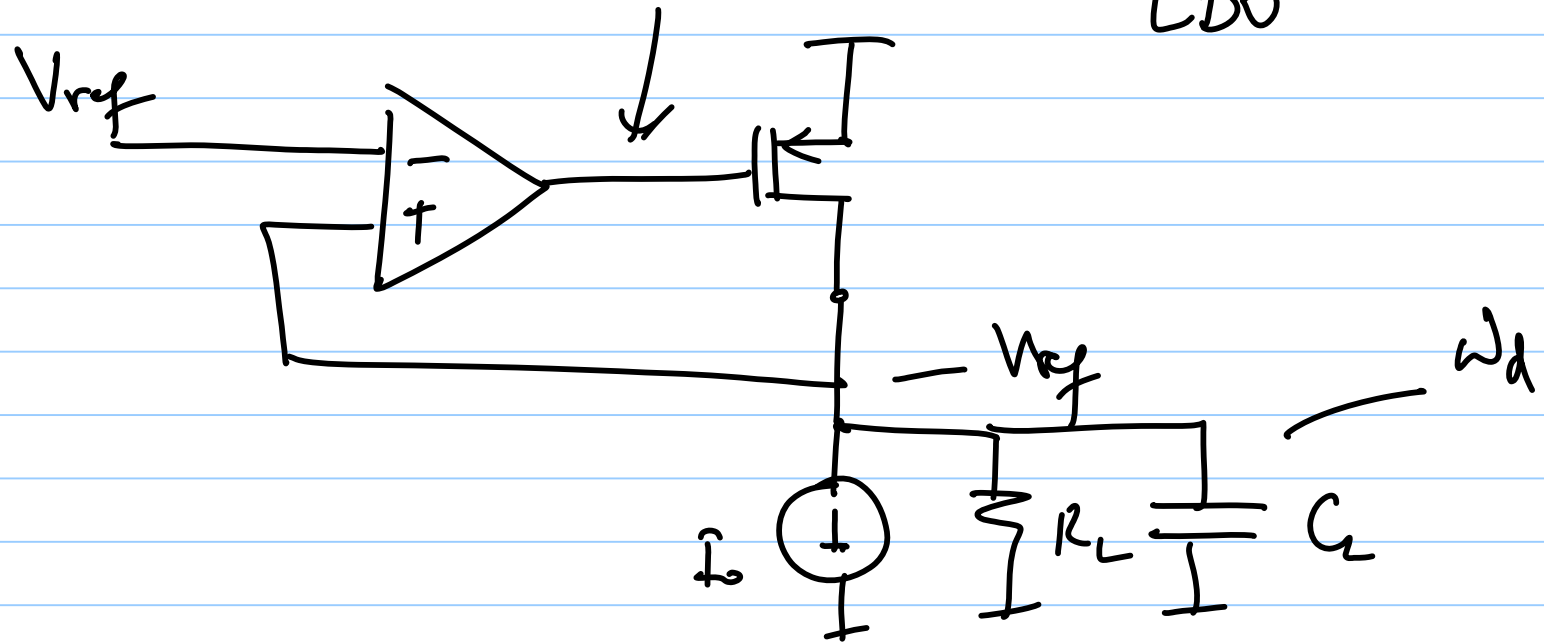
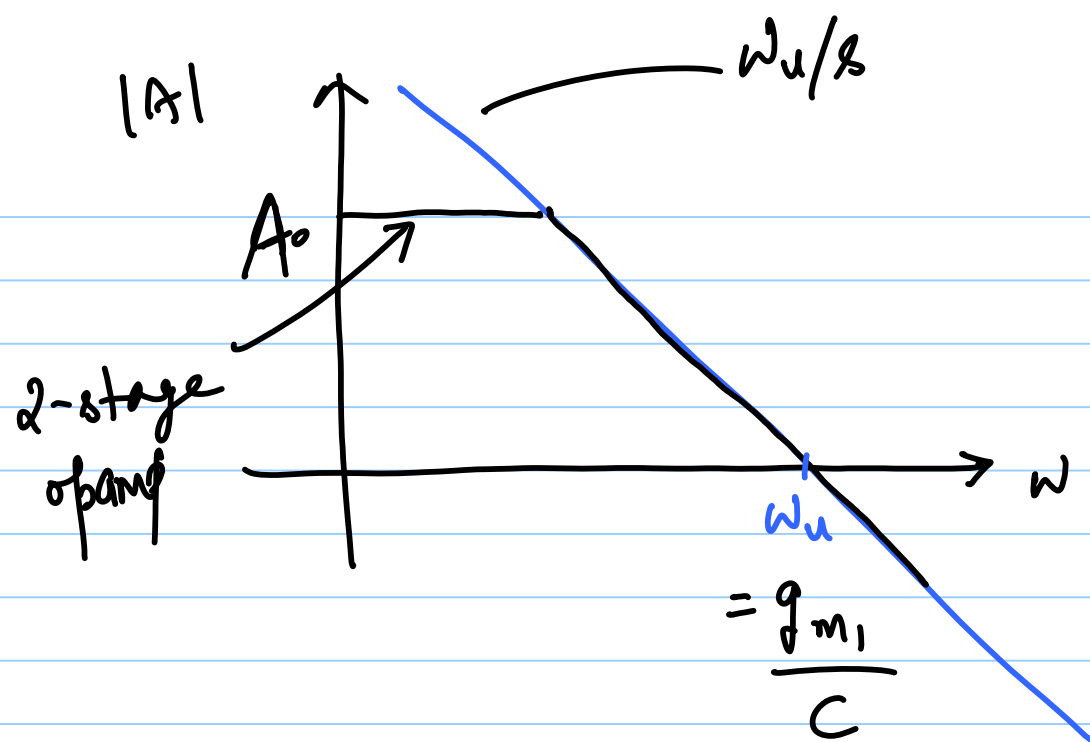


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Lec 29

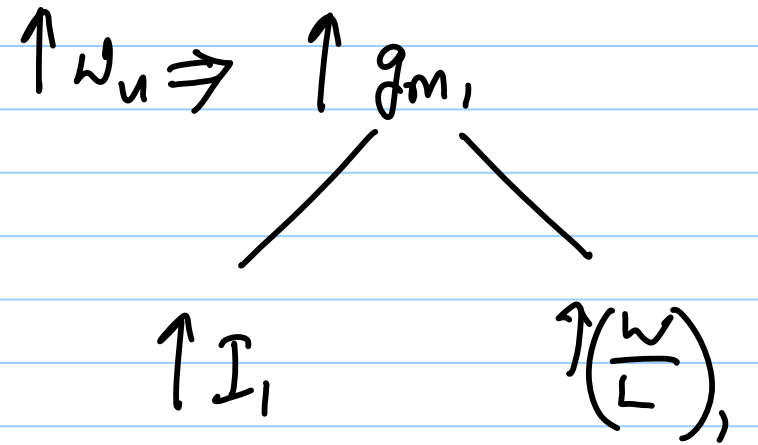
LDO





large $w_u \rightarrow$ large I

$$A_0 = A_1 A_2$$



$g_{m1} \rightarrow \sqrt{\text{relation to } I \text{ \& } (w/L)}$

$C_{gs} \rightarrow \text{linear with } w$

$$A_0 = A_1 A_2$$

$$A_1 = \frac{g_{m1}}{g_{ds2} + g_{ds4}}$$

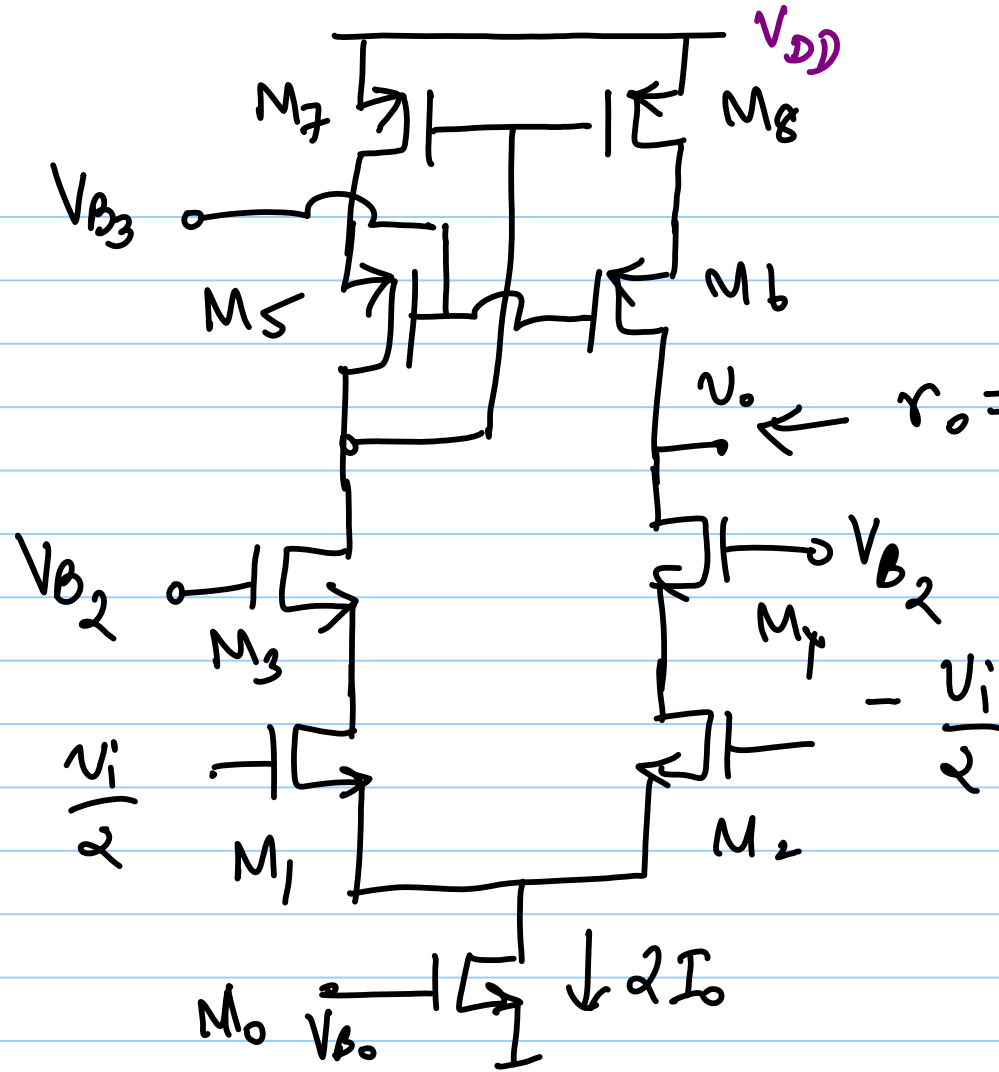
e.g. $I_1 \rightarrow 4 \times I_1$

$$g_{m1} \rightarrow 2 \times g_{m1}$$

$$g_{ds2} + g_{ds4} \rightarrow 4 \times$$

$$A_1 \rightarrow \frac{1}{2} \times A_1$$

use larger devices ($\uparrow L$)



$$r_o = g_{m4} r_{ds4} \cdot r_{ds2} \parallel g_{m6} r_{ds6} r_{ds8}$$