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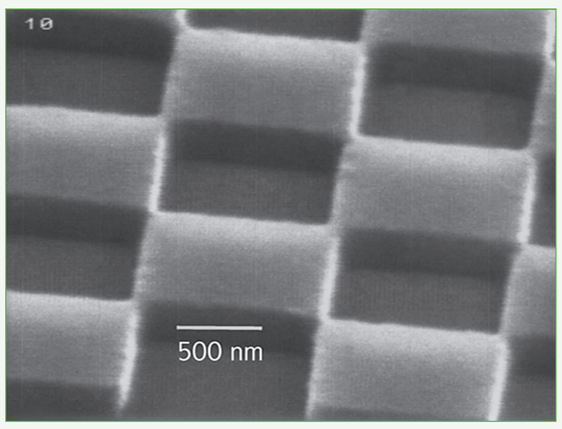
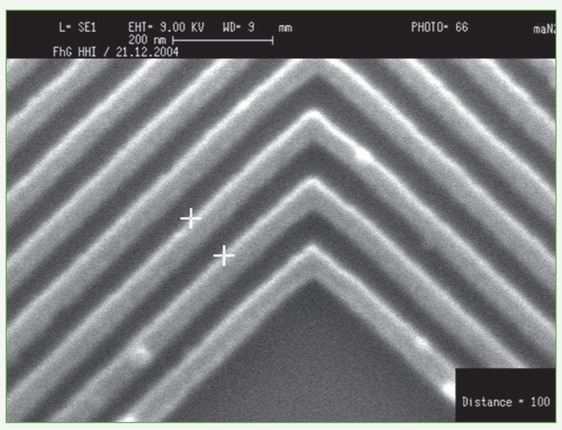
ma-N 2400 — Negative Tone Photoresist Series

E-Beam and Deep UV sensitive

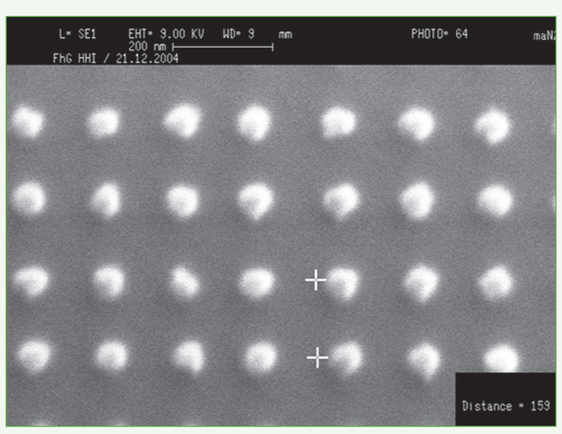
E-Beam



Chess pattern, 300 nm thickness, e-beam

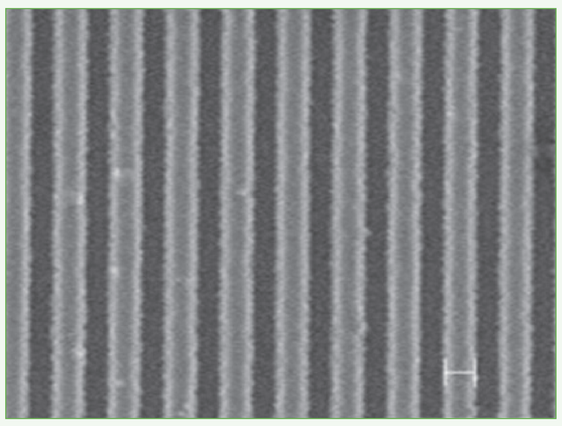


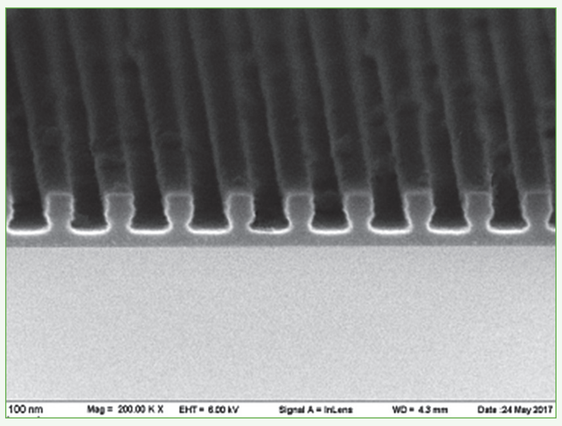
50 nm L&S, 100 nm thickness, e-beam



50 nm dots, 100 nm thickness, e-beam

Deep UV


200 nm period patterns, 100 nm thickness, Deep UV @ 266 nm



94 nm CD, 100 nm thickness, DeepUV@266 nm

Pictures by courtesy of IPHT/ Jena & FhG-HHI/ Berlin for e-beam and of EULITHA/ Zurich for Deep UV

2024

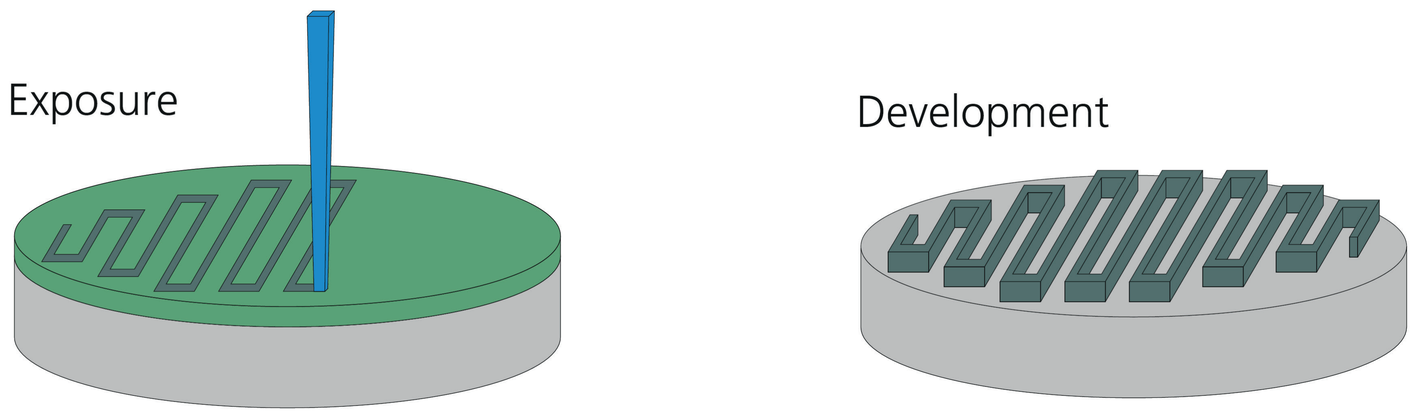
Unique features

- High wet and dry etch resistance
- Good thermal stability
- Excellent pattern resolution - down to 30 nm
- Aqueous alkaline development
- Easy to remove
- Resists available in a variety of viscosities

Applications

- Manufacturing of semiconductor devices
- Use in micro- and nanoelectronics
- Mask for etching, e.g.
  Si, SiO_2, Si_3N_4 or metals
- Mask for ion implantation
- Stamp fabrication for NIL

Process flow



Technical data

Resist		ma-N 2401	ma-N 2403	ma-N 2405	ma-N 2410
Film thickness	nm	100	300	500	1000
Spin coating	rpm; s	3000; 30			
Exposure dose - E-beam @ 10 keV	µC cm^{-2}	20 - 45			
Exposure dose - E-beam @ 20 keV	µC cm^{-2}	80 - 200			
Exposure dose - E-beam @ 30 keV	µC cm^{-2}	95 - 300			
Exposure dose - E-beam @ 50 keV	µC cm^{-2}	150 - 350			
Exposure dose - E-beam @ 100 keV	µC cm^{-2}	240 - 550			
Exposure dose - Deep UV @ 248/254/266 nm	mJ cm^{-2}	2 - 20