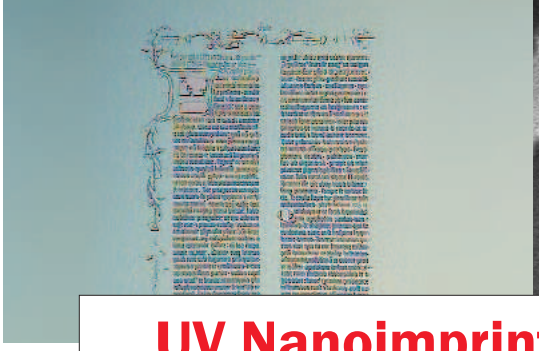

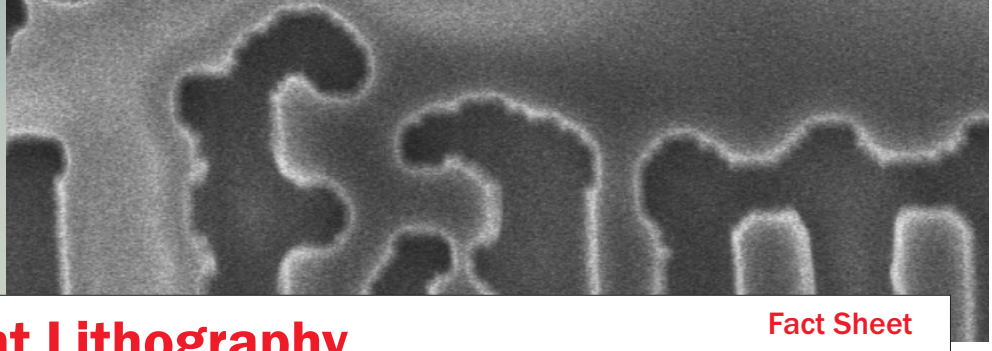

UV Nanoimprint Lithography

Fact Sheet
Technology

Application:

- Lithography with sub 10 nm resolution
- 3D Nanolithography
- Nanoelectronics
- Nanophotonics
- LED, LCD, Photonic Crystal
- Sub wavelength gratings
- Diffractive Optics
- Nanostructures for biotechnology

Description:

UV Nanoimprint is a mechanical molding technique. A template made from quartz or a flexible elastomer with a 3D relief is brought into intimate contact with a UV-curable resist spin-coated on top of a substrate. Applying low imprint pressure at room temperature features are filled within seconds due to the low viscosity of the imprint resist. Alignment of template and wafer is carried out with high precision and the resist is hardened via UV-light through the backside of the template. Finally substrate and template are separated. The replicated resist relief can further be transferred into the substrate via RIE-process or used as functional element.

Proposal:

AMO offers fabrication and development services for UV Nanoimprint with quartz templates and Soft-UV Nanoimprint with elastomeric templates. Through the NILCom Network AMO offers the integration of imprint material, templates and tools with custom oriented process development. In-house fabrication for high resolution quartz, elastomeric templates and UV-curable imprint resists can be supplied. Based on our large equipment installation we can offer up to full 6” wafer or 6” step & repeat Nanoimprint lithography.

Specification:

Technology				
Parameter	Quartz Template	Elastomeric Templates	UV Nanoimprint	Soft UV Nanoimprint
Resolution	5 nm	50 nm	5 nm	50 nm
Substrate Material	Quartz	PDMS, Silicon master & others	Silicon, InP, GaAs, Quartz	Silicon, InP, GaAs, Quartz
Substrate Size	30 x 30 mm² 65 x 65 mm² 1” round or rect.	4”, 6” via step & repeat	6”, 4”, 2” fragments	6”, 4”, fragments
Feature Height	50 – 200 nm	50 – 200 nm		
Imprint Approach			Vacuum step & repeat	Vacuum, full wafer imprint
Tools	Leica EBPG 5000 + Oxford Plasmalab	Leica EBPG 5000 + Oxford Plasmalab	EVG770 NILStepper EVG 501	EVG 620 NIL
Imprint Resist			AMONIL, PAK, MRT, others	AMONIL
Pattern Transfer Process			Silicon, Quartz, Metal	Silicon, Quartz, Metal

Further substrates, processes and dimensions are available on request ■ Contact: Christian Moormann ■ moormann@amo.de

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