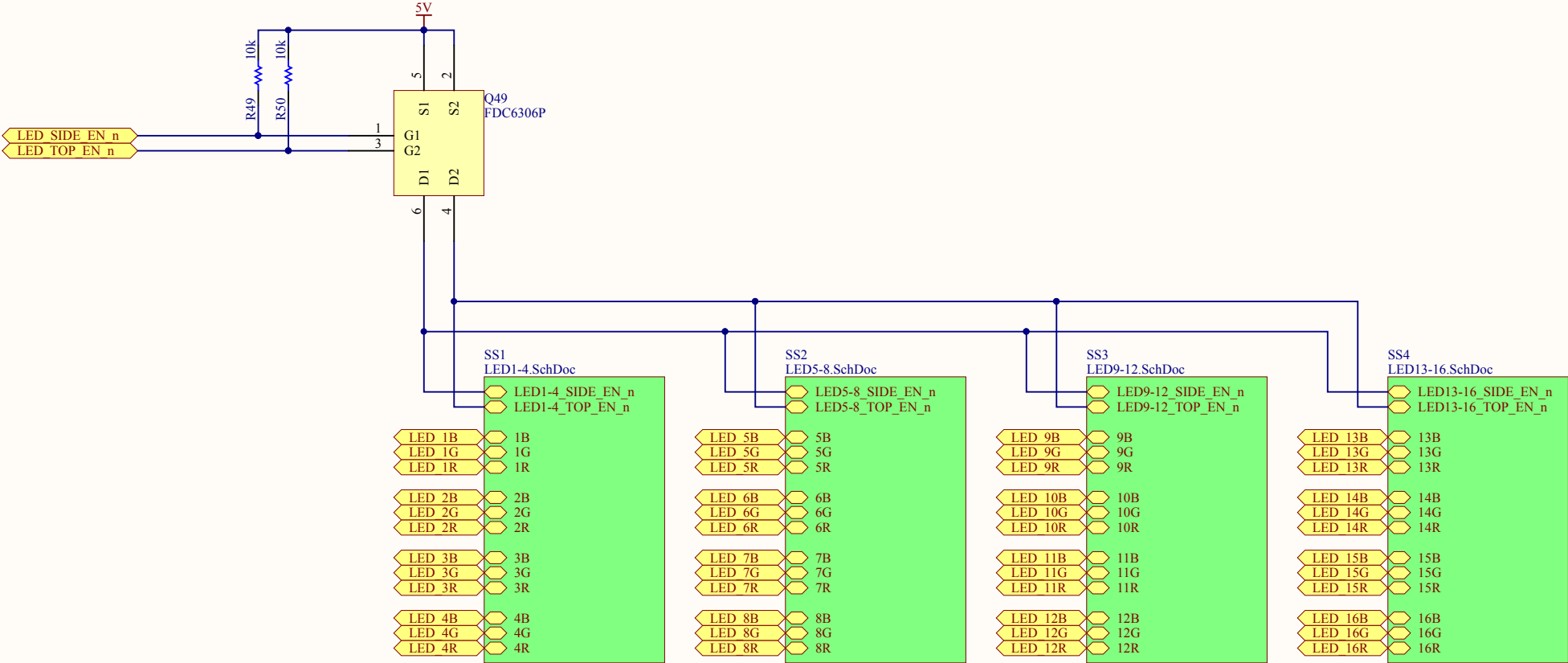


▲ All LEDs have been set to 20mA forward current for 5V via:
RED: R=150R
GREEN: R=91R
BLUE: R=91R

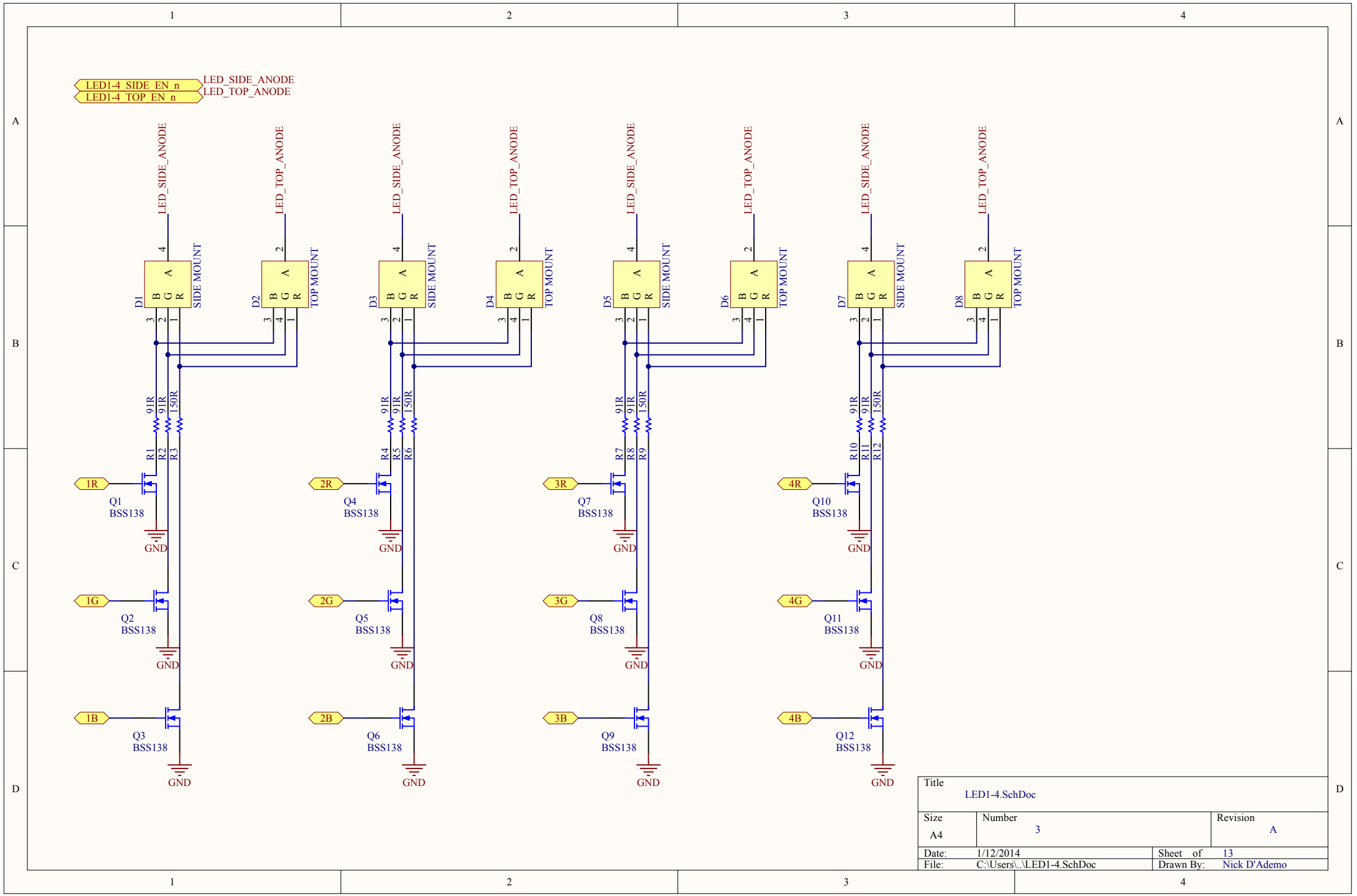
▲ SIDE LED:
Vf @ If=20mA (Min->Typ->Max):
RED: 1.8->2.0->2.4V
GREEN: 3.0->3.3->3.6V
BLUE: 3.0->3.3->3.6V

▲ TOP LED:
Vf @ If=20mA (Avg->Max):
RED: 2.0->2.6V
GREEN: 3.2->4.0V
BLUE: 3.2->4.0V

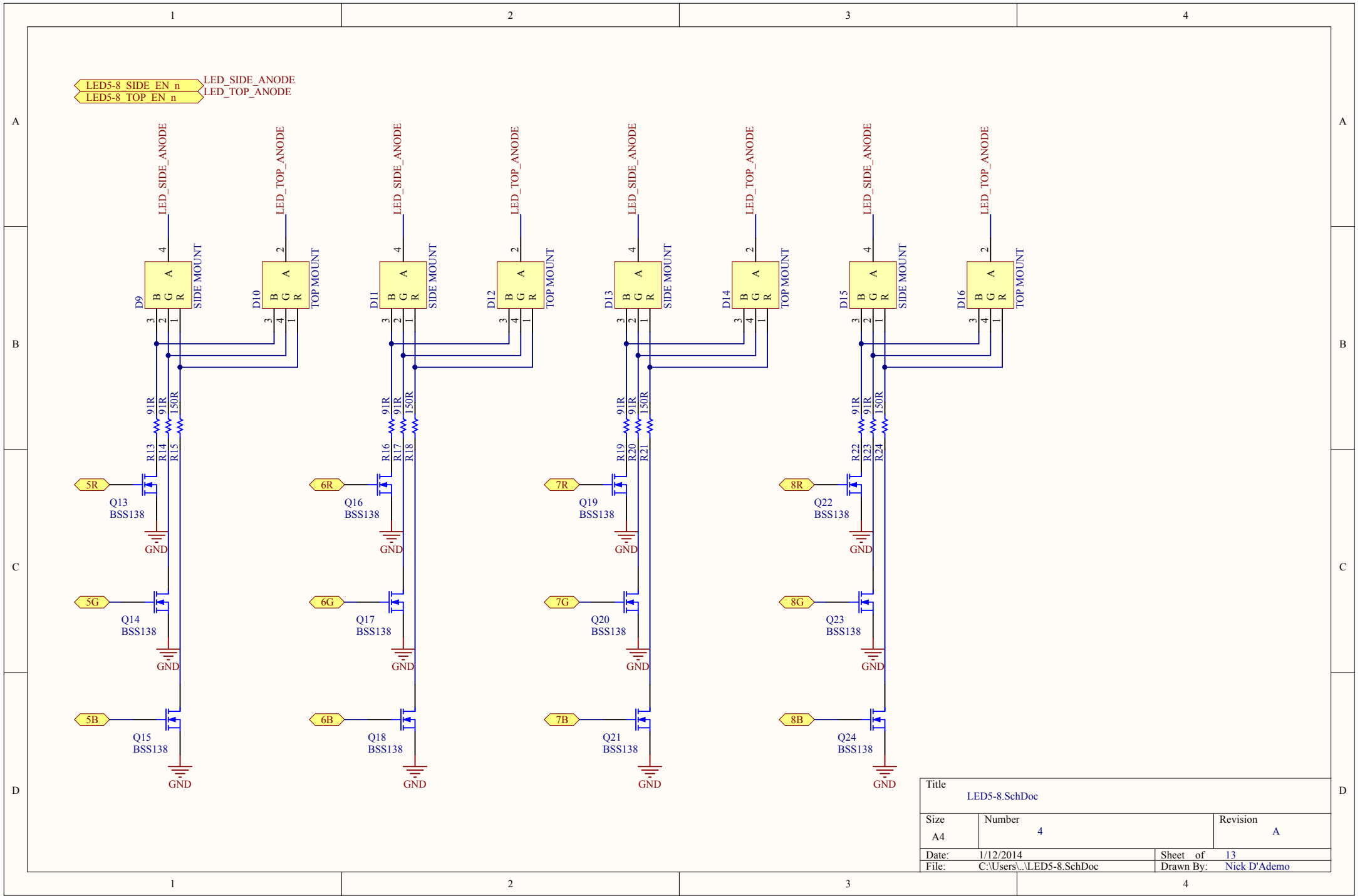
CLV1A-FKB-CJ1M1F1BB7R4S3: 675med Red, 1055med Green, 337med Blue
CLV1A-FKB-CK1N1G1BB7R4S3: 730med Red, 1150med Green, 365med Blue



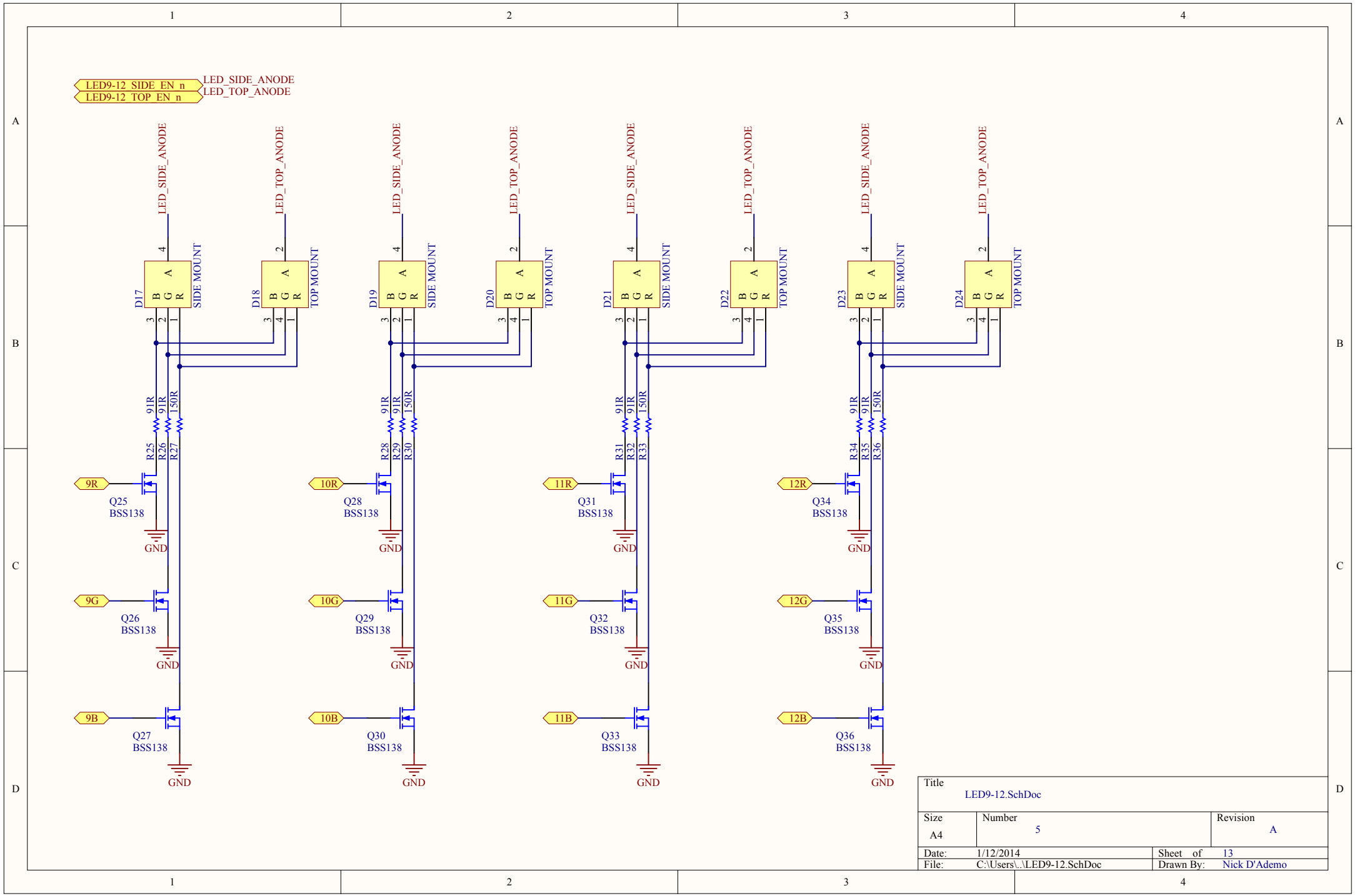
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LEDs.SchDoc			
Size	Number	Revision	
A4	2	A	
Date:	1/12/2014	Sheet of	13
File:	C:\Users\...\LEDs.SchDoc	Drawn By:	Nick D'Ademo



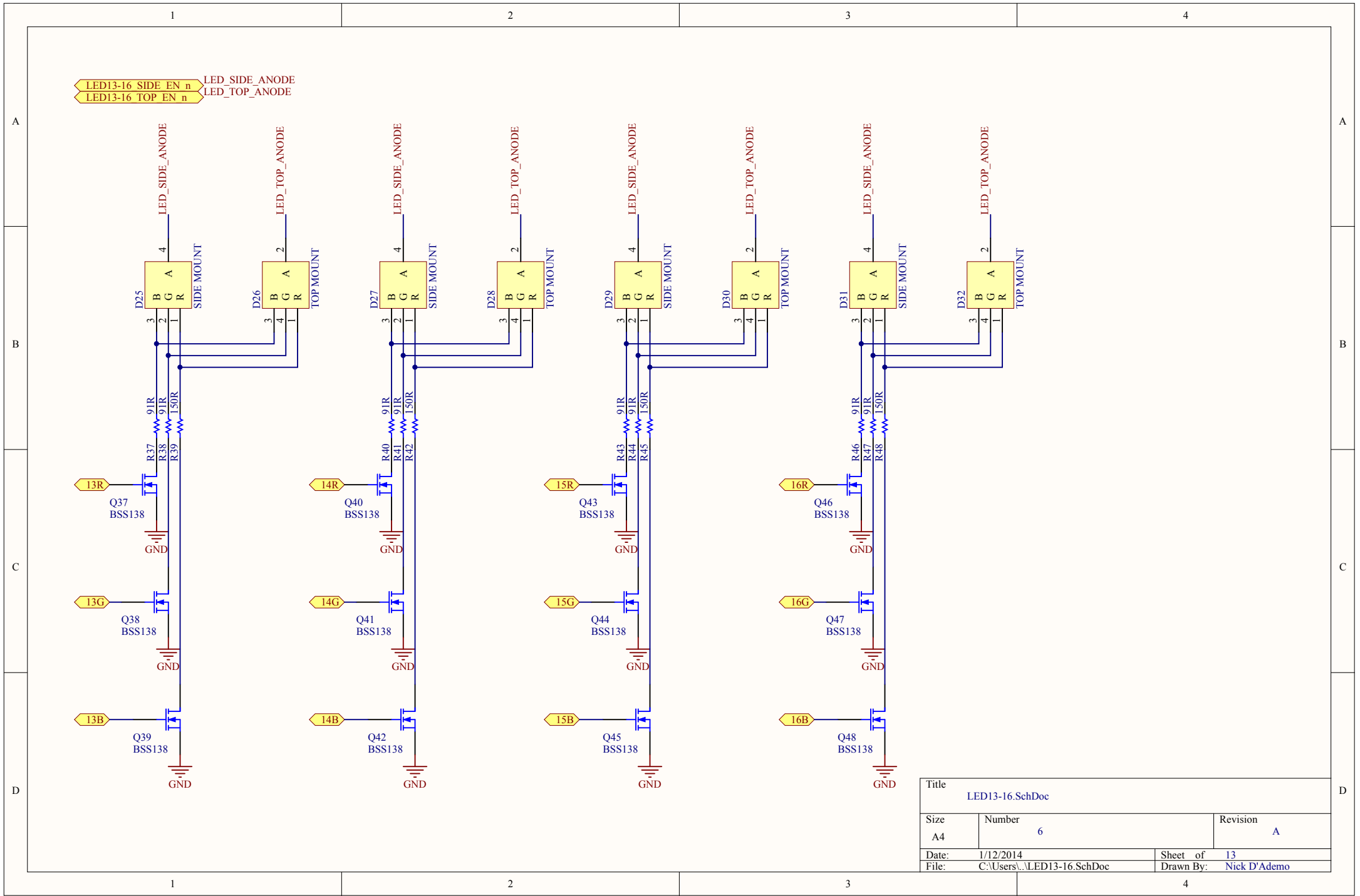
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LED1-4.SchDoc		
Size	Number	Revision
A4	3	A
Date:	1/12/2014	Sheet of 13
File:	C:\Users\...\LED1-4.SchDoc	Drawn By: Nick D'Ademo



Title		
LED5-8.SchDoc		
Size	Number	Revision
A4	4	A
Date:	1/12/2014	Sheet of 13
File:	C:\Users\...\LED5-8.SchDoc	Drawn By: Nick D'Ademo



Title LED9-12.SchDoc		
Size A4	Number 5	Revision A
Date: 1/12/2014	Sheet of 13	
File: C:\Users\...\LED9-12.SchDoc	Drawn By: Nick D'Ademo	



1

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4

A

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C

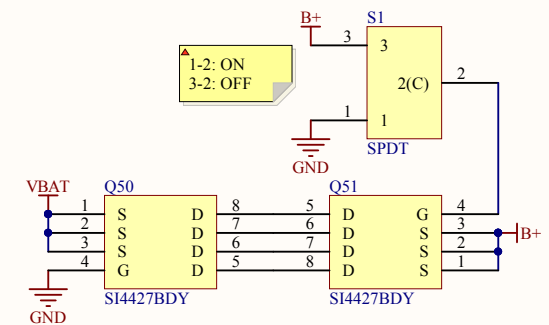
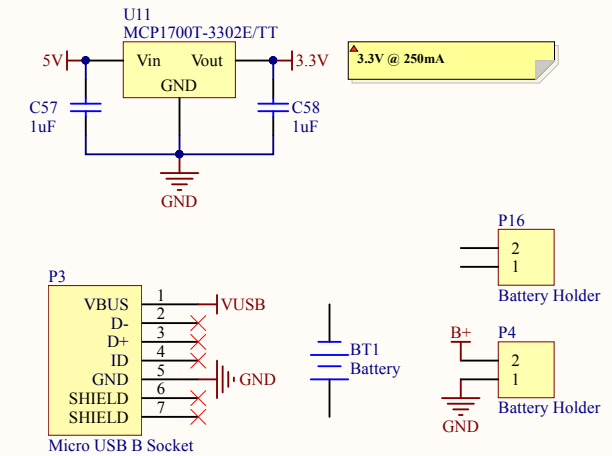
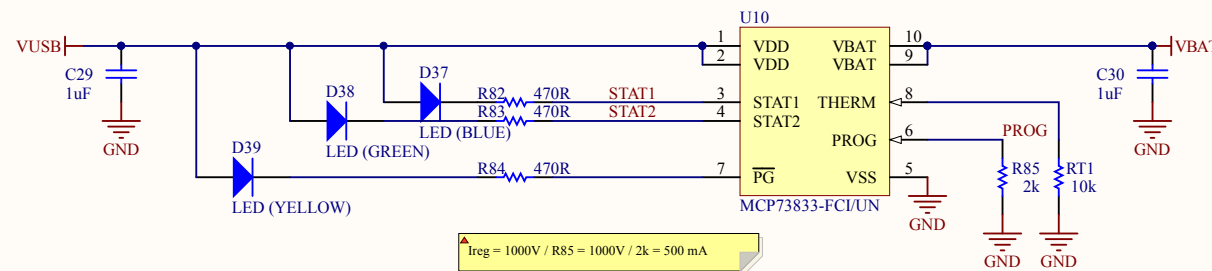
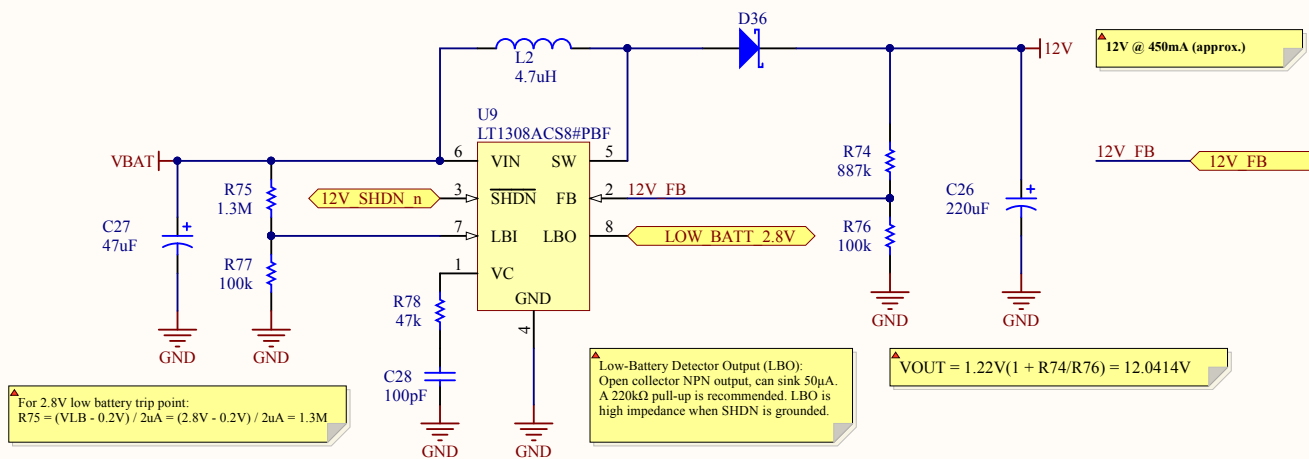
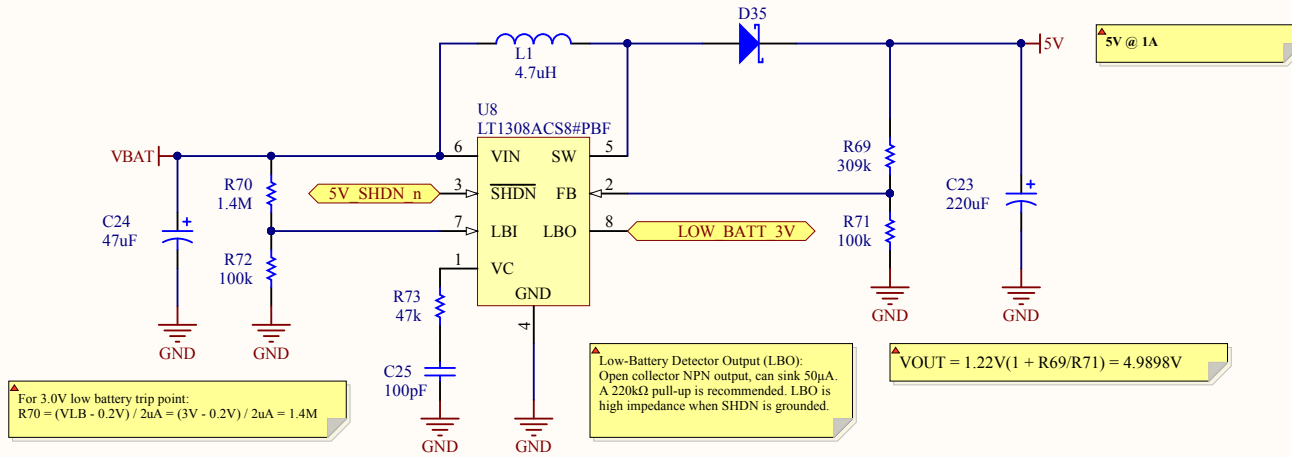
D

A

B

C

D



Title Power Supply.SchDoc			
Size A4	Number 7		Revision A
Date: 1/12/2014	Sheet of 13	Drawn By: Nick D'Adamo	
File: C:\Users\...\Power Supply.SchDoc			

1

2

3

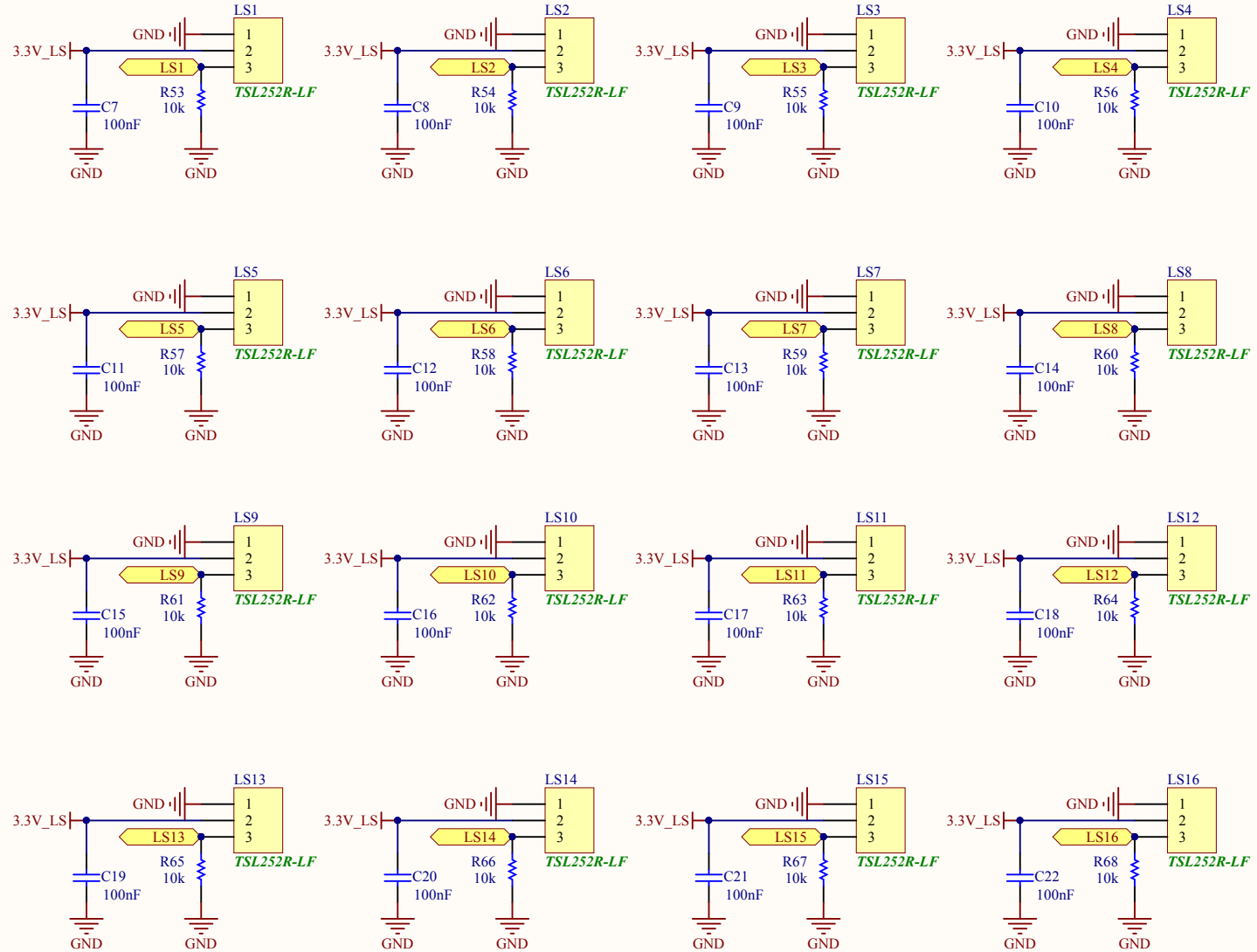
4

▲ AMS light sensors (www.ams.com) have the following pin-outs:
GND - 1
VDD - 2
OUT - 3

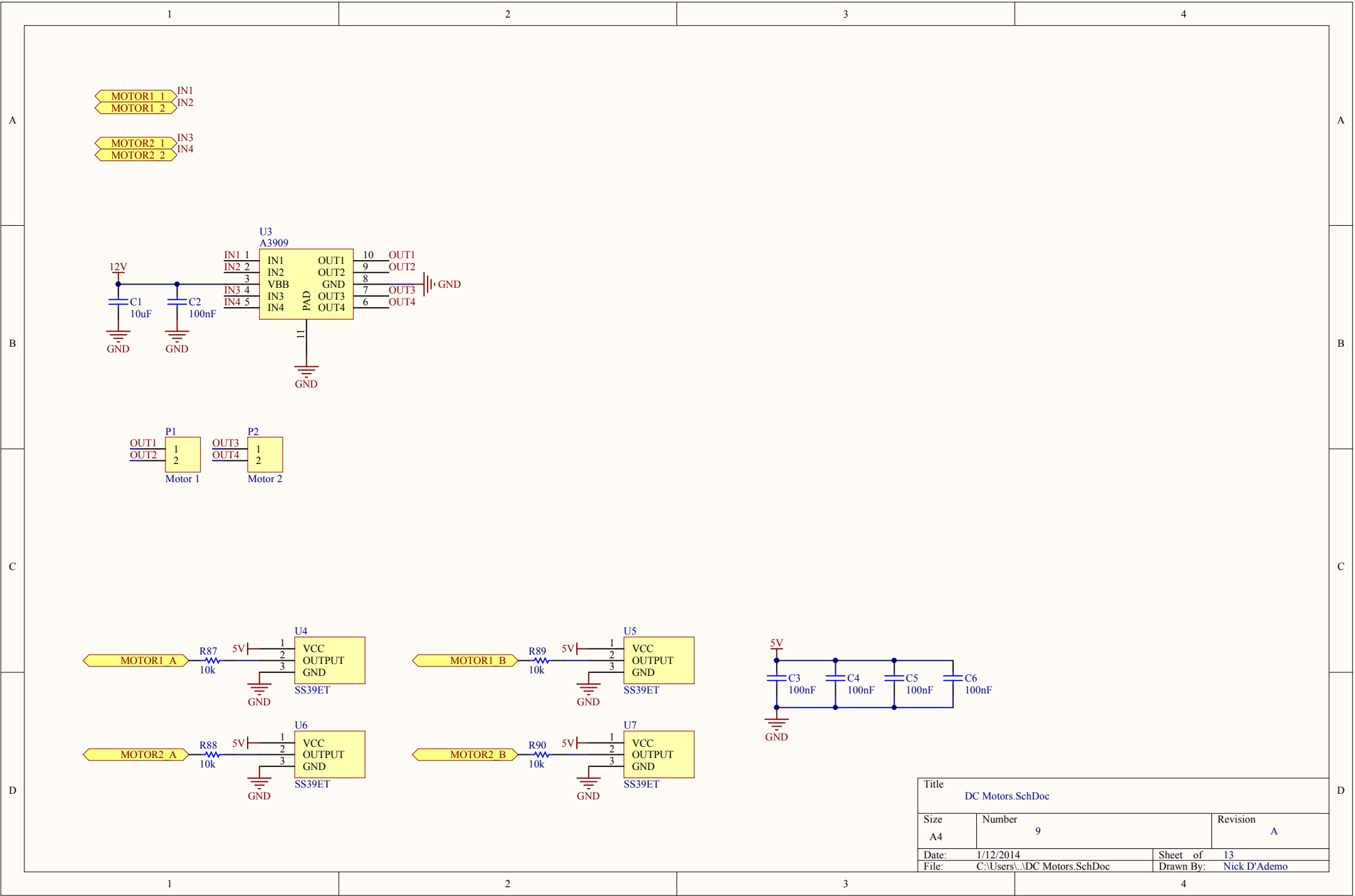
Light-to-Frequency parts:
TSL235
TSL237
TSL245 (IR light)

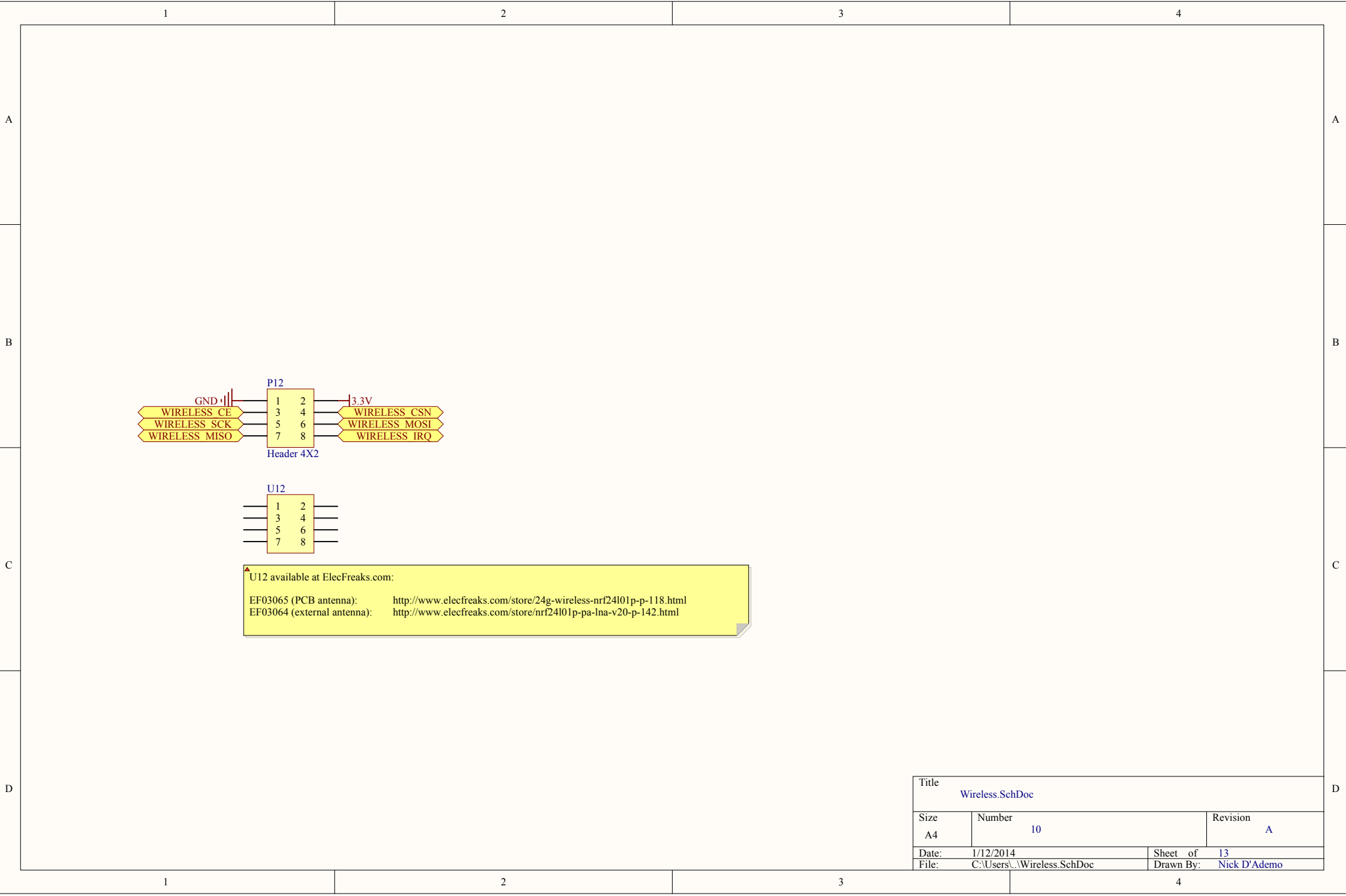
Light-to-Voltage parts:
TSL125
TSL135
TSL145
TSL250R
TSL251R
TSL252R
TSL253R
TSL254R
TSL257
TSL260R (IR light)
TSL261R (IR light)
TSL262R (IR light)
TSL267 (IR light)

▲ Only install R53 to R68 if Light-to-Voltage parts are used.

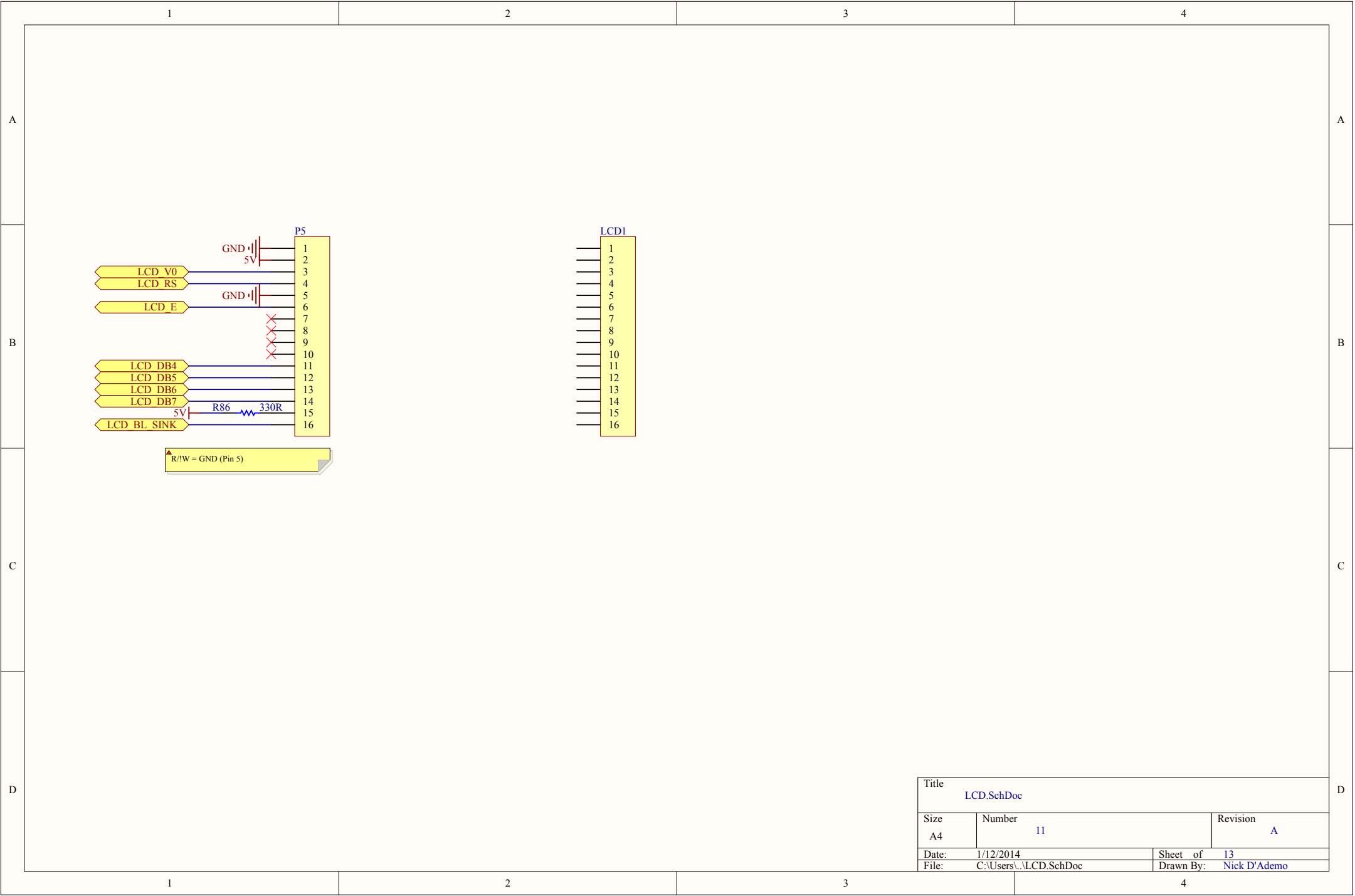


Title Light Sensors.SchDoc		
Size A4	Number 8	Revision A
Date: 1/12/2014	Sheet of 13	Drawn By: Nick D'Ademo
File: C:\Users\...\Light Sensors.SchDoc		

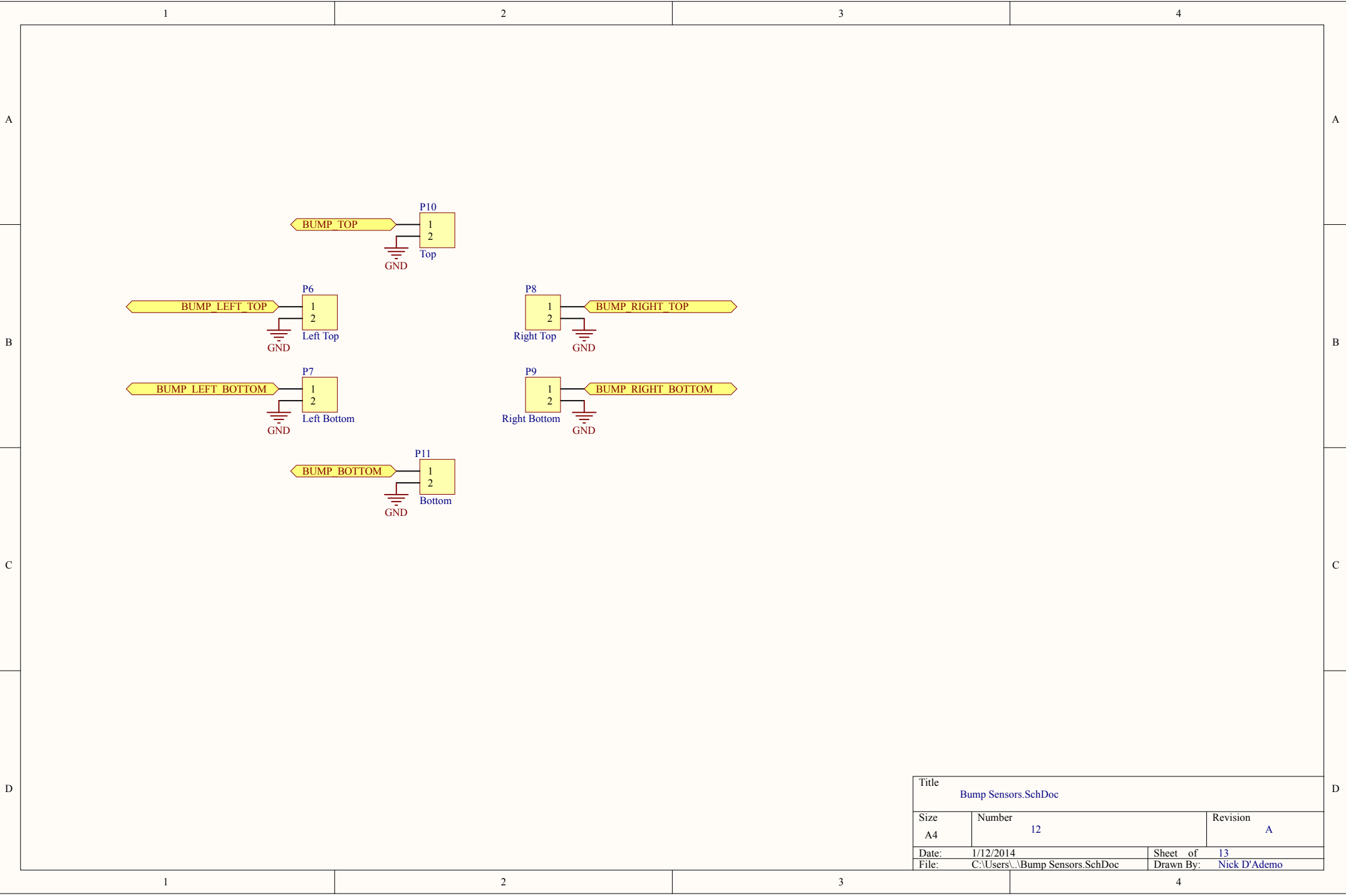




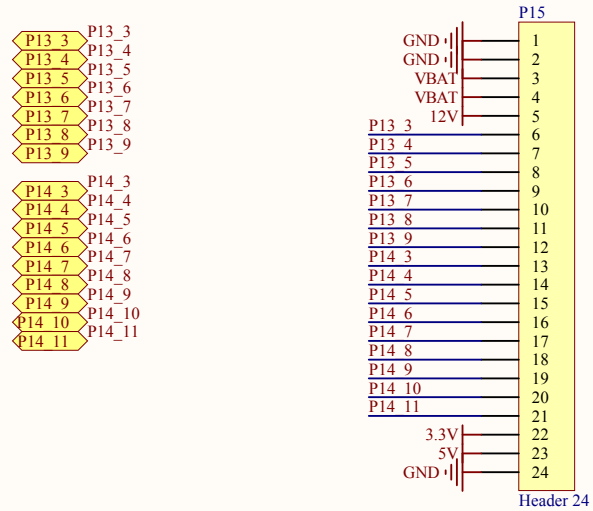
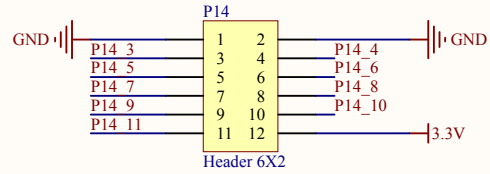
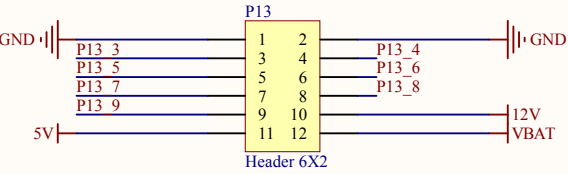
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Size A4	Number 10		Revision A
Date:	1/12/2014	Sheet of	13
File:	C:\Users\...\Wireless.SchDoc	Drawn By:	Nick D'Ademo



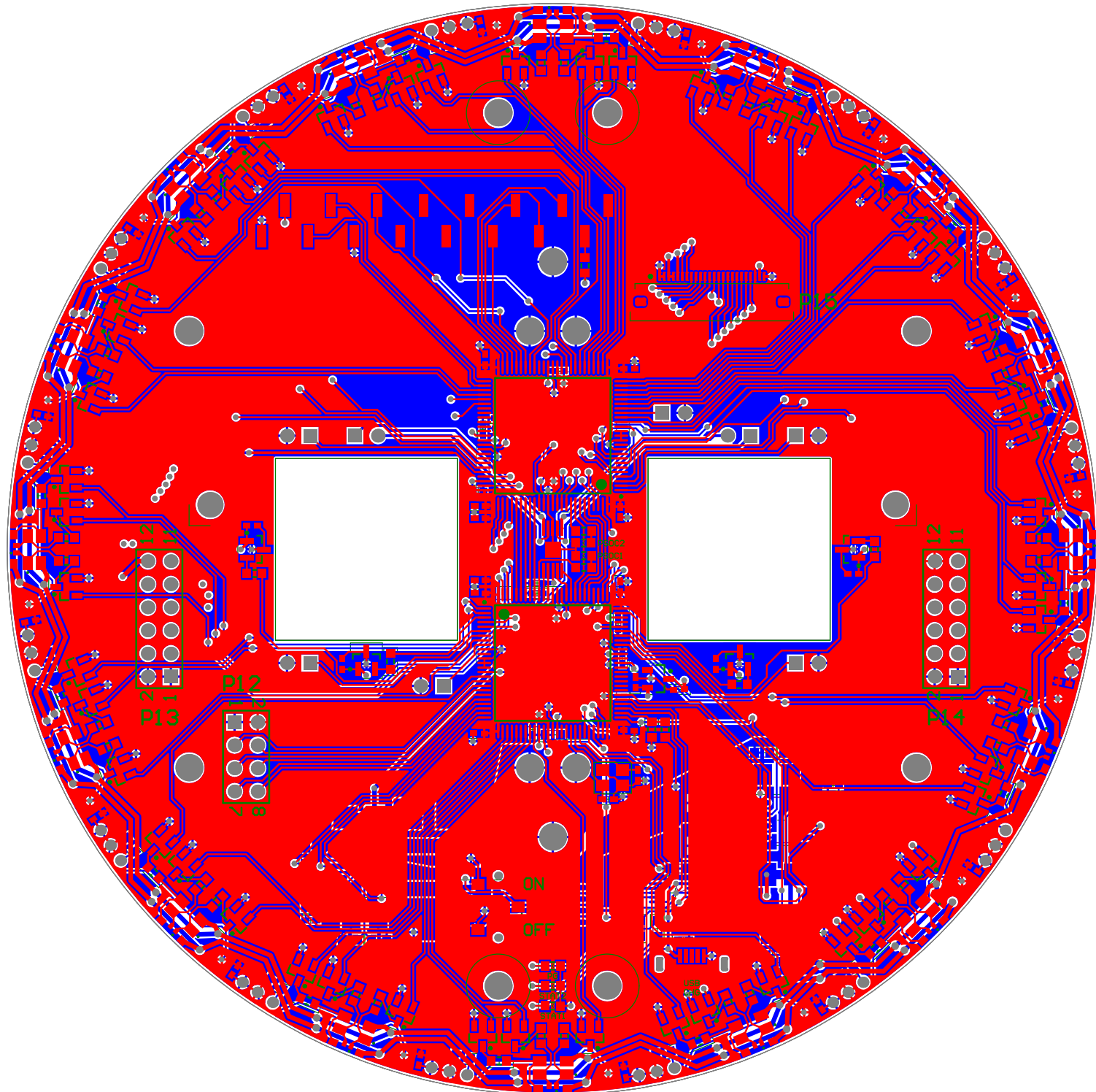
Title			LCD.SchDoc	
Size	Number	Revision		
A4	11	A		
Date:	1/12/2014	Sheet of	13	
File:	C:\Users\...\LCD.SchDoc	Drawn By:	Nick D'Ademo	



Title			Bump Sensors.SchDoc	
Size	Number	Revision		
A4	12	A		
Date:	1/12/2014	Sheet of	13	
File:	C:\Users\...\Bump Sensors.SchDoc	Drawn By:	Nick D'Ademo	



Title			
Expansion Header.SchDoc			
Size	Number	Revision	
A4	13	A	
Date:	1/12/2014	Sheet of	13
File:	C:\Users\...\Expansion Header.SchDoc	Drawn By:	Nick D'Ademo



Description	Designator	Footprint	Quantity	Value
18650 1-Cell Lithium Ion Battery	BT1			1
TAIYO YUDEN - EMK107BBJ106MA-T - CAP CER 10UF 16V 20% XSR 0603	C1	CAPC1005N		1 10uF
Capacitor, X7R, ±10%, 16V, 0402	C2, C3, C4, C5, C6, C7, C8, C9, C10, C11, C12, C13, C14, C15, C16, C17, C18, C19, C20, C21, C22, C27, C38, C39, C40, C41, C42, C43, C44, C45, C46, C47, C48, C49, C50, C55, C56			
	C23, C26	TC7343-2917		2 220uF
	C24, C27	TC3528-1411		2 47uF
	C25, C28	CAPC1005N		2 100pF
	C29, C30, C33, C34, C35, C36, C51, C52, C53, C54, C57, C58	CAPC1005N		12 1uF
	C31, C32	CAPC1005N		2 12pF
OPTKE - OV5SRRGBCC3 - LED RED/GRN/BLUE 1204 SMD	D1, D3, D5, D7, D9, D11, D13, D15, D17, D19, D21, D23, D25, D27, D29, D31	OV5SRRGBCC3_SI		16
	D2, D4, D6, D8, D10, D12, D14, D16, D18, D20, D22, D24, D26, D28, D30, D32	PLCC4		16
	D33, D34, D37	LED_0603		3
	D35, D36	SMB_DIODE		2
	D38	LED_0603		1
	D39	LED_0603		1
	L1, L2	TV_NIR		2 4.7uH
	LCD1			1
	L31, L32, L53, L54, L55, L56, L57, L58, L59, L510, L511, L512, L513, L514, L515, L516			
	P1, P2, P6, P7, P8, P9, P10, P11	HDR1X2		8
AMS - TSL252R-LF - IC LIGHT TO VOLTAGE SENSOR 3PIN	P3	AMS_5_3PIN		16
MOLEX INC - 0022272021 - CONN HEADER 2POS .100 VERT TIN	P4, P16	S4		2
GLOBAL CONNECTOR TECHNOLOGY - USB3140-30-0170-1-C - CONNECTOR, USB 2.0 MICRO B, RCPT, SPOS, SMT	P5	Samtec SSW-116-22-F-S-V5		1
KEYSTONE ELECTRONICS - S4 - BATTERY CLIP 18MM 18650 CELL	P13, P14	SSW-106-01-X-D		2
SAMTEC - SSW-116-22-F-S-V5 - Conn Socket Strip SKT 16 POS 2.54mm Solder St SMD Tube	P15	FFC2810		1
SAMTEC - SSW-106-01-T-D - SOCKET 2.54MM, 2X6WAY	Q1, Q2, Q3, Q4, Q5, Q6, Q7, Q8, Q9, Q10, Q11, Q12, Q13, Q14, Q15, Q16, Q17, Q18, Q19, Q20, Q21, Q22, Q23, Q24, Q25, Q26, Q27, Q28, Q29, Q30, Q31, Q32, Q33, Q34, Q35, Q36, Q37, Q38, Q39, Q40, Q41, Q42, Q43, Q44, Q45, Q46, Q47, Q48			
FAIRCHILD SEMICONDUCTOR - BSS138 - MOSFET N-CH 50V 220MA SOT-23	Q49	SOT-6		1
FAIRCHILD SEMICONDUCTOR - FDC6306P - MOSFET 2P-CH 20V 1.9A SSO76	Q50, Q51	BAN		2
VISHAY SILICONIX - S4427BDY-T1-E3 - MOSFET P-CH 30V 9.7A B-SOIC	R1, R2, R4, R5, R7, R8, R10, R11, R13, R14, R16, R17, R19, R20, R22, R23, R25, R26, R28, R29, R31, R32, R34, R35, R37, R38, R40, R41, R43, R44, R46, R47			
Resistor, ±1%, 0.1W, 0603	R3, R6, R8, R12, R15, R18, R21, R24, R27, R30, R33, R36, R39, R42, R45, R48	RESC1608N		32 91R
Resistor, ±1%, 0.1W, 0603	R49, R50, R53, R54, R55, R56, R57, R58, R59, R60, R61, R62, R63, R64, R65, R66, R67, R68, R67, R68, R69, R90	RESC1608N		16 150R
Resistor, ±1%, 0.1W, 0603	R51, R52, R82, R83, R84	RESC1608N		5 470R
Resistor, ±1%, 0.1W, 0603	R69	RESC1608N		1 309K
Resistor, ±1%, 0.1W, 0603	R70	RESC1608N		1 1.4M
Resistor, ±1%, 0.1W, 0603	R71, R72, R76, R77	RESC1608N		4 100k
Resistor, ±1%, 0.1W, 0603	R73, R78	RESC1608N		2 47k
Resistor, ±1%, 0.1W, 0603	R74	RESC1608N		1 887k
Resistor, ±1%, 0.1W, 0603	R75	RESC1608N		1 1.3M
Resistor, ±1%, 0.1W, 0603	R85	RESC1608N		1 2k
Resistor, ±1%, 0.1W, 0603	R86	RESC1608N		1 330R
Resistor, ±1%, 0.1W, 0603	R91	RESC1608N		1 500k
Resistor, ±1%, 0.1W, 0603	R92	RESC1608N		1 1M
MURATA - NCP18XH10J03R8B - THERMISTOR, NTC, 10K, 5%, SMD	RT1	RESC1608N		1 10k
COPAL ELECTRONICS INC - CL-S8-128-01T - SWITCH SLIDE SPOT 0.2A GULL 12V	S1	CL-S8-128-01T		1
PSOC Programmable System-on-Chip, 256 KB Flash, 62 GPIOs, 1.71 to 5.5 V, 100 Pin, TQFP (AX100), Tray	U1, U2	CYP-AX100_L		2
ALLEGRO - A3909GLYR-T - IC MOTOR DRIVER PAR 10MSOP	U3	MSOP-10		1
HONEYWELL SMC - SS38ET - SENSOR, HALL EFFECT, LINEAR, SOT23-3	U4, U5, U6, U7	SOT23-3N		4
LINEAR TECHNOLOGY - LT1308ACS4PBF - IC REG BOOST SV 1A 8SOIC	U8, U9	LT-S8-8_N		2
MICROCHIP - MCP73833-FCUJIN - IC U-I/ON-AU-POLY CTRLR 10MSOP	U10	MSOP-UN10_N		1
MICROCHIP - MCP71007-3302E/AT - IC REG LDO 3.3V 0.25A SOT23-3	U11	SOT79SP230-3N		1
NORDIC SEMICONDUCTOR - nRF2401+	U12	HDR2X4		1
NDK - NX3225SA-16.000MHZ-STD-CSR-1 - CRYSTAL 16MHZ 8PF SMD	Y1	NX3225SA		1