

The UVLO activates when the cell voltage reaches $\sim 3.2V$ (9.6V total), leaving around 20mAh of charge in the battery (2200mAh battery).

If the board has been left switched on the quiescent current at 9.6V will be $\sim 21\mu A$, giving a run time of approximately 40 days until the battery is potentially damaged.

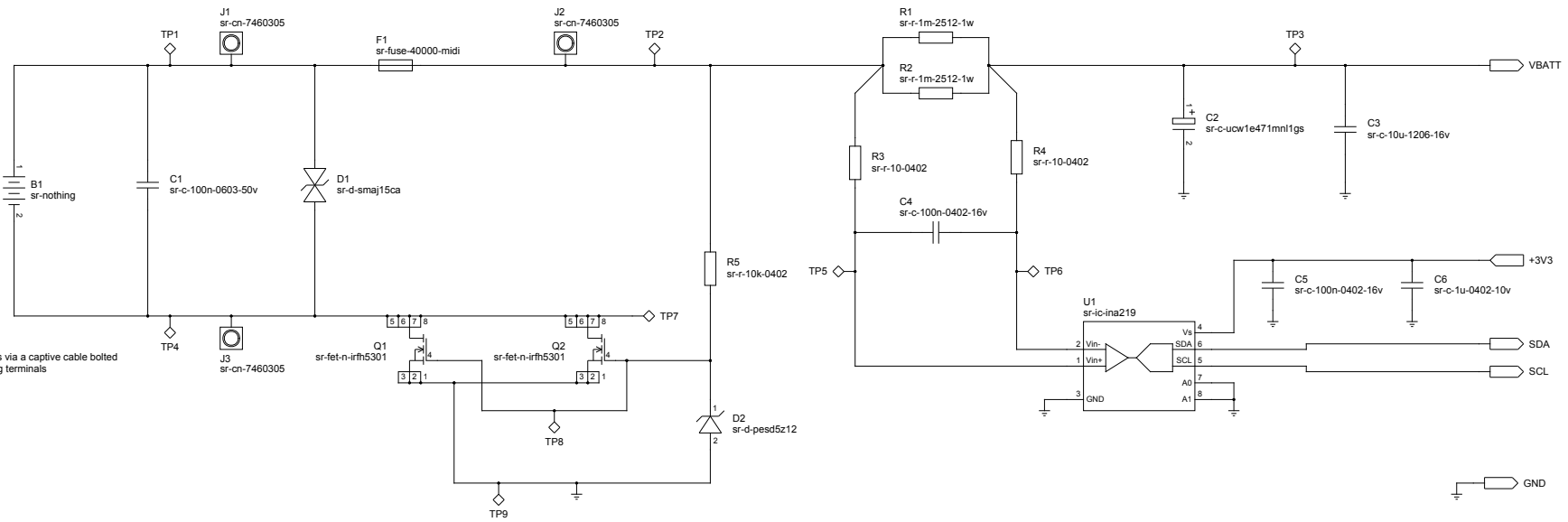
If the board has been switched off with the battery at 50% the quiescent current will be $\sim 13\mu A$, giving a run time of approximately 9.5 years.

Page	Description
1	Title, Block Diagram
2	Battery (Overcurrent and Polarity Protection, Battery Monitoring)
3	Supply (Power Switch, UVLO, 3V3 & 5V SMPS, Output Control and Monitoring)
4	Output (12V Output Control and Monitoring)
5	Control (μC , USB)
6	Mechanical

The full source of this design is available at:
<https://www.studentrobotics.org/git/boards/power-v4-hw.git>

Turnigy 2200mAh
20C Lipo

The battery connects via a captive cable bolted to J1 and J3 with ring terminals



Power Board v4 - Battery

FILE: power-v4-hw.glt/power-2-battery.sch

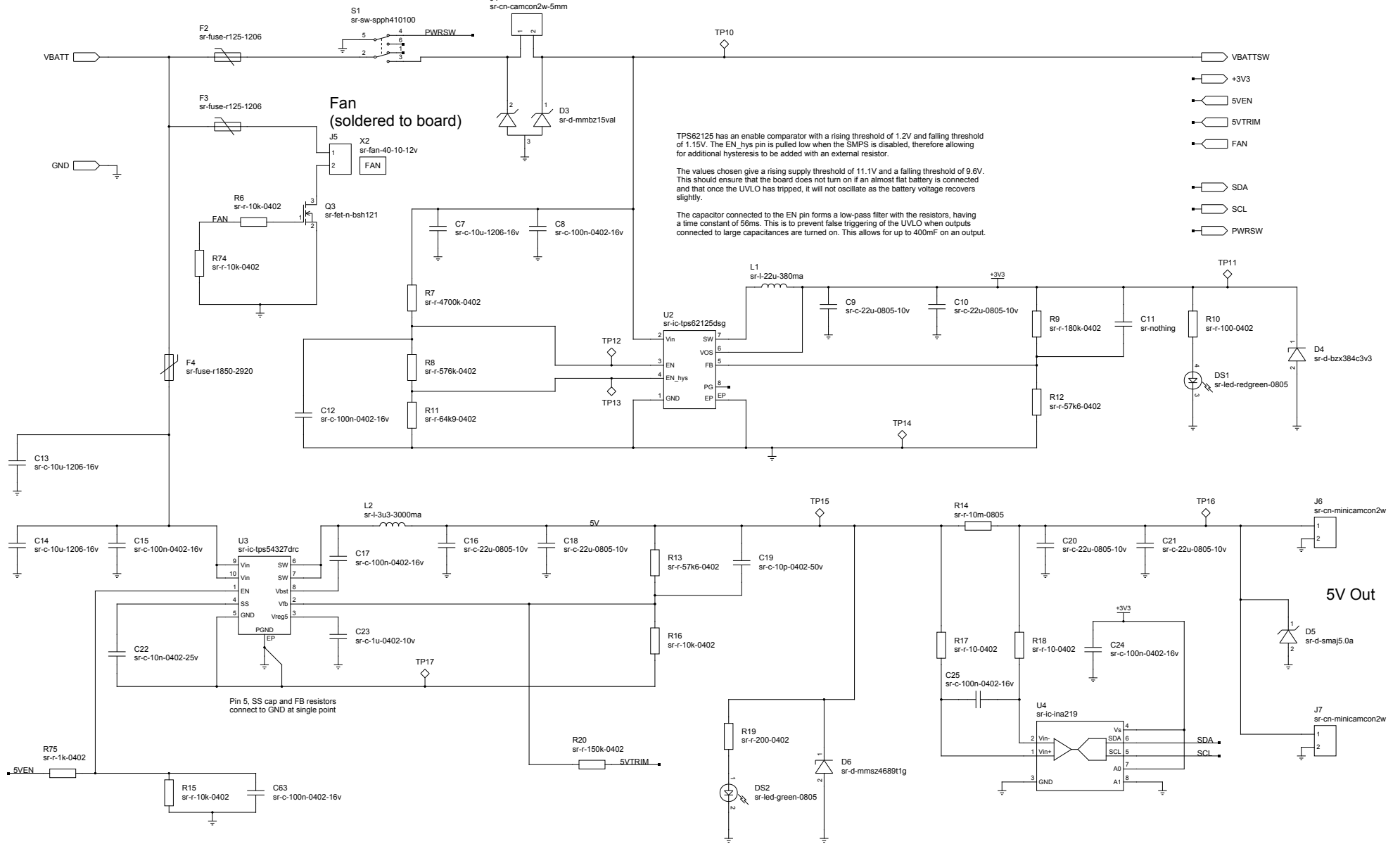
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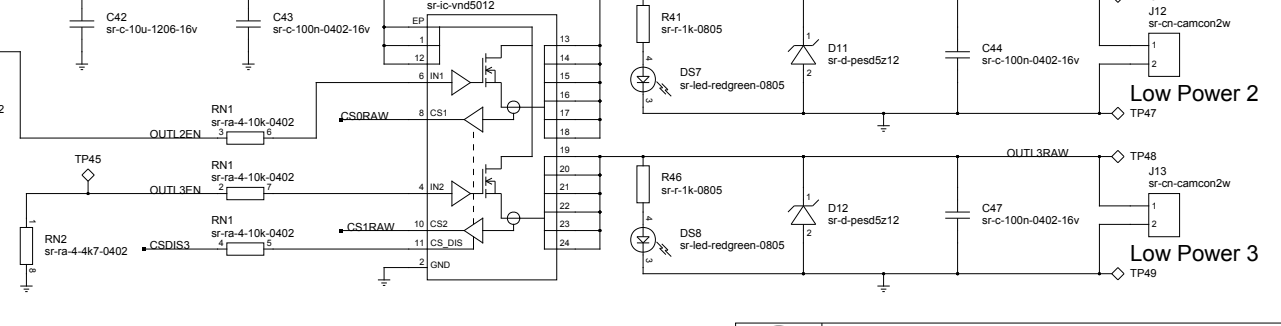
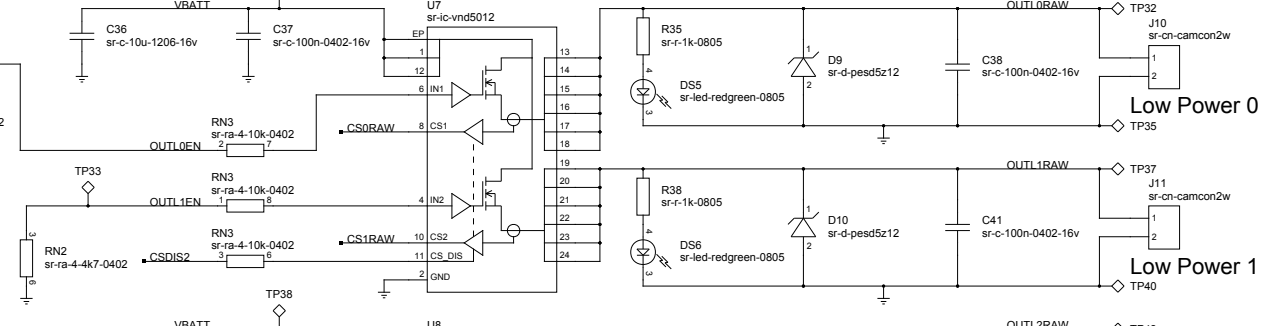
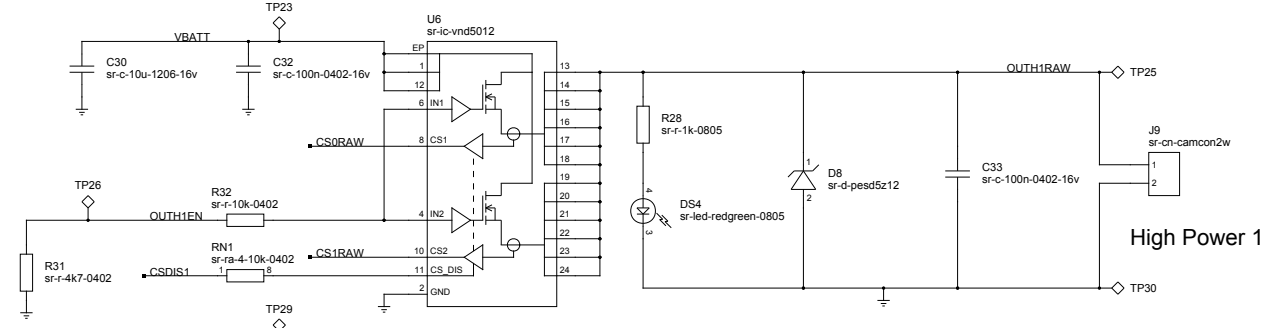
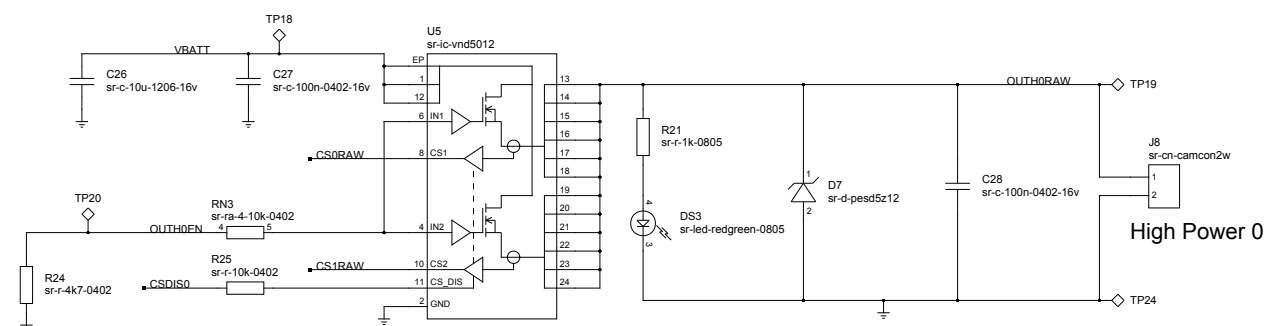
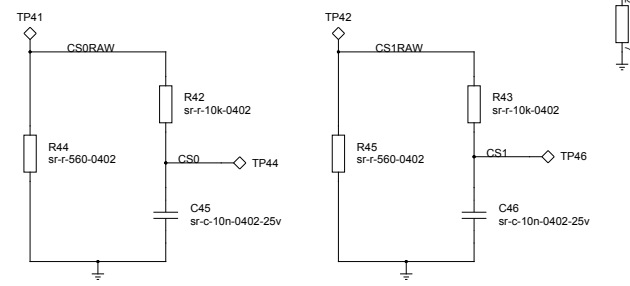
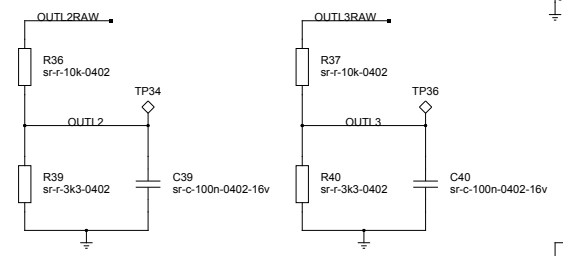
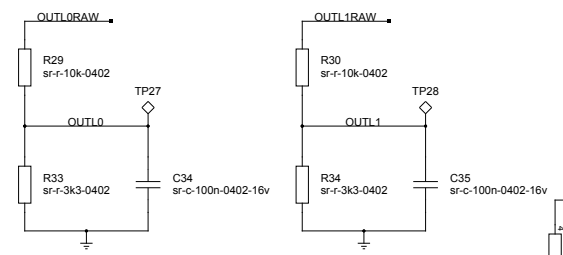
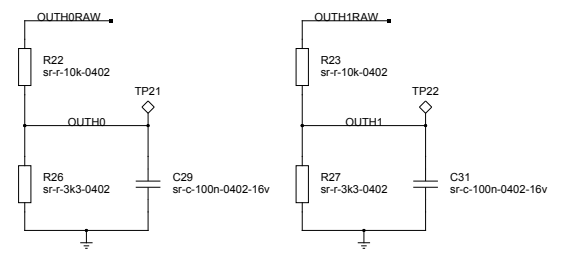
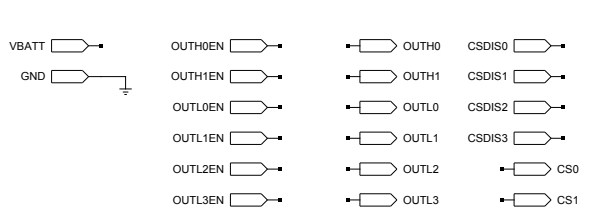
PAGE 2 OF 6

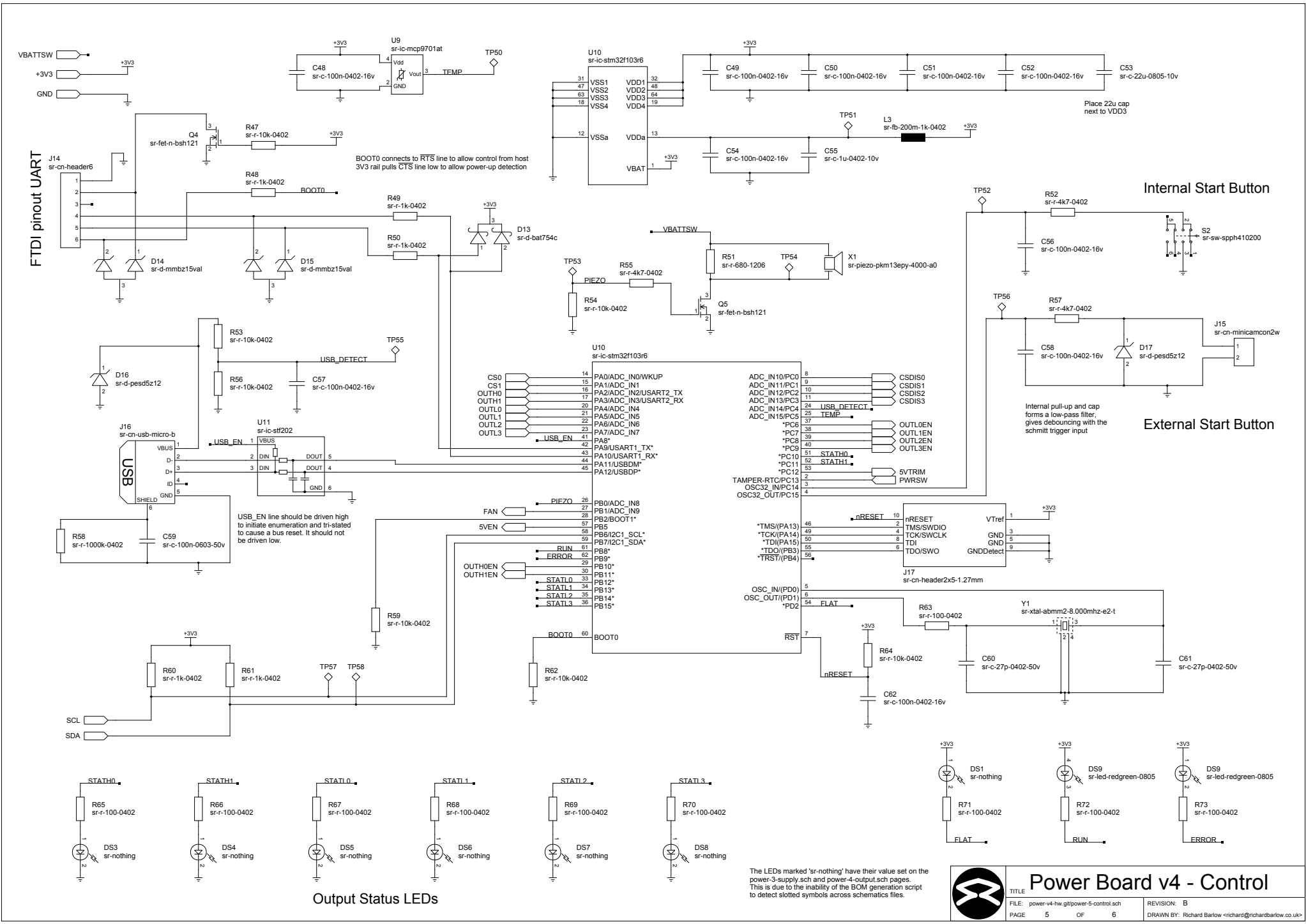
DRAWN BY: Richard Barlow <richard@richardbarlow.co.uk>

External power switch

Internal power switch





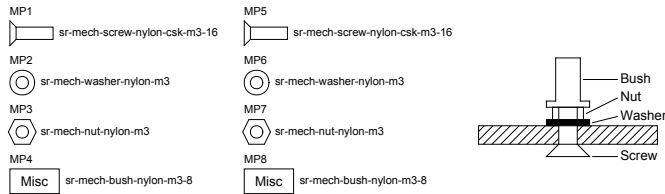


Output Status LEDs

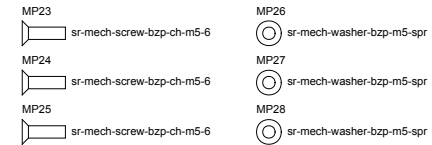
The LEDs marked 'sr-nothing' have their value set on the power-3-supply.sch and power-4-output.sch pages. This is due to the inability of the BOM generation script to detect slotted symbols across schematics files.

	Power Board v4 - Control	
	FILE: power-v4-hw.glt/power-5-control.sch	REVISION: B
	PAGE 5 OF 6	DRAWN BY: Richard Barlow <richard@richardbarlow.co.uk>

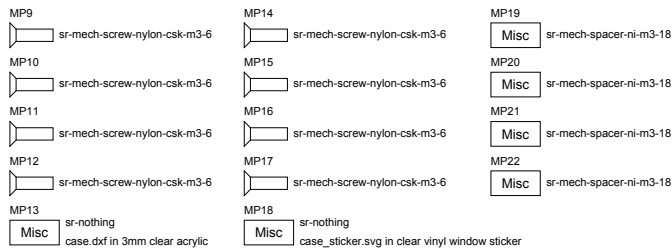
Fan mounting



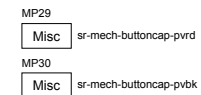
Captive Cable Hardware



Case



Button Caps



TITLE: Power Board v4 - Mechanical

FILE: power-v4-hw.glt/power-6-mechanical.ach

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PAGE 6 OF 6

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