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Performance Check 1 on MA6 Mask Aligner

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On-site Inspection 1 on MA6 Mask Aligner (Graduate Student Fellow Program)

Exposure

Prepared by Jonathan Bryan (8/26/2014)

S1813 Coating

- Cleaning: Acetone Sonic-5min, IPA Sonic-5min
- Lithography tool: MA6
- HMDS coating for promoting adhesion:
  - Dehydrate wafer: 150 ºC, 5 min, on the hot plate
  - Spinner: 5000 rpm 60 sec
- S1813 coating:
  - Spinner: 5500 rpm, 60sec (Acceleration 500 rpm/sec)
  - Pre-bake before exposure: 110 ºC, 5 min, on the hot plate.
- Exposure: 140, 145, 150, 155, 160 mJ/cm²
- Develop: MF-319, 30 sec

The best condition is found to be at 150 mJ/cm².
S1818 Coating

Prepared by Jonathan Bryan (10/17/2014)

- Cleaning: Acetone Sonic-5min, IPA Sonic-5min
- Lithography tool: MA6
- HMDS coating for promoting adhesion:
  - Dehydrate wafer: 150 ºC, 5 min, on the hot plate
  - Spinner: 5000 rpm 60 sec
- S1818 coating:
  - Spinner: 5500 rpm, 30sec (Acceleration 500 rpm/sec)
  - Pre-bake before exposure: 110 ºC, 5 min, on the hot plate.
- Exposure: 140, 150, 155 mJ/cm2
- Develop: MF-319, 60 sec

- Sample prepared for:
  - 140 mJ/cm2 and 30s development time
    - Development time was too low – lousy result
  - 150 mJ/cm2 and 60s development time
  - 155 mJ/cm2 and 60s development time

1.5 µm width Line and Various Spaces and 1.5 µm diameter dots

- Distances between 1.5 µm width lines: 10, 5, 4, 3, and 2 µm.
50 µm x 50 µm Block and 1.5 µm Space

Various Blocks

- Sizes of blocks: 3, 5, 7, 10 µm, and larger.

Positive and Negative Tones

- Line width: 10 µm
- Line gap: 1.5 µm