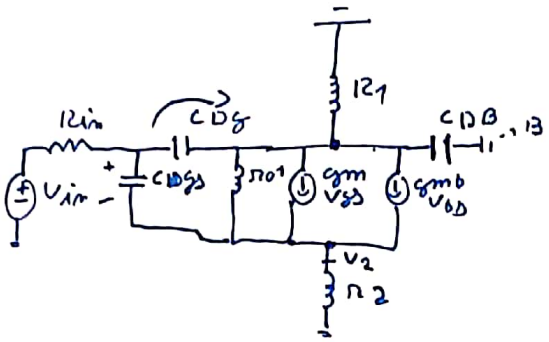
Degenerated common source



Em DC → $V_{ant} = 0$

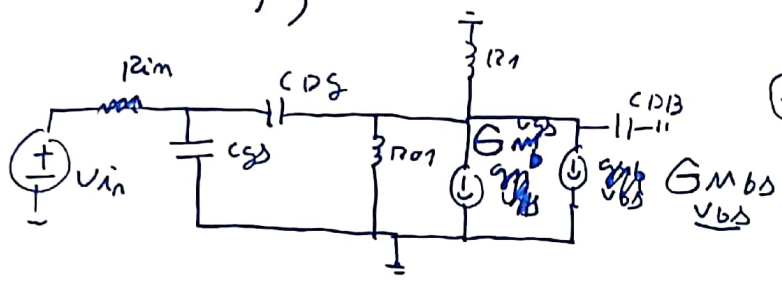
$I_o = g_m V_{gs}$

$G_M =$ → equivalent circuit Transconductance

$$\frac{r_{o1}}{r_{o1} c_{gs} + 1} = Z_{eq1}$$

$$\frac{v_{in}}{r_{in} + Z_{eq1} + r_2}$$

$$V_{gs} = Z_{eq1} \times \frac{1}{r_{in} + Z_{eq2} + r_2}$$



$$G_M = \frac{Z_{eq1} v_{in} g_{m1}}{r_{in} + Z_{eq} + r_2}$$

! without Body effect

with Body effect

"equivalent circuit"

G_M with Body effect $= I_o =$

$$\frac{Z_{eq} v_{in} g_{m1}}{r_{in} + Z_{eq} + r_2} - \frac{r_2 v_{in} g_{m1b}}{r_{in} + Z_{eq} + r_2}$$

G_M $\quad$ G_{MB}

To simplify

The rest is equal to a normal CS resistive stage

But with G_M and G_{MB}