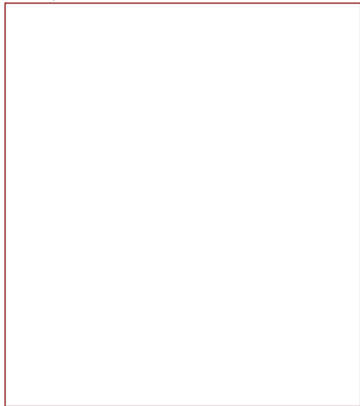


Preamplifier



File: Preamplifier.kicad_sch

Lowpass Filters



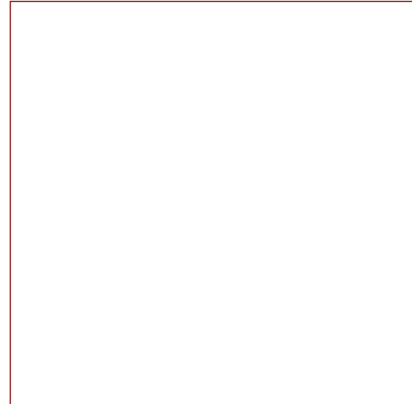
File: Lowpass.kicad_sch

Quadrature Sampling Detector



File: qsd.kicad_sch

PI Pico



File: pi_pico.kicad_sch

WITH PREAMP

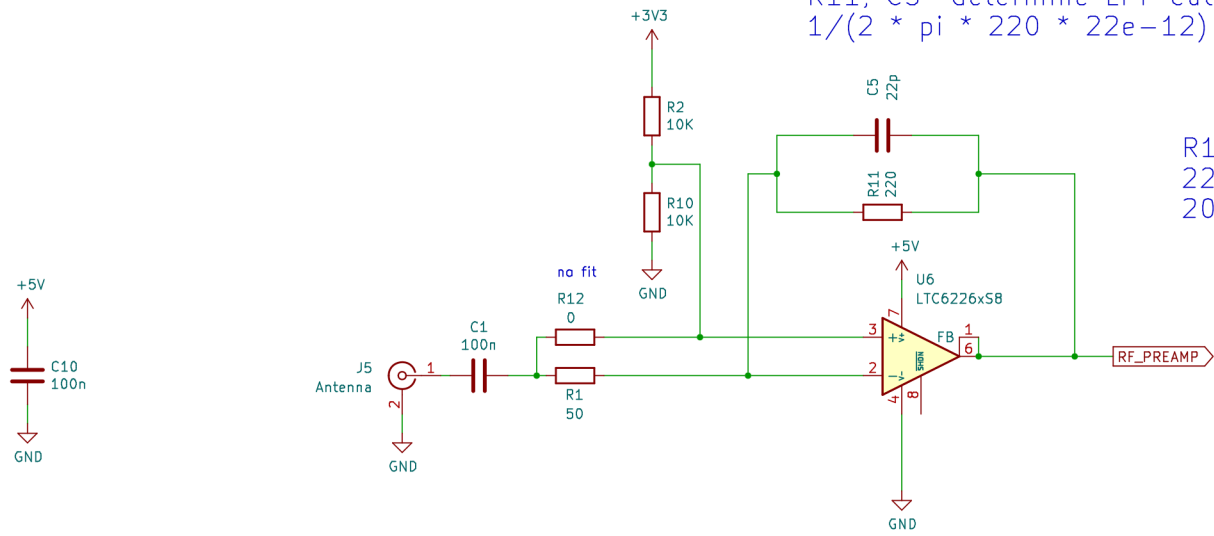
WITHOUT PREAMP

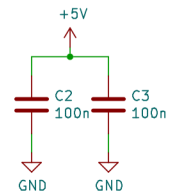
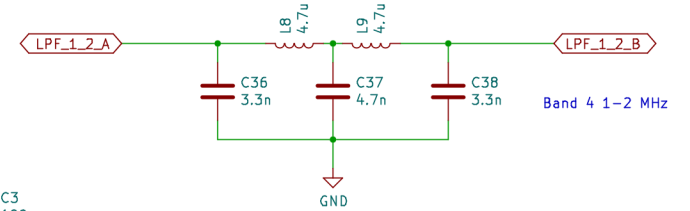
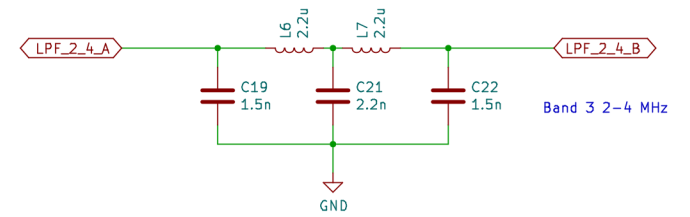
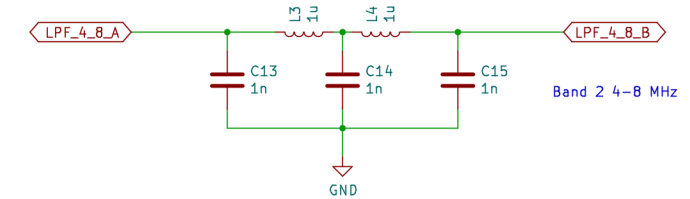
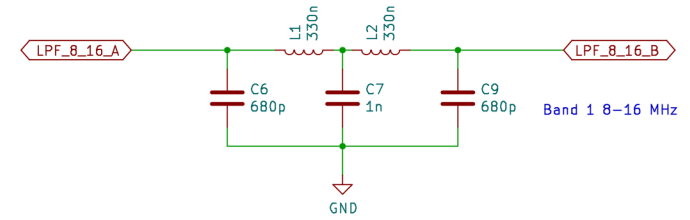
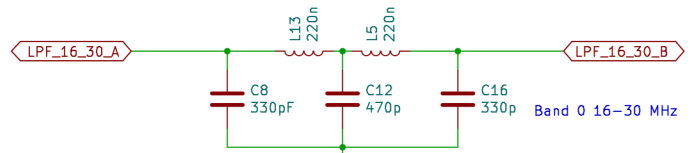
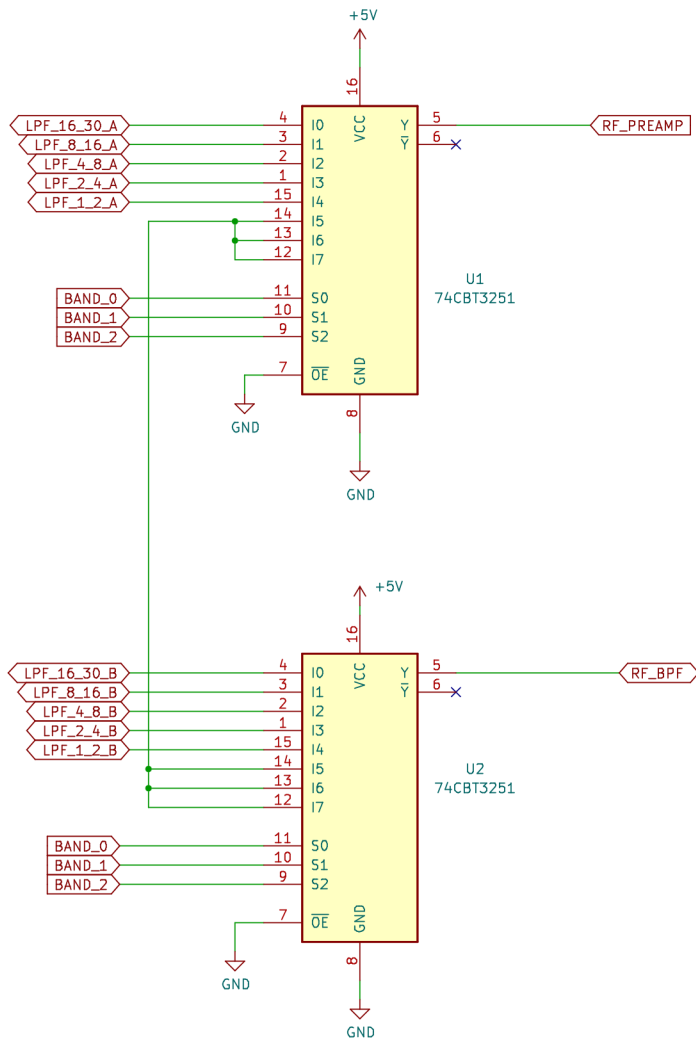
R12	no fit
R1	47
R11	220
C5	22p
U6	fit

0 ohm link
no fit
0 ohm link
no fit
no fit

R11, C5 determine LPF cutoff
 $1/(2 * \pi * 220 * 22e-12) \approx 30\text{MHz}$

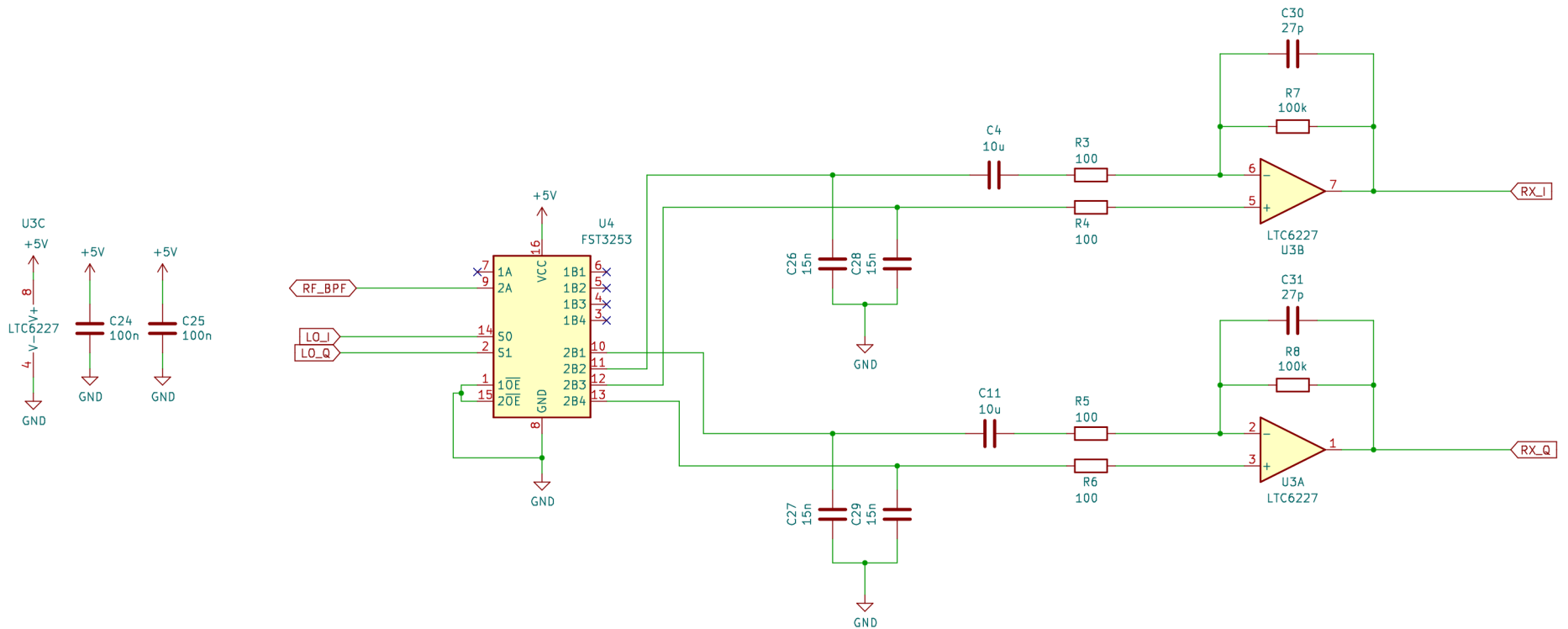
R1, R11 determine gain
 $220/47 = 5x \text{ gain}$
 $20 * \log_{10}(220/47) = 13\text{dB gain}$

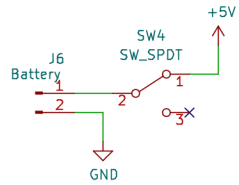
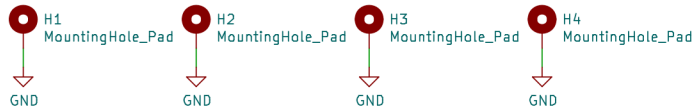




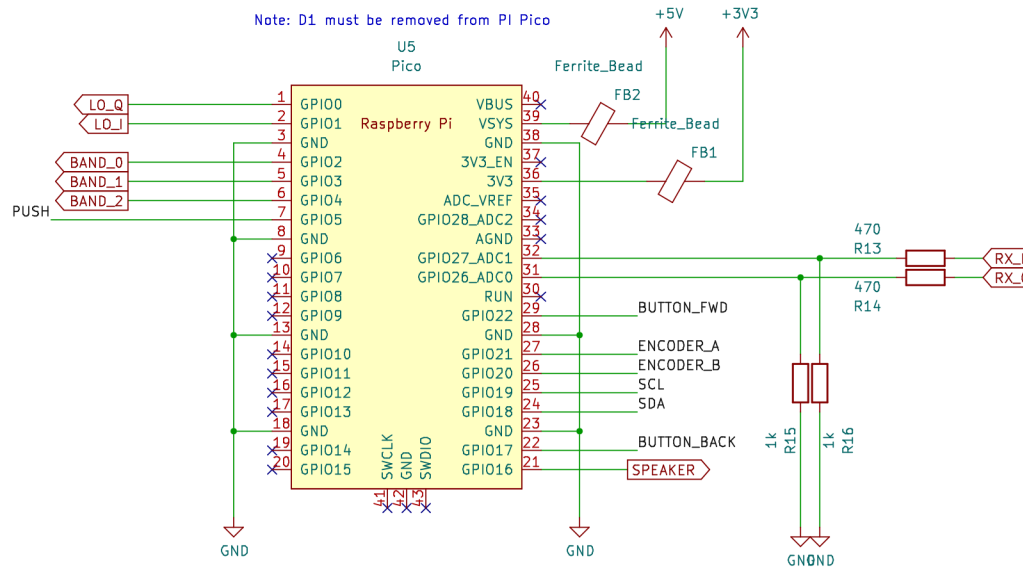
R, C values determine LPF cutoff
 $1/(2 * \pi * 27e-9 * 100) \approx 59\text{kHz}$

R, values determine gain
 $100\text{k}/100 = 1000\times$
 $20 * \log_{10}(100\text{k}/100) = 60\text{dB}$

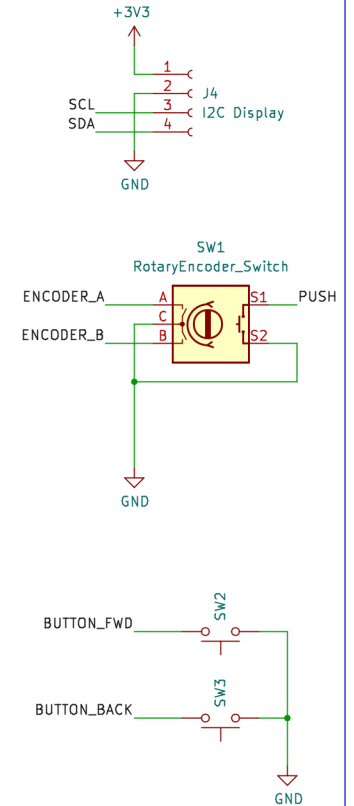




Note: D1 must be removed from PI Pico



User Interface



R9, C34 determine LPF cutoff
 $1/(2 * \pi * 100 * 470e-9) \approx 3\text{kHz}$

