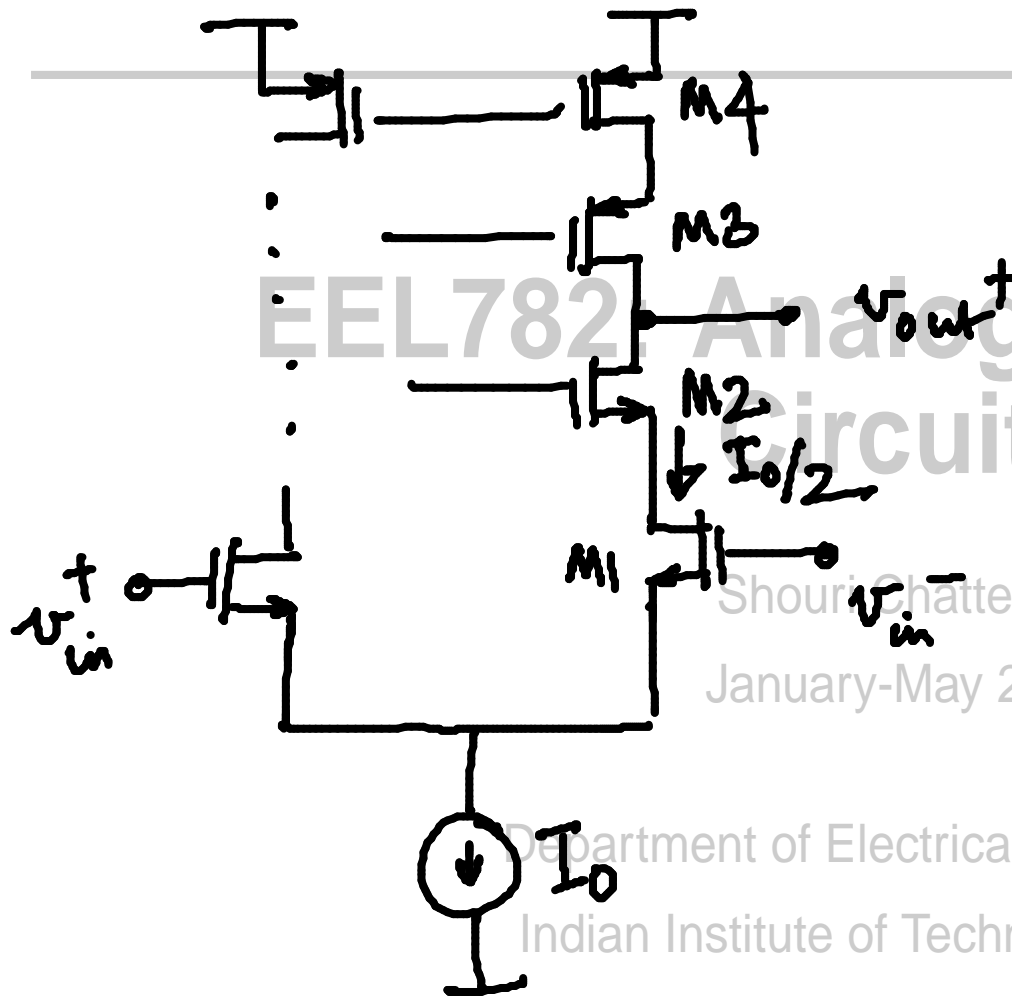


Cascode output swing: $V_{DD} - 5 V_{DS_{sat}}$

Good!
 Folded cascode : $V_{DD} - 4 V_{DS_{sat}}$ G_m
 Bad
 Smaller output res, Smaller transconductance

Bad!! $\approx 2x$ power consumption



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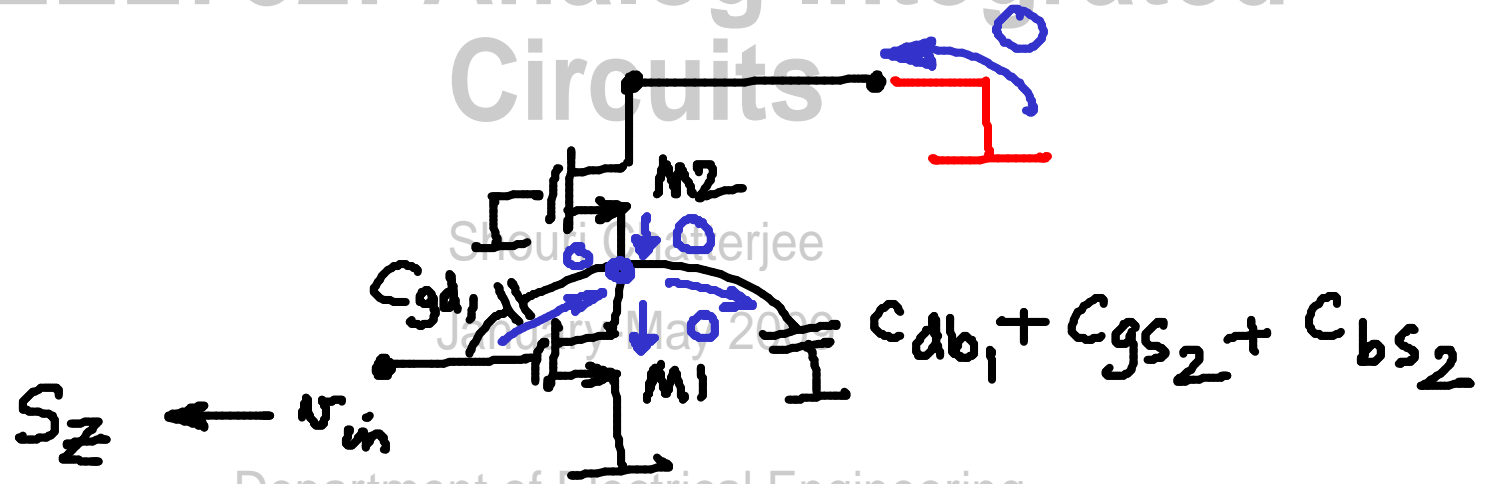
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January-May 2009

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$G_m(s)$

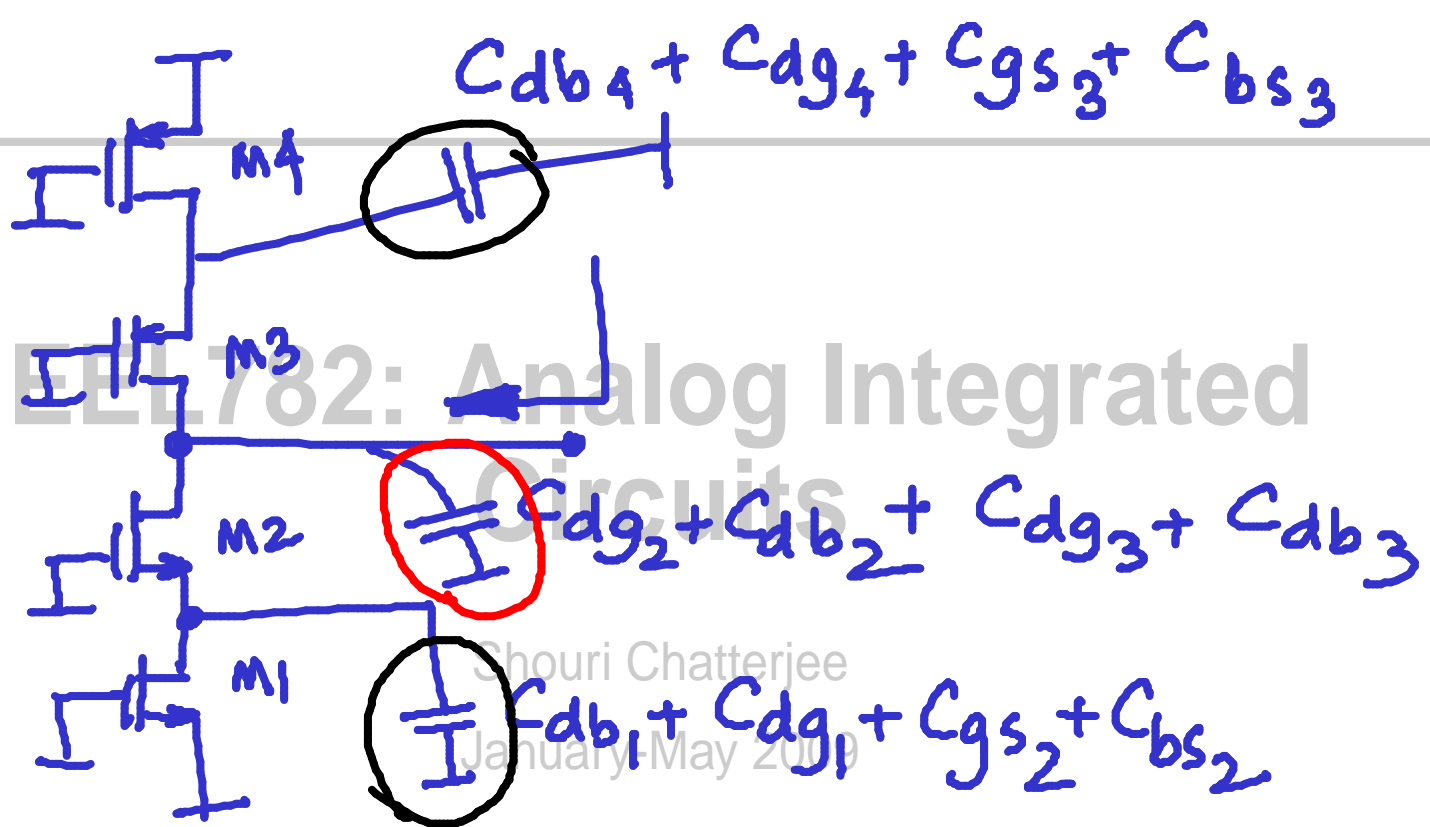
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$$\left. \frac{1}{g_{m2} \parallel r_{ds1} \parallel r_{ds2}} \approx \frac{1}{g_{m2}} \right\} \text{pole}$$

$$\left(C_{db1} + C_{gd1} + C_{gs2} + C_{bs2} \right)$$

$$g_{m1} = s_z C_{gd1} \quad \left. s_z = g_{m1} / C_{gd1} \right\} \text{zero}$$



$$\approx g_{m2} r_{ds2} (r_{ds1} \parallel (\quad))$$

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$$\frac{R_1}{1 + sC_1R_1} \times \frac{R_2}{1 + sC_2R_2}$$

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$$= \frac{\frac{R_1}{1 + sC_1R_1} + \frac{R_2}{1 + sC_2R_2}}{R_1 || R_2} = \frac{1 + s(C_1 + C_2)(R_1 || R_2)}{R_1 || R_2}$$

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