

Title: ***ASTRUM V2***

ASTROM V2

Size: A3 Engineer: HV

Date: 14-2-2023 Time: 17:34:47
File: 100_stm32wb55_SchDoc

*Gemini Embedded Technology BV
Meander 901
6825 MH Arnhem
The Netherlands*

GET

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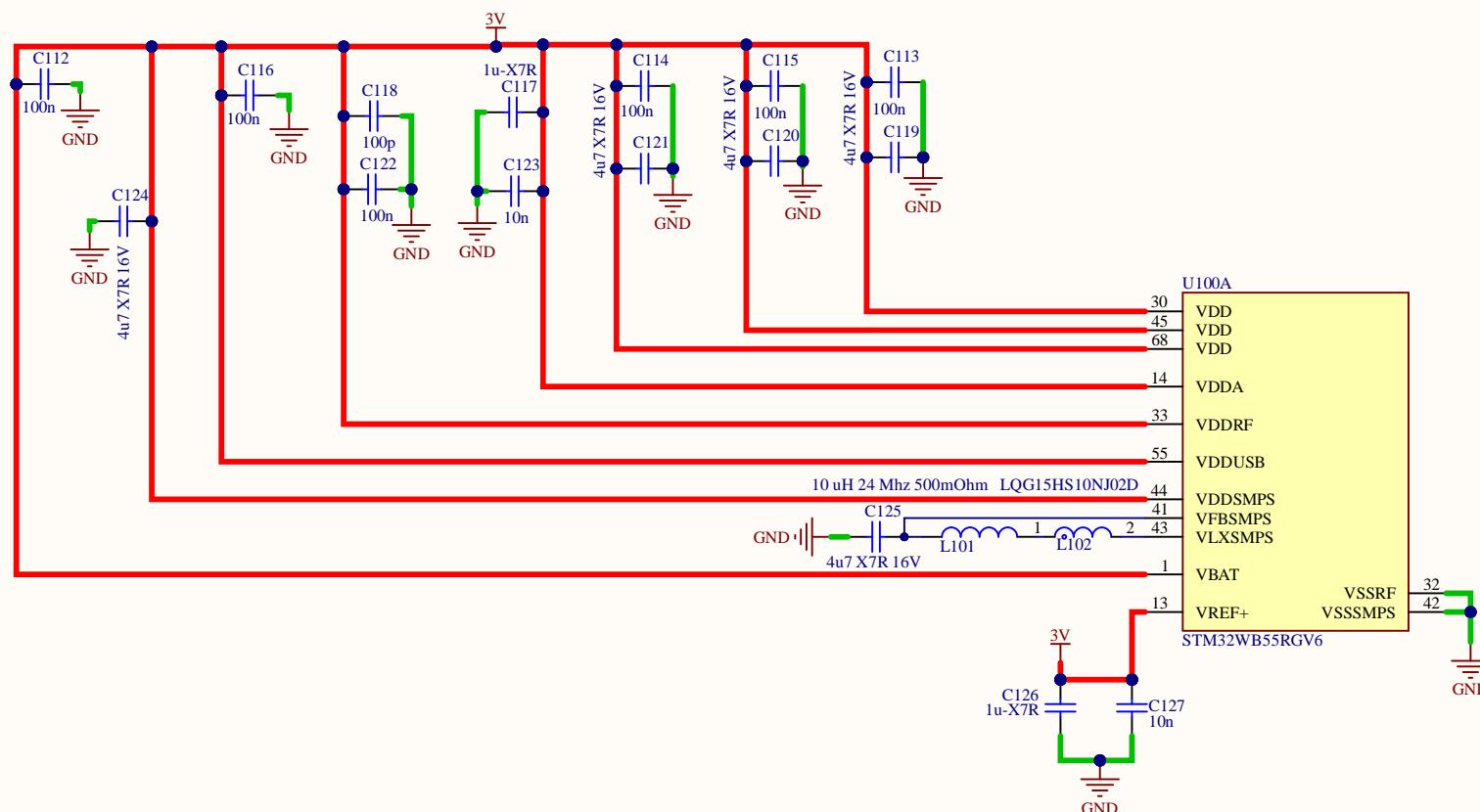
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Title: **ASTRUM V2**

Gemini Embedded Technology BV
Meander 901
6825 MH Arnhem
The Netherlands

Size: A4

Engineer: HV

Revision:

Date: 14-2-2023 Time: 17:34:48

Sheet 3 of 17

File: 100_stm32wb55_pwr.SchDoc

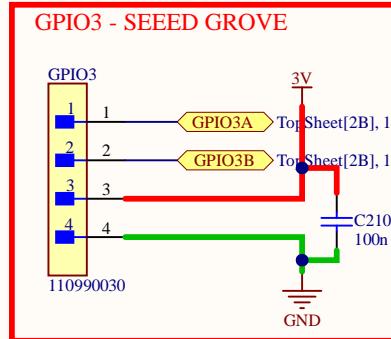
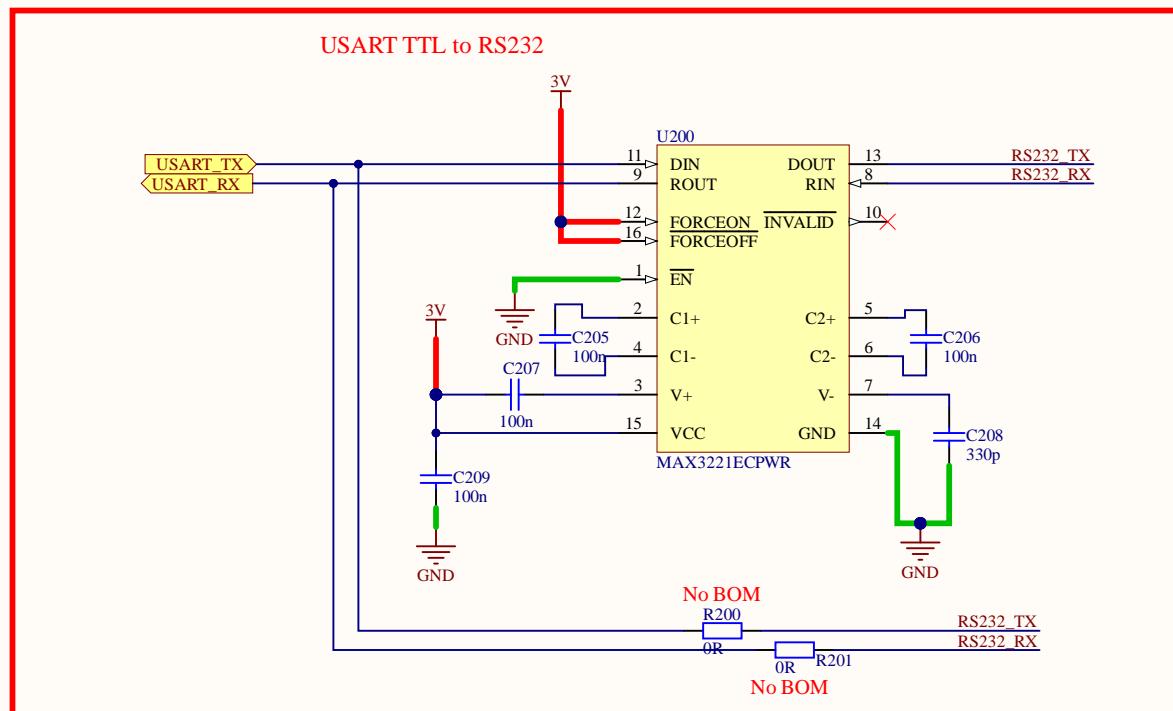
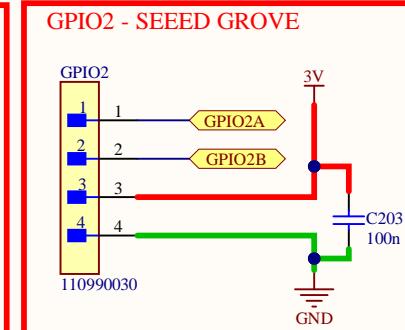
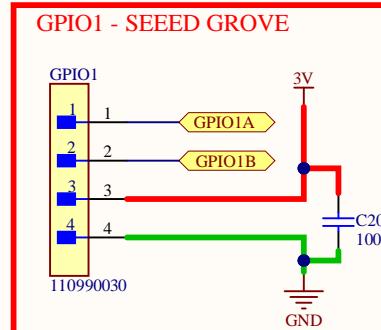
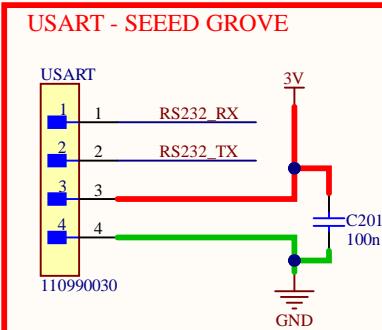
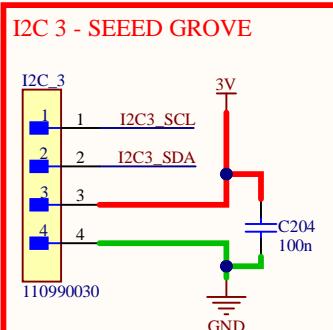
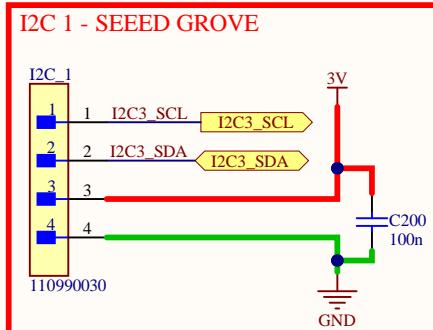
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Title: **ASTRUM V2**Size: **A4**Engineer: **HV**

Revision:

Gemini Embedded Technology BV
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The Netherlands**G E T**

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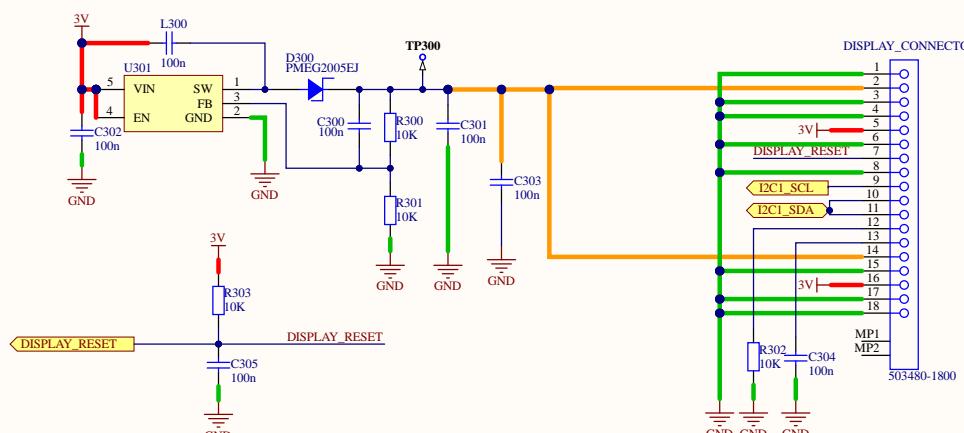
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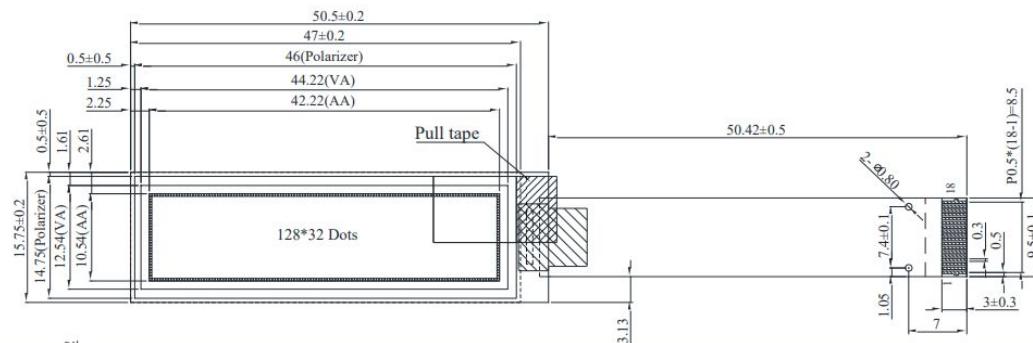


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DISPLAY



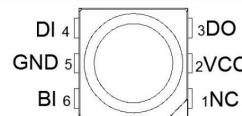
LET OP: CONNECTOR MOET IN SPIEGELBEELD. Jeff kun jij dit controleren ?



No.	Symbol	Function												
1	N.C. (GND)	Reserved Pin (Supporting Pin) The supporting pins can reduce the influences from stresses on the function pins. These pins must be connected to external ground.												
2	VCC	Power Supply for OEL Panel This is the most positive voltage supply pin of the chip. A stabilization capacitor should be connected between this pin and VSS when the converter is used. It must be connected to external source when the converter is not used.												
3	VLSS	Ground of Analog Circuit This is an analog ground pin. It should be connected to VSS externally.												
4	VSS	Ground of Logic Circuit This is a ground pin. It acts as a reference for the logic pins. It must be connected to external ground.												
5	VDD	Power Supply for Logic This is a voltage supply pin. It must be connected to external source.												
6	CS#	Chip Select This pin is the chip select input. The chip is enabled for MCU communication only when CS# is pulled low.												
7	RES#	Power Reset for Controller and Driver This pin is reset signal input. When the pin is low, initialization of the chip is executed.												
8	D/C#	Data/Command Control When the pin is pulled high and serial interface mode is selected, the data at SDIN is treated as data. When it is pulled low, the data at SDIN will be transferred to the command register. In I2C mode, this pin acts as SA0 for slave address selection.												
9-11	D0-D2	Host Data Input/Output Bus When serial interface mode is selected, D0 will be the serial clock input: SCLK; D1 will be the serial data input: SDIN. When I2C mode is selected, D2, D1 should be tied together and serve as SDAout, SDAIN in application and D0 is the serial clock input, SCL.												
12	IREF	Current Reference for Brightness Adjustment This pin is segment current reference pin. A resistor should be connected between this pin and VSS. Set the current lower than 12.5µA.												
13	VCOMH	Voltage Output High Level for COM Signal This pin is the input pin for the voltage output high level for COM signals. A capacitor should be connected between this pin and VSS.												
14	VCC	Power Supply for OEL Panel This is the most positive voltage supply pin of the chip. A stabilization capacitor should be connected between this pin and VSS when the converter is used. It must be connected to external source when the converter is not used.												
15,16	BS0 BS1	Communicating Protocol Select These pins are MCU interface selection input. See the following table:												
		<table border="1"> <tr> <th></th> <th>BS0</th> <th>BS1</th> </tr> <tr> <td>I2C</td> <td>0</td> <td>1</td> </tr> <tr> <td>3-wire SPI</td> <td>1</td> <td>0</td> </tr> <tr> <td>4-wire SPI</td> <td>0</td> <td>0</td> </tr> </table>		BS0	BS1	I2C	0	1	3-wire SPI	1	0	4-wire SPI	0	0
	BS0	BS1												
I2C	0	1												
3-wire SPI	1	0												
4-wire SPI	0	0												
17	VLSS	Ground of Analog Circuit This is an analog ground pin. It should be connected to VSS externally.												
18	N.C. (GND)	Reserved Pin (Supporting Pin) The supporting pins can reduce the influences from stresses on the function pins. These pins must be connected to external ground.												

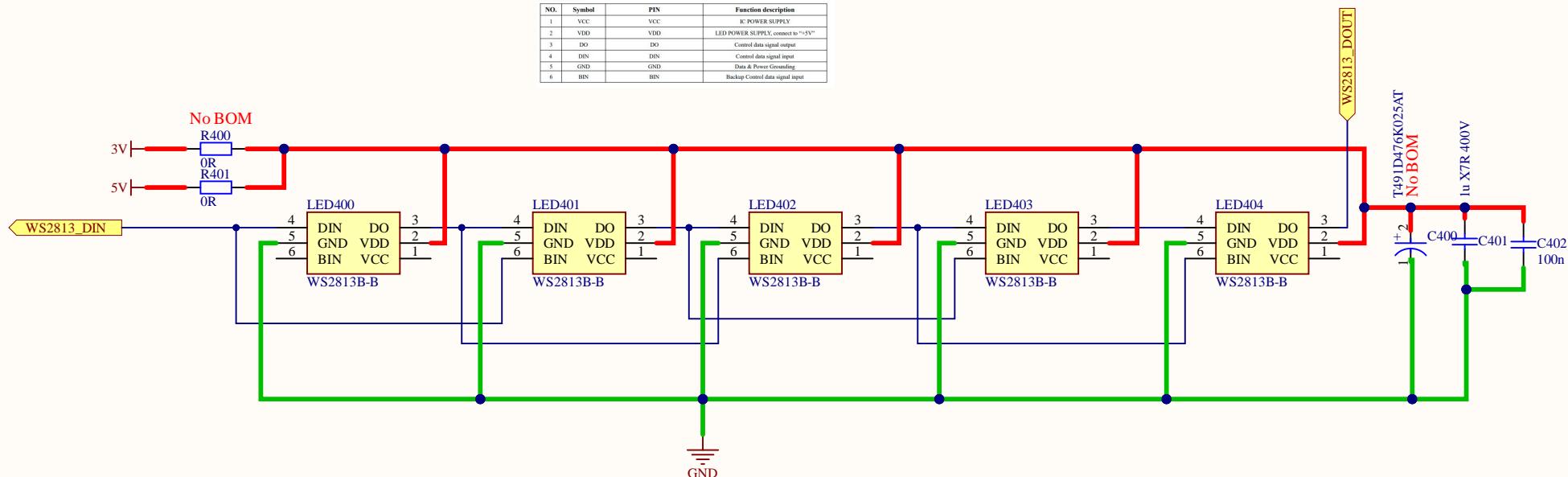
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PIN Function			
NO.	Symbol	PIN	Function description
1	VCC	VCC	IC POWER SUPPLY
2	VDD	VDD	LED POWER SUPPLY, connect to "+3V"
3	DO	DO	Control data signal output
4	DIN	DIN	Control data signal input
5	GND	GND	Data & Power Grounding
6	BIN	BIN	Backup Control data signal input

[https://www.tme.eu/Document/8523e928e69088ecbec7f9569ae0f9a8/WS2813B-B%20\(Ver.%20No.V4\)_EN.pdf](https://www.tme.eu/Document/8523e928e69088ecbec7f9569ae0f9a8/WS2813B-B%20(Ver.%20No.V4)_EN.pdf)



Title: **ASTRUM V2**

Size: **A4** Engineer: **HV**

Date: **14-2-2023** Time: **17:34:48** Revision:

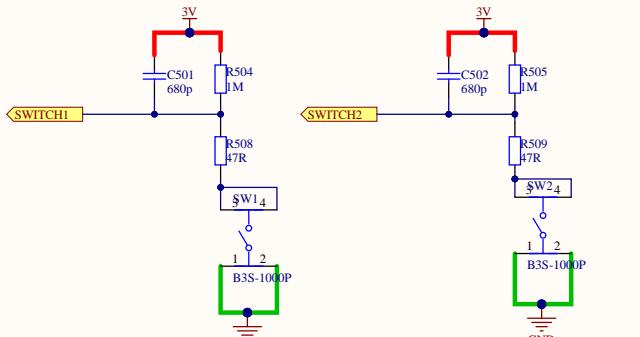
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6825 MH Arnhem
The Netherlands

G E T

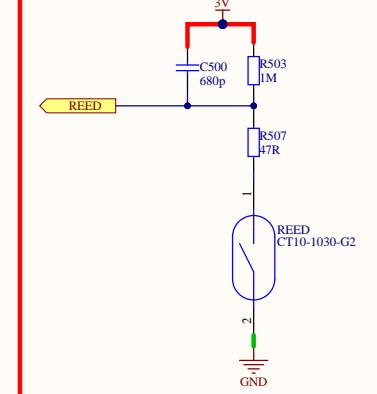
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USER SWITCHES

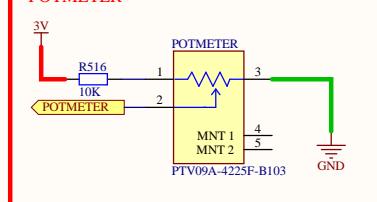
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REED CONTACT

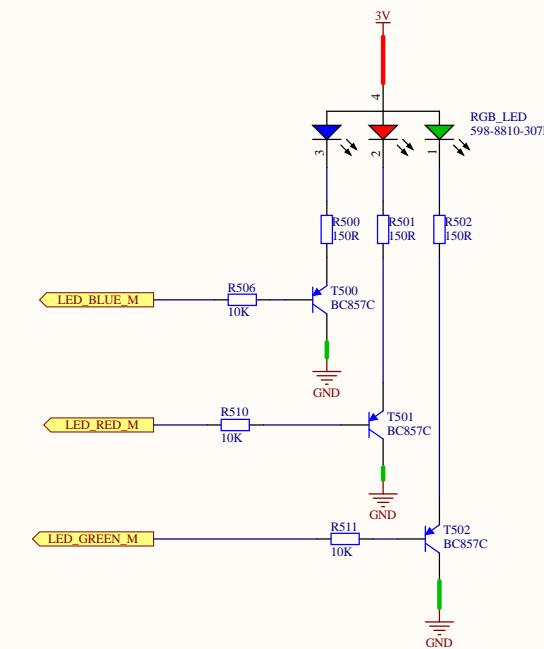
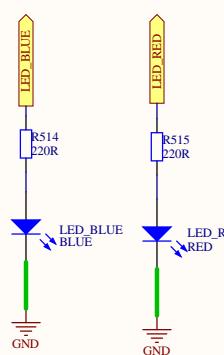
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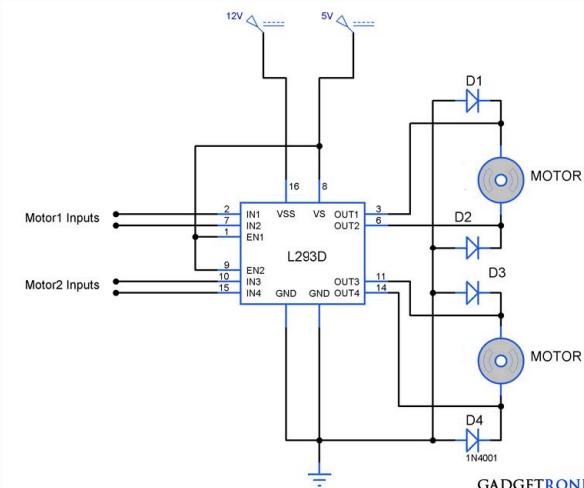
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USER LED 1**USER LED 2**

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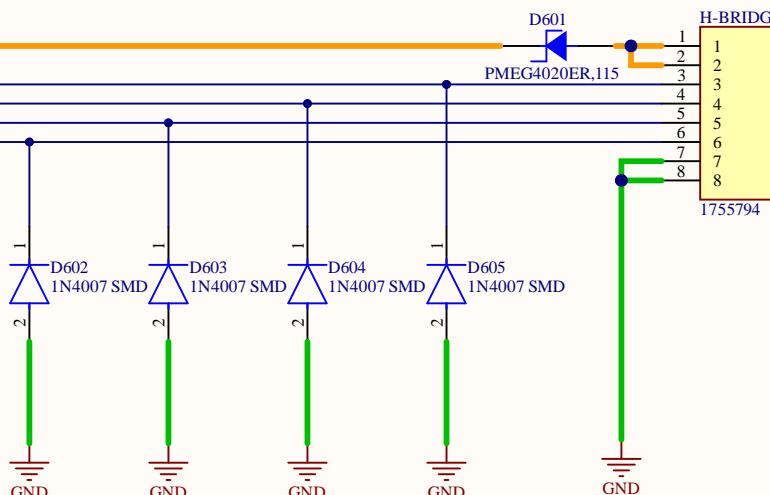
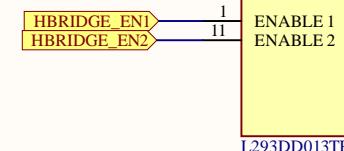


Symbol	Parameter	Test Conditions	Min.	Typ.	Max.	Unit
V_S	Supply Voltage (pin 10)	V_{SS}	36	36	V	
V_{SS}	Logic Supply Voltage (pin 20)	4.5	36	V		
I_S	Total Quiescent Supply Current (pin 10)	$V_I = L ; I_O = 0 ; V_{en} = H$	2	6	mA	
		$V_I = H ; I_O = 0 ; V_{en} = H$	16	24	mA	
		$V_{en} = L$		4	mA	
I_{SS}	Total Quiescent Logic Supply Current (pin 20)	$V_I = L ; I_O = 0 ; V_{en} = H$	44	60	mA	
		$V_I = H ; I_O = 0 ; V_{en} = H$	16	22	mA	
		$V_{en} = L$	16	24	mA	
V_{IL}	Input Low Voltage (pin 2, 9, 12, 19)		-0.3	1.5	V	
V_{IH}	Input High Voltage (pin 2, 9, 12, 19)	$V_{SS} \leq V$	2.3	V_{SS}	V	
I_{IL}	Low Voltage Input Current (pin 2, 9, 12, 19)	$V_I = 1.5 V$		-10	μA	
I_{IH}	High Voltage Input Current (pin 2, 9, 12, 19)	$2.3 V \leq V_{IH} \leq V_{SS} - 0.6 V$	30	100	μA	
$V_{en\ L}$	Enable Low Voltage (pin 1, 11)	$V_{en\ L} = 1.5 V$	-0.3	1.5	V	
$V_{en\ H}$	Enable High Voltage (pin 1, 11)	$V_{SS} \leq V_{en\ H}$	2.3	V_{SS}	V	
$I_{en\ L}$	Low Voltage Enable Current (pin 1, 11)	$V_{en\ L} = 1.5 V$	-30	-100	μA	
$I_{en\ H}$	High Voltage Enable Current (pin 1, 11)	$2.3 V \leq V_{en\ H} \leq V_{SS} - 0.6 V$		± 10	μA	
$V_{CE(sat)\ H}$	Source Output Saturation Voltage (pins 3, 8, 13, 18)	$I_O = -0.6 A$	1.4	1.8	V	
$V_{CE(sat)\ L}$	Sink Output Saturation Voltage (pins 3, 8, 13, 18)	$I_O = +0.6 A$	1.2	1.8	V	
V_F	Clamp Diode Forward Voltage	$I_O = 600mA$	1.3		V	
t_r	Rise Time (*)	$0.1 \text{ to } 0.9 V_0$	250		ns	
t_f	Fall Time (*)	$0.9 \text{ to } 0.1 V_0$	250		ns	
t_{on}	Turn-on Delay (*)	$0.5 V \text{ to } 0.5 V_0$	750		ns	
t_{off}	Turn-off Delay (*)	$0.5 V \text{ to } 0.5 V_0$	200		ns	

B



TopSheet[3A], 100_stm32wb55[3C]
TopSheet[3A], 100_stm32wb55[3C]



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Title: ASTRUM V2			Gemini Embedded Technology BV
Size: A4	Engineer: HV	Revision:	Meander 901
Date: 14-2-2023	Time: 17:34:48	Sheet 8 of 17	6825 MH Arnhem
File: 600_H_bridge.SchDoc			The Netherlands

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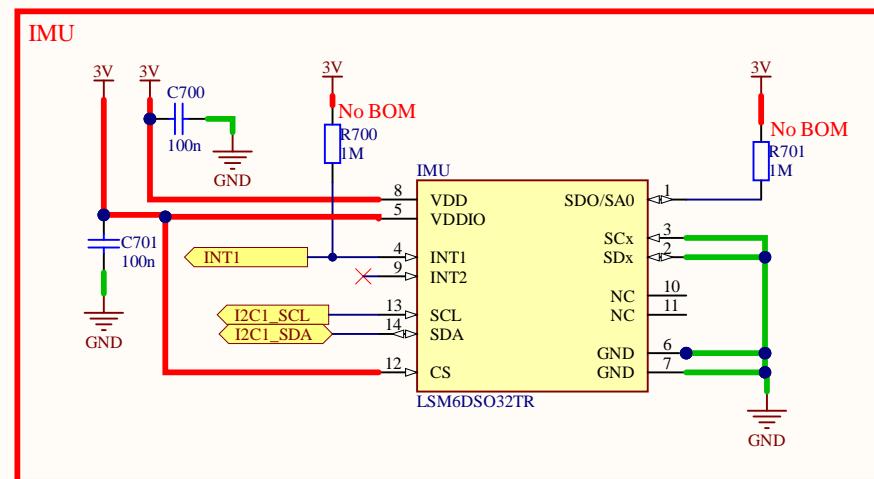
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<https://nl.mouser.com/datasheet/2/389/lsm6dso32-1815462.pdf>



Title: ASTRUM V2			Gemini Embedded Technology BV Meander 901 6825 MH Arnhem <i>The Netherlands</i>
Size: A4	Engineer: HV	Revision:	
Date: 14-2-2023	Time: 17:34:48	Sheet 9 of 17	
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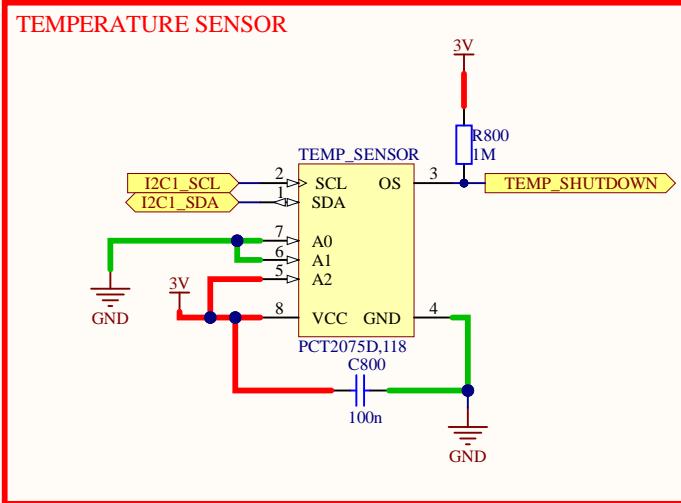
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Title: **ASTRUM V2**Size: **A4**Engineer: **HV**

Revision:

Gemini Embedded Technology BV
Meander 901
6825 MH Arnhem
The Netherlands

GETDate: **14-2-2023** Time: **17:34:49**Sheet **10 of 17**File: **800_temperature_sensor.SchDoc**

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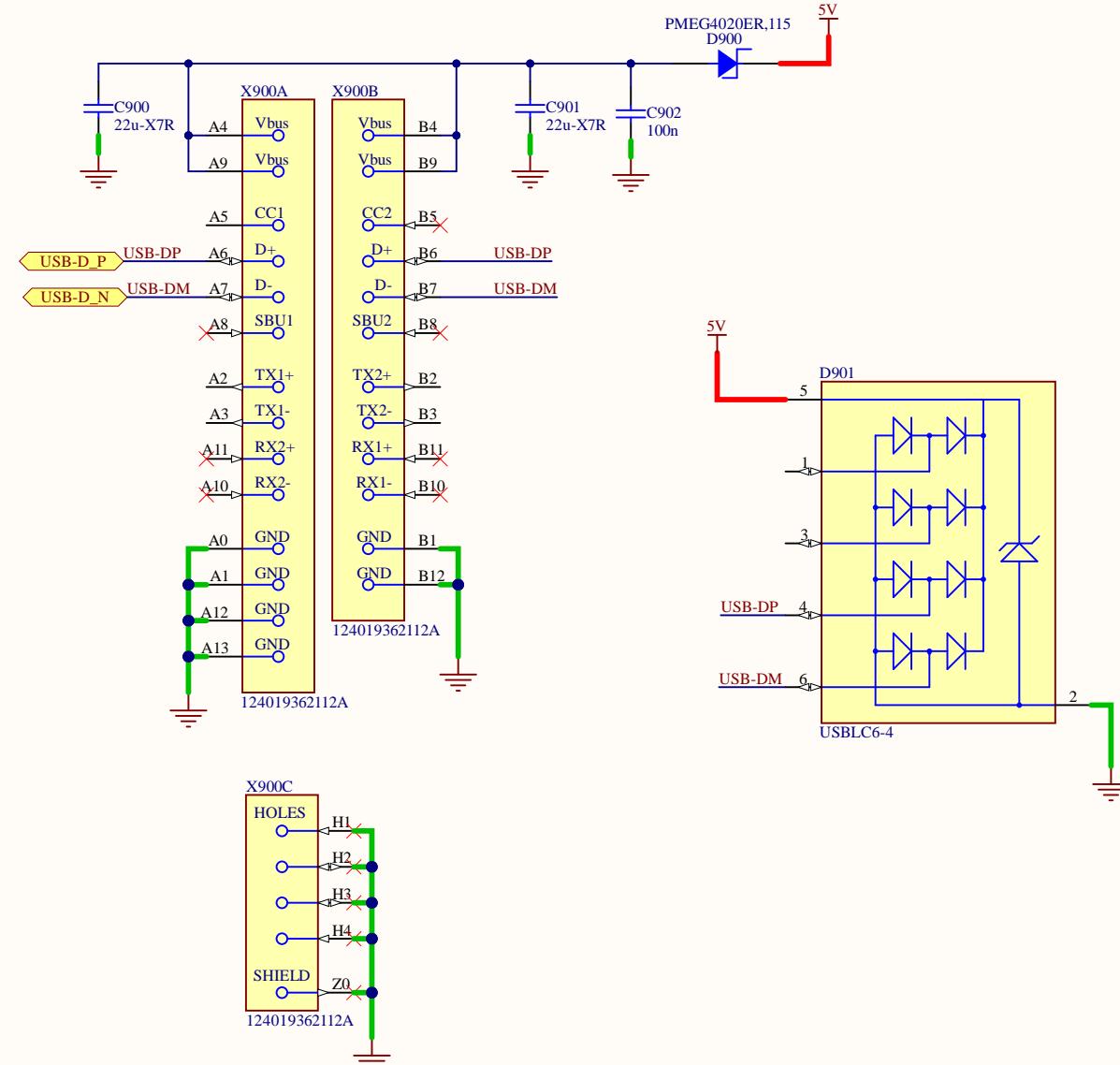
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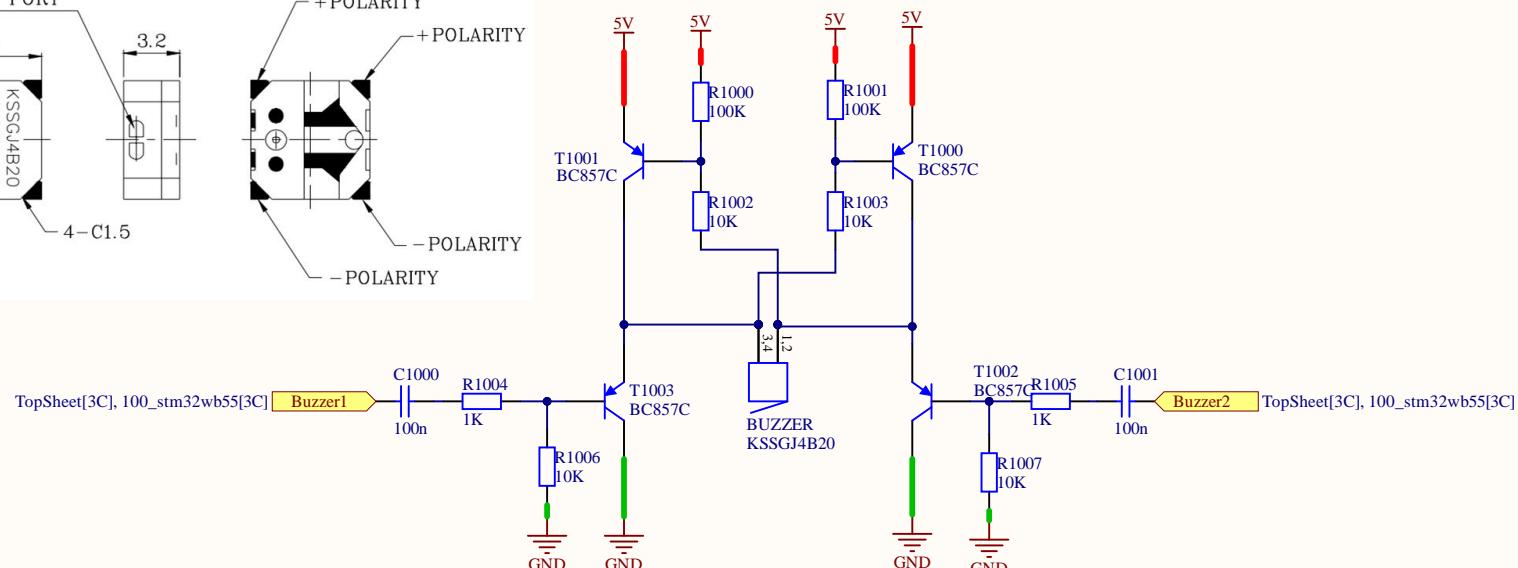
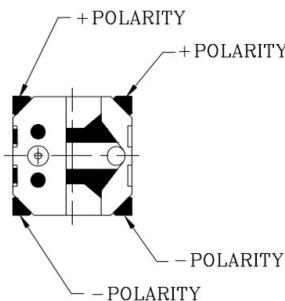
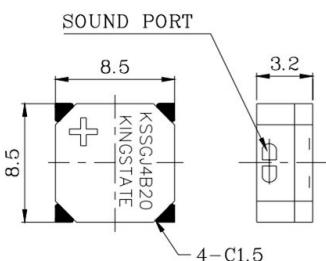
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Title: **ASTRUM V2**Size: **A4**Engineer: **HV**

Revision:

Date: **14-2-2023**Time: **17:34:49**Sheet **11 of 17****The Netherlands**File: **900_usb_interface.SchDoc****GET**

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Title: ASTRUM V2			Gemini Embedded Technology BV
Size: A4	Engineer: HV	Revision: 1c6af2801903906010153934eb4193463cb6d4b	Meander 901 The Netherlands
Date: 14-2-2023	Time: 17:34:49	Sheet 12 of 17	
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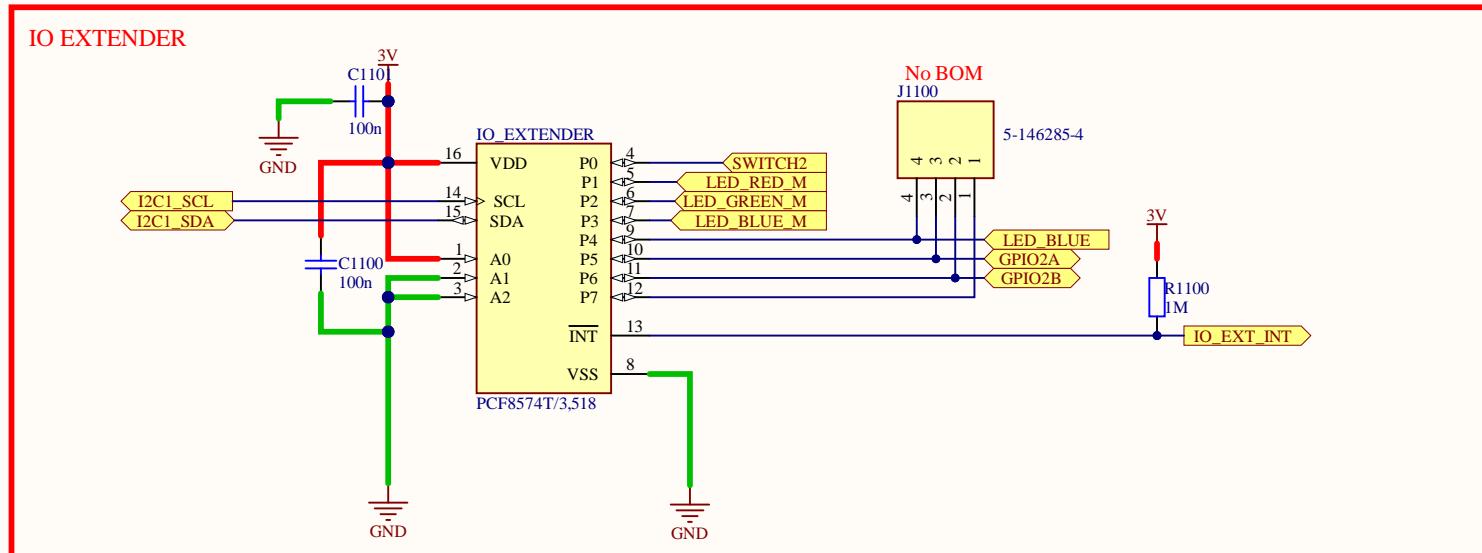
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FIDUCIAL

FID1201
FIDUCIAL

FID1202
FIDUCIAL

FID1203
FIDUCIAL



LOGO1200



LOGO1202

Title: **ASTRUM V2**

Size: A4	Engineer: HV	Revision:
Date: 14-2-2023	Time: 17:34:49	Sheet 14 of 17
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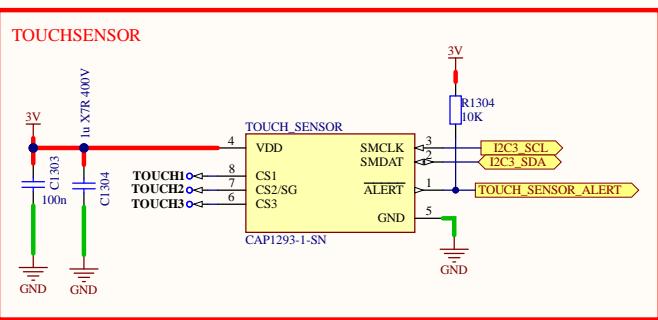
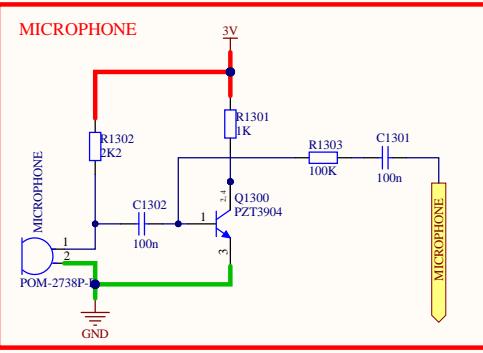
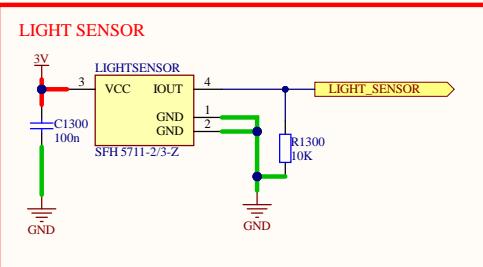
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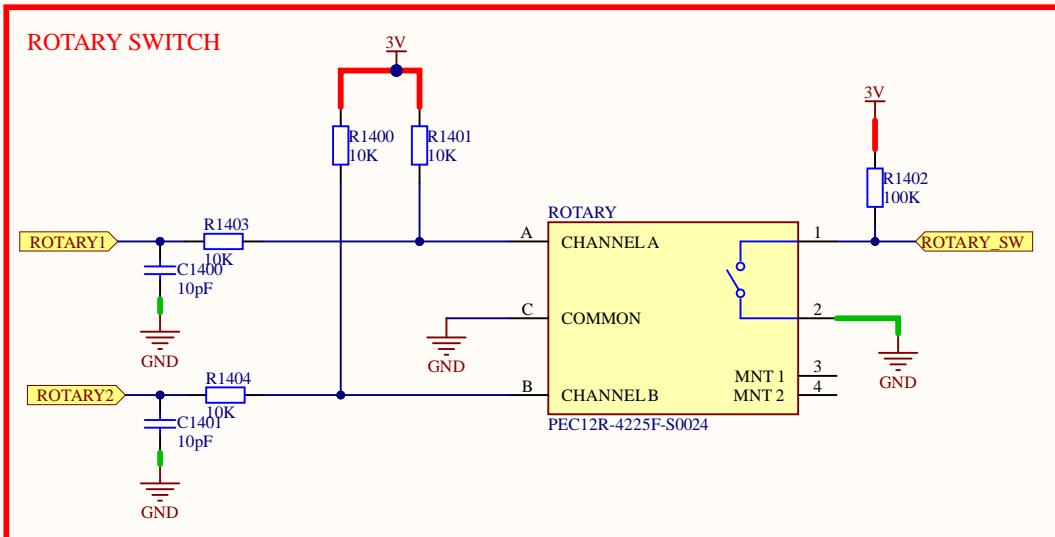
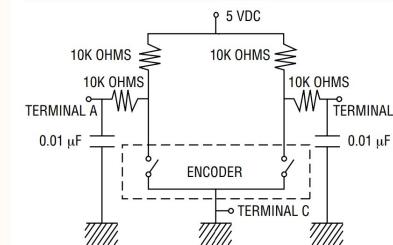
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**Suggested Filter Circuit**Title: **ASTRUM V2**Size: **A4**Engineer: **HV**

Revision:

Gemini Embedded Technology BV

Meander 901
6825 MH Arnhem
The NetherlandsDate: **14-2-2023**Time: **17:34:49**

Sheet

16 of 17File: **1400_Rotary.SchDoc****G E T**

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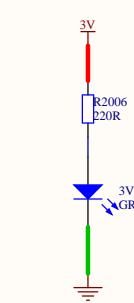
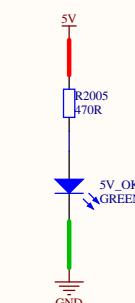
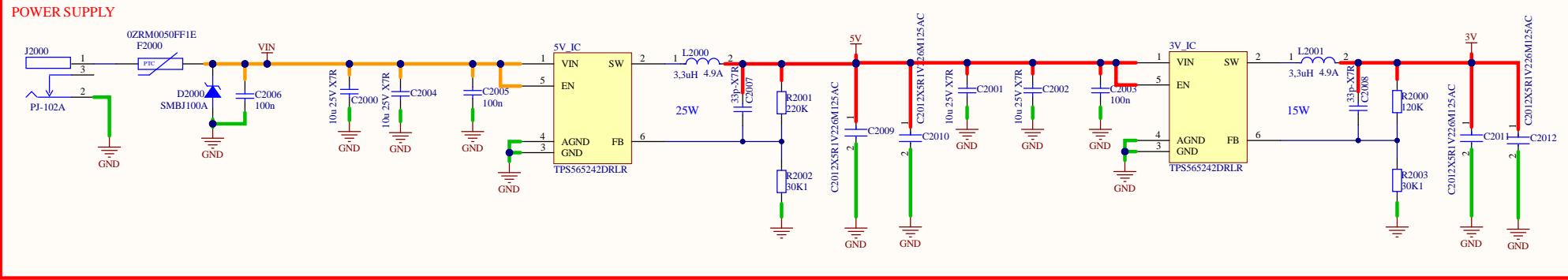
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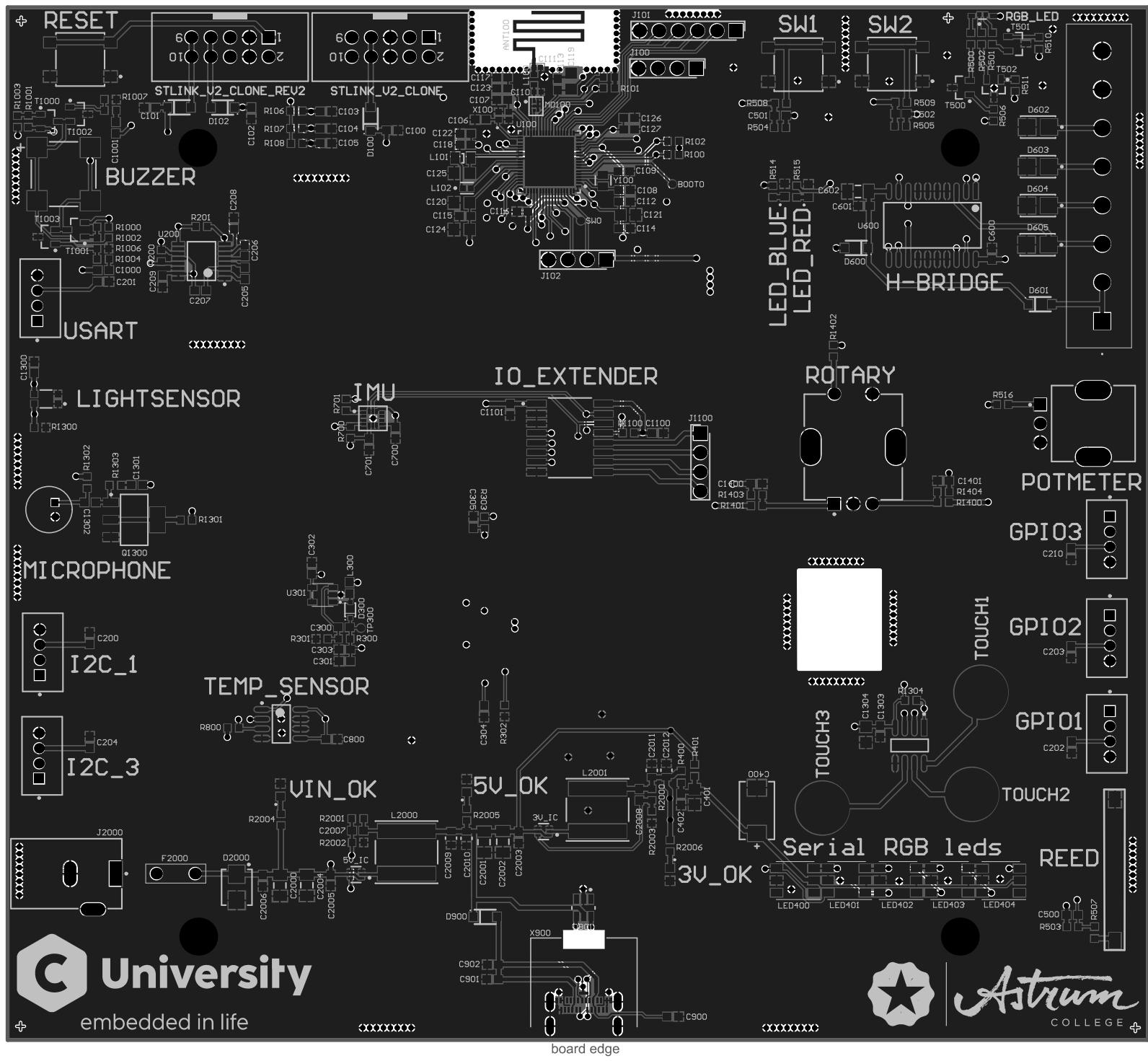
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POWER SUPPLY



Board Stack Report