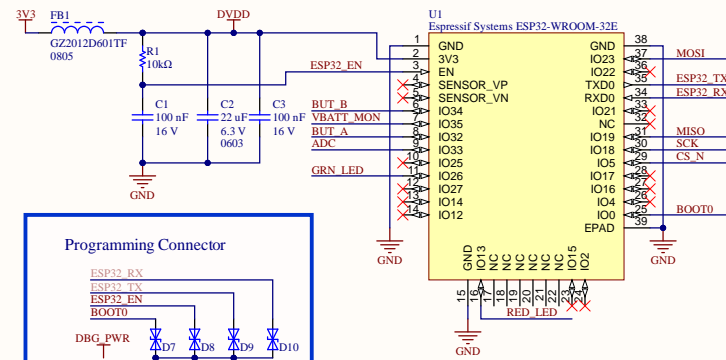
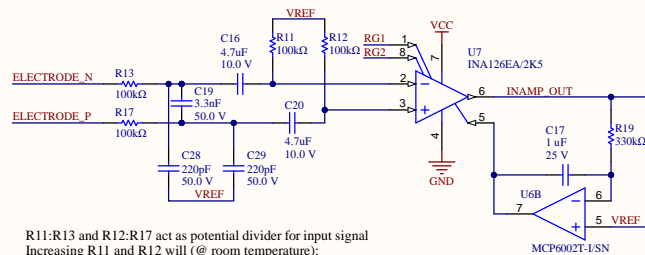


All passive components are 0402 unless specified  
Resistor tolerance = 1%, Capacitor tolerance = 10%

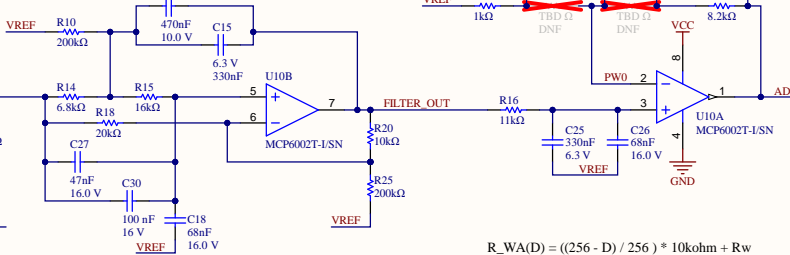


Gain =  $5 + 80k / R\_G$   
 $R\_G = 71.5 \text{ ohm}$ , Gain = 1120  
 Input High-pass filter  $f_c = 0.34 \text{ Hz}$   
 INAMP High-pass filter  $f_c = 0.48 \text{ Hz}$   
 RFI Low-pass filter  $f_{c\_diff} = 233 \text{ Hz}$   
 RFI Low-pass filter  $f_{c\_cm} = 7.2 \text{ kHz}$

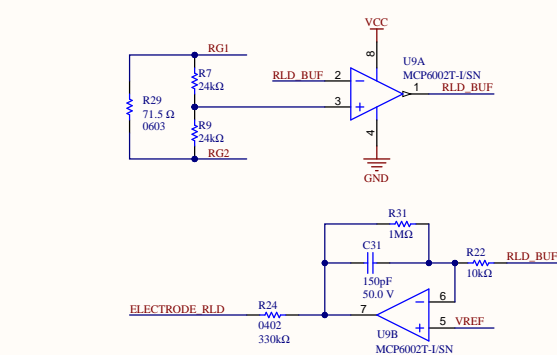
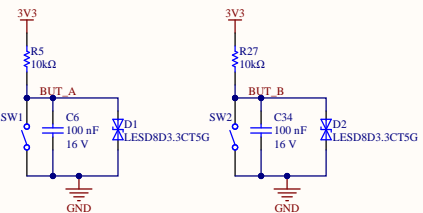
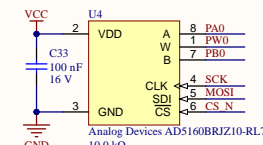
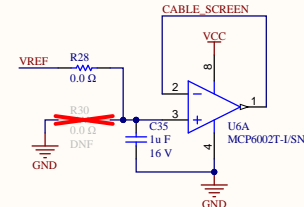
Third order Hourglass low-pass filter  
 $Q = 2.17$ ,  $F_c = 37.4$  Hz,  $F_n = 50$  Hz  
 50 Hz Rejection:  
 Min = 17 dB, Nom = 35 dB, Max = 55 dB



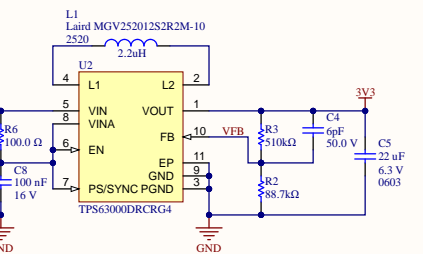
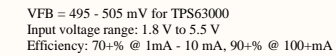
- R11:R13 and R12:R17 act as potential divider for input signal
- Increasing R11 and R12 will (@ room temperature):
  - Reduce signal ratio at INAMP input (50% @ 100 kOhm, 76.7% @ 330 kOhm)
  - Increase thermal noise ( $32nV/\text{Hz}^{1/2}$  @ 100 kOhm,  $42nV/\text{Hz}^{1/2}$  @ 330 kOhm)
  - Increase DC offset at INAMP output due to R11/R12 mismatch



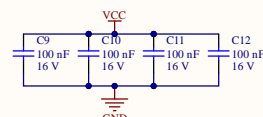
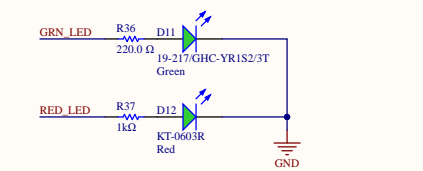
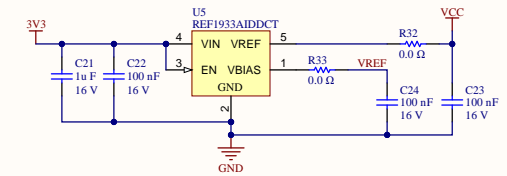
R\_WA(D) = ((256 - D) / 256) \* 10kohm + R\_W  
R\_WB(D) = (D / 256) \* 10kohm + R\_W  
R\_W: 50 ohm (Nom.), 120 ohm (Max)  
SPI = 25 MHz max




LM66100 Ideal Diode with input polarity protection  
Input voltage range: 1.5 V to 5.5 V  
Maximum continuous current  $I_{max} = 1.5$  A  
79 mOhm @ 5 V, 91 mOhm @ 3.6 V, 141 mOhm @ 1.8 V



Maximum output capacitance = 10 uF  
Typ 10 mV dropout @ 0 mA , 120 mV dropout @ 10 mA



PROJECT World Wide Mind			
PROJECT REVISION: 03	DOCUMENT REVISION: A	DATE: 19/05/2021	
TITLE  Single Channel Monitor			
SIZE B	FILENAME main.SchDoc	REV A	
Drawn by: Steven Wong		© Copyright, all rights reserved	SHEET 1 OF 1