

EE143 Lab Week 6 Measurement Checklist:
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1) Lithography

Time (sec)	
Softbake:	
Exposure:	
Developer:	
Hardbake:	

Linewidth (um) of Photoresist		
Nominal	Measured	% Overetch
2		
3		
4		
8		

Notes: 1 tick mark in the right eyepiece of microscope is 1um under 100X

Take a photo of the linewidth marks under 50X

Vernier Misalignment:	
X	
Y	

Take 3 Photos: Overall Vernier Pattern under 20X, and zoomed photo of X & Y vernier patterns under 50X

2) Polysilicon:

Polysilicon Sheet Resistance	
Polysilicon Thickness	
Polysilicon Etch Time:	

Linewidth (um) of Polysilicon after etch		
Nominal	Measured	% Overetch
2		
3		
4		
8		

Notes: 1 tick mark in the right eyepiece of microscope is 1um under 100X

3) Measurements after Process Completion:
 ACTV Sheet Resistivity (Control Wafer):

Questions:

Calculate % overetch of the linewidth patterns

What was a visual method for determining completion of etching?

Calculate theoretical substrate doping profile up to this week's thermal step and compare against the substrate sheet resistance measured.

Cumulative Checklist: **You Should have all these values! If not, ask your TA or classmates for them!**

Week 3:

Lithography:

- Softbake
- Exposure
- Developer
- 50X Photo of linewidths
- Linewidth measurements

Field Oxide Etch

- Field Oxide Thickness
- Field Oxide Etch Time
- Substrate Sheet Resistance

Week 4:

Oxidation:

- Time
- Temperature

Anneal:

- Time
- Temperature

Measurements:

- Gate Oxide Thickness
- Substrate Sheet Resistance

Week 5:

Lithography:

- Softbake
- Exposure
- Developer
- 50X Photo of linewidths
- Linewidth measurements
- Vernier Measurements
- 20X Vernier Photo
- 50X Vernier X & Y Photos

Polysilicon

- Polysilicon Thickness
- Polysilicon Sheet Resistance
- Polysilicon Etch Time
- Substrate Sheet Resistance (same as week 4)