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### Title: Modem

ID: ASX00027

Revision: V1.5

Date: 2022-01-24 Time: 12:53:10

Sheet 2 of 11

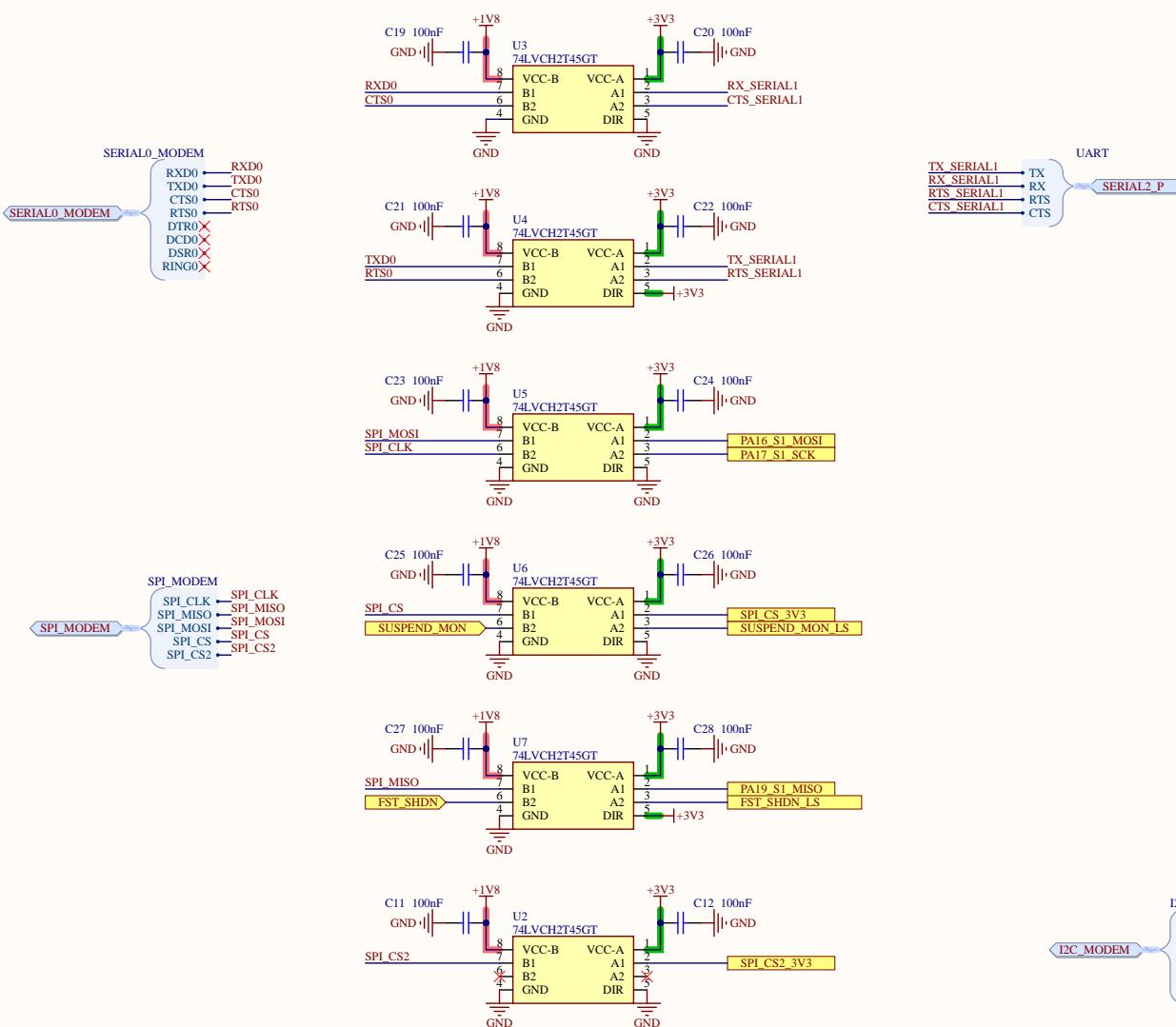
File: MODEM.SchDoc

Author: Silvio Navaretti



A HIGH on DIR allows transmission from nA to nB

A LOW on DIR allows transmission from nB to nA.



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Title: Level shifters

ID: ASX00027

Revision: V1.5

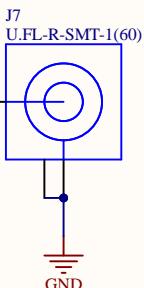


Date: 2022-01-24 Time: 12:53:10

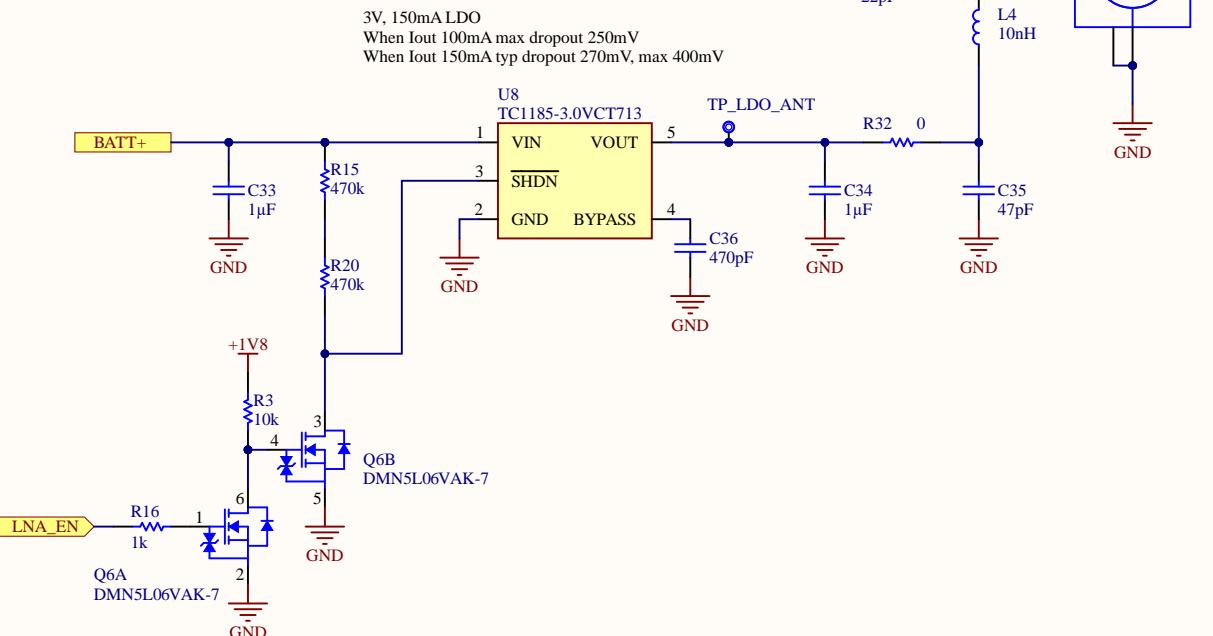
Sheet 3 of 11

File: LEVEL\_SHIFTER.SchDoc Author: Silvio Navaretti RevAuthor:

A



B



C

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Title: GNSS RF

ID: ASX00027

Revision: V1.5



Date: 2022-01-24 Time: 12:53:11

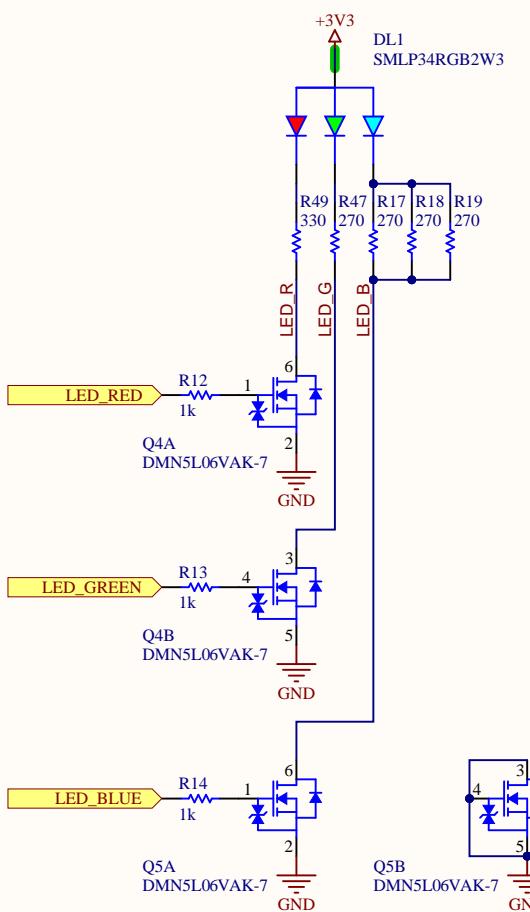
Sheet 4 of 11

File: GNSS\_RF.SchDoc

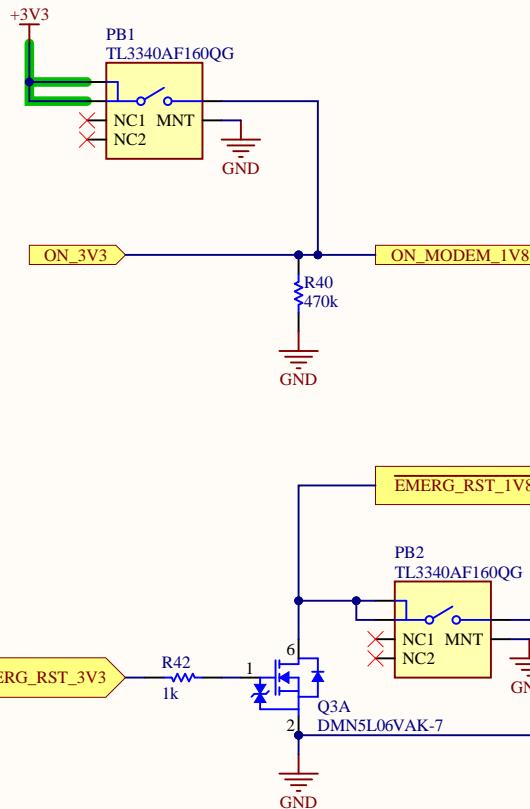
Author: Silvio Navaretti

RevAuthor: \*

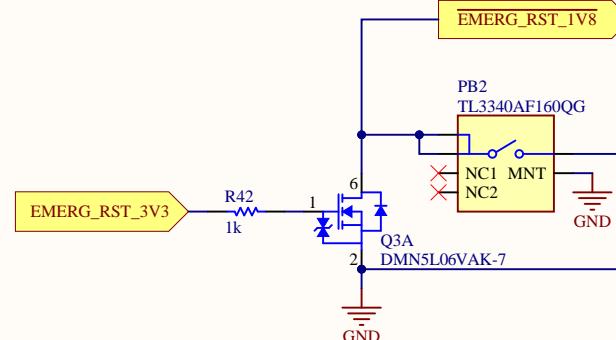
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Title: LEDs and buttons

ID: ASX00027

Revision: V1.5

Date: 2022-01-24

Time: 12:53:11

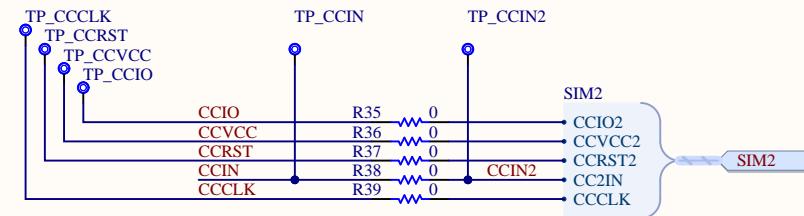
Sheet 5 of 11

File: LEADS\_BUTTONS.SchDoc

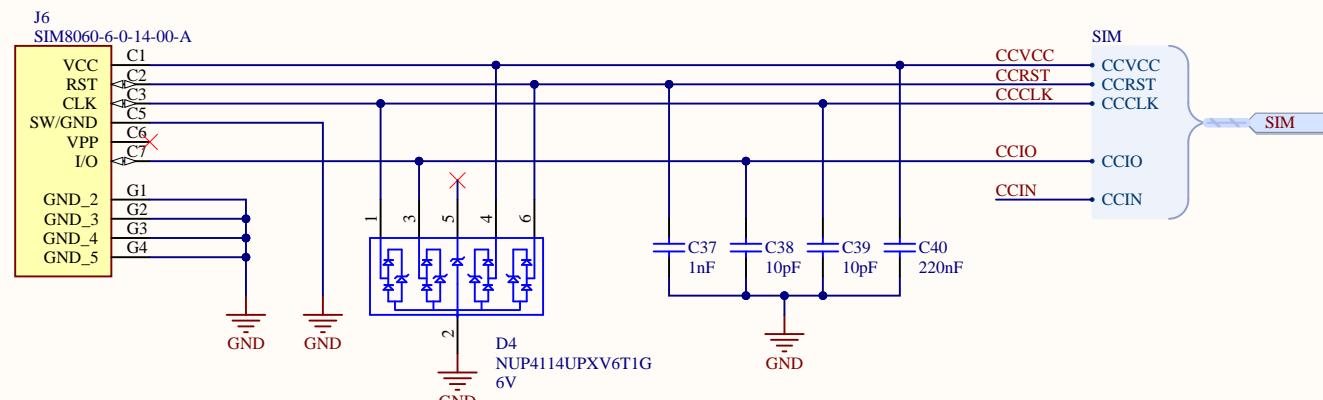
Author: Silvio Navaretti



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Title: SIM card

ID: ASX00027

Revision: V1.5

Date: 2022-01-24 Time: 12:53:11

Sheet 6 of 11

File: SIMCARD.SchDoc

Author: Silvio Navaretti



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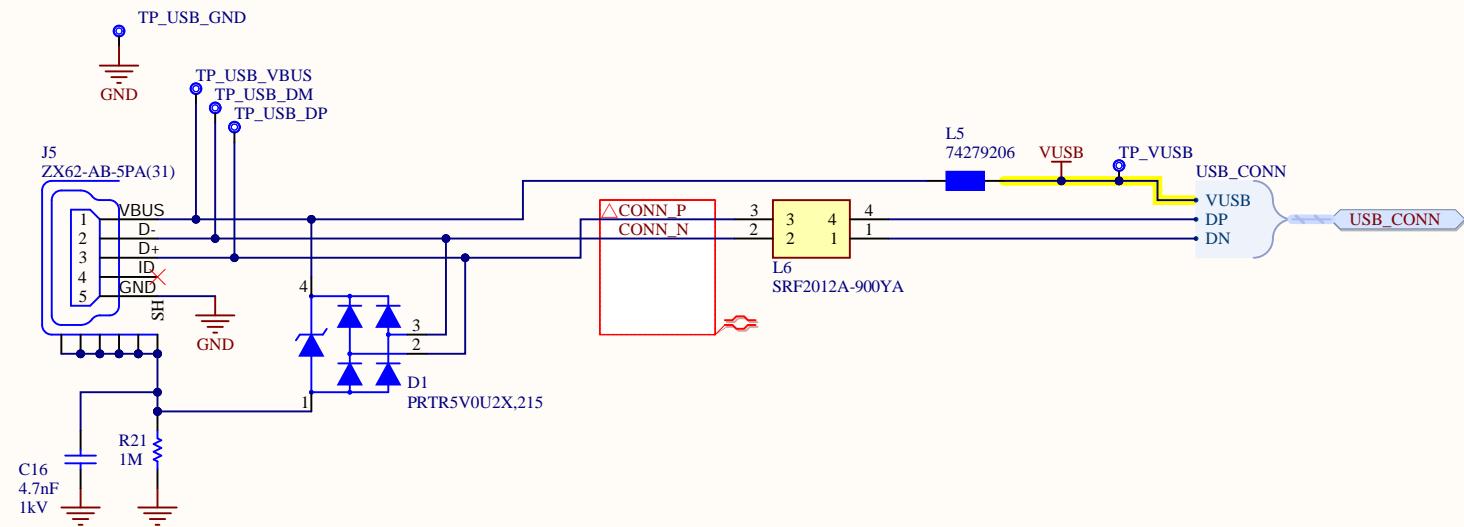
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Title: **USB**

ID: [ASX00027](#)

Revision: **V1.5**

Date: 2022-01-24 Time: 12:53:11

Sheet **7** of **11**

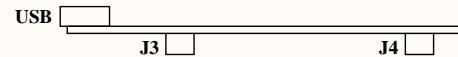
File: [USB.SchDoc](#)

Author: [Silvio Navaretti](#)

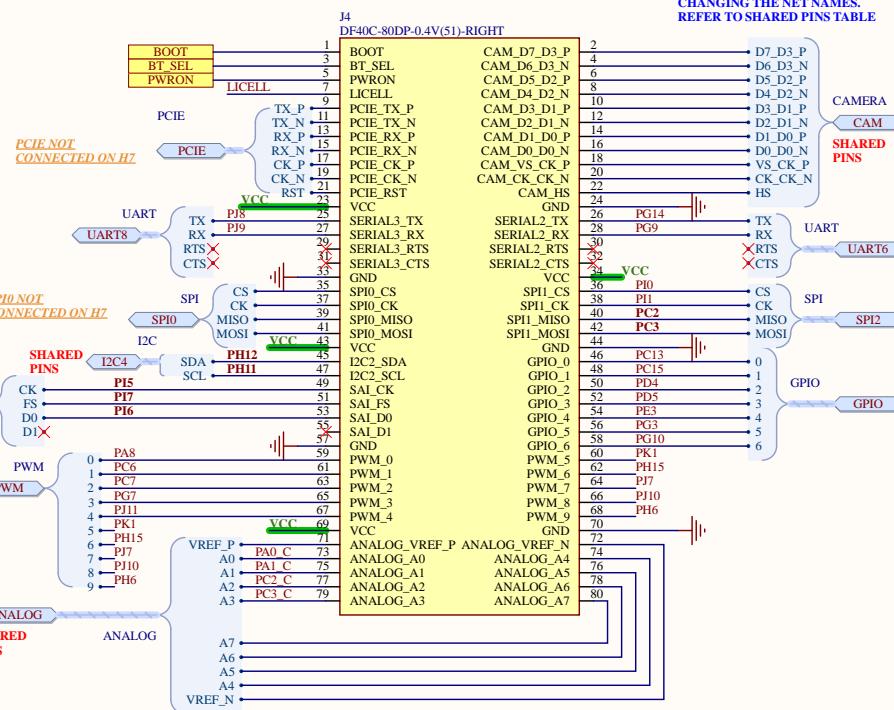
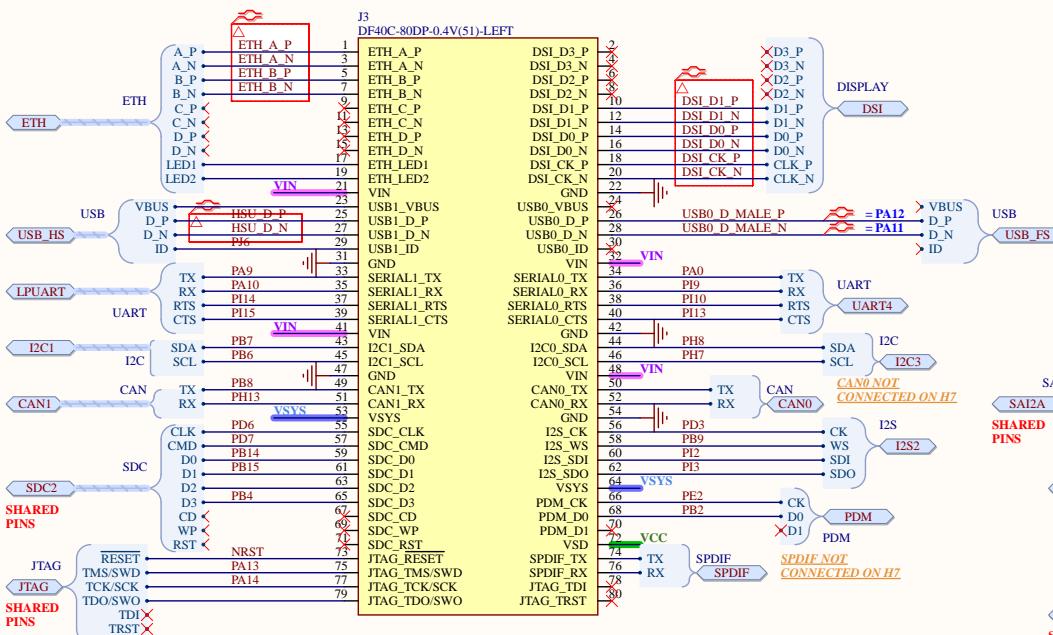
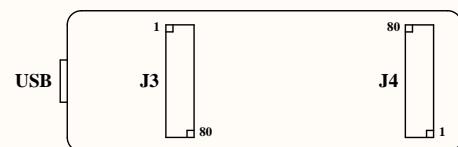




### **Board side view:**



### **Board BOTTOM view:**



## SHARED PINS TABLE

NET	BUS 1	BUS 2
PB3	JTAG	SDC2
PH11	CAM	I2C4
PH12	CAM	I2C4
P15	CAM	SA12A
P16	CAM	SA12A
P17	CAM	SA12A
PA4	CAM	ANALOG
PA6	CAM	ANALOG
PC2	ANALOG	SP12
PC3	ANALOG	SP12

## POWER NETS TABLE

NET	TYPE	RANGES	DESCRIPTION
 	<b>PORTENTA INPUT</b>	4.1V to 6V.	Default 3.3V, PMIC (U10) programmable output.
 	<b>PORTENTA OUTPUT</b>	1.1V to 3.3V in steps, max 1A.	Default 3.3V, PMIC (U10) programmable output.
 	<b>PORTENTA RESERVED OUTPUT</b>	<b>RESERVED, DO NOT USE</b> 3.5V to 4.2V, max 600mA.	Default 4.2V, PMIC (U10) programmable output which is also the input voltage of the buck converter inside the PMIC itself.
 	<b>PORTENTA INPUT</b>	Coinc cell max 3.6V, max 46uA.	Max 4uA with PMIC (U10) in coin cell mode, max 46uA with PMIC in standby/suspend mode.

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## Title: HD Connectors male

ID: ASX00027

Revision: V1.5

The Arduino logo consists of a teal infinity symbol with a minus sign in the left loop and a plus sign in the right loop, positioned above the word "ARDUINO" in a bold, sans-serif font.

A

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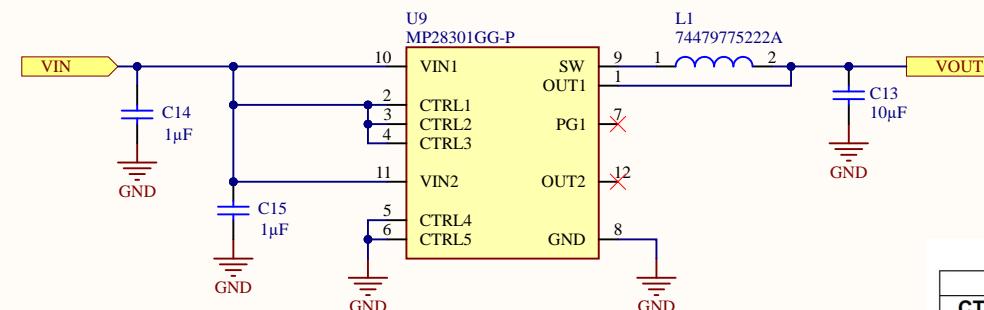
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D



**Table 1: CTRL vs. Output Voltages**

Step-Down Switcher			
CTRL3	CTRL2	CTRL1	OUT1
0	0	0	Disabled
0	0	1	0.8V
0	1	0	1.0V
0	1	1	1.2V
1	0	0	1.5V
1	0	1	1.8V
1	1	0	2.5V
1	1	1	3.3V
LDO			
CTRL5	CTRL4	OUT2	
0	0	Disabled	
0	1	1.2V	
1	0	2.5V	
1	1	3.0V	

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Title: **BUCK 3V3**

ID: [ASX00027](#)

Revision: [V1.5](#)



Date: [2022-01-24](#)

Time: [12:53:12](#)

Sheet [10 of 11](#)

File: [Buck3V3.SchDoc](#)

Author: [Silvio Navaretti](#)

RevAuthor: \*

A

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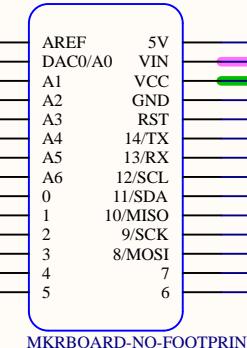
AREF	PA03_VREFA
A0	PA02_AIN0
A1	PB02_AIN10
A2	PB03_AIN11
A3	PA04_AIN4
A4	PA05_AIN5
A5	PA06_AIN6
A6	PA07_AIN7
0	PA22_TC4-W0
1	PA23_TC4-W1
2	PA10_TCC0-W2
3	PA11_TCC0-W3
4	PB10_TCC0-W4
5	PB11_TCC0-W5

JANALOG1

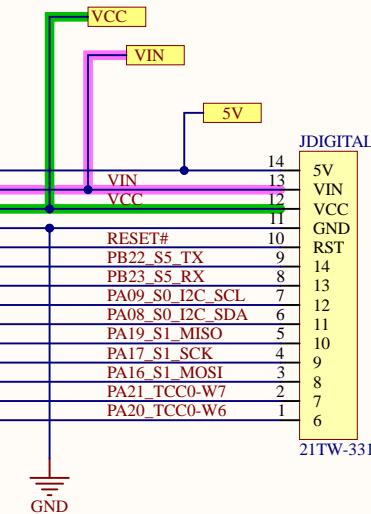
AREF	1 PA03_VREFA
A0	2 PA02_AIN0
A1	3 PB02_AIN10
A2	4 PB03_AIN11
A3	5 PA04_AIN4
A4	6 PA05_AIN5
A5	7 PA06_AIN6
A6	8 PA07_AIN7
0	9 PA22_TC4-W0
1	10 PA23_TC4-W1
2	11 PA10_TCC0-W2
3	12 PA11_TCC0-W3
4	13 PB10_TCC0-W4
5	14 PB11_TCC0-W5

21TW-332

MKR1



MKRBOARD-NO-FOOTPRINT



21TW-331

RESET#	RST
PB22_S5_RX	14
PB23_S5_RX	13
PA09_S0_I2C_SCL	12
PA08_S0_I2C_SDA	11
PA19_S1_MISO	10
PA17_S1_SCK	9
PA16_S1_MOSI	8
PA21_TCC0-W7	7
PA20_TCC0-W6	6

Title: \*

ID: \*

Revision: \*

Date: 2022-01-24

Time: 12:53:12

Sheet \* of \*

File: SCH-00014-8.SchDoc

Author: \*



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