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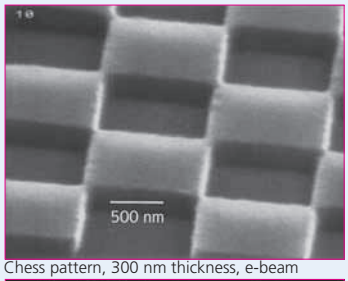
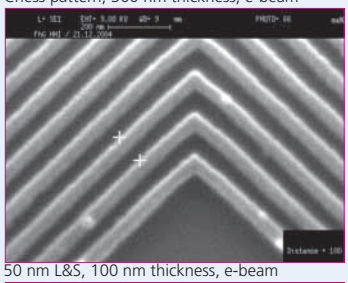
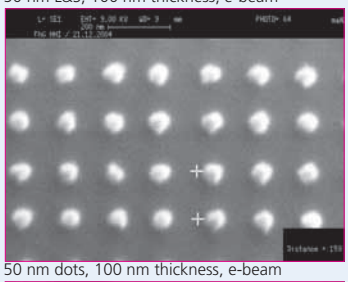
# ma-N 2400 — Negative Tone Photoresist Series

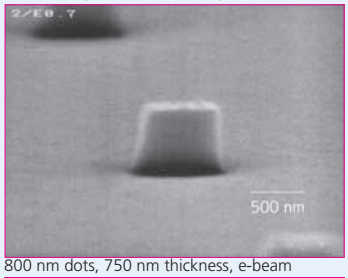
## E-Beam and Deep UV Sensitive



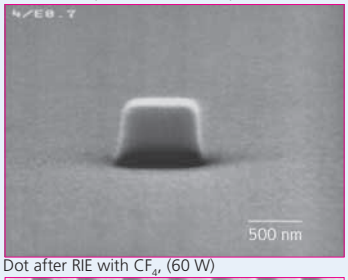
Chess pattern, 300 nm thickness, e-beam


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

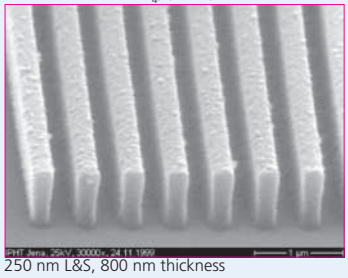

50 nm dots, 100 nm thickness, e-beam



800 nm dots, 750 nm thickness, e-beam



Dot after RIE with $CF_4$, (60 W)


250 nm L&S, 800 nm thickness
(Courtesy of FHG - HHI / IPHT Jena)

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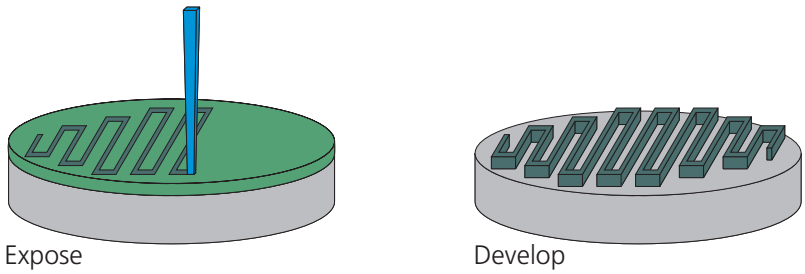
### Unique features

- 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

### ma-N 2400 is well suited for e-beam exposure




### 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 20 keV[1] | | µC $cm^{-2}$ | 120 - 200 | 170 - 235 | 170 - 250 | - |
| Exposure dose - E-beam 50 keV[1] | | µC $cm^{-2}$ | 220 - 350 | 250 - 350 | 300 - 350 | - |
| Exposure dose - Deep UV[2] | | mJ $cm^{-2}$ | - | 260 | 330 | 420 |
| Pattern resolution | E-beam | nm | < 50 | 50 | 100 | 150 |
| | Deep UV | nm | - | 200 | 300 | 500 |

[1] exposure dose depends on the pattern size/ resolution
[2] broadband exposure, intensity measured at 260nm