

# IX160L

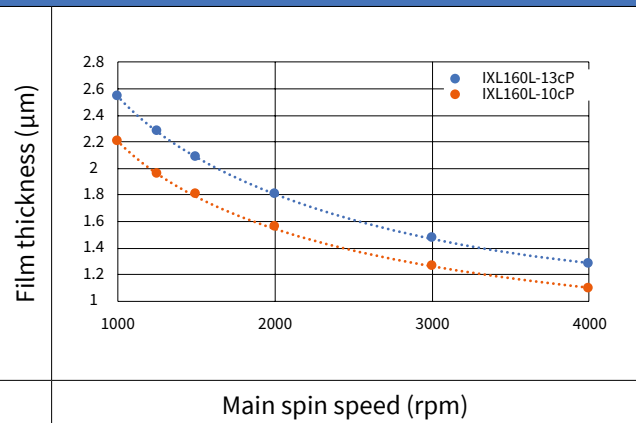
I-line resist with **high adhesion** and thermal stability for wet etch applications

- **No mousebites** on Al substrate
- Very **limited undercut** after wet etch process
- **Straight profiles** with a large process window

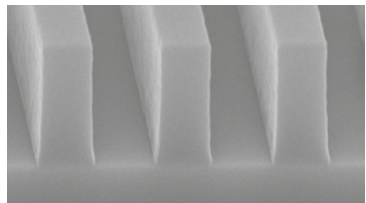
## STANDARD PROCESS CONDITIONS

<b>Resist name</b>	IX160L
<b>Priming</b>	HMDS 50s @ 130°C
<b>Soft bake</b>	120s @ 90°C
<b>Exposure</b>	ASML200 stepper, i-line, conventional illumination BIM, NA=0.48, $\sigma=0.50$ Dose: 160 mJ/cm <sup>2</sup> Defocus: 0 $\mu$ m
<b>Post-exposure bake</b>	120s @ 110°C
<b>Development</b>	1 to 2 x 60s with TMAH2.38%
<b>Hard bake</b>	Optional

## COATING CURVES

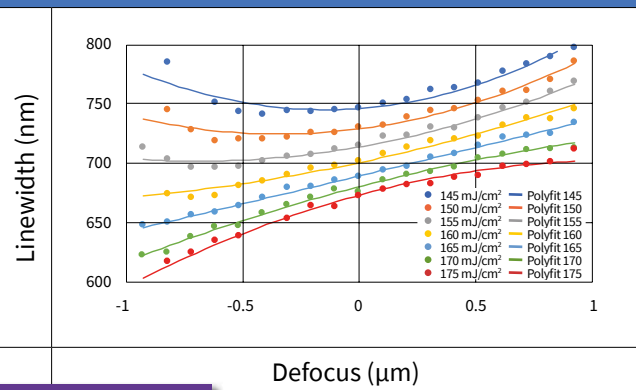


## GENERAL RESIST PERFORMANCES

<b>Resist name</b>	IX160L-13cP
<b><math>E_{CD}</math></b>	161.7 mJ/cm <sup>2</sup>
<b>EL (+-10% CD)</b>	>18.6%
<b>DOF (+- 10% CD)</b>	1.8 $\mu$ m
<b>Resolution</b>	0.5 $\mu$ m
<b>Pattern profile</b> @700 $\mu$ m L/S 175 mJ/cm <sup>2</sup> , 0 $\mu$ m defocus	

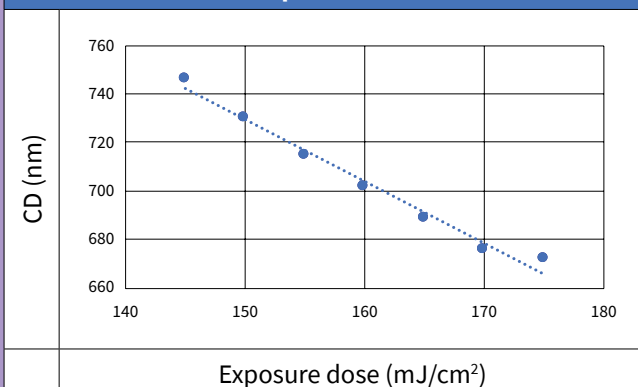
## 700 nm CD PROCESS WINDOW

Linewidth vs focus for various exposure dose

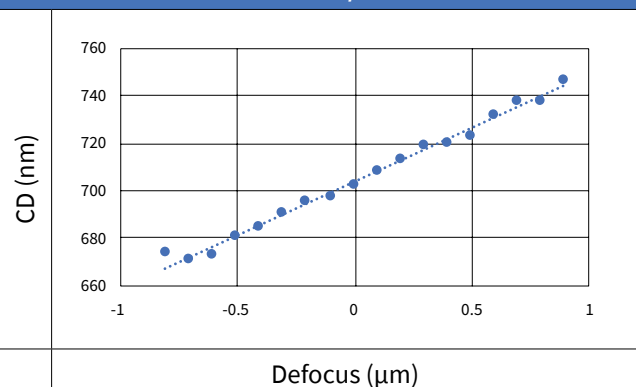


700 nm L/S @ 1.35  $\mu$ m FT

## EXPOSURE LATITUDE at 0 $\mu$ m defocus



## DEPTH OF FOCUS at 160 mJ/cm<sup>2</sup>



# IX160L

RESISTANCE TO WET ETCHING						
		Standard resist 1	Standard resist 2	IX160L		
WITHOUT Hard bake	Cross section (×30K)					
	Under cut (μm)	1.19	0.65	0.47		
WITH Hard bake	Cross section (×30K)				<b>WET ETCHING CONDITIONS</b> Hard bake: 120s @ 120°C Etching solution: BHF (63 SA) Etching time: 205s	
		Under cut (μm)	0.55	0.49		
	Under cut (μm)	0.55	0.49	0.35		

IX160L-13cP (2 μm FT) on SiO<sub>2</sub>. Softbake: 120 s @ 90°C, PEB 120s @ 110°C, Dev 1 x 60s with TMAH 2.38%

HARD BAKE IMPACT ON PROFILE						
Time/T°	110°C		120°C		130°C	
60s		Top space 1.02 μm Bot. space 0.72 μm		Top space 1.12 μm Bot. space 0.76 μm		Top space 1.28 μm Bot. space 0.78 μm
120s		Top space 1.07 μm Bot. space 0.79 μm		Top space 1.11 μm Bot. space 0.78 μm		Top space 1.35 μm Bot. space 0.72 μm
180s		Top space 1.09 μm Bot. space 0.76 μm		Top space 1.13 μm Bot. space 0.78 μm		Top space 1.36 μm Bot. space 0.73 μm

Mild profile rounding at 120°C HB, more pronounced at 130°C but **no impact of HB on CD**

IX160L-13cP (2 μm FT) on SiO<sub>2</sub>. Softbake: 120 s @ 90°C, PEB 120s @ 110°C, Dev 1 x 60s with TMAH 2.38%