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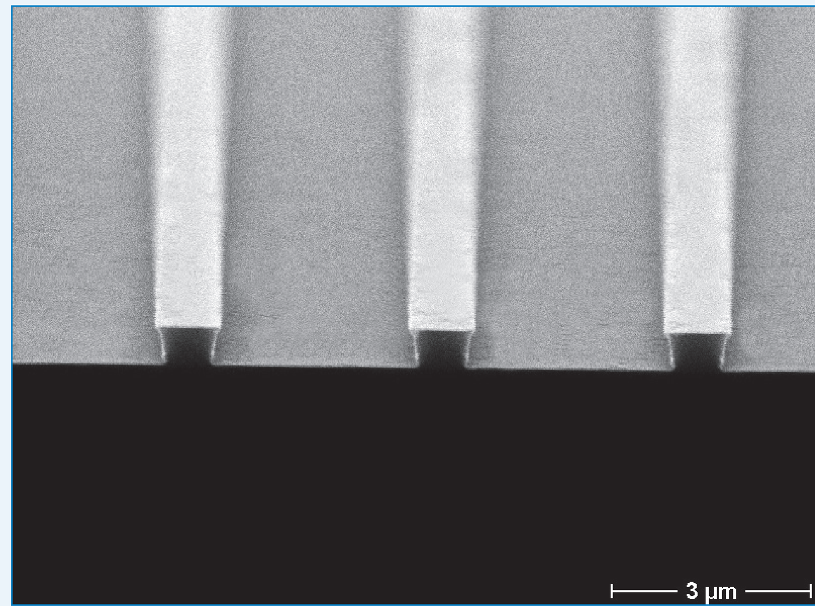
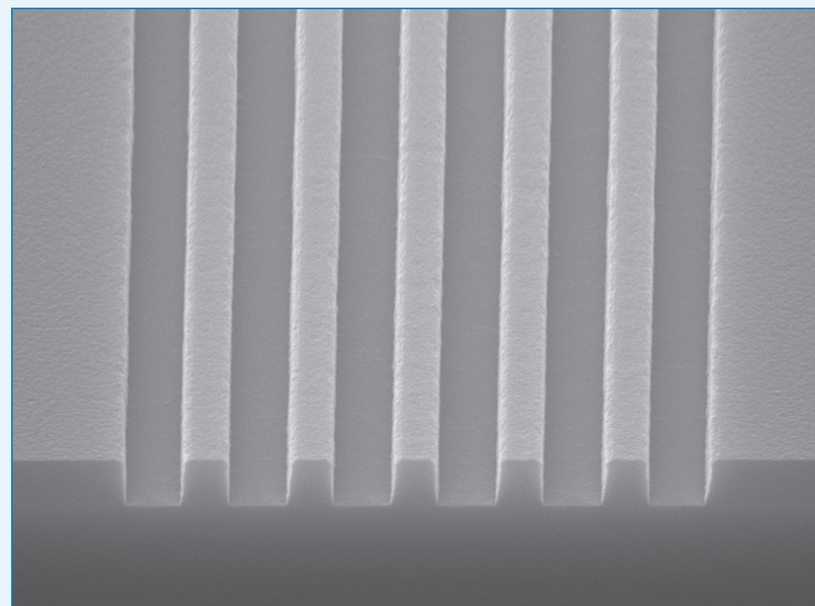
micro resist technology

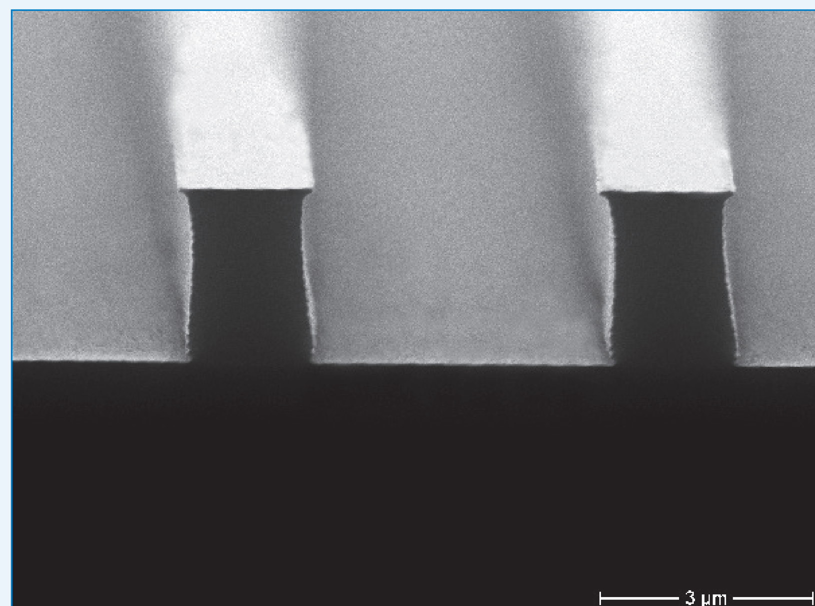
ma-P 1200 — Positive Tone Photoresist Series

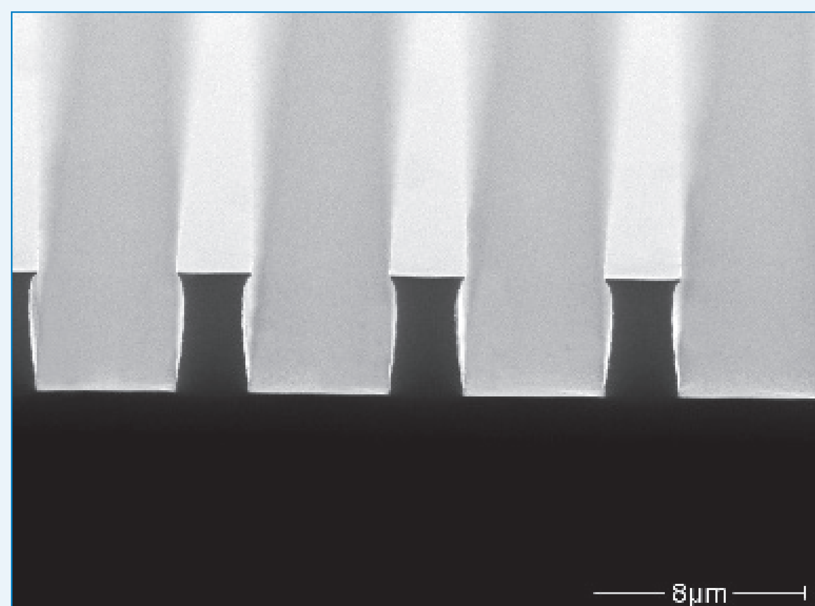
Resists for UV Lithography

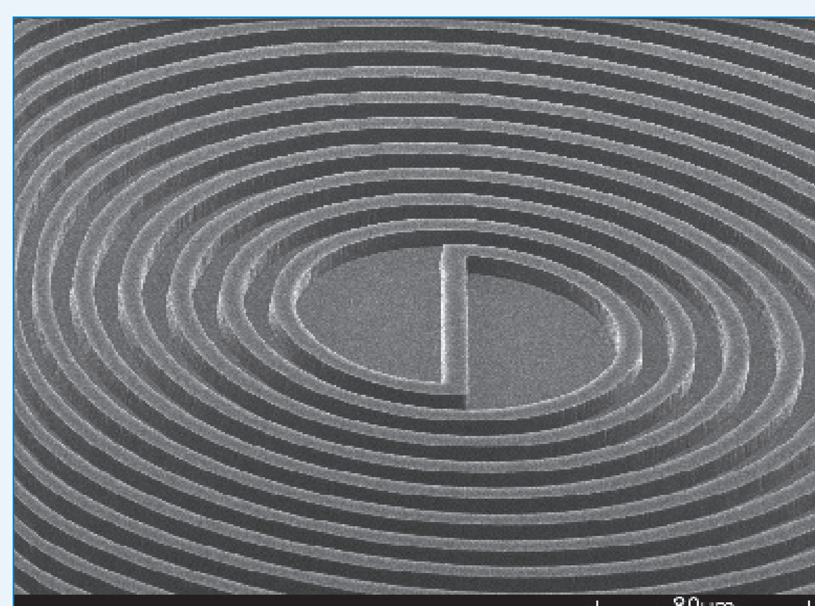
Resist patterning with mask aligner, broadband exposure

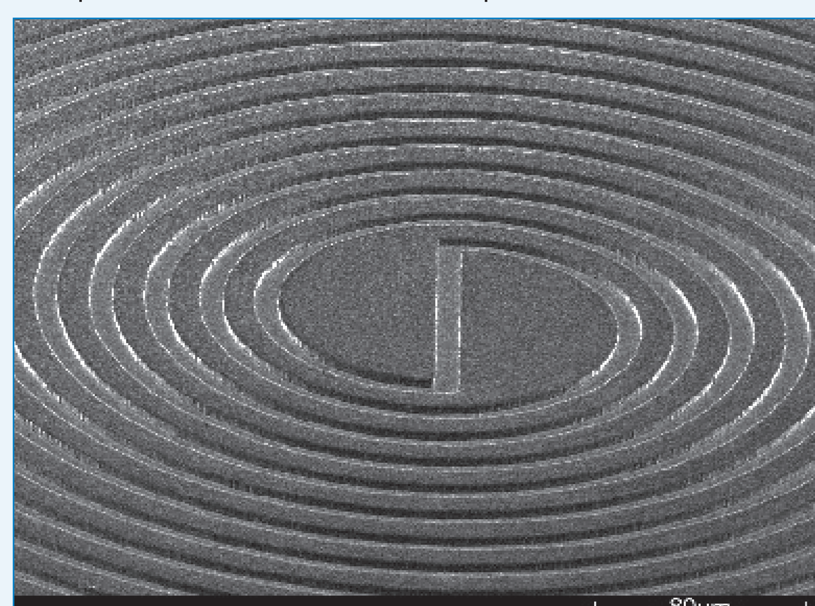

0.5 µm ma-P 1205, 1 µm lines, 3 µm spaces


1 µm ma-P 1210, 0.85 µm lines


2.5 µm ma-P 1225, 2 µm lines, 4 µm spaces


4 µm ma-P 1240, 3 µm lines, 5 µm spaces


7.5 µm ma-P 1275, coil, 10 µm turns


5 µm electroplated Ni coil, 10 µm turns

Unique features

- High pattern stability in wet etch processes and acid and alkaline plating baths
- Highly stable in dry etch processes e.g. CHF_3, CF_4, SF_6
- Aqueous alkaline development
- Easy to remove
- Resists available in a variety of viscosities

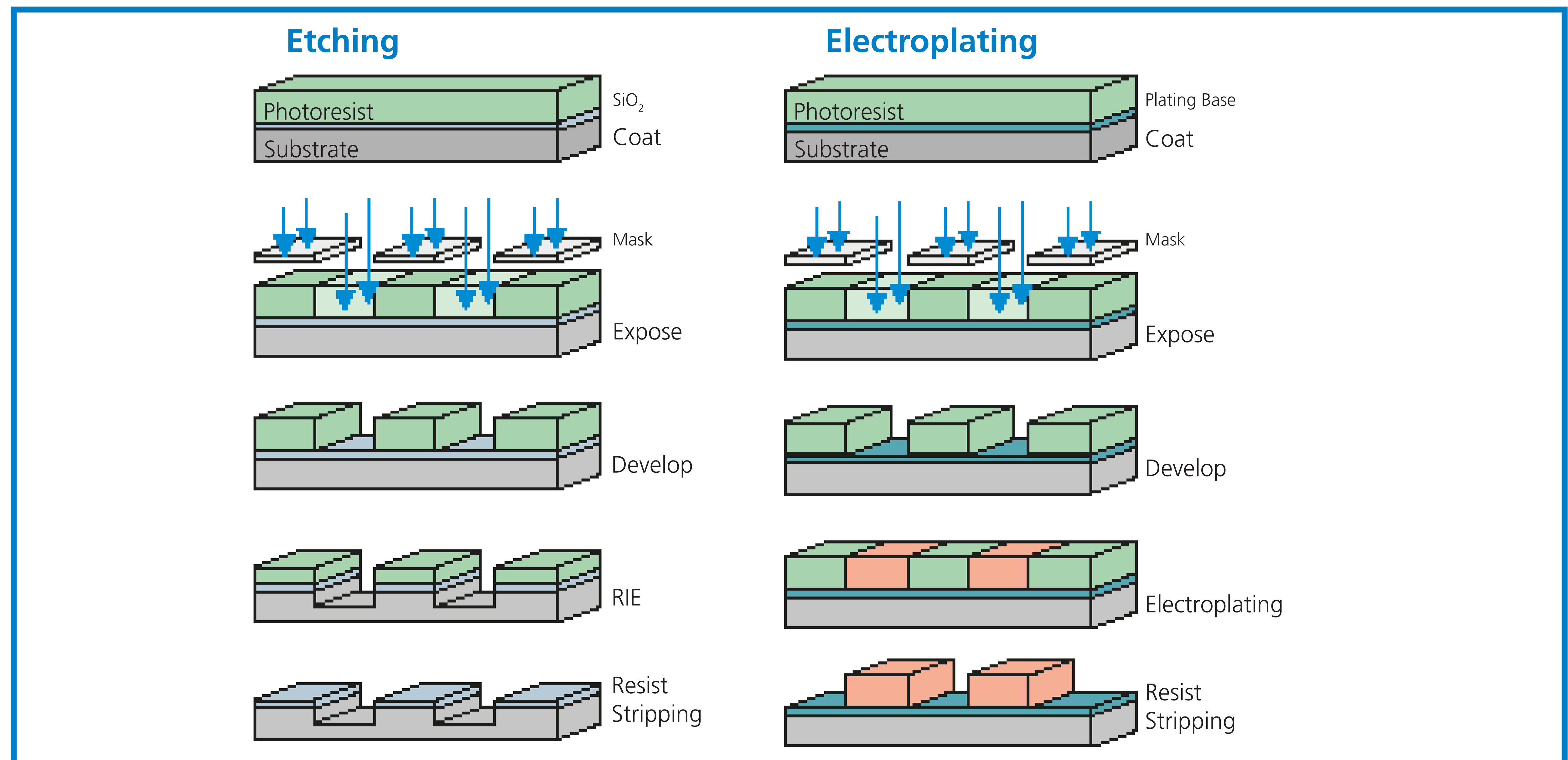
Applications

Mask for etching e.g.
- Si, SiO_2
- Semiconductors
- Metals

Mould for electroplating

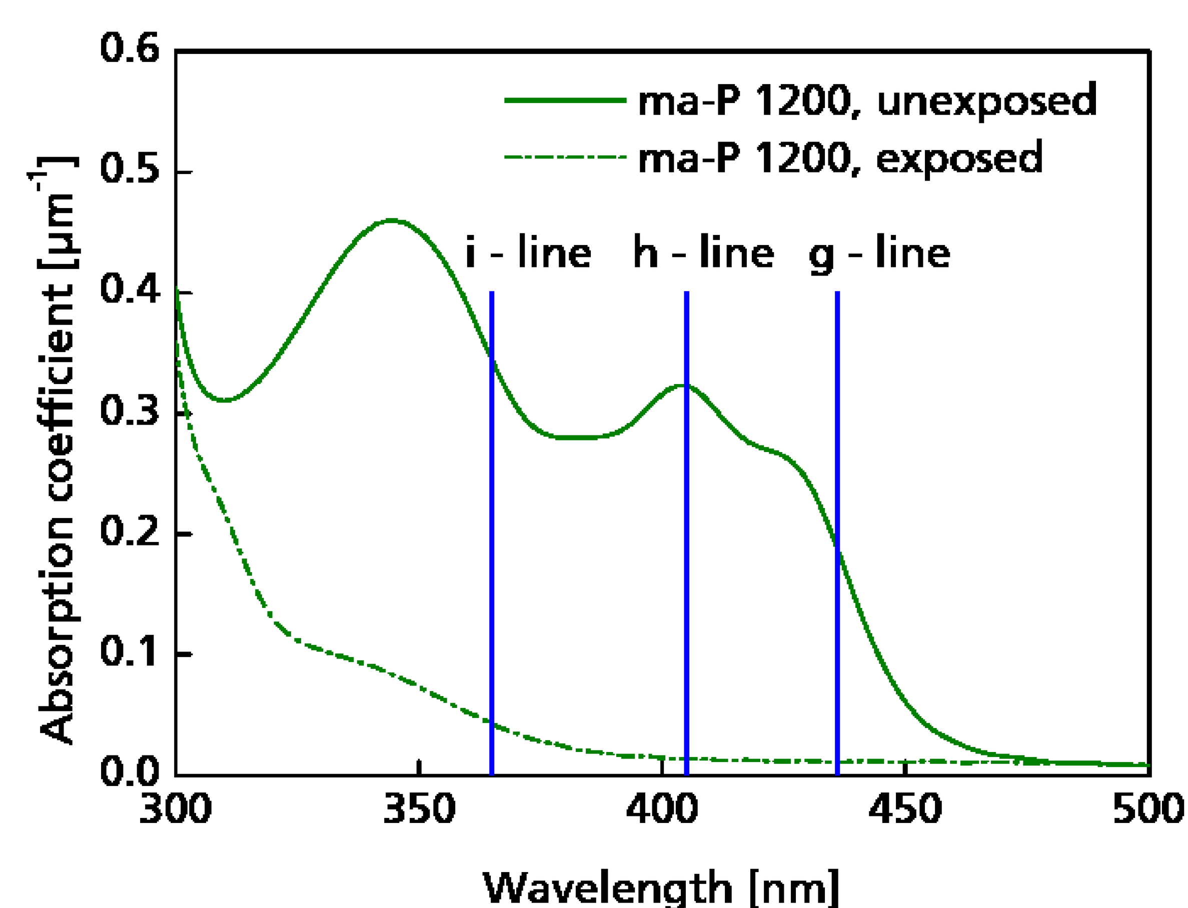
Mask for ion implantation

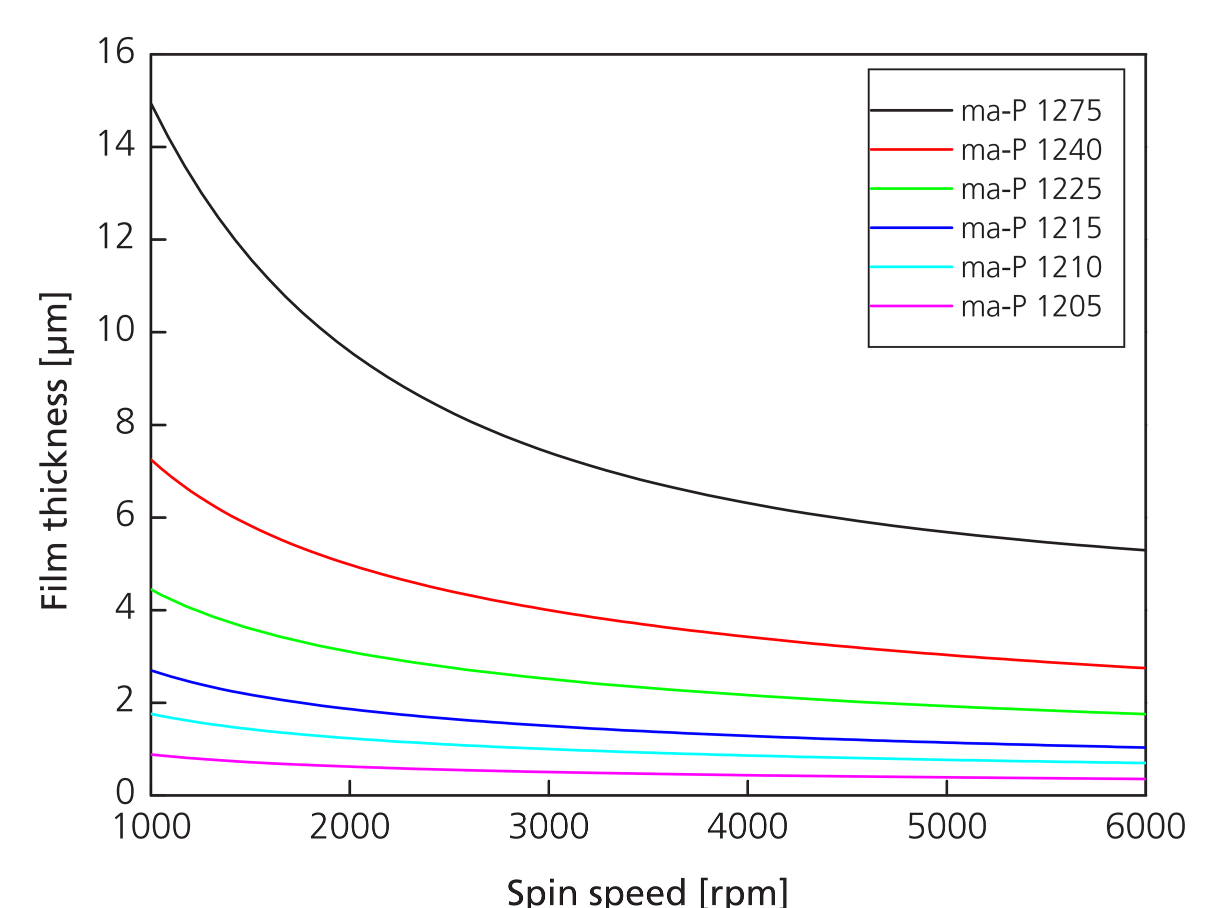
Process flow



Technical data

Resist		ma-P 1205	ma-P 1210	ma-P 1215	ma-P 1225	ma-P 1240	ma-P 1275
Film thickness	µm	0.5	1.0	1.5	2.5	4.0	7.5
Spin coating	rpm s	3000 30					
Spectral sensitivity		broadband, g-, h-, i-line					
Dose @ 365 nm (broadband exposure)	mJ cm^{-2}	35	35	45	55	110	150





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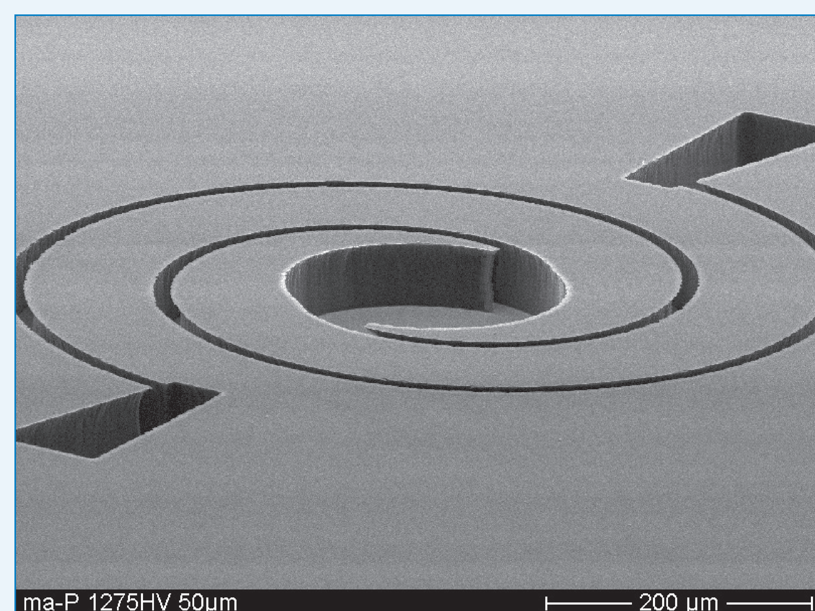
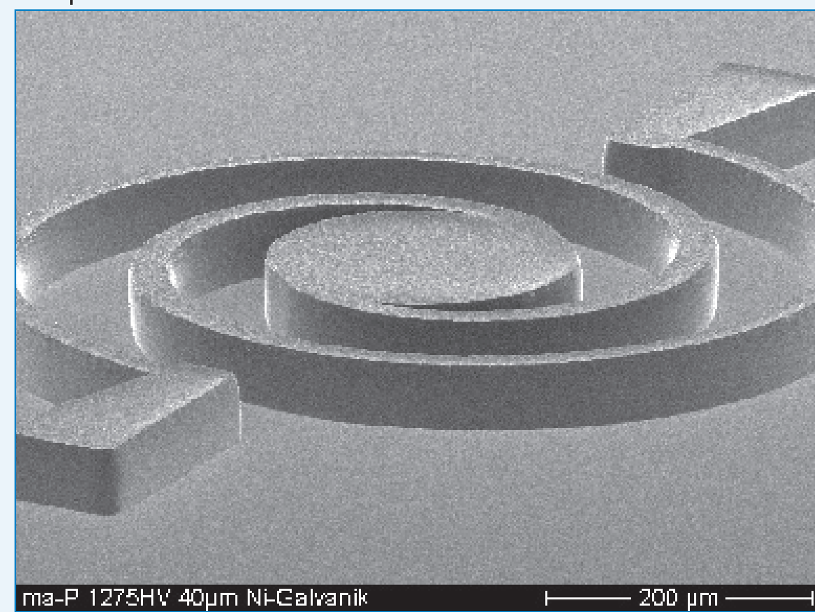
ma-P 1275 and ma-P 1275 HV – Positive Tone Photoresists

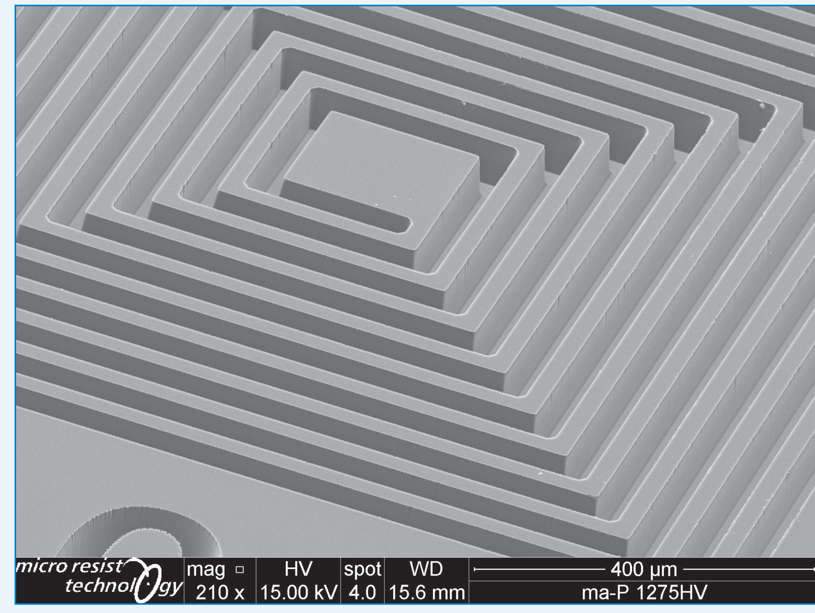
Versatile high viscosity positive tone photoresists for microsystems technology



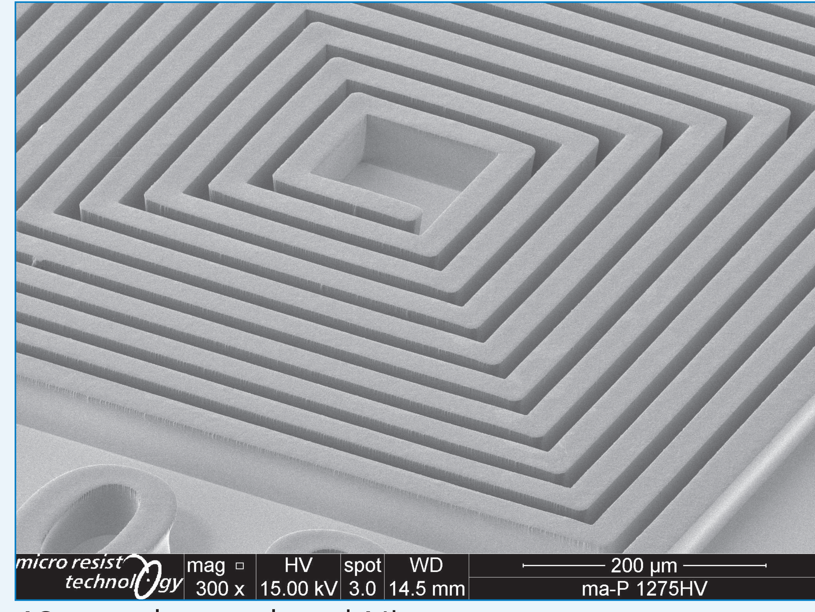
50 µm ma-P 1275 HV



40 µm electroplated Ni

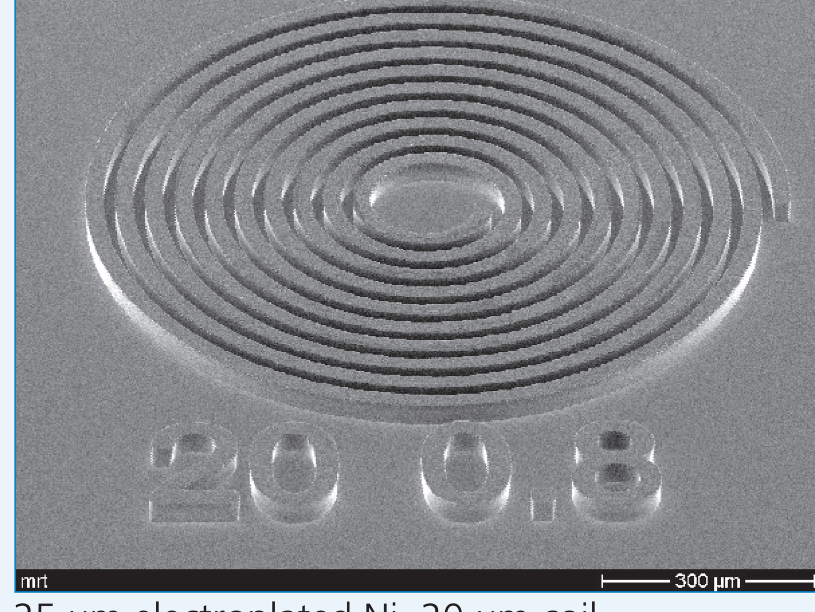


56 µm ma-P 1275HV



48 µm electroplated Ni

30 µm ma-P 1275 HV, 20 µm coil



25 µm electroplated Ni, 20 µm coil

All resist patterns obtained by mask aligner broadband exposure

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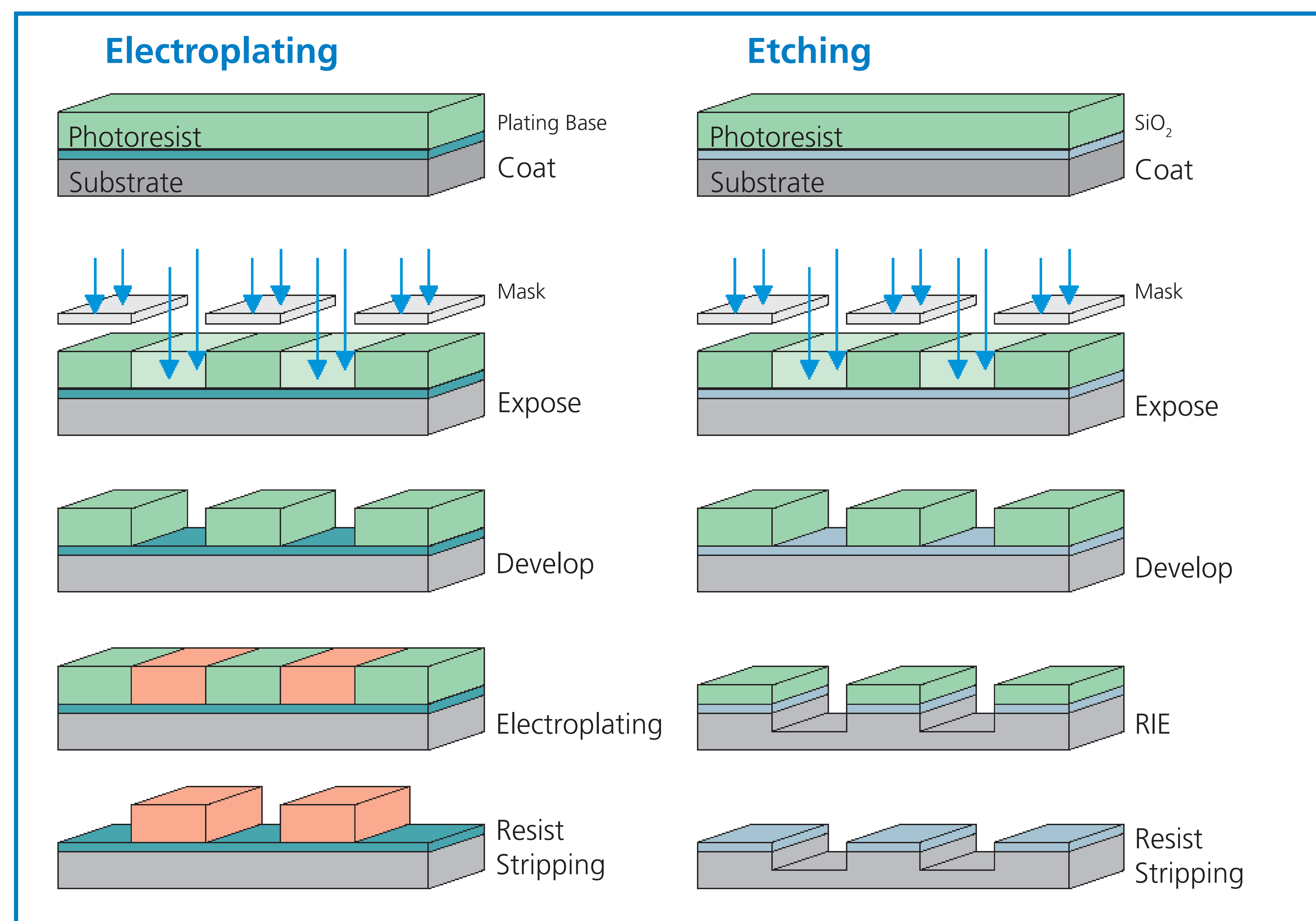
Characteristics

- Designed for electroplating of structures in microsystems technology
- High stability in acid and alkaline plating baths
- High dry and wet etch resistance
- Good thermal stability of the resist patterns attainable
- Aqueous alkaline development
- Easy to remove
- Side wall angle up to 87° with mask aligner broadband exposure
- Suitable for pattern reflow

Applications

- Mould for electroplating
- Etch mask
- Mould for UV moulding, also after reflow
- Mask for ion implantation

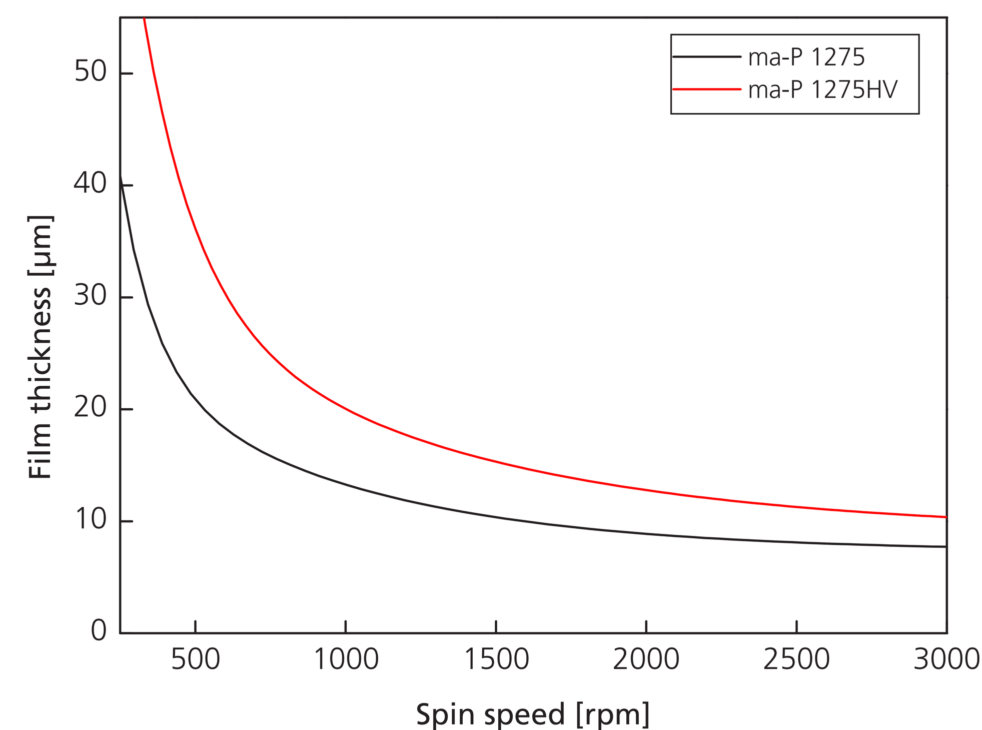
Process flow



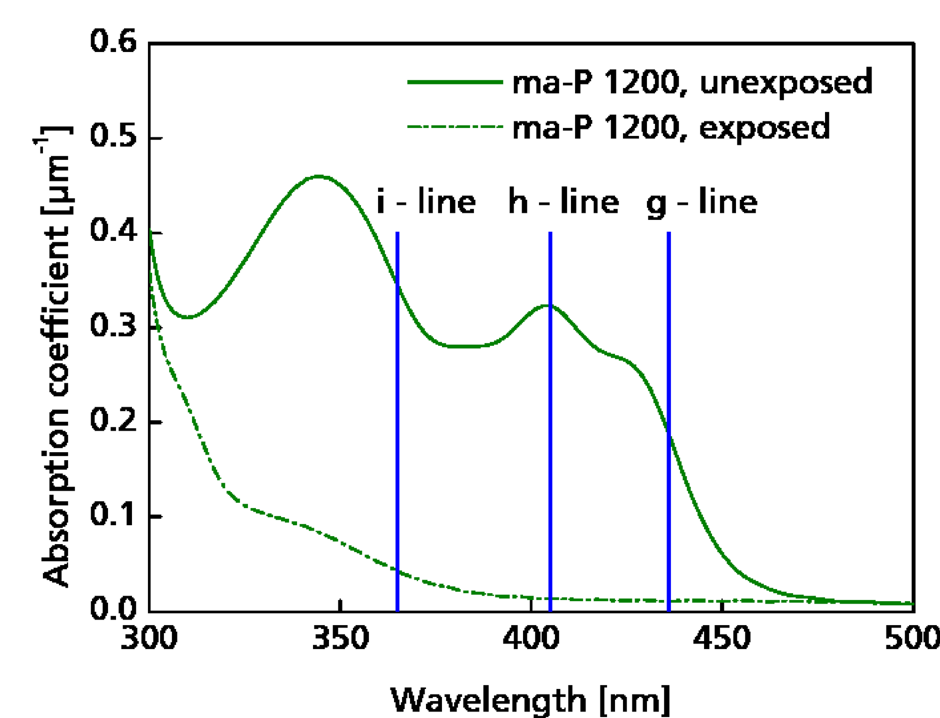
Film thicknesses

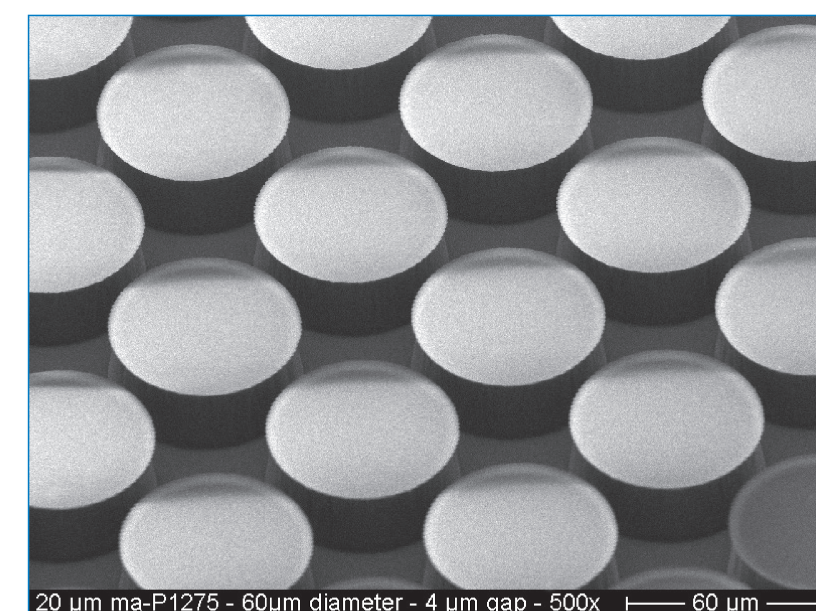
Film thickness	µm	7.5	11	20	30	40	50
ma-P 1275	rpm s	3000 30		500 60	350 60	250 60	–
ma-P 1275 HV	rpm s	–	3000 30	1000 60	600 60	450 60	380 60

Spin curves

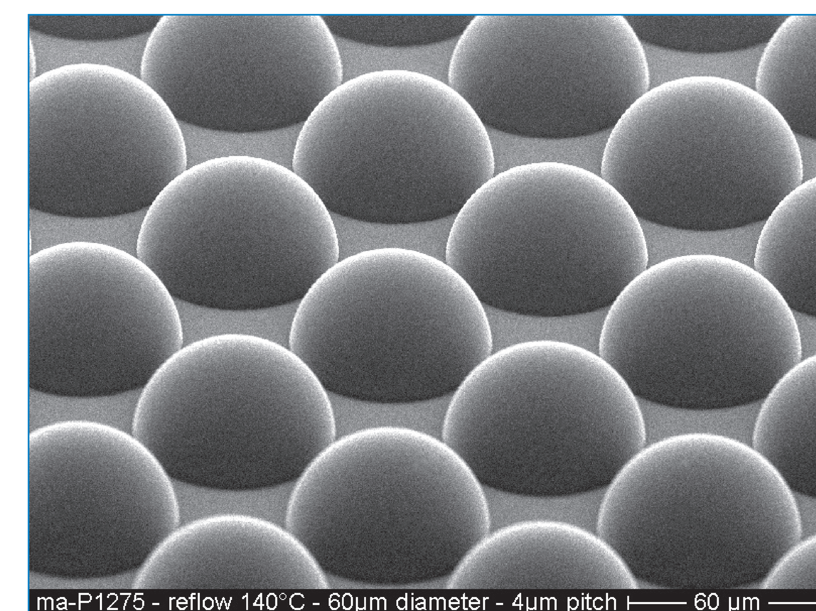


UV/vis spectra

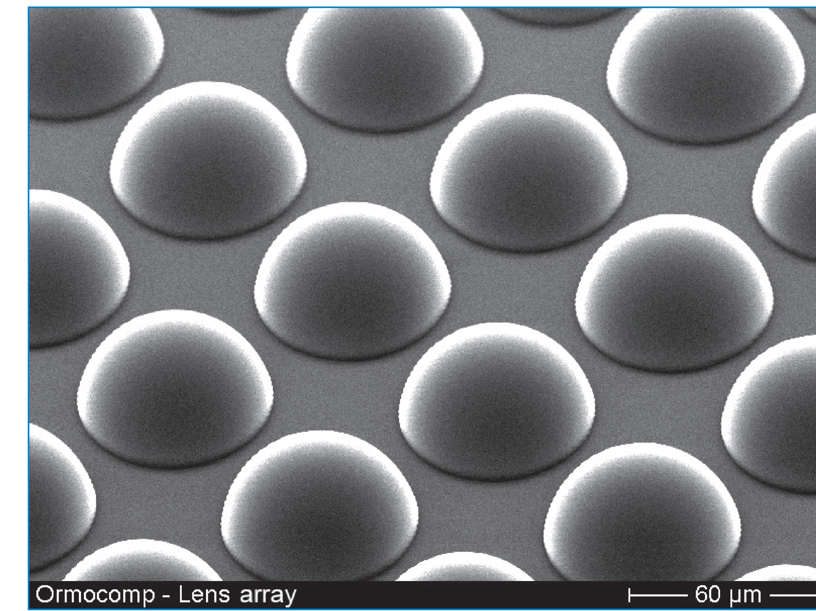




20 µm ma-P 1275 pillars, 60 µm diameter



30 µm reflowed ma-P 1275, 60 µm diameter



Pattern transfered into OrmoComp by twofold UV moulding