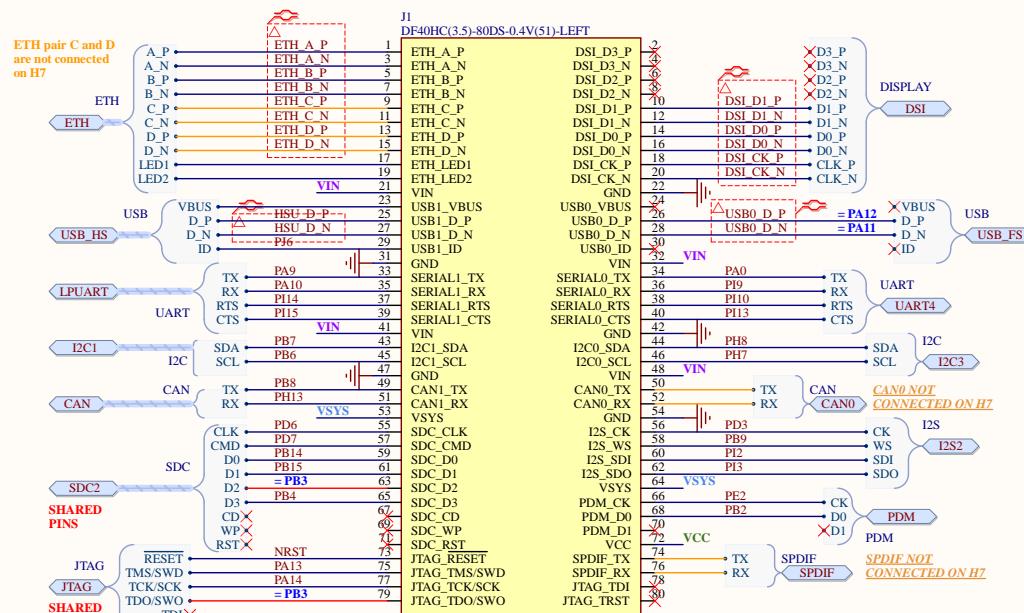
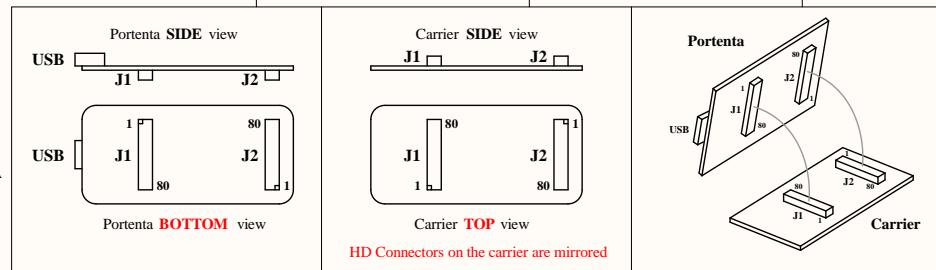


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Title: TOP	
ID: AKX00032	Revision: V1.1
Date: 2021-05-11	Time: 15:10:52
Sheet 1 of 19	
File: TOP.SchDoc	Author: S.Navaretti
	RevAuthor: S.Navaretti





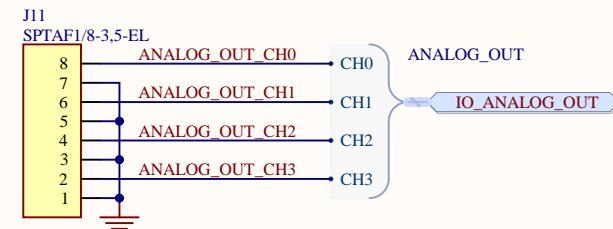
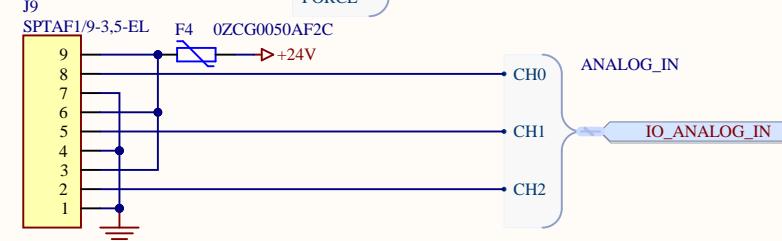
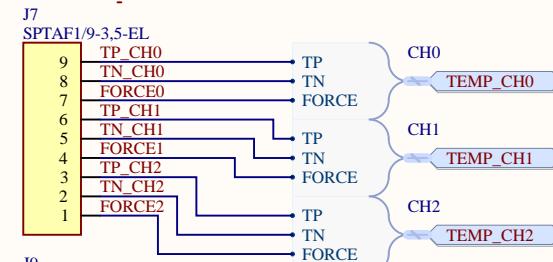
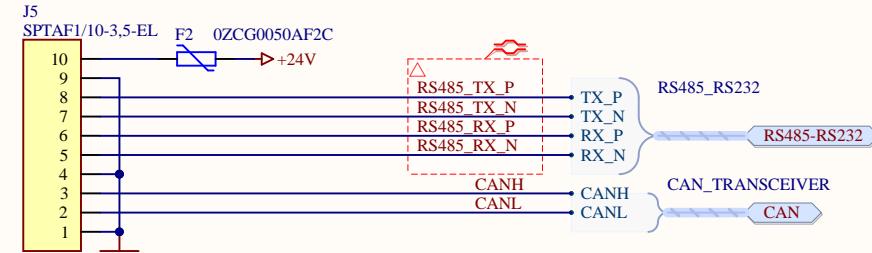
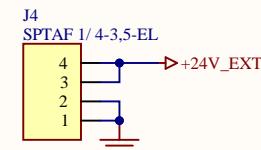
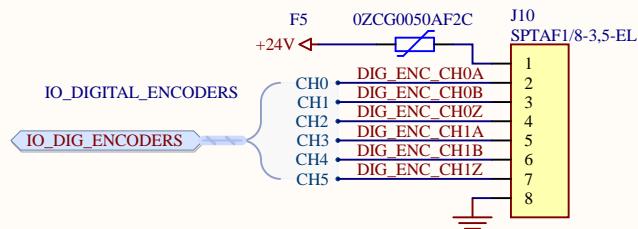
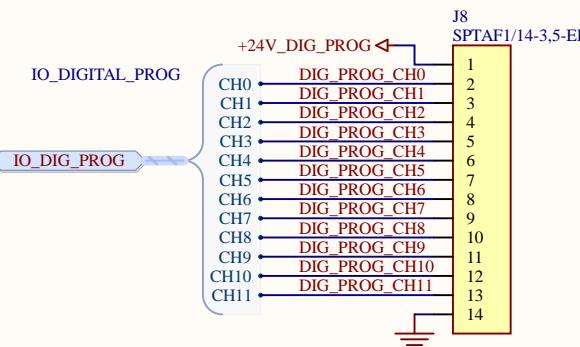
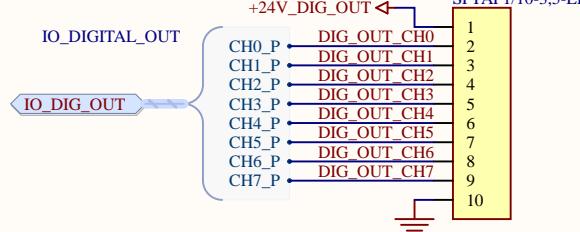
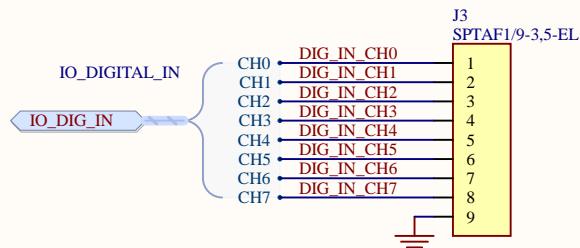
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Title: MORSETTIERA

ID: AKX00032

Revision: V1.1

Date: 2021-05-11 Time: 15:10:54

Sheet 3 of 19

File: MORSETTIERA.SchDoc

Author: S.Navaretti

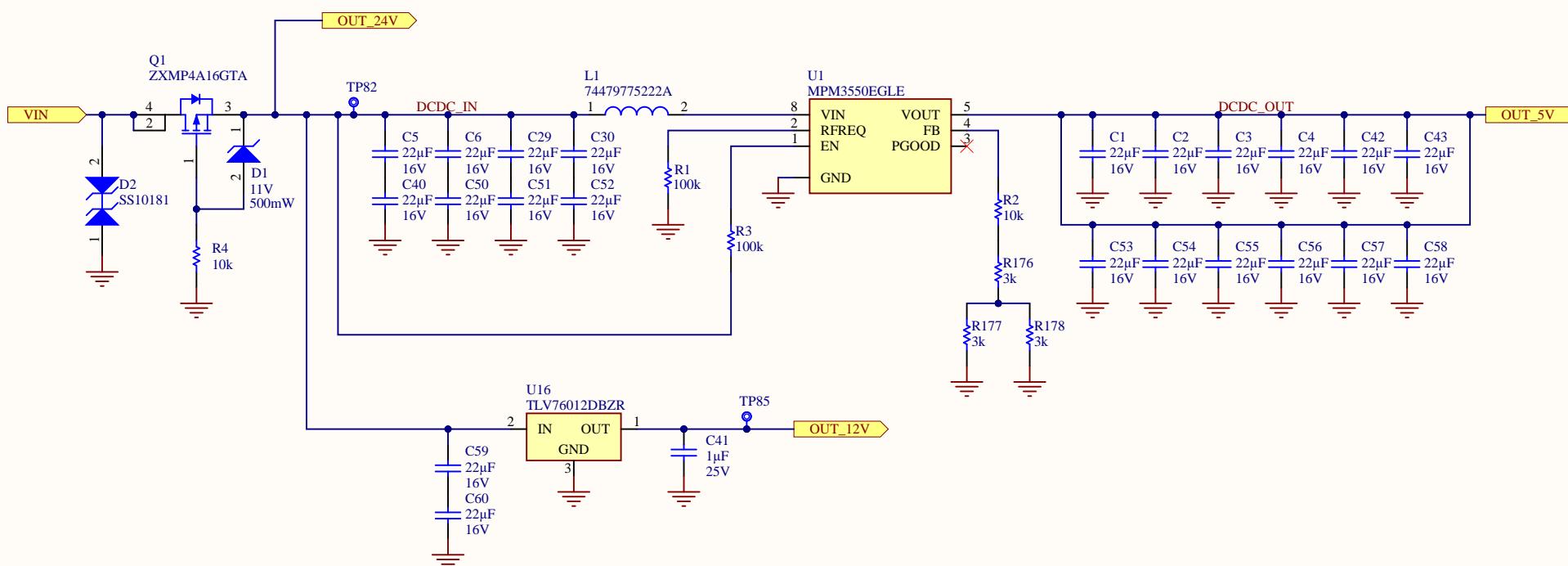


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Title: **POWER**

ID: **AKX00032**

Revision: **V1.1**

Date: **2021-05-11**

Time: **15:10:55**

Sheet **4** of **19**

File: **POWER.SchDoc**

Author: **S.Navaretti**



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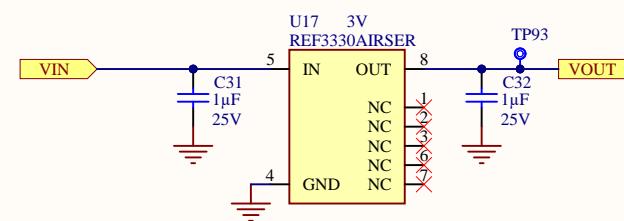
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#### Title: VOLTAGE REFERENCE

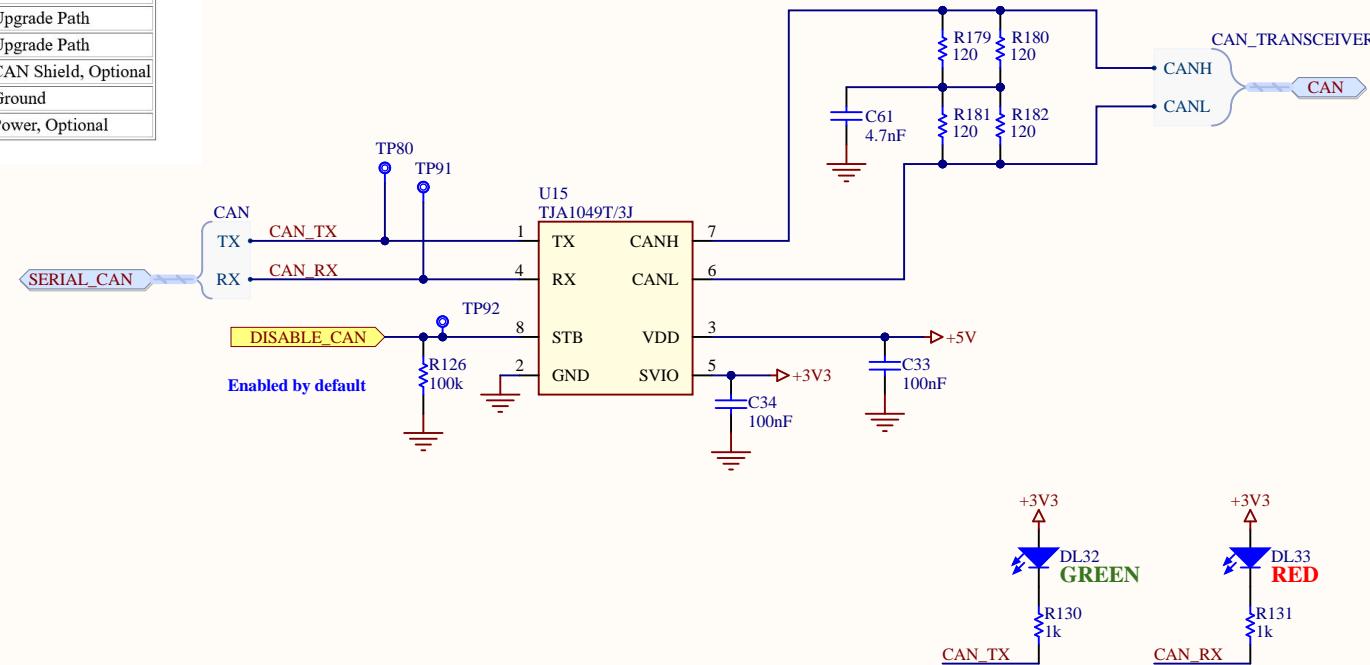
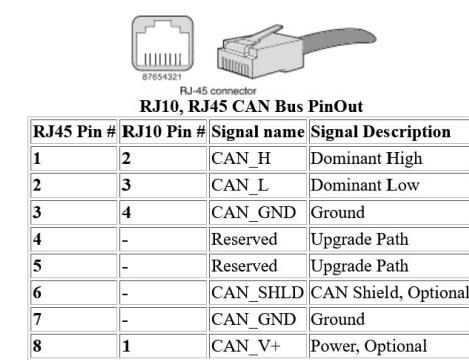
ID: AKX00032

Revision: V1.1

Date: 2021-05-11 Time: 15:10:56 Sheet 5 of 19

File: ADC\_VOLTAGE\_REFERENCE.SchDoc Author: S.Navaretti





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Title: CAN

ID: AKX00032

Revision: V1.1

Date: 2021-05-11 Time: 15:10:57

Sheet 6 of 19

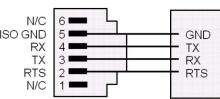
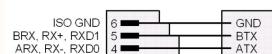
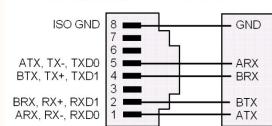
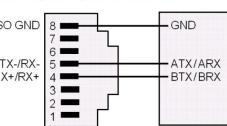
File: CAN.SchDoc

Author: S.Navaretti



**PIN DESCRIPTIONS**

Pin	Name	RS-232	RS-485 Full Duplex	RS-485 Half Duplex
1				
2	GND	Ground		
3	T1OUT, B/Z	Transmitter 1 Output	Z Driver Neg Output	B/Z Neg Input/Output
4	T2OUT, A/Y	Transmitter 2 Output	Y Driver Pos Output	A/Y Pos Input/Output
5				
6	R1OUT	Receiver 1 Output	X	X
7	R2OUT, RO	Receiver 2 Output	Receiver TTL Output	Receiver TTL Output
8				
9				
10	SHDN	Low power shutdown mode when low		
11	SLEW	Data rate limited to 250kops when low		
12	FD_TX_TERM	X	1200 Y-Z termination enabled when both TERM and FD_TX_TERM are high	X
13	TERM	X	1200 A-B termination enabled when high	
14	RS-485/RS-232	0	1	1
15	HALF/FULL	X	0	1
16				
17	GND	Ground		
18	R2IN, A	Receiver 2 Input	A Pos Receiver Input	X
19	R1IN, B	Receiver 1 Input	B Neg Receiver Input	X
20	RE	X	Receiver enabled when low	
21	T2IN, DE	Transmitter 2 Input	Driver enabled when high	
22	T1IN, DI	Transmitter 1 Input	Driver TTL Input	
23				
24				
25	V-	Charge pump negative supply, 0.1μF from ground		
26	C2-	Charge pump cap 2 negative lead		
27	C2+	Charge pump cap 2 positive lead, 0.1μF		
28	V+	Charge pump positive supply, 0.1μF to ground		
29	C1+	Charge pump cap 1 positive lead, 0.1μF		
30	VL	Logic Supply for TTL Inputs and Outputs, VL = +1.65V to +5.5V or tie to VCC		
31	VCC	Main Supply: VCC = +3.0V to +5.5V, bypass to ground with 1.0μF		
32	C1-	Charge pump cap 1 negative lead		

**RS232 INTERFACE****RS485, RJ11, FULL DUPLEX****Computer****RS485, RJ45, FULL DUPLEX****RS485, RJ45, HALF DUPLEX**

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**TABLE 1: RS-232 TX TRUTH TABLE**

SHDN	INPUTS		OUTPUTS	
	RS-485/RS-232	D/I T1IN, DE/T2IN	Z/B/Y T1OUT, Y/A/T2OUT	
0	X	X	1/8th unit load	
1	0	0	1	
1	0	1	0	
1	1	X	RS-485 Mode	

**TABLE 2: RS-232 RX TRUTH TABLE**

SHDN	INPUTS		OUTPUTS	
	RS-485/RS-232	B/R1IN, A/R2IN	R1OUT, R0/R2OUT	
X	0	0	1	
X	0	1	0	
X	0	Inputs open	1	
X	1	X	R1OUT High-Z, R0/R2OUT in RS-485 Mode	

**TABLE 3: RS-485/422 TX TRUTH TABLE**

SHDN	INPUTS		OUTPUTS		
	RS-485/RS-232	D/E/T2IN	D/I T1IN	Z/B/Y T1OUT	Y/A/T2OUT
0	X	X	X	1/8th unit load	1/8th unit load
1	1	0	X	1/8th unit load	1/8th unit load
1	1	1	0	1	0
1	1	1	1	0	1
X	0	X	X	X	RS-232 Mode

**TABLE 4: RS-485/422 RX TRUTH TABLE**

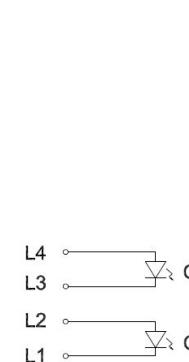
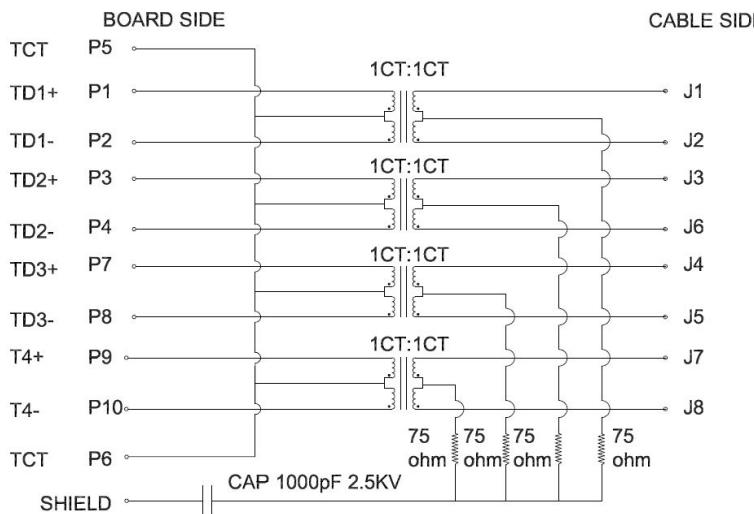
RS-485/RS-232	INPUTS		OUTPUT			
	SHDN	HALF/FULL	RE	(A-B)	(Y-Z)	R0/R2OUT
1	0	X	X	X	X	High-Z
1	1	0	0	≥ -50mV	X	1
1	1	0	0	≤ -200mV	X	0
1	1	0	0	Floating	X	1
1	1	1	0	X	≤ -50mV	1
1	1	1	0	X	≤ -200mV	0
1	1	X	1	X	X	High-Z
0	X	X	X	X	X	RS-232 Mode

**TABLE 5: RS-485/422 TERMINATION TRUTH TABLE**

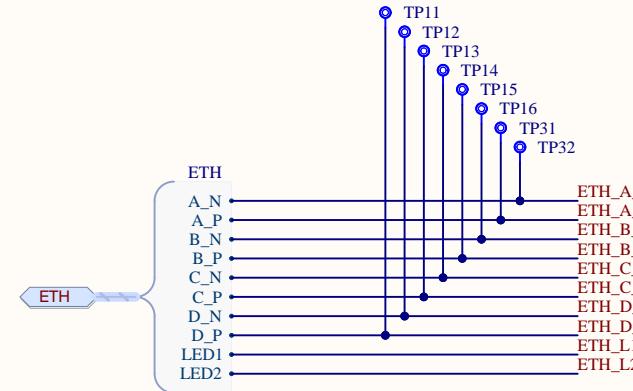
FD_TX_TERM	TERM	RS-485/RS-232		HALF/FULL	
		RS-485/RS-232	HALF/FULL	TERM	FD_TX_TERM
Pin 12	Pin 13	Pin 14	Pin 15	Pin 3-4	Pin 18-19
X	0	1	0	-	-
0	1	1	0	-	ON
1	1	1	0	ON	ON
X	0	1	1	-	-
X	1	1	1	ON	-
X	X	0	X	-	-

**H/Fn****485/232n****SLEW****FD\_TX\_TERM****TERM****EN-485****ATN-485****BTX/BRX****ISO GND****ISO GND**

A



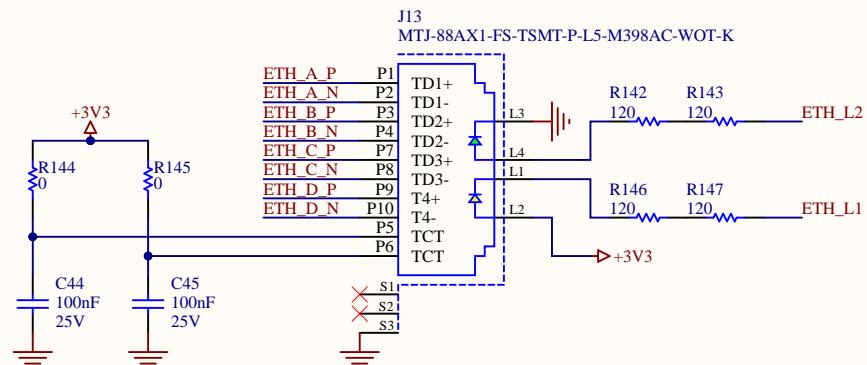
Pin	Green	Pin	Orange
L4	+	L2	+
L3	-	L1	-



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Title: **ETHERNET**

ID: **AKX00032**

Revision: **V1.1**

Date: **2021-05-11**

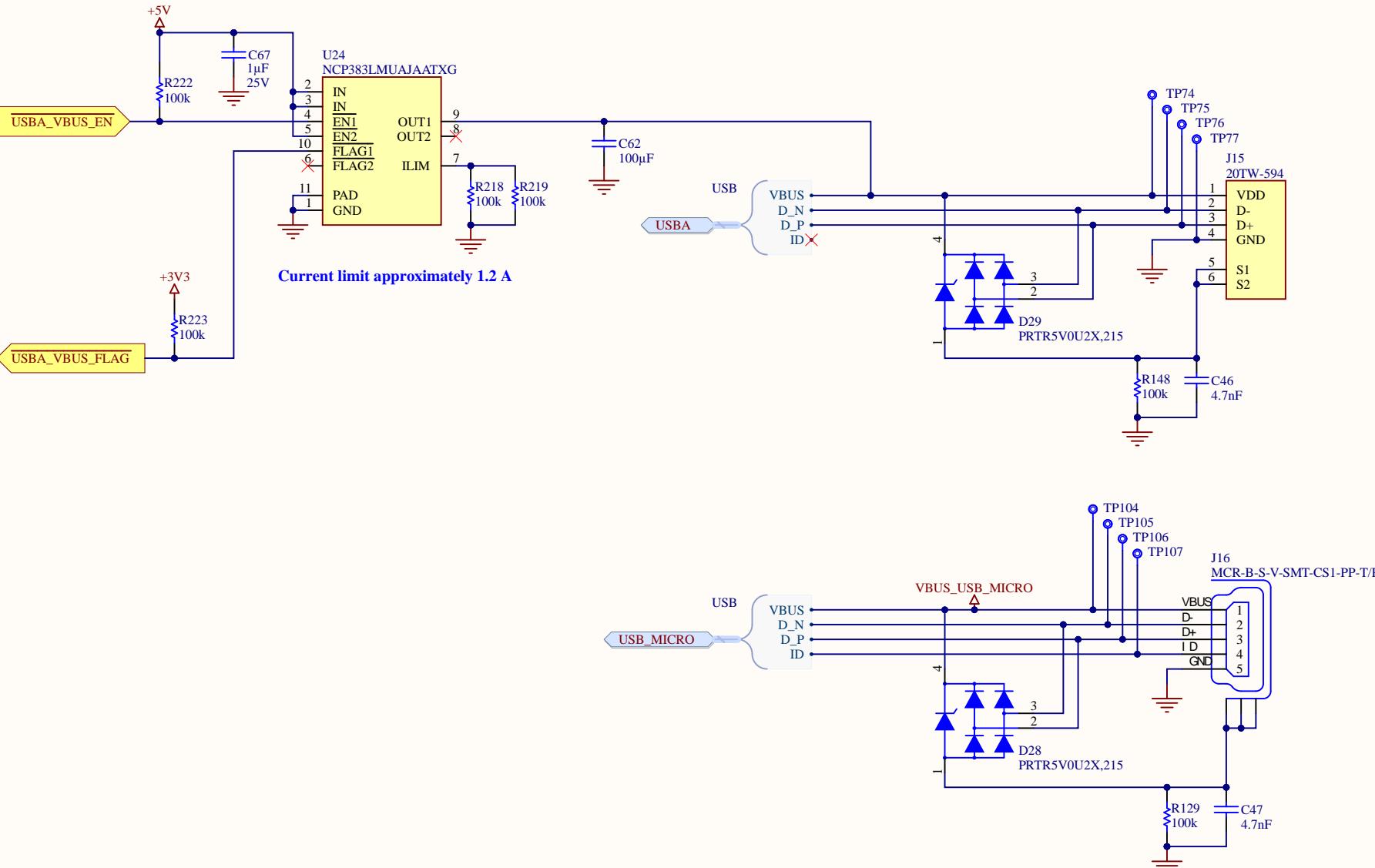
Time: **15:10:58**

Sheet **8** of **19**

File: **ETHERNET.SchDoc**

Author: **S.Navaretti**





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Title: **USB**

ID: **AKX00032**

Revision: **V1.1**

Date: **2021-05-11**

Time: **15:10:59**

Sheet **9** of **19**

File: **USB.SchDoc**

Author: **S.Navaretti**

RevAuthor: **S.Navaretti**



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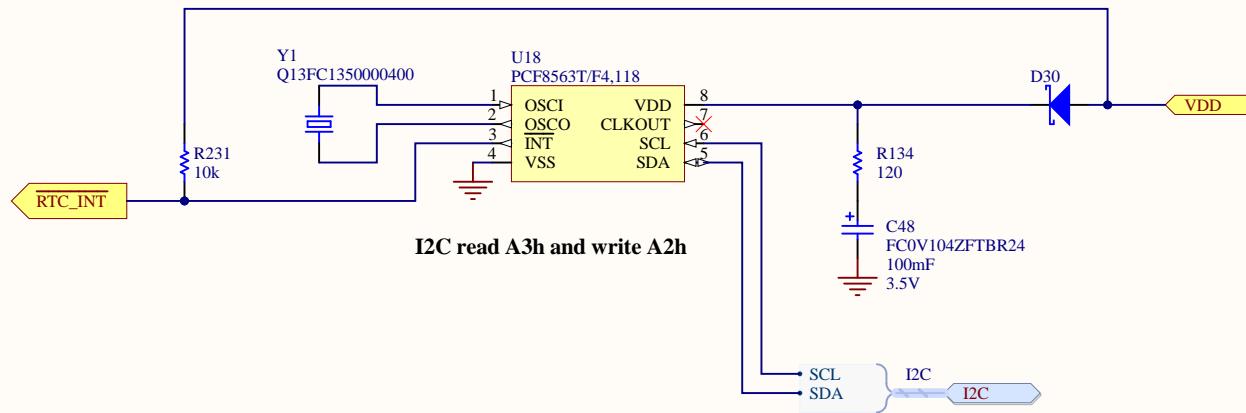
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Title: **RTC**

ID: **AKX00032**

Revision: **V1.1**

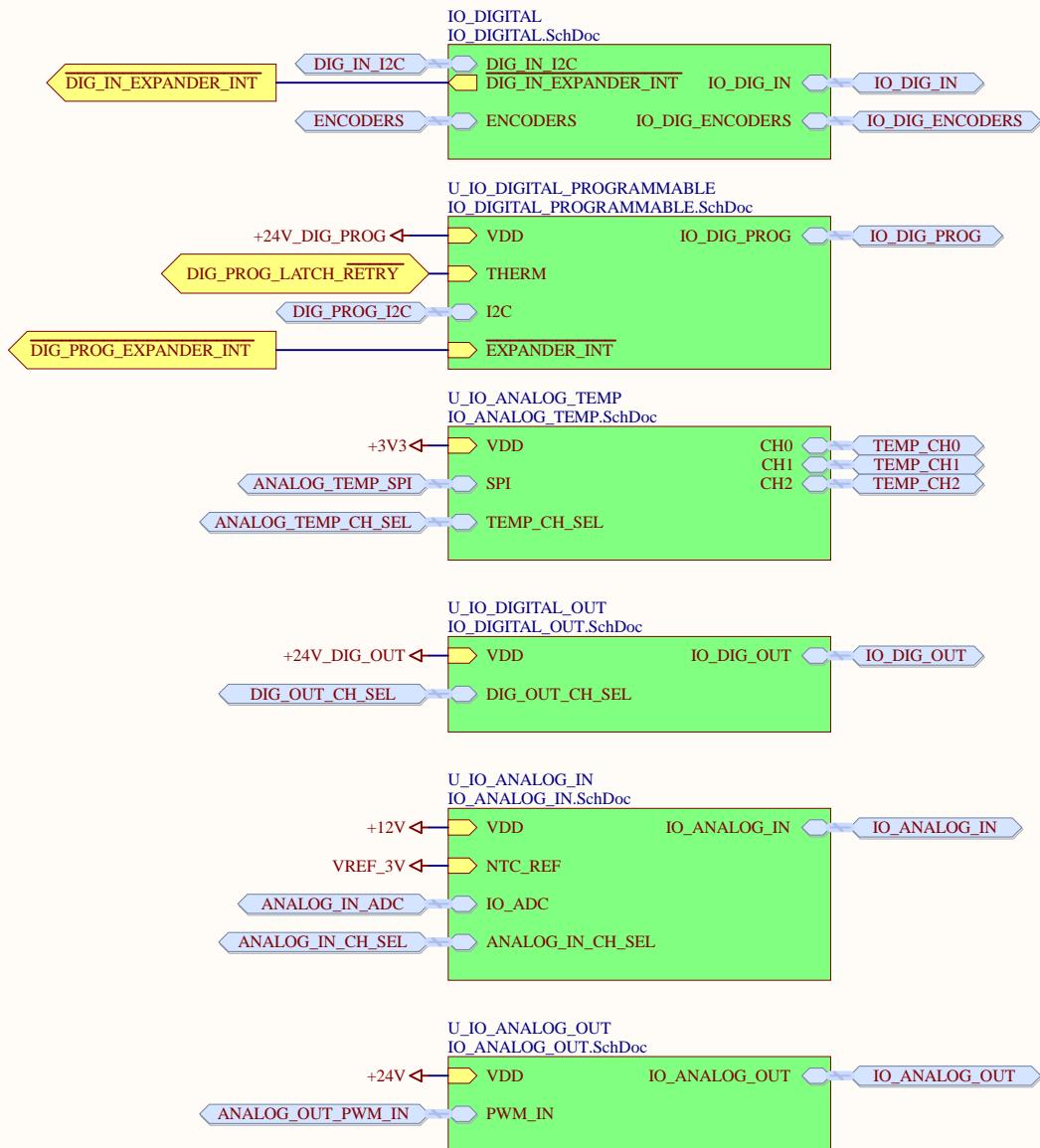
Date: **2021-05-11** Time: **15:11:00**

Sheet **10 of 19**

File: **RTC.SchDoc**

Author: **S.Navaretti**





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Title: **IO TOP**

ID: **AKX00032**

Revision: **V1.1**

Date: **2021-05-11** Time: **15:11:01**

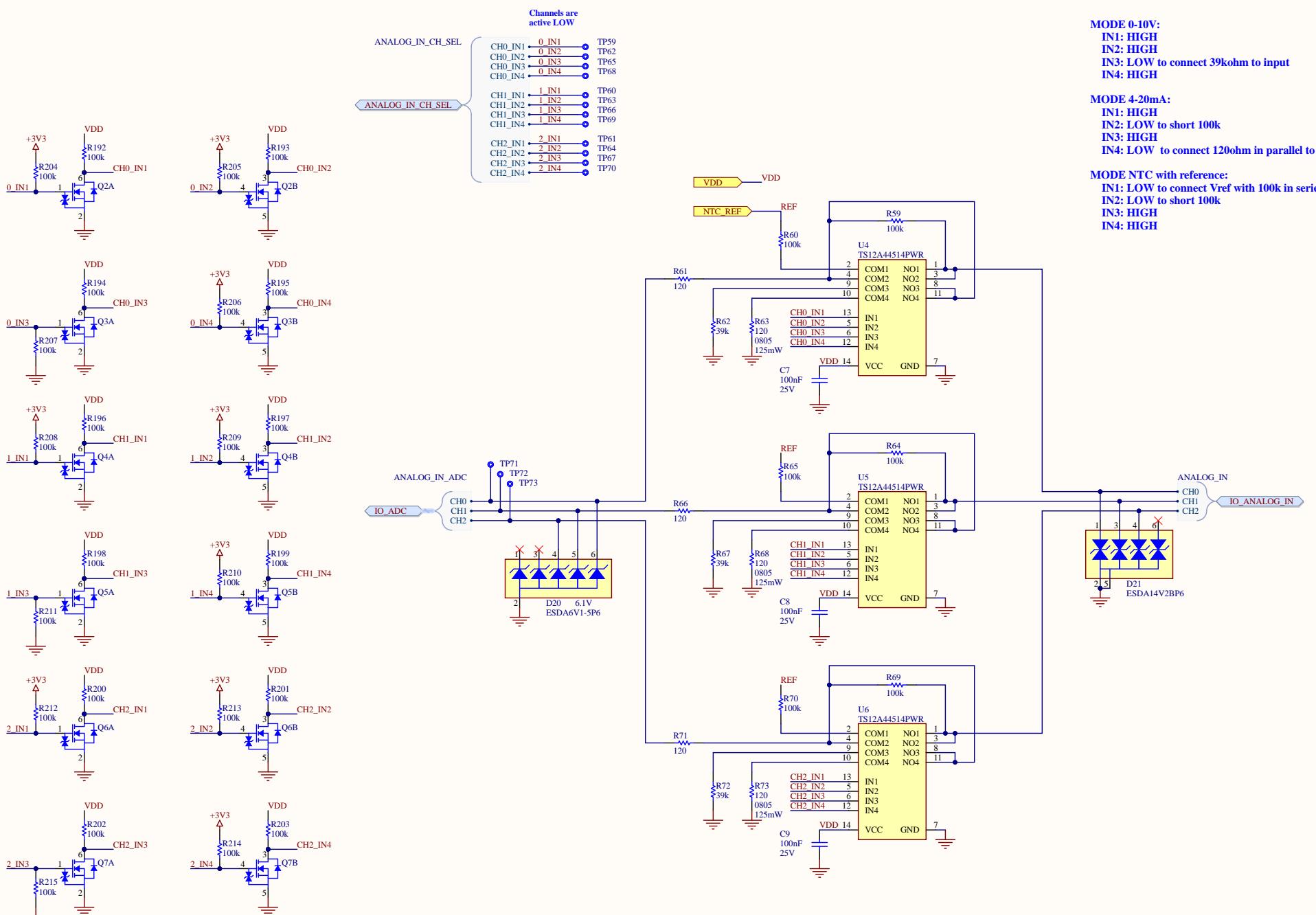
Sheet **11 of 19**

File: **IO.SchDoc**

Author: **S.Navaretti**

RevAuthor: **S.Navaretti**





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#### Title: ANALOG IN

ID: AKX00032

Revision: V1.1



Date: 2021-05-11

Time: 15:11:02

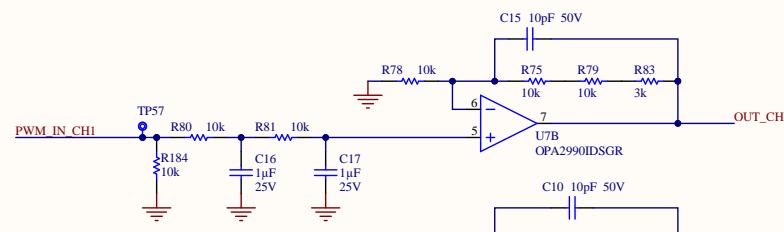
Sheet 12 of 19

File: IO\_ANALOG\_IN.SchDoc

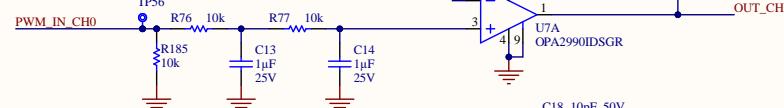
Author: S.Navaretti

RevAuthor: S.Navaretti

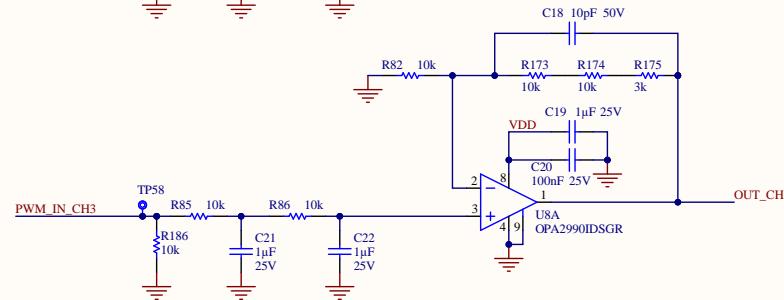
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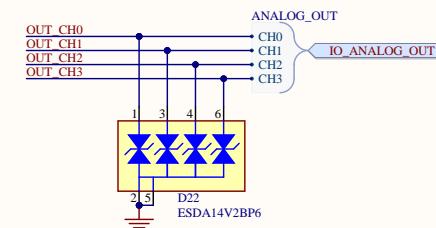
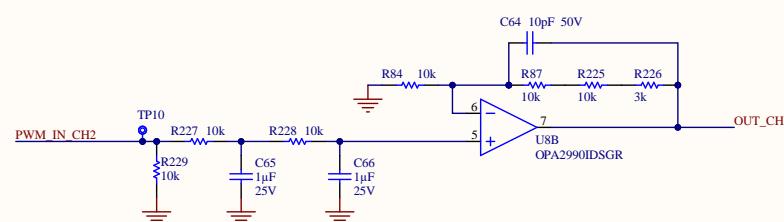
B



VDD → VDD  
 ANALOG\_OUT\_PWM\_IN  
 PWM\_IN → {CH0: PWM\_IN\_CH0,  
 CH1: PWM\_IN\_CH1,  
 CH2: PWM\_IN\_CH2,  
 CH3: PWM\_IN\_CH3}



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#### Title: ANALOG OUT

ID: AKX00032

Revision: V1.1



Date: 2021-05-11

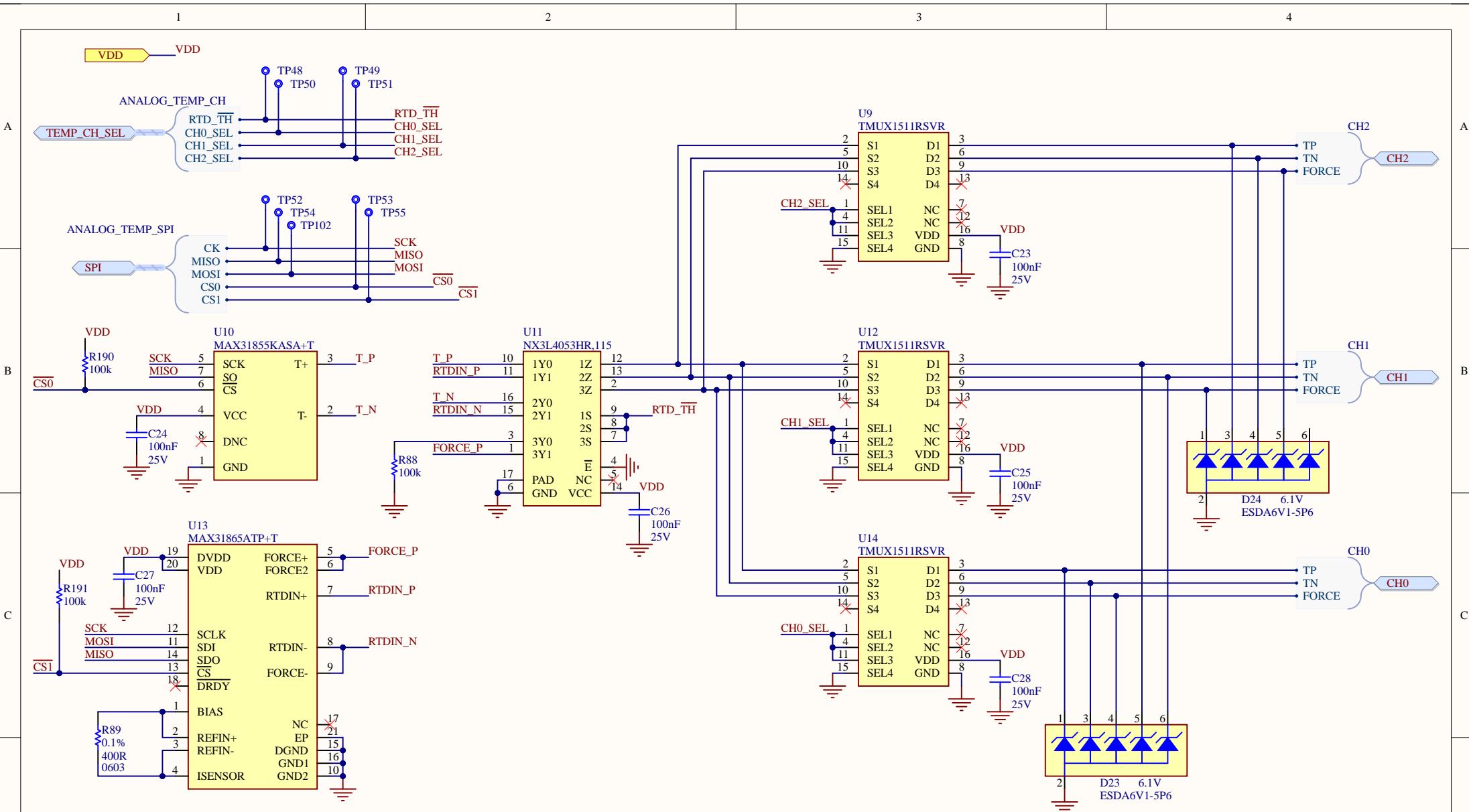
Time: 15:11:03

Sheet 13 of 19

File: IO\_ANALOG\_OUT.SchDoc

Author: S.Navaretti

RevAuthor: S.Navaretti



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#### Title: ANALOG TEMP

ID: AKX00032

Revision: V1.1

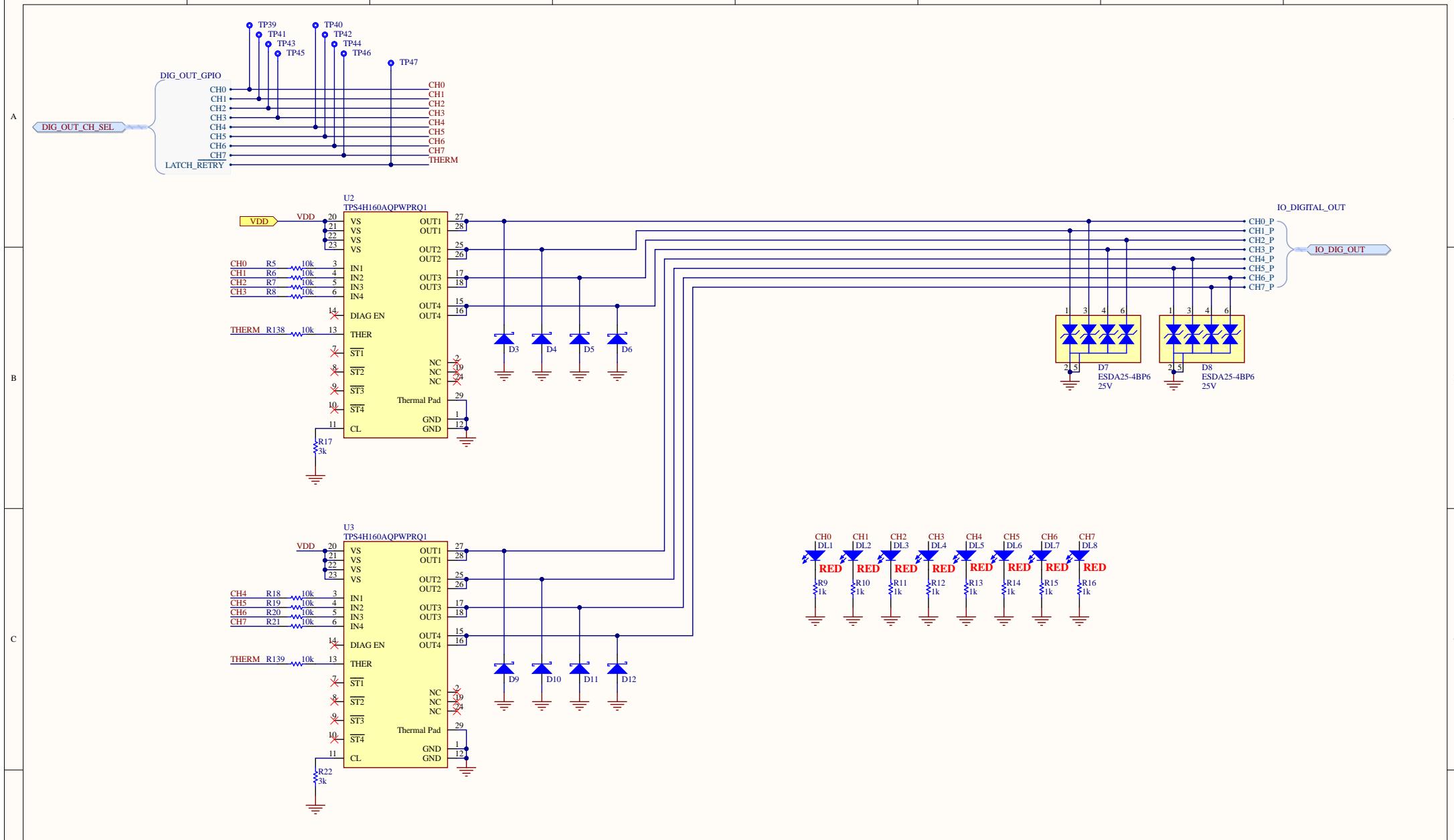
Date: 2021-05-11 Time: 15:11:04

Sheet 14 of 19

File: IO\_ANALOG\_TEMP.SchDoc

Author: S.Navaretti





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#### Title: DIGITAL OUT

ID: AKX00032

Revision: V1.1



Date: 2021-05-11

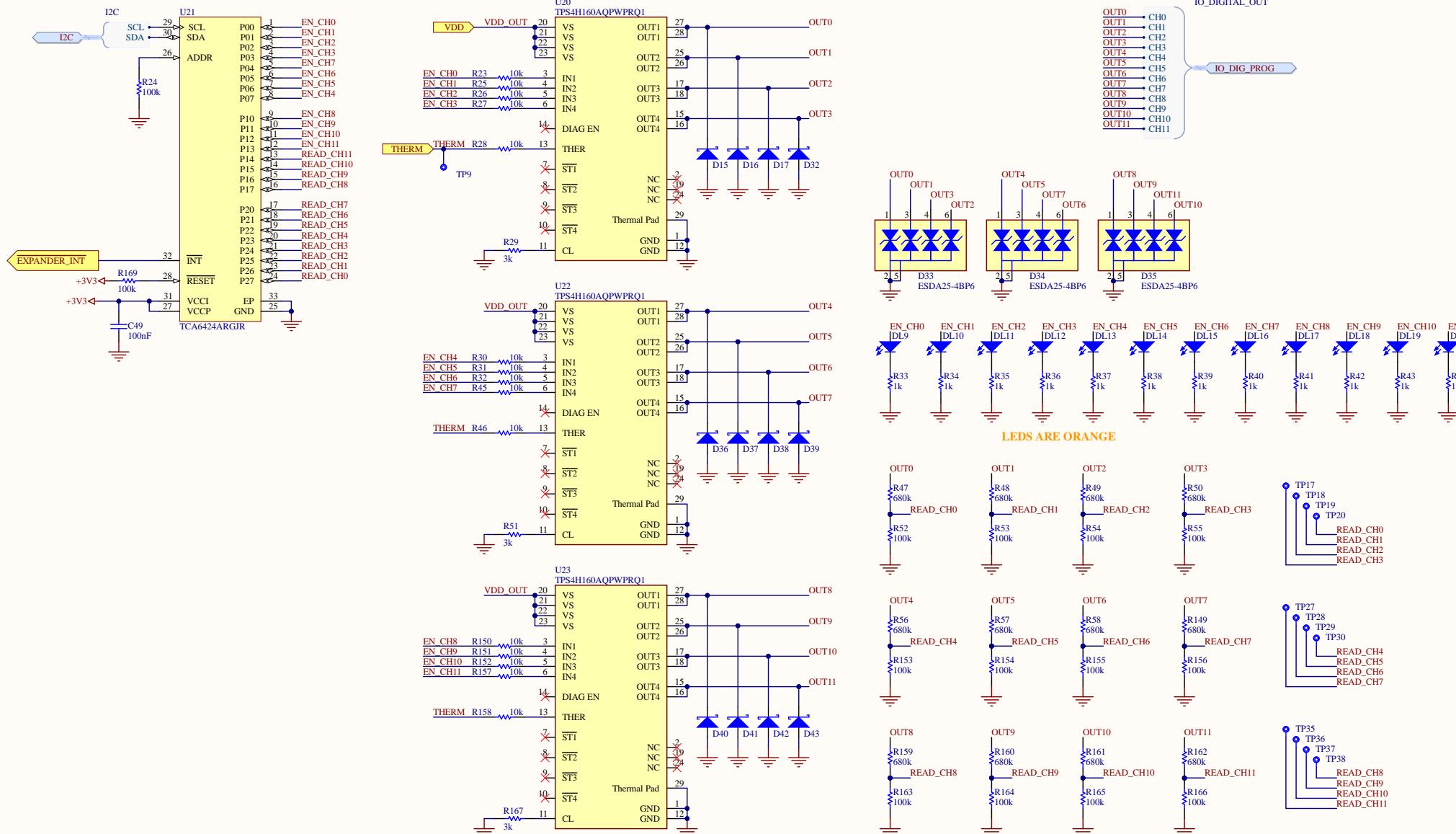
Time: 15:11:04

Sheet 15 of 19

File: IO\_DIGITAL\_OUT.SchDoc

Author: S.Navaretti

RevAuthor: S.Navaretti



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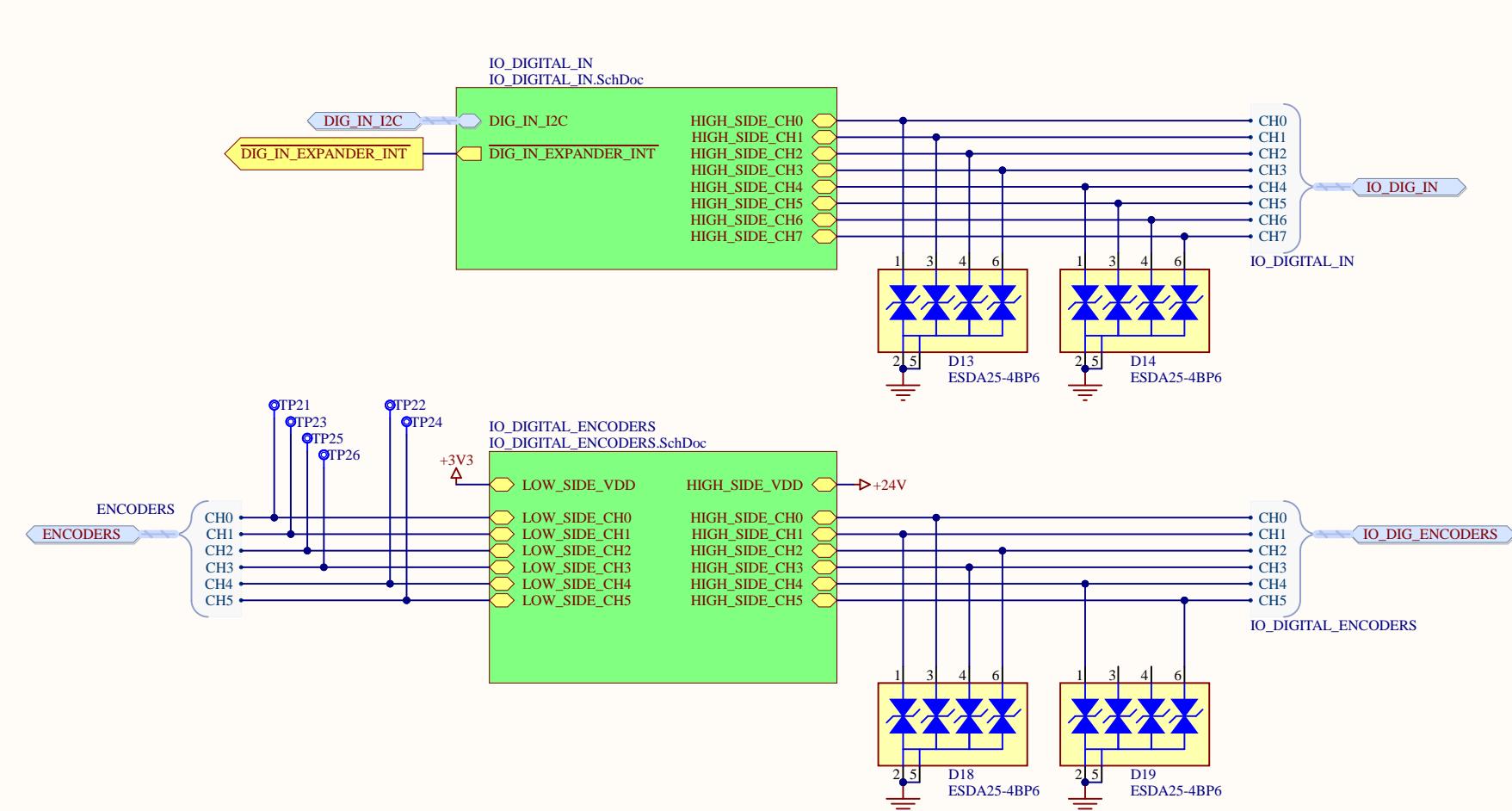
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#### Title: DIGITAL PROGRAMMABLE

ID: AKX00032	Revision: V1.1
Date: 2021-05-11	Time: 15:11:05
File: IO_DIGITAL_PROGRAMMABLE.SchDoc	Sheet 16 of 19





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### Title: TOP DIGITAL IN / ENCODERS

ID: AKX00032

Revision: V1.1

Date: 2021-05-11

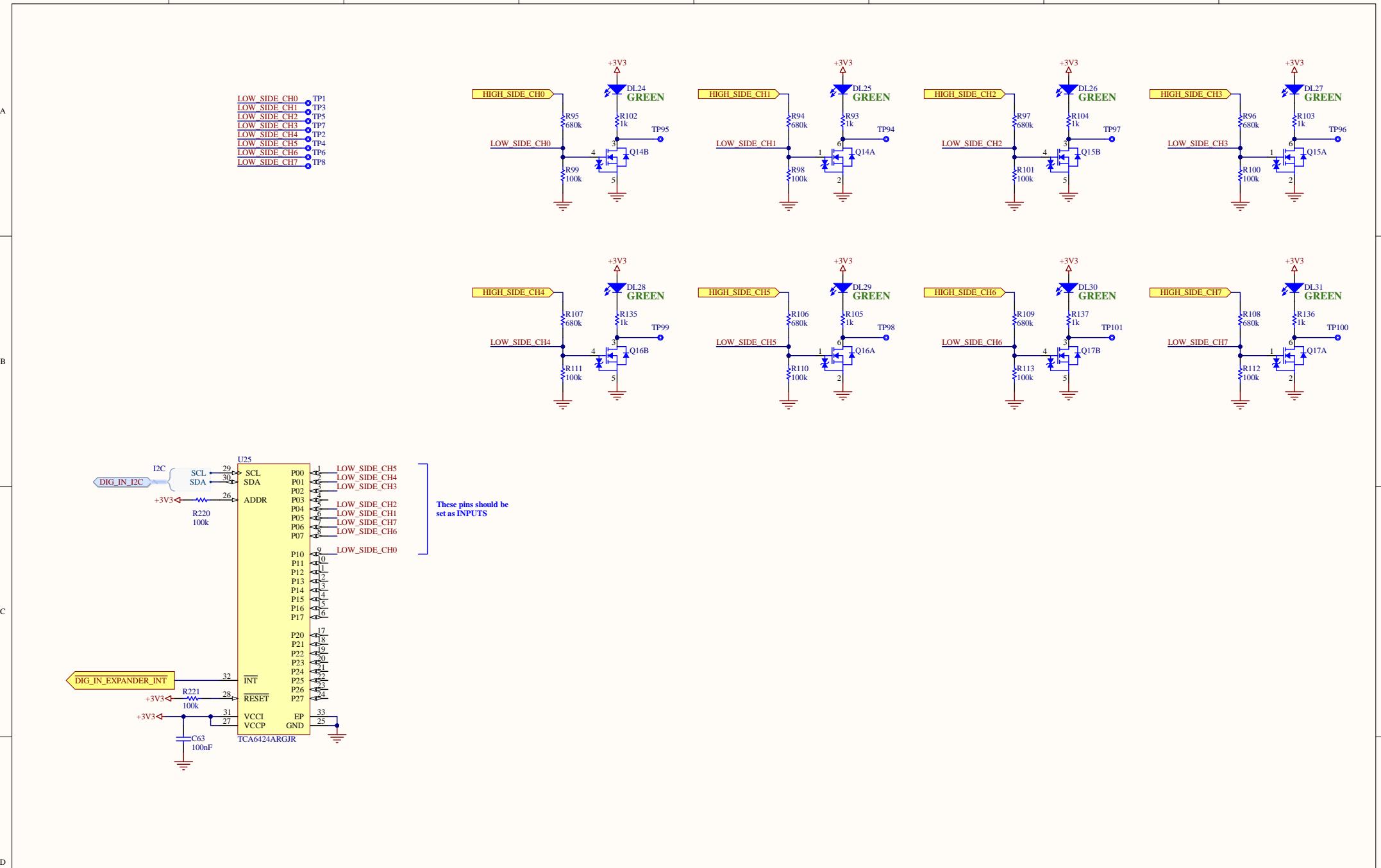
Time: 15:11:06

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File: IO\_DIGITAL.SchDoc

Author: S.Navaretti





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#### Title: DIGITAL IN

ID: AKX00032

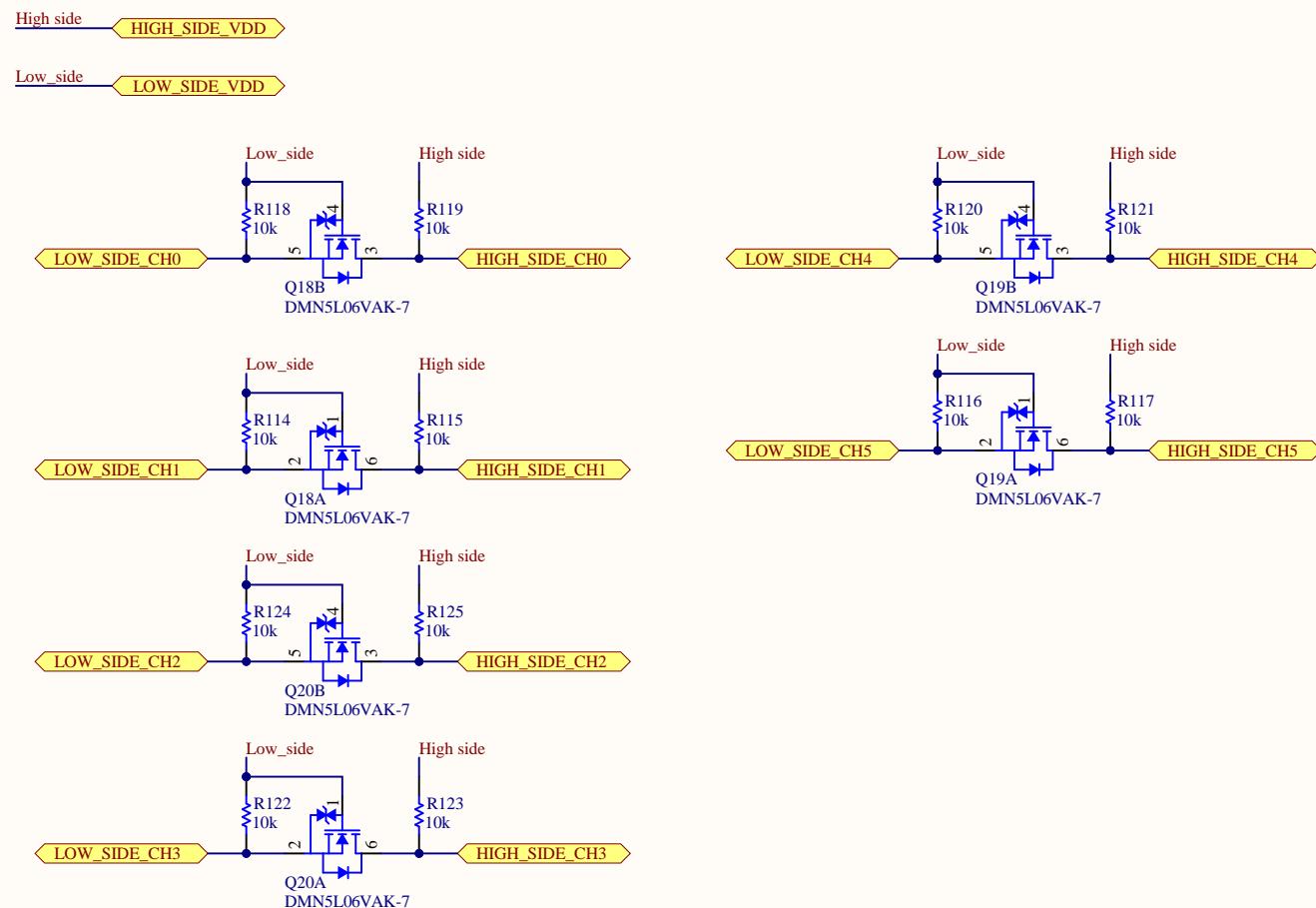
Revision: V1.1



File: IO\_DIGITAL\_IN.SchDoc Author: S.Navaretti RevAuthor: S.Navaretti

Date: 2021-05-11 Time: 15:11:07 Sheet 18 of 19

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#### Title: DIGITAL ENCODERS

ID: AKX00032

Revision: V1.1

Date: 2021-05-11

Time: 15:11:08

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File: IO\_DIGITAL\_ENCODERS.SchDoc

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