

Homework Assignment No. 3

Due on Wednesday, February 2, 2005

For the problems which require a SPICE solution, go to the MOSIS web site and download the BSIM3 model parameters for the TSMC, 0.18 μm CMOS low epi technology identified as SCN018 and use the parameters for the T3AZ run. The web page at which these parameters can be found is:

http://www.mosis.org/cgi-bin/cgiwrap/umosis/swp/params/tsmc-018/t3az_lo_epi-params.txt

1.) Problem P3.1 of the text.

[Answers: $V_{TO} = 0.35\text{V}$, $\lambda = 0.04\text{V}^{-1}$, $\mu_o = 348 \text{ cm}^2/\text{V}\cdot\text{s}$ and $\gamma = 0.6\text{V}^{-0.5}$]

2.) Problem P3.4 of the text.

3.) Problem P3.6 of the text.

4.) Problem P3.7 of the text.

5.) Problem P3.8 of the text.

[Answers: The first transistor has the lowest threshold and the last transistor has the highest so now you have to tell why in order to get credit for this problem.]