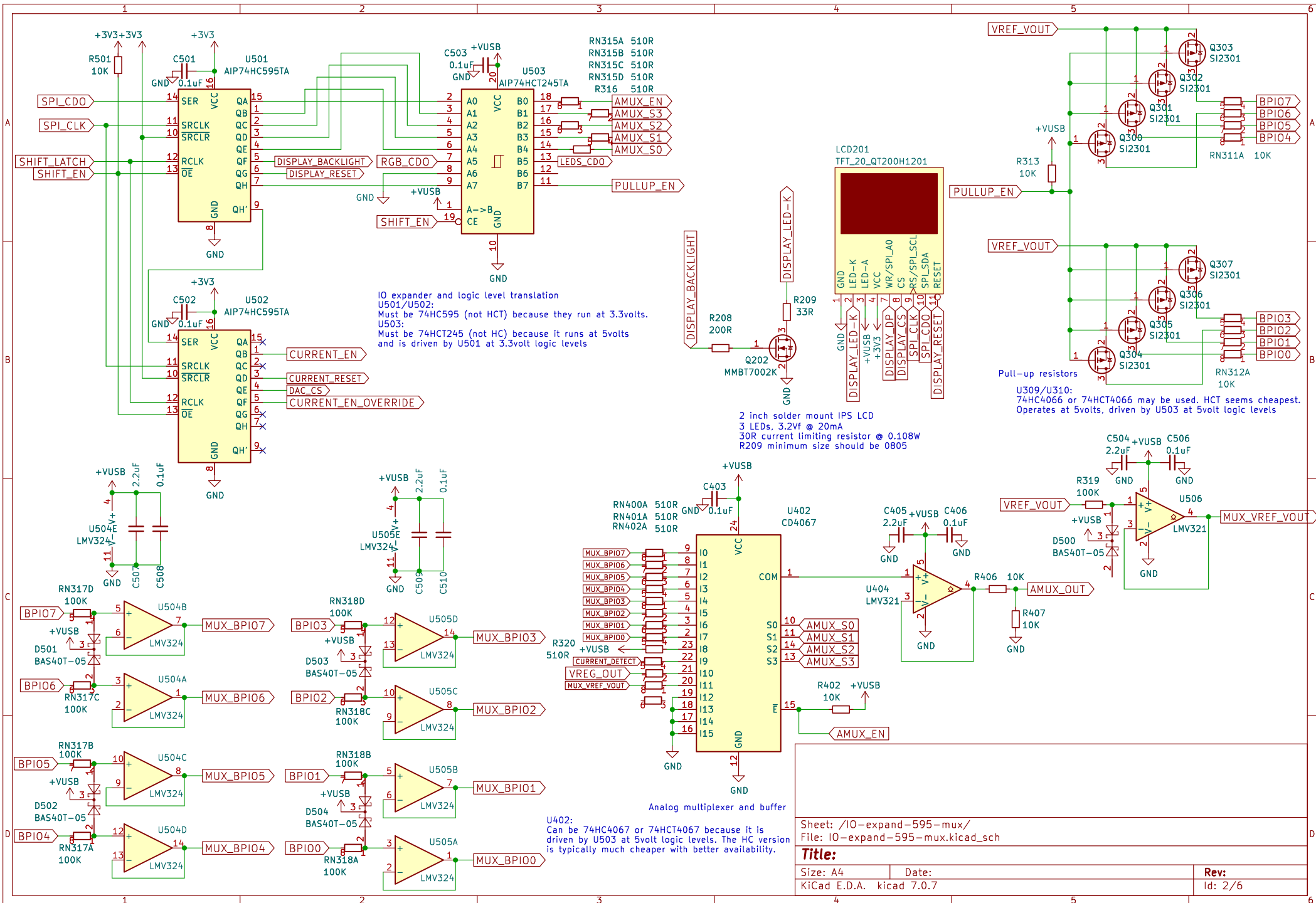
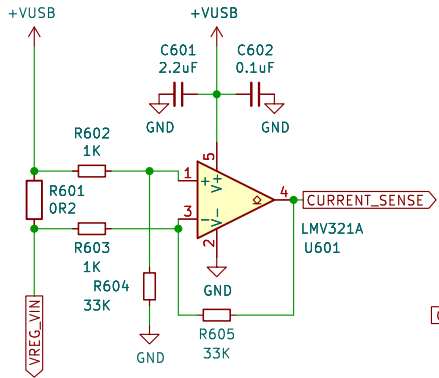
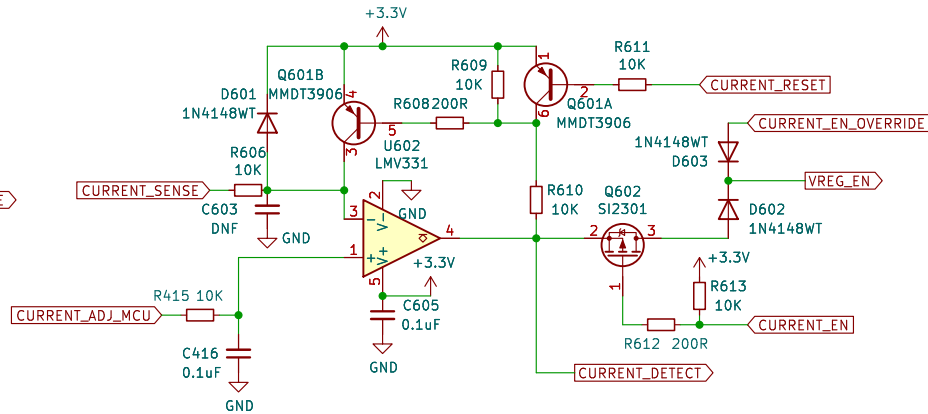


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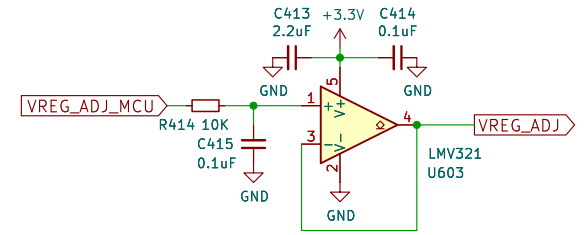


Current sense

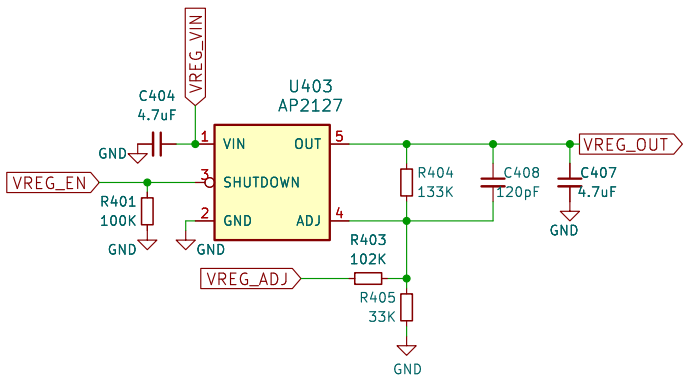


Current limit

Q601 is a general purpose dual PNP transistor with EBCEBC pinout. Matched pair Q401 can be substituted here, but Q401 is more expensive.



Buffer circuit for Voltage Adjust, when using the MCU to do PWM instead U406 as DAC

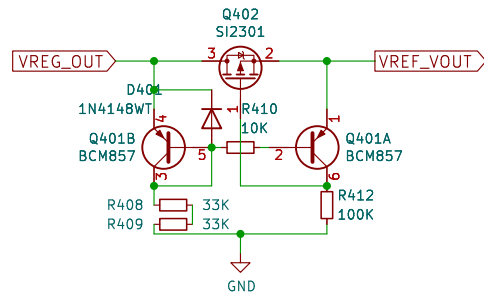


Adjustable voltage regulator

MCP1824 and AP2127 can be used, but have different reference voltages.

MCP1824: Ideal $R403/R404/R405 = 77.96K/99.22K/10K$
Closest values are 78K/100K/10K

AP2127: Ideal $R403/R404/R405 = 31.25K/39.77K/10K$
Closest values are 31.6K/40.2K/10K



Backflow prevention

Q401 is a matched PNP pair with EBCEBC pinout. BCM857, BCM856, NST45010MW6T1G can be substituted. The BCM part numbers are made by several manufacturers. This part may be substituted in Q601, but it costs significantly more.

DMT3906, PMP5201, PMP5501 are similar but have a BBCEEC pinout. These can be substituted with minor changes to the PCB.

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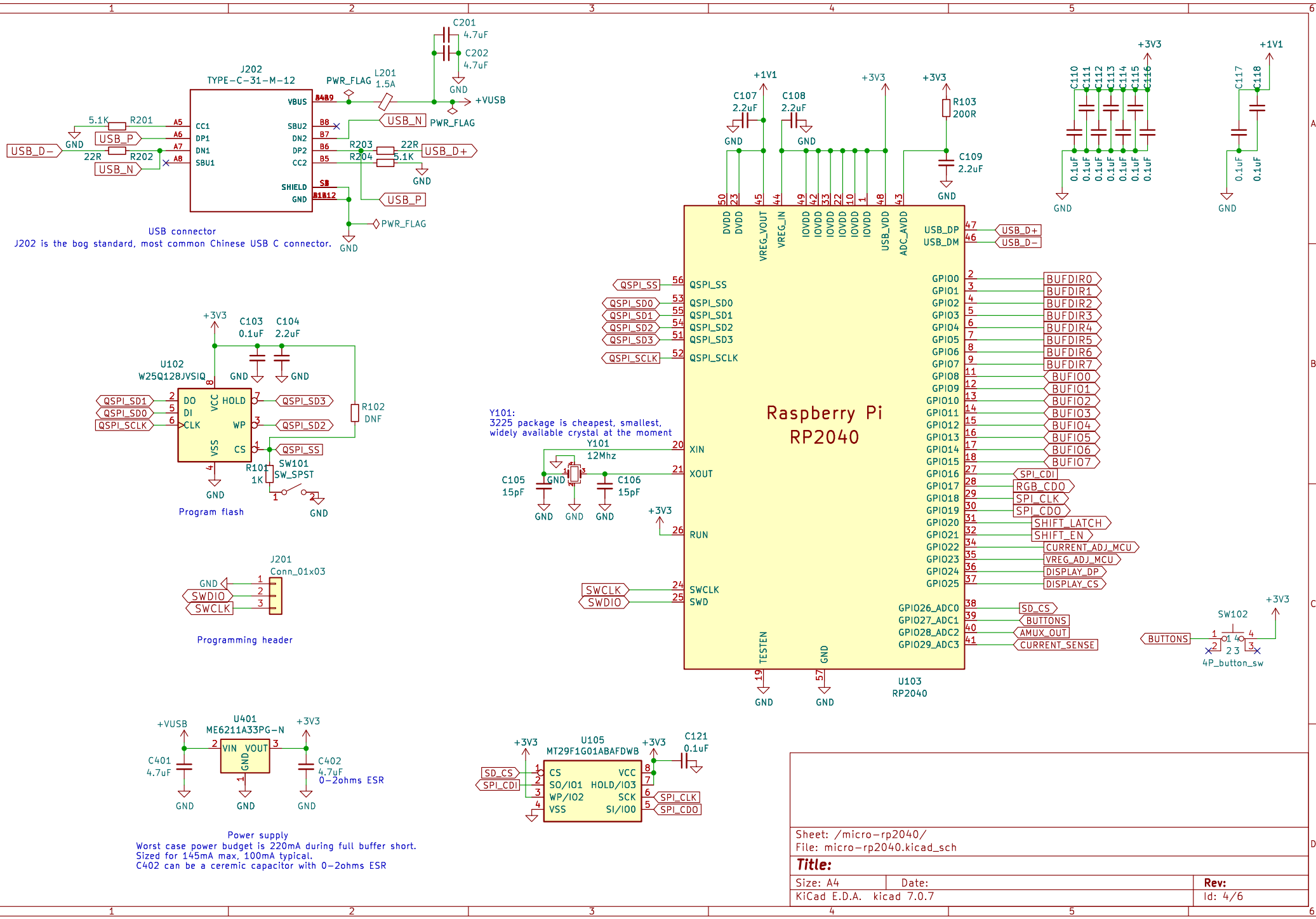
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USB connector
J202 is the bog standard, most common Chinese USB C connector.

Program flash

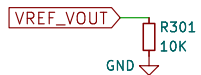
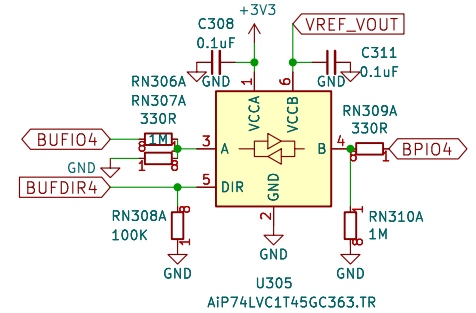
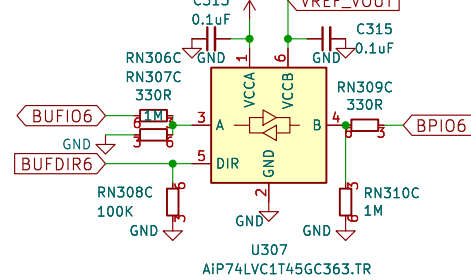
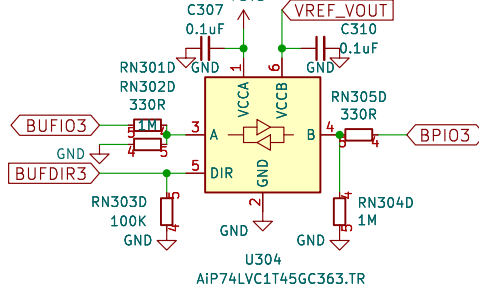
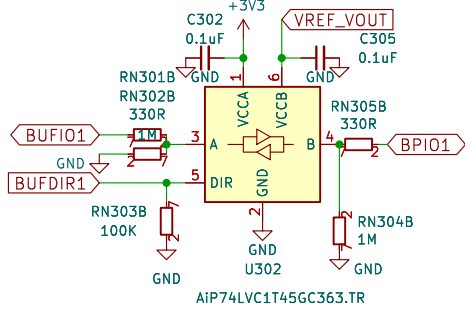
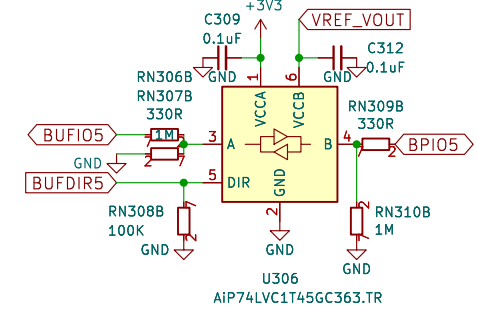
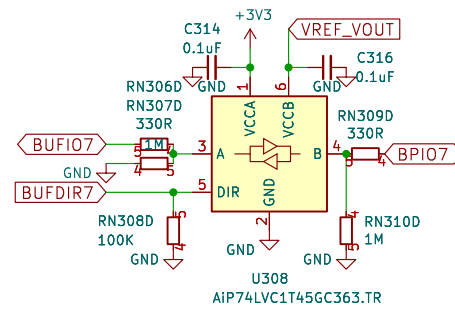
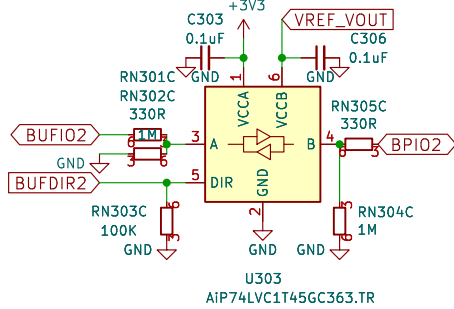
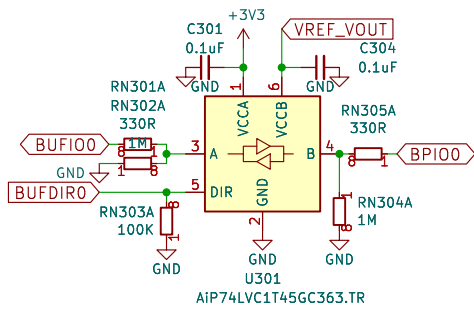
Programming header

Power supply
Worst case power budget is 220mA during full buffer short.
Sized for 145mA max, 100mA typical.
C402 can be a ceramic capacitor with 0-2ohms ESR

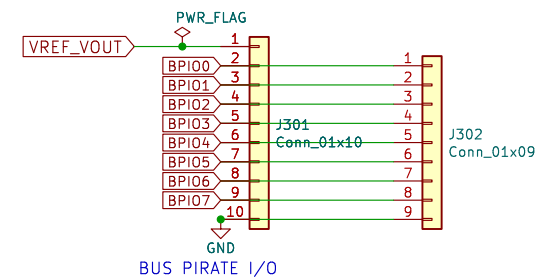
Y101:
3225 package is cheapest, smallest,
widely available crystal at the moment

Raspberry Pi RP2040

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Small pull-down on VOUT_VREF.
Ensures proper partial power down
function of the 74LVC1T45



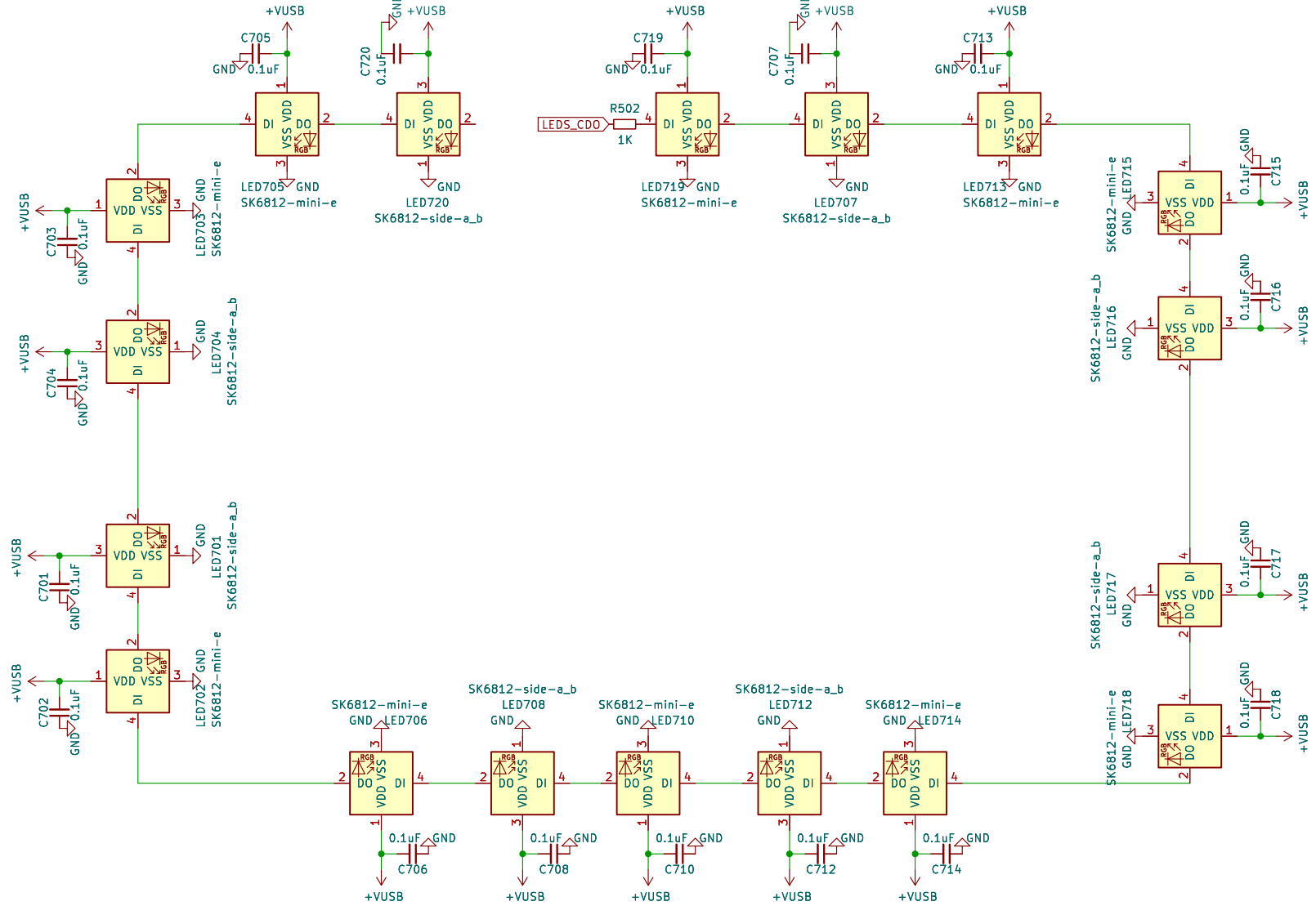
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I have LEDs

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