EUV Resist Specification Roadmap (revised)

Specifications	Alpha (2005)		Beta (2007)		Gamma (2009)	
	Spec	Current**	Spec	Comment	Spec	Comment
Resolution 1:1	45nm	35nm/45nm (C/S)	32nm		32nm	
Resolution contacts	55nm	TBD	45nm		40nm	
Resolution Isolated Lines	32nm	30nm/40nm (C/S)	22nm		18nm	
Depth of Focus	200nm	100nm for 35-nm 1:1 200nm for 50-nm 1:1	225nm	Dense and isolated; DOF at 10% exposure latitude	225nm	Dense and isolated; DOF at 10% exposure latitude
Photospeed (mJ/cm^2)	10 mJ/cm^2	21mJ/cm^2 E-size @ 50-nm 1:1	7mJ/cm^2	Assuming ~30 wph	5mJ/cm^2	Assuming > 100 wph if 5 mJ/cm^2, 115W intermediate focus
Line Edge Roughness (3 σ)	< 4 nm	~4 nm @ 50-nm 1:1 ~7 nm @ 35-nm 1:1	< 3nm		< 1.4 nm	LWR < 8% etched gate length; gate length = 18 nm
Wall Profile Angle	>85º	80º @ 50-nm 1:1	> 85º	Measure cross-sections	> 85º	Measure cross-sections
Outgassing	4.7E13 molecules/cm2-sec	1.60E+13	TBD		TBD	
Pattern Collapse	>3	None observed	>3	Aspect ratio 3:1 for all structures	>3	Aspect ratio 3:1 for all structures
Unexposed Film Thickness Loss	< 10%	10nm	< 5%		< 5%	
PEB Sensitivity	< 2.5 nm/deg C	TBD	<1.5 nm/deg C		< 1 nm/deg C	
Delay Stability @ < 1ppb amine	30min	TBD	30 min	a) pre-exposure, b) under vacuum, c) post-exposure	30 min	a) pre-exposure, b) under vacuum, c) post-exposure
Etch Resistance	Similar to novolak	TBD	Similar to novolak		Similar to novolak	

**Measured top down values for Rohm and Haas resist MET-1K.
C/S=cross section **Green** = spec is met, **Orange** = spec is not met

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