Fig (a)

f3db, Mirror pole calculations for fig (a) is given below which is differ from simulation results

$$\omega_{P_1 out} = \cfrac{1}{\frac{1}{gds_2}\left(C_{gd_2} + C_{db_2} + C_{gd_1} + C_{db_1} + C_L\right)}$$

$$\omega_{P_1 out} = \cfrac{1}{\frac{1}{28.7665\mu}\left(207.915f + 646.468f + 43.757f + 86.0253f + 5P\right)}$$

$$f_{P_1 out} = \cfrac{1}{34.76265795k \left(5.9841653 P\right) \times 2\pi}$$

$$f_{3dB} = f_{P_1 out} = 765.074232 \, kHz$$

Simulation f3db = 158.4 kHz which is differ from calculated. Mirror pole calculations are given below which I'm not observed in simulation results

$$\omega_{Pmi\,rror} = \cfrac{gm_3}{\left(C_{gs_3} + C_{db_3} + C_{gs_2} + C_{gb_4}\right)} = \cfrac{53.5893\mu}{\left(34.8125f + 6.0885f + 3.69P + 17.8004f\right)}$$
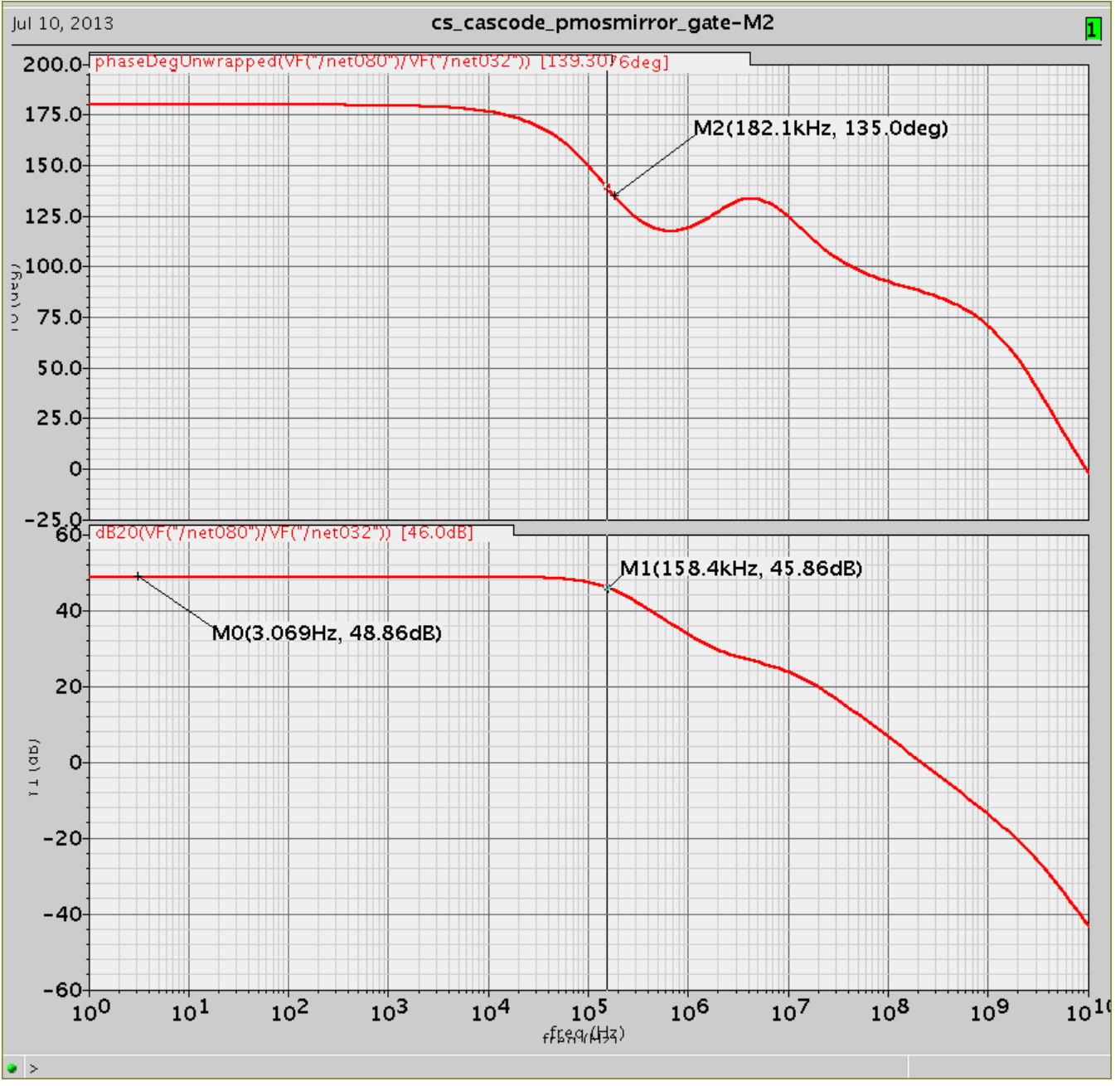
$$f_{Pmirror} = \cfrac{53.5893\mu}{3.7488814 P \times 2\pi} = 2.275079172 \, MHz$$

$$(b)$$

$$\omega_{pmirror} = \cfrac{gds_3}{C_{gs_3} + C_{db_3} + C_{gs_2} + C_{gb_4}} = \cfrac{270.067n}{3.7488814 P}$$

$$f_{pmirror} = \cfrac{270.067n}{3.7488814P \times 2\pi} = 11.46541953 \, kHz.$$

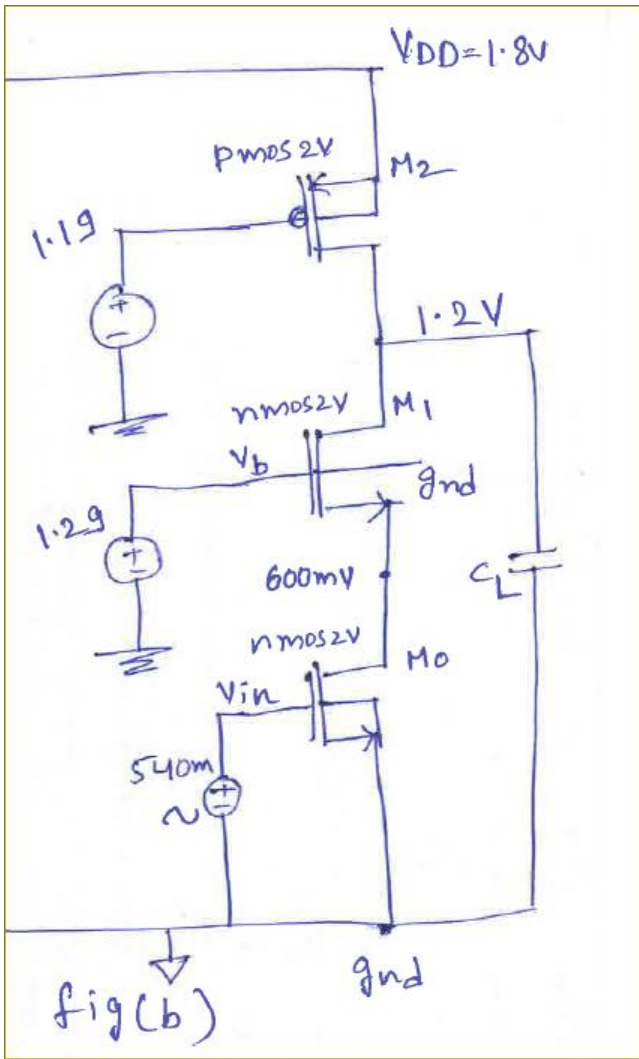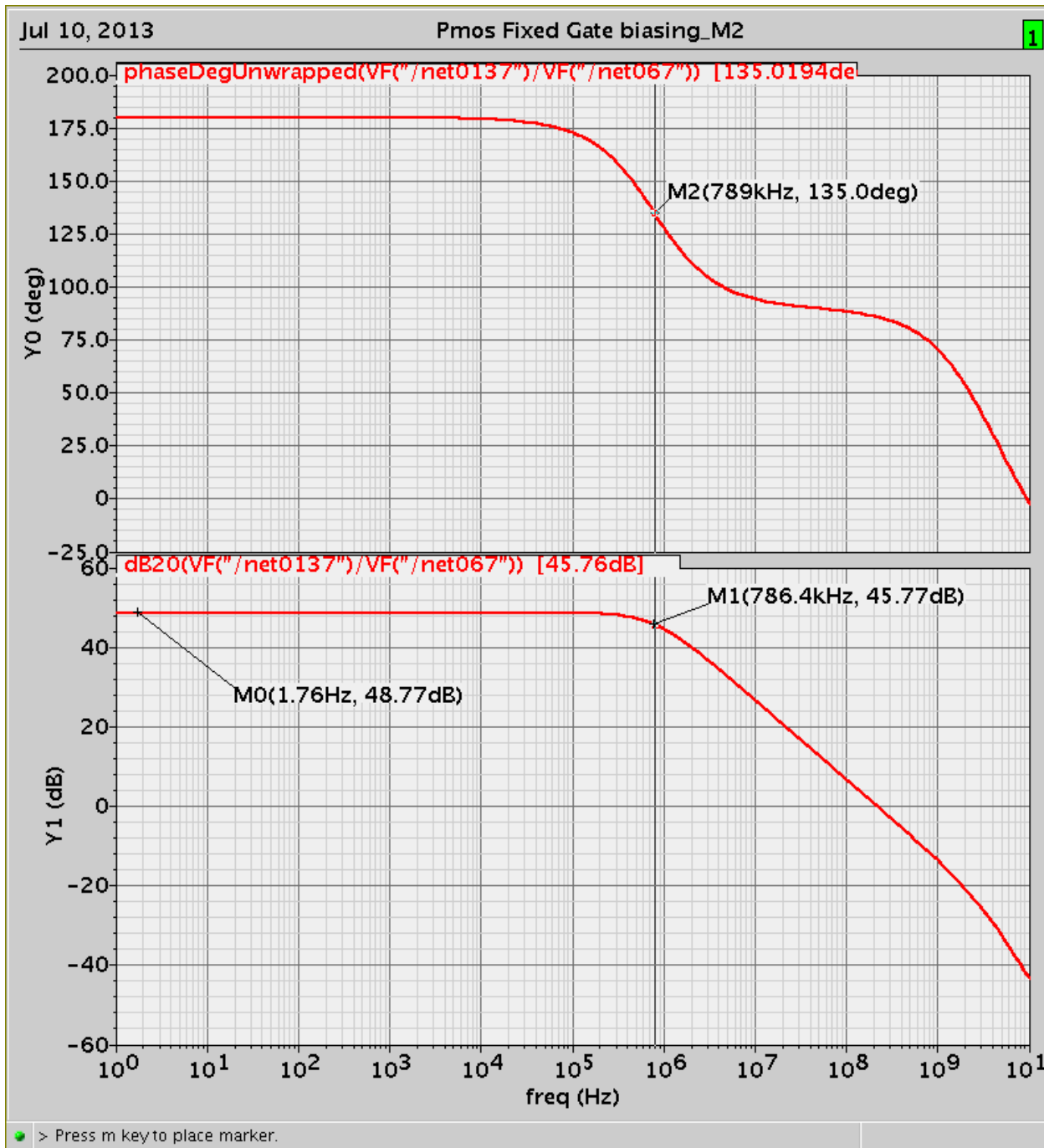Frequency response of Fig (a) simulation plots are given next page

Freq Response of Fig (a)

Fig (b)

f3db calculations for fig (b) is given below which is meets the simulation results

$$\omega_{pout} = \cfrac{1}{\frac{1}{gds_2}\left(C_{gd_2} + C_{db_2} + C_{gd_1} + C_{db_1} + C_L\right)}$$

$$\omega_{pout} = \cfrac{1}{\frac{1}{29.0871\mu}\left(208.005f + 648.735f + 43.7555f + 85.831f + 5p\right)}$$

$$f_{pout} = \cfrac{1}{34.37950157k \times (5.9863265\ p) \times 2\pi}$$

$$f_{db} = f_{1pout} = 773\ KHz$$

Simulation f3db = 786.4 kHz frequency response of above calculation plots are on next page

Freq Response of Fig (b)