Spec.	
DC Gain	0 dB
BW	≥ 30 GHz
Power Consumption	≤ 1.7 mW
Cap Load	70 fF

- Steps

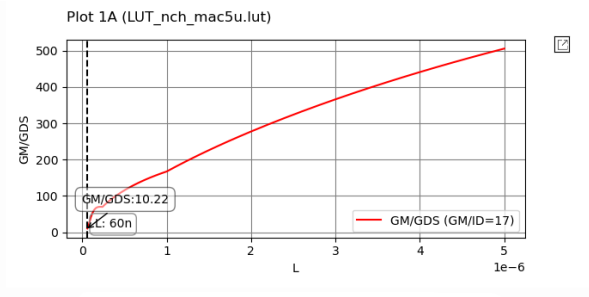
1 | $P_{cons} = V_{DD}\, I_D \leq 1.7\ mW \rightarrow I_D \leq 1.41\ mA$

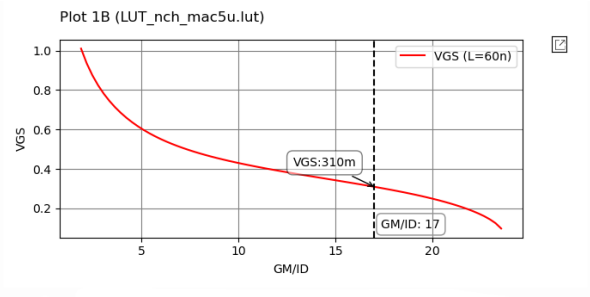
2 | Assume $C_{out} = 1.5\, C_L = 105\ fF$

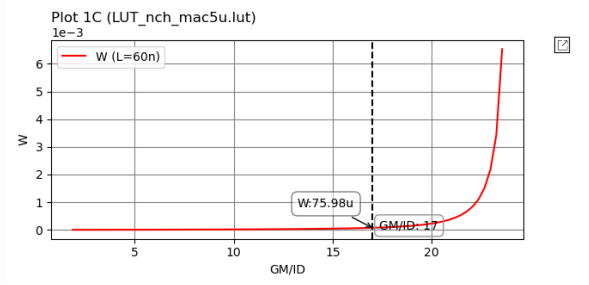
3 | $GBW = \frac{g_m}{2\pi C_{out}} \geq 1 * 30\ GHz \rightarrow g_m \geq 19.8\ mS \rightarrow g_m = 23.75\ mS \rightarrow \frac{g_m}{I_D} = 17$

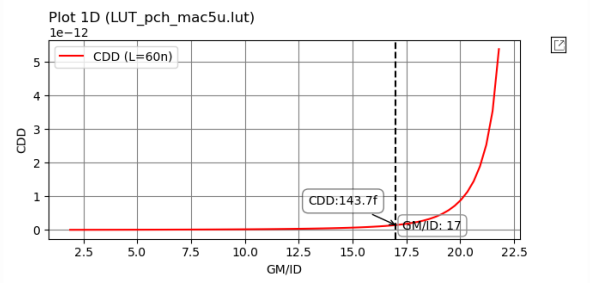
4 | $A_v = g_m R_{out} = 1 \rightarrow R_{out} = 42.1\ \Omega \rightarrow R_D = 47.5\ \Omega \rightarrow r_o \geq 404\ \Omega \rightarrow \frac{g_m}{g_{ds}} \geq 9.6$

5 | $V_{DS} = V_{out} = V_{DD} - I_D * R_D = 1.2 - 1.4m\,.\,47.5 = 1.134\ mV$

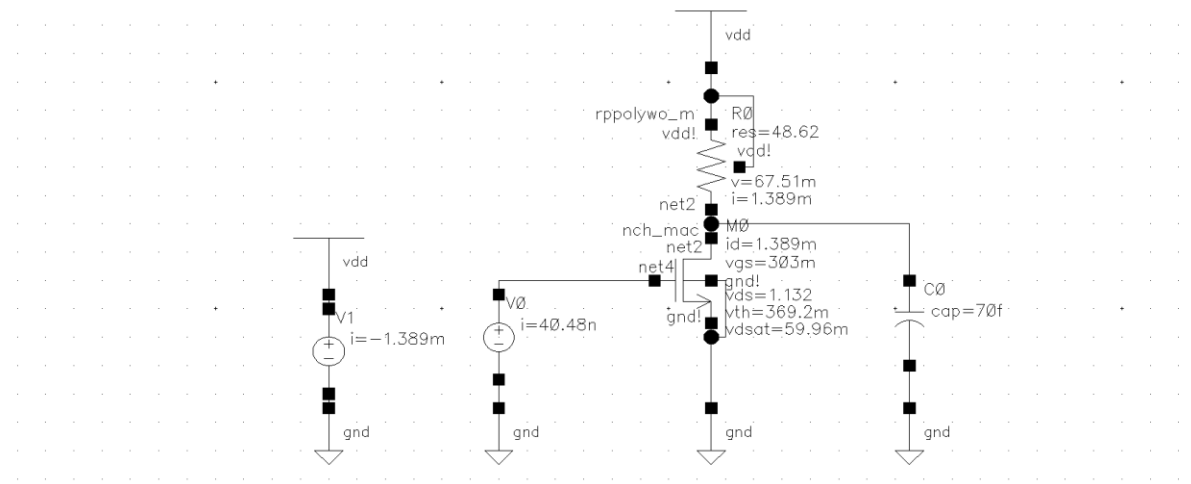








- DC Operating points



- AC Analysis