

Final Report Outline

- Background
- Analysis
- Measurements
- Device Testing
- Results

Background

- Fabrication Sequence
- Fabrication Theory
 - Diffusion
 - Oxidation
 - Photolithography
 - Etching and Cleaning
 - Metal Evaporation

Analysis

- Oxide Calculations
- Metal Thickness Calculations
- Aluminum Resistance
- Diffusion Calculations
 - N-well tub
 - Final depth
 - Final Resistivity
 - N+ Source/Drain
 - Final depth
 - Final Resistivity
 - P+ Source/Drain
 - Final depth
 - Resistivity

Process Characterization Measurements

- Sheet Resistivity
- Oxide thickness measurements
- Aluminum thickness measurements

Device Testing

- Resistors
 - Metal
 - 1-diffusion
 - 2-diffusion
- Diodes
 - 1-diffusion
 - 2-diffusion
- Transistors
 - NMOS
 - Id-Vd Step Vg
 - Threshold Voltage
 - PMOS
 - Id-Vd Step Vg
 - Threshold Voltage
- Bonus
 - Inverters

Results

- Theory = Experiment
- Failure Analysis
- Recommendations
 - Process
 - Laboratory
 - Course