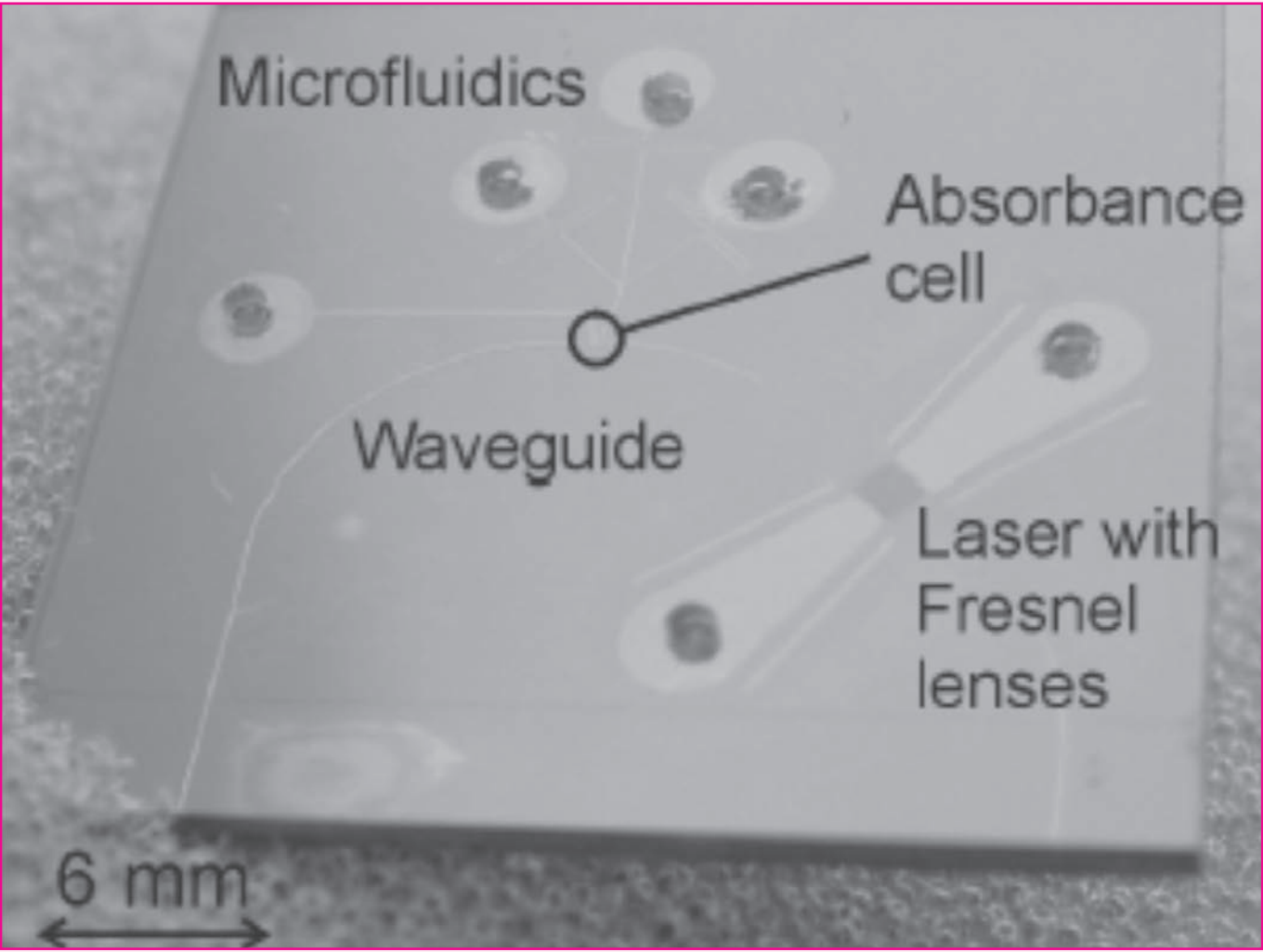
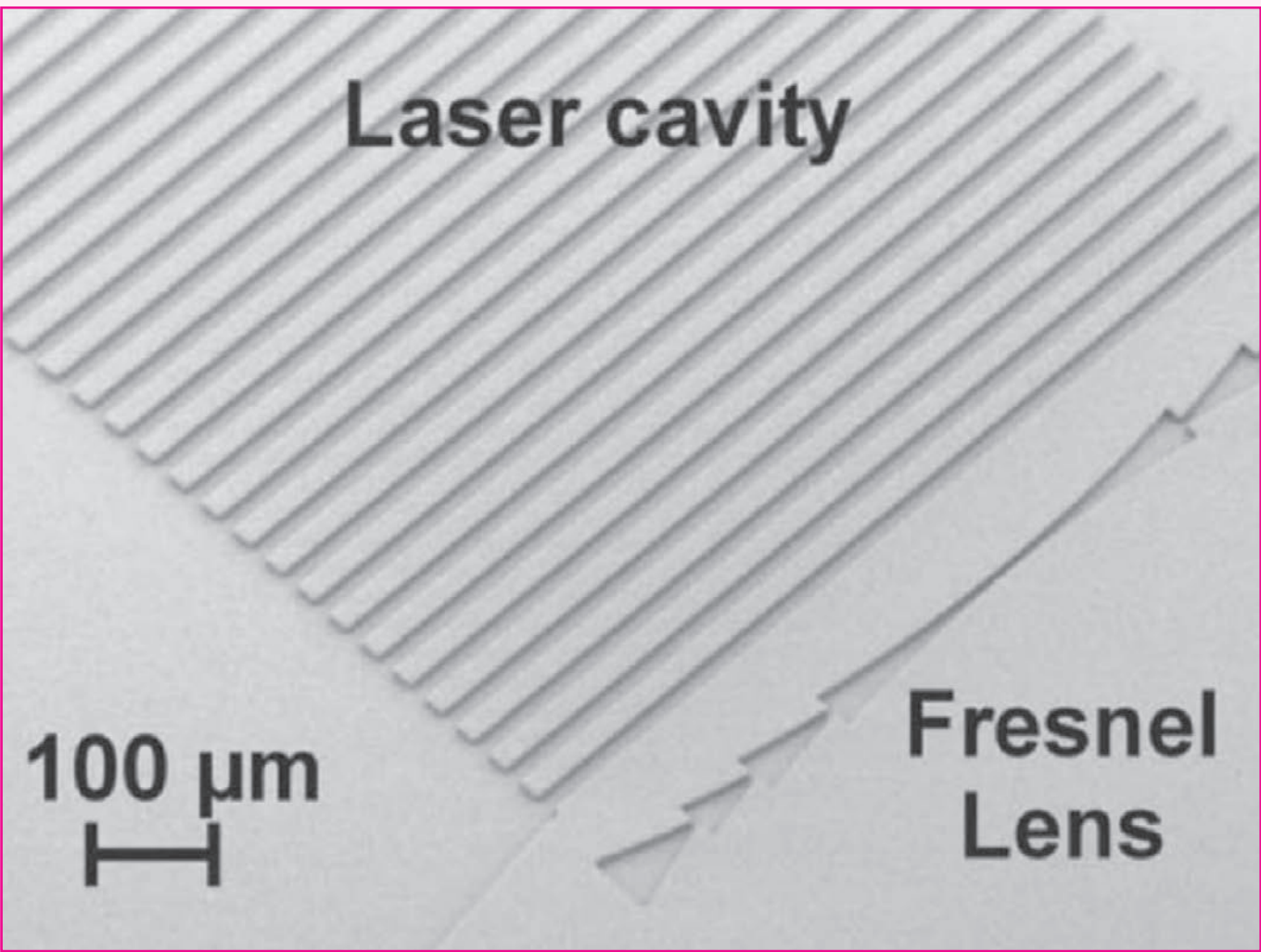


Thermoplastic Polymer for Thermal NIL

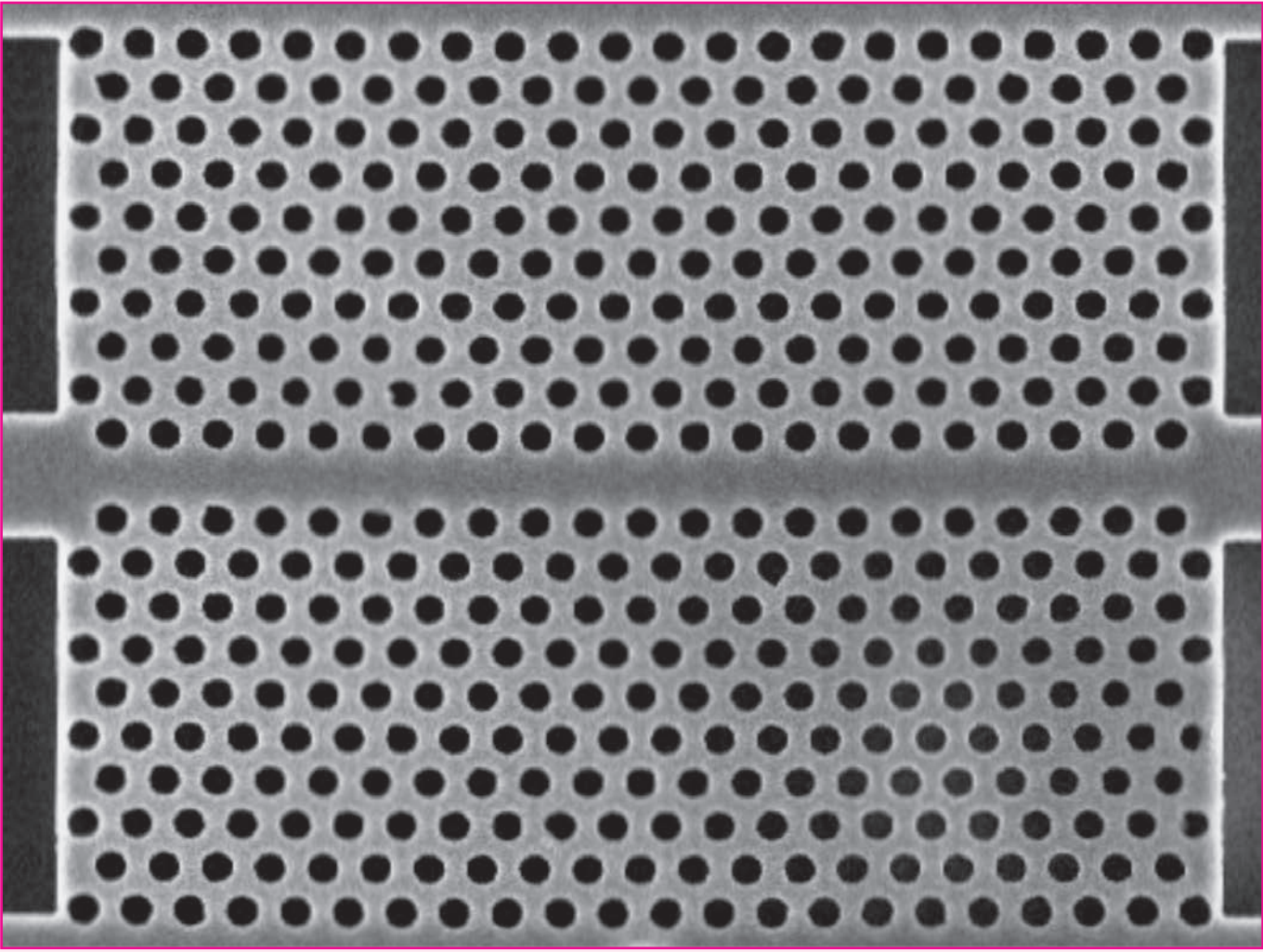
mr-I T85 – Polymer for lab-on-a-chip, optical and bio applications



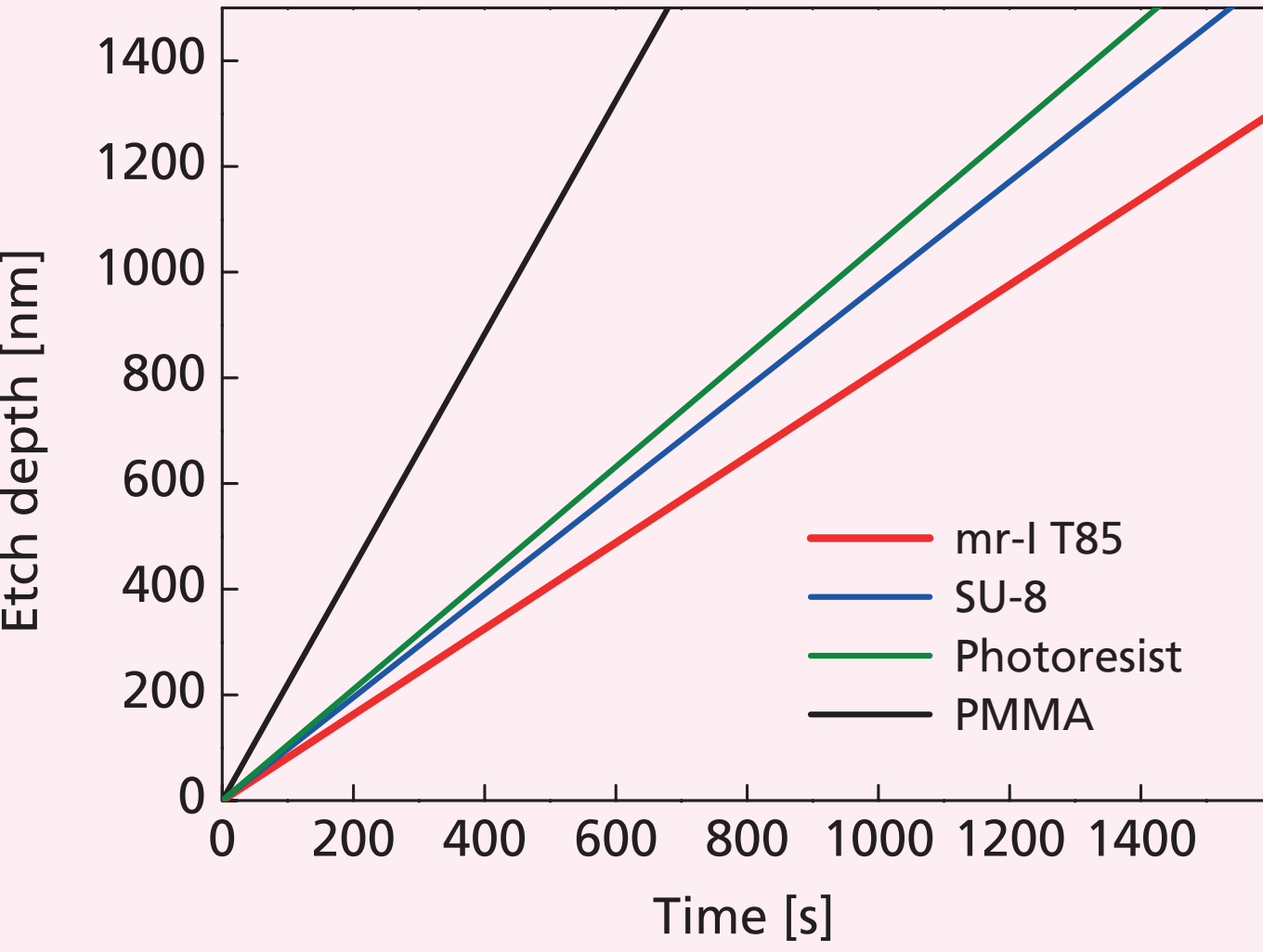
Complete lab-on-a-chip device for absorption measurements, all components imprinted into mr-I T85 (courtesy of MIC / TU Denmark)



Microfluidic dye laser and Fresnel lens imprinted in mr-I T85 (courtesy of MIC / TU Denmark)



Photonic wave guide filter fabricated using mr-I T85, 320 nm deep holes transferred into silicon (200 nm diameter) (courtesy of MIC / TU Denmark)



Etch depth as a function of time, SF₆/O₂ plasma

The mr-I T85 series has been developed preferably for permanent applications in lab-on-a-chip systems, microfluidics, and microoptical components.

Unique features

- Non-polar thermoplastic
- Excellent film quality
- Beneficial flow behaviour during imprinting, low imprint pressure
- Excellent UV and optical transparency
- High plasma etch resistance
 - Superior plasma etch resistance compared to SU8 (see figure)
 - selectivity to silicon 9:1 (Si / mr-I T85)
- High chemical stability
 - high resistance to acids, bases and polar solvents
 - no interactions with conventional photoresists

Technical Data

Glass transition temperature	85 °C
Imprinting temperature	130 – 150 °C
Imprinting pressure	5 – 20 bar
Ready-to-use solutions for various film thicknesses ¹⁾	
Type	Thickness ²⁾
mr-I T85-0.3	300 nm
mr-I T85-1.0	1.0 µm
mr-I T85-5.0	5.0 µm

¹⁾ Customized film thickness available on request up to 20 µm.
²⁾ Measured at 3000 rpm

Applications

- Lab-on-a-chip systems
- Bio applications
- Microfluidics
- Microoptical elements
- Wave guides
- Single and multilayer systems
- Mask for pattern transfer processes

Process Flow

