

M101
LOGO_OSHW

Bob Cousins 2016
 GPL v3
 Derived from RAMPS 1.4 reprap.org/wiki/RAMPS1.4

Sheet: /
 File: RAMPS-FD.sch

Title: RAMPS-FD (RAMPS for Arduino Due)

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|---------------------------------|------------------|-----------|
| Size: A4 | Date: 2016-07-17 | Rev: v2.2 |
| KiCad E.D.A. kicad 4.0.2-stable | | Id: 1/10 |

Power

Heatbed Only: 12-24V, 15A

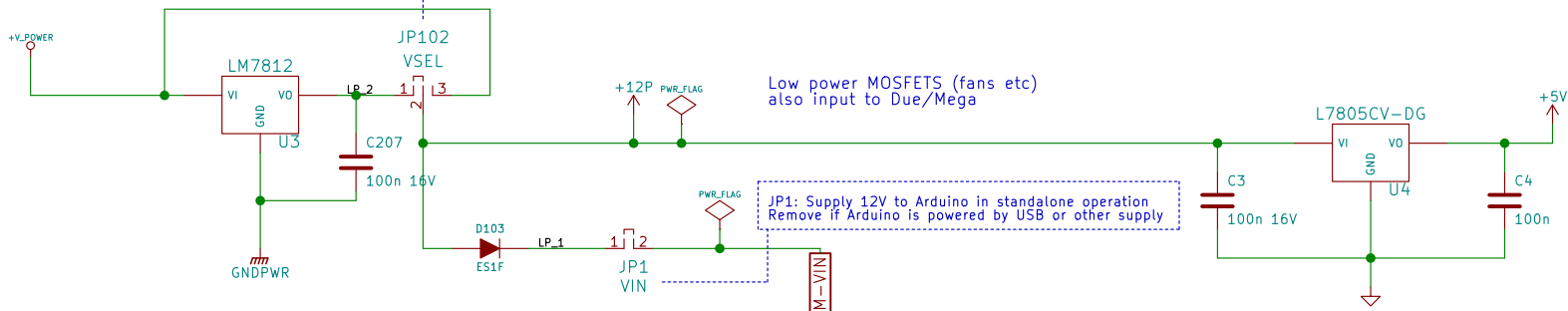
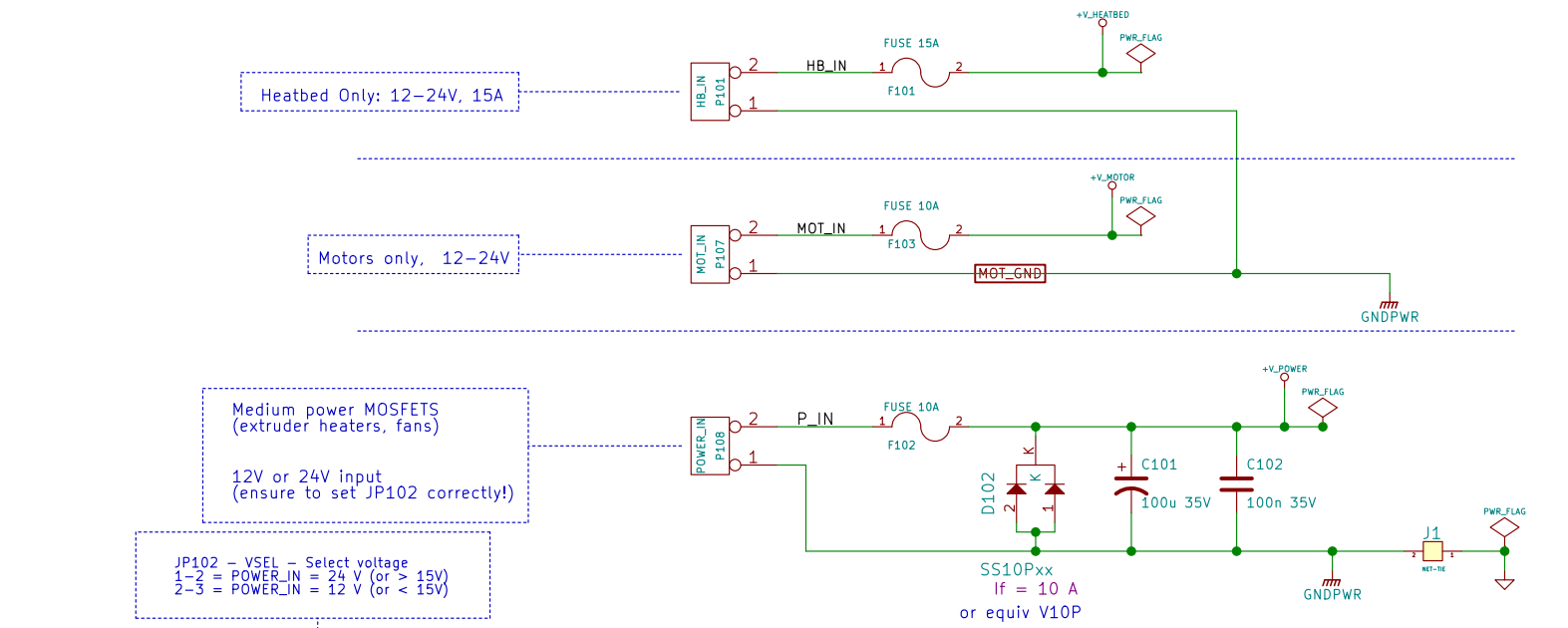
Motors only, 12-24V

Medium power MOSFETS
(extruder heaters, fans)

12V or 24V input
(ensure to set JP102 correctly!)

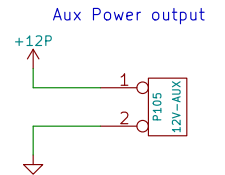
JP102 - VSEL - Select voltage
1-2 = POWER_IN = 24 V (or > 15V)
2-3 = POWER_IN = 12 V (or < 15V)

Note: use thick traces for all high power connections



Low power MOSFETS (fans etc)
also input to Due/Mega

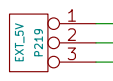
JP1: Supply 12V to Arduino in standalone operation
Remove if Arduino is powered by USB or other supply



Arduino base board

Note: On R3 compatible Arduinos, IOREF will supply 3.3V (Due), or 5V (Mega).
If IOREF is not provided (non-R3) then it must be a 5V Arduino so set VLOG to 5V.

5V: External or Standby



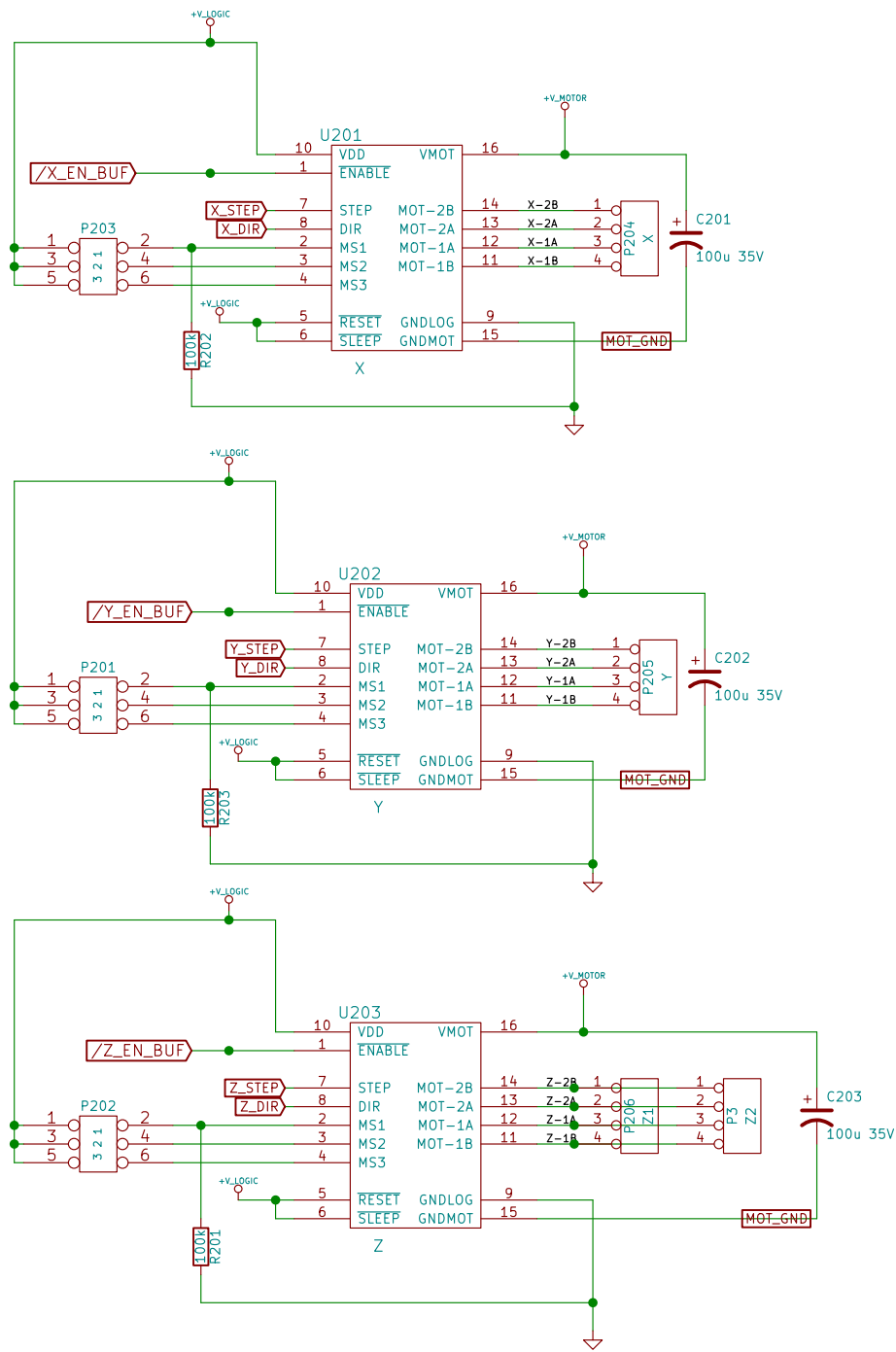
VLOG - Select logic voltage
1-2 = Autoselect by IOREF
2-3 = 5V

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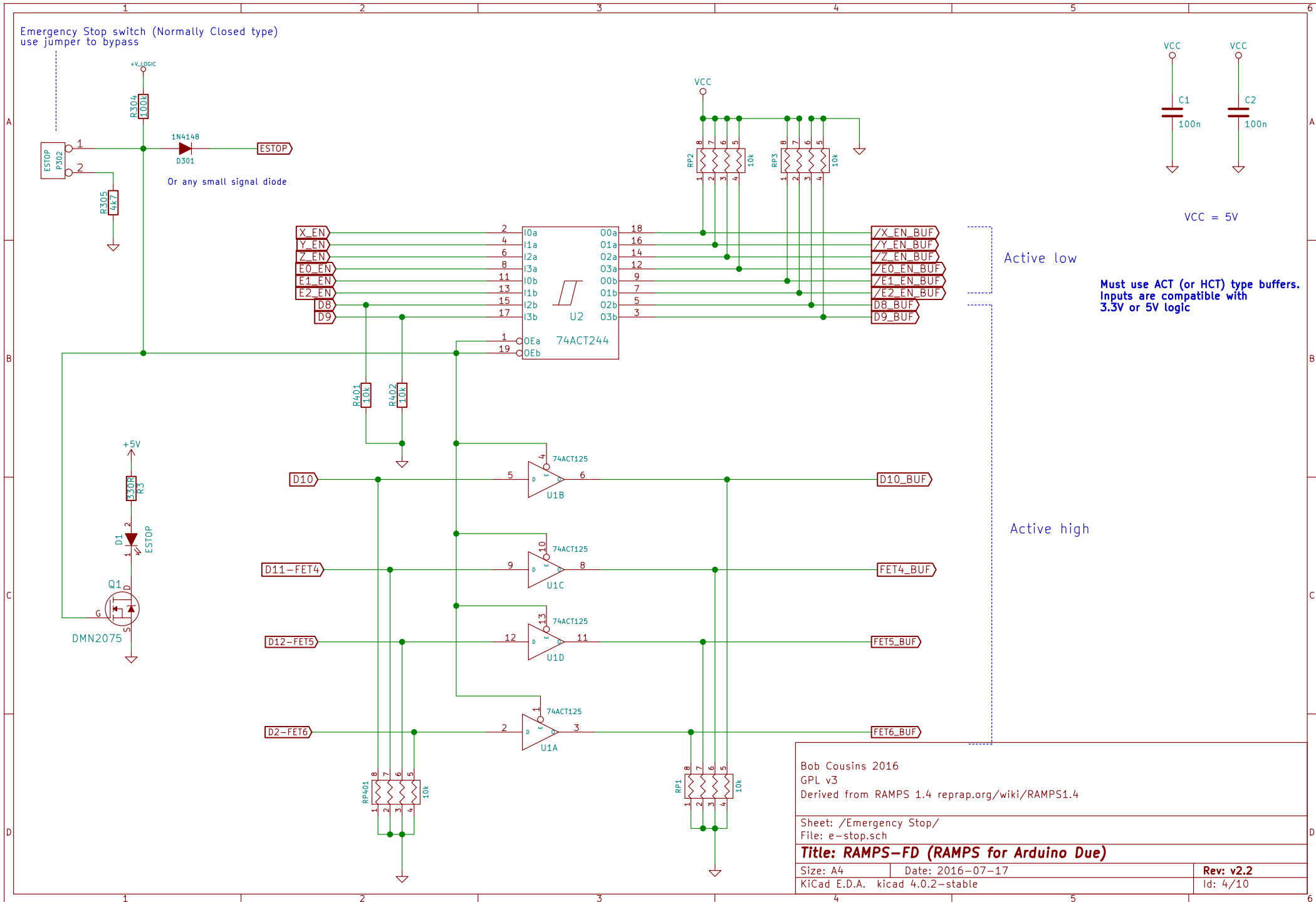


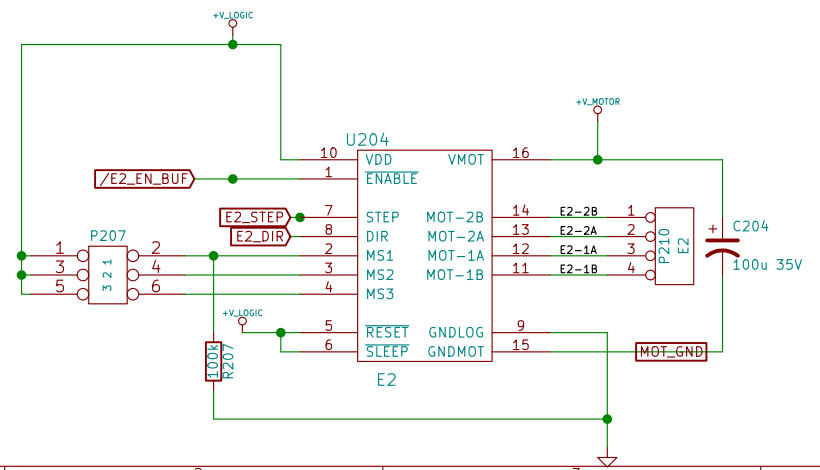
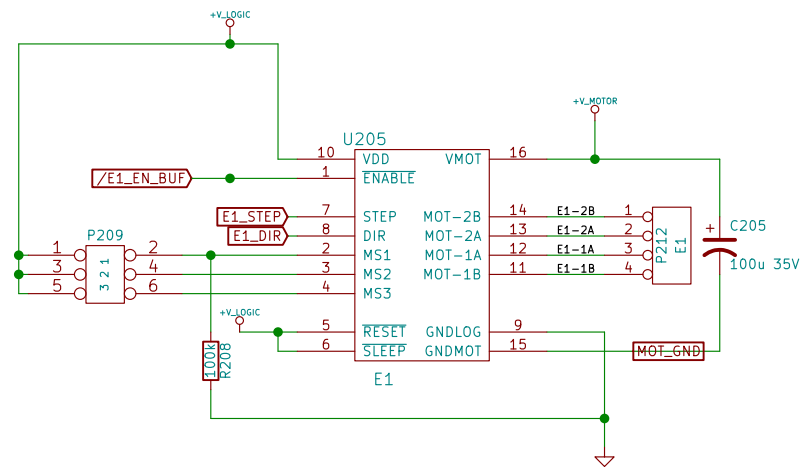
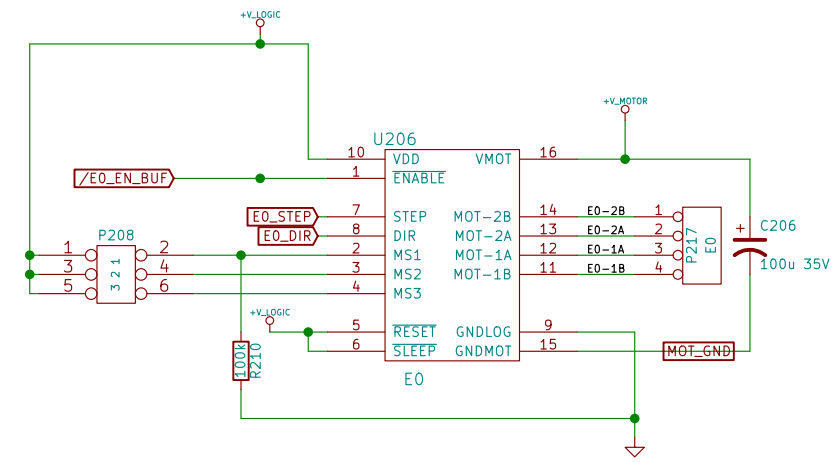
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Sheet: /Stepper Drivers/
 File: steppers.sch

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Sheet: /Stepper Drivers 2/
 File: steppers2.sch

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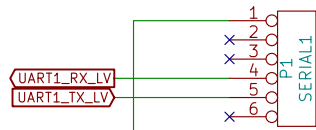
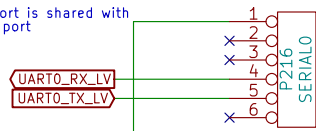
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NB: On Arduino Due: IOs on this page are not 5V tolerant. Do not exceed 3.3V.

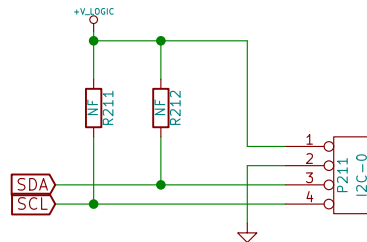
Serial

Note: this serial port is shared with USB programming port

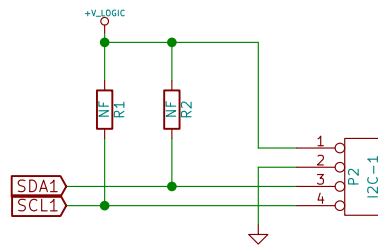
UART-TTL



I2C

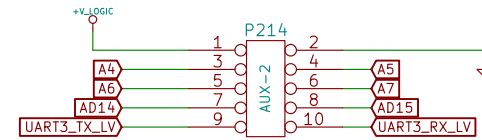


1k5 Pull ups on Due
Must not have external pullups to 5V if IOREF = 3.3V



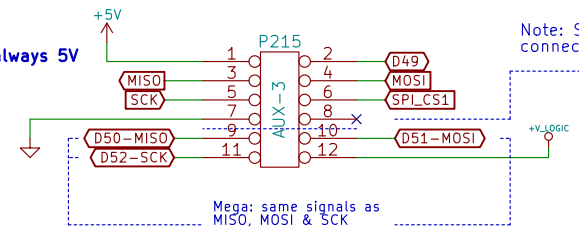
Aux connectors

Aux2



Aux3 - SPI

NB This pin is always 5V

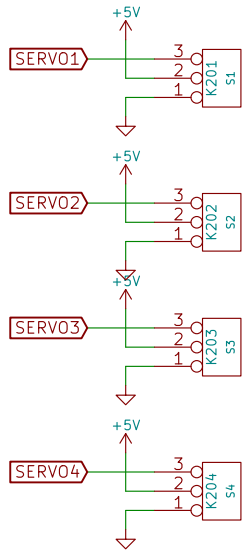
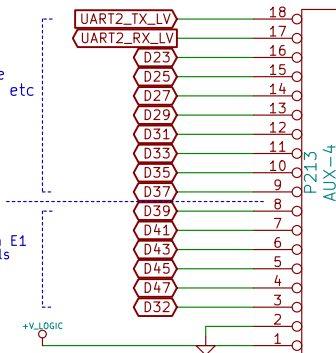


Note: Some add-on boards connect this pin to GND.

Aux4 - general IO

These are free for LCD panel etc

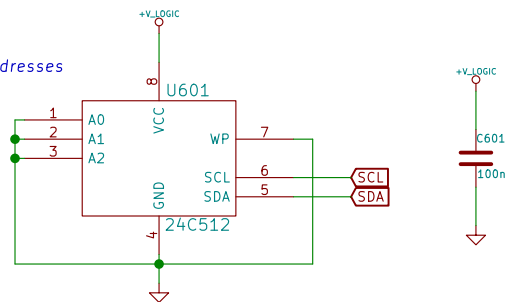
These are shared with E1 and E2 stepper signals



Servos
Need buffered outputs?

EEPROM

Might want to allow other addresses



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Sheet: /Misc Connectors/
File: con_misc.sch

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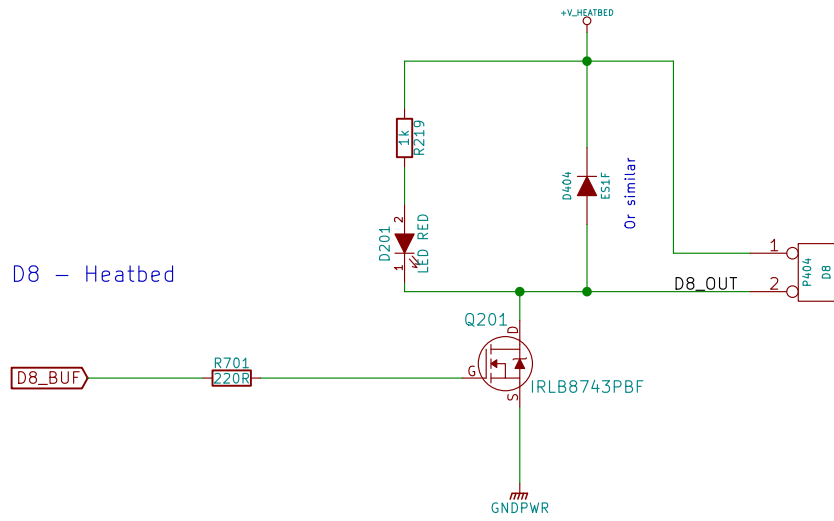
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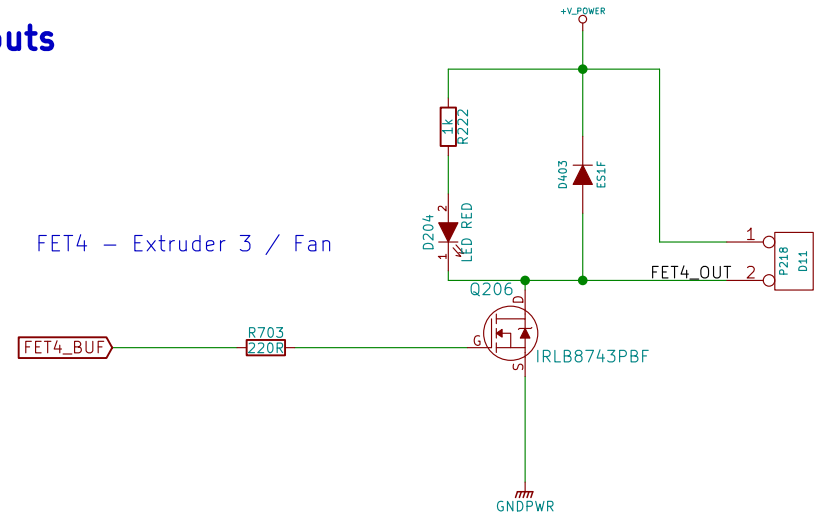
MOSFET Outputs

Non-inverting drivers

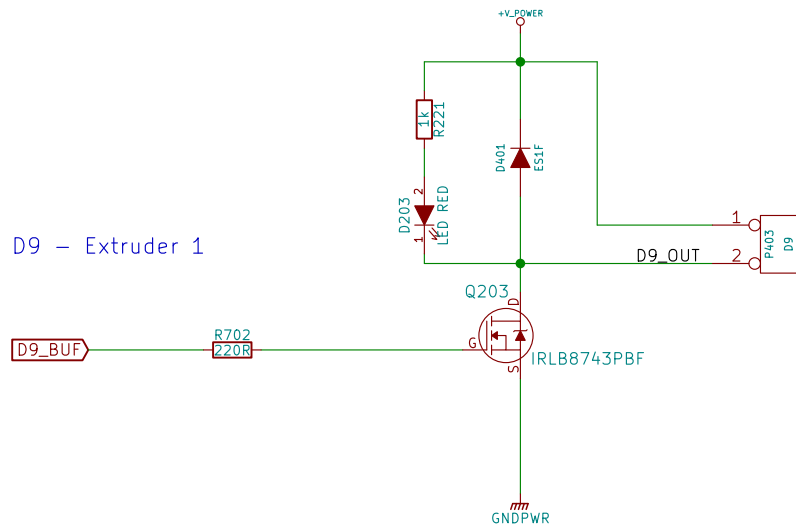
D8 - Heatbed



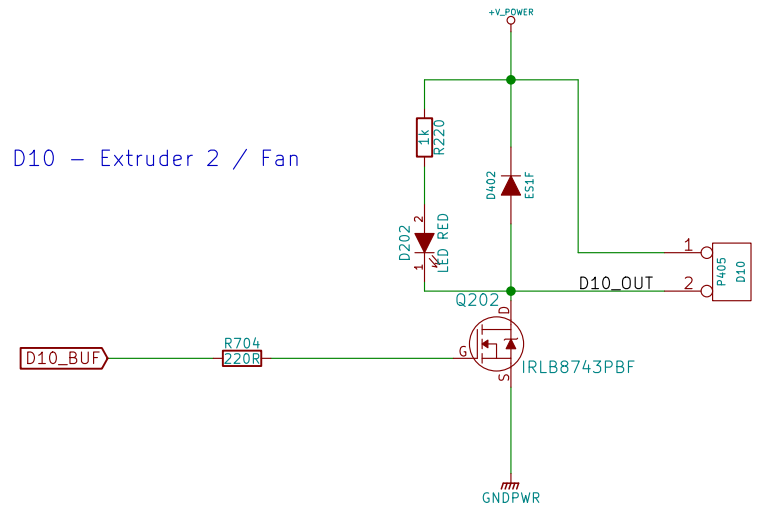
FET4 - Extruder 3 / Fan



D9 - Extruder 1



D10 - Extruder 2 / Fan



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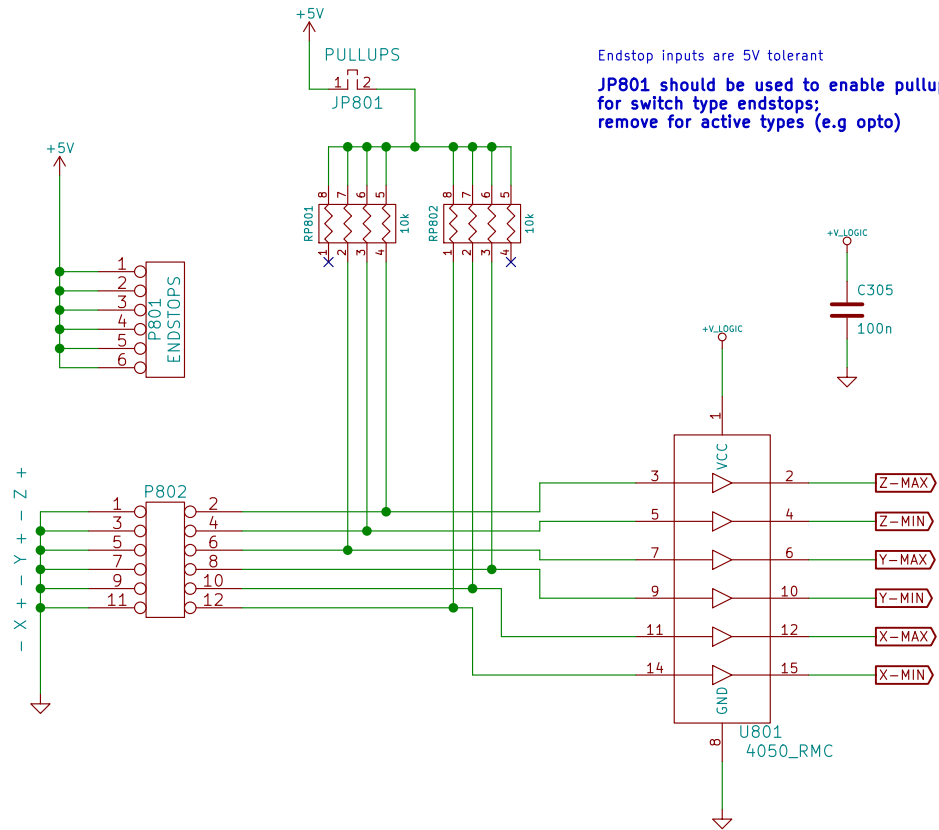
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Endstops

Endstop inputs are 5V tolerant

JP801 should be used to enable pullups for switch type endstops; remove for active types (e.g. opto)



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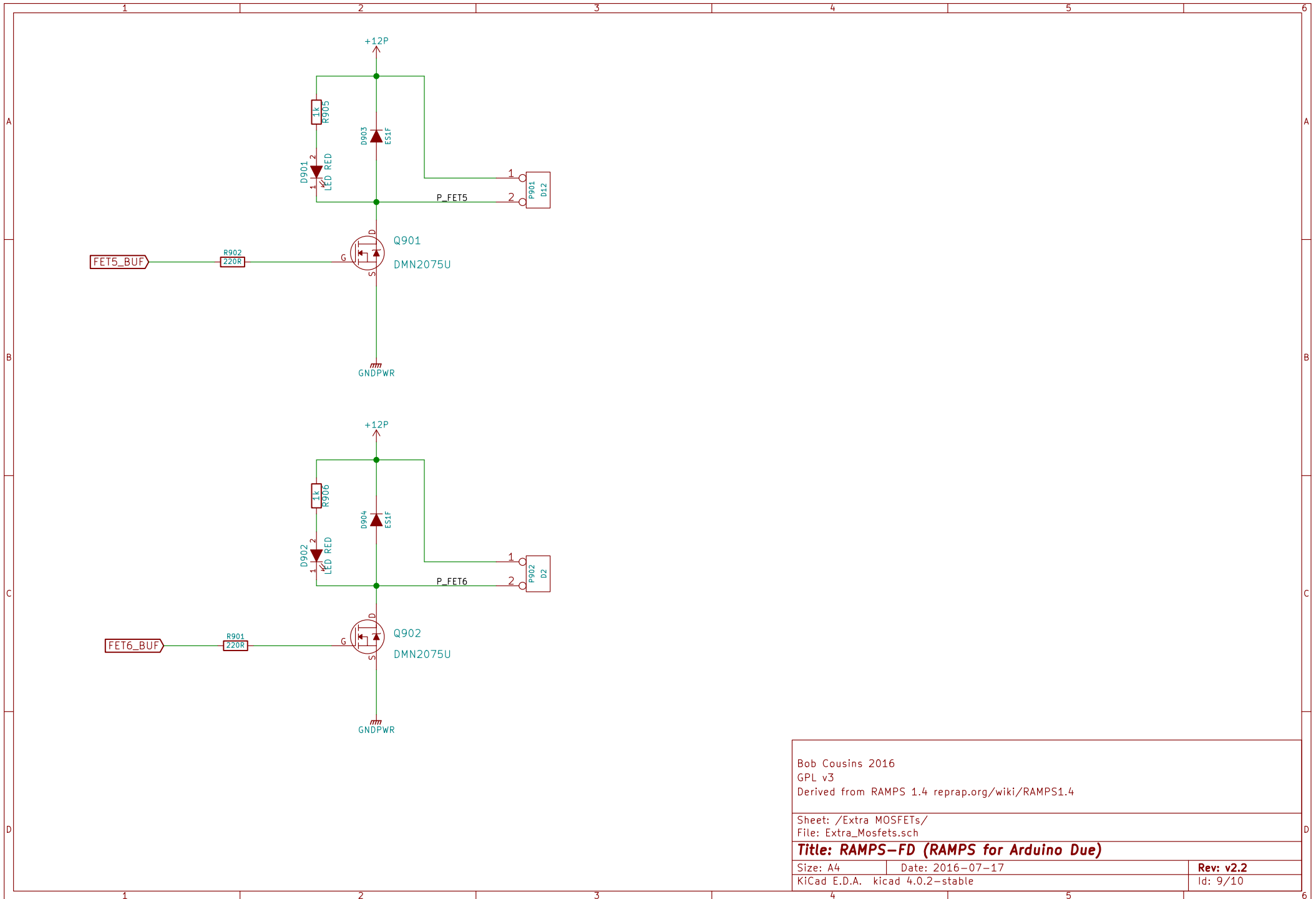
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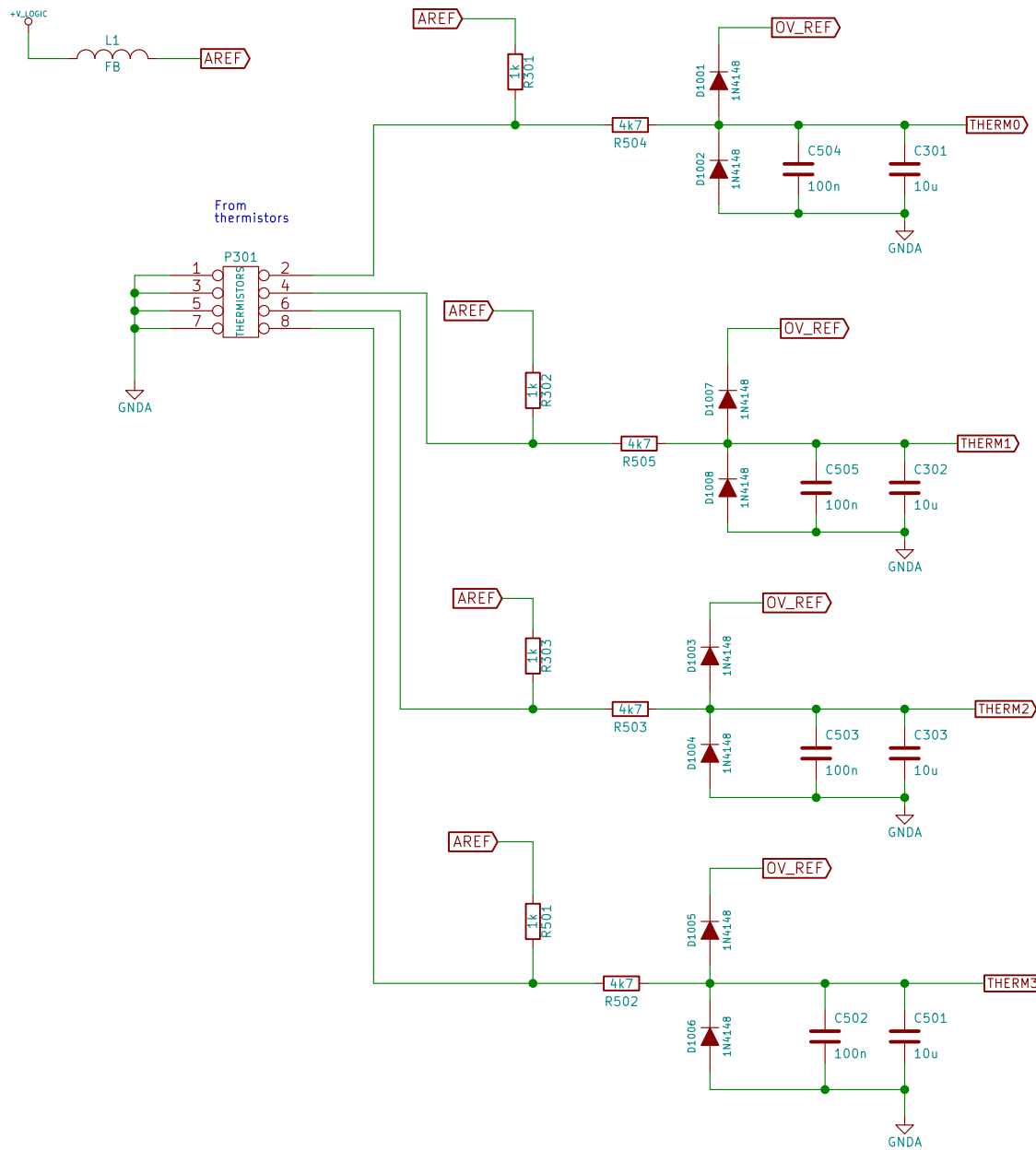
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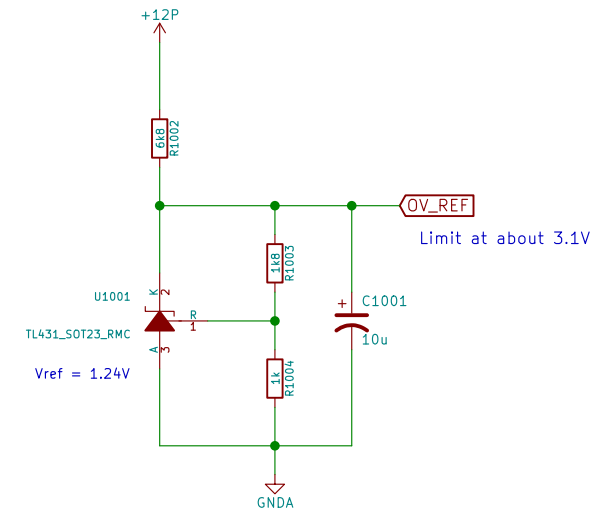


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Thermistor Inputs



To CPU



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