EMERGING COMMUNICATIONS
TECHNOLOGY INSTITUTE
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SU8-5 negative resist

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Summary:
This document describes spin and patterning using SU8-5 negative resist.

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1 Associated Documents & References

Sample cleaning
Chemicals used:

MSDS if chemicals or gas involved.
Laurell spin coater standard operating procedure
Suss mask aligner standard operating procedure
Programmable oven standard operating procedure
Rules and procedures of cleanroom

2 Equipment Used

Laurell spin coater
WetBench

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Hotplate
Suss MA6 mask aligner
metal tweezers
flat glass petri dish

3 Verifications Prior to Processing

Spinner clean. Photoresist is not old.

4 Recipe description

We gratefully acknowledge George Ye (Prof. Sun's Group, MIE) for this basic procedure.

Slide preparation

1. Remove glass slide from acetone bath
2. Blow dry with Nitrogen gas
3. Keep on hotplate at high temp (about 150 °C) for as long as possible (minimum 5 mins)
4. Let cool on cleanroom wipe

Fabrication Process

1. Use Pasteur transfer pipette, drop approx 1 ml of SU-8 5 on glass slide
2. Tilt slide to spread the SU-8 over as much area as possible
3. Place slide in Laurell spin coater, and spin with the following parameters:

Step	RPM	ACL (rpm/s)	ACL time **(s)**	**Dwell** Time (s)
a	500	88	5s	30s
b	2500	523	10s	30s

4. Bake at 65 C for 2 minutes
5. Ramp up the temperature to 95° and bake for 5 minutes
6. Flood Expose in UV aligner at 31 mJ/s for 6 seconds (cleanroom Karl Suss mask aligner)
7. Post-Exposure bake at 65 degrees C for 2 minutes
S. Ramp up the temperature to 95° C and Post-Exposure bake for *5* minutes
9. Allow sample to cool to room temperature
10. Immerse in SU-8 developer, mild agitation for 2 minutes
11. Wash thoroughly in DI water
12. Blow dry with nitrogen gas
13. Bake at 175° C for at least 20 minutes to harden the cross-linked SU-8

Store for future use
Make sure to clean up area thoroughly when finished.

For a 6 micron layer, change the spin time
and speed. The exposure is soft-exposure for 5 seconds.

Step1: 500 RPM for 10 seconds ACL 004
Step2: 500 RPM for 30 seconds ACL 015

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Step3: 6000 RPM for 10 seconds ACL 015
Step4: 6000 RPM for 2 minutes ACL 015

For SU 8 25, make a layer about 50um thick. It is again very similar to the seed layer protocol with the pre/post baking time and Spin time and speed changed.

Pre/Post-bake: 7 min @ 65 degrees and 20 minutes @ 95 degrees

Step1: 500 RPM for 5 seconds ACL 004
Step2: 500 RPM for 30 seconds ACL 011
Step3: 1000 RPM for 5 seconds ACL 004
Step4: 1000 RPM for 33 seconds ACL 015

Exposure time is soft exposure for 20 seconds.

5 Technical Data

Cleanroom at 22 ± 1C, 45 ± 5 %RH
Suss MA6: 16 mW/cm2 at 365 nm, 32 mW/cm2 405 nm

6 Measurements & Statistical Process Control

7 Record of Revisions

Rev. 0	First Edition

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