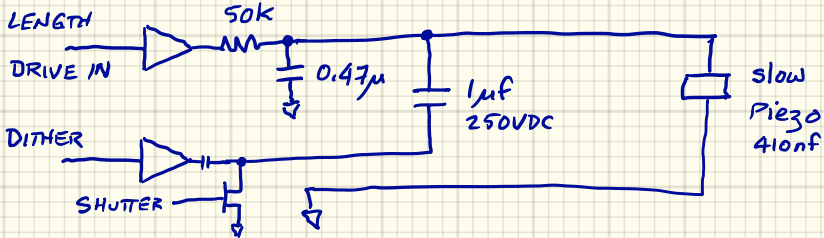
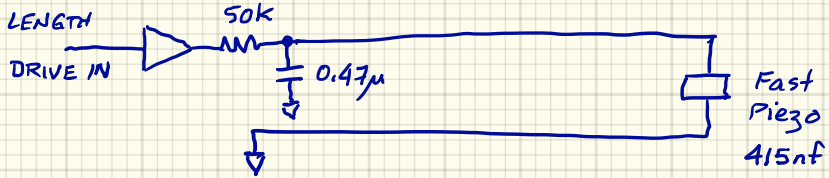
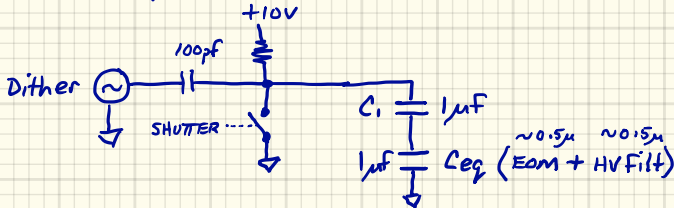


New-New Piezo Drive Config



Equivalent Dither Circuit



The capacitive voltage divider formed by C_1 and C_{eq} as shown above will reduce the dither amplitude by a factor of 2, and reduce the bias used during the shutter function by a factor of 2. The resulting voltage applied to the piezo associated with the shutter function will now be 5V. This should still be plenty of range for knocking the OMC off resonance per the calculation shown below.

$$OMC \text{ Piezo} \sim 1\mu\text{m}/100\text{V}$$

$$OMC \text{ cavity Finesse } 400$$

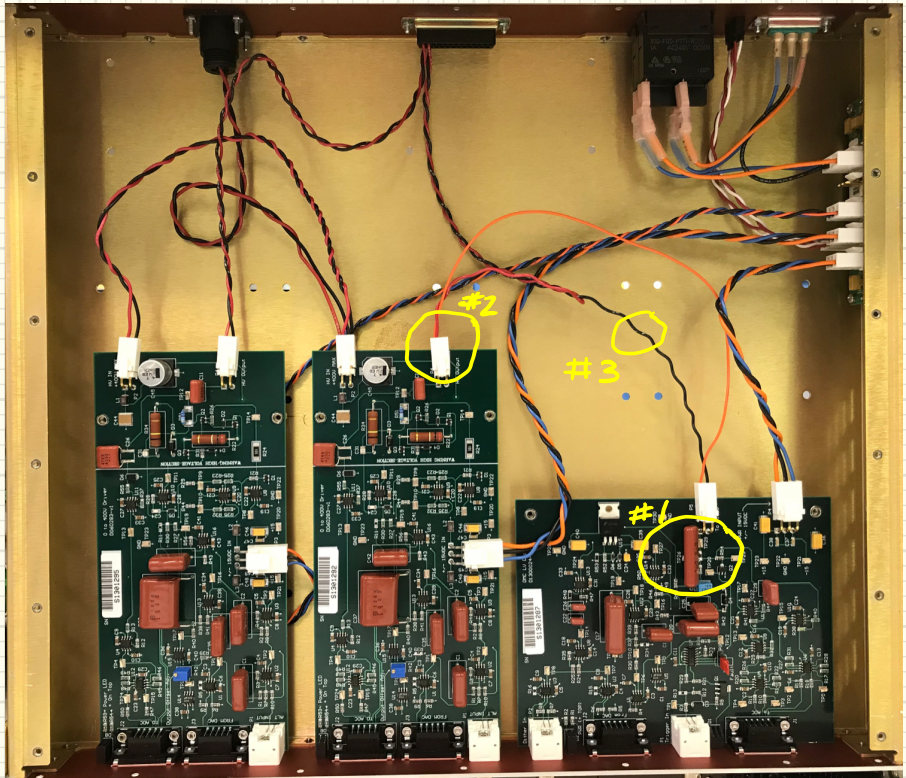
Expressing cavity Finesse in terms of length to obtain linewidth (BW)

$$Finesse = \frac{FSR}{BW} \Rightarrow BW = \frac{FSR}{Finesse} = \frac{\frac{\lambda}{2}}{Finesse} = \frac{532\text{ nm}}{400} \Rightarrow \text{linewidth} = 1.3\text{ nm}$$

$$\text{A 5V change on the piezo} \Rightarrow 5\text{V} \cdot \frac{1\mu\text{m}}{100\text{V}} = 50\text{ nm} \text{ This implies } \frac{50\text{ nm}}{1.3\text{ nm}} \sim 38 \text{ line widths for the shutter}$$

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New-New omc Piezo driver

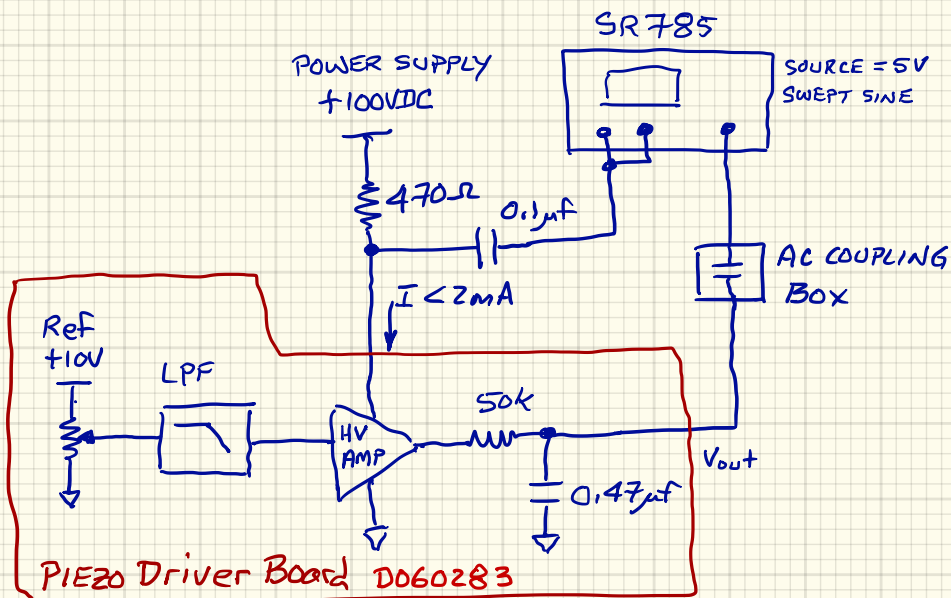


- #1 1 μ f AC coupling cap
- #2 splice point of dither & HV bias
- #3 GND of Dither/Bias piezo

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Dean, Rich

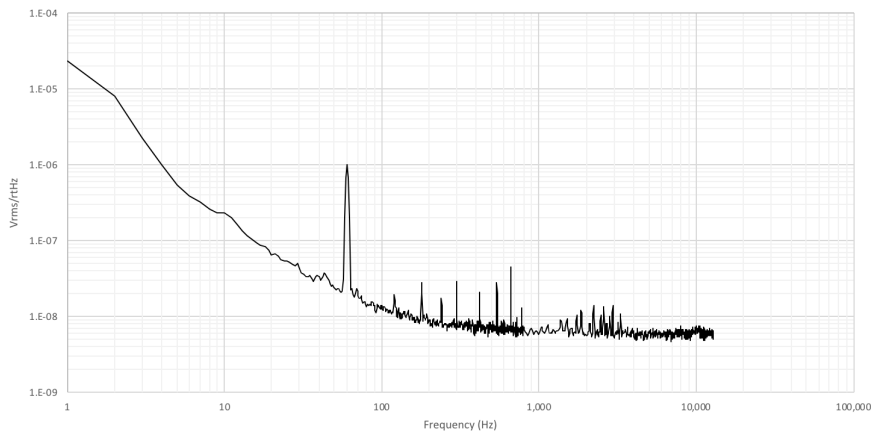
Power Supply Rejection Setup for omc Piezo Driver (51301292)



D060283 S1301292 Piezo Driver Board 7feb2019

DEAN/RICH

OMC Piezo Driver Frequency Spectra



OMC Piezo Driver Power Supply Rejection vs Frequency

