

Lecture 13, BJT Dynamic Models
E151/3 F17 – Matthew Spencer

1. Dynamic models of MOSFETs are similar to the Hybrid- π model of a BJT: they modify our low frequency MOSFET model with a gate-to-drain capacitance C_{gd} and a gate-to-source capacitance C_{gs} .

(a) Find the small signal current gain of a MOSFET and calculate its f_t .

(b) Comment on the differences in current gain between a BJT and a MOSFET with the same g_m as the input current frequency is changed (a sketch might help). Assume $C_{pi} + C_{mu} > C_{gd} + C_{gs}$. Using the approximate A_i that we used in class to find f_t won't get you to the right answer, be sure to use the unapproximated A_i for the BJT.