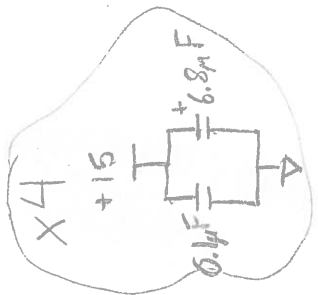
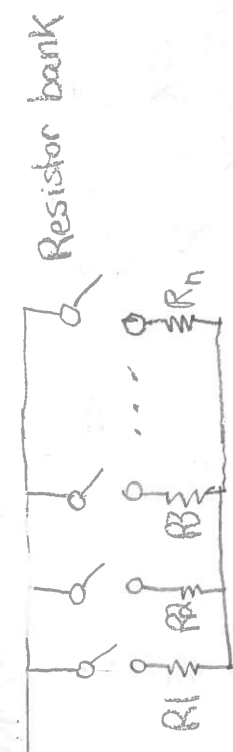
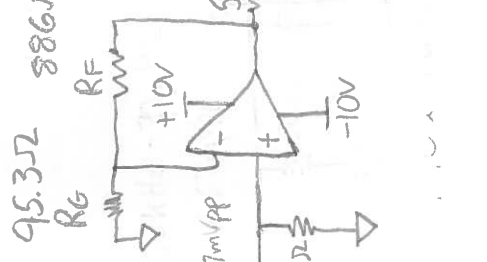
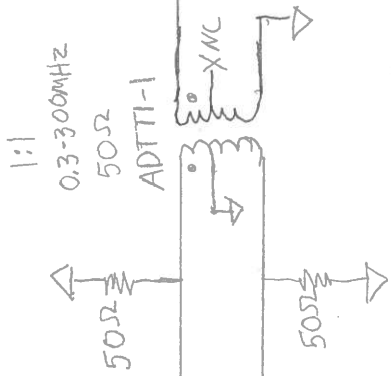
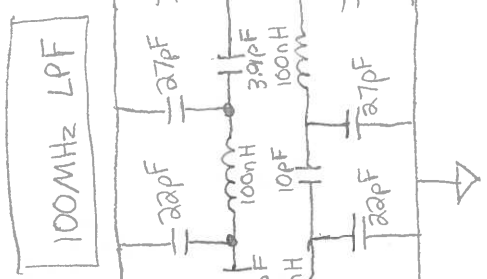
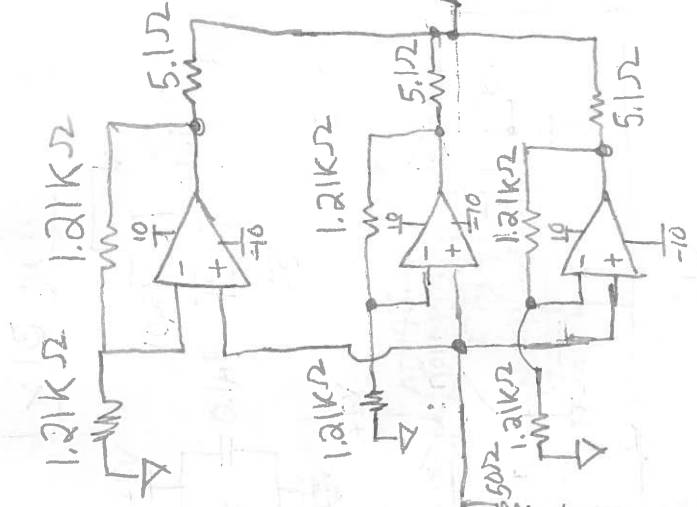


10x gain



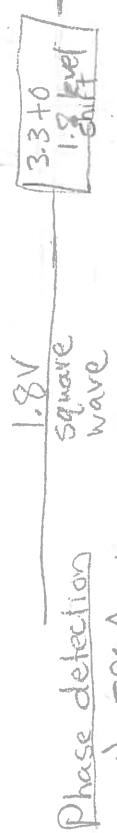
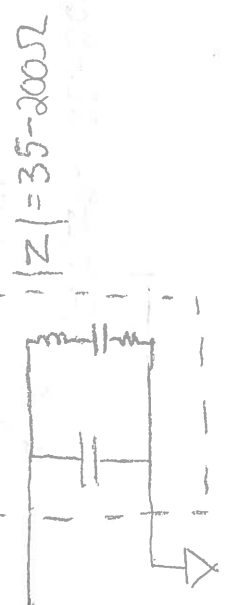
2x gain with large capacitive load ability



$$|V| = \left( \frac{Z_a}{Z_1 + Z_a} \right) |V_{ref}|$$

$$|V| = \frac{a}{3} |V_{ref}|$$

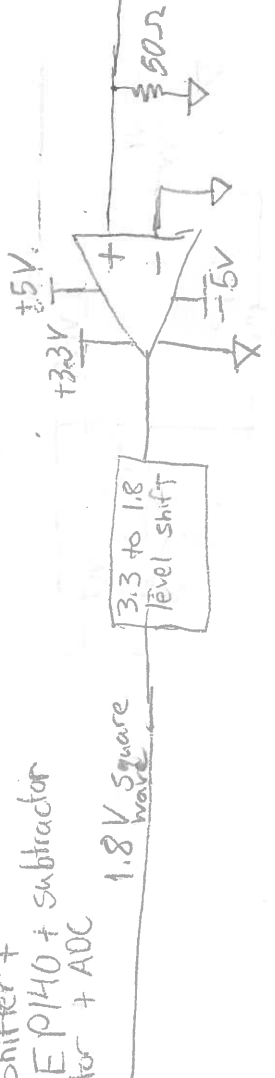
Ultrasound element



Phase detection  
1) FPGA

or

2) Level shifter + MC100EP140 + subtractor integrator + ADC



50Ω?