MicroRally

uDCCD Controller

Revision 7

DCCD coil driver and logic controller

Title: Cover sheet	MicroRally
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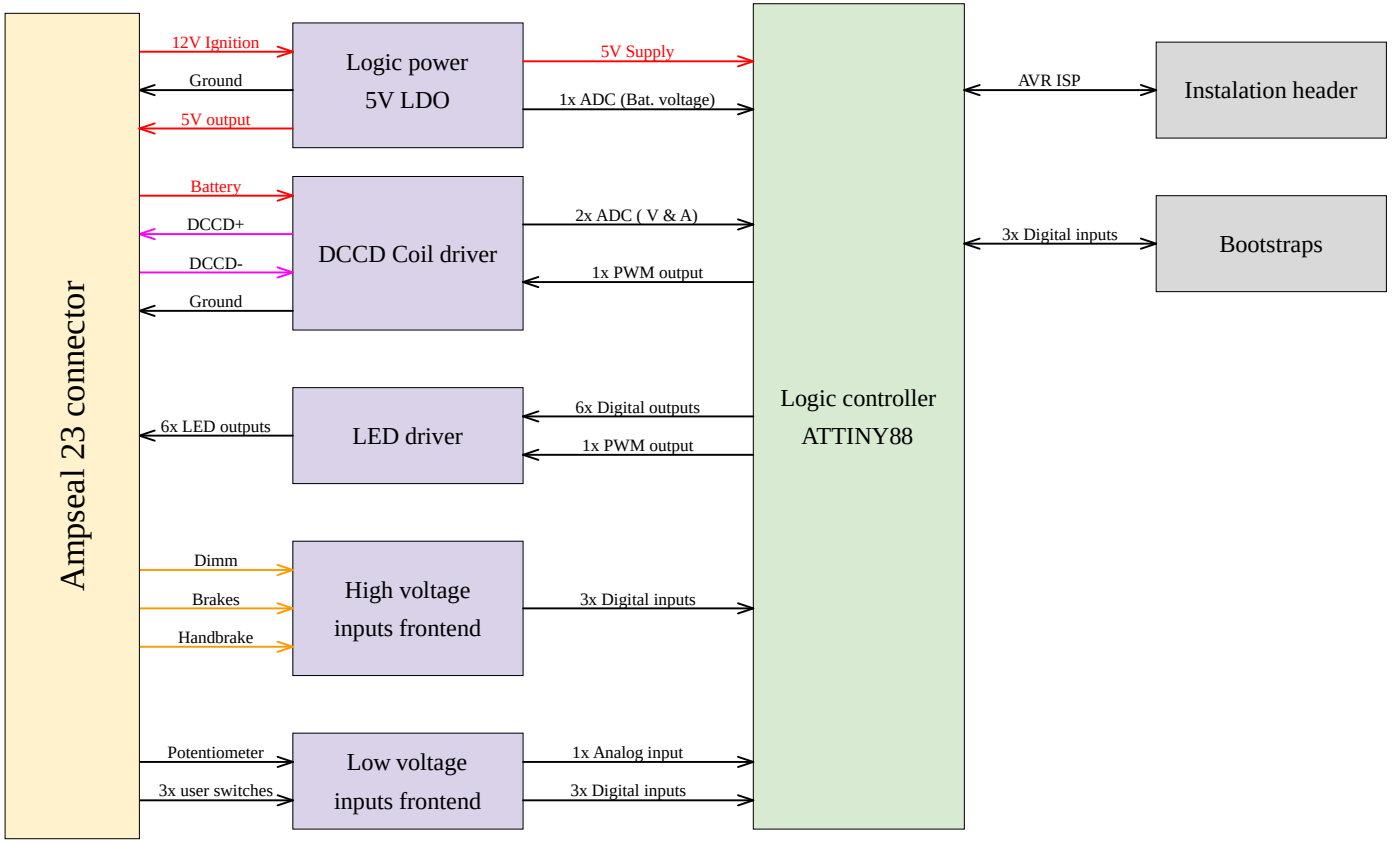
Author: Andis Jargans	Date: 15.09.2021
File name: Title.SchDoc	



Title: Block diagram	MicroRally
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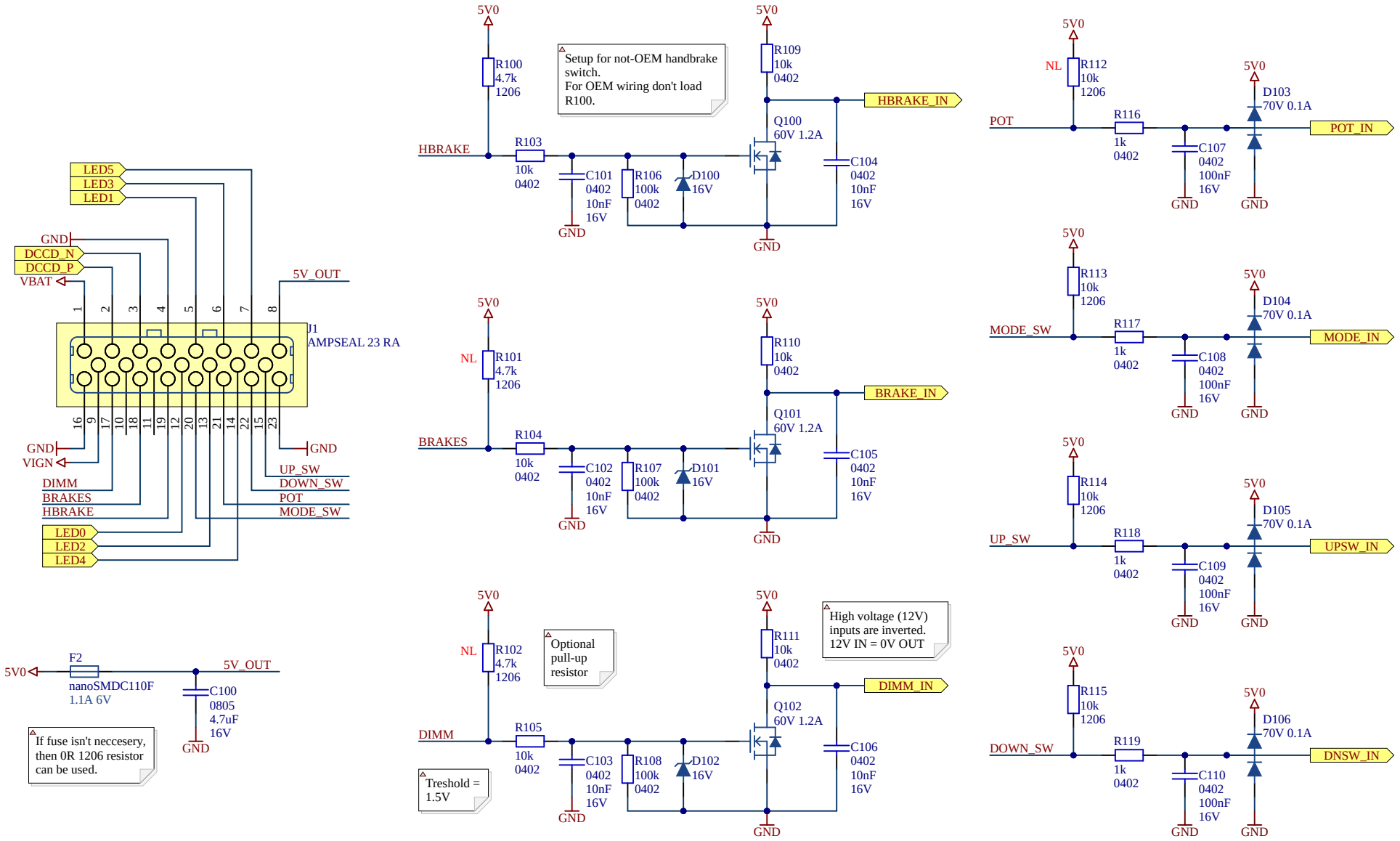
Author: Andis Jargans	Date: 15.09.2021
File name: Blockscheme.SchDoc	



Title: User Inputs and Outputs	MicroRally
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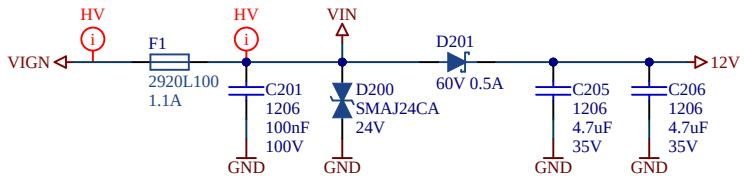
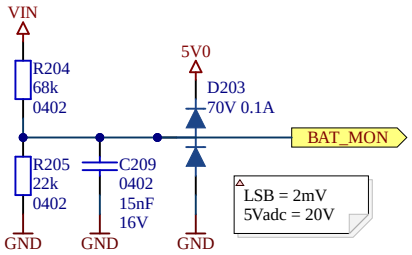
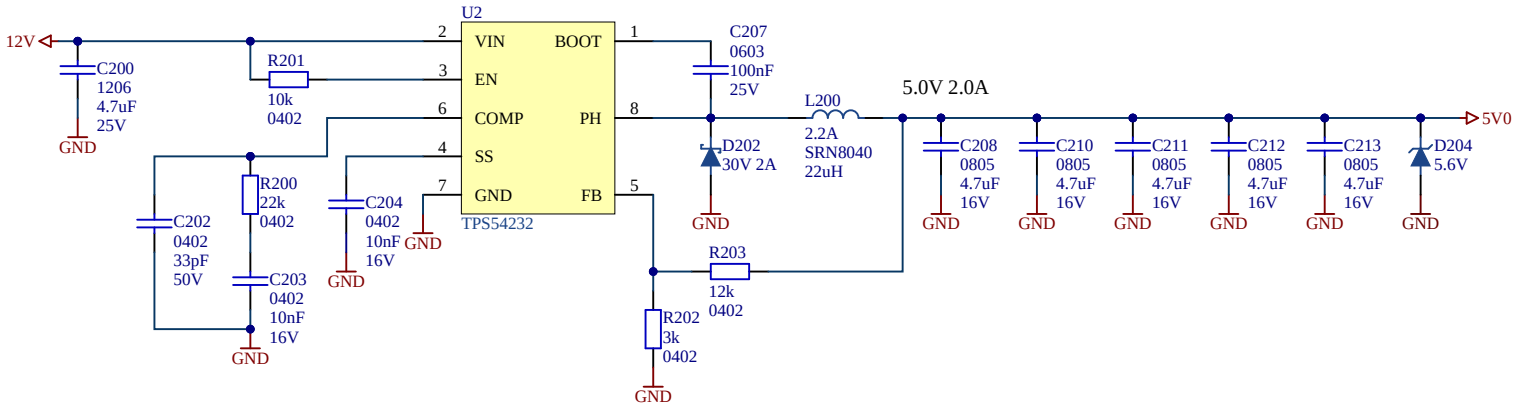
Author: Andis Jargans	Date: 15.09.2021
File name: User_IO.SchDoc	







Title: Power Supply	MicroRally
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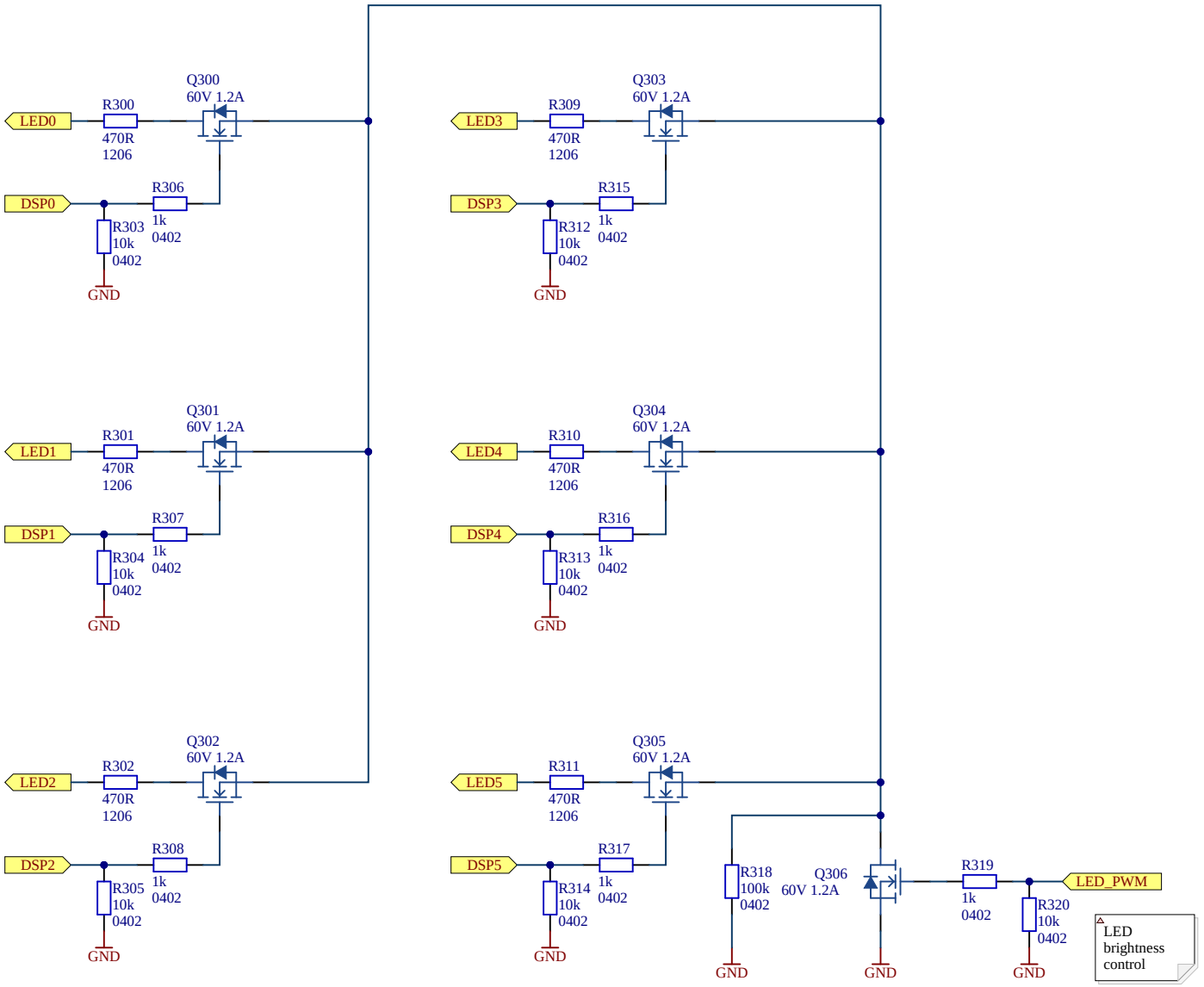
File name: Power.SchDoc	



Title: LED Control	MicroRally
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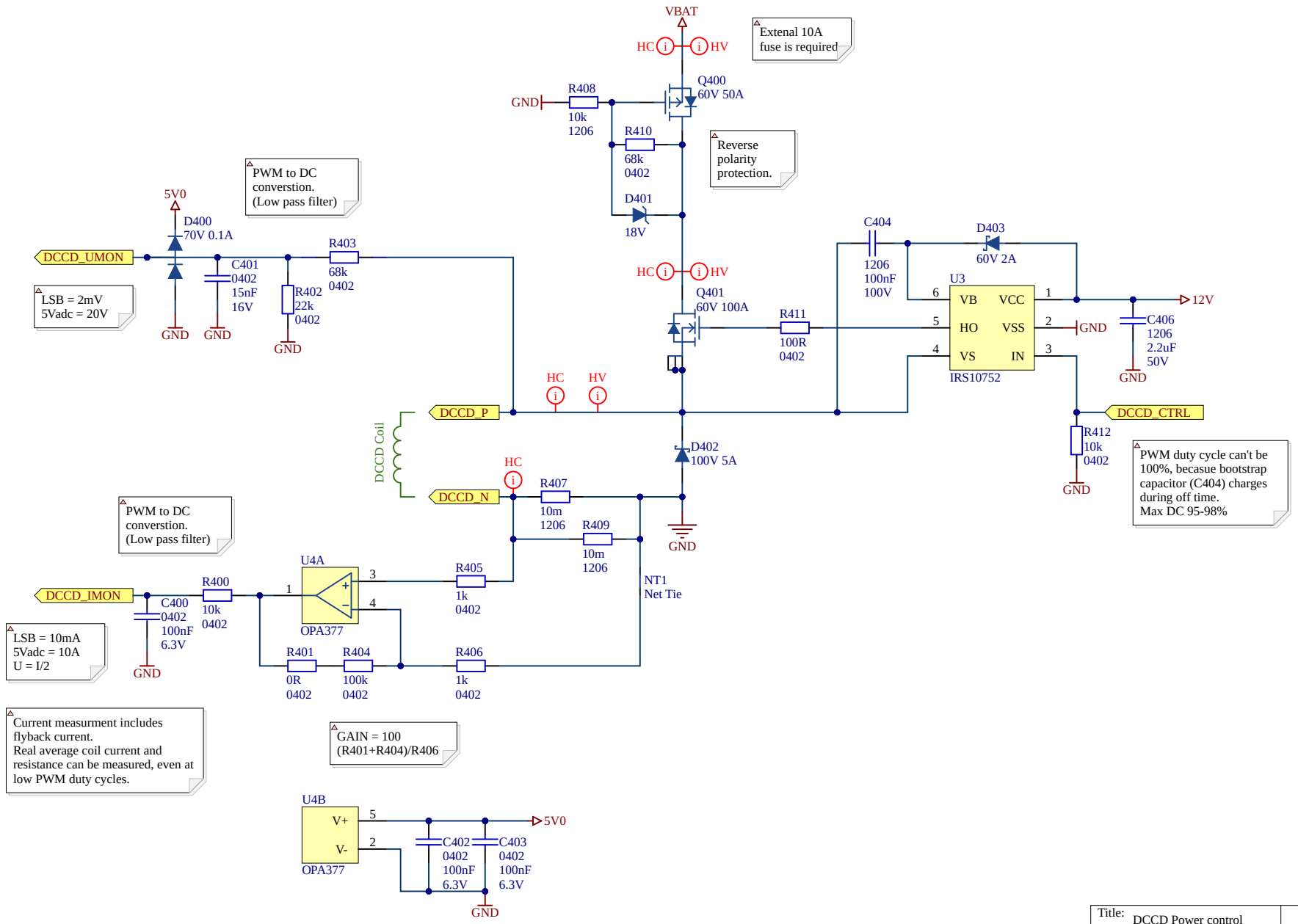
File name: LEDs.SchDoc	



Title: DCCD Power control	MicroRally
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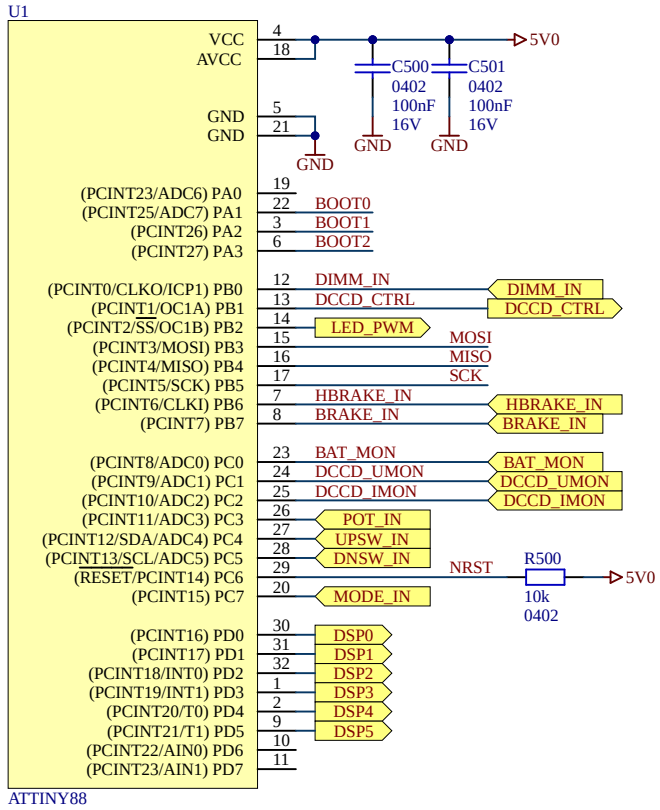
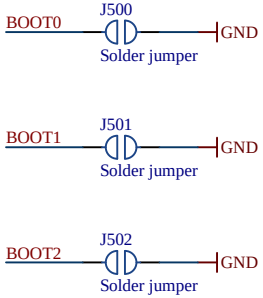
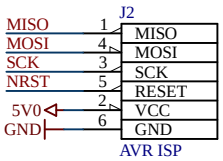
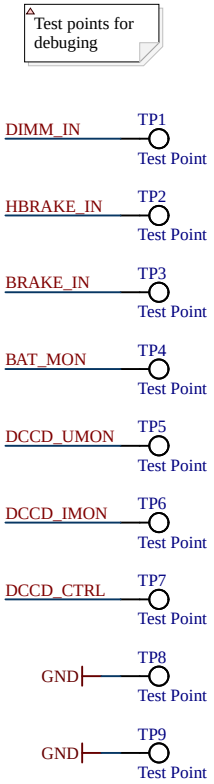
File name: DCCD_Bridge.SchDoc	









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H1
A4 Drawing
PCB DRAWING A4

H2
4 Layer Stackup
STACKUP 4 LAYER

H3
Gerber Notes
GERBER NOTES

H4
Code MR
Signature Code

H5
WEEE
WEEE Trash

FI1
Fiducial 1:2mm

FI2
Fiducial 1:2mm

FI3
Fiducial 1:2mm

H10
TH
Tooling hole

H11
TH
Tooling hole

H12
TH
Tooling hole

H13
TH
Tooling hole

M1
M3
GND
Mounting Hole M3

M2
M3
GND
Mounting Hole M3

M3
M3
GND
Mounting Hole M3

M4
M3
GND
Mounting Hole M3

Input and output signals

#	NET	DESCRIPTION
1	VBAT	12V Power input for DCCD coil driver. Connect through external 10A fuse.
2	DCCD_P	High side output to DCCD coil.
3	DCCD_N	Low side output to DCCD coil.
4	GND	Power ground for DCCD coil driver.
5	LED1	20% LED output. Open-drain type.
6	LED3	60% LED output. Open-drain type.
7	LED5	100% (LOCK) LED output. Open-drain type.
8	5V_OUT	Fused 5V output for external potentiomter or LED supply.
9	VIGN	12V ignition power input. Supply for logic controll circuits.
10	-	Not connected
11	-	Not connected
12	LED0	0% (OPEN) LED output. Open-drain type.
13	LED2	40% LED output. Open-drain type.
14	LED4	80% LED output. Open-drain type.
15	UP_SW	Lock force increase button input. 5V digital input with integrated 5V 4.7k pull-up, active low.
16	GND	Optional power ground.
17	DIMM	LED backlight dimm input. 12V digital input, active high. Connect to clearance lights.
18	BRAKES	Brakes signal input. 12V digital input, active high. Connect to brake lights.
19	HBRAKE	Handbrake signal input. 12V digital input, active low. By default comes with integrated 5V 4.7k pull-up for custom hydraulic handbrakes.
20	MODE_SW	Mode select button input. 5V digital input with integrated 5V 4.7k pull-up, active low.
21	POT	Lock fore setting potentiometer input. 5V analog input.
22	DOWN_SW	Lock force decrease button input. 5V digital input with integrated 5V 4.7k pull-up, active low.
23	GND	Optional user inputs ground. Can be used for switch panel or potentiometer, for clean ground.

Title: Miscellaneous	MicroRally
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Revision history

Revison	Date	Fixed issue	Changes
r6	2020-08-05		Initial design.
r7	2021-02-23		Changed to TE Ampseal connector
	2021-03-05		HV inputs changed to HiZ type. Q100-Q102 changed to N-ch MOSFETs.
	2021-03-17		Added JLC PCB SMT assembly tooling holes.
	2021-06-10		Added block diagram and miscellaneous page
	2021-09-15	Time constant of DCCD voltage and currnet LPF should be the same.	UMON LPF and BAT_MON LPF capacitor reduced to 15nF.

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