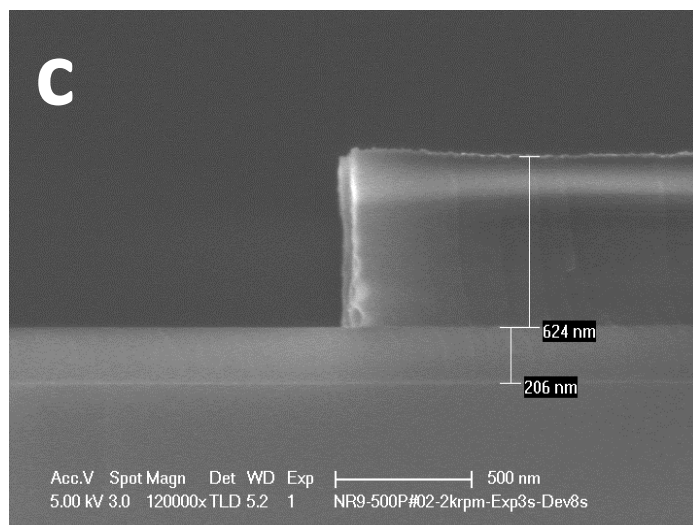
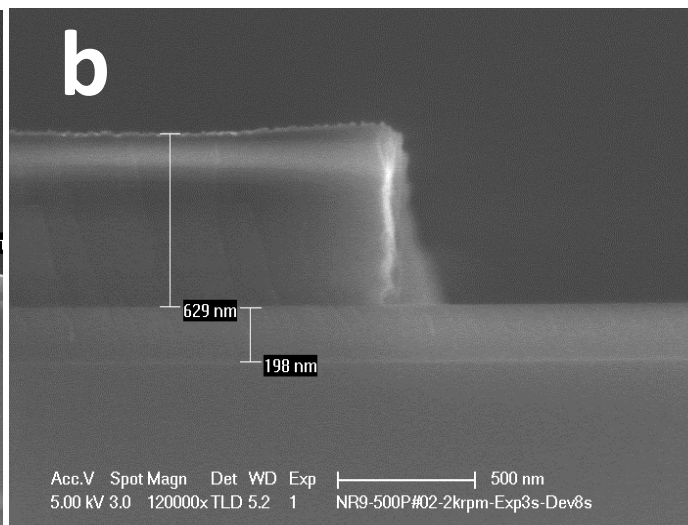
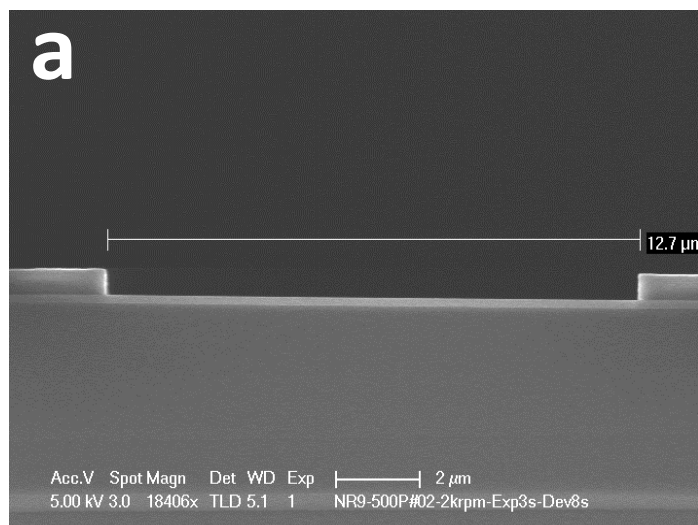


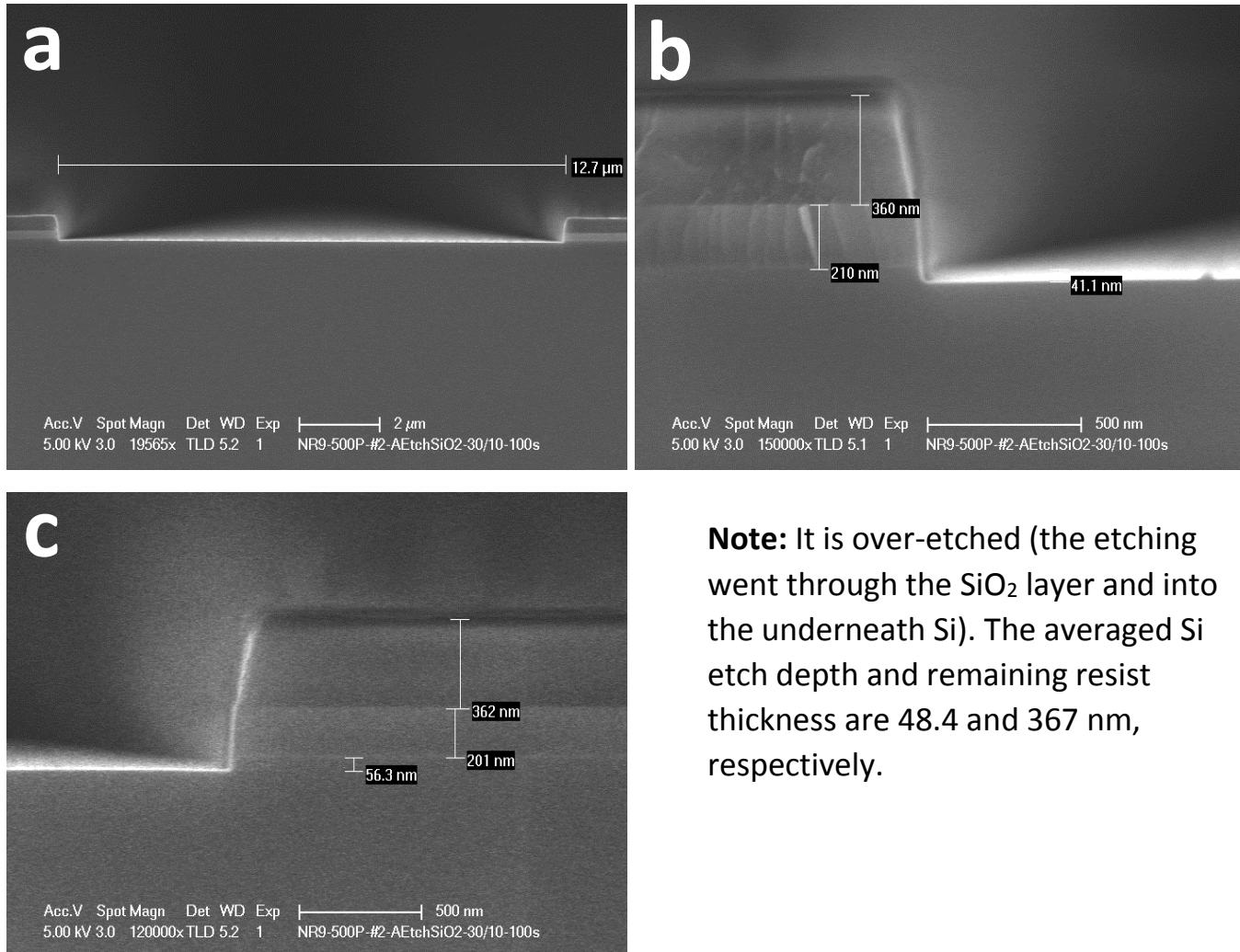
Vertical Side-wall SiO₂ Etching Profile

Figures 1 (a), (b), and (c) Resist profile (exposing time=3 s; average resist thickness=0.618 μm).



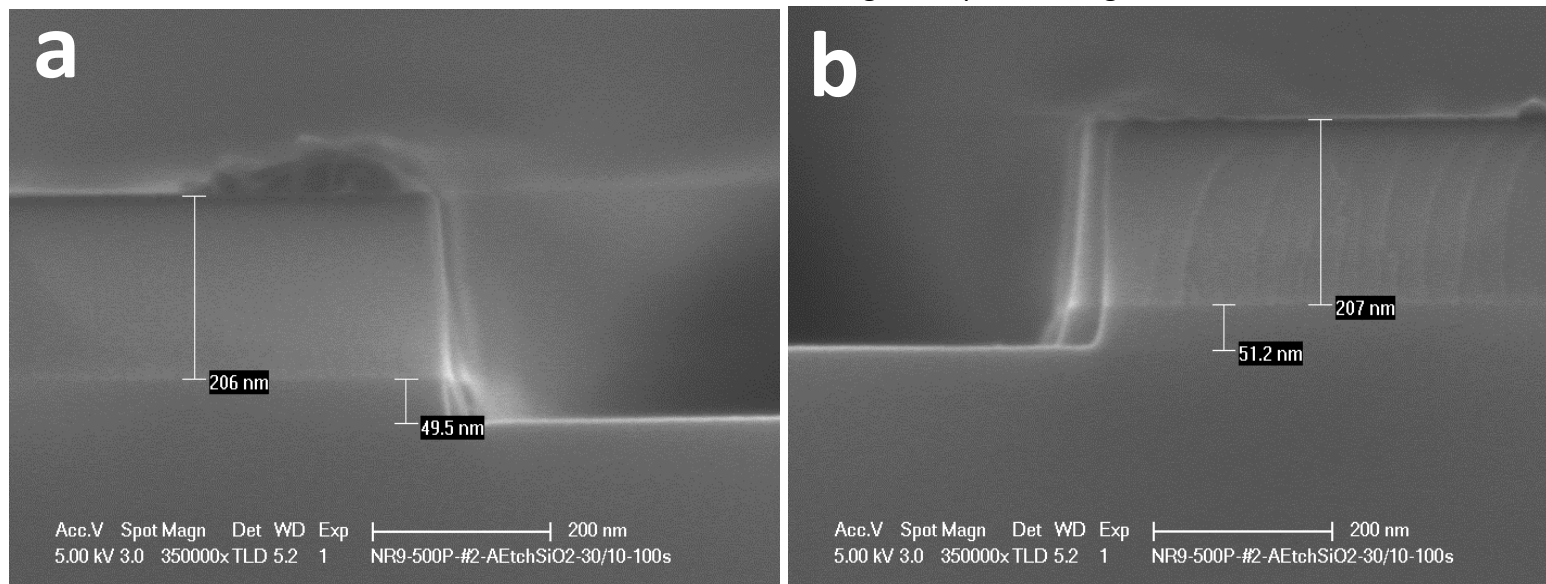
SiO₂ Etch using Panasonic ICP#2

Figure 2 (a), (b), and (c) SiO₂ etch profile of sample #02 (expose time=3 seconds) using Panasonic ICP#2 with 0.5Pa, 50/900W, CF₄/CHF₃ flow-rate=30/10 SCCM, and etch time=100 seconds.



Note: It is over-etched (the etching went through the SiO₂ layer and into the underneath Si). The averaged Si etch depth and remaining resist thickness are 48.4 and 367 nm, respectively.

Figure 3 (a) and (b) SiO₂ etch profile of sample #02 (exposing time=3 seconds) using Panasonic ICP#2 with 0.5Pa, 50/900W, CF₄/CHF₃ flow-rate=30/10 SCCM, and etch time=100 seconds after removing the top remaining resist.



Figures 4 (a), (b), and (c) Resist profile of sample #04-C (expose time=3 seconds). The averaged resist thickness is 0.663 μm .

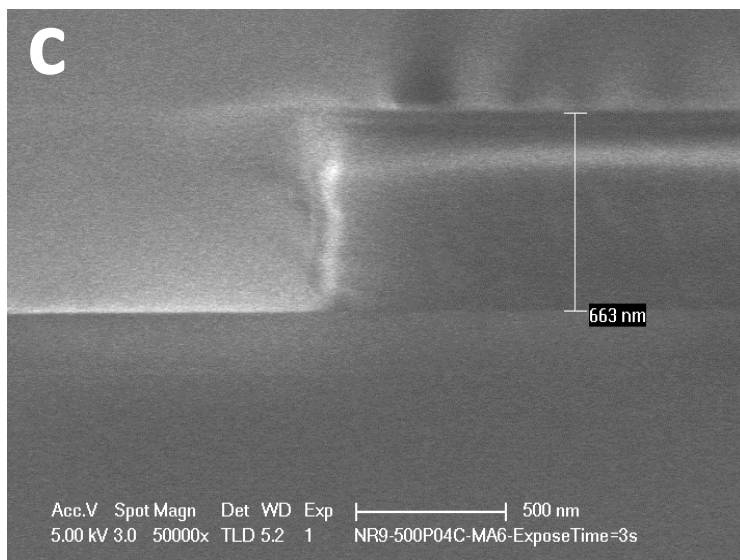
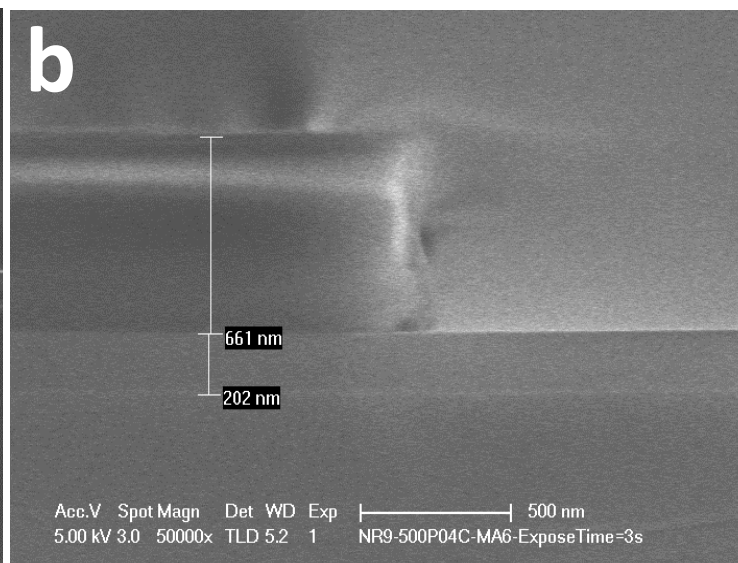
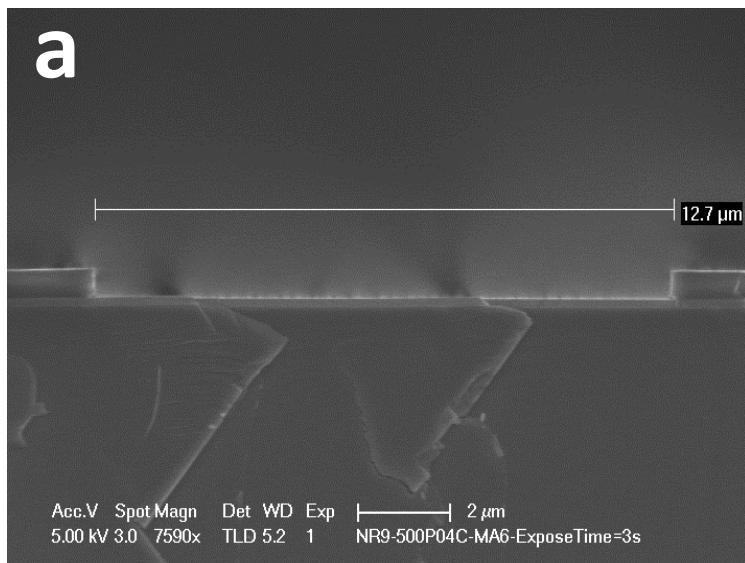
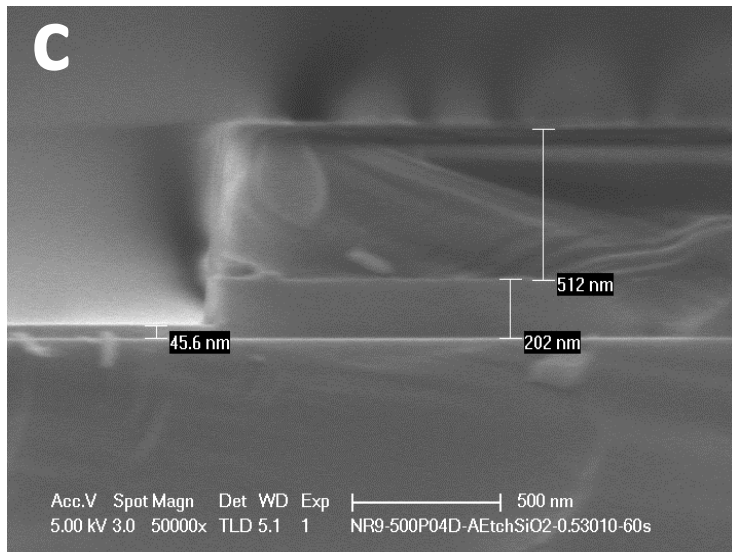
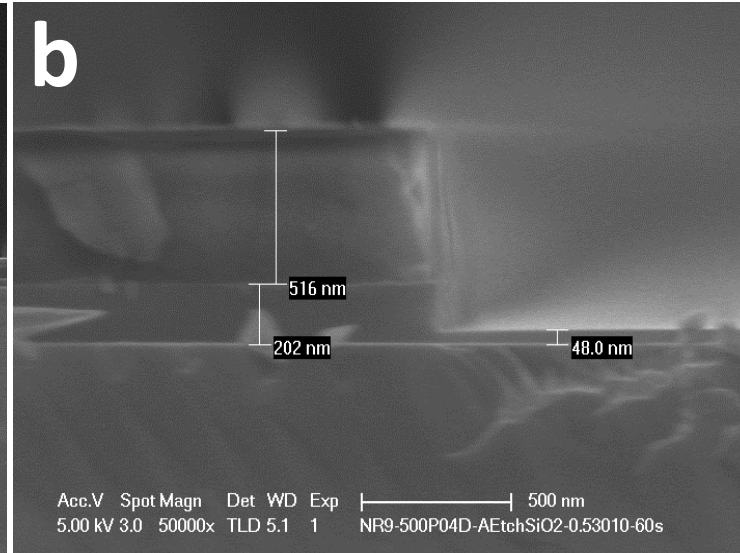
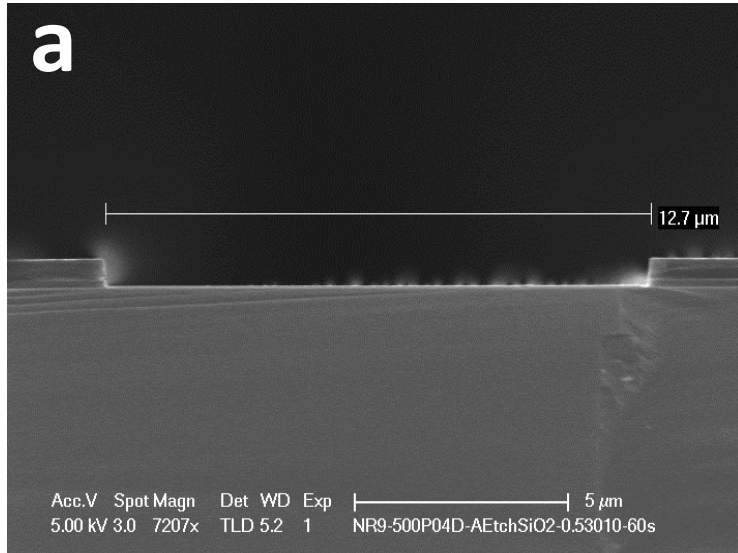


Figure 5 (a), (b), and (c) SiO₂ etch profile of sample #04-D (expose time=3 seconds) using Panasonic ICP#2 with 0.5Pa, 50/900W, CF₄/CHF₃ flow-rate=30/10 SCCM, and etch time=60 seconds.



Note:

- 1) The averaged remaining resist thickness is 0.512 μm.**
- 2) The averaged remaining SiO₂ thickness is 47.8 nm.**

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Conclusion:

With the use of ICP#2 and the recipe of 0.5 Pa, 50/900 W, CF₄/CHF₃ flow-rate=30/10 sccm, one gets

- 1) The SiO₂ etch rate is 152 nm/min.**
- 2) The etch selectivity (SiO₂/resist) is 1.00.**
- 3) The averaged Si etch rate is 138 nm/min.**