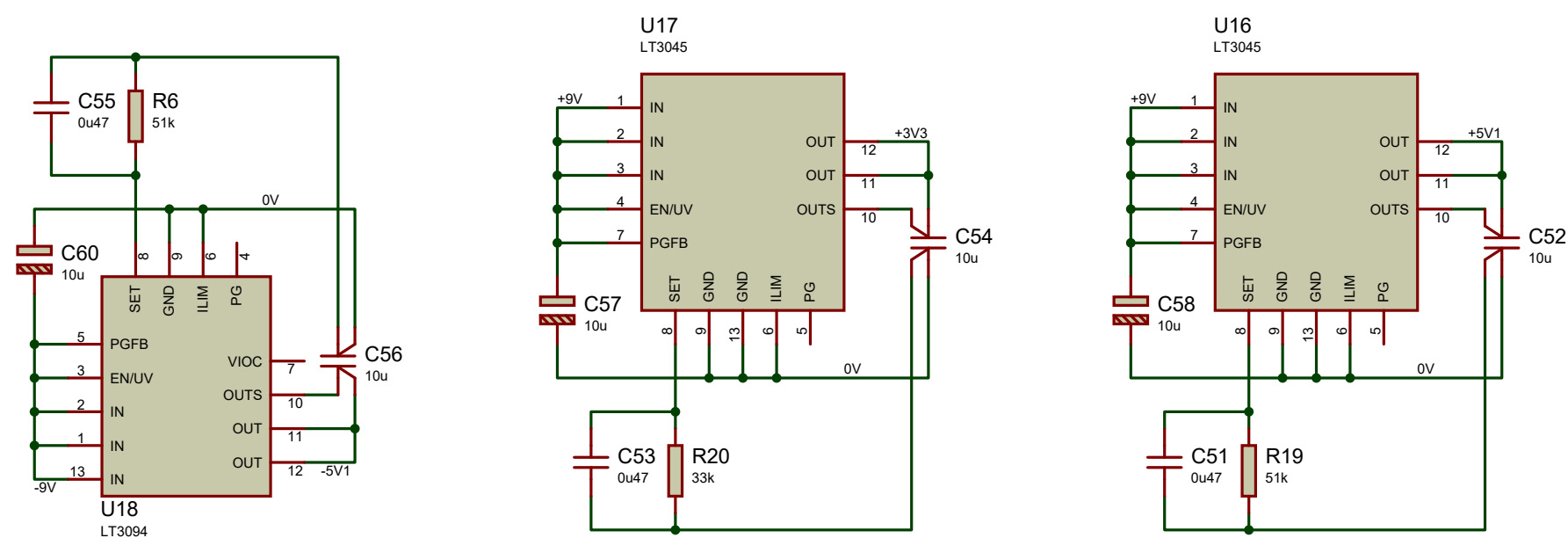
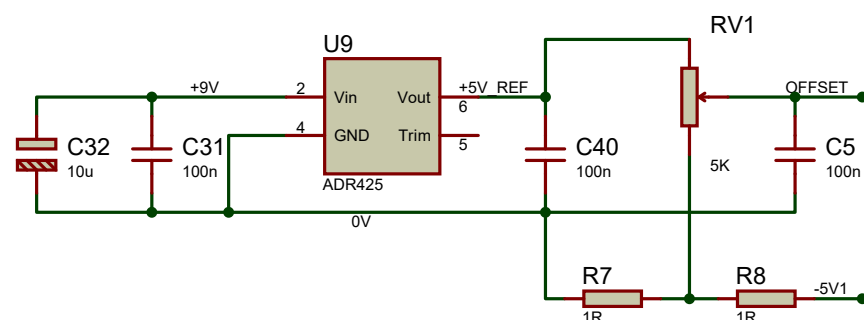


# Power supplies and voltage references



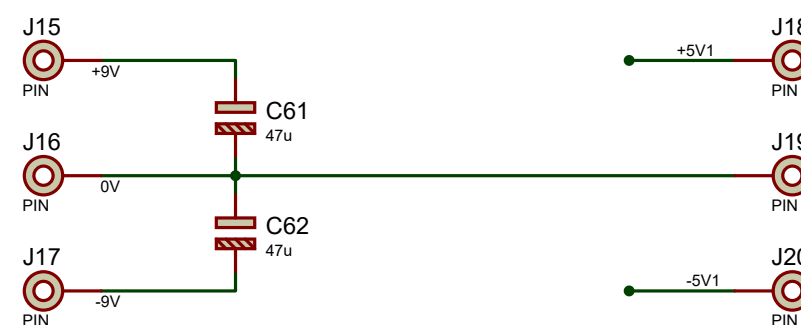
Power supplies: +5V1, +3V3, -5V1 @500mA each

Reference voltages for ADC: 5V and variable offset



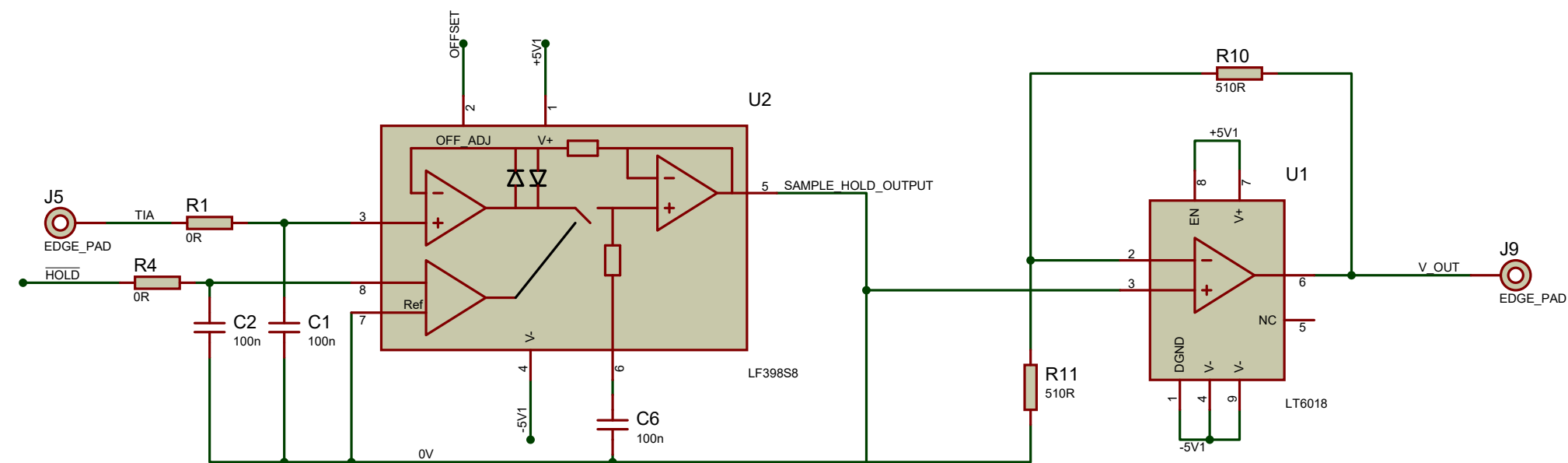
If a positive offset is required, fit R7 and remove R8. If negative, reverse.

Supply pins (via 2x chassis-mounted, filtered, pass-through pins)



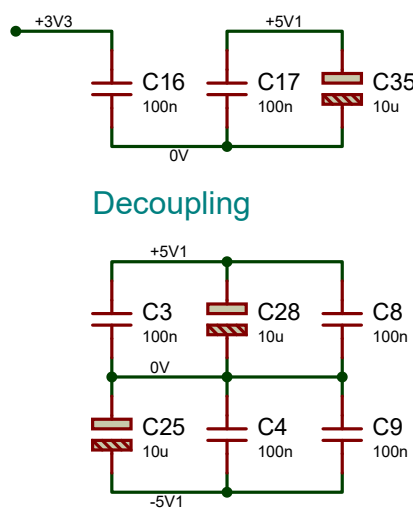
Regulated output for transimpedance amplifier (4mm sockets)

# Sample & hold, ADC



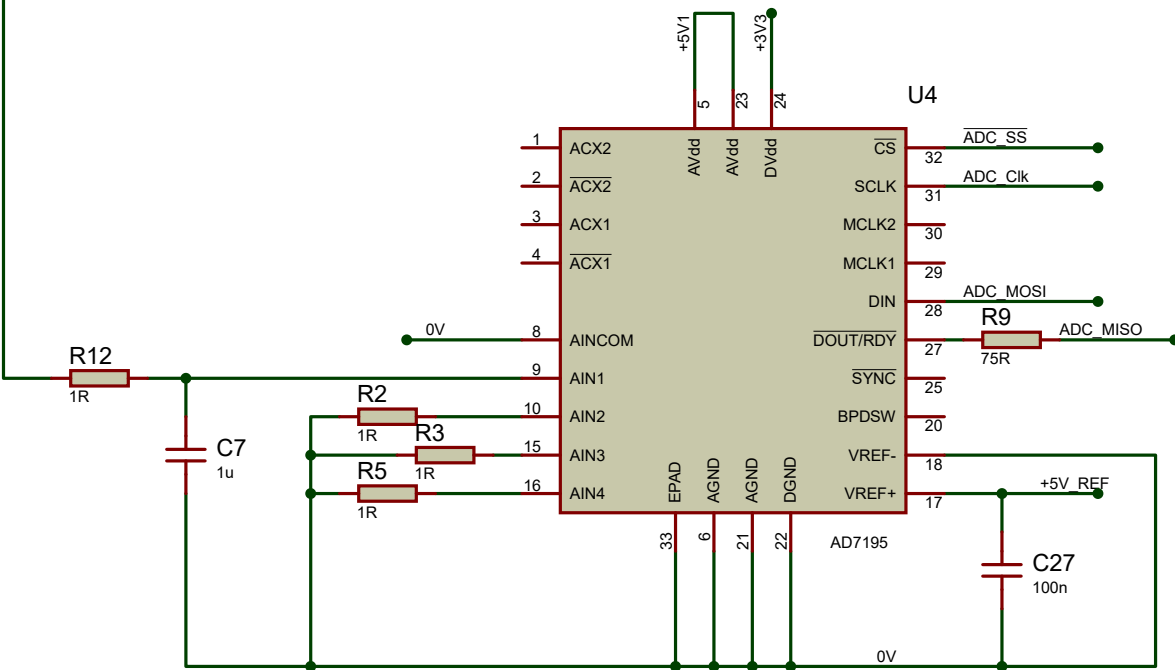
Hold capacitor C6 to be low leakage, low dielectric absorption  
i.e. mica, polystyrene or polypropylene  
Reduce board leakage by using the output signal to create a guard ring

U1 prevents loading of the sample and hold circuit and provides a x2 voltage gain



Decoupling

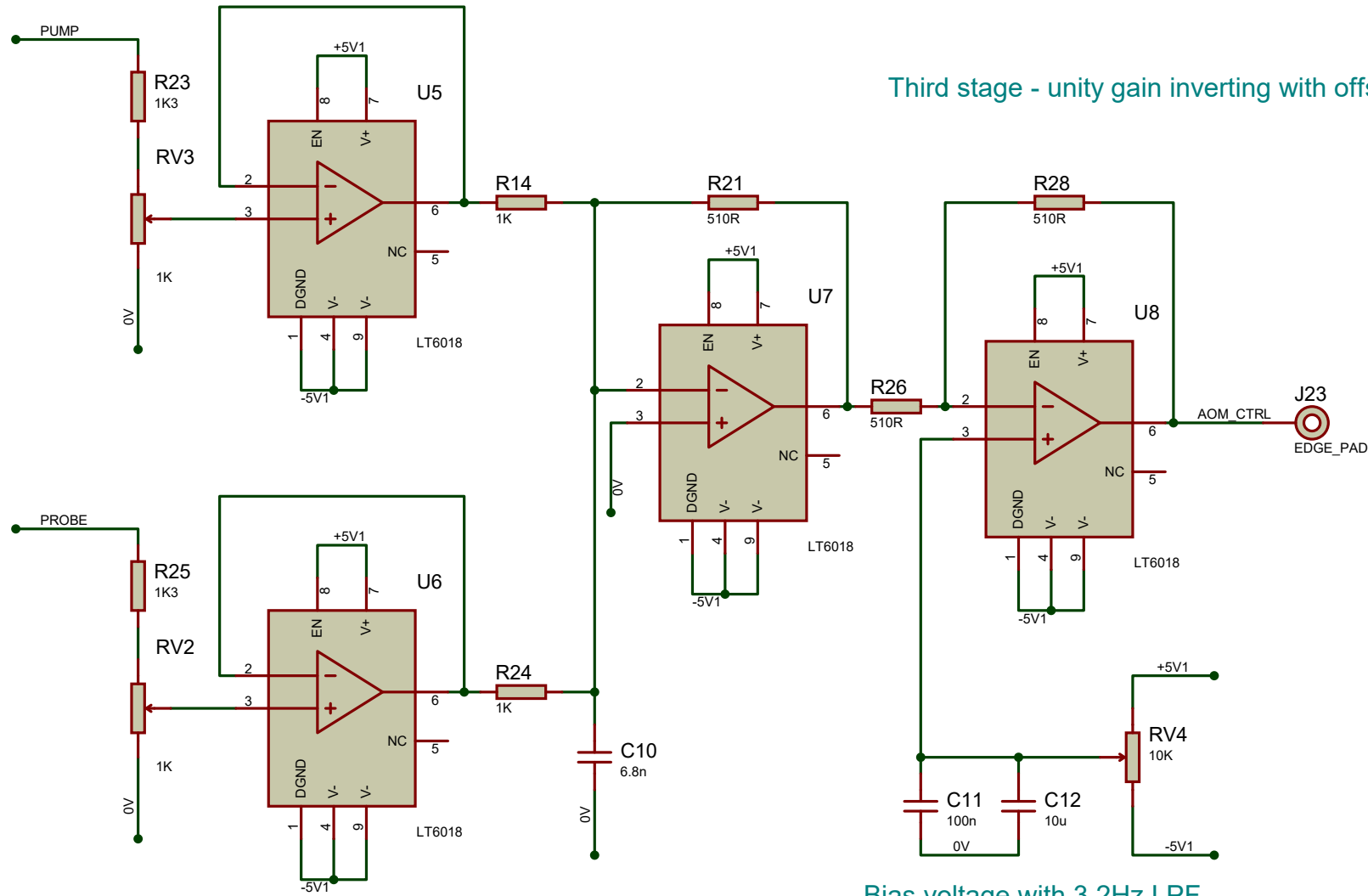
Low Pass RC filters  
R12, C7 - 150kHz  
Provision only  
R1, C1 - do not fit C1  
R4, C2 - do not fit C2



The reference voltages must not be greater than AVdd

# AOM modulation control

First stage - unity gain, non-inverting.

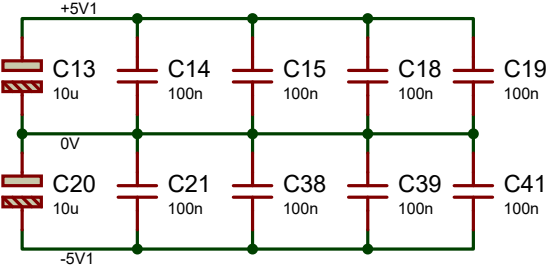


Third stage - unity gain inverting with offset

0-1V output

Bias voltage with 3.2Hz LPF

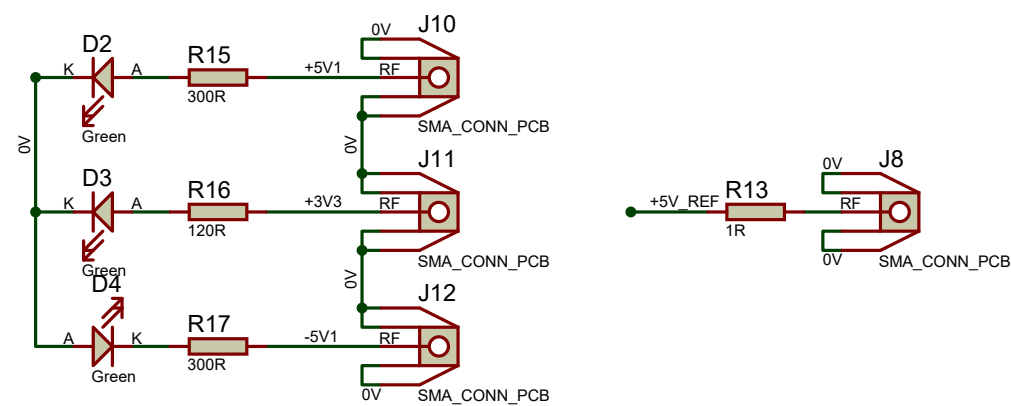
Decoupling



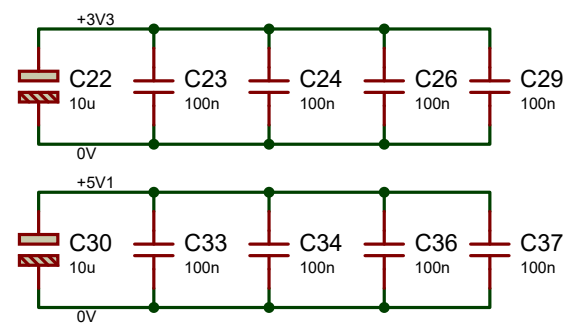
Second stage - unity gain, inverting.

# Debugging

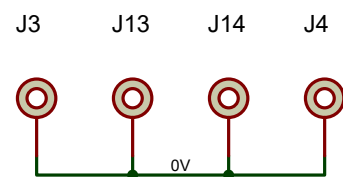
Voltage monitoring points



Decoupling

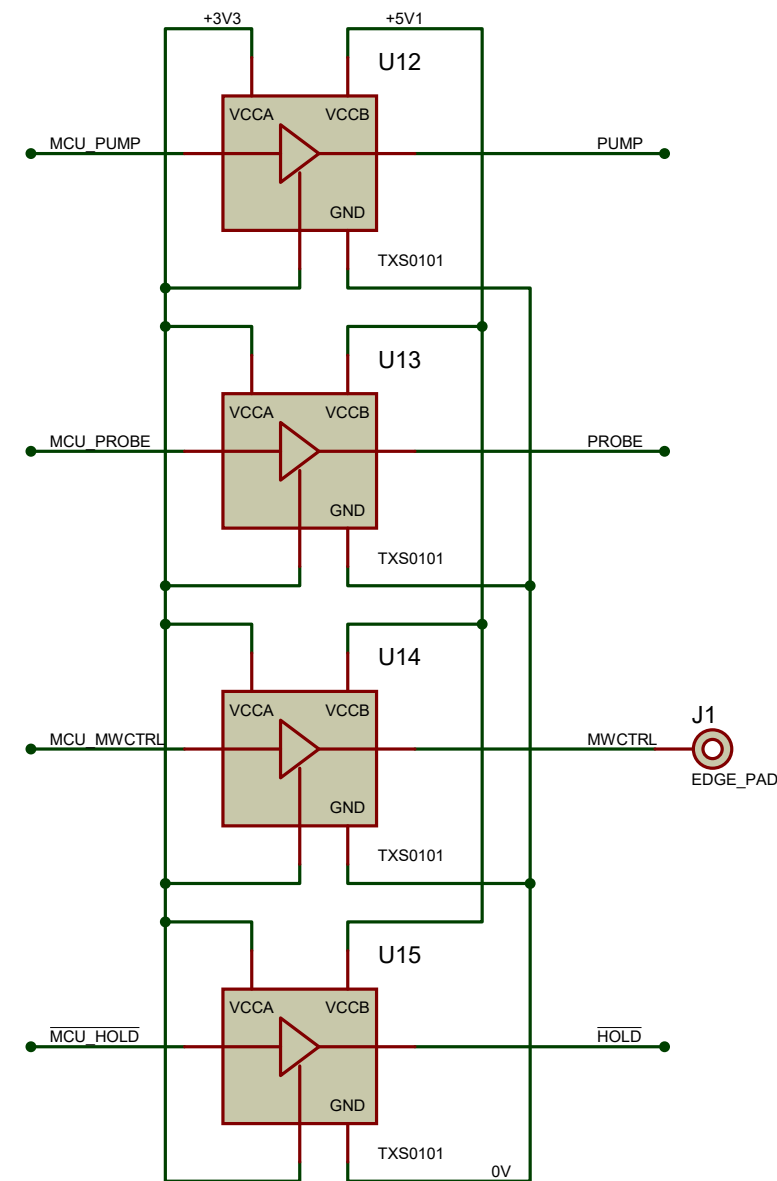


Mounting posts and ground stitching



# MCU connectivity

MCU to TTL voltage translation



To Atmel SAML22 dev board

