nLOF2020 Profiles using Contact Aligner

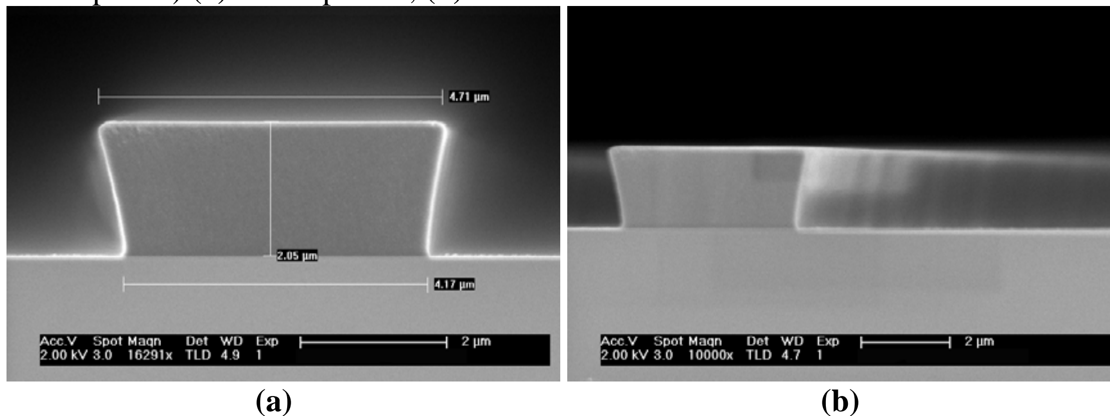
AZ nLOF-2020 (Negative Tone)

Process:

- Clean a Si wafer piece: Acetone (2') + Methanol (1') in ultrasonic cleaner; DI water resin and N_2 blow dry.
- Dehydration bake @ 110 ^{0}C for 5 minutes.
- Spin-on HMDS @ 3000 rpm for 30 seconds.
- Spin-on nLOF-2020 resist @ 3000 rpm for 30 seconds.
- Soft bake @ 110 ^{0}C for 90 seconds.
- Resist edge bead removal using Q-tip soaked with Acetone.
- Expose resist with a I-line filter (1.5 mW/cm^2 using 365-nm detector).
- Post exposure bake @ 110 ^{0}C for 60 seconds.
- Develop the exposed resist pattern in AZ-300 MIF developer.

Result:

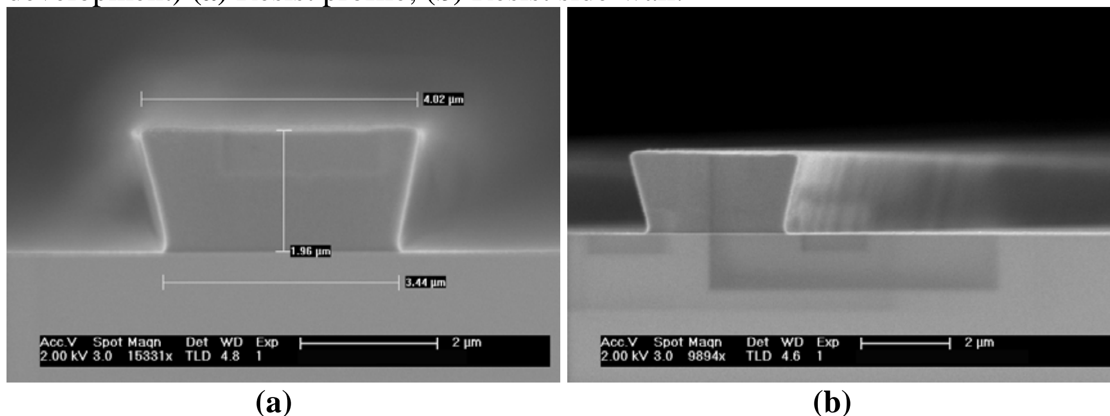
Figure 5 Resist exposure time=10 seconds and development time=60 seconds (over development) **(a)** Resist profile; **(b)** Resist side-wall.



(a) **(b)**

Note: Resist Thickness=2.05 µm and the under-cut feature appears in the resist profile.

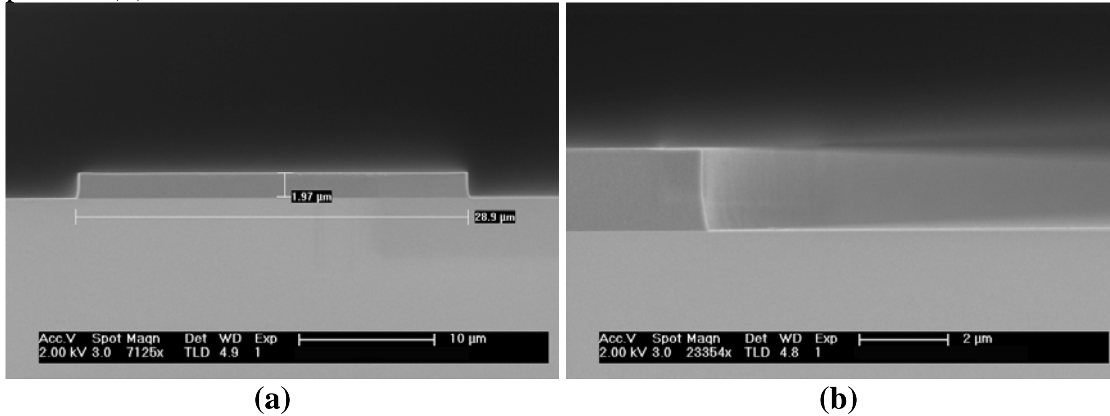
Figure 6 Resist exposure time=5 seconds and development time=60 seconds (over development) **(a)** Resist profile; **(b)** Resist side-wall.



(a) **(b)**

Note: Resist Thickness=1.96 µm and the under-cut feature appears in the resist profile.

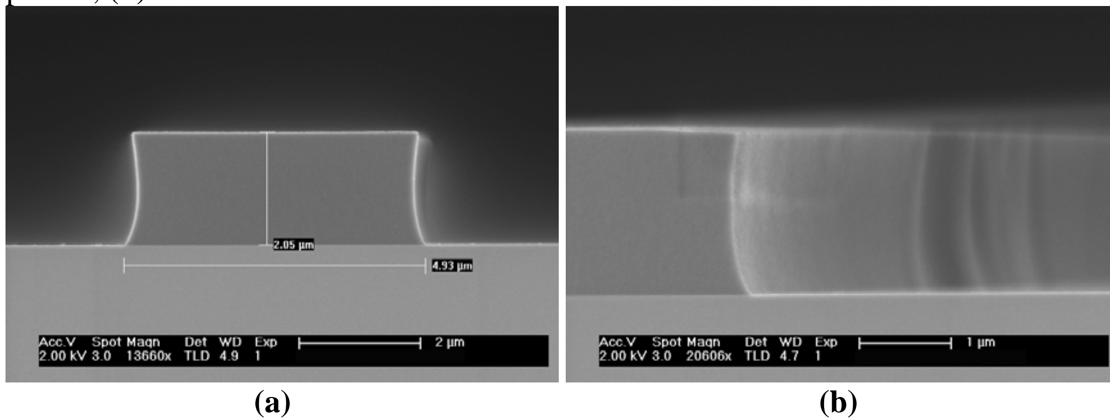
Figure 7 Resist exposure time=10 seconds and development time=25 seconds **(a)** Resist profile; **(b)** Resist side-wall.



(a) **(b)**

Note: Resist Thickness=1.97 µm. The profile of the resist side-wall is almost vertical. With the increase of development time to 60 seconds, an under-cut feature appears in the resist profile (see Figure 5).

Figure 8 Resist exposure time=5 seconds and development time=30 seconds **(a)** Resist profile; **(b)** Resist side-wall.



(a) **(b)**

Note: Resist Thickness=2.05 µm. The profile of the resist side-wall is almost vertical. With the increase of development time to 60 seconds, an under-cut feature appears in the resist profile (see Figure 6).