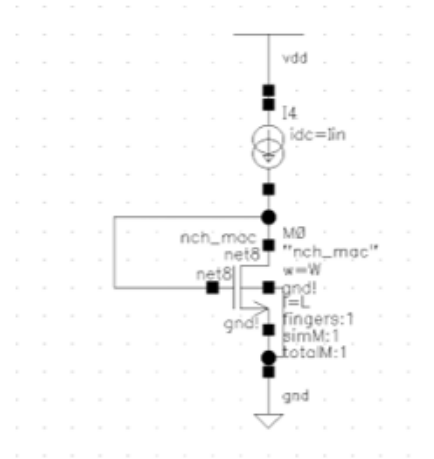
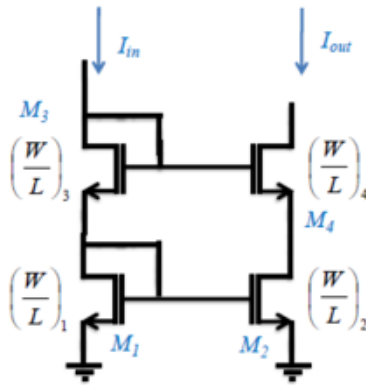


- assume $I_{in} = 25\mu A$



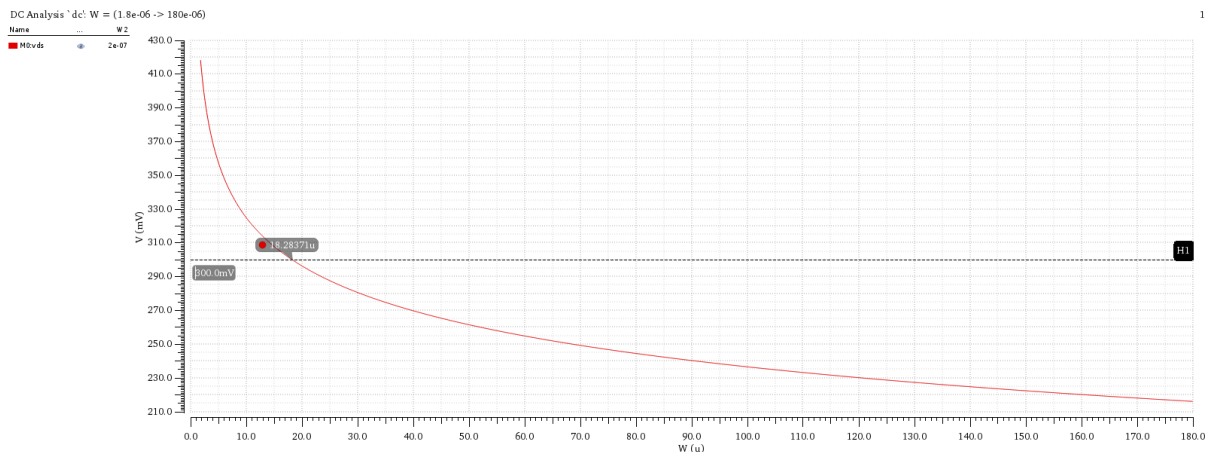
Assumptions and design strategy

$$V_{GS1,2} = V_{DS1,2} = 300 \text{ mV}$$

$$L_{1,2} = 3L_{\min} = 180 \text{ nm}$$

Sweep $W_{1,2}$ from 10L \rightarrow 100L using the TB on the right

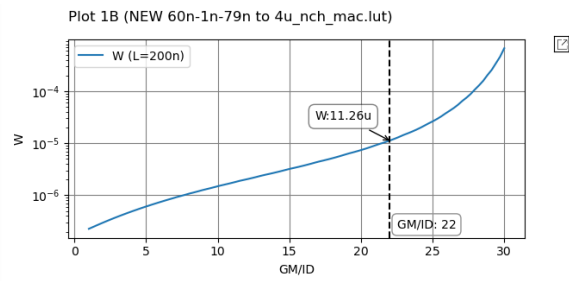
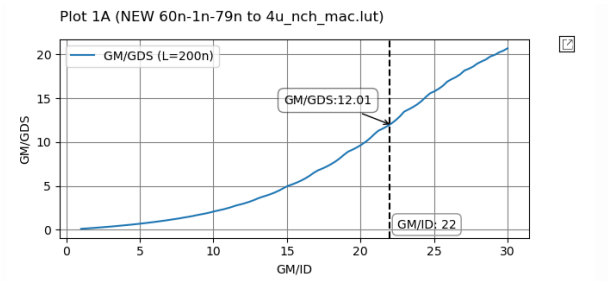
Select the proper W that achieve our previous assumptions



$$W_{1,2} = 18.3 \text{ } \mu\text{m} \rightarrow r_{o1,2} = 66.8 \text{ k}\Omega$$

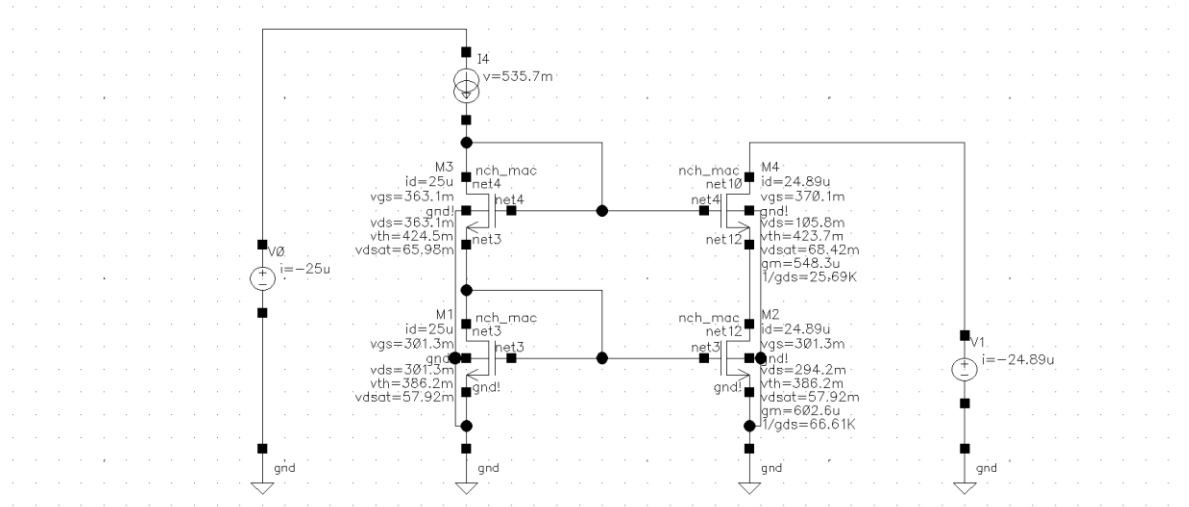
$$R_{out} = g_{m4}r_{o4}r_{o1} = 800 \text{ k}\Omega \rightarrow g_{m4}r_{o4} = 12$$

$$\text{Assume } \left(\frac{g_m}{I_D} \right)_4 = 22$$



$$L_{3,4} = 200 \text{ nm} \rightarrow W_{3,4} = 11.3 \text{ } \mu\text{m}$$

Apply to Cadence



- sweep VDC at M4 drain and draw the structure rout vs VDC at $f = 1\text{Hz}$

