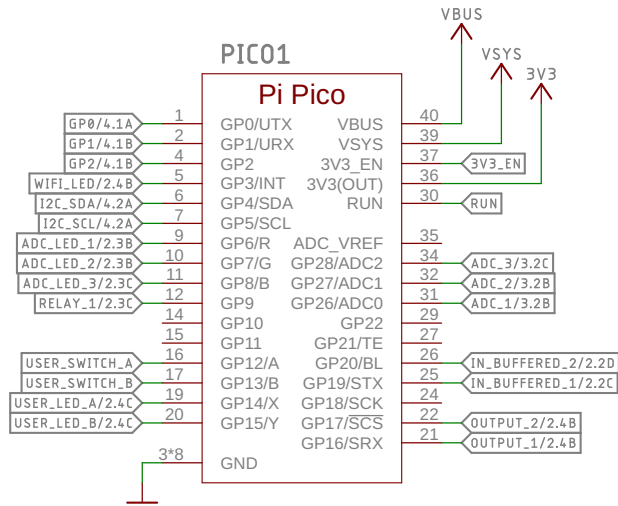
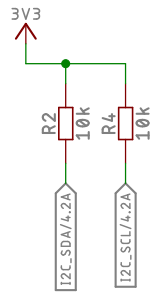


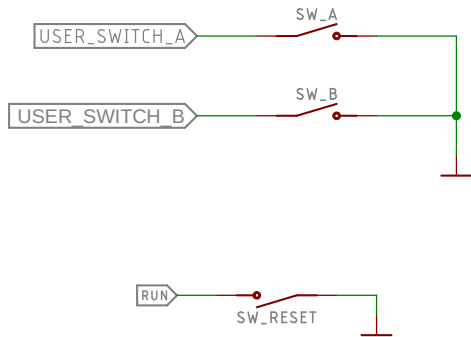
## Raspberry Pi Pico W



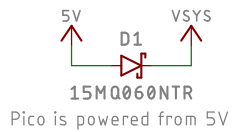
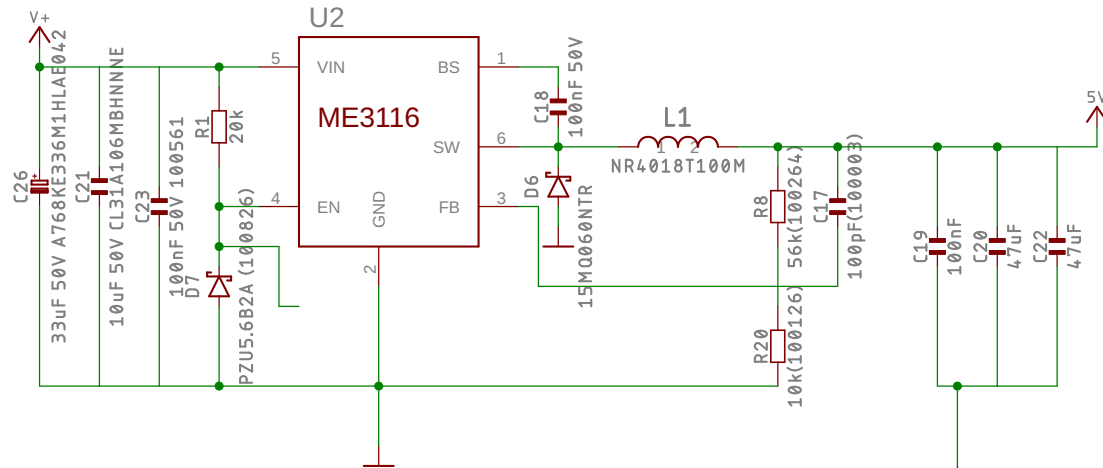
## I2C pullups



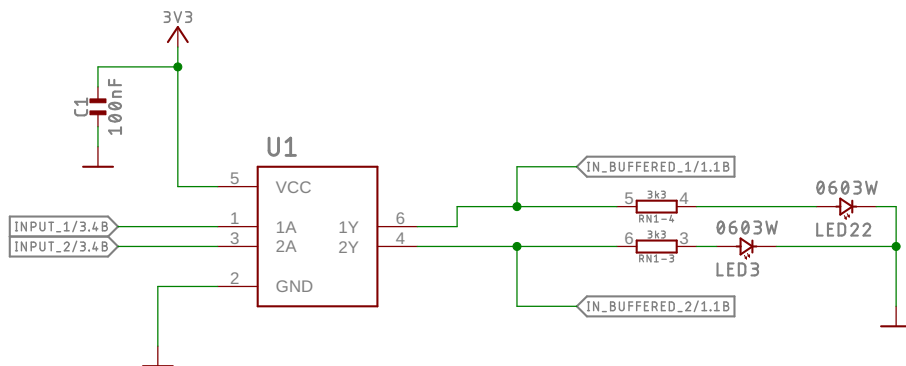
## Buttons



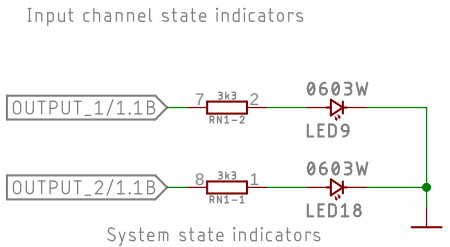
## 40 to 5V buck converter



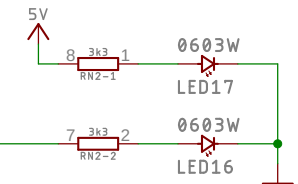
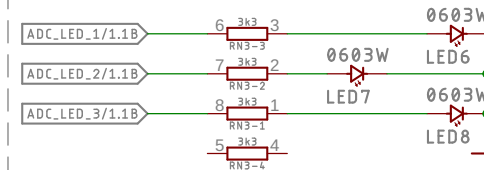
## Input channel state indicators



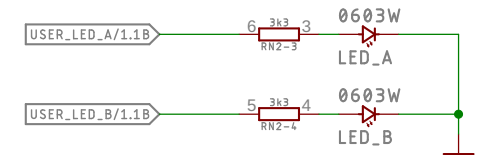
## LEDs



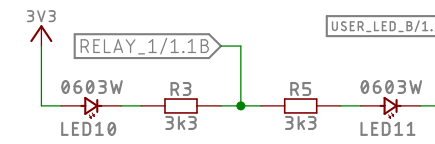
## ADC channel state indicators



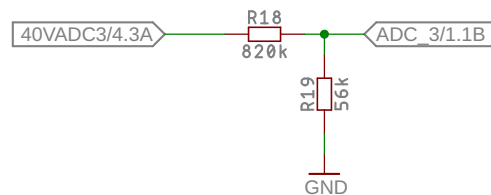
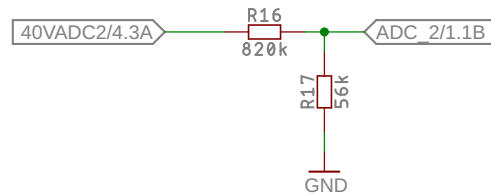
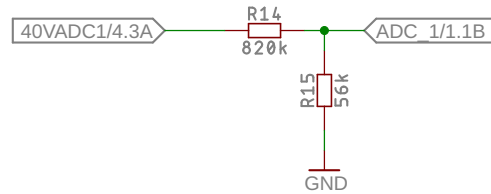
## User indicators



## Relay state indicators

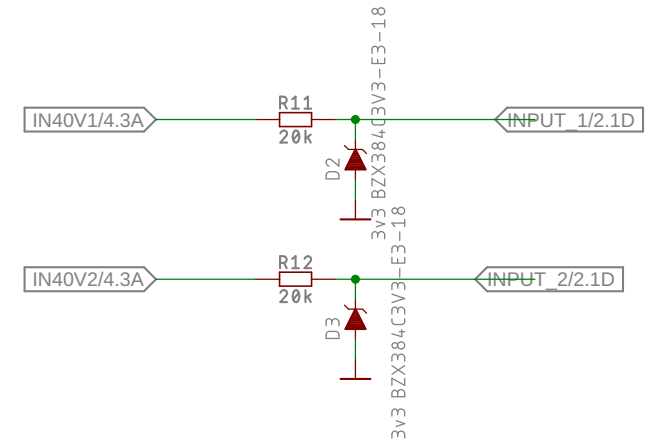


## Analog Input Resistor Dividers



Scale the input on ADC channels to bring the maximum of 40V to below the ADCs non amplified range of 0V to 3.3V.  
 56k and 820k scale 51.62 V to 3.3V leaving a bit of headroom.  
 $V_{adc} = V_{in} * (56 / (56 + 820))$   
 $V_{in} = V_{adc} / (56 / (56 + 820))$

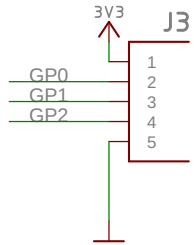
## Buffers for 40V Tolerant Inputs



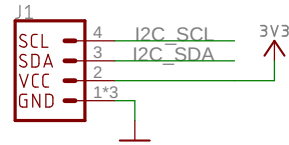
Max drop across resistor is 37V,  
 20k resistor inline limits current  
 to around 1.85mA

$$0.00185A * 37V = 0.06845W$$

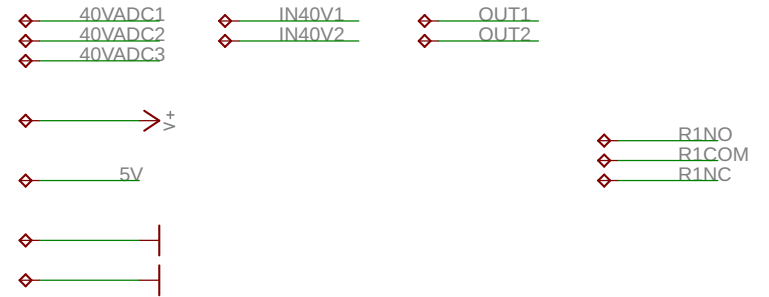
## GPIO header



## Qwiic connector

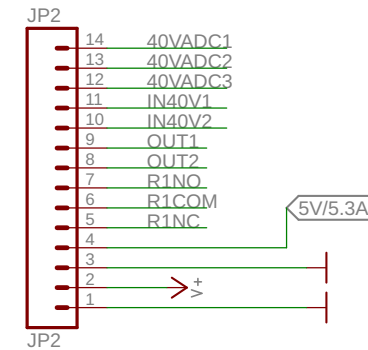


## Debug pads

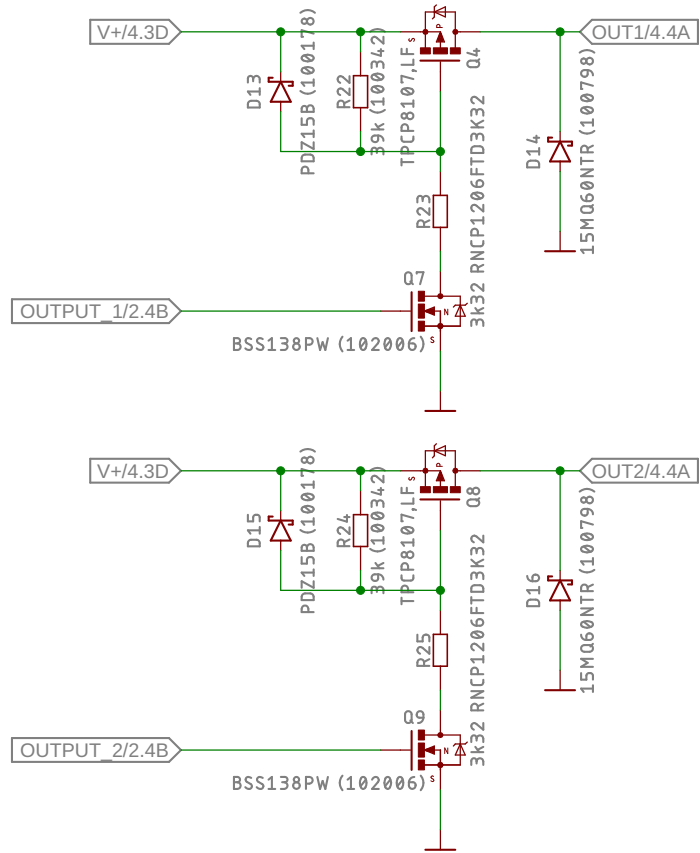


## Screw terminals

Max 500mA draw on the 5V output when using the buck regulator



Outputs (current sourcing)



Relay

