACE

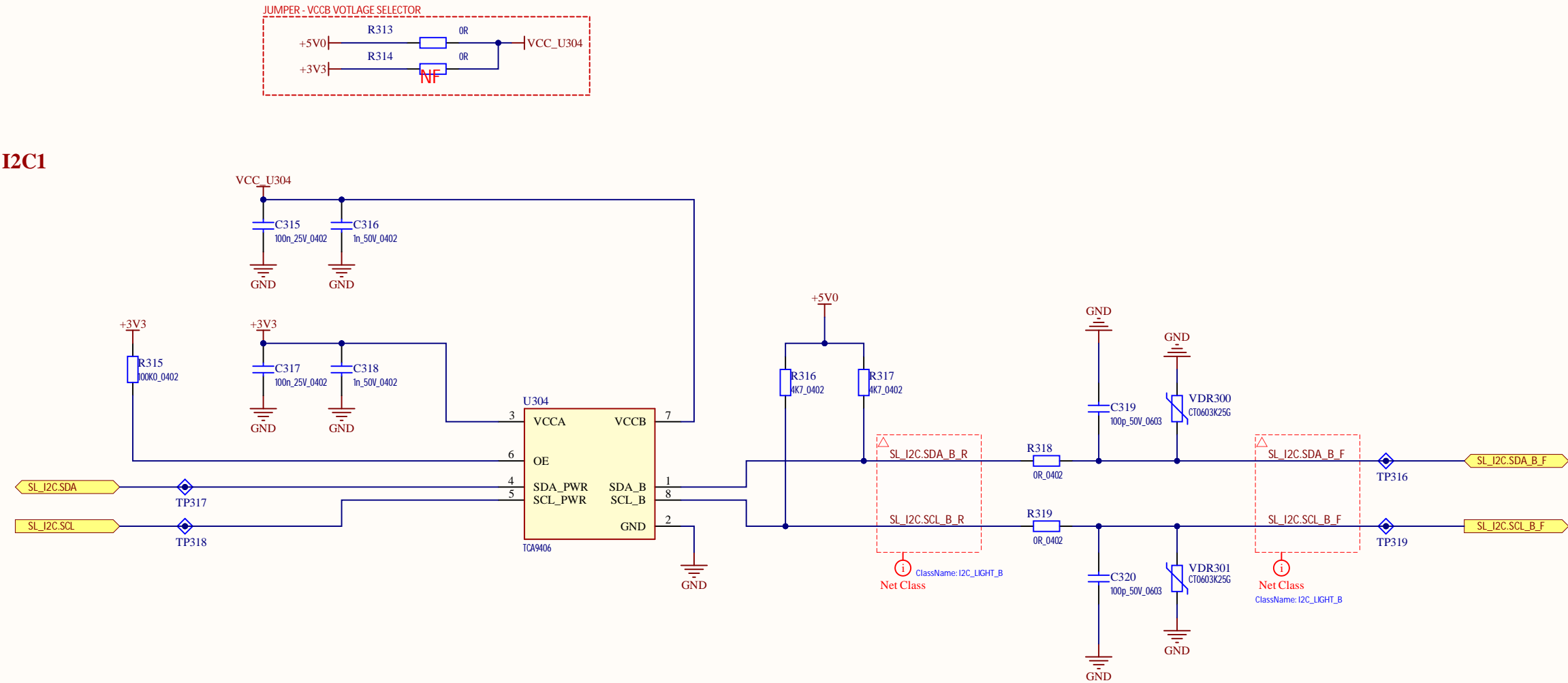
JUMPER - VCCB VOTLAGE SELECTOR



UART1

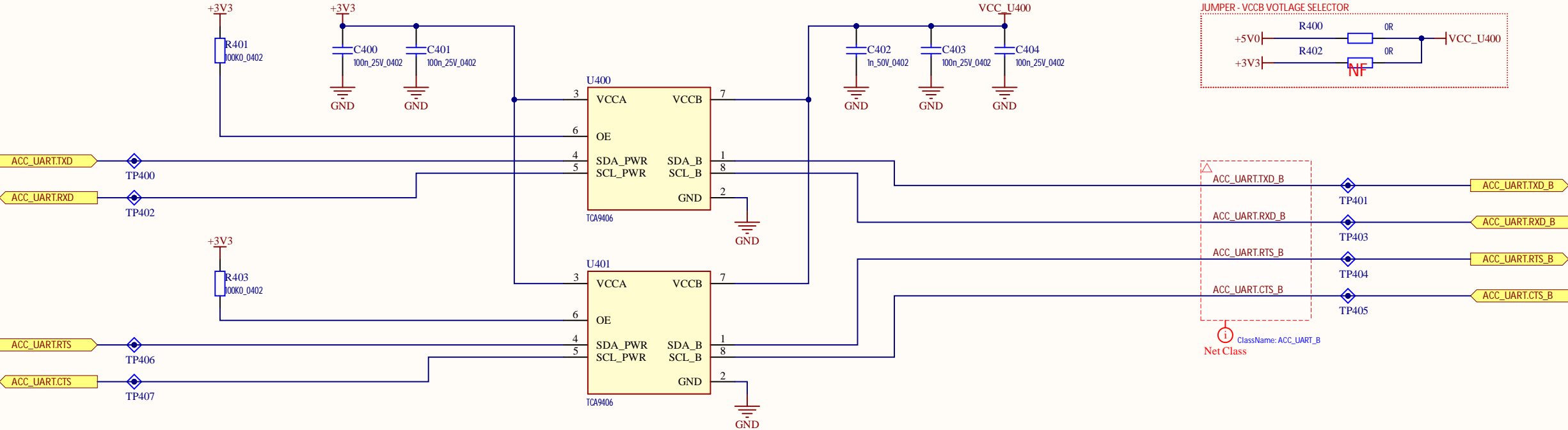


ID300 - STATUS LIGHT INTERFACE



ID400 - ACCESSORY INTERFACES

UART0



CAN 1 BUS

