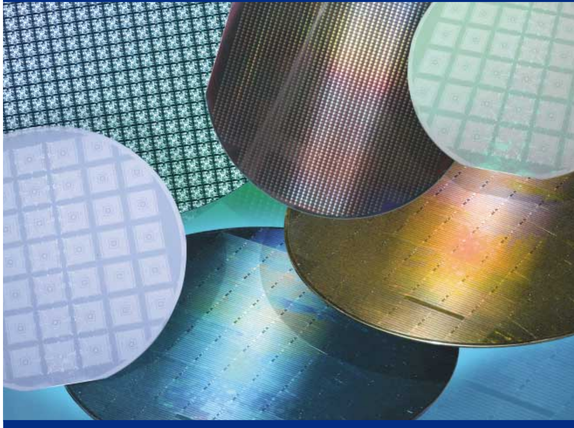


DATA SHEET

Clariant

AZ® nLOF™ 2000 Series i-Line Photoresists

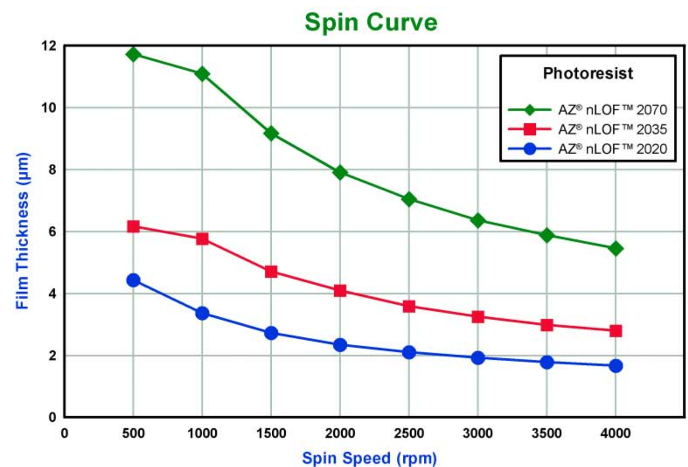
Description

AZ® nLOF™ 2000 series i-line photoresists are uniquely formulated to simplify the historically complex lift-off lithography process. They make it possible to run a standard lithography process to get the desired lift-off profiles. The nLOF 2000 series photoresists work well in both surfactant and non-surfactant containing tetramethylammonium hydroxide (TMAH) developers using standard conditions. The nLOF 2000 series photoresists can be used for coating thicknesses beyond 7.0 µm, achieving aspect ratios of up to 4:1.

Features	Benefits
High throughput	• i-line dose to print < 100 mJ/cm² for film thicknesses 2.0 to 3.5 µm
Streamlined lift-off process	• Standard single-layer lithography process to achieve lift-off profiles; no extra process steps required
Process compatibility	• Easy integration into an existing process with standard processing conditions
Process versatility	• Obtain lift-off profiles with resist thickness > 7.0 µm, with uniform profiles up to 4:1 aspect ratios

Recommended Process

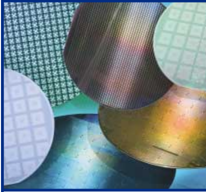
Coat:	2.0 µm resist thickness
Softbake:	110°C, 60 sec, contact
Exposure:	Nikon, 0.54 NA, 65 mJ/cm²
Post-Exposure Bake:	110°C, 60 sec, contact
Develop:	AZ® 300 MIF Developer, 23°C
Develop Cycle:	120 sec, single puddle



Performance Summary

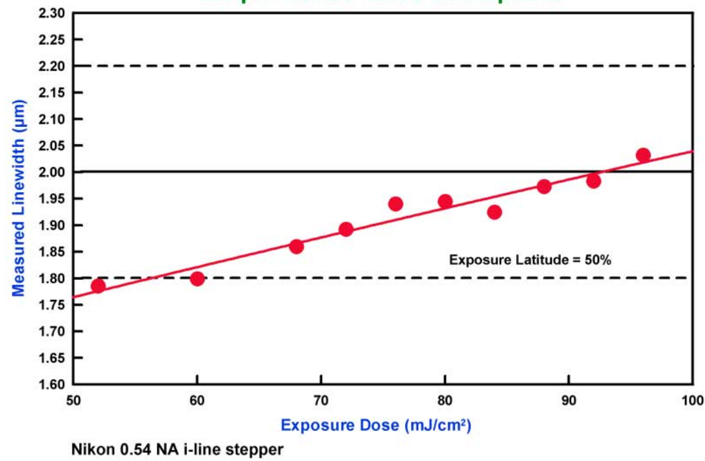
	Nominal Film Thickness at 3000 rpm	Process Capability	Photospeed
AZ® nLOF™ 2020 Photoresist	2.0 µm	0.7 µm CD	66 mJ/cm²
AZ® nLOF™ 2035 Photoresist	3.5 µm	0.9 µm CD	80 mJ/cm²
AZ® nLOF™ 2070 Photoresist	7.0 µm	1.5 µm CD	180 mJ/cm²

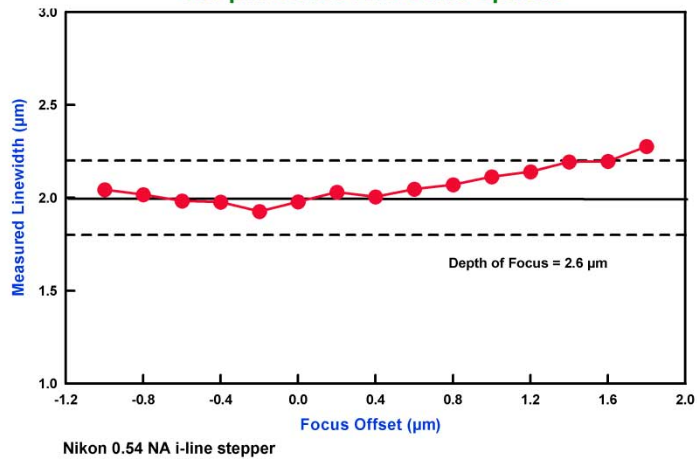
AZ®

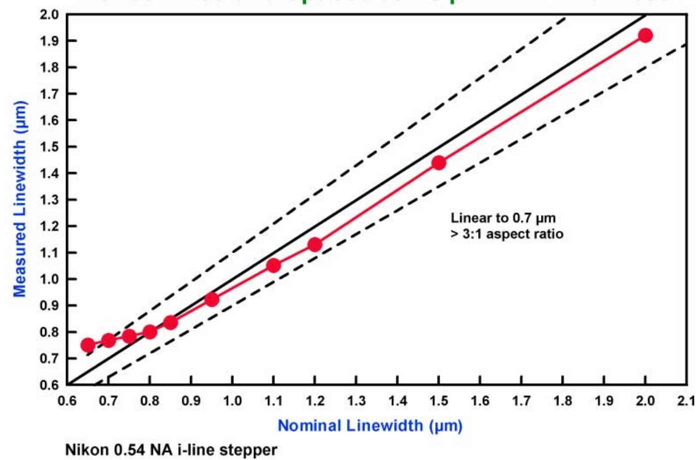


AZ® nLOF™ 2000 Series i-Line Photoresists

Performance

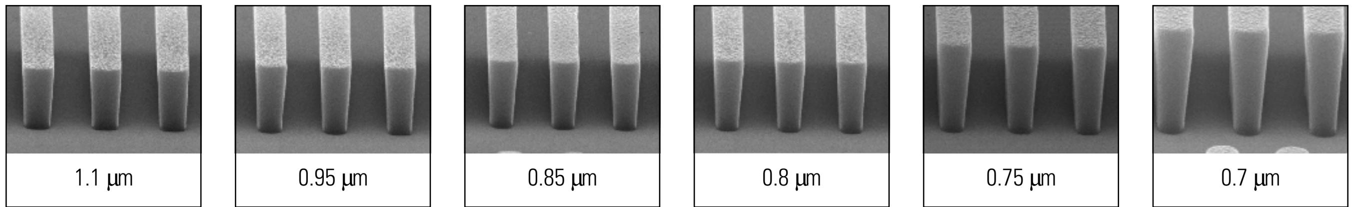






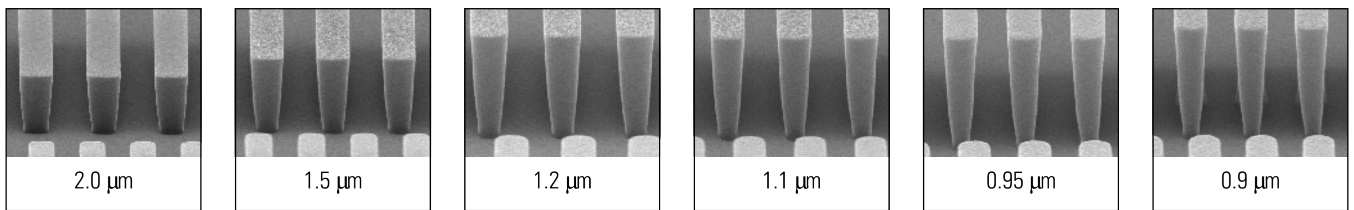
Performance *(continued)*

Resolution AZ® nLOF™ 2020 Photoresist, 66 mJ/cm², 0.54 NA i-line stepper, 2.0 µm film thickness, 60 sec single puddle develop



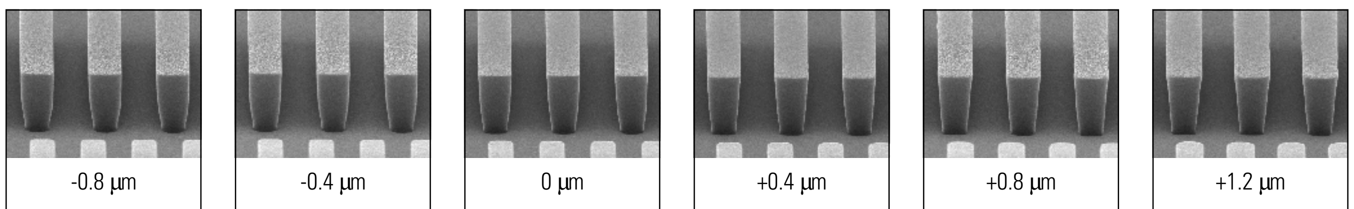
1.1 µm	0.95 µm	0.85 µm	0.8 µm	0.75 µm	0.7 µm

Resolution AZ® nLOF™ 2035 Photoresist, 80 mJ/cm², 0.54 NA i-line stepper, 3.5 µm film thickness



2.0 µm	1.5 µm	1.2 µm	1.1 µm	0.95 µm	0.9 µm

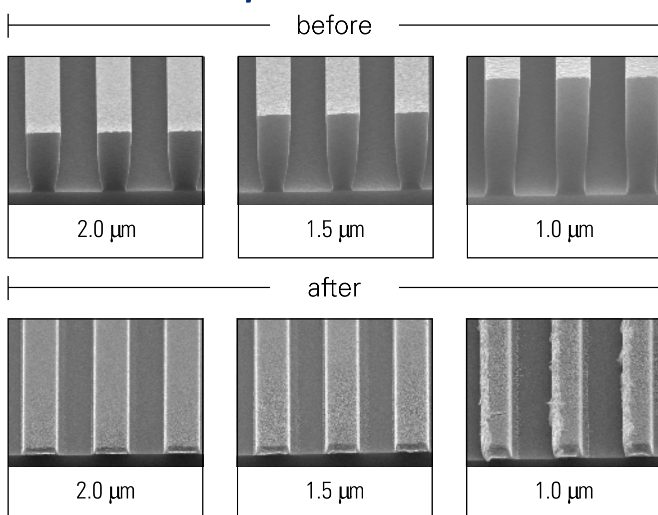
Focus Latitude AZ® nLOF™ 2035 Photoresist, 2.0 µm dense lines, 80 mJ/cm², 0.54 NA i-line stepper, 3.5 µm film thickness



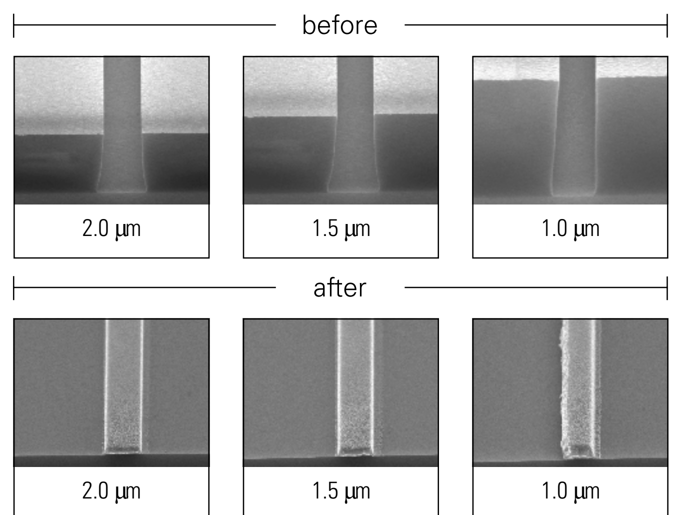
-0.8 µm	-0.4 µm	0 µm	+0.4 µm	+0.8 µm	+1.2 µm

Metal Lift-Off AZ® nLOF™ 2035 Photoresist, 98 mJ/cm², 0.60 NA i-line stepper, 3.5 µm film thickness

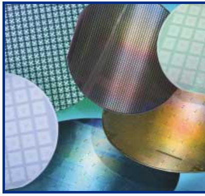
Dense Lines and Spaces



Trenches



Using recommended process unless otherwise noted.



AZ® nLOF™ 2000 Series i-Line Photoresists

Companion Products

Wafer Prime:	AZ® Adhesion Promoter
Edge Bead Process:	AZ® EBR 70/30 Edge Bead Remover
Develop Cycle:	AZ® 300 MIF Developer
Stripping:	AZ® Kwik Strip™ Remover, AZ® 300T and 400T Strippers

Solvent Safety

AZ® nLOF™ 2000 series photoresists are formulated using 100% propylene glycol monomethyl ether acetate (PGMEA), which is patented for use in photoresists by Clariant AG (U.S. patent number 4,550,069).

Equipment Compatibility

AZ nLOF 2000 series photoresists are compatible with all commercially available wafer and photomask processing equipment. Recommended materials of construction include stainless steel, glass, ceramic, PTFE, polypropylene, and high density polyethylene.

Storage

Keep in sealed original containers away from oxidants, sparks, and open flame. Protect from light and heat. Keep refrigerated. Empty container may contain harmful residue and/or vapors.

Handling Precautions/First Aid

Refer to the current Material Safety Data Sheet (MSDS) for detailed information prior to handling.

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