

Lab Procedure and Lab Report Updates for Fall 2002; EE 440 and EE 396K, IC Fab Lab

Instructor: Dean P. Neikirk

TWO COPIES OF REPORT 0, I, AND II MUST BE SUBMITTED!

General comments about critiques:

You will receive a copy of another group's lab report. Read the report carefully; editorial comments should be made in the margins of the report. Try to flag things you do not understand, weak and/or unsupported arguments, or incorrect conclusions. Also flag good points, or conclusions you agree with but did not notice when you wrote your own report.

LAB REPORT "ZERO": DUE IN CLASS, Monday Sept. 9:

Every individual must do this assignment

Construct a flow chart which illustrates the major steps in our fabrication procedure.

Separate flow charts for the MPT and Device chips should be used, but they should be drawn in parallel to illustrate the common (and dissimilar) processes used for the two sets of chips. You should read the **entire** Processing Description Section of the Lab Manual, and make sure you understand the sequence of steps necessary to fabricate our devices. This assignment is critical to the successful completion of your devices. For material from the lab manual needed for this report, see:

http://weewave.mer.utexas.edu/DPN_files/courses/FabLab/Fab_Lab_Manual/lab_man_2002/lab_man_02_intro_testing.pdf

Critique of Lab Report 0, due in class, Monday, Sept. 23

The remaining reports should be done in formal collaboration with your lab partner(s):

LAB REPORT I (one report per lab group; two copies required), due Friday, Oct. 25:

Give a **very brief** overview of the processing; outline form is adequate. In the tables, **do not** fill out the "Calculated" sheet resistance boxes. Concentrate on reporting the experimentally measured values, along with their uncertainty estimates.

Critique of Lab Report I, due Monday, Nov. 4:

Look carefully at significant figures and justification for the precision and accuracy of the measurements.

LAB REPORT II (one report per lab group; two copies required), due Monday, Nov. 18:

Concentrate on presenting your calculations for sheet resistance and junction depth. Use "purely" theoretical means to find the diffusion profiles. Do **NOT** use empirical formulas for pre-dep results. Discuss the impact of possible concentration-dependent diffusion on your measurements, and the agreement or disagreement between theory and actual measurements.

Critique of Lab Report II, due Fri., Dec. 6.

LAB REPORT III and TESTING (one report per lab group; one copy required), due Friday, Dec. 6:

Perform only the basic qualification procedure for your MOSFETs as outlined in the DEVICE TESTS TROUBLE SHOOTING section of the Lab Manual. Discuss this procedure and your results in Lab Report III. You may skip the rest of the Device Testing Section, but read it, as well as the complete guidelines for Lab Report III in the Lab Manual.