THE EFFECTS OF P AND N SCALING ON PN-JUNCTION CHARACTERISTIC

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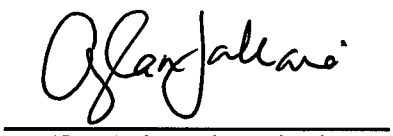
MAY 2010

This Final Year Project entitled **"The Effects of P and N Scaling on PN-Junction Characteristic"** was submitted by Ain Zubaidah Bte Maslihan, in partially fulfillment of requirements for the Degree of Bachelor of Science (Hons.) Industrial Physics, in the Faculty of Applied Sciences, was approved by



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Date : 12 MAY 2010

ACKNOWLEDGEMENT

Upon completion of this project, I would like to express my gratitude to many parties. First of all, thanks to Allah S.W.T for giving me strength, ability and a good health to do this project. I would like to express sincere gratitude to my parents and family, thanks a lot for all their supports, motivates loves, and prayers. I would like to take this opportunity to thanks my beloved supervisor, En. Azlan Zakaria for useful helps, full support, kindness, advices, guidance and always giving me information from the time to time since at the beginning stage until the end of this thesis. I would like to thank to my entire project members. Without their helps, I will certainly not here. Lastly, sincerely thanks goes to all my friends that giving me these great memories that I will never forget. May Allah bless all of you.

Ain Zubaidah Bte Maslihan

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ABSTRACT

THE EFFECTS OF P AND N SCALING ON PN-JUNCTION CHARACTERICTIC

The wet oxidation process is chosen to grow the oxide layer on the wafer surface. It is because the wet oxidation process has a significantly higher oxidation rate than the dry oxidation process. The n-type wafer was doped with the p-type material semiconductor, which is Boron. The Boron was doped on the wafer surface with the different scales of p-type regions and n-type regions. The size of p-type regions are 4mm, 5mm, 6mm, 7mm, and 8mm. For n-type regions, the size remains constant, which is 6mm. The furnace temperature was set up to 1100°C during the all doping processes. Four Point Probe was used to measure the sheet resistance of the wafer. Then, current-voltage characteristic are measured for all the pn-junctions by using I-V measurement. The devices of the 4mm p-type material semiconductor and 6mm n-type material semiconductor showed the best results of the current-voltage characteristic.