

Fabrication of Permalloy films on silicon substrate

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Material Considerations

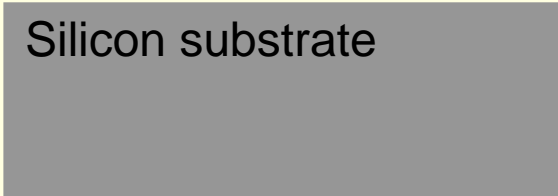
- Mask Size- 5 inch
- Wafer Size- 4 inch
- photoresist AE 5143
- Photoresist Thickness- 1um to 4um
- Thickness of Permalloy- 10nm to 1um

Procedural Steps

- Singeing or Cleaning
- Photo-Lithography:
 - Coating
 - Pre-Bake
 - Exposure
 - Image Reversal
 - Development
- Sputtering
- Lift-off

Cleaning

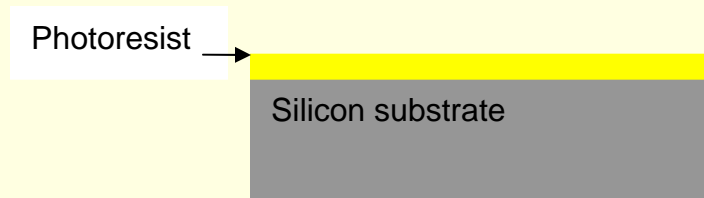
- Place the wafer inside spinner
- Pour acetone on the wafer
- Blow dry the wafer after cleaning



Silicon substrate

Coating

- Place the wafer inside spinner
- Pour photoresist
- Switch on vacuum
- Spin the wafer
- Check that there is no spikes

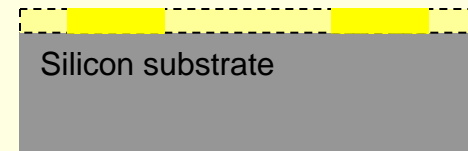


Pre-Bake

- Use Hot Plate for this purpose
- Set the hot plate temperature to 90C
- Place the wafer on the hot plate
- Keep it for 60s by using a stop clock
- Remove the wafer and keep it aside for cooling it to room temperature

Exposure

- Oriel Aligner is used for this purpose
- Use the mask

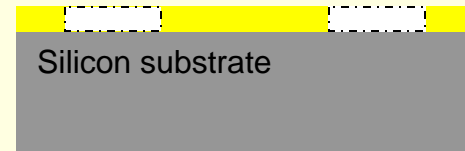


Post Bake

- Use Hot Plate for this purpose
- Set the hot plate temperature to 120C
- Place the wafer on the hot plate
- Keep it for 60s by using a stop clock
- Remove the wafer and keep it aside for cooling it to room temperature

Development

- Fill 1/3rd of a beaker with developer
- Place the wafer
- Rinse it with DI water in a flowing stream
- Blow dry the wafer with nitrogen or air after rinsing

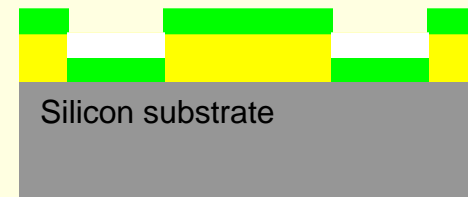


Etching

- Load the chamber with the wafer and close it
- Close the vent and Switch on the vacuum and wait until it reaches to 0.3mT
- Set the time to 1min.
- Switch on the oxygen gas knob
- Press the start button

Sputtering

- Load the substrate and close the chamber



Lift-off

- Fill 1/3rd of a beaker with Acetone
- Place the wafer
- Ultrasonic vibrator

