

LOR 10B/S1813 liftoff procedure

April 2020

- 1) Clean PR off mask:
 - a. Acetone
 - b. IPA
 - c. DI SRD
 - d. O2 RIE 3min 100 W Technics Etcher
 - e. DI SRD
- 2) Clean and Dehydrate Si Wafer immediately prior to spinning
 - a. O2 plasma 100W
 - b. 2 min
 - c. Technics Etcher
- 3) Spin CEE 100 Spinner
 - a. Use chuck that is slightly smaller than substrate
 - b. HMDS 3000 rpm 30 sec
 - c. LOR 10B 2000rpm 60 sec
- 4) Bake LOR 10B
 - a. 200 C hotplate
 - b. 5 min
- 5) Spin S1813
 - a. 2000 rpm
 - b. 60 sec
- 6) Bake Shipley 1813
 - a. 110 C
 - b. 60 sec
- 7) Align/Expose
 - a. Hard contact
 - b. 50-60 mJ/cm² ~10-12sec on Suss aligner
- 8) Develop
 - a. AZ 300 MIF developer
 - b. ~30 seconds
- 9) Rinse/Dry
 - a. DI Rinse 3 min
 - b. Spin rinse dry (or N2 gun for pieces)
- 10) Liftoff deposition
 - a. Keep total film thickness less than 1/3 of photoresist height (PR ~2um, so film max ~670nm)
 - b. Denton 80: keep power less than or equal to 50W
 - c. Denton 635: keep power less than or equal to 100 W
 - d. TMV: keep power less than or equal to 100 W
 - e. E-gun: Keep temperature readout below 40C

11) Liftoff

- a. Place the wafer inside the metal tub with the o-ring around it covered with acetone about 1 cm deep
- b. Place the metal tub inside the ultrasonic bath filled with water
- c. Turn on ultrasonic power for 5-10 minutes until film lifts off
- d. Rinse thoroughly with acetone/IPA to remove particles (**do not allow to dry until thoroughly rinsed or particles will stick everywhere**).
- e. DI rinse 3 min then SRD

12) Strip LOR 10B (Acetone does not attack LOR)

- a. Immerse wafer in AZ 300 MIF developer inside wet bench for 1-2 min
- b. DI rinse 3 min
- c. SRD