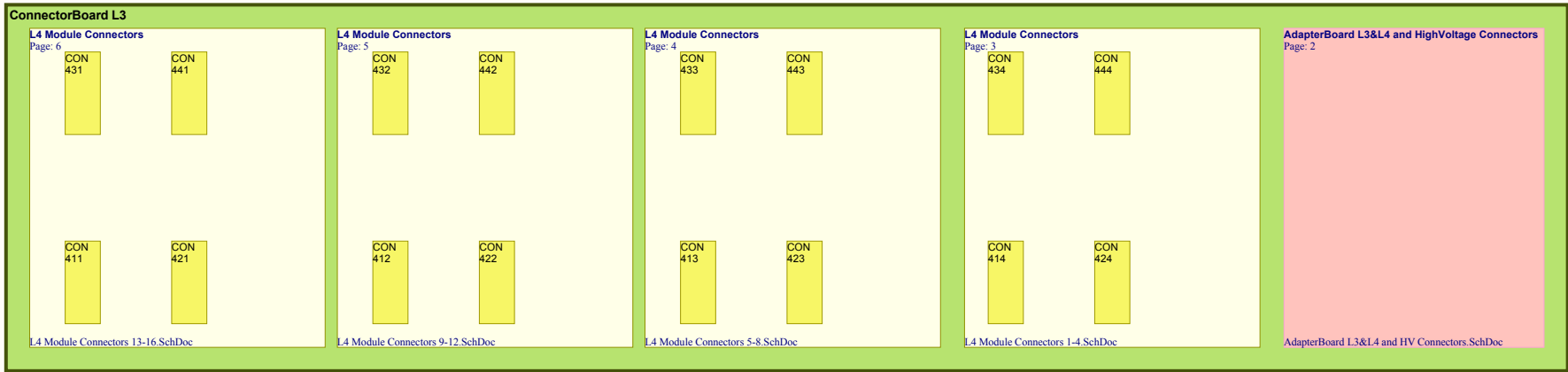
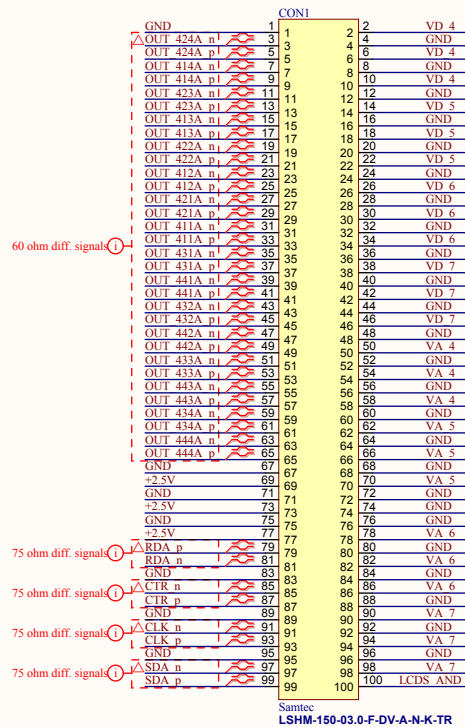


ConnectorBoard L4

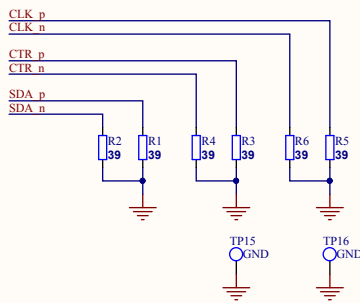


Wigner FK. Budapest, Hungary www.wigner.hu	Title: ConnectorBoard L4 v1.3.1.PrjPCB ConnectorBoard L4			
	Size	Scale	Document Number	Revision
	A3	-		1.3
Designer: Tólyhi T.	Modified: 2015.12.21.		Printed: 2015.12.21.	Sheet 1 of 6
Approved:	File: ConnectorBoard L4 v1.3.SchDoc			

AdapterBoard L1&L4 Connectors

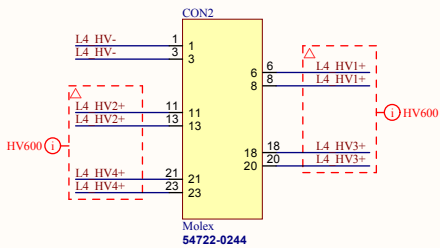


Signal Termination



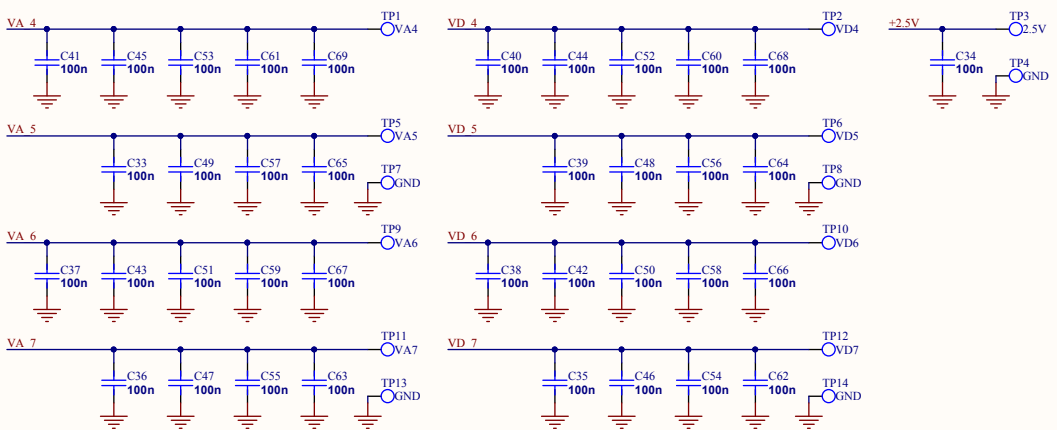
36 ohms to GND required on each pin. (Gatekeeper 05 Chip Documentation, page:3)
(On the old End-Ring Schematic these resistors were 43 ohm.)
Final resistor values will be determined by waveform measurements on the prototypes.

HV L4 Connector



According to the IPC-2221 Standard:
Minimum isolation on inner layer:
600V ---> 0,5mm
1000V ---> 1,5mm
Minimum isolation on outer (coated) layer:
600V ---> 1,105mm
1000V ---> 2,325mm
This values are not kept!

Low Voltage Polygons Decoupling Capacitors



Low Voltage Conversion Table			
Cable1	Conv0	-->	VA_1, VD_1
	Conv1	-->	VA_2, VD_2
	Conv2	-->	VA_3, VD_3
	Conv3	-->	VA_4, VD_4
	Conv4	-->	VA_5, VD_5
	Conv5	-->	VA_6, VD_6
	Conv6	-->	VA_7, VD_7
	Conv7	-->	VA_8, VD_8
	Conv8	-->	VA_9, VD_9
	Conv9	-->	VA_10, VD_10
	Conv10	-->	VA_11, VD_11
	Conv11	-->	VA_12, VD_12
	Conv12	-->	VA_13, VD_13

L4 Module Connectors

Module: LYR4-LDR1-MOD4

CON414	
1	L4 HV4+
2	
3	
4	L4 HV-
5	VA 4
6	VA 4
7	VA 4
8	GND
9	GND
10	GND
11	GND
12	
13	
14	GND
15	GND
16	CLK 414 n
17	CLK 414 p
18	CTR 414 n
19	CTR 414 p
20	SDA 414 n
21	SDA 414 p
22	RDA 414 n
23	RDA 414 p
24	OUT 414A n
25	OUT 414A p
26	GND
27	GND
28	VD 4
29	VD 4
30	VD 4
31	VD 4
32	VD 4
33	VD 4

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Module: LYR4-LDR2-MOD4

CON424	
1	L4 HV4+
2	
3	
4	L4 HV-
5	VA 5
6	VA 5
7	VA 5
8	GND
9	GND
10	GND
11	GND
12	
13	
14	GND
15	GND
16	CLK 424 n
17	CLK 424 p
18	CTR 424 n
19	CTR 424 p
20	SDA 424 n
21	SDA 424 p
22	RDA 424 n
23	RDA 424 p
24	OUT 424A n
25	OUT 424A p
26	GND
27	GND
28	VD 5
29	VD 5
30	VD 5
31	VD 5
32	VD 5
33	VD 5

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Module: LYR4-LDR3-MOD4

CON434	
1	L4 HV4+
2	
3	
4	L4 HV-
5	VA 6
6	VA 6
7	VA 6
8	GND
9	GND
10	GND
11	GND
12	
13	
14	GND
15	GND
16	CLK 434 n
17	CLK 434 p
18	CTR 434 n
19	CTR 434 p
20	SDA 434 n
21	SDA 434 p
22	RDA 434 n
23	RDA 434 p
24	OUT 434A n
25	OUT 434A p
26	GND
27	GND
28	VD 6
29	VD 6
30	VD 6
31	VD 6
32	VD 6
33	VD 6

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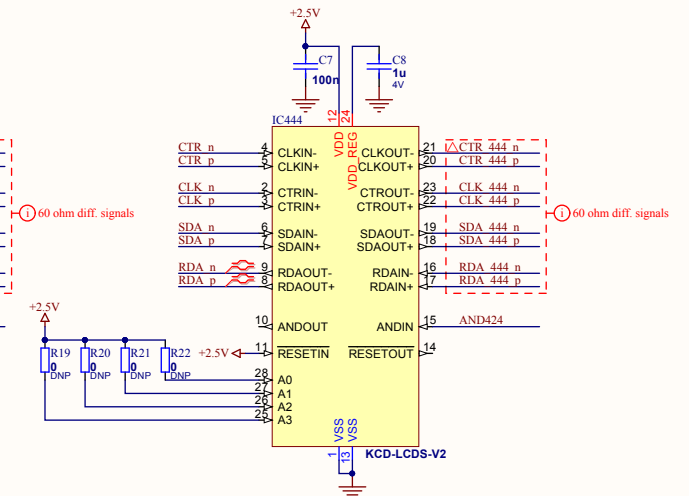
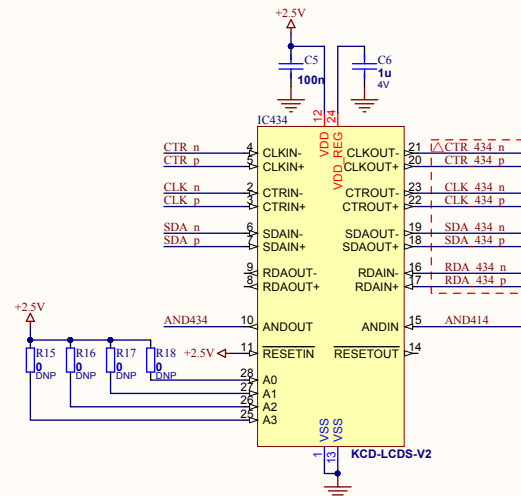
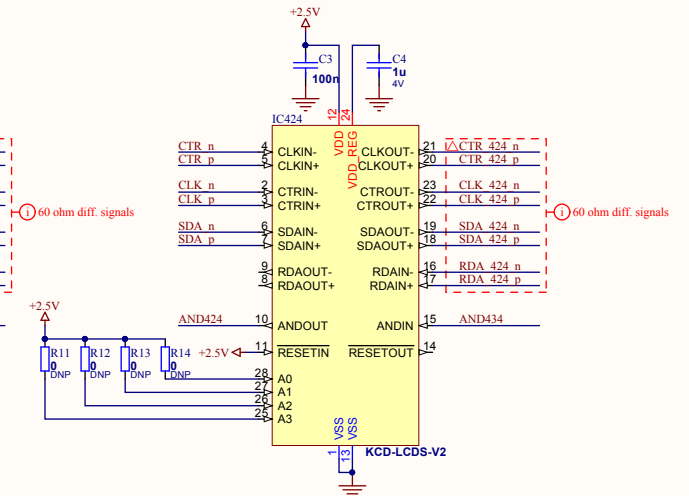
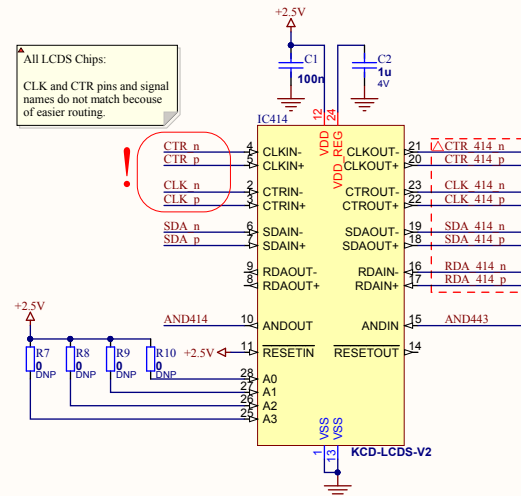
Module: LYR4-LDR4-MOD4

CON444	
1	L4 HV4+
2	
3	
4	L4 HV-
5	VA 7
6	VA 7
7	VA 7
8	GND
9	GND
10	GND
11	GND
12	
13	
14	GND
15	GND
16	CLK 444 n
17	CLK 444 p
18	CTR 444 n
19	CTR 444 p
20	SDA 444 n
21	SDA 444 p
22	RDA 444 n
23	RDA 444 p
24	OUT 444A n
25	OUT 444A p
26	GND
27	GND
28	VD 7
29	VD 7
30	VD 7
31	VD 7
32	VD 7
33	VD 7

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Net Numbering: SignalName_LayerLadderModuleTBM
Net number example:
OUT 414A -> Out signal from Layer4, Ladder1, Module4, TBM1

L4 Module LCDS Drivers



Wigner FK. Budapest, Hungary www.wigner.hu		Title: ConnectorBoard L4 v1.3.1.PrjPCB L4 Module Connectors and LCDS Drivers	
Designer: Tolyhi T.	Size: A3	Scale: -	Document Number: 1.3
Drawn by:	Modified: 2015.12.21.	Printed: 2015.12.21.	Sheet: 3 of 6
Approved:	File: L4 Module Connectors 1-4.SchDoc		

L4 Module Connectors

Module: LYR4-LDR1-MOD3

CON413	1	L4 HV3+
2	2	
3	3	
4	4	L4 HV-
5	5	VA 4
6	6	VA 4
7	7	VA 4
8	8	GND
9	9	GND
10	10	GND
11	11	GND
12	12	
13	13	
14	14	GND
15	15	GND
16	16	CLK 413 n
17	17	CLK 413 p
18	18	CTR 413 n
19	19	CTR 413 p
20	20	SDA 413 n
21	21	SDA 413 p
22	22	RDA 413 n
23	23	RDA 413 p
24	24	OUT 413A n
25	25	OUT 413A p
26	26	GND
27	27	GND
28	28	VD 4
29	29	VD 4
30	30	VD 4
31	31	VD 4
32	32	VD 4
33	33	VD 4

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Module: LYR4-LDR2-MOD3

CON423	1	L4 HV3+
2	2	
3	3	
4	4	L4 HV-
5	5	VA 5
6	6	VA 5
7	7	VA 5
8	8	GND
9	9	GND
10	10	GND
11	11	GND
12	12	
13	13	
14	14	GND
15	15	GND
16	16	CLK 423 n
17	17	CLK 423 p
18	18	CTR 423 n
19	19	CTR 423 p
20	20	SDA 423 n
21	21	SDA 423 p
22	22	RDA 423 n
23	23	RDA 423 p
24	24	OUT 423A n
25	25	OUT 423A p
26	26	GND
27	27	GND
28	28	VD 5
29	29	VD 5
30	30	VD 5
31	31	VD 5
32	32	VD 5
33	33	VD 5

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Module: LYR4-LDR3-MOD3

CON433	1	L4 HV3+
2	2	
3	3	
4	4	L4 HV-
5	5	VA 6
6	6	VA 6
7	7	VA 6
8	8	GND
9	9	GND
10	10	GND
11	11	GND
12	12	
13	13	
14	14	GND
15	15	GND
16	16	CLK 433 n
17	17	CLK 433 p
18	18	CTR 433 n
19	19	CTR 433 p
20	20	SDA 433 n
21	21	SDA 433 p
22	22	RDA 433 n
23	23	RDA 433 p
24	24	OUT 433A n
25	25	OUT 433A p
26	26	GND
27	27	GND
28	28	VD 6
29	29	VD 6
30	30	VD 6
31	31	VD 6
32	32	VD 6
33	33	VD 6

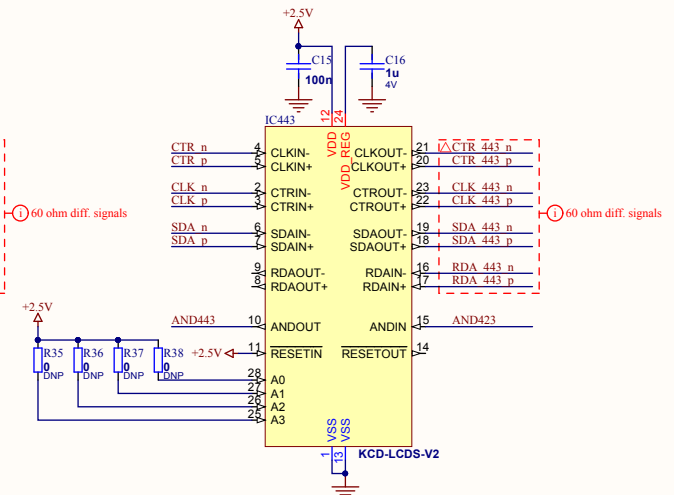
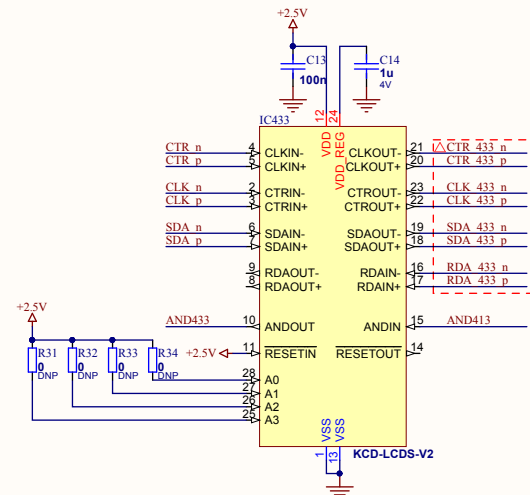
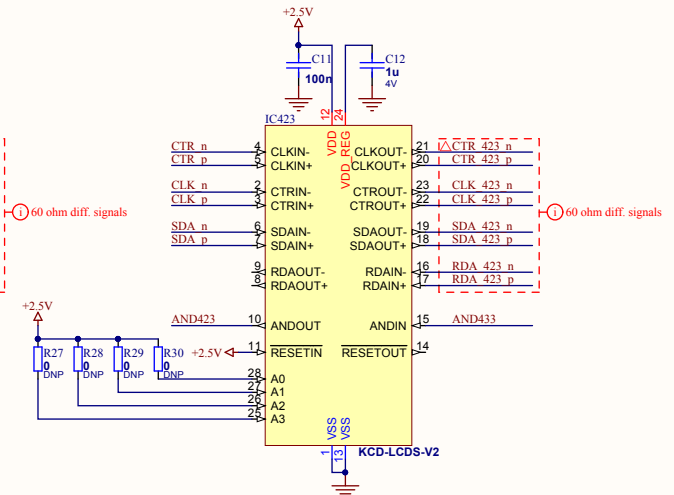
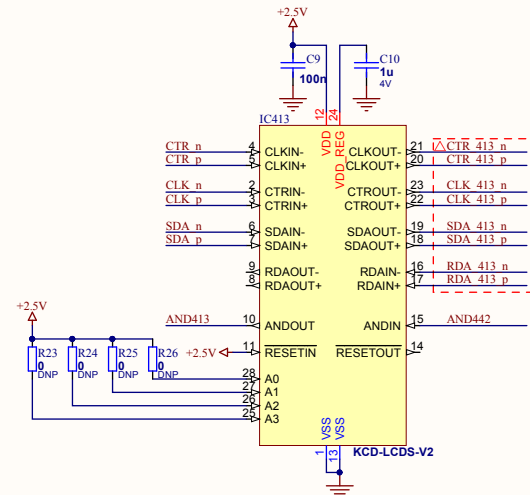
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Module: LYR4-LDR4-MOD3

CON443	1	L4 HV3+
2	2	
3	3	
4	4	L4 HV-
5	5	VA 7
6	6	VA 7
7	7	VA 7
8	8	GND
9	9	GND
10	10	GND
11	11	GND
12	12	
13	13	
14	14	GND
15	15	GND
16	16	CLK 443 n
17	17	CLK 443 p
18	18	CTR 443 n
19	19	CTR 443 p
20	20	SDA 443 n
21	21	SDA 443 p
22	22	RDA 443 n
23	23	RDA 443 p
24	24	OUT 443A n
25	25	OUT 443A p
26	26	GND
27	27	GND
28	28	VD 7
29	29	VD 7
30	30	VD 7
31	31	VD 7
32	32	VD 7
33	33	VD 7

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L4 Module LCDS Drivers



Wigner FK. Budapest, Hungary www.wigner.hu	Title: ConnectorBoard L4 v1.3.1.PrjPCB L4 Module Connectors and LCDS Drivers			
	Size: A3	Scale: -	Document Number	Revision: 1.3
Designer: Tolyhi T.	Modified: 2015.12.21. Printed: 2015.12.21. Sheet: 4 of 6			
Approved:	File: L4 Module Connectors 5-8.SchDoc			

L4 Module Connectors

Module: LYR4-LDR1-MOD2

CON412	1	L4 HV2+
2	2	
3	3	
4	4	L4 HV-
5	5	VA 4
6	6	VA 4
7	7	VA 4
8	8	GND
9	9	GND
10	10	GND
11	11	GND
12	12	
13	13	
14	14	GND
15	15	GND
16	16	CLK 412 n
17	17	CLK 412 p
18	18	CTR 412 n
19	19	CTR 412 p
20	20	SDA 412 n
21	21	SDA 412 p
22	22	RDA 412 n
23	23	RDA 412 p
24	24	OUT 412A n
25	25	OUT 412A p
26	26	GND
27	27	GND
28	28	VD 4
29	29	VD 4
30	30	VD 4
31	31	VD 4
32	32	VD 4
33	33	VD 4

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Module: LYR4-LDR2-MOD2

CON422	1	L4 HV2+
2	2	
3	3	
4	4	L4 HV-
5	5	VA 5
6	6	VA 5
7	7	VA 5
8	8	GND
9	9	GND
10	10	GND
11	11	GND
12	12	
13	13	
14	14	GND
15	15	GND
16	16	CLK 422 n
17	17	CLK 422 p
18	18	CTR 422 n
19	19	CTR 422 p
20	20	SDA 422 n
21	21	SDA 422 p
22	22	RDA 422 n
23	23	RDA 422 p
24	24	OUT 422A n
25	25	OUT 422A p
26	26	GND
27	27	GND
28	28	VD 5
29	29	VD 5
30	30	VD 5
31	31	VD 5
32	32	VD 5
33	33	VD 5

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Module: LYR4-LDR3-MOD2

CON432	1	L4 HV2+
2	2	
3	3	
4	4	L4 HV-
5	5	VA 6
6	6	VA 6
7	7	VA 6
8	8	GND
9	9	GND
10	10	GND
11	11	GND
12	12	
13	13	
14	14	GND
15	15	GND
16	16	CLK 432 n
17	17	CLK 432 p
18	18	CTR 432 n
19	19	CTR 432 p
20	20	SDA 432 n
21	21	SDA 432 p
22	22	RDA 432 n
23	23	RDA 432 p
24	24	OUT 432A n
25	25	OUT 432A p
26	26	GND
27	27	GND
28	28	VD 6
29	29	VD 6
30	30	VD 6
31	31	VD 6
32	32	VD 6
33	33	VD 6

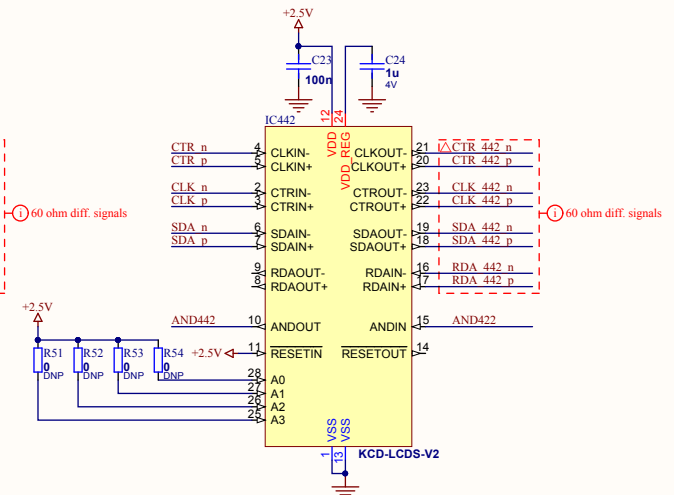
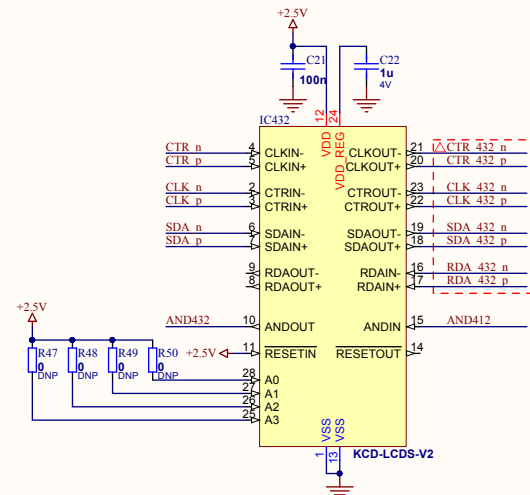
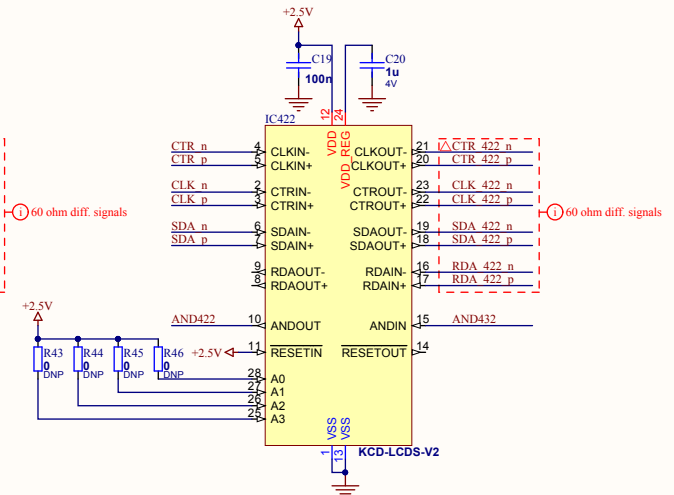
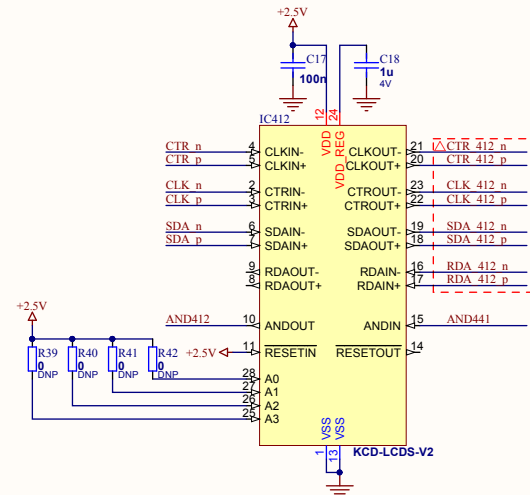
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Module: LYR4-LDR4-MOD2

CON442	1	L4 HV2+
2	2	
3	3	
4	4	L4 HV-
5	5	VA 7
6	6	VA 7
7	7	VA 7
8	8	GND
9	9	GND
10	10	GND
11	11	GND
12	12	
13	13	
14	14	GND
15	15	GND
16	16	CLK 442 n
17	17	CLK 442 p
18	18	CTR 442 n
19	19	CTR 442 p
20	20	SDA 442 n
21	21	SDA 442 p
22	22	RDA 442 n
23	23	RDA 442 p
24	24	OUT 442A n
25	25	OUT 442A p
26	26	GND
27	27	GND
28	28	VD 7
29	29	VD 7
30	30	VD 7
31	31	VD 7
32	32	VD 7
33	33	VD 7

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L4 Module LCDS Drivers



Wigner FK. Budapest, Hungary www.wigner.hu	Title: ConnectorBoard L4 v1.3.1.PrjPCB L4 Module Connectors and LCDS Drivers			
	Size: A3	Scale: -	Document Number	Revision: 1.3
Designer: Tolyhi T.	Modified: 2015.12.21. Printed: 2015.12.21. Sheet 5 of 6			
Approved:	File: L4 Module Connectors 9-12.SchDoc			

L4 Module Connectors

Module: LYR4-LDR1-MOD1

CON411	1	L4 HV1+
2		
3		
4	L4 HV-	
5	VA 4	
6	VA 4	
7	VA 4	
8	GND	
9	GND	
10	GND	
11	GND	
12		
13		
14	GND	
15	GND	
16	CLK 411 n	
17	CLK 411 p	
18	CTR 411 n	
19	CTR 411 p	
20	SDA 411 n	
21	SDA 411 p	
22	RDA 411 n	
23	RDA 411 p	
24	OUT 411A n	
25	OUT 411A p	
26	GND	
27	GND	
28	VD 4	
29	VD 4	
30	VD 4	
31	VD 4	
32	VD 4	
33	VD 4	

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Module: LYR4-LDR2-MOD1

CON421	1	L4 HV1+
2		
3		
4	L4 HV-	
5	VA 5	
6	VA 5	
7	VA 5	
8	GND	
9	GND	
10	GND	
11	GND	
12		
13		
14	GND	
15	GND	
16	CLK 421 n	
17	CLK 421 p	
18	CTR 421 n	
19	CTR 421 p	
20	SDA 421 n	
21	SDA 421 p	
22	RDA 421 n	
23	RDA 421 p	
24	OUT 421A n	
25	OUT 421A p	
26	GND	
27	GND	
28	VD 5	
29	VD 5	
30	VD 5	
31	VD 5	
32	VD 5	
33	VD 5	

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Module: LYR4-LDR3-MOD1

CON431	1	L4 HV1+
2		
3		
4	L4 HV-	
5	VA 6	
6	VA 6	
7	VA 6	
8	GND	
9	GND	
10	GND	
11	GND	
12		
13		
14	GND	
15	GND	
16	CLK 431 n	
17	CLK 431 p	
18	CTR 431 n	
19	CTR 431 p	
20	SDA 431 n	
21	SDA 431 p	
22	RDA 431 n	
23	RDA 431 p	
24	OUT 431A n	
25	OUT 431A p	
26	GND	
27	GND	
28	VD 6	
29	VD 6	
30	VD 6	
31	VD 6	
32	VD 6	
33	VD 6	

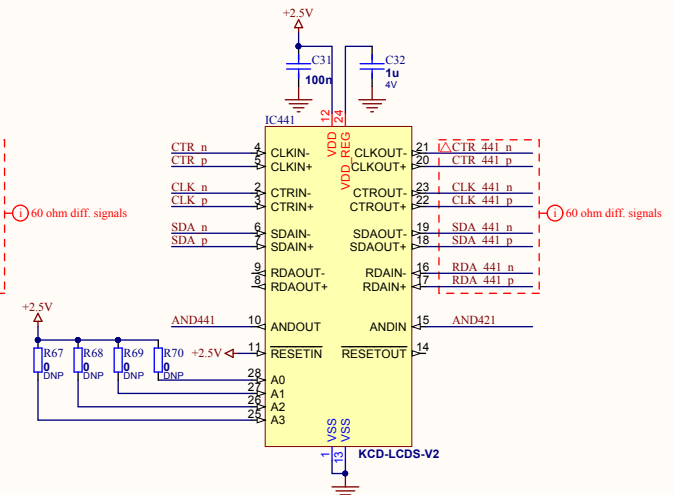
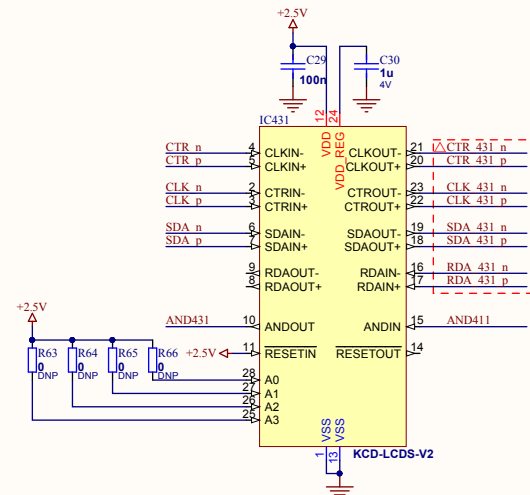
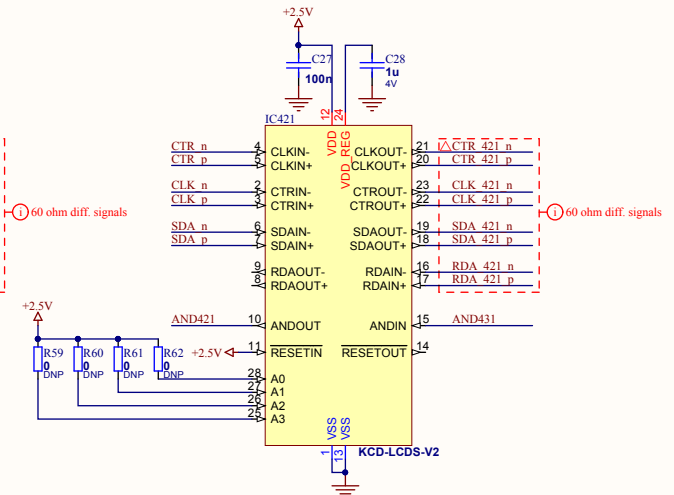
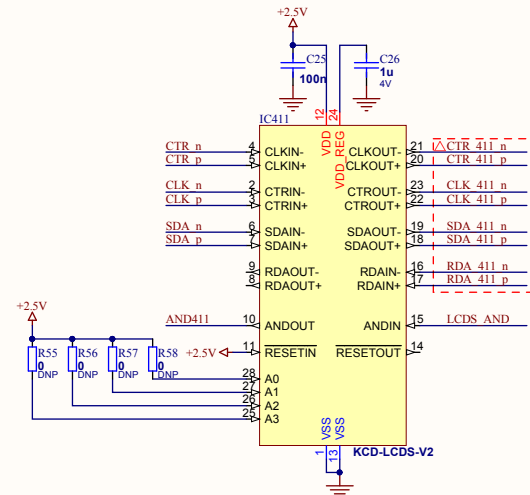
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Module: LYR4-LDR4-MOD1

CON441	1	L4 HV1+
2		
3		
4	L4 HV-	
5	VA 7	
6	VA 7	
7	VA 7	
8	GND	
9	GND	
10	GND	
11	GND	
12		
13		
14	GND	
15	GND	
16	CLK 441 n	
17	CLK 441 p	
18	CTR 441 n	
19	CTR 441 p	
20	SDA 441 n	
21	SDA 441 p	
22	RDA 441 n	
23	RDA 441 p	
24	OUT 441A n	
25	OUT 441A p	
26	GND	
27	GND	
28	VD 7	
29	VD 7	
30	VD 7	
31	VD 7	
32	VD 7	
33	VD 7	

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L4 Module LCDS Drivers



Wigner FK. Budapest, Hungary www.wigner.hu	Title: ConnectorBoard L4 v1.3.1.PrjPCB L4 Module Connectors and LCDS Drivers			
	Size: A3	Scale: -	Document Number	Revision: 1.3
Designer: Tolyhi T.	Modified: 2015.12.21. Printed: 2015.12.21. Sheet 6 of 6			
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