
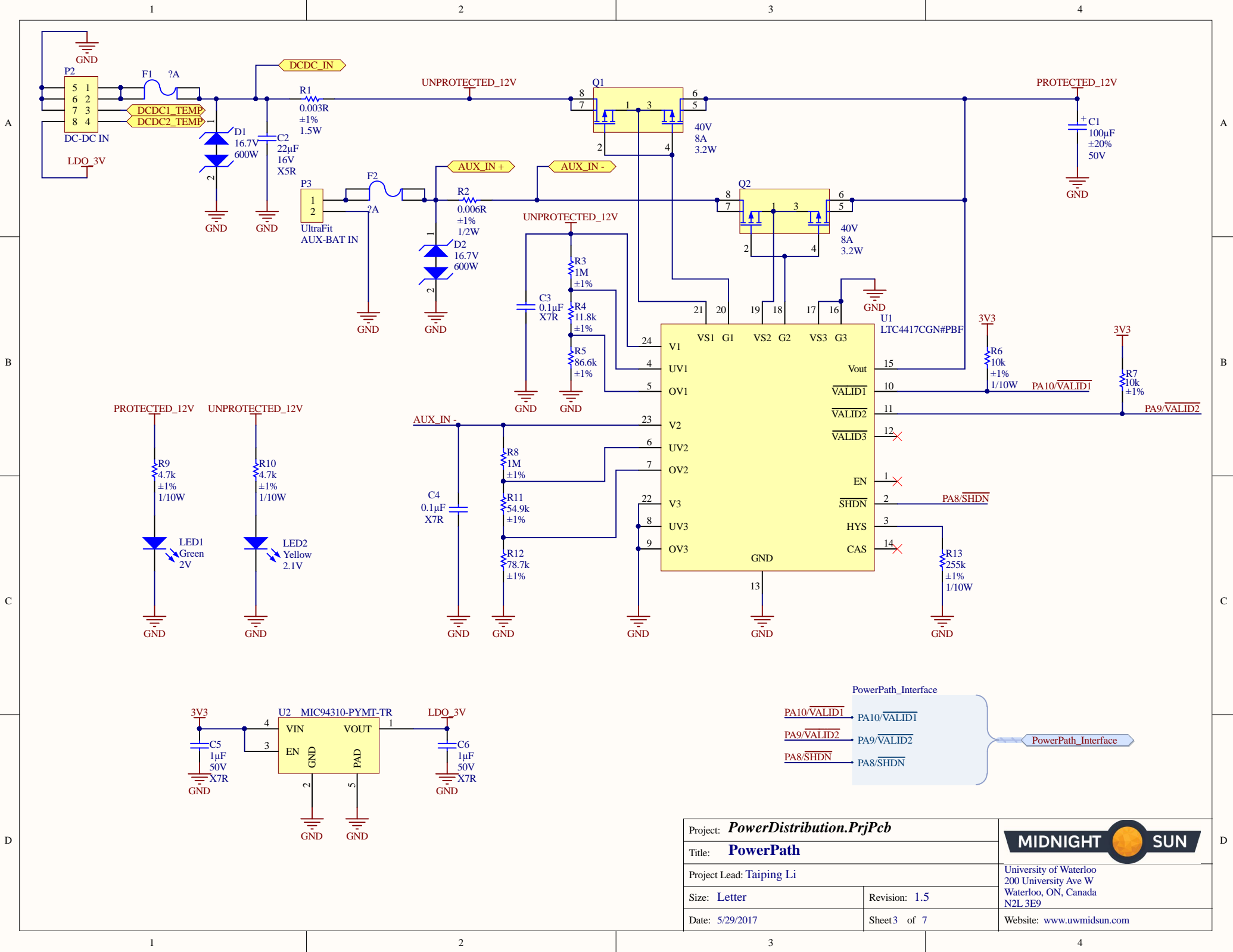
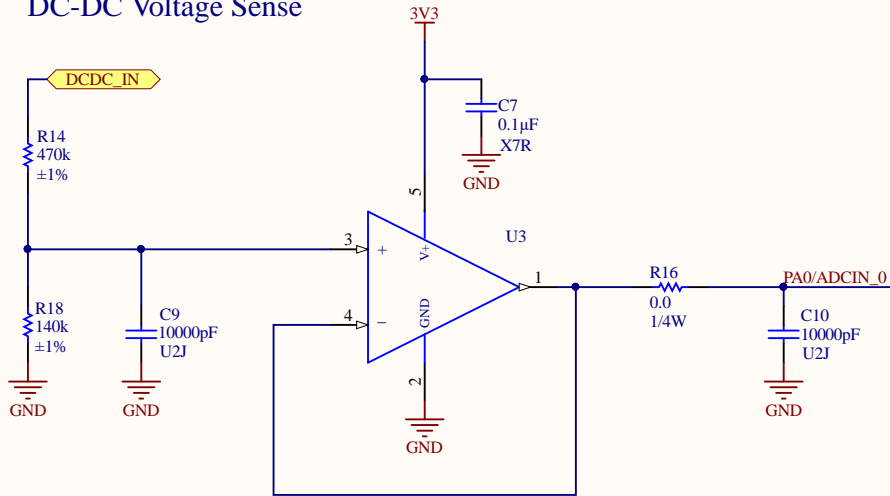


Project: <i>PowerDistribution.PrjPcb</i>		
Title: Controller Board Interface		
Project Lead: Taiping Li		University of Waterloo 200 University Ave W Waterloo, ON, Canada N2L 3E9 Website: www.uwmidsun.com
Size: Letter	Revision: 1.5	
Date: 5/29/2017	Sheet2 of 7	

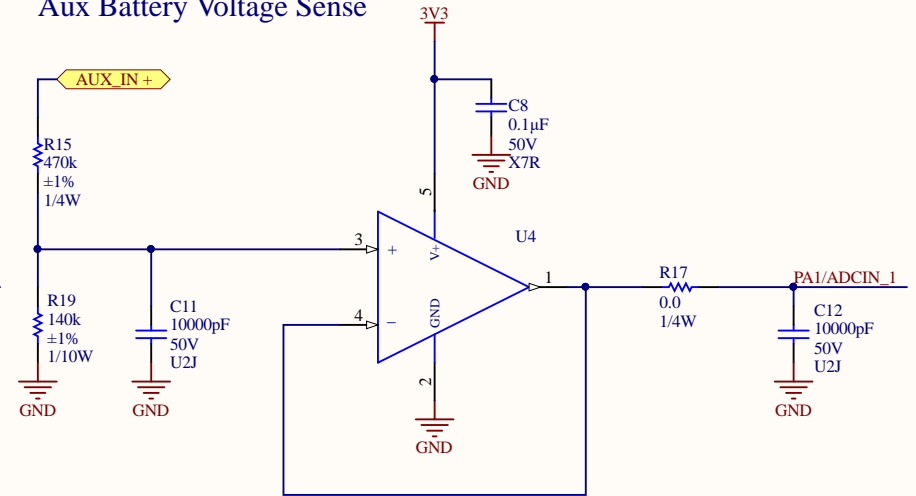


Project: PowerDistribution.PrjPcb		<div><div>MIDNIGHT</div><div>SUN</div></div>
Title: PowerPath		
Project Lead: Taiping Li		University of Waterloo 200 University Ave W Waterloo, ON, Canada N2L 3E9 Website: www.uwmidsun.com
Size: Letter	Revision: 1.5	
Date: 5/29/2017	Sheet 3 of 7	

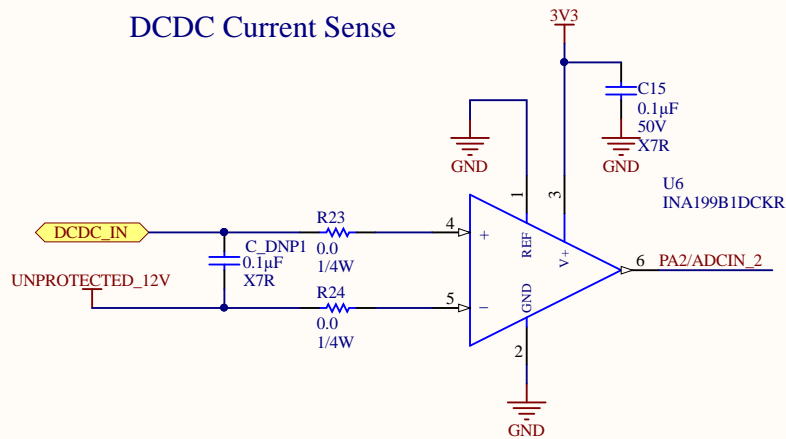
DC-DC Voltage Sense



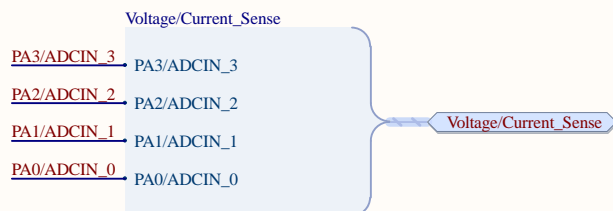
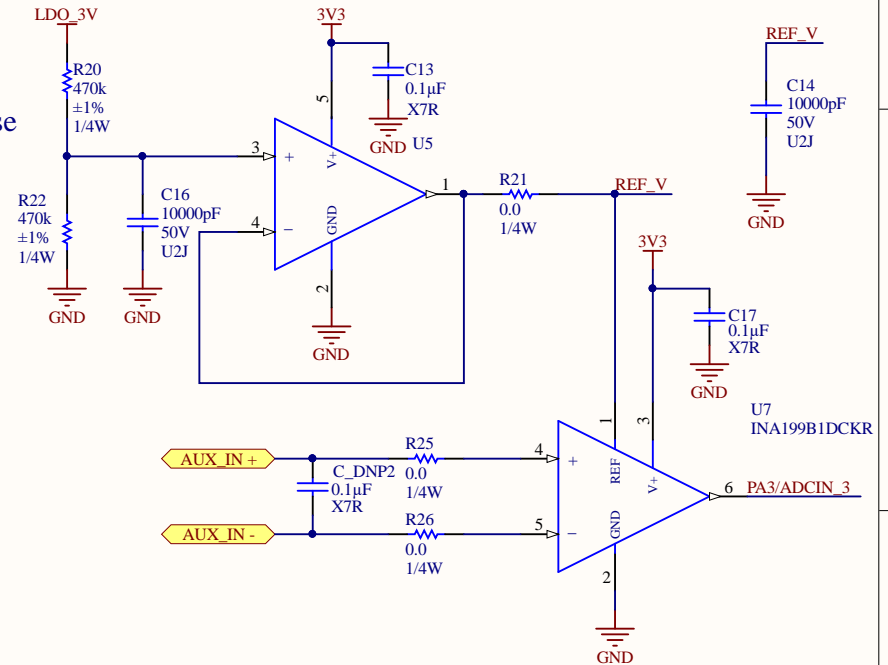
Aux Battery Voltage Sense



DCDC Current Sense



Aux Current Sense



Project: **PowerDistribution.PrjPcb**

Title: **Voltage & Current Sense**

Project Lead: Taiping Li

Size: Letter

Revision: 1.5

Date: 5/29/2017

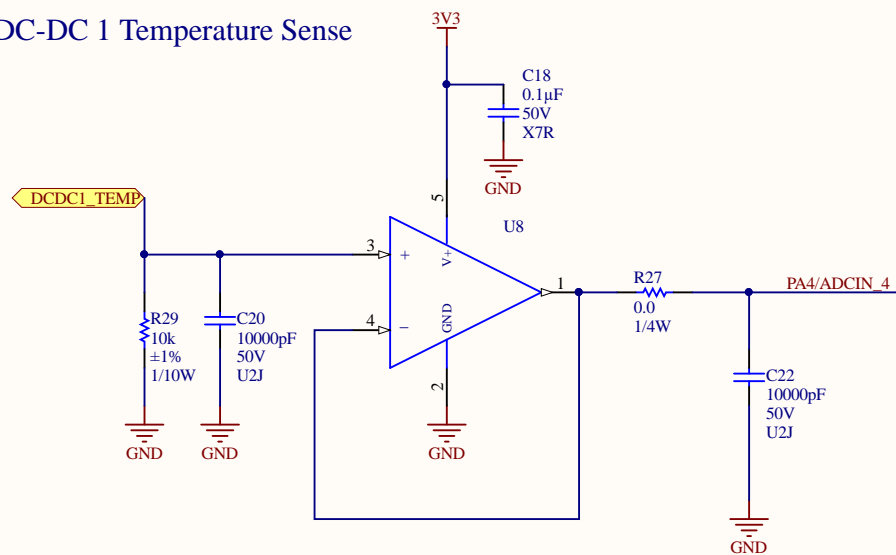
Sheet4 of 7



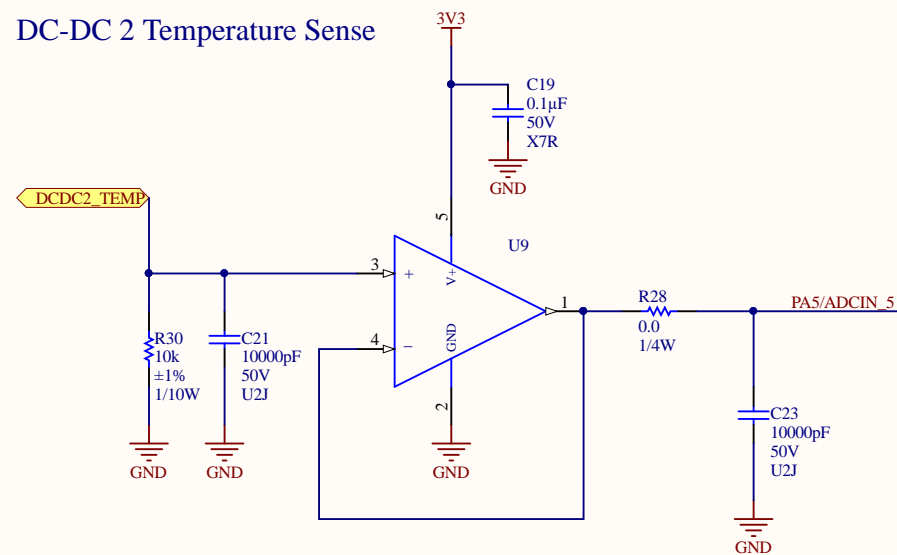
University of Waterloo
200 University Ave W
Waterloo, ON, Canada
N2L 3E9

Website: www.uwmidsun.com

DC-DC 1 Temperature Sense



DC-DC 2 Temperature Sense



Project: **PowerDistribution.PrjPcb**

Title: **Voltage/Current/Temp Sensing**

Project Lead: Taiping Li

Size: Letter

Revision: 1.5

Date: 5/29/2017

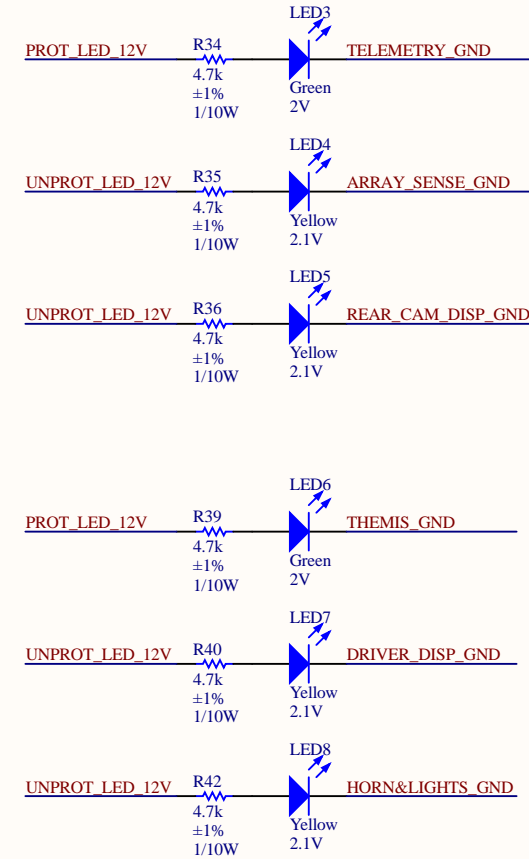
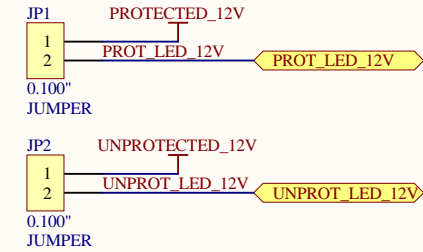
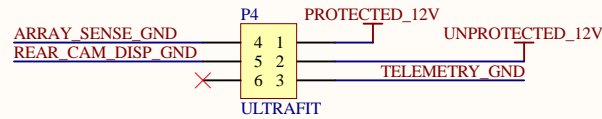
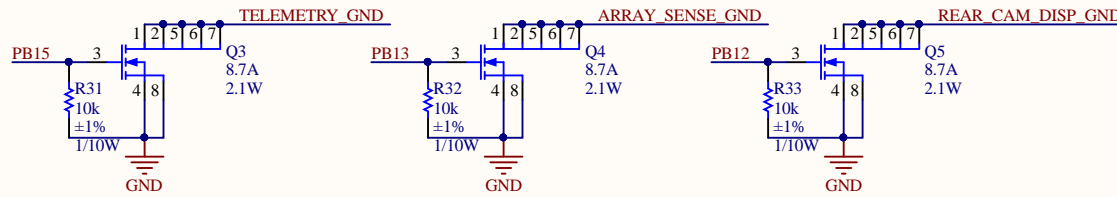
Sheet5 of 7



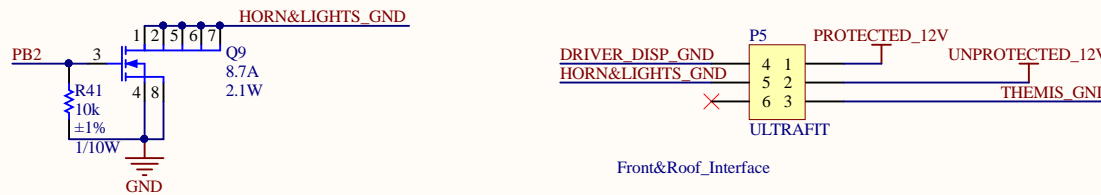
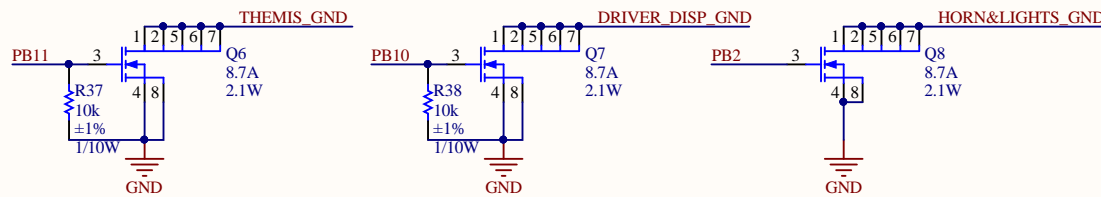
University of Waterloo
200 University Ave W
Waterloo, ON, Canada
N2L 3E9

Website: www.uwmidsun.com

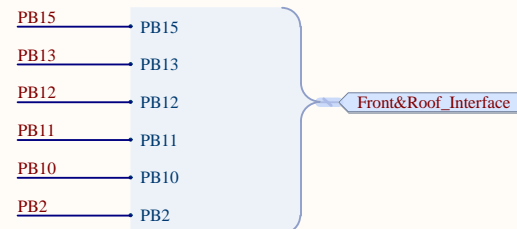
Roof Enclosure



Front Enclosure



Horn & Lights 1 is in parallel with Horn & Lights 2 for load sharing



Project: **PowerDistribution.PrjPcb**

Title: **Front and Roof Enclosure Boards**

Project Lead: Taiping Li

Size: Letter

Revision: 1.5

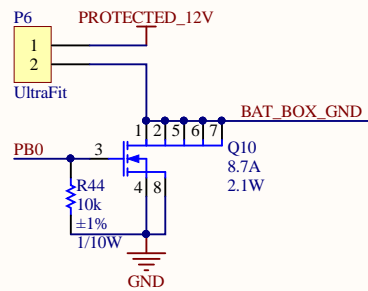
Date: 5/29/2017

Sheet 6 of 7

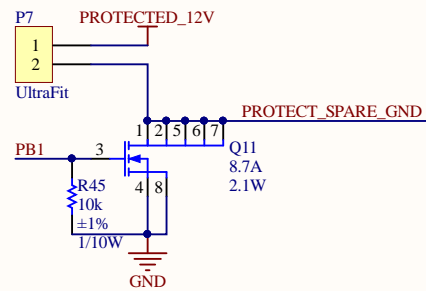
MIDNIGHT

SUN

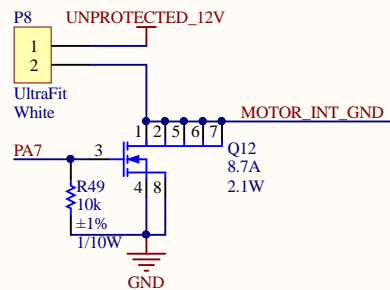
University of Waterloo
200 University Ave W
Waterloo, ON, Canada
N2L 3E9
Website: www.uwmidsun.com



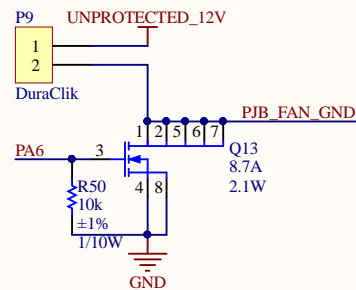
Battery Box (Protected)



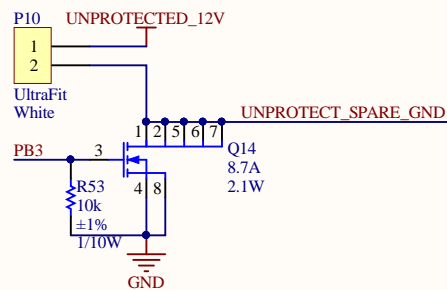
Spare (Protected)



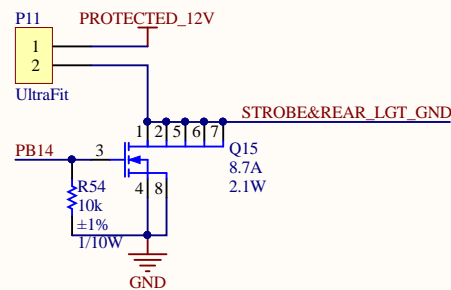
Motor Interface (Unprotected)



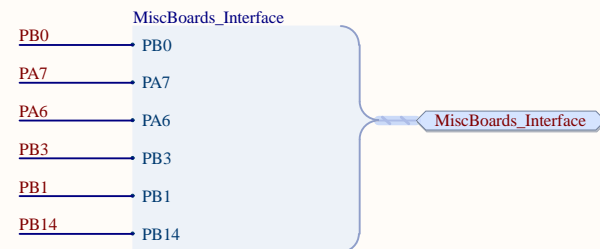
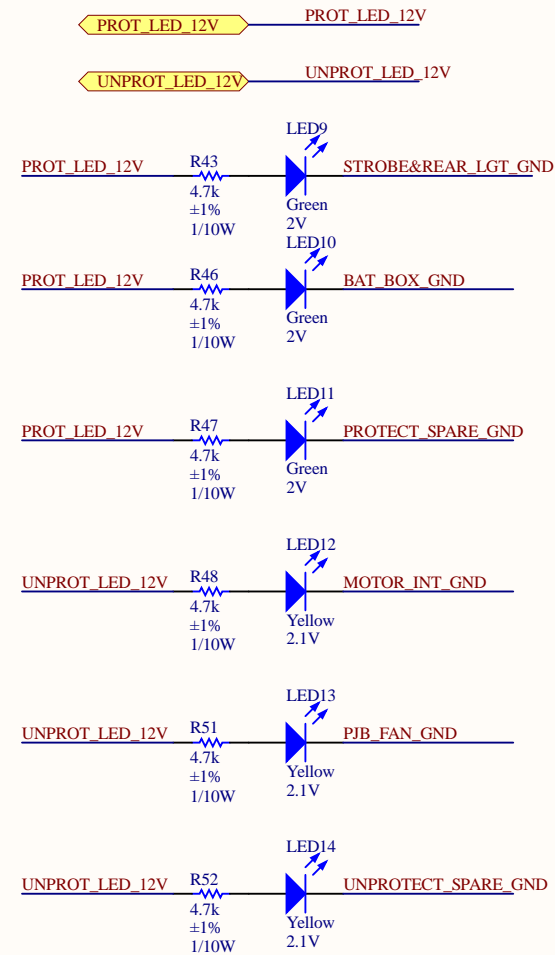
PJB Fans (Unprotected)



Spare (Unprotected)



Strobe&RearLights (Protected)



White/Natural color for unprotected rail

Project: **PowerDistribution.PrjPcb**Title: **Misc Boards Switching**

Project Lead: Taiping Li

Size: Letter

Revision: 1.5

Date: 5/29/2017

Sheet 7 of 7

MIDNIGHT SUNUniversity of Waterloo
200 University Ave W
Waterloo, ON, Canada
N2L 3E9Website: www.uwmidsun.com

Component list

Bill of Materials For Project [PowerDistribution.PrjPcb] (No PCB Document Selected)

Source Data From:

Project:

Variant:

PowerDistribution.PrjPcb

PowerDistribution.PrjPcb

None



Report Date: 5/29/2017 4:08:43 PM
Print Date: 29-May-17 4:09:03 PM

#	LibRef	#Column Name Error:Manufacturer	Column Name Error:Manufacturer	Column Name Error:PartType	Description	Footprint	#Column Name Error:Package Reference	Quantity
1	CAP ALUM 100UF 20% 50V RADIAL				100µF 50V Aluminum Capacitors Radial, Can 74 mOhm @ 100kHz 3000 Hrs @ 105°C	CAP ALUM 100UF 50V		1
2	CAP CER 22UF 16V ±20% X5R 1210				22µF ±20% 16V Ceramic Capacitor X5R 1210 (3225 Metric)	CAP, 1210		1
3	CAP CER 0.1UF 50V 10% X7R 0603				0.10µF ±10% 50V Ceramic Capacitor X7R 0603 (1608 Metric)	CAP, 0603		11
4	CAP CER 1UF 50V 10% X7R 0603				1µF ±10% 50V Ceramic Capacitor X7R 0603 (1608 Metric)	CAP, 0603		2
5	CAP CER 10nF 50V 5% X7R 0603				10000pF ±5% 50V Ceramic Capacitor U2J 0603 (1608 Metric)	CAP, 0603		10
6	DIODE TVS 15VWM 24.4VC DO-214AA (SMB)				TVS DIODE 15VWM 24.4VC SMB	DO-214AA Diode		2
7	FUSE ATO FUSE HOLDER				Fuse Block 30A 500V 1 Circuit Blade PCB	FUSE ATO/ATC FUSE HOLDER		2
8	CONN 2POS JUMPER 0.1"				2 Positions Header Connector Through Hole Gold	CONN 2POS JUMPER 0.1"		2
9	LED GREEN CLEAR 2V 0603				Green 572nm LED Indication - Discrete 2V 0603 (1608 Metric)	LED_0603		6
10	LED YELLOW CLEAR 2.1V 0603					LED_0603		8
11	CONN 50POS Bergstak Plug 0.02"				50 Position Connector Plug, Outer Shroud Contacts Surface Mount Gold	CONN, Bergstak 50 Pos Plug		1
12	CONN 8POS ULTRA-FIT 0.138"				8 Positions Header Connector 0.138" (3.50mm) Through Hole Tin	CONN, 8POS ULTRA-FIT		1
13	CONN 2POS ULTRA-FIT 0.138"				2 Positions Header, Shrouded Connector 0.138" (3.50mm) Through Hole Gold	CONN, 2POS ULTRA-FIT		4
14	CONN 6POS ULTRA-FIT 0.138"				6 Positions Header Connector 0.138" (3.50mm) Through Hole Tin	CONN, 6POS ULTRA-FIT		2
15	CONN 2POS ULTRA-FIT NATURAL COLOR 0.138"				2 Positions Header, Shrouded Connector 0.138" (3.50mm) Through Hole	CONN, 2POS ULTRA-FIT - NATURAL COLOR		2
16	CONN 2POS DURA-CLIK 0.079"				2 Positions Header, Shrouded Connector 0.079" (2.00mm) Surface Mount, Right Angle Tin	CONN, 2POS Dura-Click		1
17	MOSFET DUAL P-CH 40V 8A 3.2W 8-SOIC				Mosfet Array 2 P-Channel (Dual) 40V 8A 3.2W Surface Mount 8-SO	SOIC8		2
18	MOSFET N-CH 30V 8.7A 2.1W 6-PQFN (2x2)					MOSFET N-CH 30V 12A 2mmx2mm PQFN		13
19	RES 0.003 OHM 1% 1.5W 2010				0.003 Ohm ±1% 1.5W Chip Resistor 2010 (5025 Metric) Current Sense, Moisture Resistant Metal Foil	RES 2010		1
20	RES 0.006 OHM 1% 1/2W 1206				0.006 Ohm ±1% 0.5W, 1/2W Chip Resistor 1206 (3216 Metric) Automotive AEC-Q200, Current Sense, Moisture Resistant Metal Element	RES 1206		1
21	RES 1M OHM 1% 1/10W 0603				1M Ohm ±1% 0.1W, 1/10W Chip Resistor 0603 (1608 Metric) Moisture Resistant Thick Film	RES, 0603		2
22	RES 11.8K OHM 1% 1/10W 0603				11.8k Ohm ±1% 0.1W, 1/10W Chip Resistor 0603 (1608 Metric) Moisture Resistant Thick Film	RES, 0603		1
23	RES 86.6K OHM 1% 1/10W 0603				86.6k Ohm ±1% 0.1W, 1/10W Chip Resistor 0603 (1608 Metric) Automotive AEC-Q200 Thick Film	RES, 0603		1
24	RES 10K OHM 1% 1/10W 0603				RES SMD 10K OHM 1% 1/10W 0603	RES, 0603		16
25	RES 4.7K OHM 1% 1/10W 0603				4.7k Ohm ±1% 0.1W, 1/10W Chip Resistor 0603 (1608 Metric) Moisture Resistant Thick Film	RES, 0603		14
26	RES 54.9K OHM 1% 1/10W 0603				54.9k Ohm ±1% 0.1W, 1/10W Chip Resistor 0603 (1608 Metric) Automotive AEC-Q200 Thick Film	RES, 0603		1
27	RES 78.7K OHM 1% 1/10W 0603				78.7k Ohm ±1% 0.1W, 1/10W Chip Resistor 0603 (1608 Metric) Automotive AEC-Q200 Thick Film	RES, 0603		1
28	RES 255K OHM 1% 1/10W 0603				255k Ohm ±1% 0.1W, 1/10W Chip Resistor 0603 (1608 Metric) Moisture Resistant Thick Film	RES, 0603		1
29	RES 470K OHM 1% 1/4W 0603				RES SMD 470K OHM 1% 1/4W 0603	RES, 0603		4
30	RES 0.0 OHM 1/4W 0603				RES SMD 0.0 OHM JUMPER 1/4W 0603	RES, 0603		9
31	RES 140K OHM 1% 1/10W 0603					RES, 0603		2
32	IC OR CONTROLLER SOURCE SELECT 24SSOP				OR Controller Source Selector Switch P-Channel 3:1 24-SSOP	IC OR CTRLR SRC SELECT 24SSOP		1
33	IC REG LDO 3V 0.2A 4-TDFN					IC REG LDO 3V 0.2A 4-TDFN		1
34	IC OP AMP GEN PURPOSE RR 10MHZ SOT-23-5				General Purpose Amplifier 1 Circuit Rail-to-Rail SOT-23-5	IC OP AMP GP RR 10MHZ SOT-23-5		5
35	IC CURRENT AMPLIFIER SC70-6				Current Sense Amplifier 1 Circuit SC-70-6	IC OP AMP CURR SENSE 80KHZ SC70-6		2

Approved

Notes

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