OiR 620 Data Book Contents

OiR 620 Overview

- Product Description
- Features
- Baseline Process
- Spin Curve
- Absorbance
- Swing Curves on BARC

Product Description

OiR 620

- Leading-edge 0.30µm i-line photoresist designed for critical level production applications
- Designed for ultra-high resolution with a robust process window for today's 0.30µm production design rules
- Based on patented, state-of-the-art, novolac and PAC technology in a performance-maximized formulary
- Safer solvent (EL/EEP) system
- Optimized for 0.262N surfactant-free and surfactant-containing developers

Features

OiR 620

- Designed for non-reflective substrates
- 0.30µm production capable photoresist
- Resolution < 0.28µm using conventional illumination
- Proven geometry shrinks to 0.25µm using annular illumination
- DOF > 1.2µm for 0.35µm L/S using conventional illumination
- DOF > 1.0µm for 0.30µm L/S using conventional illumination
- Photospeed: 220mJ/cm^2
- Compatible with standard 0.262N developers and processes

Baseline Process

OiR 620

- Organic Bottom Anti-Reflective Coating:

  Process for 800Å, 1200Å or 1600Å thickness according to supplier's instructions

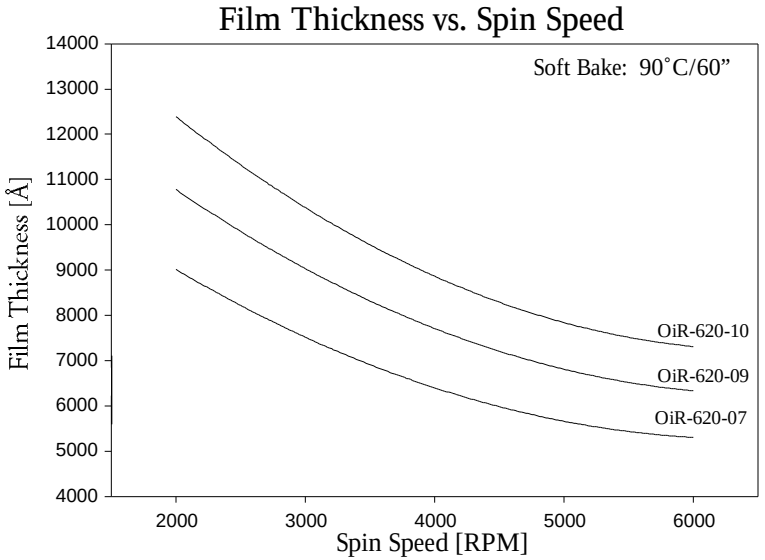
- Photoresist: Spin to desired thickness
- Softbake: 90°C / 60"
- Post exposure bake: 110°C - 120°C / 60"
- Development:

  OPD 262, OPD 4262, OPD 5262 developer 60" single puddle

This recommended process is the result of an intensive process SDE maximizing ultimate resolution, depth of focus, exposure latitude, and iso/dense bias. Detailed response surfaces discussion available upon request.

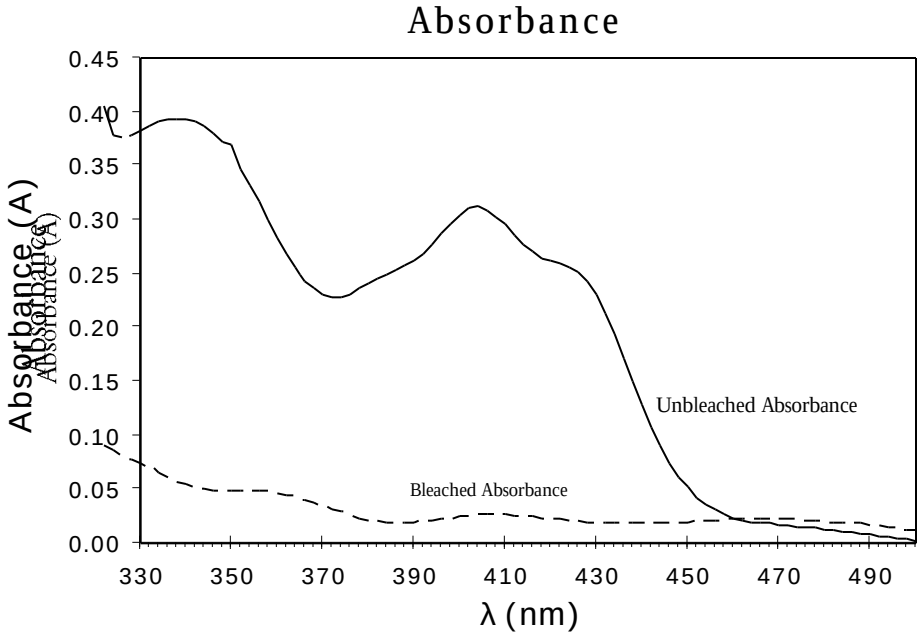
Spin Curve

OiR 620



OiR 620 Absorbance

OiR 620



Recommended Cauchy Coefficients
n_1 = 1.5942
n_2 = 1.46 E+6
n_3 = -4.95 E+10

Dill Parameters λ = 365nm
A = 0.63
B = 0.08
C = 0.017

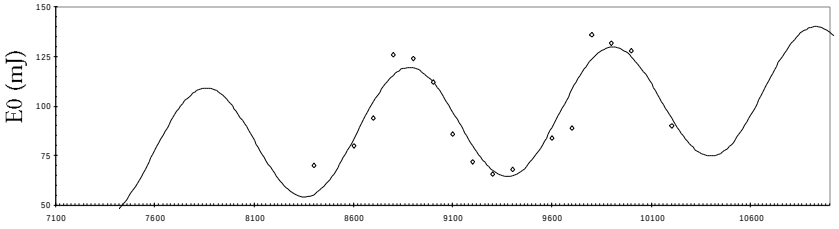
Refractive Index (632nm) = 1.638

SBFT: 0.85µm

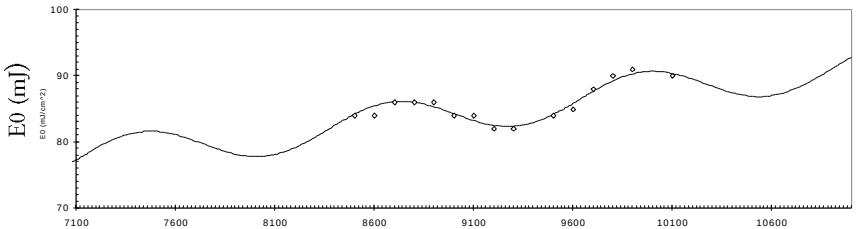
E_0 Swing Curves on BARC

OiR 620

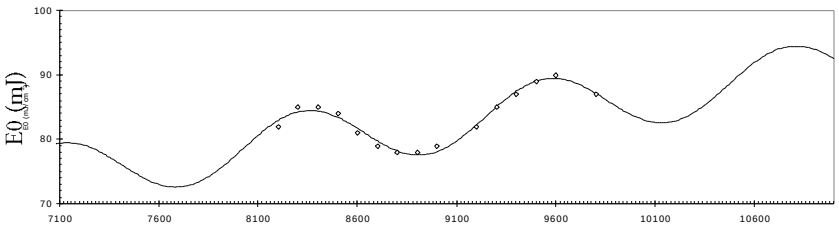
Silicon



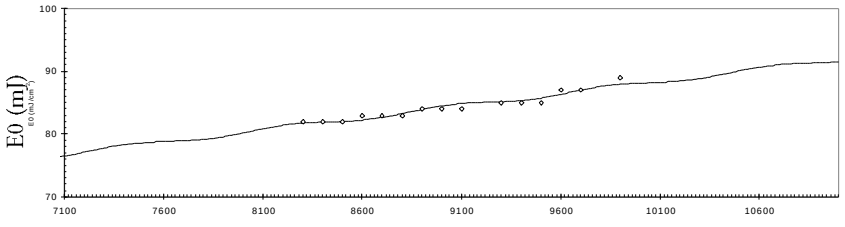
800Å BARC



1200Å BARC



1600Å BARC



Evaluation Conditions
Recommended Process

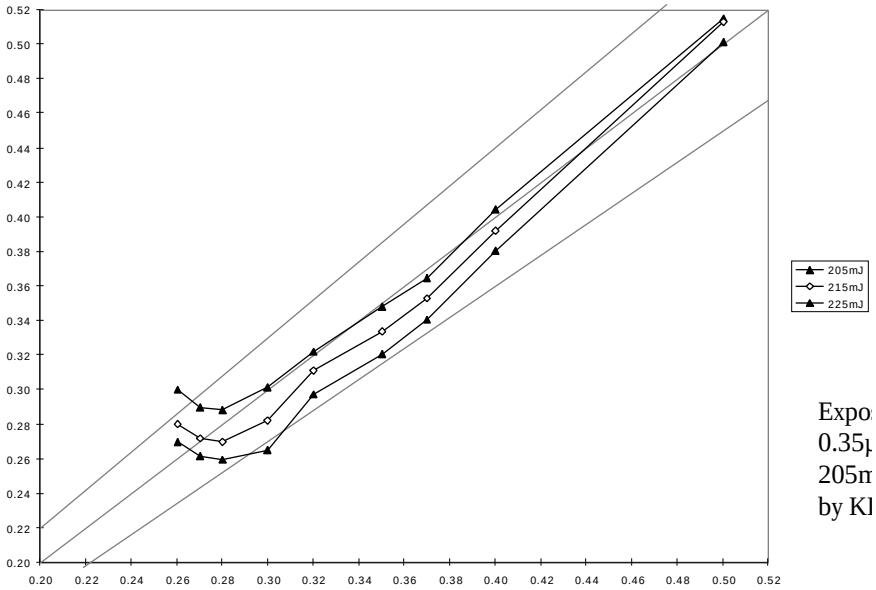
Soft Bake:	90˚C/60”
Exposure Tool:	Canon FPA-2000i1
Post Exposure Bake:	115˚C/60”
Develop:	OPD-262
	4.5”stream/60”puddle

Performance Data on 1200Å BARC

0.950µm Resist Thickness

Linearity

OiR 620



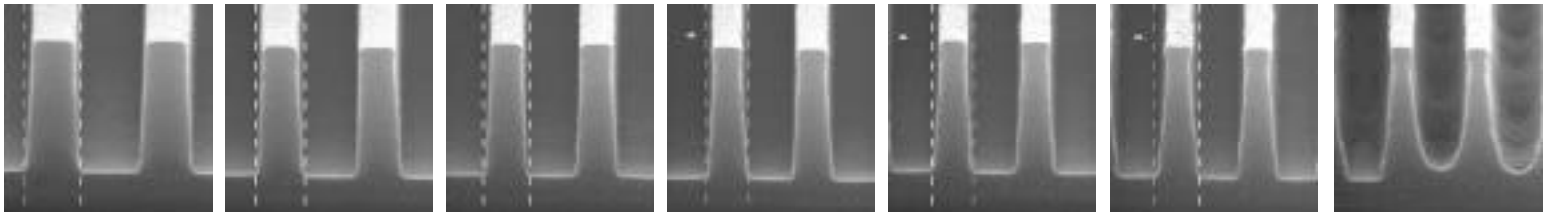
Expo
0.35µ
205m
by KI

Evaluation Conditions
Recommended Process

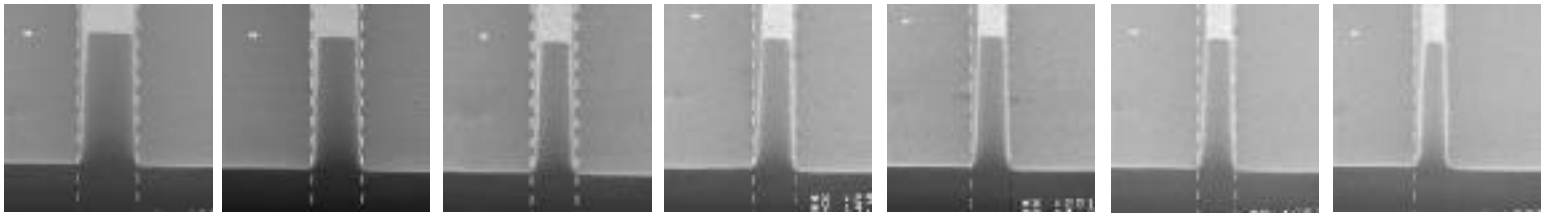
Substrate:	Silicon + 1200Å BARLi
Resist Thickness:	0.950µm
Soft Bake:	90˚C/60”
Exposure Tool:	ASM-L PAS 5500/200 0.60NA/0.70sigma
Post Exposure Bake:	115˚C/60”
Develop:	OPD-262 4.5”stream/60”puddle

Resolution of Dense/Isolated Features

OiR 620



0.40µm 0.35µm 0.32µm 0.30µm 0.29µm 0.28µm 0.27µm



0.40µm 0.35µm 0.30µm 0.29µm 0.28µm 0.27µm 0.26µm

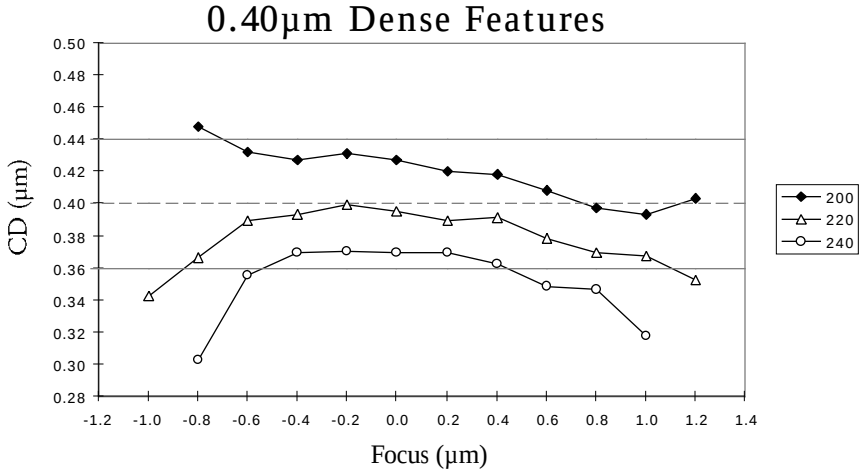
210mJ/cm^2

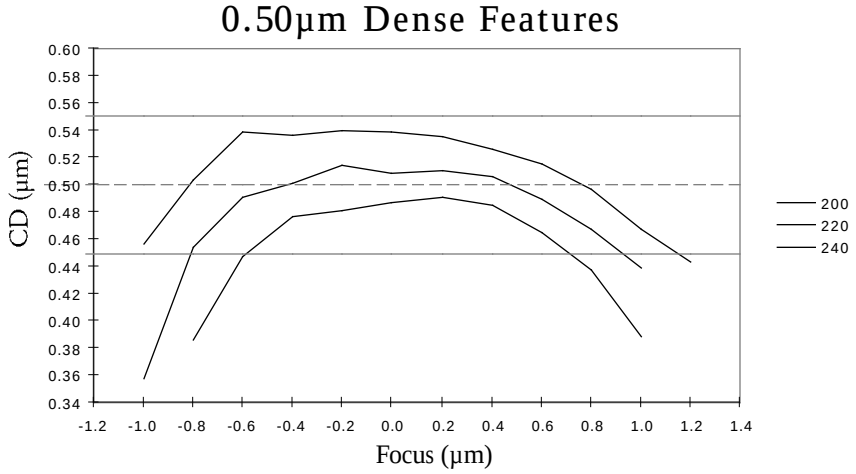
Evaluation Conditions
Recommended Process

Substrate:	Silicon + 1200Å BARLi
Resist Thickness:	0.950µm
Soft Bake:	90˚C/60”
Exposure Tool:	ASM-L PAS 5500/200 0.60NA/0.70sigma
Post Exposure Bake:	115˚C/60”
Develop:	OPD-262 4.5”stream/60”puddle

Focus Latitude of 0.40µm & 0.50µm Features

OiR 620

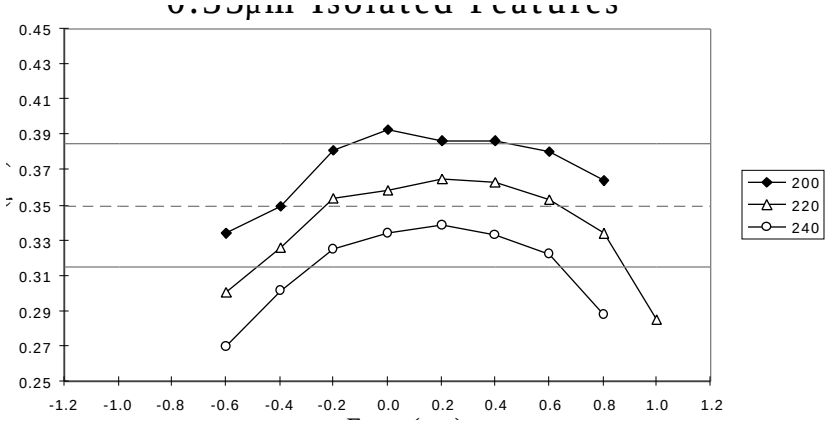




Evaluation Conditions
Recommended Process

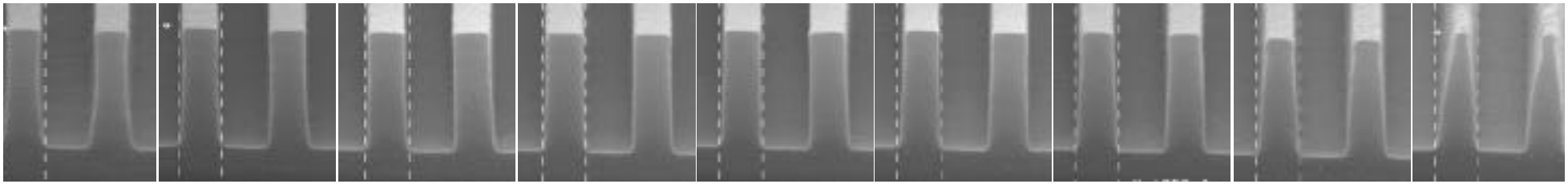
Substrate:	Silicon + 1200Å BARLi
Resist Thickness:	0.950µm
Soft Bake:	90˚C/60”
Exposure Tool:	ASM-L PAS 5500/200
	0.60NA/0.70sigma
Post Exposure Bake:	115˚C/60”
Develop:	OPD-262
	4.5”stream/60”puddle

OiR 620

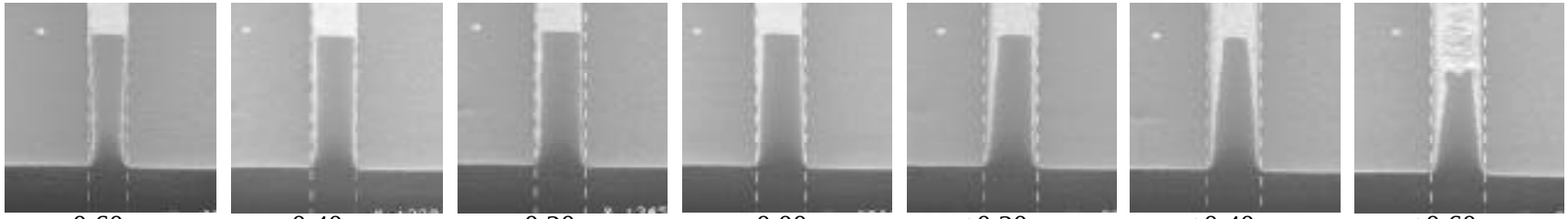

0.45
0.43
0.41
0.39
0.37
0.35
0.33
0.31
0.29
0.27
0.25
-1.2
-1.0
-0.8
-0.6
-0.4
-0.2
0.0
0.2
0.4
0.6
0.8
1.0
1.2
200
220
240

Focus Latitude of 0.35µm Features

OiR 620



-0.80µm -0.60µm -0.40µm -0.20µm 0.00µm +0.20µm +0.40µm +0.60µm +0.80µm



-0.60µm -0.40µm -0.20µm 0.00µm +0.20µm +0.40µm +0.60µm

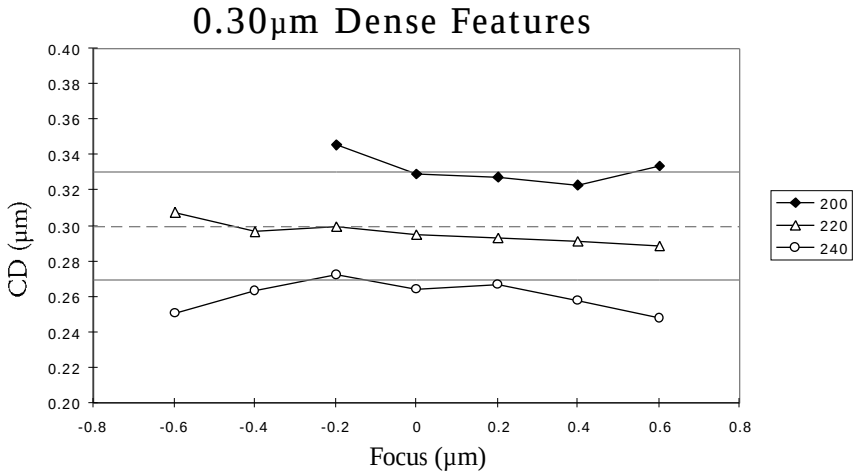
210mJ/cm^2

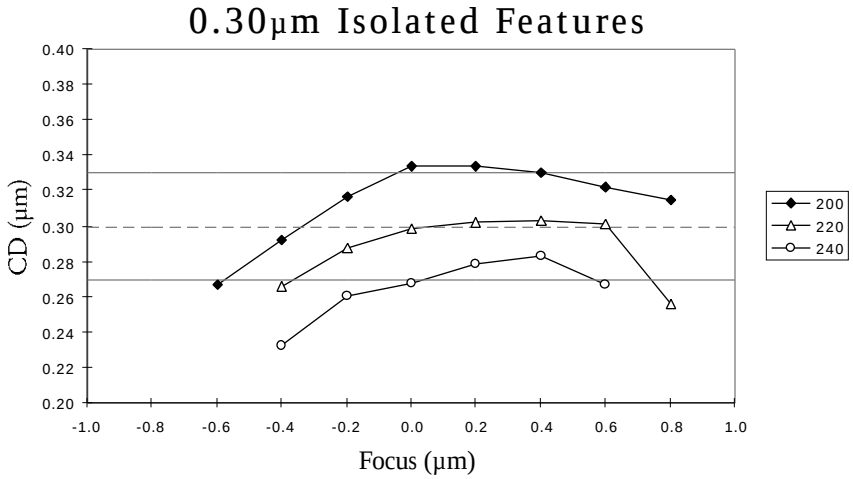
Evaluation Conditions
Recommended Process

Substrate:	Silicon + 1200Å BARLi
Resist Thickness:	0.950µm
Soft Bake:	90˚C/60”
Exposure Tool:	ASM-L PAS 5500/200
	0.60NA/0.70sigma
Post Exposure Bake:	115˚C/60”
Develop:	OPD-262
	4.5”stream/60”puddle

Focus Latitude of 0.30µm Features

OiR 620



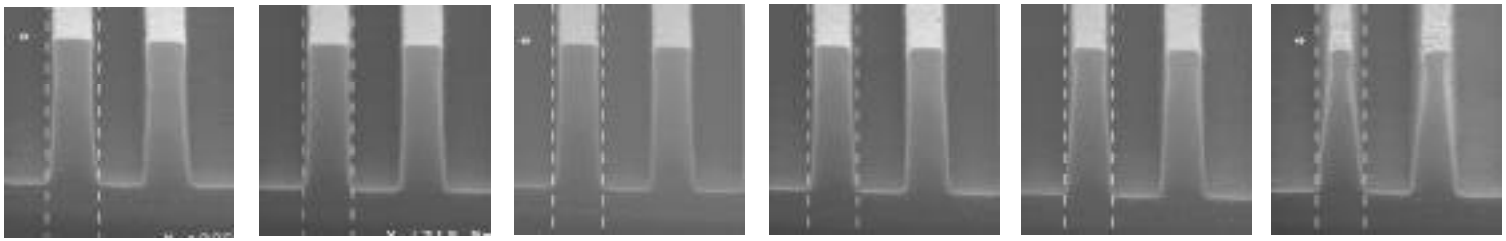


Evaluation Conditions
Recommended Process

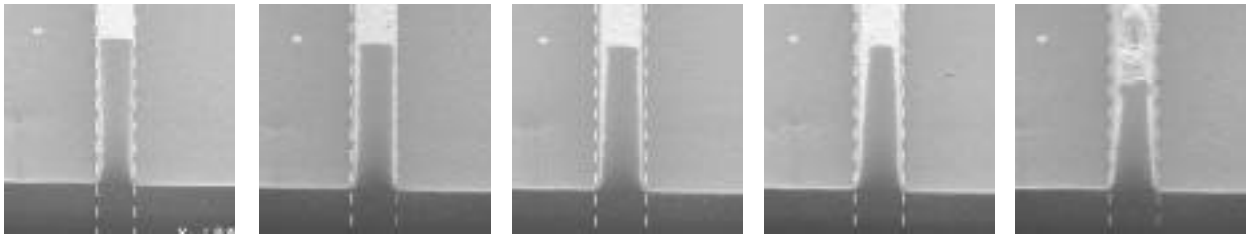
Substrate:	Silicon + 1200Å BARLi
Resist Thickness:	0.950µm
Soft Bake:	90˚C/60”
Exposure Tool:	ASM-L PAS 5500/200
	0.60NA/0.70sigma
Post Exposure Bake:	115˚C/60”
Develop:	OPD-262
	4.5”stream/60”puddle

Focus Latitude of 0.30µm Features

OiR 620



-0.40µm -0.20µm 0.00µm +0.20µm +0.40µm +0.60µm



-0.40µm -0.20µm 0.00µm +0.20µm +0.40µm

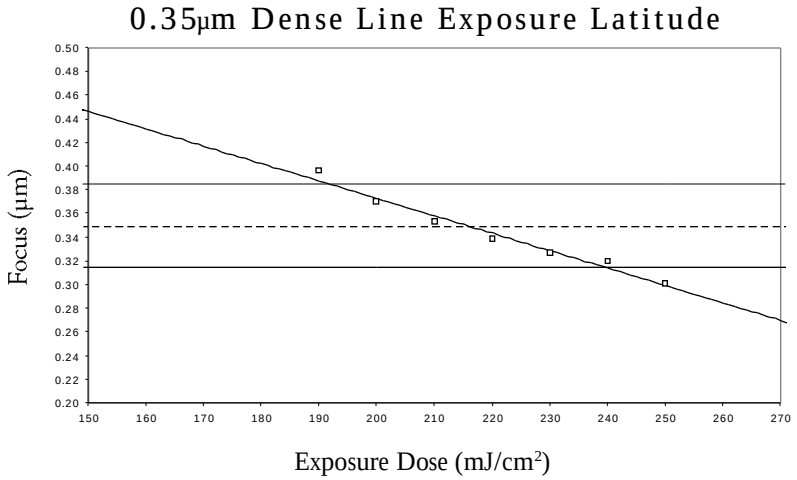
210mJ/cm^2

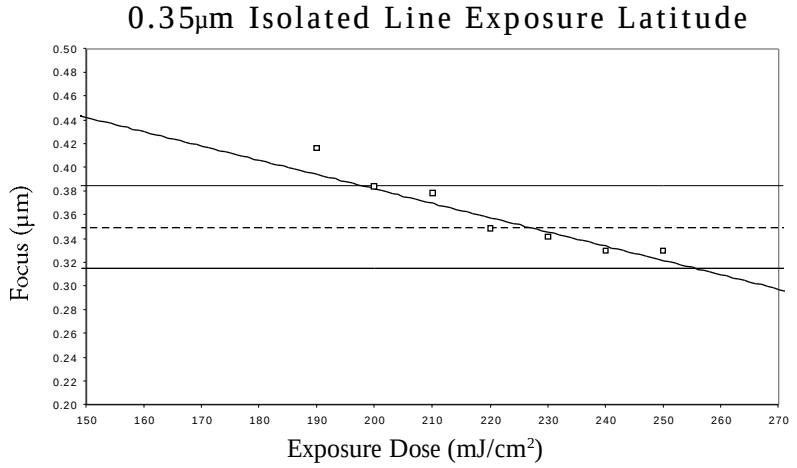
Evaluation Conditions
Recommended Process

Substrate:	Silicon + 1200Å BARLi
Resist Thickness:	0.950µm
Soft Bake:	90˚C/60”
Exposure Tool:	ASM-L PAS 5500/200
	0.60NA/0.70sigma
Post Exposure Bake:	115˚C/60”
Develop:	OPD-262
	4.5”stream/60”puddle

Exposure Latitude of 0.35µm Features

OiR 620





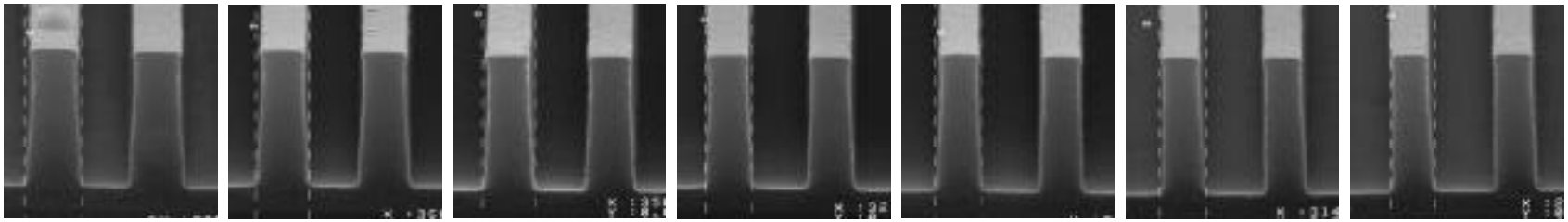
Evaluation Conditions
Recommended Process

Substrate:	Silicon + 1200Å BARLi
Resist Thickness:	0.950µm
Soft Bake:	90˚C/60”
Exposure Tool:	ASM-L PAS 5500/200
	0.60NA/0.70sigma
Post Exposure Bake:	115˚C/60”
Develop:	OPD-262
	4.5”stream/60”puddle

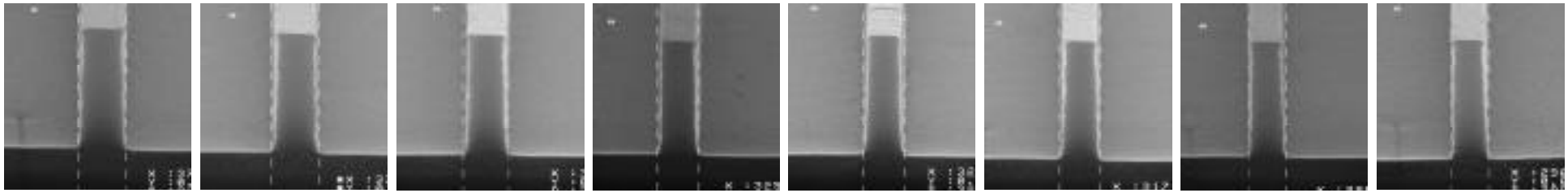
Exposure Latitude:
0.35µm Isolated Features = 21.2%
0.35µm Dense Features = 22.1%
Overlapping Exposure Latitude = 15.5%

Exposure Latitude of 0.35µm Features

OiR 620



190mJ/cm² 200mJ/cm² 210mJ/cm² 220mJ/cm² 230mJ/cm² 240mJ/cm² 250mJ/cm²



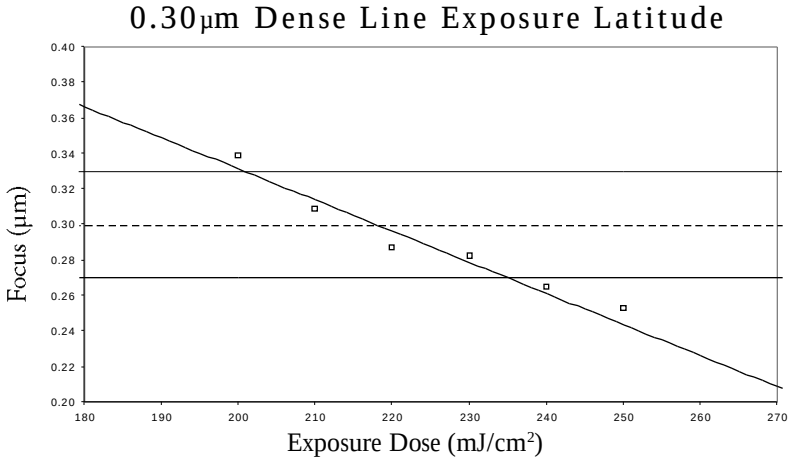
180mJ/cm² 190mJ/cm² 200mJ/cm² 210mJ/cm² 220mJ/cm² 230mJ/cm² 240mJ/cm² 250mJ/cm²

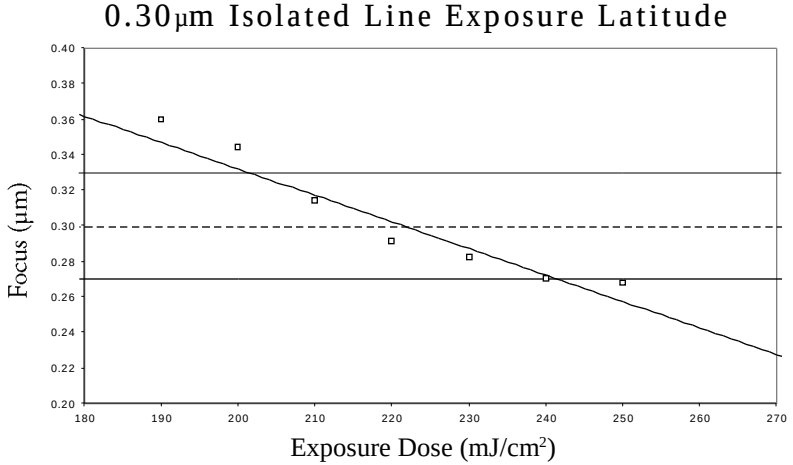
Evaluation Conditions
Recommended Process

Substrate:	Silicon + 1200Å BARLi
Resist Thickness:	0.950µm
Soft Bake:	90˚C/60”
Exposure Tool:	ASM-L PAS 5500/200
	0.60NA/0.70sigma
Post Exposure Bake:	115˚C/60”
Develop:	OPD-262
	4.5”stream/60”puddle

Exposure Latitude of 0.30µm Features

OiR 620





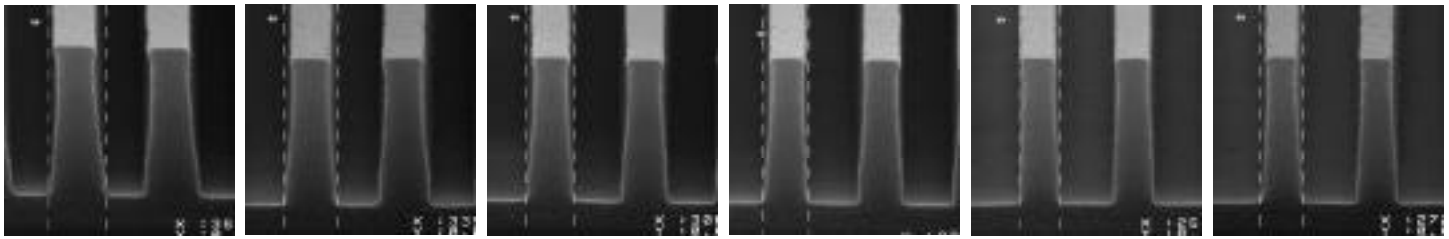
Evaluation Conditions
Recommended Process

Substrate:	Silicon + 1200Å BARLi
Resist Thickness:	0.950µm
Soft Bake:	90˚C/60”
Exposure Tool:	ASM-L PAS 5500/200
	0.60NA/0.70sigma
Post Exposure Bake:	115˚C/60”
Develop:	OPD-262
	4.5”stream/60”puddle

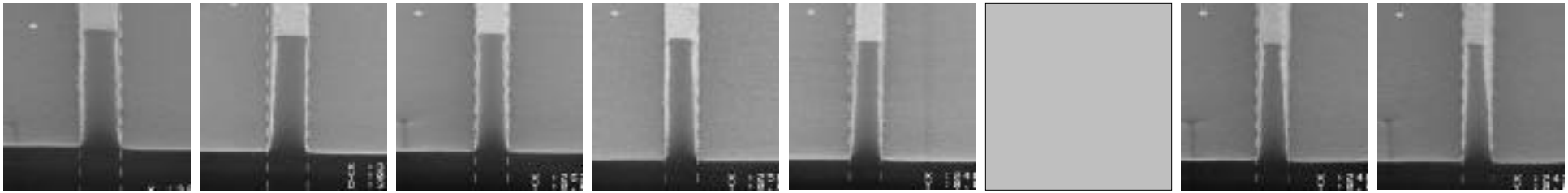
Exposure Latitude:
0.30µm Isolated Features = 15.5%
0.30µm Dense Features = 16.2%
Overlapping Exposure Latitude =14.1%

Exposure Latitude of 0.30µm Features

OiR 620



200mJ/cm² 210mJ/cm² 220mJ/cm² 230mJ/cm² 240mJ/cm² 250mJ/cm²



180mJ/cm² 190mJ/cm² 200mJ/cm² 210mJ/cm² 220mJ/cm² 230mJ/cm² 240mJ/cm² 250mJ/cm²

Evaluation Conditions
Recommended Process

Substrate:	Silicon + 1200Å BARLi
Resist Thickness:	0.950µm
Soft Bake:	90˚C/60”
Exposure Tool:	ASM-L PAS 5500/200
	0.60NA/0.70sigma
Post Exposure Bake:	115˚C/60”
Develop:	OPD-262
	4.5”stream/60”puddle

OiR 620

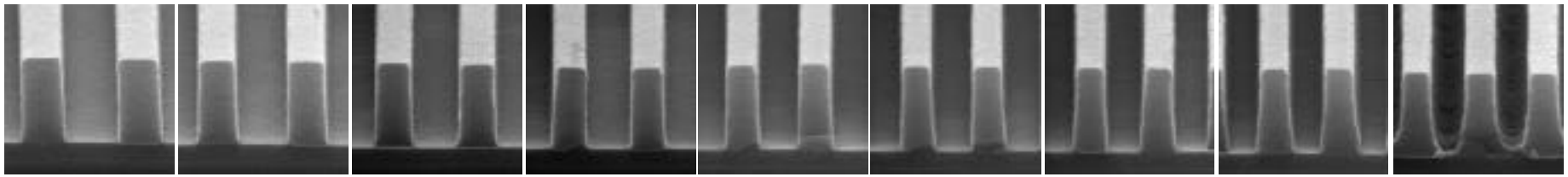
Thin Film Performance Data on 1200Å BARC

0.710µm Resist Thickness

Resolution of Dense Features

OiR 620

(Eopt for 0.35µm @ 190mJ/cm^2)



0.40µm 0.37µm 0.35µm 0.33µm 0.30µm 0.29µm 0.28µm 0.27µm 0.26µm

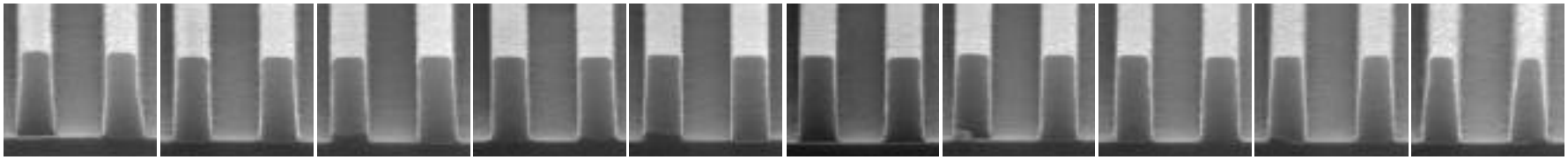
Evaluation Conditions
Recommended Process

Substrate:	Silicon + 1200Å BARLi
Resist Thickness:	0.710µm
Soft Bake:	90˚C/60”
Exposure Tool:	Canon FPA 3000i4
	0.60NA/0.70sigma
Post Exposure Bake:	115˚C/60”
Develop:	OPD-262
	4.5”stream/60”puddle

Focus Latitude of 0.35µm Features

OiR 620

(Eopt for 0.35µm @ 190mJ/cm^2)



-0.60µm -0.40µm -0.20µm 0.00µm 0.20µm 0.40µm 0.60µm 0.80µm 1.00µm 1.20µm

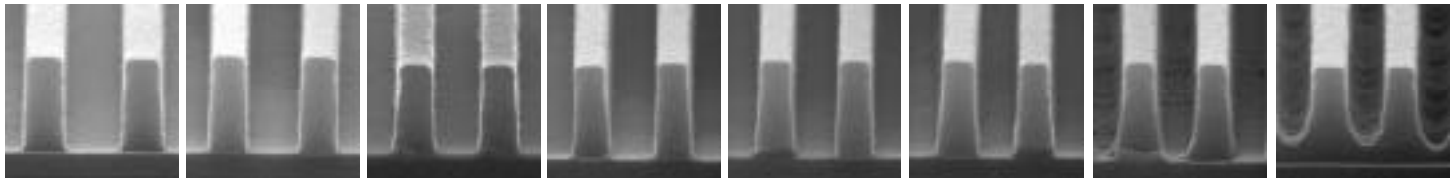
Evaluation Conditions
Recommended Process

Substrate:	Silicon + 1200Å BARLi
Resist Thickness:	0.710µm
Soft Bake:	90˚C/60”
Exposure Tool:	Canon FPA 3000i4
	0.60NA/0.70sigma
Post Exposure Bake:	115˚C/60”
Develop:	OPD-262
	4.5”stream/60”puddle

Resolution of Dense Features

OiR 620

(Eopt for 0.30µm @ 200mJ/cm^2)



0.35µm 0.32µm 0.30µm 0.29µm 0.28µm 0.27µm 0.26µm 0.25µm

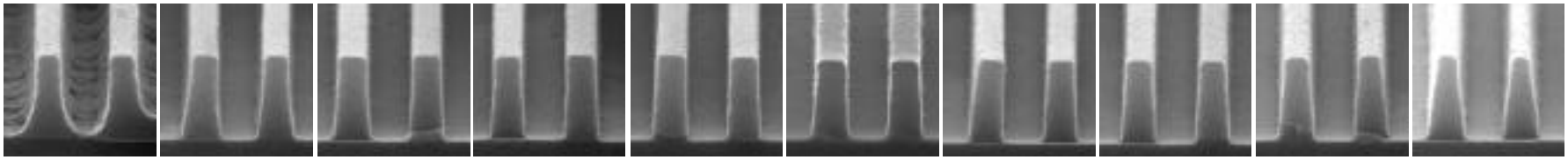
Evaluation Conditions
Recommended Process

Substrate:	Silicon + 1200Å BARLi
Resist Thickness:	0.710µm
Soft Bake:	90˚C/60”
Exposure Tool:	Canon FPA 3000i4
	0.60NA/0.70sigma
Post Exposure Bake:	115˚C/60”
Develop:	OPD-262
	4.5”stream/60”puddle

Focus Latitude of 0.30µm Features

OiR 620

(Eopt for 0.30µm @ 200mJ/cm^2)



-0.60µm -0.40µm -0.20µm 0.00µm 0.20µm 0.40µm 0.60µm 0.80µm 1.00µm 1.20µm

Evaluation Conditions
Recommended Process

Substrate:	Silicon + 1200Å BARLi
Resist Thickness:	0.710µm
Soft Bake:	90˚C/60”
Exposure Tool:	Canon FPA 3000i4
	0.60NA/0.70sigma
Post Exposure Bake:	115˚C/60”
Develop:	OPD-262
	4.5”stream/60”puddle

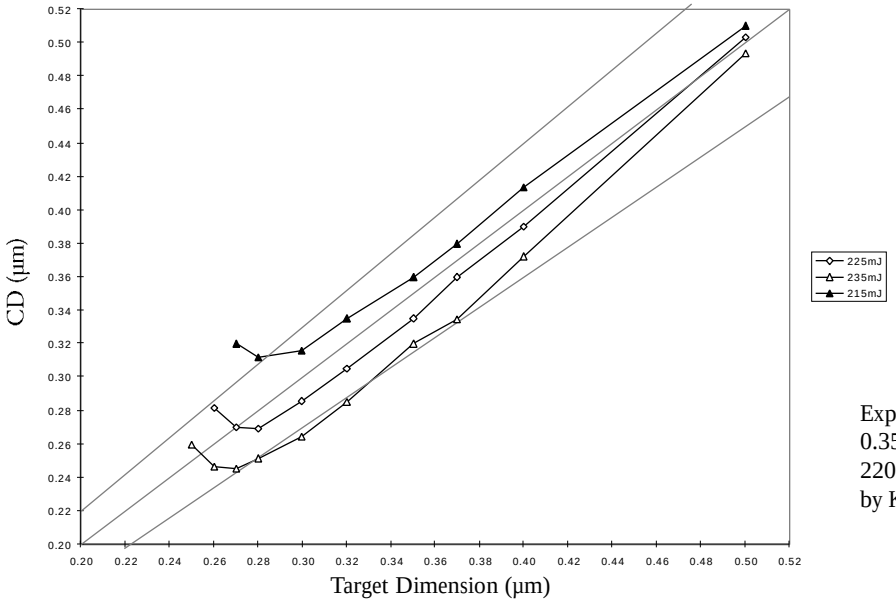
OiR 620

Performance Data on 800Å BARC

0.980µm Resist Thickness

Linearity

OiR 620



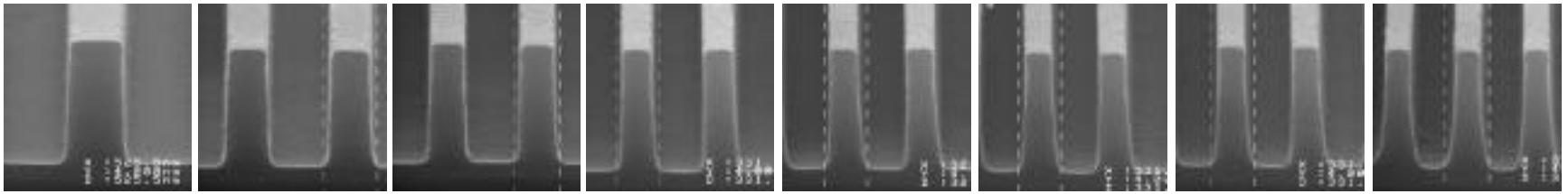
Exposure optimized for 0.35µm geometry at 220mJ/cm^2. Measurements by KLA 8100 CD SEM.

Evaluation Conditions
Recommended Process

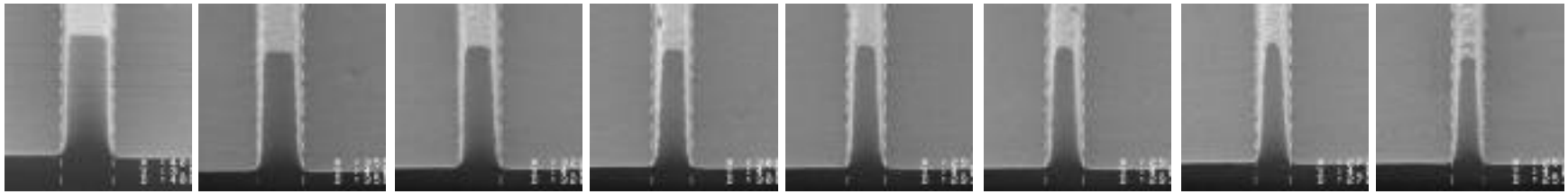
Substrate:	Silicon + 800Å BARLi
Resist Thickness:	0.980µm
Soft Bake:	90˚C/60”
Exposure Tool:	ASM-L PAS 5500/200
	0.60NA/0.70sigma
Post Exposure Bake:	115˚C/60”
Develop:	OPD-262
	4.5”stream/60”puddle

Resolution of Dense/Isolated Features

OiR 620



0.50µm 0.40µm 0.35µm 0.32µm 0.30µm 0.29µm 0.28µm 0.27µm



0.40µm 0.35µm 0.32µm 0.30µm 0.29µm 0.28µm 0.27µm 0.26µm

210mJ/cm^2

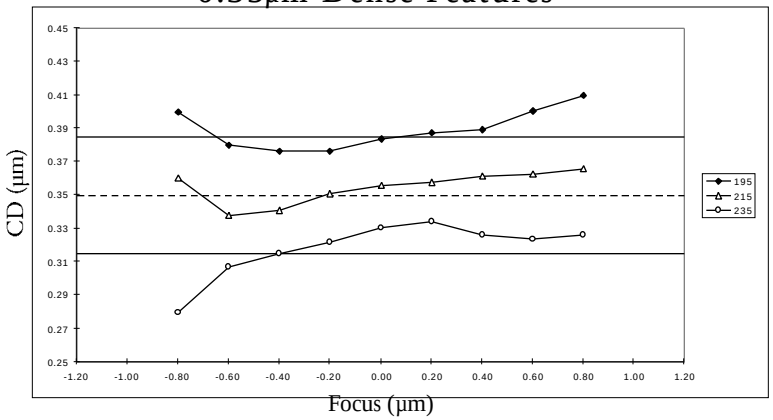
Evaluation Conditions
Recommended Process

Substrate:	Silicon + 800Å BARLi
Resist Thickness:	0.980µm
Soft Bake:	90˚C/60”
Exposure Tool:	ASM-L PAS 5500/200
	0.60NA/0.70sigma
Post Exposure Bake:	115˚C/60”
Develop:	OPD-262
	4.5”stream/60”puddle

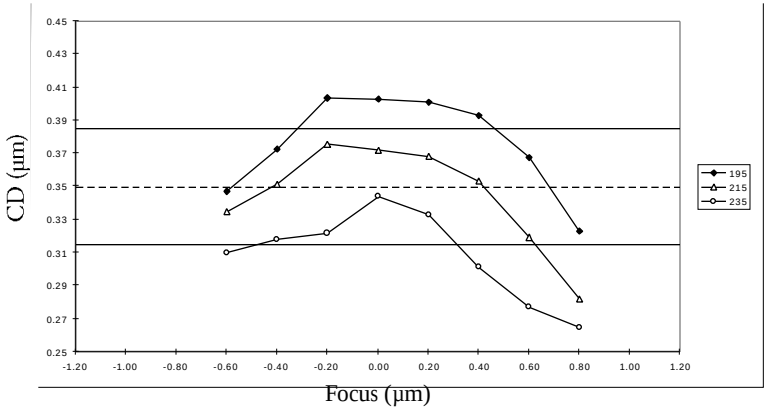
Focus Latitude of 0.35µm Features

OiR 620

0.35µm Dense Features



0.35µm Isolated Features

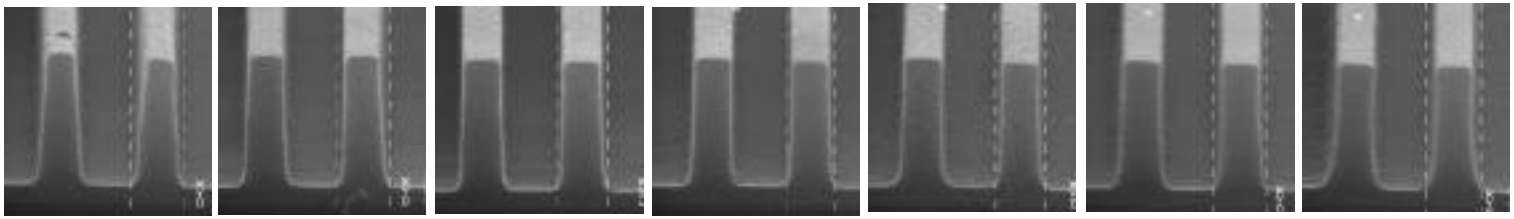


Evaluation Conditions
Recommended Process

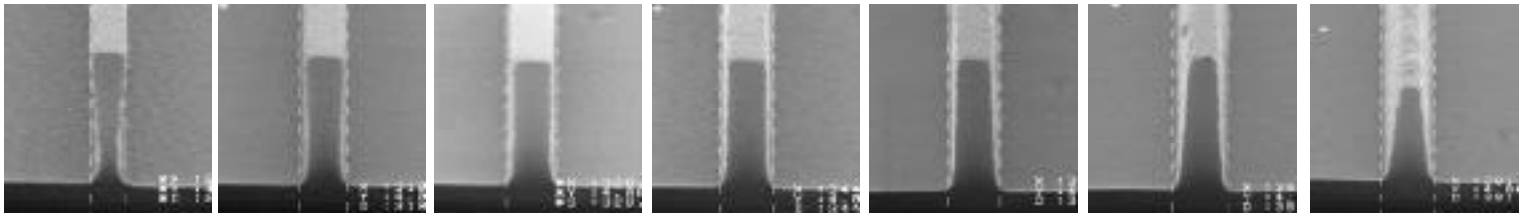
Substrate:	Silicon + 800Å BARLi
Resist Thickness:	0.980µm
Soft Bake:	90˚C/60”
Exposure Tool:	ASM-L PAS 5500/200
	0.60NA/0.70sigma
Post Exposure Bake:	115˚C/60”
Develop:	OPD-262
	4.5”stream/60”puddle

Focus Latitude of 0.35µm Features

OiR 620



-0.60µm -0.40µm -0.20µm 0.00µm +0.20µm +0.40µm +0.60µm



-0.60µm -0.40µm -0.20µm 0.00µm +0.20µm +0.40µm +0.60µm

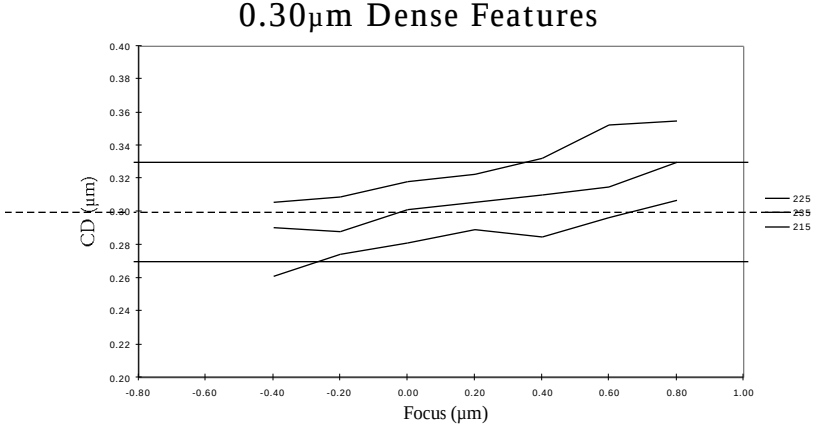
210mJ/cm^2

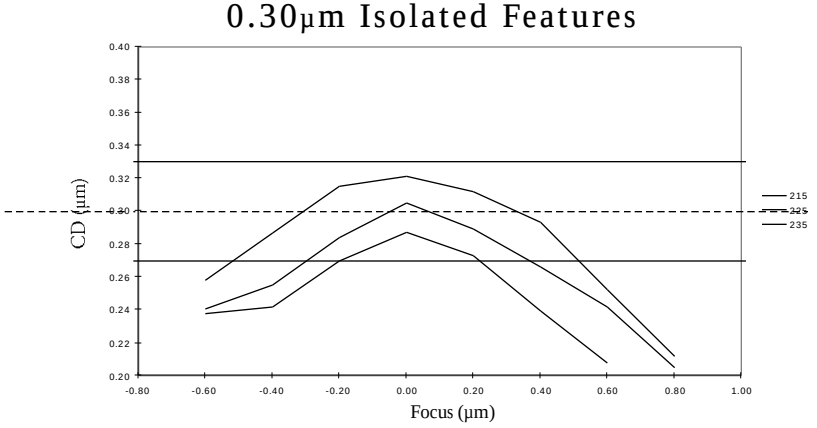
Evaluation Conditions
Recommended Process

Substrate:	Silicon + 800Å BARLi
Resist Thickness:	0.980µm
Soft Bake:	90˚C/60”
Exposure Tool:	ASM-L PAS 5500/200
	0.60NA/0.70sigma
Post Exposure Bake:	115˚C/60”
Develop:	OPD-262
	4.5”stream/60”puddle

Focus Latitude of 0.30µm Features

OiR 620



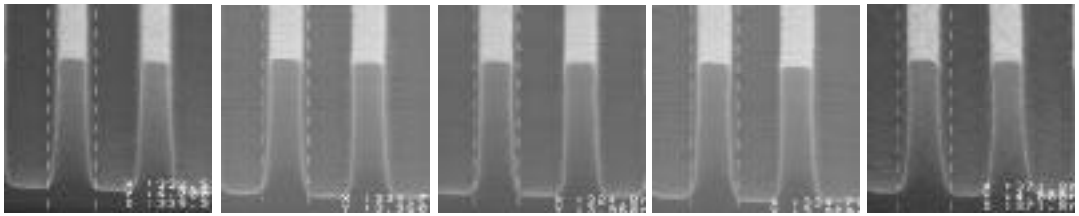


Evaluation Conditions
Recommended Process

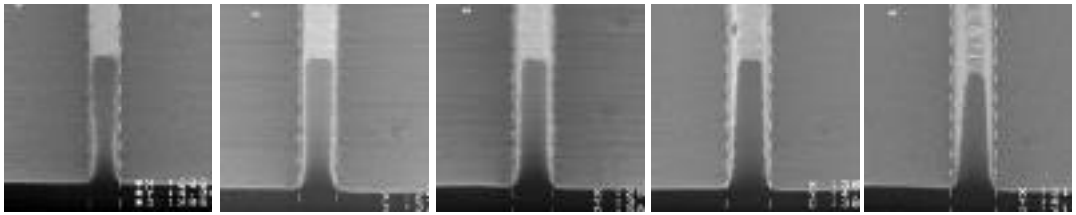
Substrate:	Silicon + 800Å BARLi
Resist Thickness:	0.980µm
Soft Bake:	90˚C/60”
Exposure Tool:	ASM-L PAS 5500/200
	0.60NA/0.70sigma
Post Exposure Bake:	115˚C/60”
Develop:	OPD-262
	4.5”stream/60”puddle

Focus Latitude of 0.30µm Features

OiR 620



-0.40µm -0.20µm 0.00µm 0.20µm 0.40µm



-0.40µm -0.20µm 0.00µm 0.20µm 0.40µm

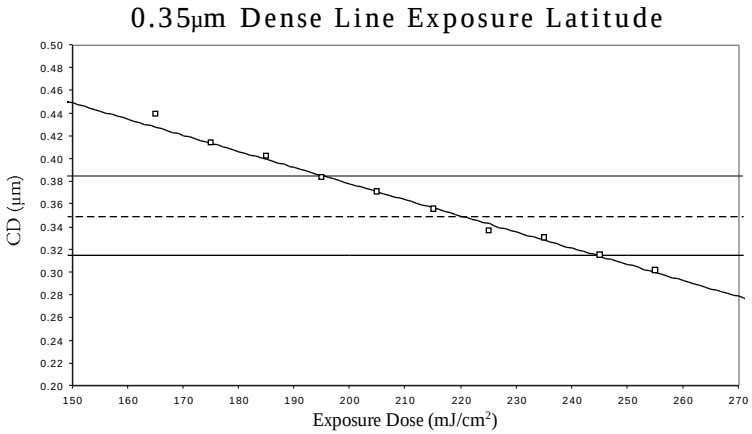
210mJ/cm^2

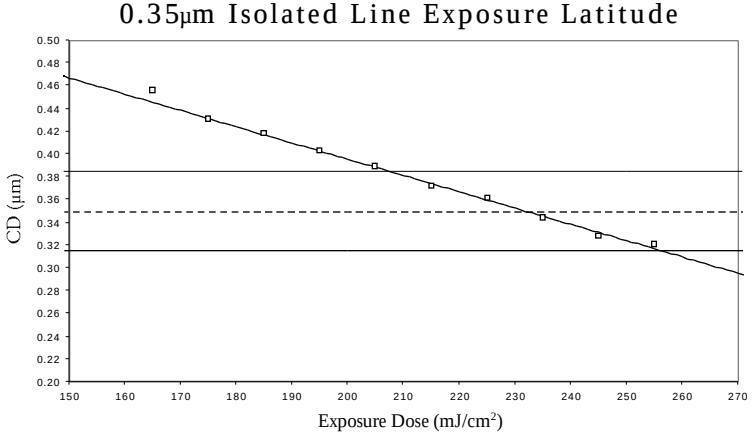
Evaluation Conditions
Recommended Process

Substrate:	Silicon + 800Å BARLi
Resist Thickness:	0.980µm
Soft Bake:	90˚C/60”
Exposure Tool:	ASM-L PAS 5500/200
	0.60NA/0.70sigma
Post Exposure Bake:	115˚C/60”
Develop:	OPD-262
	4.5”stream/60”puddle

Exposure Latitude of 0.35µm Features

OiR 620





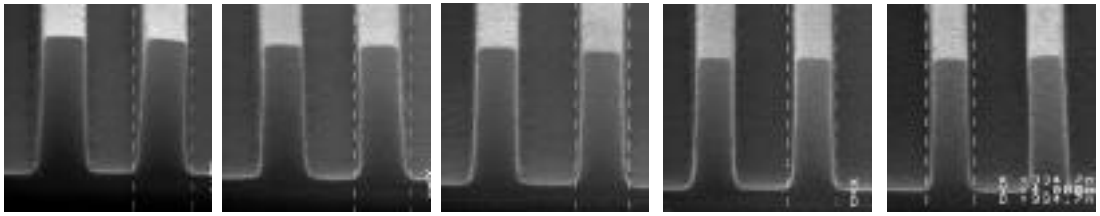
Evaluation Conditions
Recommended Process

Substrate:	Silicon + 800Å BARLi
Resist Thickness:	0.980µm
Soft Bake:	90˚C/60”
Exposure Tool:	ASM-L PAS 5500/200
	0.60NA/0.70sigma
Post Exposure Bake:	115˚C/60”
Develop:	OPD-262
	4.5”stream/60”puddle

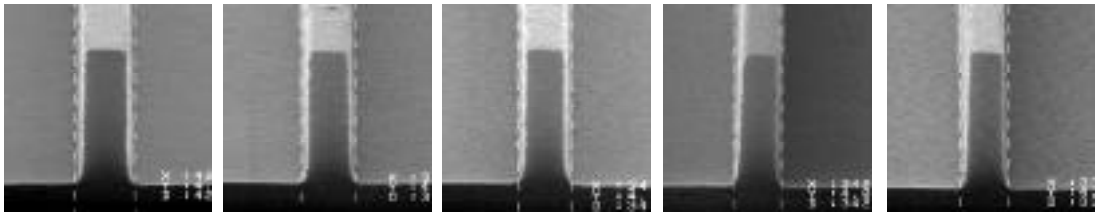
Exposure Latitude:
0.35µm Isolated Features = 22.4%
0.35µm Dense Features = 21.2%

Exposure Latitude of 0.35µm Features

OiR 620



190mJ/cm² 200mJ/cm² 210mJ/cm² 220mJ/cm² 230mJ/cm²



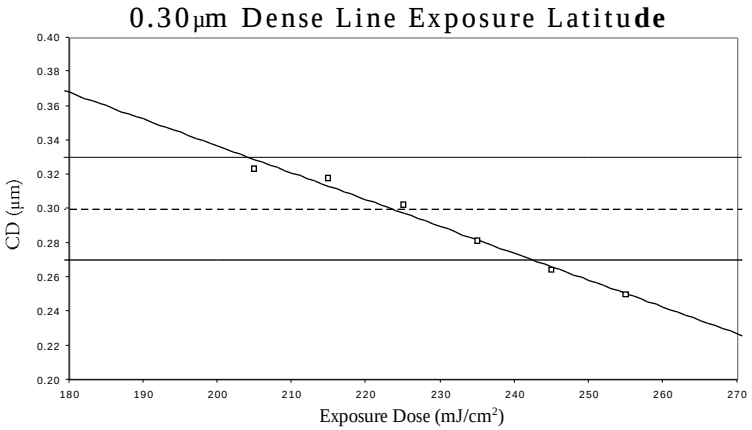
190mJ/cm² 200mJ/cm² 210mJ/cm² 220mJ/cm² 230mJ/cm²

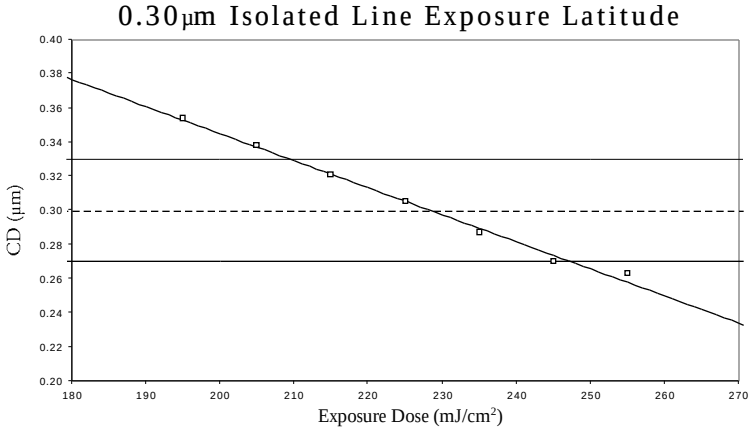
Evaluation Conditions
Recommended Process

Substrate:	Silicon + 800Å BARLi
Resist Thickness:	0.980µm
Soft Bake:	90˚C/60”
Exposure Tool:	ASM-L PAS 5500/200
	0.60NA/0.70sigma
Post Exposure Bake:	115˚C/60”
Develop:	OPD-262
	4.5”stream/60”puddle

Exposure Latitude of 0.30µm Features

OiR 620





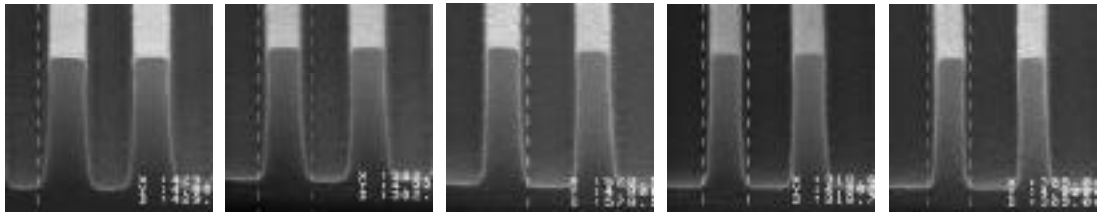
Evaluation Conditions
Recommended Process

Substrate:	Silicon + 800Å BARLi
Resist Thickness:	0.980µm
Soft Bake:	90˚C/60”
Exposure Tool:	ASM-L PAS 5500/200
	0.60NA/0.70sigma
Post Exposure Bake:	115˚C/60”
Develop:	OPD-262
	4.5”stream/60”puddle

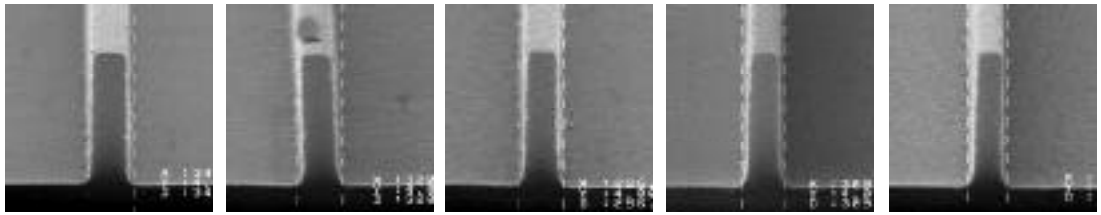
Exposure Latitude:
0.30µm Isolated Features = 17.2%
0.30µm Dense Features = 16.6%

Exposure Latitude of 0.30µm Features

OiR 620



190mJ/cm² 200mJ/cm² 210mJ/cm² 220mJ/cm² 230mJ/cm²



190mJ/cm² 200mJ/cm² 210mJ/cm² 220mJ/cm² 230mJ/cm²

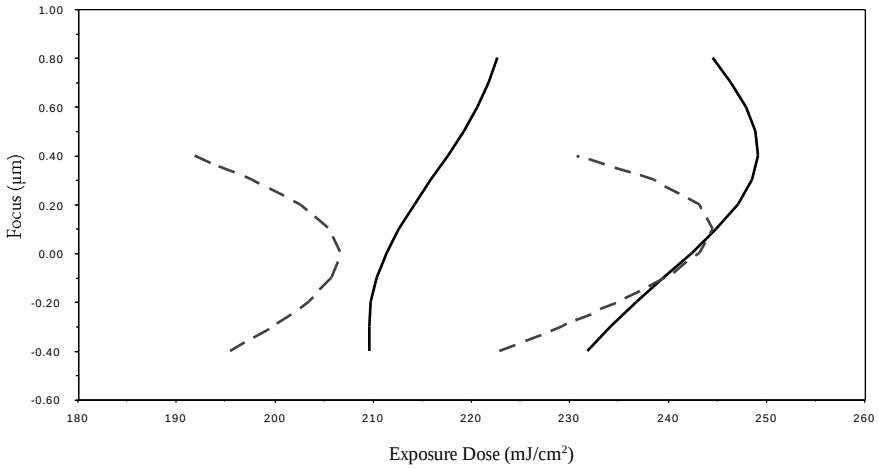
Evaluation Conditions
Recommended Process

Substrate:	Silicon + 800Å BARLi
Resist Thickness:	0.980µm
Soft Bake:	90˚C/60”
Exposure Tool:	ASM-L PAS 5500/200 0.60NA/0.70sigma
Post Exposure Bake:	115˚C/60”
Develop:	OPD-262 4.5”stream/60”puddle

Process Window 0.30µm & 0.35µm

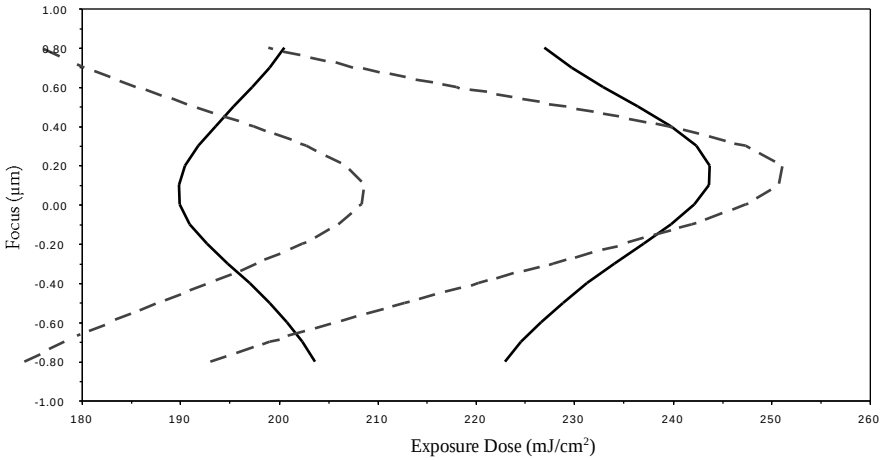
OiR 620

0.30µm Dense & Isolated Line Process



dashed line:
Iso 0.30µm ± 10%CD
solid line:
Dense 0.30µm ± 10%CD

0.35µm Dense & Isolated Line Process



dashed line:
Iso 0.35µm ± 10%CD
solid line:
Dense 0.35µm ± 10%CD

Evaluation Conditions
Recommended Process

Substrate:	Silicon + 800Å BARLi
Resist Thickness:	0.980µm
Soft Bake:	90˚C/60”
Exposure Tool:	ASM-L PAS 5500/200
	0.60NA/0.70sigma
Post Exposure Bake:	115˚C/60”
Develop:	OPD-262
	4.5”stream/60”puddle

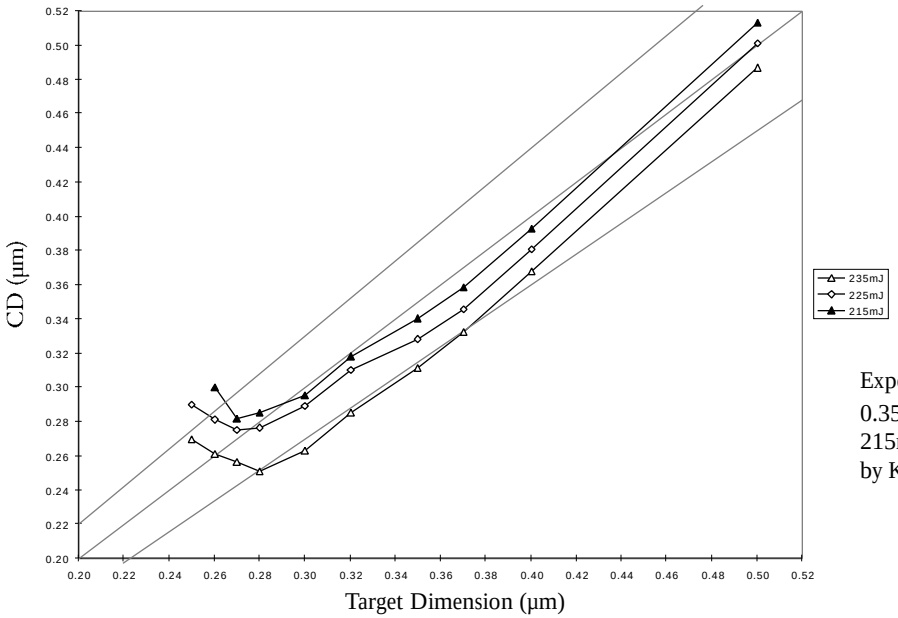
OiR 620

Performance Data on 1600Å BARC

0.975µm Resist Thickness

Linearity

OiR 620



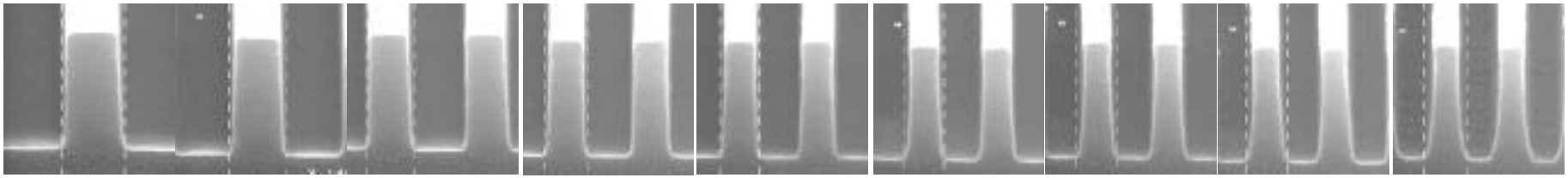
Exposure optimized for 0.35µm geometry at 215mJ/cm^2. Measurements by KLA 8100 CD SEM.

Evaluation Conditions
Recommended Process

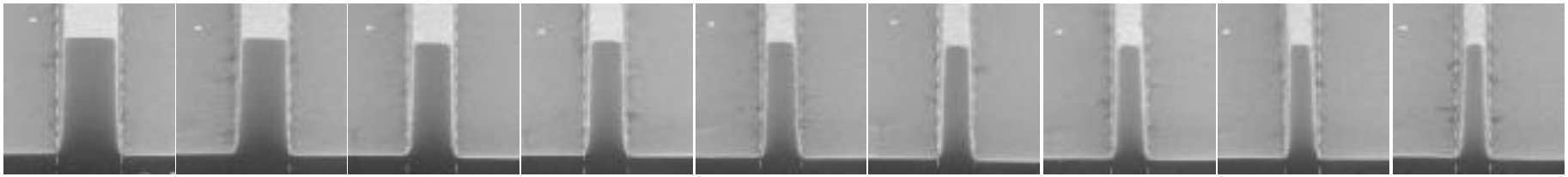
Substrate:	Silicon + 1600Å BARLi
Resist Thickness:	0.975µm
Soft Bake:	90˚C/60”
Exposure Tool:	ASM-L PAS 5500/200
	0.60NA/0.70sigma
Post Exposure Bake:	115˚C/60”
Develop:	OPD-262
	4.5”stream/60”puddle

Resolution of Dense/Isolated Features

OiR 620



0.50µm 0.45µm 0.40µm 0.35µm 0.32µm 0.30µm 0.29µm 0.28µm 0.27µm



0.50µm 0.45µm 0.40µm 0.35µm 0.32µm 0.30µm 0.29µm 0.28µm 0.27µm

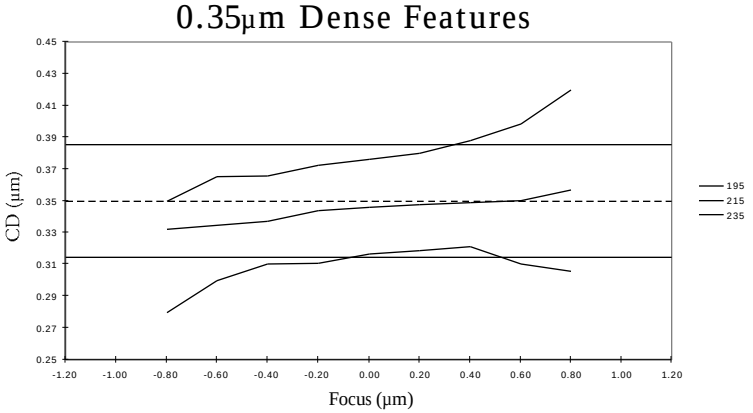
210mJ/cm^2

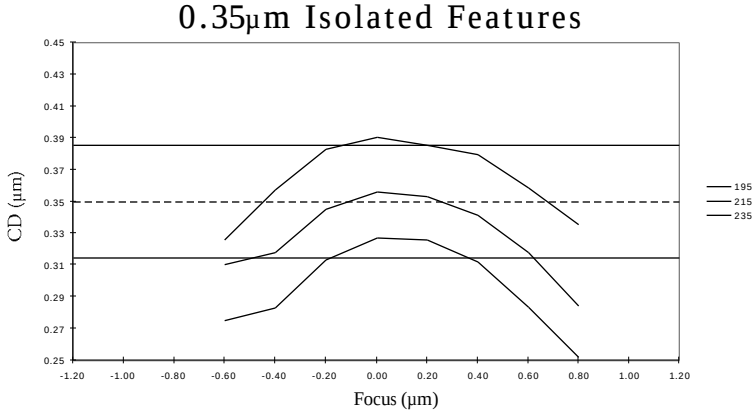
Evaluation Conditions
Recommended Process

Substrate:	Silicon + 1600Å BARLi
Resist Thickness:	0.975µm
Soft Bake:	90˚C/60”
Exposure Tool:	ASM-L PAS 5500/200
	0.60NA/0.70sigma
Post Exposure Bake:	115˚C/60”
Develop:	OPD-262
	4.5”stream/60”puddle

Focus Latitude of 0.35µm Features

OiR 620



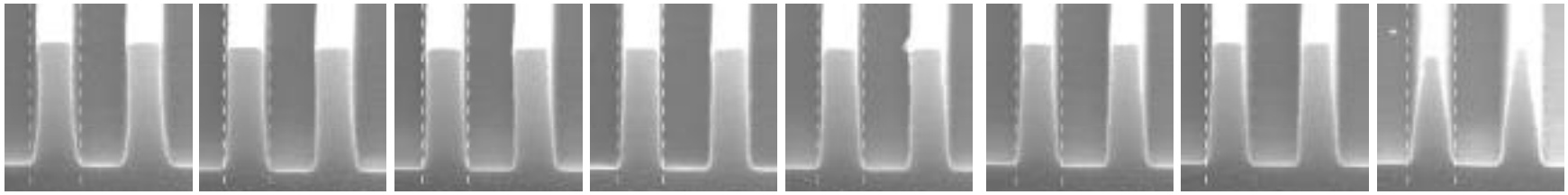


Evaluation Conditions
Recommended Process

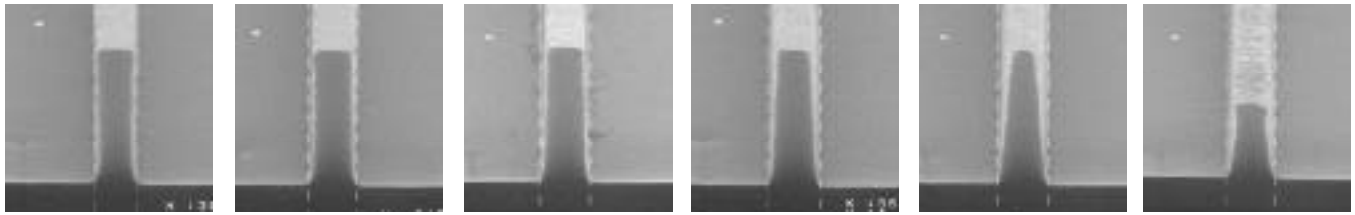
Substrate:	Silicon + 1600Å BARLi
Resist Thickness:	0.975µm
Soft Bake:	90˚C/60”
Exposure Tool:	ASM-L PAS 5500/200
	0.60NA/0.70sigma
Post Exposure Bake:	115˚C/60”
Develop:	OPD-262
	4.5”stream/60”puddle

Focus Latitude of 0.35µm Features

OiR 620



-0.60µm -0.40µm -0.20µm 0.00µm +0.20µm +0.40µm +0.60µm +0.80µm



-0.40µm -0.20µm 0.00µm +0.20µm +0.40µm +0.60µm

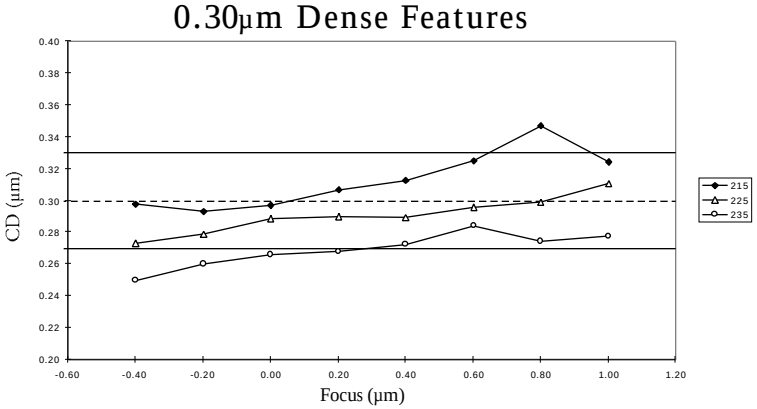
210mJ/cm^2

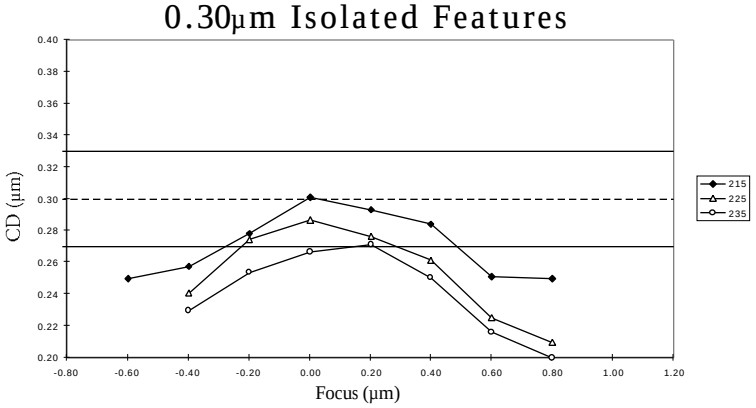
Evaluation Conditions
Recommended Process

Substrate:	Silicon + 1600Å BARLi
Resist Thickness:	0.975µm
Soft Bake:	90˚C/60”
Exposure Tool:	ASM-L PAS 5500/200
	0.60NA/0.70sigma
Post Exposure Bake:	115˚C/60”
Develop:	OPD-262
	4.5”stream/60”puddle

Focus Latitude of 0.30µm Features

OiR 620



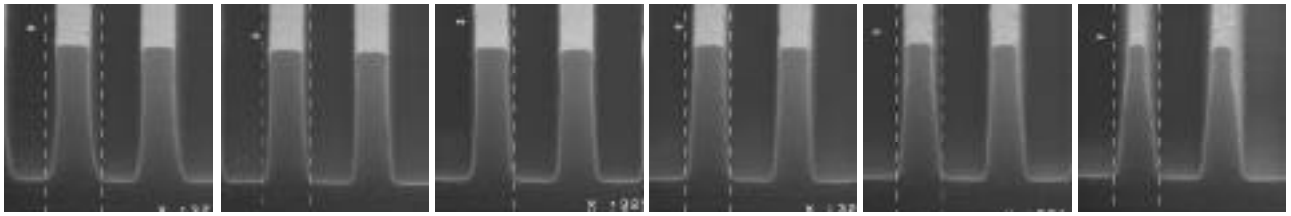


Evaluation Conditions
Recommended Process

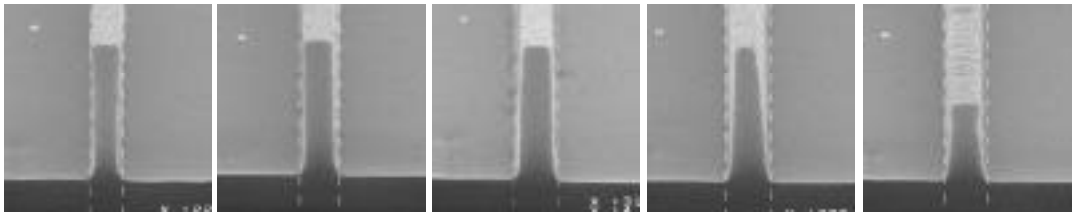
Substrate:	Silicon + 1600Å BARLi
Resist Thickness:	0.975µm
Soft Bake:	90˚C/60”
Exposure Tool:	ASM-L PAS 5500/200
	0.60NA/0.70sigma
Post Exposure Bake:	115˚C/60”
Develop:	OPD-262
	4.5”stream/60”puddle

Focus Latitude of 0.30µm Features

OiR 620



-0.40µm -0.20µm 0.00µm 0.20µm 0.40µm 0.60µm



-0.40µm -0.20µm 0.00µm 0.20µm 0.40µm

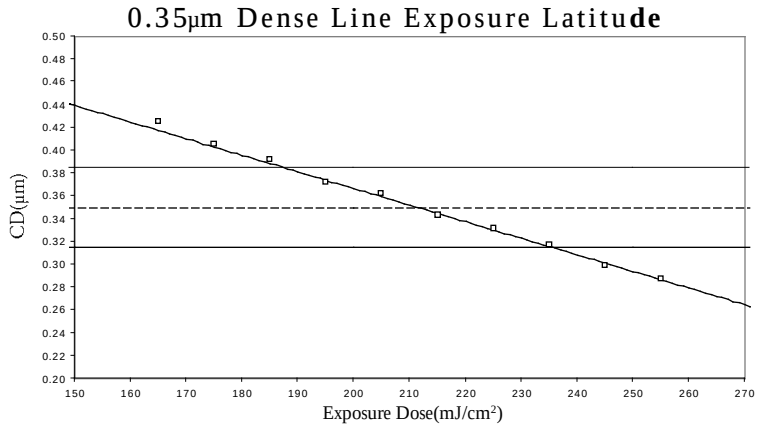
210mJ/cm^2

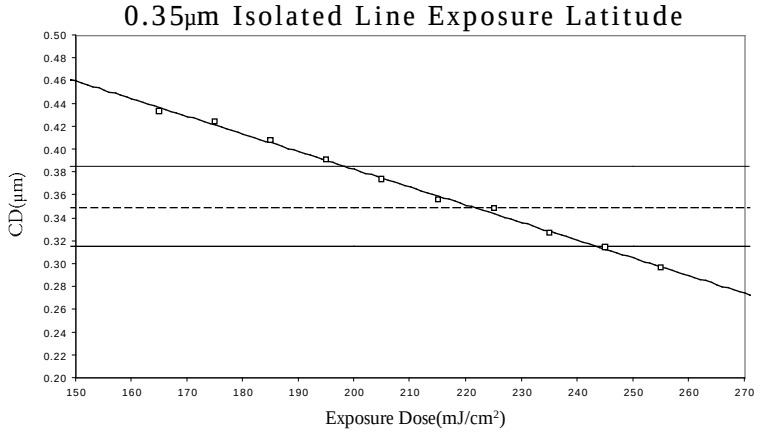
Evaluation Conditions
Recommended Process

Substrate:	Silicon + 1600Å BARLi
Resist Thickness:	0.975µm
Soft Bake:	90˚C/60”
Exposure Tool:	ASM-L PAS 5500/200
	0.60NA/0.70sigma
Post Exposure Bake:	115˚C/60”
Develop:	OPD-262
	4.5”stream/60”puddle

Exposure Latitude of 0.35µm Features

OiR 620





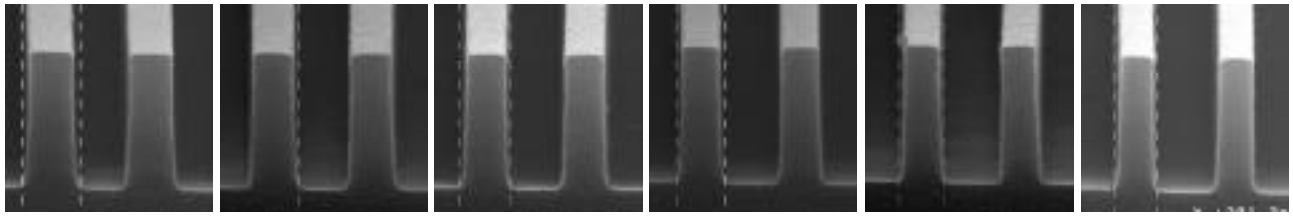
Evaluation Conditions
Recommended Process

Substrate:	Silicon + 1600Å BARLi
Resist Thickness:	0.975µm
Soft Bake:	90˚C/60”
Exposure Tool:	ASM-L PAS 5500/200
	0.60NA/0.70sigma
Post Exposure Bake:	115˚C/60”
Develop:	OPD-262
	4.5”stream/60”puddle

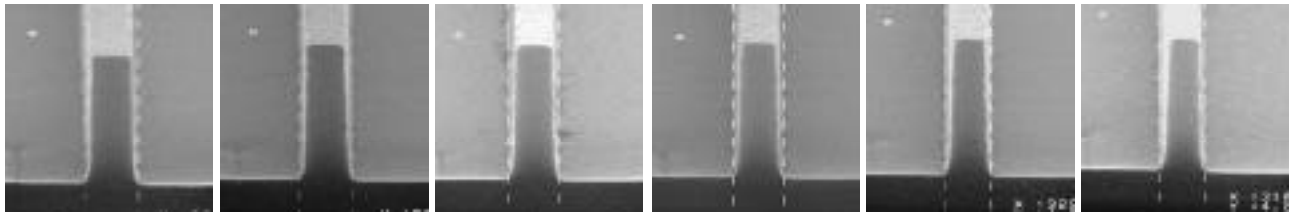
Exposure Latitude:
0.35µm Isolated Features = 20.5%
0.35µm Dense Features = 22.8%

Exposure Latitude of 0.35µm Features

OiR 620



190mJ/cm^2 200mJ/cm^2 210mJ/cm^2 220mJ/cm^2 230mJ/cm^2 240mJ/cm^2



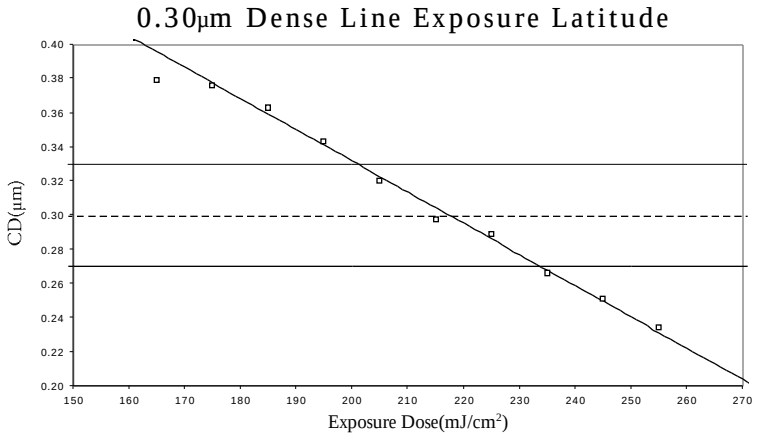
190mJ/cm^2 200mJ/cm^2 210mJ/cm^2 220mJ/cm^2 230mJ/cm^2 240mJ/cm^2

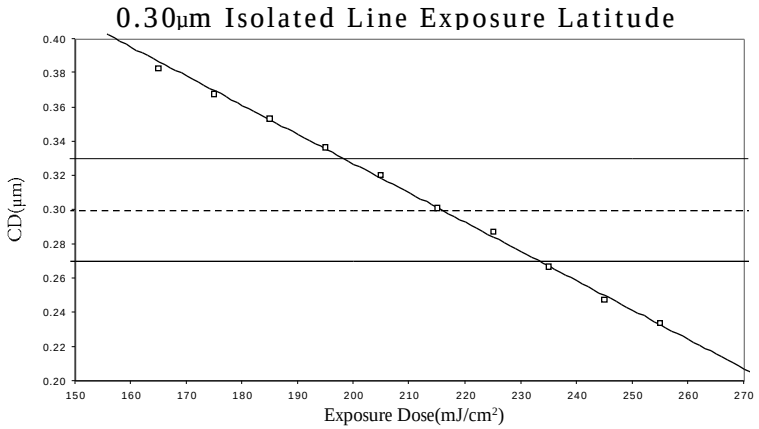
Evaluation Conditions
Recommended Process

Substrate:	Silicon + 1600Å BARLi
Resist Thickness:	0.975µm
Soft Bake:	90˚C/60”
Exposure Tool:	ASM-L PAS 5500/200
	0.60NA/0.70sigma
Post Exposure Bake:	115˚C/60”
Develop:	OPD-262
	4.5”stream/60”puddle

Exposure Latitude of 0.30µm Features

OiR 620





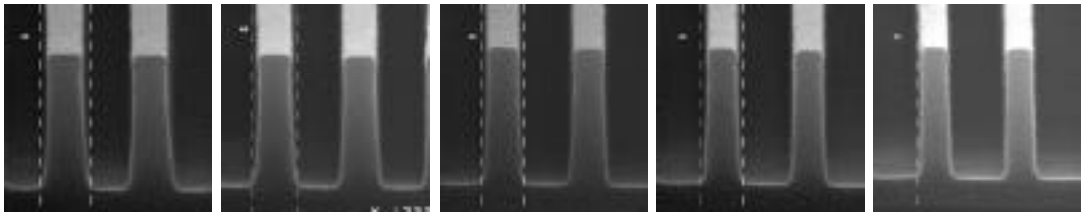
Evaluation Conditions
Recommended Process

Substrate:	Silicon + 1600Å BARLi
Resist Thickness:	0.975µm
Soft Bake:	90˚C/60”
Exposure Tool:	ASM-L PAS 5500/200
	0.60NA/0.70sigma
Post Exposure Bake:	115˚C/60”
Develop:	OPD-262
	4.5”stream/60”puddle

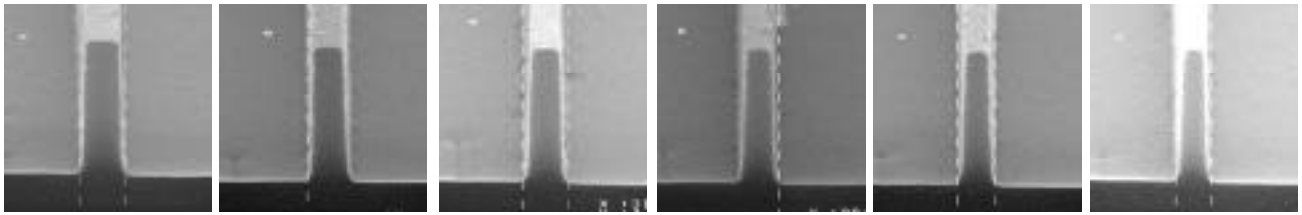
Exposure Latitude:
0.35µm Isolated Features =16.2%
0.35µm Dense Features =15.1%

Exposure Latitude of 0.30µm Features

OiR 620



200mJ/cm² 210mJ/cm² 220mJ/cm² 230mJ/cm² 240mJ/cm²



190mJ/cm² 200mJ/cm² 210mJ/cm² 220mJ/cm² 230mJ/cm² 240mJ/cm²

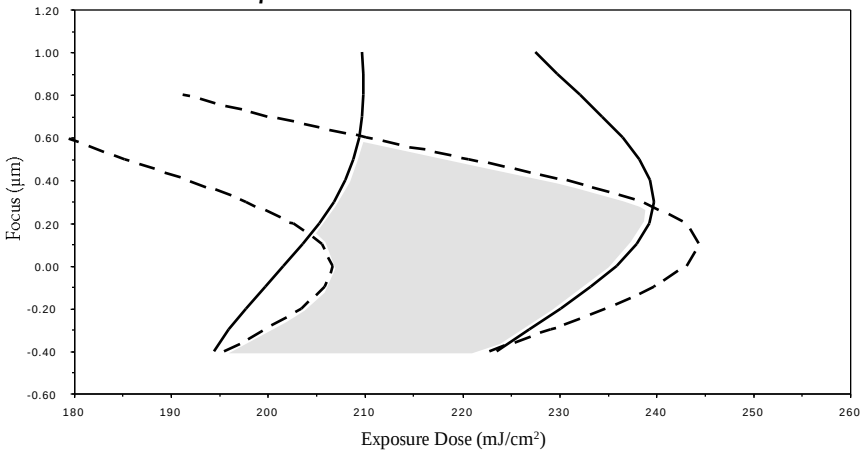
Evaluation Conditions
Recommended Process

Substrate:	Silicon + 1600Å BARLi
Resist Thickness:	0.975µm
Soft Bake:	90˚C/60”
Exposure Tool:	ASM-L PAS 5500/200
	0.60NA/0.70sigma
Post Exposure Bake:	115˚C/60”
Develop:	OPD-262
	4.5”stream/60”puddle

Process Window 0.30µm & 0.35µm

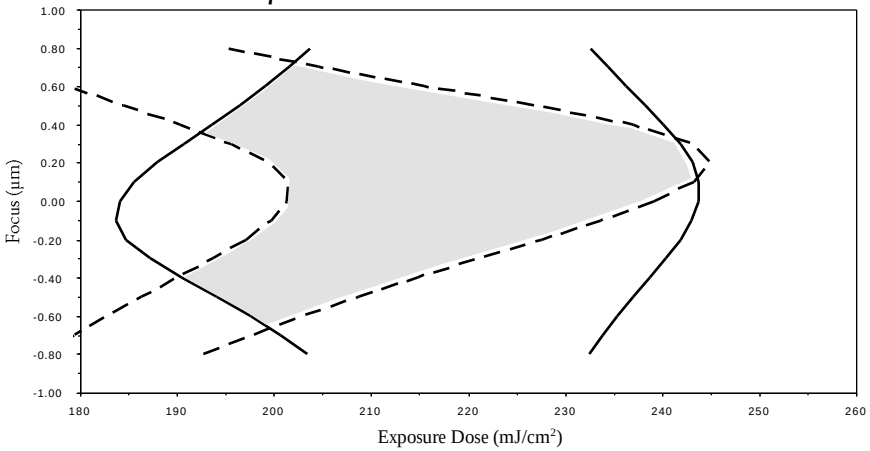
OiR 620

0.30µm Dense & Isolated Line Process



dashed line:
Iso 0.30µm ± 10%CD
solid line:
Dense 0.30µm ± 10%CD

0.35µm Dense & Isolated Line Process



dashed line:
Iso 0.35µm ± 10%CD
solid line:
Dense 0.35µm ± 10%CD

Evaluation Conditions
Recommended Process

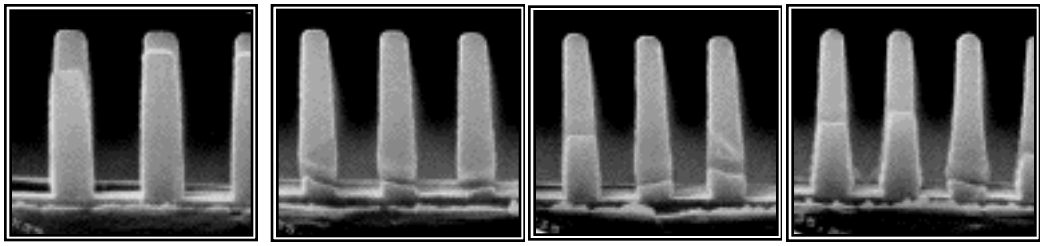
Substrate:	Silicon + 1600Å BARLi
Resist Thickness:	0.975µm
Soft Bake:	90˚C/60”
Exposure Tool:	ASM-L PAS 5500/200
	0.60NA/0.70sigma
Post Exposure Bake:	115˚C/60”
Develop:	OPD-262
	4.5”stream/60”puddle

OiR 620

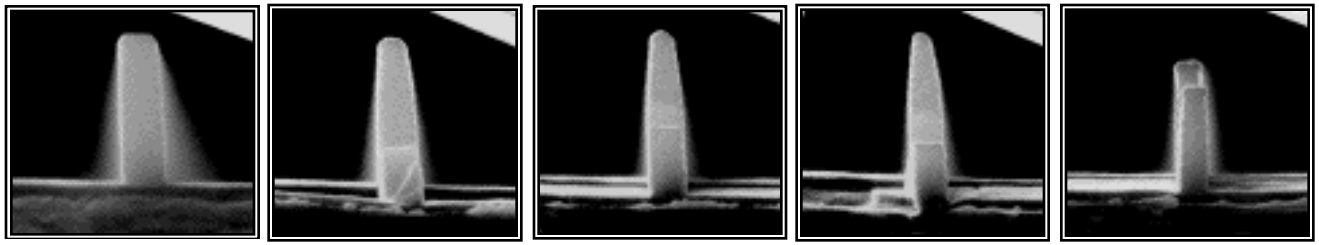
Performance Data on Metal + TiN

Resolution of Dense/Isolated Features

OiR 620



0.40µm 0.35µm 0.325µm 0.30µm



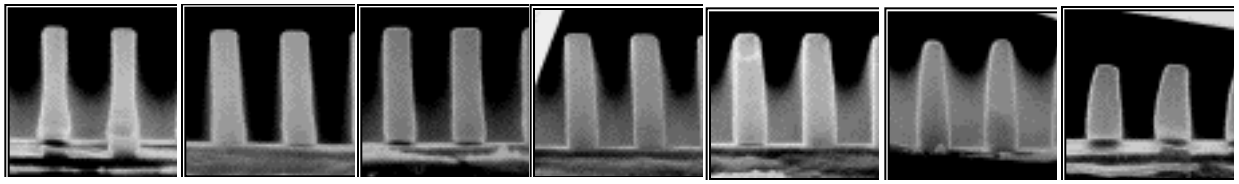
0.40µm 0.35µm 0.325µm 0.30µm 0.275µm

Evaluation Conditions
Recommended Process

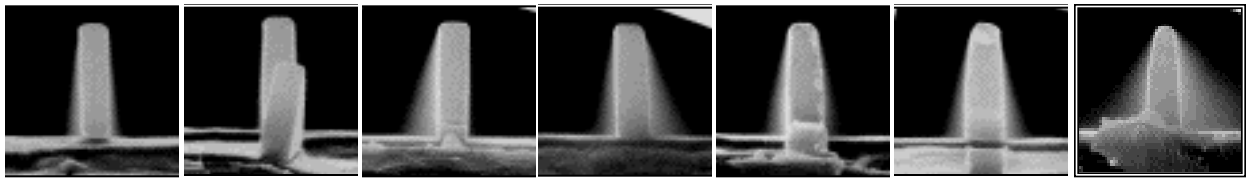
Substrate:	Metal + TiN
Resist Thickness:	1.3µm
Softbake:	90˚ 60”
Exposure Tool:	ASM-L 5500/60 i-line stepper
	0.54NA/0.50sigma
Post Exposure Bake:	110˚C 60”
Develop:	OPD-262
	5”stream/60”puddle

Focus Latitude of 0.40µm Features

OiR 620



-0.75µm -0.60µm -0.30µm 0.00µm +0.30µm +0.60µm +0.75µm



-0.60µm -0.45µm -0.30µm 0.00µm +0.30µm +0.45µm +0.60µm

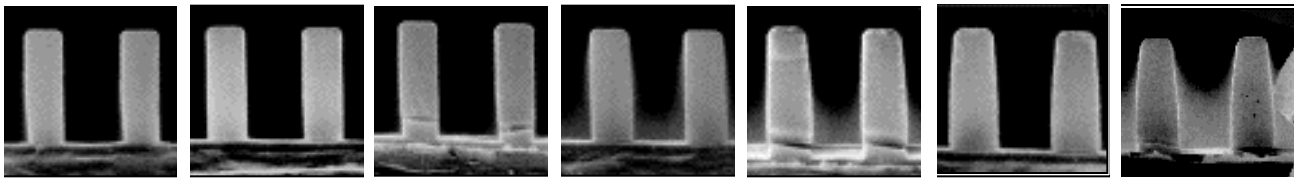
Evaluation Conditions
Recommended Process

Substrate:	Metal + TiN
Resist Thickness:	1.3µm
Softbake:	90˚/ 60”
Exposure Tool:	ASM-L 5500/60 i-line stepper
	0.54NA/0.50sigma
Post Exposure Bake:	110˚C/ 60”
Develop:	OPD-262
	5”stream/60”puddle

Focus Latitude of 0.50µm Features

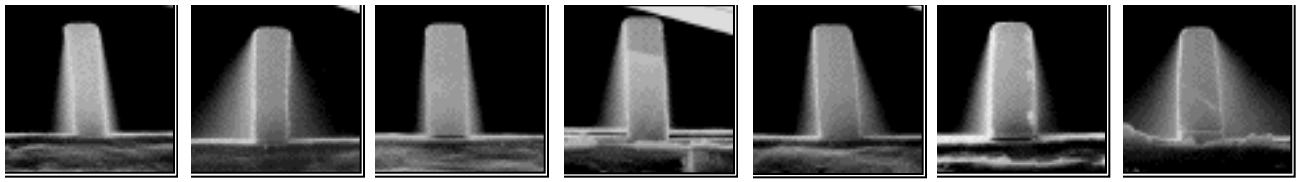
OiR 620

(0.50µm L/0.60µm S)



-0.60µm -0.45µm -0.30µm 0.00µm +0.30µm +0.45µm +0.60µm

(0.50µm Isolated Line)



-1.05µm -0.90µm -0.60µm -0.30µm 0.00µm +0.30µm +0.60µm

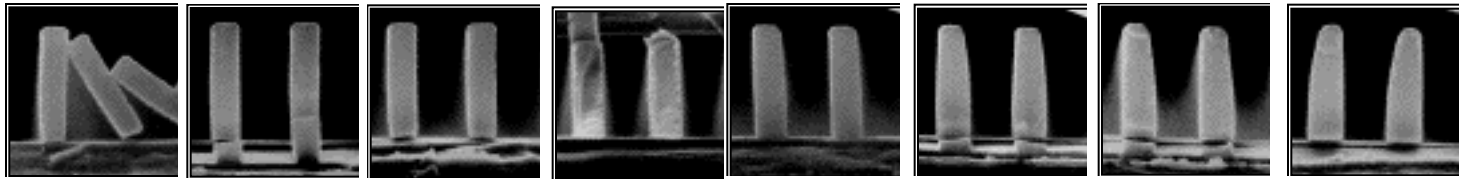
Evaluation Conditions
Recommended Process

Substrate:	Metal + TiN
Resist Thickness:	1.3µm
Softbake:	90˚ 60”
Exposure Tool:	ASM-L 5500/60 i-line stepper
	0.54NA/0.50sigma
Post Exposure Bake:	110˚C 60”
Develop:	OPD262
	5”stream/60”puddle

Focus Latitude of 0.40µm Features

OiR 620

(0.40µm L/0.50µm S)



-0.60µm -0.45µm -0.30µm -0.15µm 0.00µm +0.15µm +0.30µm +0.45µm

Evaluation Conditions
Recommended Process

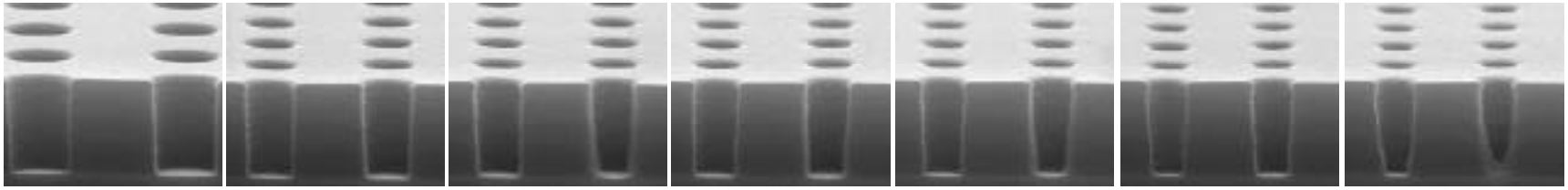
Substrate:	Metal + TiN
Resist Thickness:	1.3µm
Softbake:	90˚ 60”
Exposure Tool:	ASM-L 5500/60 i-line stepper 0.54NA/0.50sigma
Post Exposure Bake:	110˚C 60”
Develop:	OPD-262 5”stream/60”puddle

Contact Hole Performance Data

Resolution of Contact Holes

OiR 620

(Eopt for 0.40µm @ 310 mJ/cm^2)



0.50um | CD = 0.40um | 0.39um | 0.38um | 0.37um | 0.36um | 0.35um

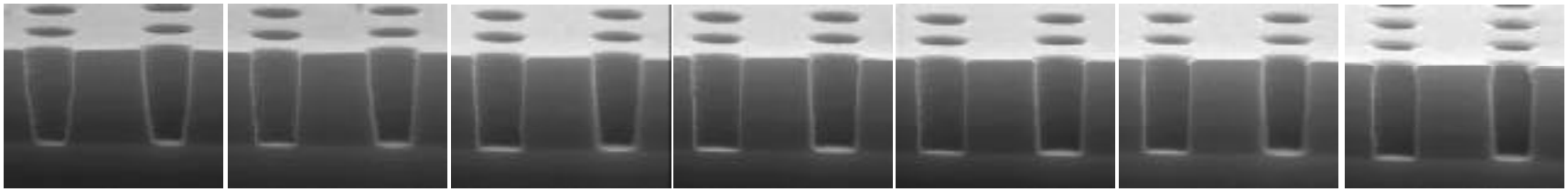
Evaluation Conditions
Recommended Process

Substrate:	Silicon
Resist Thickness:	1.04µm
Soft Bake:	90˚C/60”
Exposure Tool:	Canon FPA 3000i4
	0.63NA/0.50sigma
Post Exposure Bake:	115˚C/60”
Develop:	OPD-262
	4.5”stream/60”puddle

Focus Latitude of 0.40µm Contacts

OiR 620

(Eopt for 0.40µm @ 310mJ/cm^2)



-0.20um | 0.00um | 0.20um | 0.40um | 0.60um | 0.80um | 1.00um

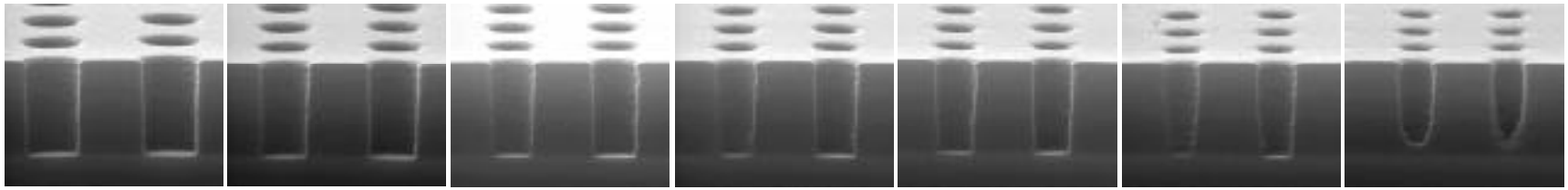
Evaluation Conditions
Recommended Process

Substrate:	Silicon
Resist Thickness:	1.04µm
Soft Bake:	90˚C/60”
Exposure Tool:	Canon FPA 3000i4
	0.63NA/0.50sigma
Post Exposure Bake:	115˚C/60”
Develop:	OPD-262
	4.5”stream/60”puddle

Resolution of Contact Holes

OiR 620

(Eopt for 0.35µm @ 460mJ/cm^2)



0.40um 0.37um CD = 0.35um 0.34um 0.33um 0.32um 0.31um

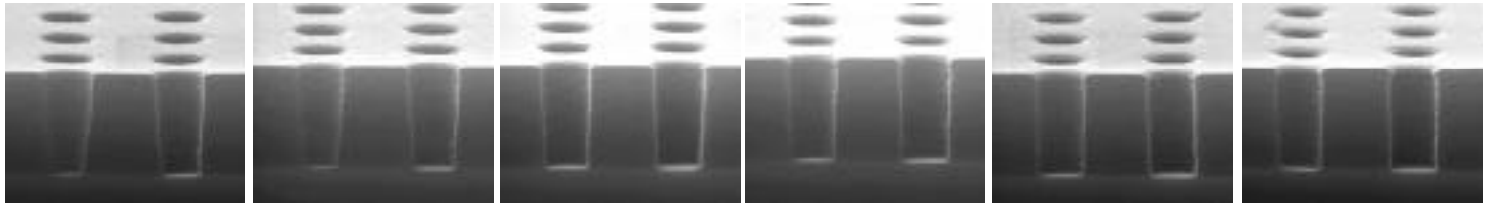
Evaluation Conditions
Recommended Process

Substrate:	Silicon
Resist Thickness:	1.04µm
Soft Bake:	90˚C/60”
Exposure Tool:	Canon FPA 3000i4
	0.63NA/0.50sigma
Post Exposure Bake:	115˚C/60”
Develop:	OPD-262
	4.5”stream/60”puddle

Focus Latitude of 0.35µm Contacts

OiR 620

(Eopt for 0.35µm @ 460mJ/cm^2)



-0.20um 0.00um 0.20um 0.40um 0.60um 0.80um

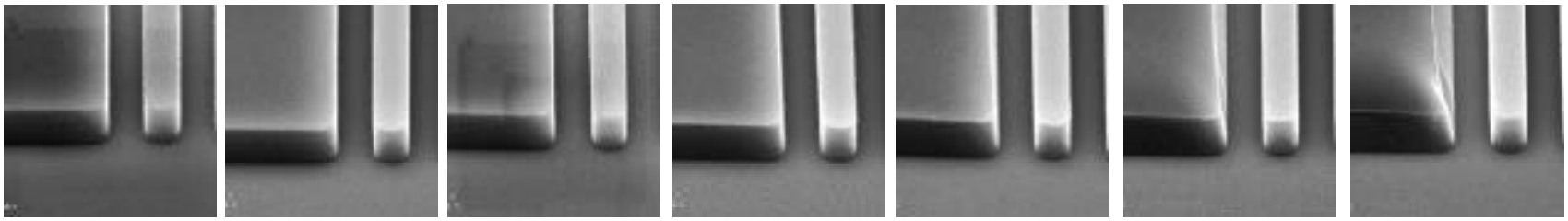
Evaluation Conditions
Recommended Process

Substrate:	Silicon
Resist Thickness:	1.04µm
Soft Bake:	90˚C/60”
Exposure Tool:	Canon FPA 3000i4
	0.63NA/0.50sigma
Post Exposure Bake:	115˚C/60”
Develop:	OPD-262
	4.5”stream/60”puddle

Thermal Stability

Thermal Stability

OiR 620

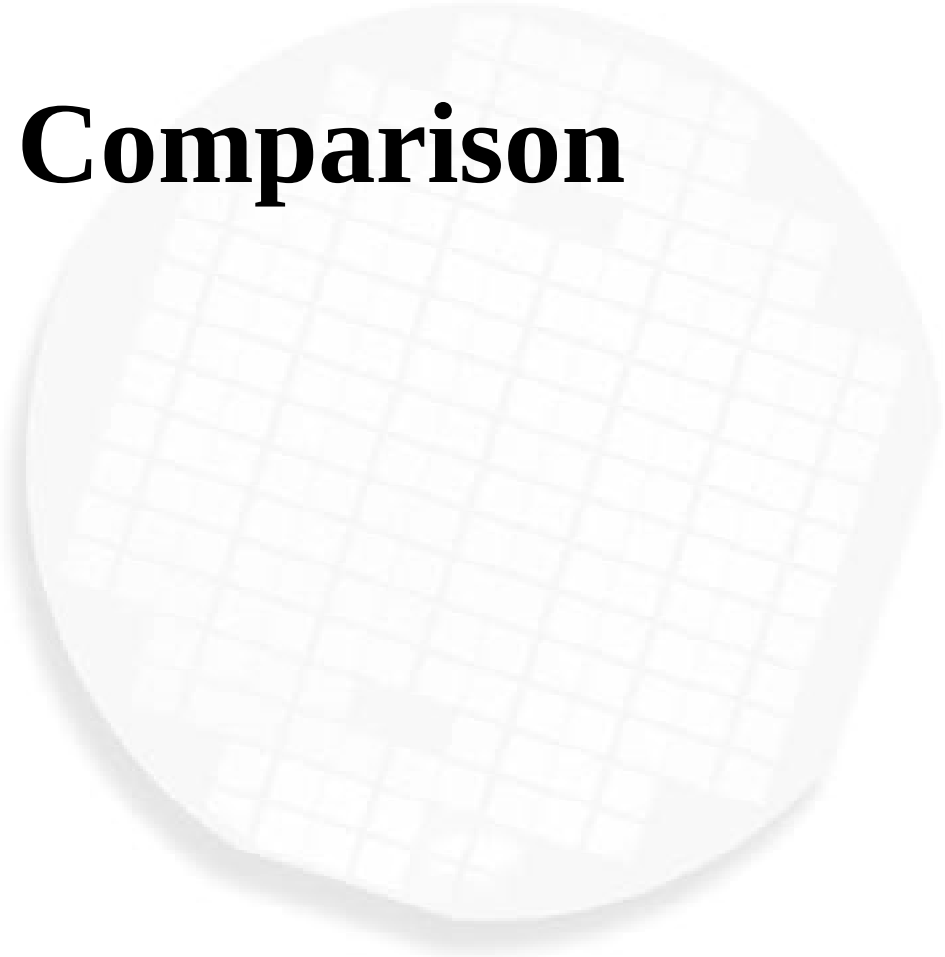


No Bake | 110˚C PB | 115˚C PB | 120˚C PB | 125˚C PB | 130˚C PB | 135˚C PB

Evaluation Conditions
Recommended Process

Substrate:	Silicon
Resist Thickness:	0.970µm
Soft Bake:	90˚C/60”
Exposure Tool:	Canon FPA 2000i1
	0.52NA/0.50sigma
Post Exposure Bake:	115˚C/60”
Develop:	OPD-262
	4.5”stream/60”puddle

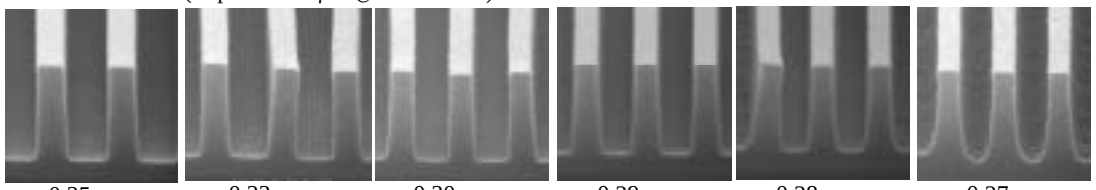
Developer Comparison



Resolution of Dense Features

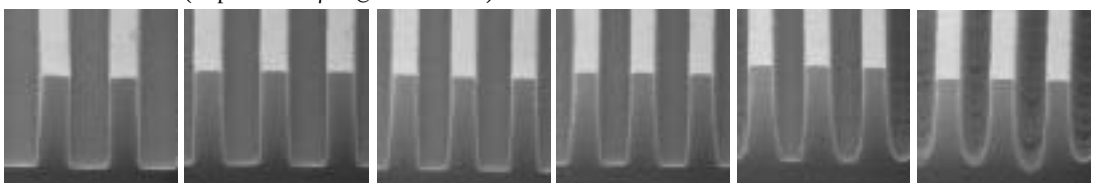
OiR 620

OPD-262 (Eopt for 0.35µm @ 210mJ/cm^2)



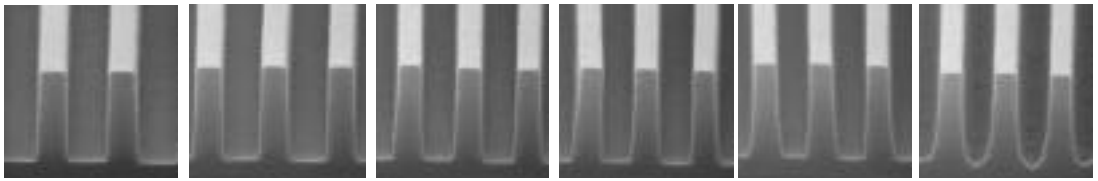
0.35µm 0.33µm 0.30µm 0.29µm 0.28µm 0.27µm

OPD-5262 (Eopt for 0.35µm @ 210mJ/cm^2)



0.35µm 0.33µm 0.30µm 0.29µm 0.28µm 0.27µm

OPD-4262 (Eopt for 0.35µm @ 250mJ/cm^2)



0.35µm 0.33µm 0.30µm 0.29µm 0.28µm 0.27µm

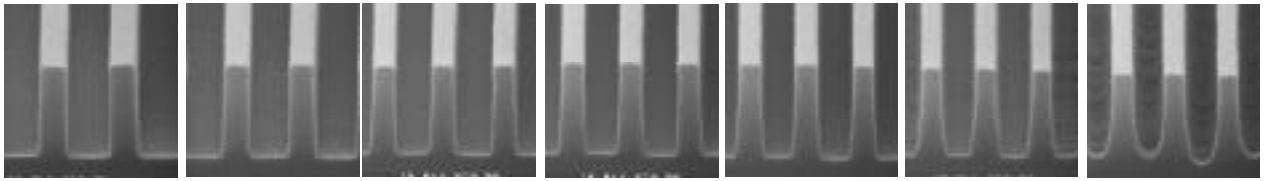
Evaluation Conditions/ Recommended Process

Substrate:	Silicon + 1200Å BARLi	Exposure Tool:	Canon FPA 3000i4
Resist Thickness:	0.950µm		0.60NA/0.70sigma
Soft Bake:	90˚C/60”	Post Exposure Bake:	115˚C/60”
		Develop:	4.5”stream/60”puddle

Resolution of Dense Features

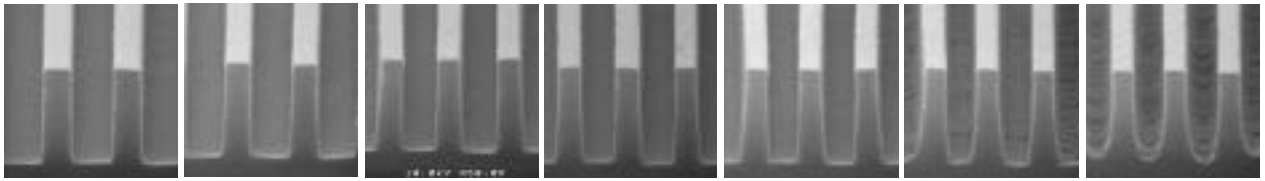
OiR 620

OPD-262 (Eopt for 0.30µm @ 220mJ/cm^2)



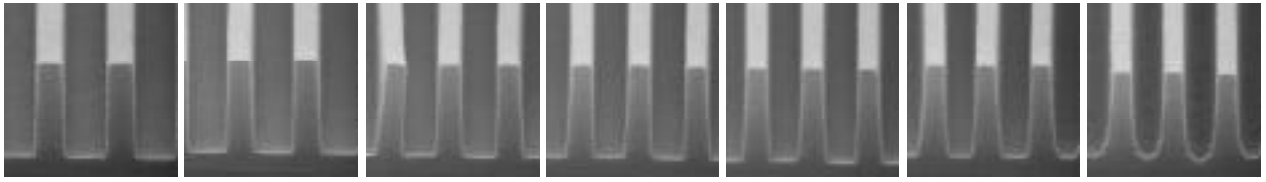
0.35µm 0.33µm 0.30µm 0.29µm 0.28µm 0.27µm 0.26µm

OPD-5262 (Eopt for 0.30µm @ 220mJ/cm^2)



0.35µm 0.33µm 0.30µm 0.29µm 0.28µm 0.27µm 0.26µm

OPD-4262 (Eopt for 0.30µm @ 260mJ/cm^2)



0.35µm 0.33µm 0.30µm 0.29µm 0.28µm 0.27µm 0.26µm

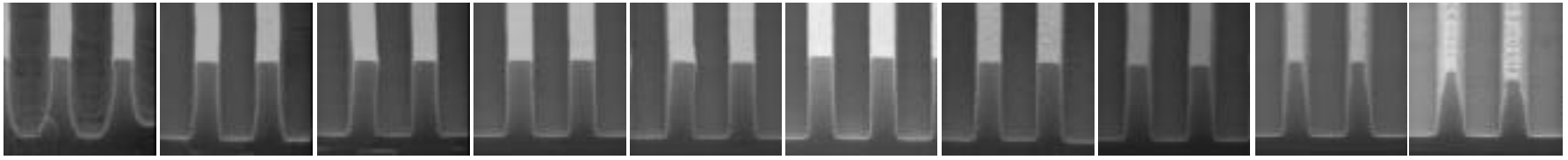
Evaluation Conditions/ Recommended Process

Substrate:	Silicon + 1200Å BARLi	Exposure Tool:	Canon FPA 3000i4
Resist Thickness:	0.950µm		0.60NA/0.70sigma
Soft Bake:	90˚C/60”	Post Exposure Bake:	115˚C/60”
		Develop:	4.5”stream/60”puddle

Focus Latitude of 0.35µm Features

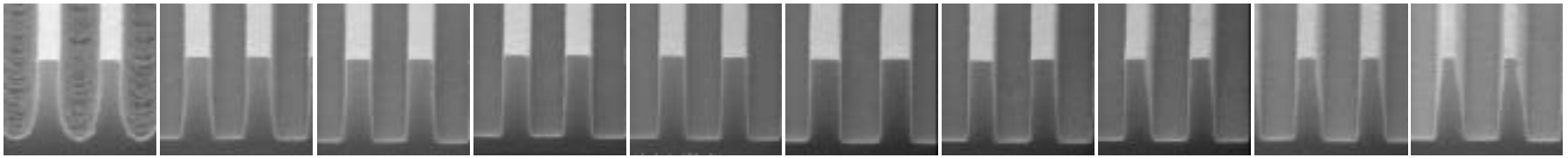
OiR 620

OPD-262 (Eopt @ 210mJ/cm^2)



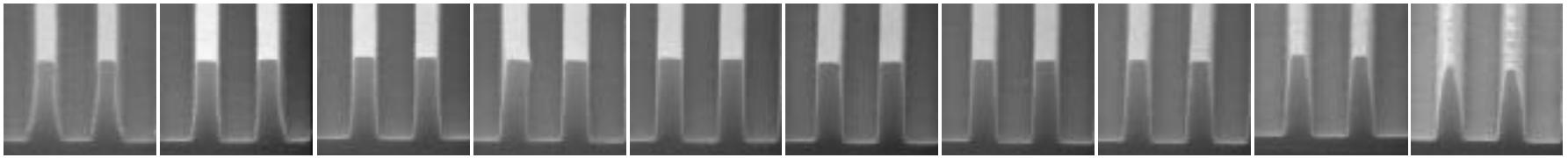
-1.20µm -1.00µm -0.80µm -0.60µm -0.40µm -0.20µm 0.00µm 0.20µm 0.40µm 0.60µm

OPD-5262 (Eopt @ 210mJ/cm^2)



-1.20µm -1.00µm -0.80µm -0.60µm -0.40µm -0.20µm 0.00µm 0.20µm 0.40µm 0.60µm

OPD-4262 (Eopt @ 250mJ/cm^2)



-1.20µm -1.00µm -0.80µm -0.60µm -0.40µm -0.20µm 0.00µm 0.20µm 0.40µm 0.60µm

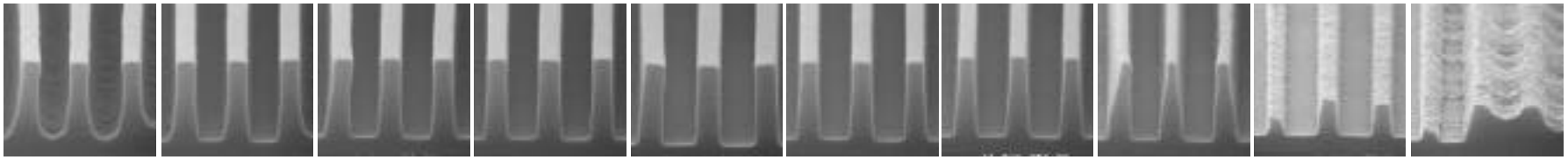
Evaluation Conditions/ Recommended Process

Substrate:	Silicon + 1200Å BARLi	Exposure Tool:	Canon FPA 3000i4
Resist Thickness:	0.950µm		0.60NA/0.70sigma
Soft Bake:	90˚C/60”	Post Exposure Bake:	115˚C/60”
		Develop:	4.5”stream/60”puddle

Focus Latitude of 0.30µm Features

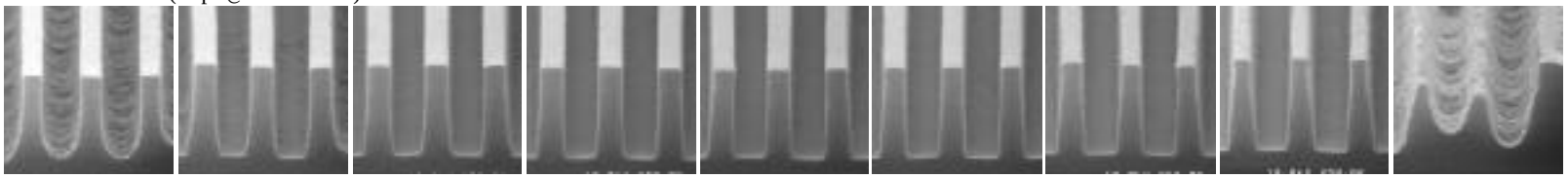
OiR 620

OPD-262 (Eopt @ 220mJ/cm^2)



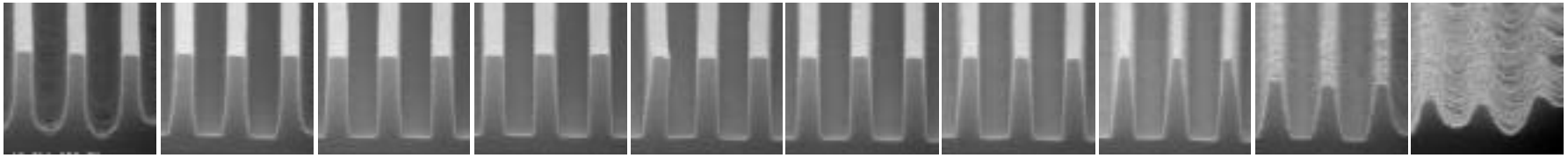
-1.00µm -0.80µm -0.60µm -0.40µm -0.20µm 0.00µm 0.20µm 0.40µm 0.60µm 0.80µm

OPD-5262 (Eopt @ 220mJ/cm^2)



-1.00µm -0.80µm -0.60µm -0.40µm -0.20µm 0.00µm 0.20µm 0.40µm 0.60µm

OPD-4262 (Eopt @ 260mJ/cm^2)



-1.00µm -0.80µm -0.60µm -0.40µm -0.20µm 0.00µm 0.20µm 0.40µm 0.60µm 0.80µm

Evaluation Conditions/ Recommended Process

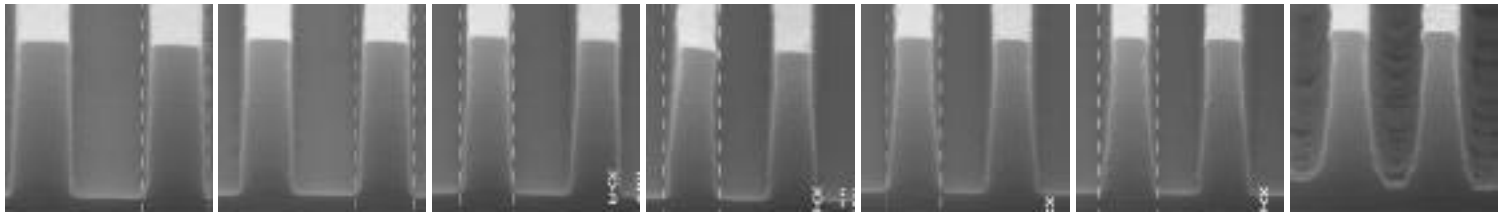
Substrate:	Silicon + 1200Å BARLi	Exposure Tool:	Canon FPA 3000i4
Resist Thickness:	0.950µm		0.60NA/0.70sigma
Soft Bake:	90˚C/60”	Post Exposure Bake:	115˚C/60”
		Develop:	4.5”stream/60”puddle

Hard Contact vs. Proximity Bake Data

Resolution of Dense Features

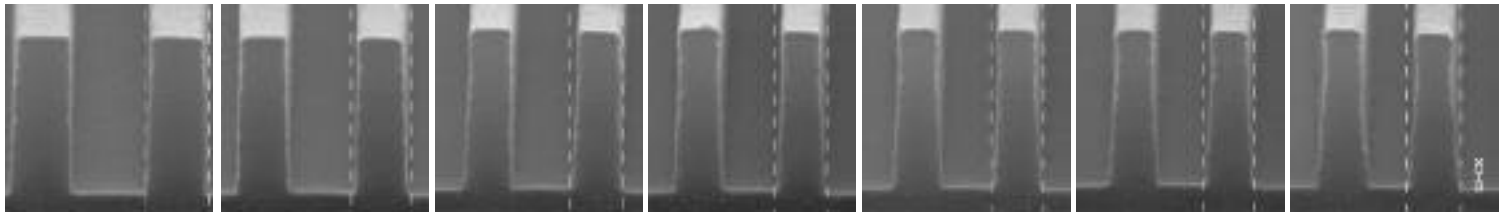
OiR 620

Hard Contact
210mJ



0.40µm 0.35µm 0.32µm 0.30µm 0.29µm 0.28µm 0.27µm

Proximity Bake
240mJ



0.40µm 0.35µm 0.32µm 0.30µm 0.29µm 0.28µm 0.27µm

Evaluation Conditions
Hard Contact Process

Substrate:	Silicon + 1200Å BARLi
Resist Thickness:	0.960µm
Soft Bake:	90˚C/60”
Exposure Tool:	Canon FPA 3000i4 0.60NA/0.70sigma
Post Exposure Bake:	115˚C/60”
Develop:	OPD-262 4.5”stream/60”puddle

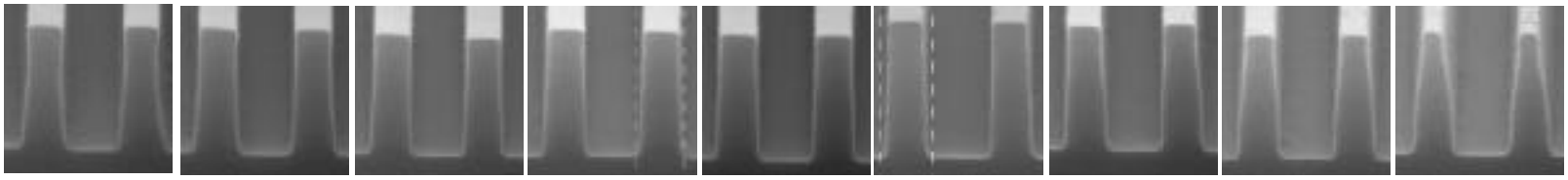
Evaluation Conditions
Proximity Bake Process
(DNS unit w/ 150µm gap)

Substrate:	Silicon + 1200Å BARLi
Resist Thickness:	0.960µm
Soft Bake:	93˚C/60”
Exposure Tool:	Canon FPA 3000i4 0.60NA/0.70sigma
Post Exposure Bake:	118˚C/60”
Develop:	OPD-262 4.5”stream/60”puddle

Focus Latitude of 0.35µm Features

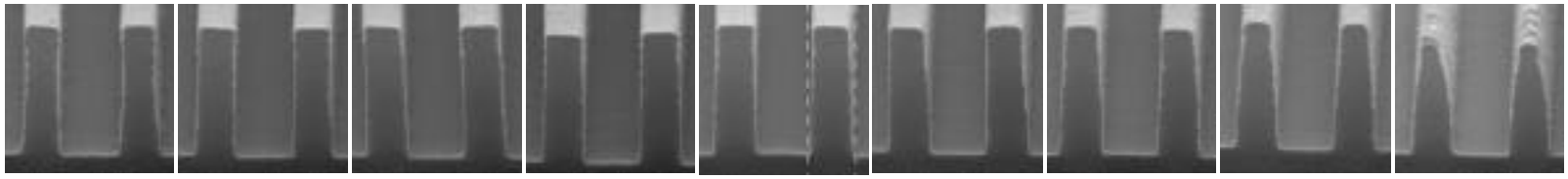
OiR 620

Hard Contact
210mJ



-0.80µm -0.60µm -0.40µm -0.20µm 0.00µm +0.20µm +0.40µm +0.60µm +0.80µm

Proximity Bake
240mJ



-0.80µm -0.60µm -0.40µm -0.20µm 0.00µm +0.20µm +0.40µm +0.60µm +0.80µm

Evaluation Conditions
Hard Contact Process

Substrate:	Silicon + 1200Å BARLi
Resist Thickness:	0.960µm
Soft Bake:	90˚C/60”
Exposure Tool:	Canon FPA 3000i4 0.60NA/0.70sigma
Post Exposure Bake:	115˚C/60”
Develop:	OPD-262 4.5”stream/60”puddle

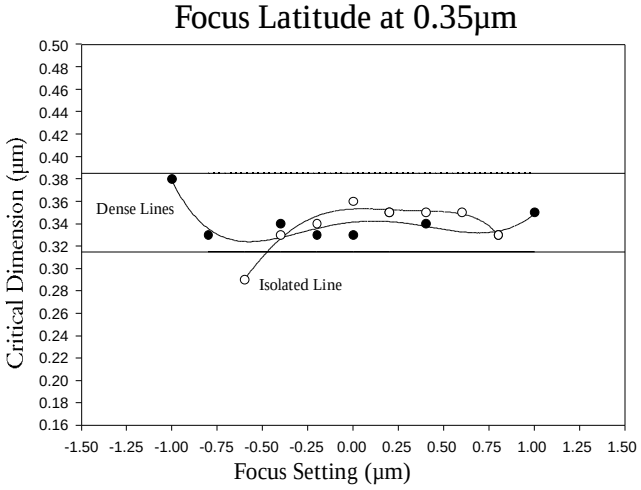
Evaluation Conditions
Proximity Bake Process
(DNS unit w/ 150µm gap)

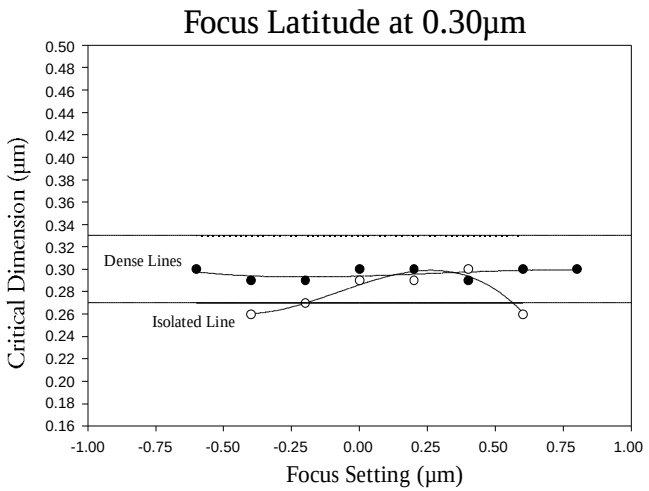
Substrate:	Silicon + 1200Å BARLi
Resist Thickness:	0.960µm
Soft Bake:	93˚C/60”
Exposure Tool:	Canon FPA 3000i4 0.60NA/0.70sigma
Post Exposure Bake:	118˚C/60”
Develop:	OPD-262 4.5”stream/60”puddle

Conventional Illumination: Sigma Optimization

Focus Latitude (0.60NA / 0.70 Sigma)

OiR 620



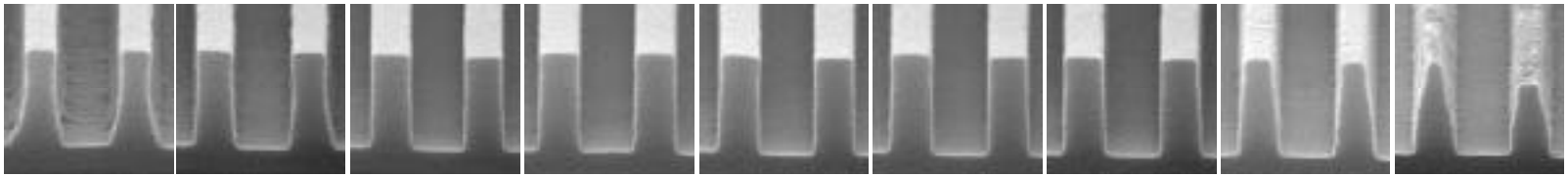


Evaluation Conditions
Recommended Process

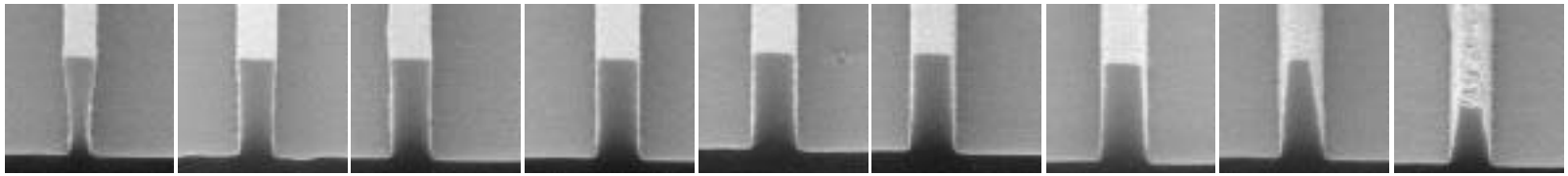
Substrate:	Silicon + 1200Å BARLi
Resist Thickness:	0.740µm
Soft Bake:	90˚C/60”
Exposure Tool:	Canon 3000i4
	0.60NA/0.70 Sigma
Post Exposure Bake:	115˚C/60”
Develop:	OPD-262
	4.5”stream/60”puddle

Focus Latitude of 0.35µm Features

OiR 620



-1.00µm -0.80µm -0.40µm -0.20µm 0.00µm +0.20µm +0.40µm +0.80µm +1.00µm



-0.80µm -0.60µm -0.40µm -0.20µm 0.00µm +0.20µm +0.40µm +0.60µm +0.80µm

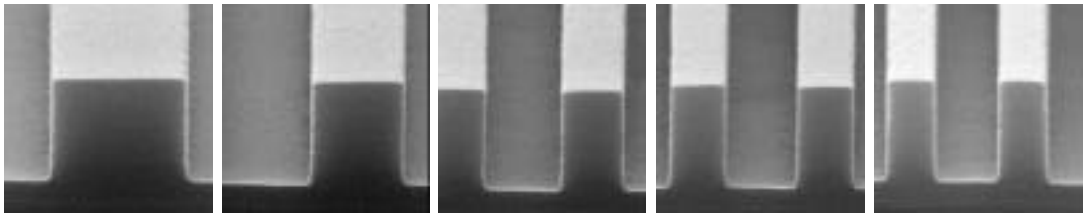
200mJ/cm^2

Evaluation Conditions
Recommended Process

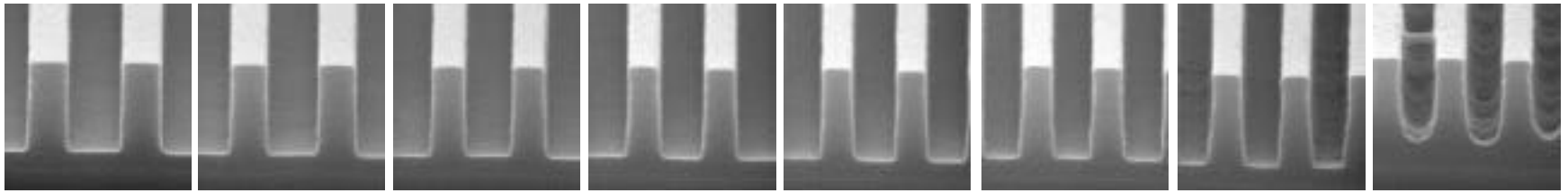
Substrate:	Silicon + 1200Å BARLi
Resist Thickness:	0.740µm
Soft Bake:	90˚C/60”
Exposure Tool:	Canon 3000i4
	0.60NA/0.70 Sigma
Post Exposure Bake:	115˚C/60”
Develop:	OPD-262
	4.5”stream/60”puddle

Resolution of Dense Features

OiR 620



0.70µm 0.60µm 0.50µm 0.45µm 0.40µm



0.37µm 0.35µm 0.32µm 0.30µm 0.29µm 0.28µm 0.27µm 0.26µm

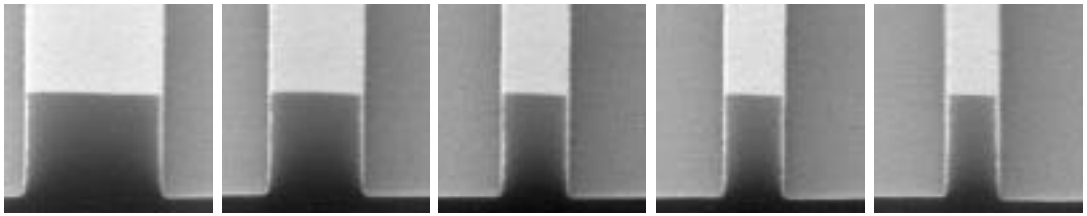
200mJ/cm^2

Evaluation Conditions
Recommended Process

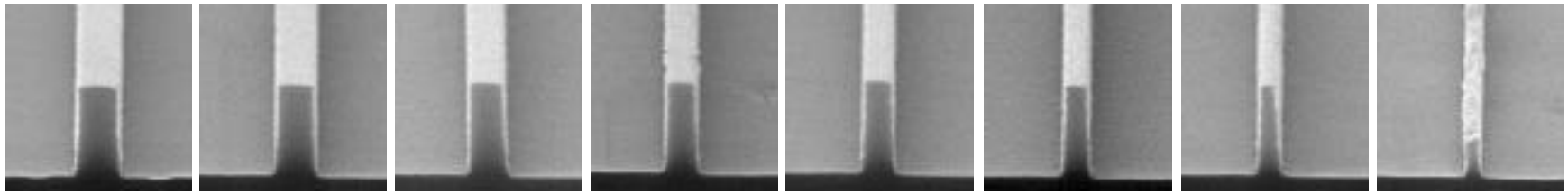
Substrate:	Silicon + 1200Å BARLi
Resist Thickness:	0.740µm
Soft Bake:	90˚C/60”
Exposure Tool:	Canon 3000i4
	0.60NA/0.70 Sigma
Post Exposure Bake:	115˚C/60”
Develo	OPD-262
	4.5”stream/60”puddle

Resolution of Isolated Features

OiR 620



0.70µm 0.60µm 0.50µm 0.45µm 0.40µm



0.37µm 0.35µm 0.32µm 0.30µm 0.28µm 0.26µm 0.24µm 0.22µm

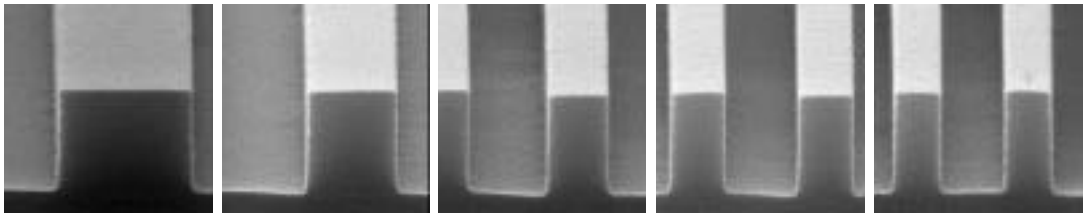
200mJ/cm^2

Evaluation Conditions
Recommended Process

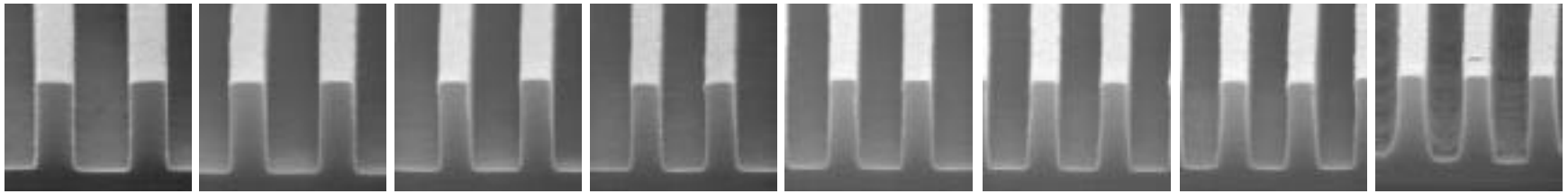
Substrate:	Silicon + 1200Å BARLi
Resist Thickness:	0.740µm
Soft Bake:	90˚C/60”
Exposure Tool:	Canon 3000i4
	0.60NA/0.70 Sigma
Post Exposure Bake:	115˚C/60”
Develop:	OPD-262
	4.5”stream/60”puddle

Resolution of Dense Features

OiR 620



0.70µm 0.60µm 0.50µm0.45µm 0.40µm



0.37µm 0.35µm 0.32µm 0.30µm 0.29µm 0.28µm 0.27µm 0.26µm

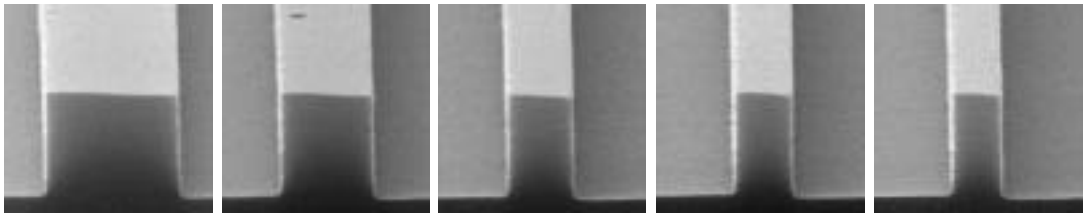
210mJ/cm^2

Evaluation Conditions
Recommended Process

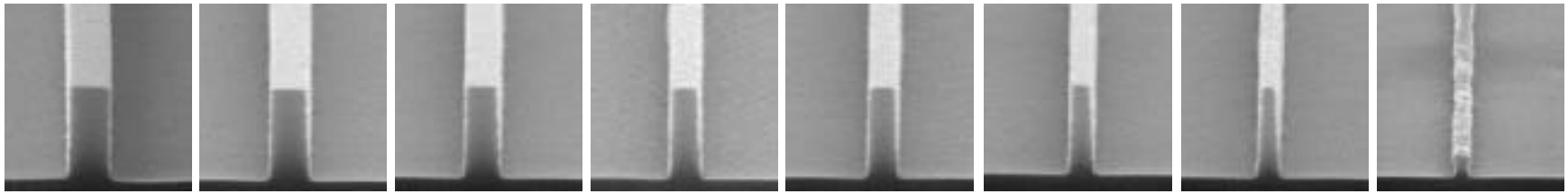
Substrate:	Silicon + 1200Å BARLi
Resist Thickness:	0.740µm
Soft Bake:	90˚C/60”
Exposure Tool:	Canon 3000i4
	0.60NA/0.70 Sigma
Post Exposure Bake:	115˚C/60”
Develop:	OPD-262
	4.5”stream/60”puddle

Resolution of Isolated Features

OiR 620



0.70µm 0.60µm 0.50µm 0.45µm 0.40µm



0.37µm 0.35µm 0.32µm 0.30µm 0.28µm 0.26µm 0.24µm 0.22µm

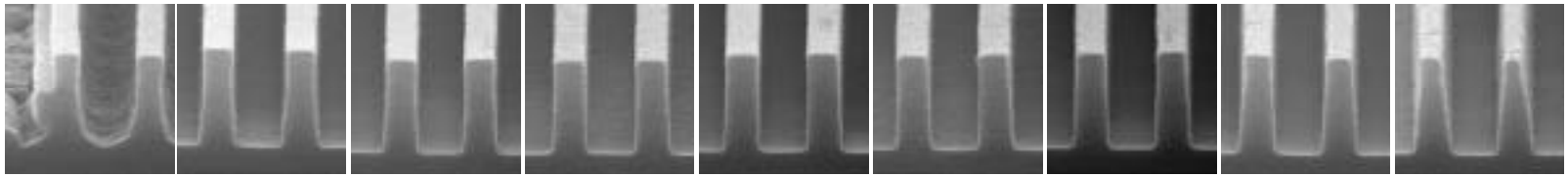
210mJ/cm^2

Evaluation Conditions
Recommended Process

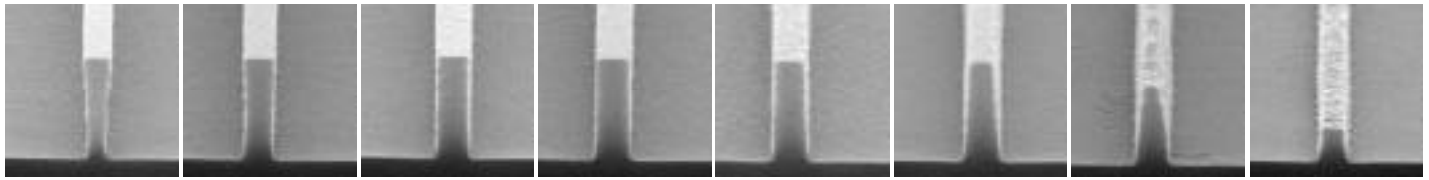
Substrate:	Silicon + 1200Å BARLi
Resist Thickness:	0.740µm
Soft Bake:	90˚C/60”
Exposure Tool:	Canon 3000i4
	0.60NA/0.70 Sigma
Post Exposure Bake:	115˚C/60”
Develop:	OPD-262
	4.5”stream/60”puddle

Focus Latitude of 0.30µm Features

OiR 620



-0.80µm -0.60µm -0.40µm -0.20µm 0.00µm +0.20µm +0.40µm +0.60µm +0.80µm



-0.60µm -0.40µm -0.20µm 0.00µm +0.20µm +0.40µm +0.60µm +0.80µm

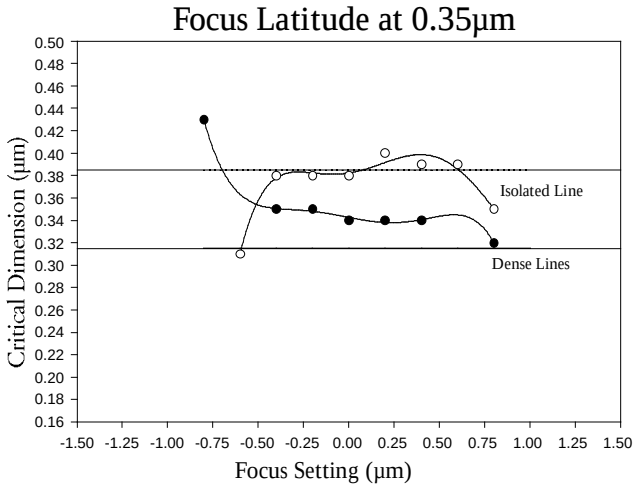
210mJ/cm^2

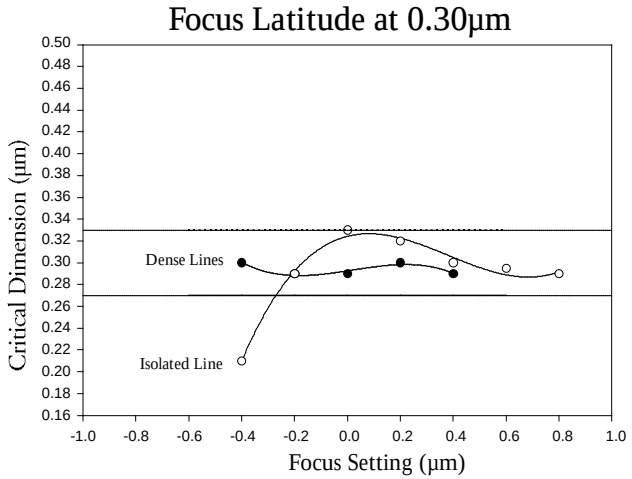
Evaluation Conditions
Recommended Process

Substrate:	Silicon + 1200Å BARLi
Resist Thickness:	0.740µm
Soft Bake:	90˚C/60”
Exposure Tool:	Canon 3000i4
	0.60NA/0.70 Sigma
Post Exposure Bake:	115˚C/60”
Develop:	OPD-262
	4.5”stream/60”puddle

Focus Latitude (0.60NA / 0.60 Sigma)

OiR 620



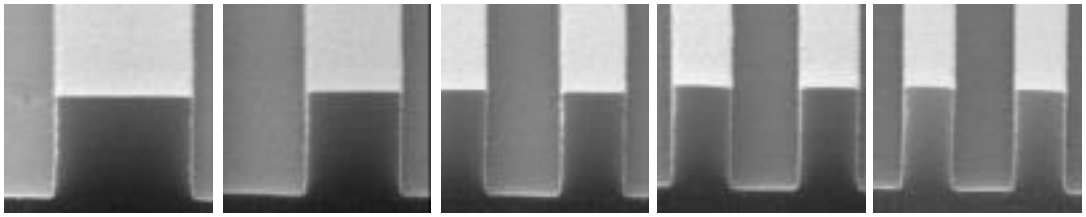


Evaluation Conditions
Recommended Process

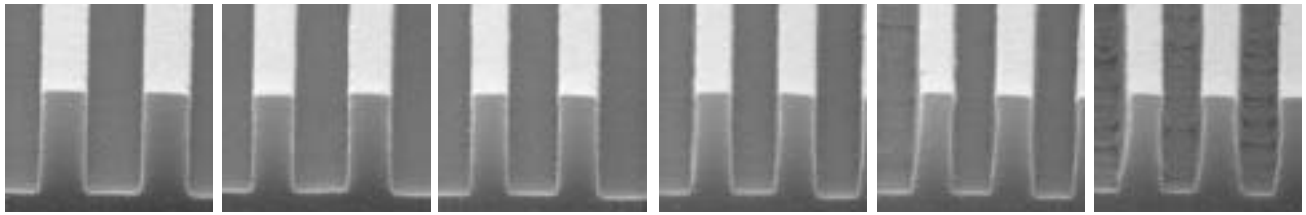
Substrate:	Silicon + 1200Å BARLi
Resist Thickness:	0.740µm
Soft Bake:	90˚C/60”
Exposure Tool:	Canon 3000i4
	0.60NA/0.60 Sigma
Post Exposure Bake:	115˚C/60”
Develop:	OPD-262
	4.5”stream/60”puddle

Resolution of Dense Features

OiR 620



0.70µm 0.60µm 0.50µm 0.45µm 0.40µm



0.37µm 0.35µm 0.32µm 0.30µm 0.29µm 0.28µm

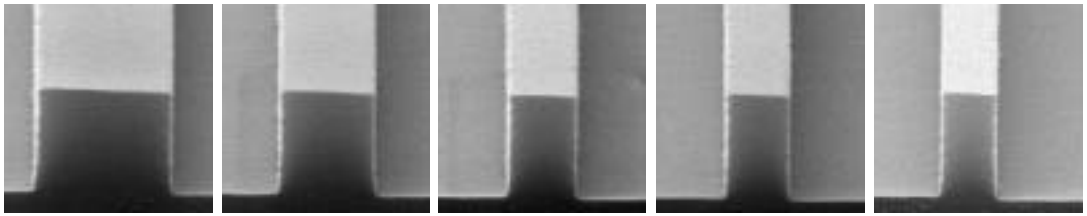
200mJ/cm^2

Evaluation Conditions
Recommended Process

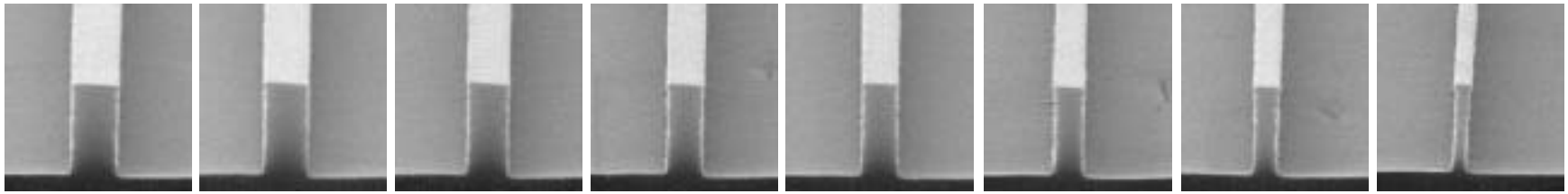
Substrate:	Silicon + 1200Å BARLi
Resist Thickness:	0.740µm
Soft Bake:	90˚C/60”
Exposure Tool:	Canon 3000i4
	0.60NA/0.60 Sigma
Post Exposure Bake:	115˚C/60”
Develop:	OPD-262
	4.5”stream/60”puddle

Resolution of Isolated Features

OiR 620



0.70µm 0.60µm 0.50µm 0.45µm 0.40µm



0.37µm 0.35µm 0.32µm 0.30µm 0.28µm 0.26µm 0.24µm 0.22µm

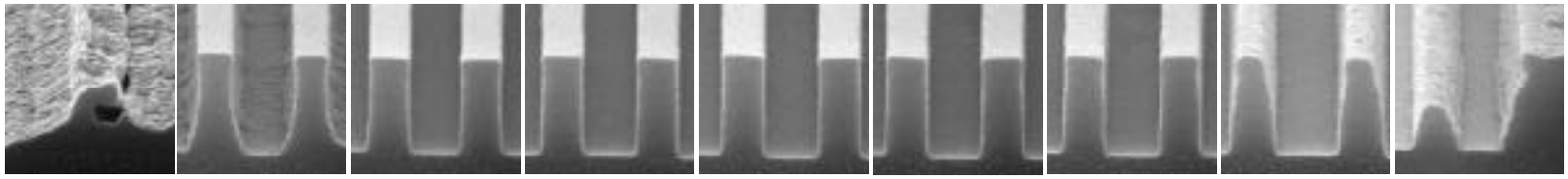
200mJ/cm^2

Evaluation Conditions
Recommended Process

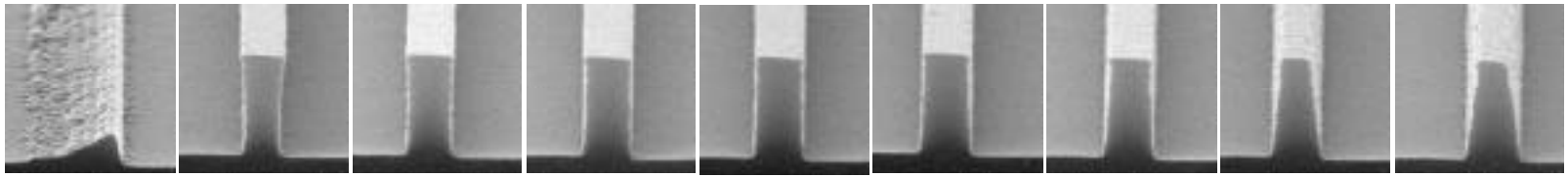
Substrate:	Silicon + 1200Å BARLi
Resist Thickness:	0.740µm
Soft Bake:	90˚C/60”
Exposure Tool:	Canon 3000i4
	0.60NA/0.60 Sigma
Post Exposure Bake:	115˚C/60”
Develop:	OPD-262
	4.5”stream/60”puddle

Focus Latitude of 0.35µm Features

OiR 620



-1.00µm -0.80µm -0.40µm -0.20µm 0.00µm +0.20µm +0.40µm +0.80µm +1.00µm



-0.80µm -0.60µm -0.40µm -0.20µm 0.00µm +0.20µm +0.40µm +0.60µm +0.80µm

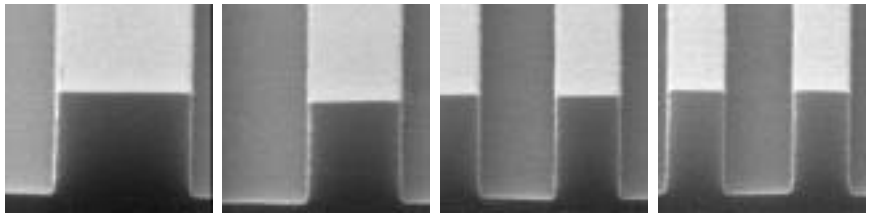
200mJ/cm^2

Evaluation Conditions
Recommended Process

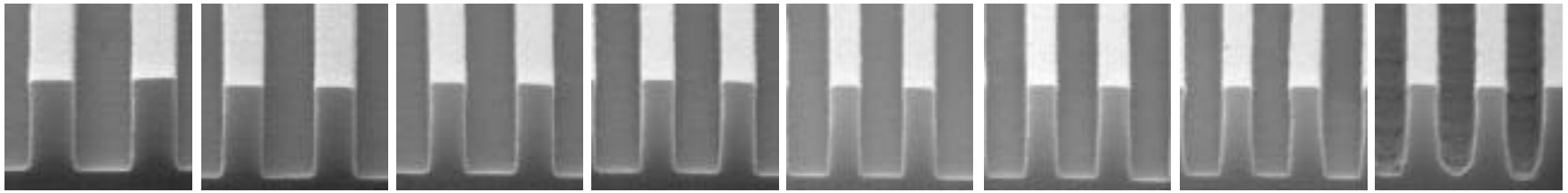
Substrate:	Silicon + 1200Å BARLi
Resist Thickness:	0.740µm
Soft Bake:	90˚C/60”
Exposure Tool:	Canon 3000i4
	0.60NA/0.60 Sigma
Post Exposure Bake:	115˚C/60”
Develop:	OPD-262
	4.5”stream/60”puddle

Resolution of Dense Features

OiR 620



0.70µm 0.60µm 0.50µm 0.45µm



0.40µm 0.37µm 0.35µm 0.32µm 0.30µm 0.29µm 0.28µm 0.27µm

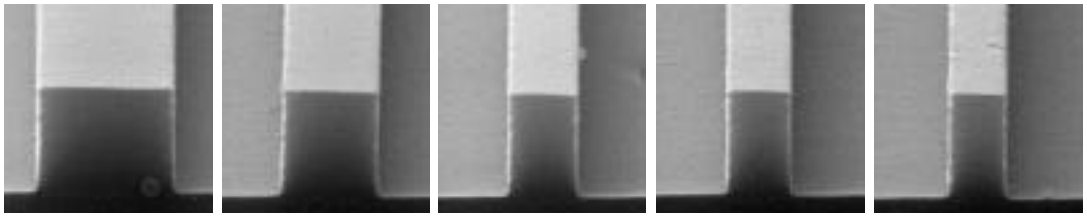
210mJ/cm^2

Evaluation Conditions
Recommended Process

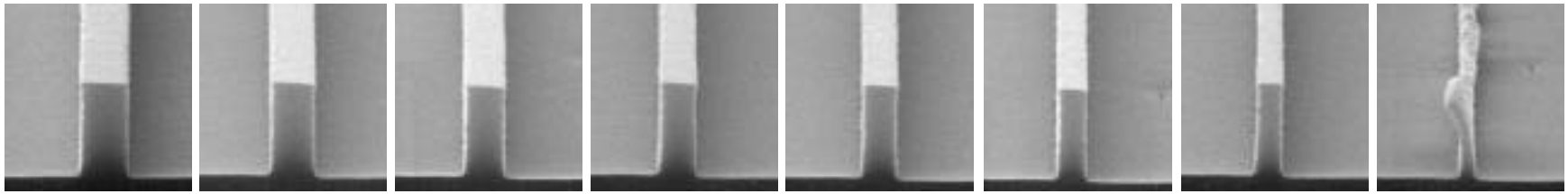
Substrate:	Silicon + 1200Å BARLi
Resist Thickness:	0.740µm
Soft Bake:	90˚C/60”
Exposure Tool:	Canon 3000i4
	0.60NA/0.60 Sigma
Post Exposure Bake:	115˚C/60”
Develop:	OPD-262
	4.5”stream/60”puddle

Resolution of Isolated Features

OiR 620



0.70µm 0.60µm 0.50µm 0.45µm 0.40µm



0.37µm 0.35µm 0.32µm 0.30µm 0.28µm 0.26µm 0.24µm 0.22µm

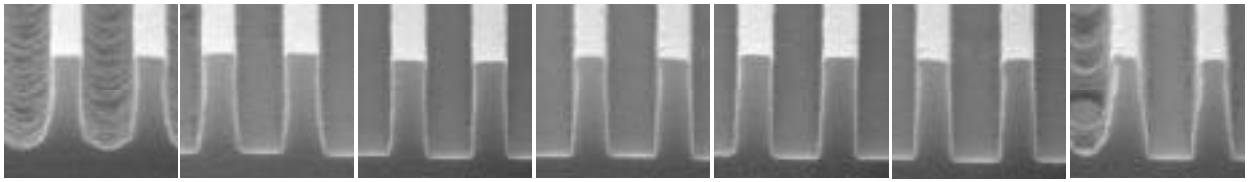
210mJ/cm^2

Evaluation Conditions
Recommended Process

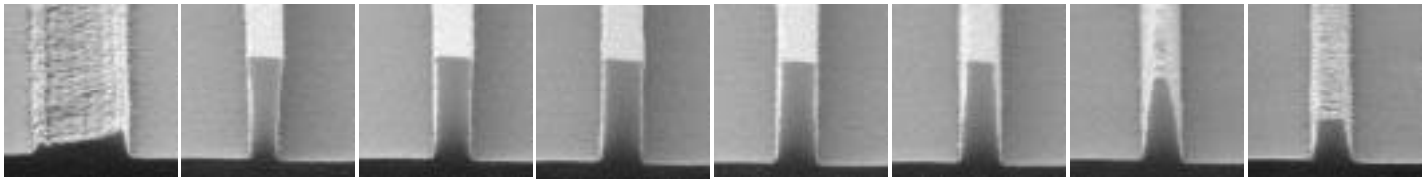
Substrate:	Silicon + 1200Å BARLi
Resist Thickness:	0.740µm
Soft Bake:	90˚C/60”
Exposure Tool:	Canon 3000i4
	0.60NA/0.60 Sigma
Post Exposure Bake:	115˚C/60”
Develop:	OPD-262
	4.5”stream/60”puddle

Focus Latitude of 0.30µm Features

OiR 620



-0.60µm -0.40µm -0.20µm 0.00µm +0.20µm +0.40µm +0.60µm



-0.60µm -0.40µm -0.20µm 0.00µm +0.20µm +0.40µm +0.60µm +0.80µm

210mJ/cm^2

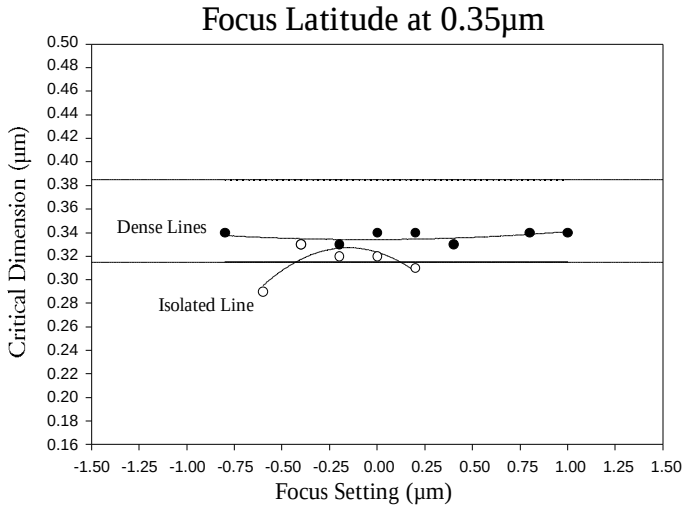
Evaluation Conditions
Recommended Process

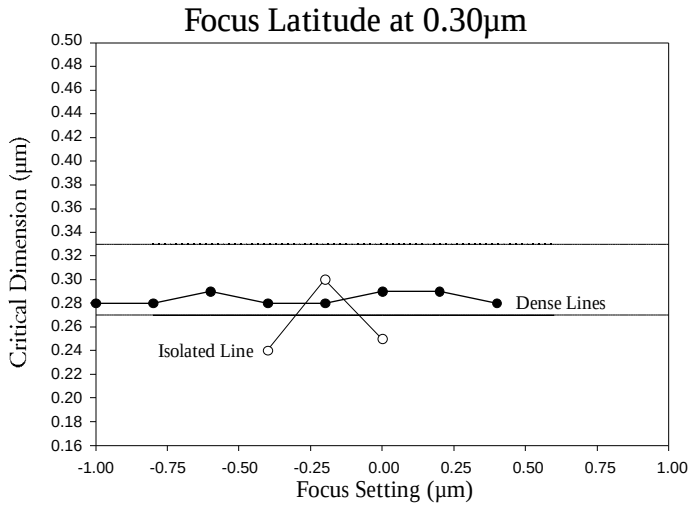
Substrate:	Silicon + 1200Å BARLi
Resist Thickness:	0.740µm
Soft Bake:	90˚C/60”
Exposure Tool:	Canon 3000i4
	0.60NA/0.60 Sigma
Post Exposure Bake:	115˚C/60”
Develop:	OPD-262
	4.5”stream/60”puddle

Annular Illumination Performance Data

Focus Latitude (Annular Illumination)

OiR 620



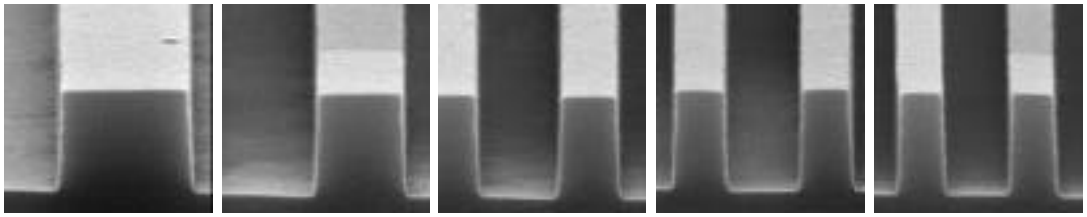


Evaluation Conditions
Recommended Process

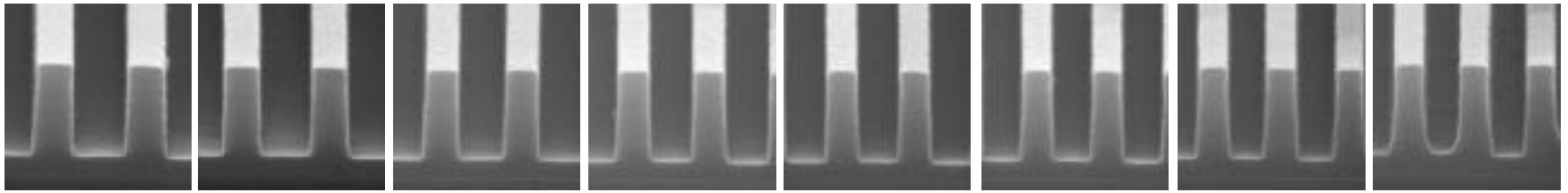
Substrate:	Silicon + 1200Å BARLi
Resist Thickness:	0.740µm
Soft Bake:	90˚C/60”
Exposure Tool:	Canon 3000i4
	0.63NA 1/2 annular
Post Exposure Bake:	115˚C/60”
Develop:	OPD-262
	4.5”stream/60”puddle

Resolution of Dense Features

OiR 620



0.70µm 0.60µm 0.50µm 0.45µm 0.40µm



0.37µm 0.35µm 0.32µm 0.30µm 0.29µm 0.28µm 0.27µm 0.26µm

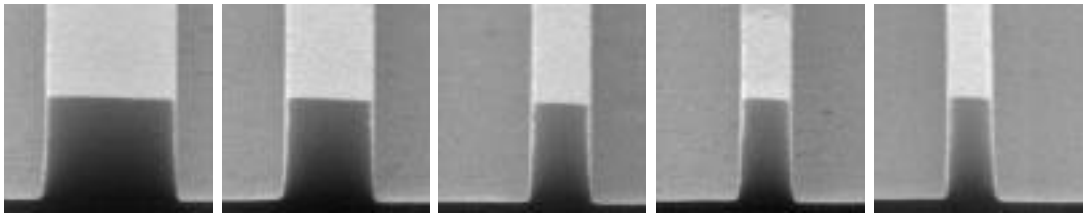
190mJ/cm^2

Evaluation Conditions
Recommended Process

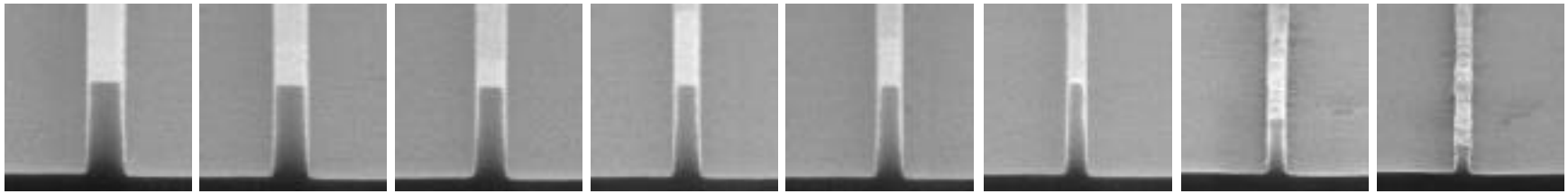
Substrate:	Silicon + 1200Å BARLi
Resist Thickness:	0.740µm
Soft Bake:	90˚C/60”
Exposure Tool:	Canon 3000i4
	0.63NA 1/2 annular
Post Exposure Bake:	115˚C/60”
Develop:	OPD-262
	4.5”stream/60”puddle

Resolution of Isolated Features

OiR 620



0.70µm 0.60µm 0.50µm 0.45µm 0.40µm



0.37µm 0.35µm 0.32µm 0.30µm 0.28µm 0.26µm 0.24µm 0.23µm

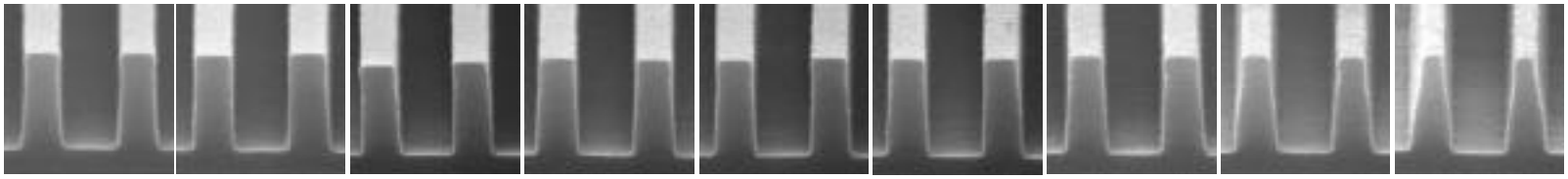
190mJ/cm^2

Evaluation Conditions
Recommended Process

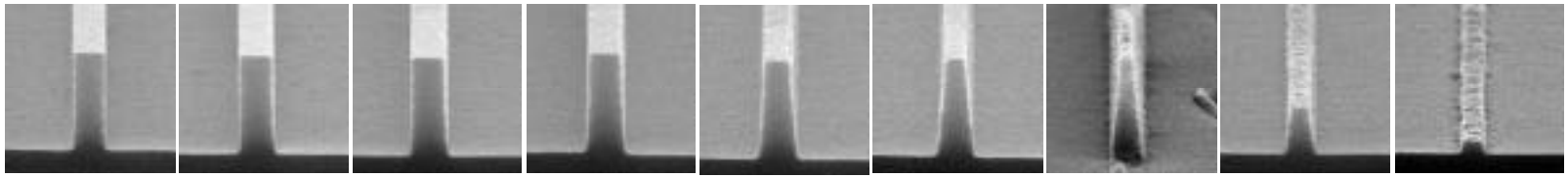
Substrate:	Silicon + 1200Å BARLi
Resist Thickness:	0.740µm
Soft Bake:	90˚C/60”
Exposure Tool:	Canon 3000i4
	0.63NA 1/2 annular
Post Exposure Bake:	115˚C/60”
Develop:	OPD-262
	4.5”stream/60”puddle

Focus Latitude of 0.35µm Features

OiR 620



-1.20µm -0.80µm -0.40µm -0.20µm 0.00µm +0.20µm +0.40µm +0.80µm +1.00µm



-0.80µm -0.60µm -0.40µm -0.20µm 0.00µm +0.20µm +0.40µm +0.60µm +0.80µm

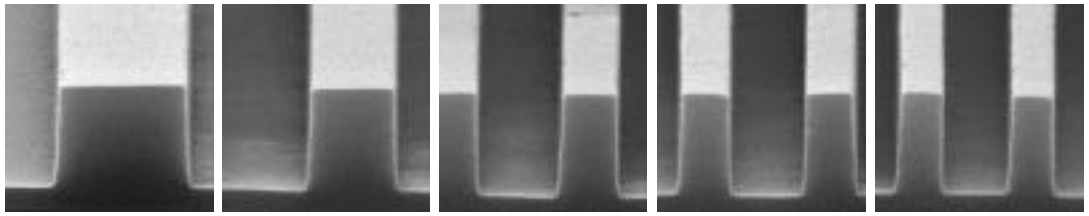
190mJ/cm^2

Evaluation Conditions
Recommended Process

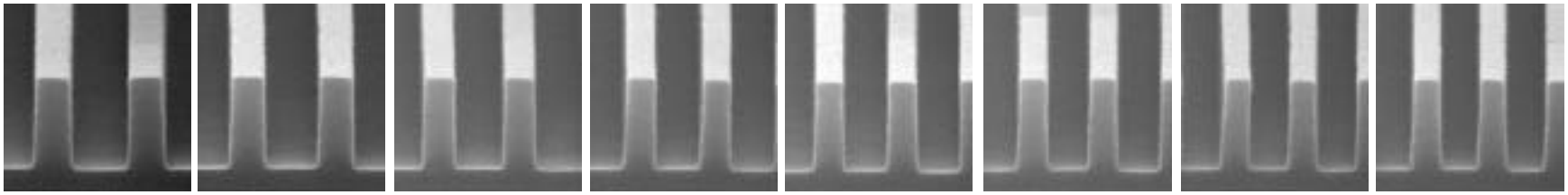
Substrate:	Silicon + 1200Å BARLi
Resist Thickness:	0.740µm
Soft Bake:	90˚C/60”
Exposure Tool:	Canon 3000i4
	0.63NA 1/2 annular
Post Exposure Bake:	115˚C/60”
Develop:	OPD-262
	4.5”stream/60”puddle

Resolution of Dense Features

OiR 620



0.70µm 0.60µm 0.50µm 0.45µm 0.40µm



0.37µm 0.35µm 0.32µm 0.30µm 0.29µm 0.28µm 0.27µm 0.26µm

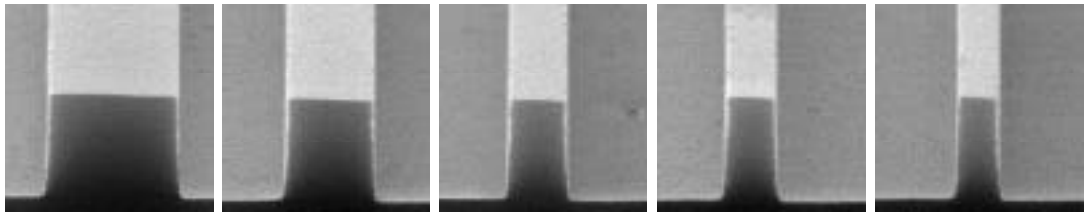
200mJ/cm^2

Evaluation Conditions
Recommended Process

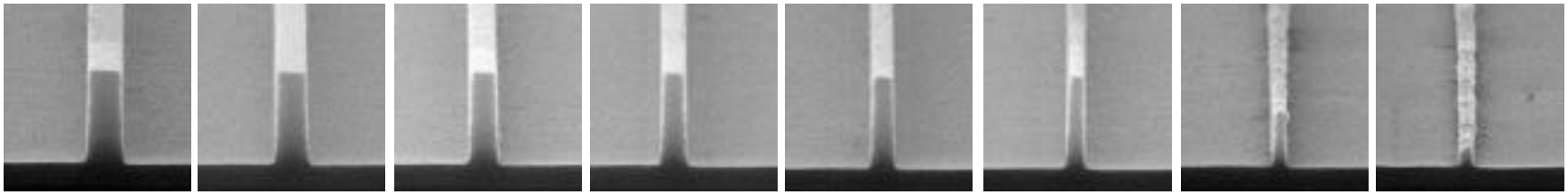
Substrate:	Silicon + 1200Å BARLi
Resist Thickness:	0.740µm
Soft Bake:	90˚C/60”
Exposure Tool:	Canon 3000i4
	0.63NA 1/2 annular
Post Exposure Bake:	115˚C/60”
Develop:	OPD-262
	4.5”stream/60”puddle

Resolution of Isolated Features

OiR 620



0.70µm 0.60µm 0.50µm 0.45µm 0.40µm



0.37µm 0.35µm 0.32µm 0.30µm 0.28µm 0.26µm 0.24µm 0.23µm

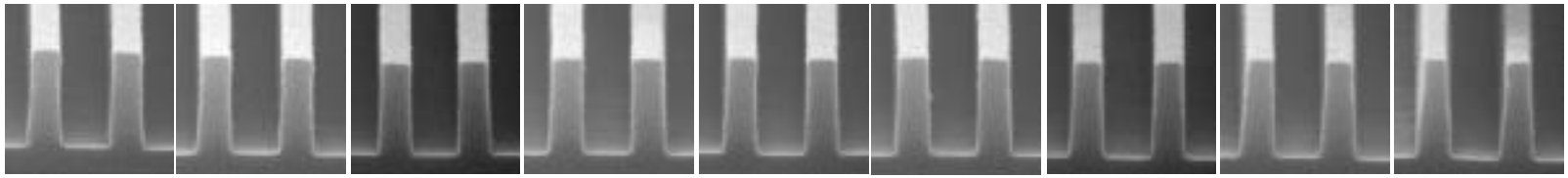
200mJ/cm^2

Evaluation Conditions
Recommended Process

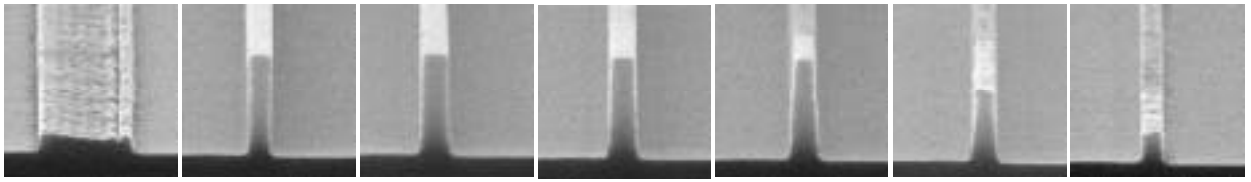
Substrate:	Silicon + 1200Å BARLi
Resist Thickness:	0.740µm
Soft Bake:	90˚C/60”
Exposure Tool:	Canon 3000i4
	0.63NA 1/2 annular
Post Exposure Bake:	115˚C/60”
Develop:	OPD-262
	4.5”stream/60”puddle

Focus Latitude of 0.30µm Features

OiR 620



-1.20µm -1.00µm -0.80µm -0.60µm -0.40µm -0.20µm 0.00µm +0.20µm +0.40µm



-0.80µm -0.60µm -0.40µm -0.20µm 0.00µm +0.20µm +0.40µm

200mJ/cm^2

Evaluation Conditions
Recommended Process

Substrate:	Silicon + 1200Å BARLi
Resist Thickness:	0.740µm
Soft Bake:	90˚C/60”
Exposure Tool:	Canon 3000i4
	0.63NA 1/2 annular
Post Exposure Bake:	115˚C/60”
Develop:	OPD-262
	4.5”stream/60”puddle