

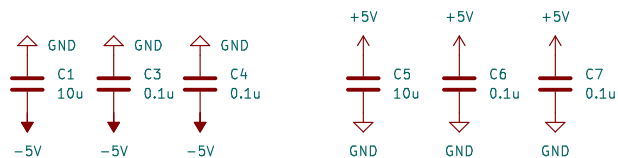
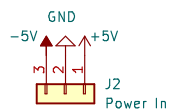
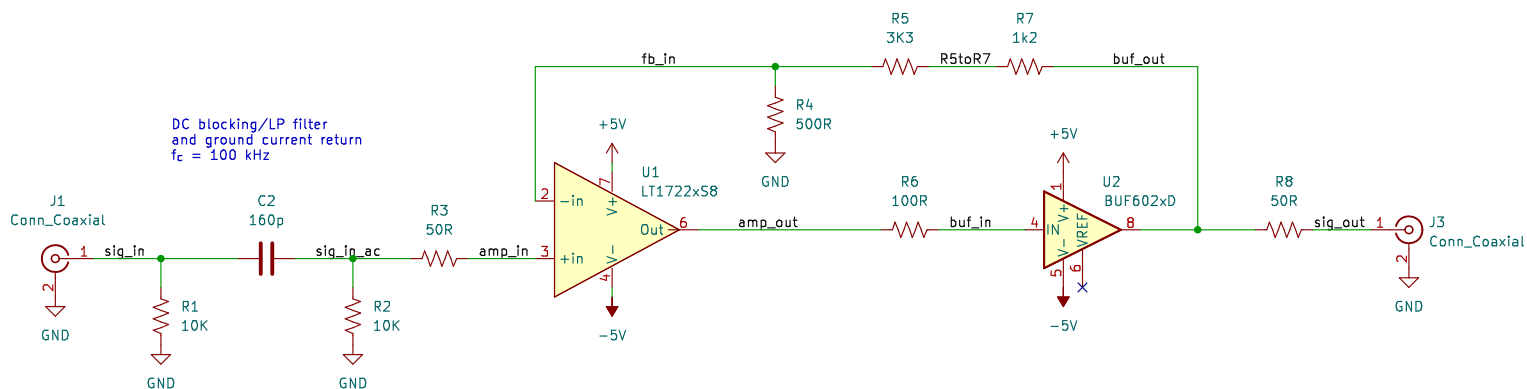
Input-referred voltage noise:  $\leq 100 \mu\text{V RMS}$   
For 20 MHz bandwidth:  
V noise density  $\leq 23 \text{ nV}/\sqrt{\text{Hz}}$   
I noise density  $\leq 450 \text{ pA}/\sqrt{\text{Hz}}$  with 50R source  
Implies:  
R  $\leq 32\text{K}$   
C  $\geq 400\text{f}$

Non-inverting gain:  
 $1 + R_f/R_g = 10$

Amp Specs  
Noise:  
3.8 nV/sqrt(Hz)  
1.2 pA/sqrt(Hz)  
  
2.5 to 10 V supply  
200 MHz GBW  
3.7-4.5 mA supply current

Buffer Specs  
Noise:  
4.8 nV/sqrt(Hz)  
2.1 pA/sqrt(Hz)  
  
3-12 V supply  
6 mA supply current  
  
GBW as 1 GHz should ensure stability

DC blocking/LP filter  
and ground current return  
 $f_c = 100 \text{ kHz}$



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File: lna\_sma\_10x.kicad\_sch

**Title: Low Noise Amplifier SMA 10x**

Size: USLetter Date: 2022-03-10

KiCad E.D.A. kicad 6.0.2-378541aBeb-116-ubuntu20.04.1

**Rev: 1.0**

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