



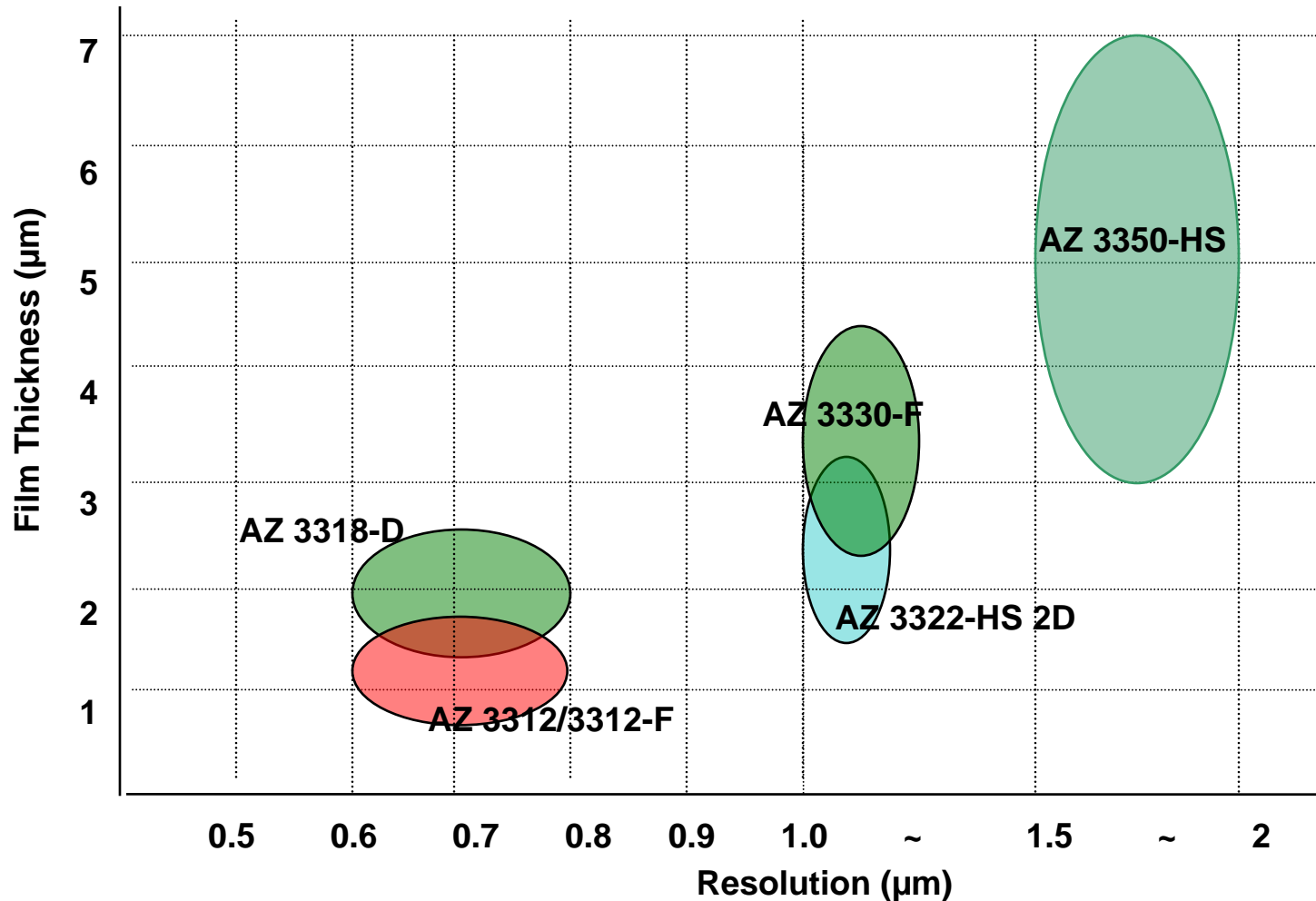
AZ Electronic Materials

AZ 3312 Photoresist (18cps) Data Package

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AZ 3300 Photoresist

i-line Resolution at Specific Film Thickness



AZ 3300 Photoresist

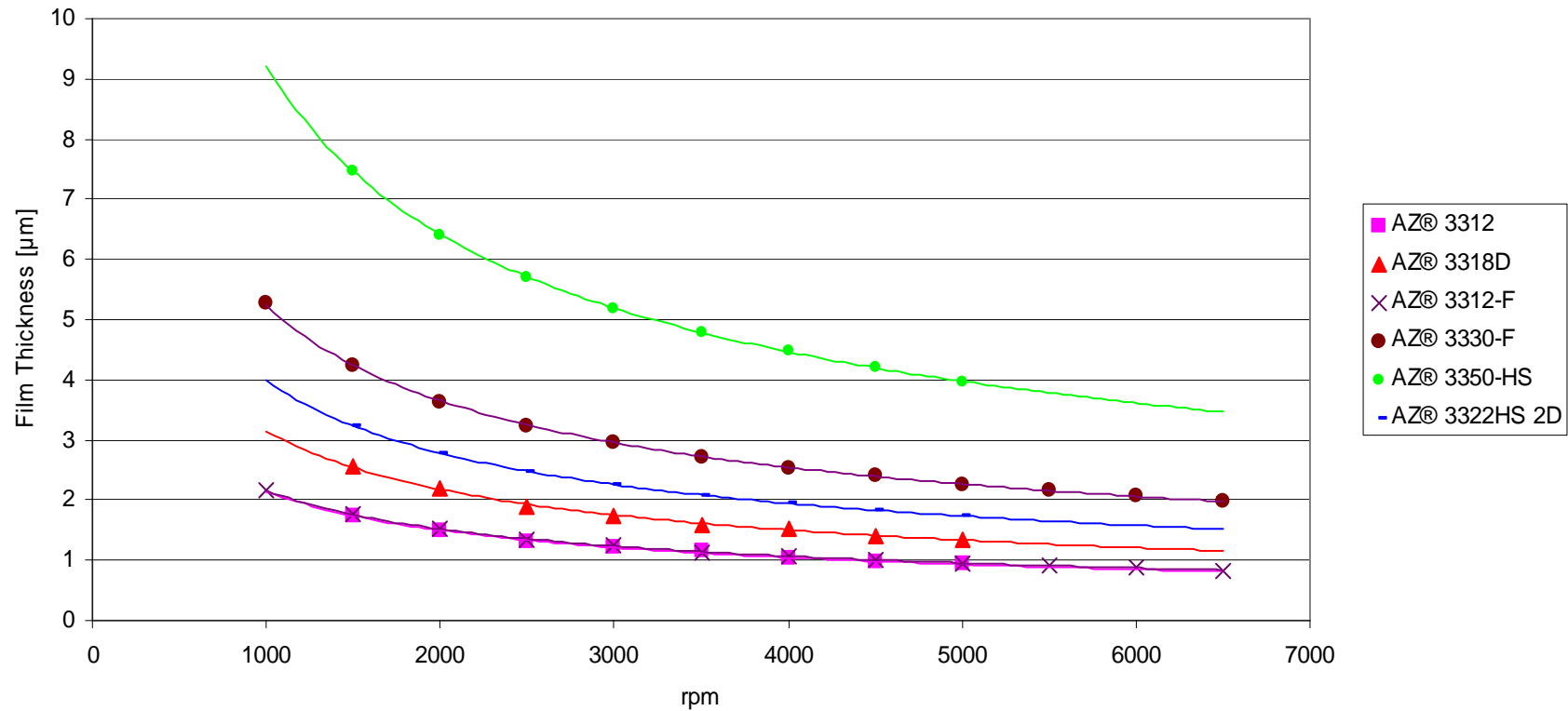
AZ 3312
Photoresist (18cps)

High thermal stability
Good process latitude in i-line, g-line, and
broad band
Resolution in i-line 0.6 μ m, in g-line 0.8 μ m
Excellent for wet etch processes

AZ 3318-D
Photoresist (30cps)

Dyed resist
Prevents notching on substrates with high
or varying reflectivity
Reduced swing curve

AZ 3300 Photoresist Spin Speed Curves



AZ 3300 Photoresist

Features & Benefits

- ◇ Sensitivity to **g**, **h**, and **i**-line wavelengths
- ◇ Process relatively insensitive to bake conditions, develop times, and develop temperatures
- ◇ Compatible with inorganic and organic (w/ & w/o surfactant) developers
- ◇ Thermal stability to 125°
- ◇ Good depth of focus, linearity, and photospeed for crossover applications
- ◇ Very high stability against particle generation
- ◇ Excellent value for performance

AZ 3312 Photoresist (18 cps)

Optical Parameters

◇ Refractive Index

<u>Bleached</u>	<u>365nm</u>	<u>405nm</u>	<u>435nm</u>
n	1.6906	1.6655	1.6514
k	0.0013	0.0003	0.0006
<u>Unbleached</u>			
n	1.7082	1.6888	1.6930
k	0.0333	0.0336	0.0217

Bake conditions: Soft bake 90°C/60 sec.
PEB 110°C/60 sec.
AZ 300 MIF Developer 23°C

AZ 3312 Photoresist (18 cps)

Optical Parameters

◇ Dill Parameters

i-line:

$$A = 1.1390 \text{ (}\mu\text{m}^{-1}\text{)}$$

$$B = 0.0762 \text{ (}\mu\text{m}^{-1}\text{)}$$

$$C = 0.0264 \text{ (cm}^2\text{/mJ)}$$

g-line:

$$A = 0.6695 \text{ (}\mu\text{m}^{-1}\text{)}$$

$$B = 0.0172 \text{ (}\mu\text{m}^{-1}\text{)}$$

$$C = 0.0186 \text{ (cm}^2\text{/mJ)}$$

◇ Cauchy Coefficients

	<u>A</u>	<u>B</u>	<u>C</u>
Bleached	1.5869	0.011818	3.90E-06
Unbleached	1.6005	0.011334	7.43E-04

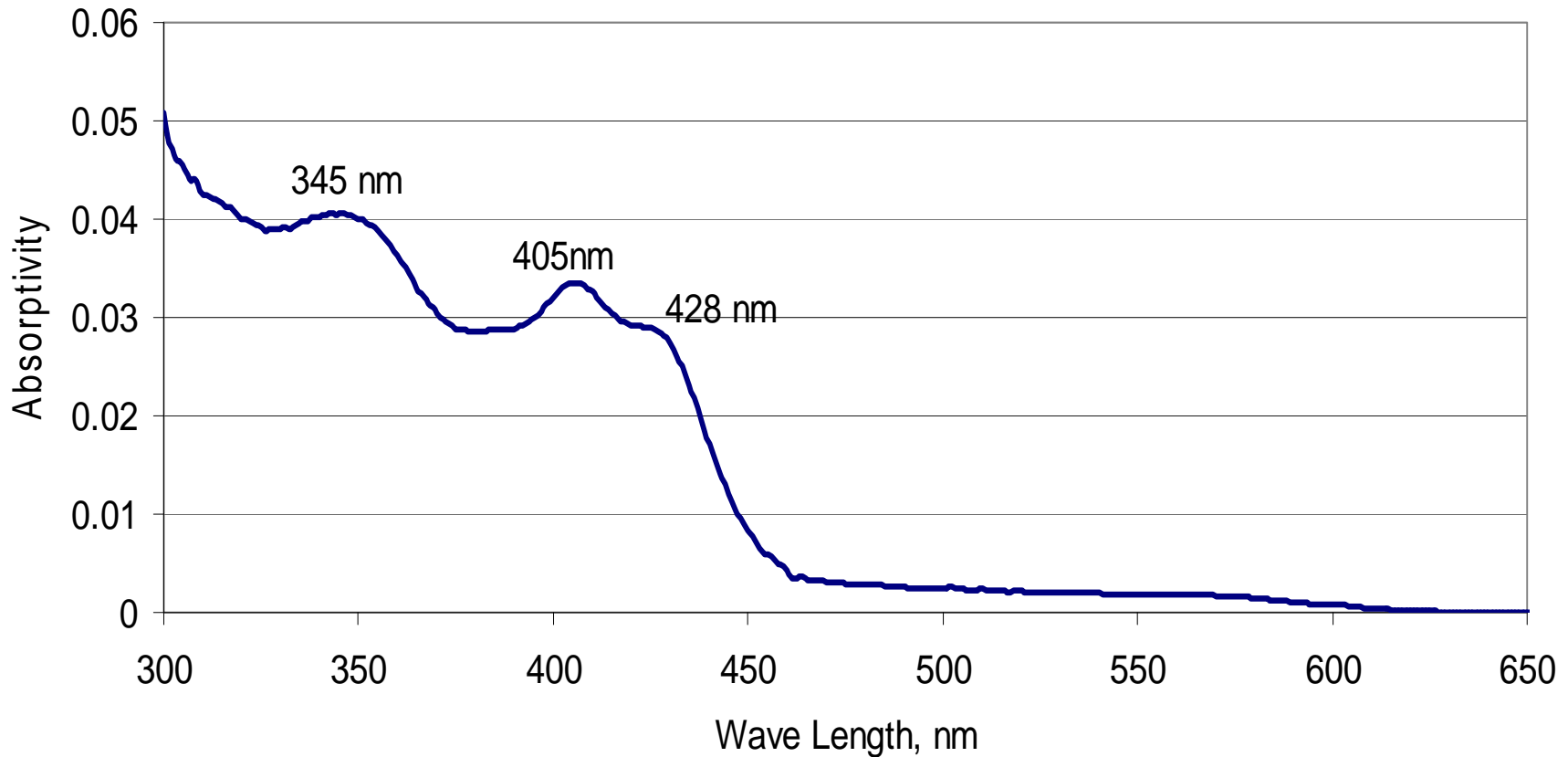
Bake conditions: Soft bake 90°C/60 sec.

PEB 110°C/60 sec.

AZ 300 MIF Developer 23°C

AZ 3312 Photoresist (18 cps)

Optical Parameters - Absorptivity



AZ 3312 Photoresist (18 cps)

Development Parameters

◇ PROLITH™ Modeling Parameters

	<u>Org. Mack</u>	<u>Adv. Mack</u>	<u>Mack Notch</u>
Rmax (nm/s)	125.00	127.04	125.048
Rmin (nm/s)	1.95	2.33	1.95
Mth	-218208.00	----	----
n	3.71	3.44	3.71
Rresin (nm/s)	----	7.00	
l	----	1.39	
Mth notch	----	----	1.00
n notch	----	----	1.10

Bake conditions: Soft bake 90°C/60 sec.
 PEB 110°C/60 sec.
 AZ 300 MIF Developer 23°C

AZ 3312 Photoresist (18 cps)

Suggested Process Conditions

⇒ Spray/Puddle Process:

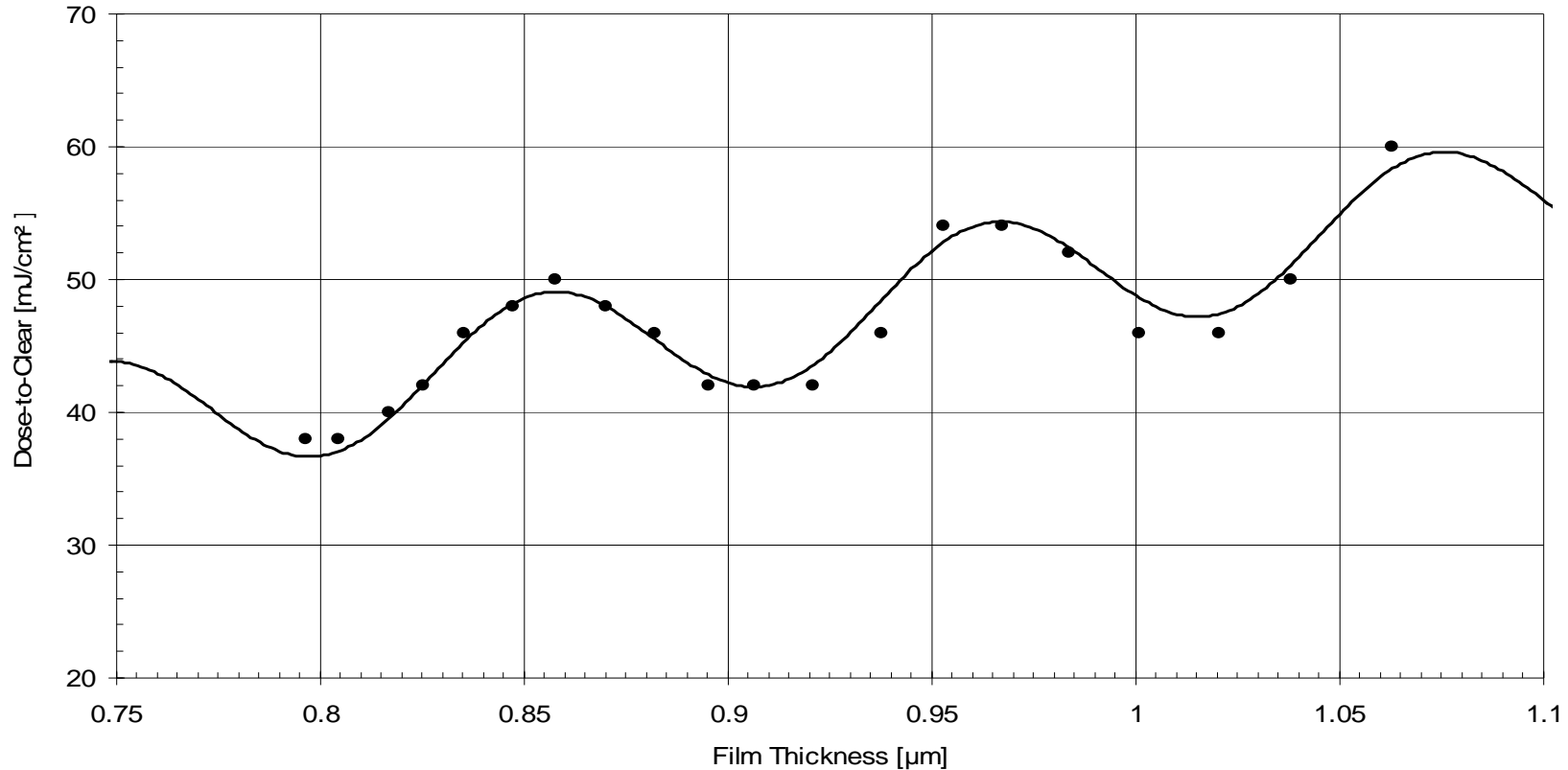
- Softbake 90° -110° C,
- 60 - 90 sec
- Expose: **g**-line, **h**-line, **i**-line stepper or broadband exposure source
- Where necessary, PEB: 110°C, 60 - 90 sec.
- Develop: AZ 300 MIF developer, 60 sec. spray-puddle

⇒ Double Puddle Process:

- Softbake 90° -110°C,
- 60 - 90 sec
- Expose: **g**-line, **h**-line, **i**-line stepper or broadband exposure source
- Where necessary, PEB: 110°C, 60 - 90 sec.
- Develop: AZ 917 MIF developer, 52 sec. double puddle

AZ 3312 Photoresist (18 cps)

i-Line Swing Curve



Dense Lines

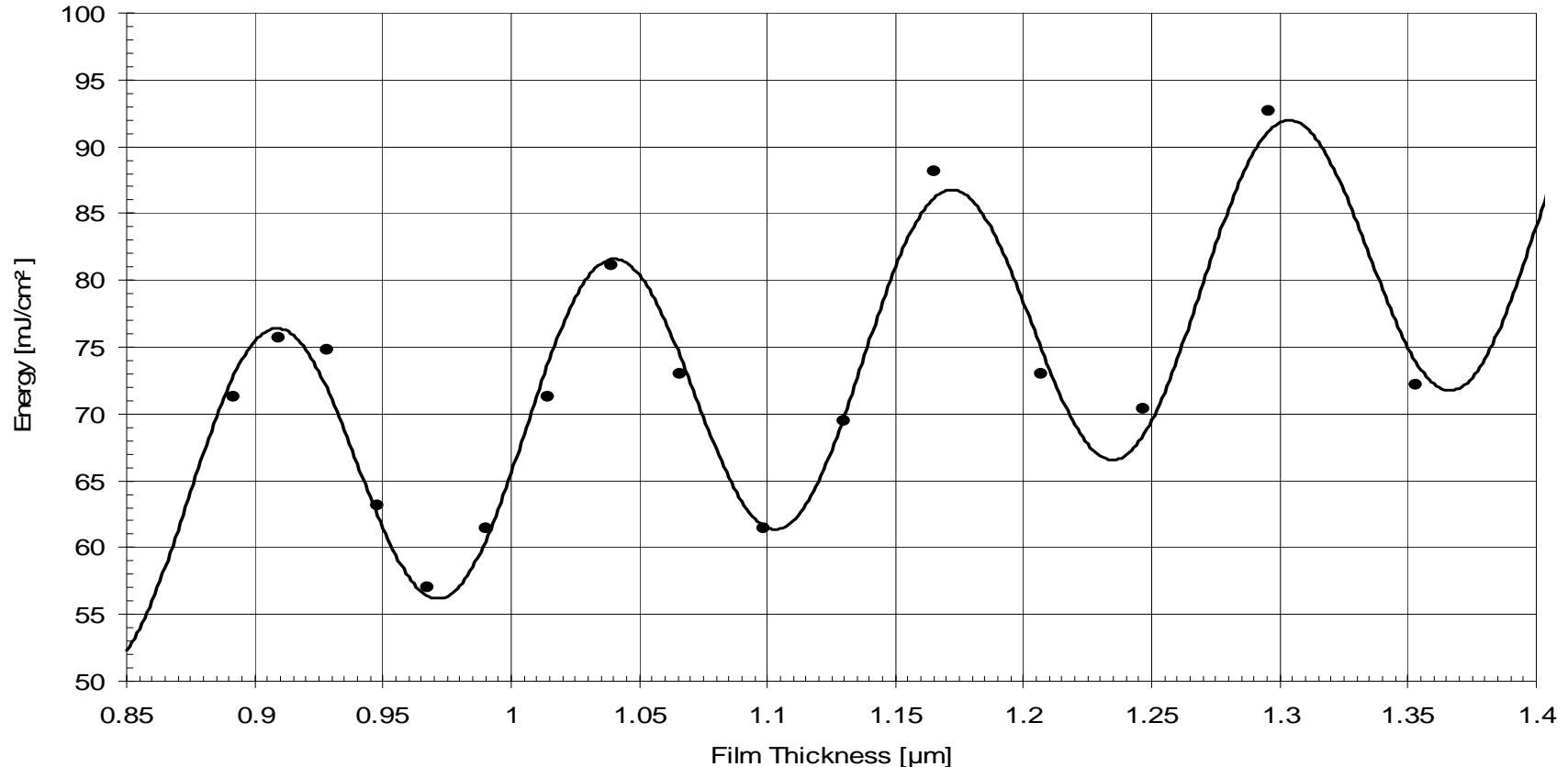
SB: 90°C, 60 sec; PEB: 110°C, 60 sec

Puddle: 60 sec AZ 300 MIF Developer at 23°C

NIKON 0.54 NA i-Line

AZ 3312 Photoresist (18 cps)

g-Line Swing Curve



Dense Lines

SB: 90°C, 60 sec; PEB: 110°C, 60 sec

AZ 300 MIF Developer, 60 sec Spray-puddle @23°C

GCA 0.42 NA **g-Line**



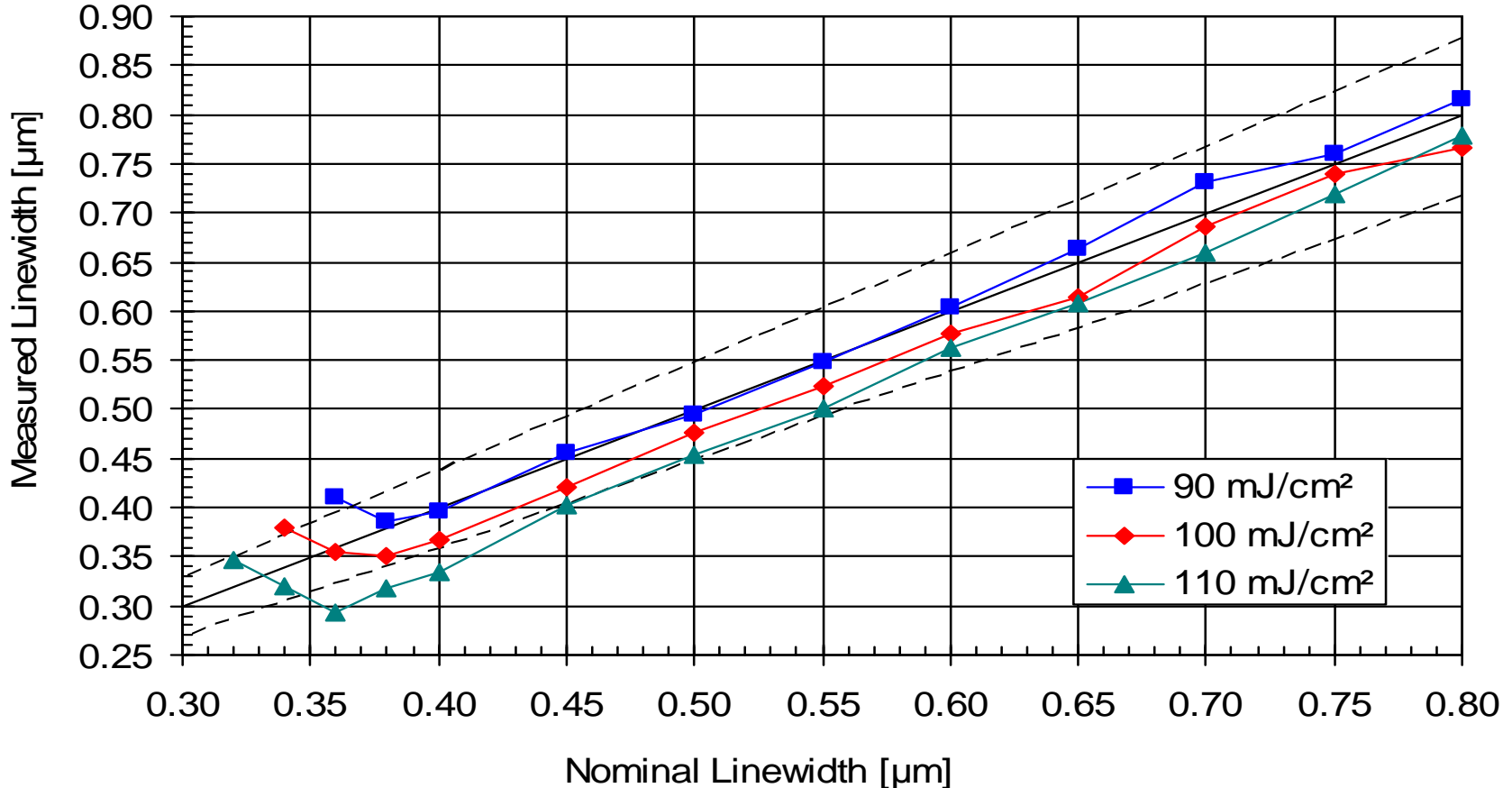
AZ 3312 Photoresist (18 cps)

Film Thickness 0.974 μm @ Emax
Exposure with NIKON 0.54 NA **i-line** Stepper
Using AZ 300 MIF Developer



AZ 3312 Photoresist (18 cps)

Linearity on Silicon for Dense Lines, FT = 0.974 μm



SB: 90°C, 60 sec; PEB: 110°C, 60 sec

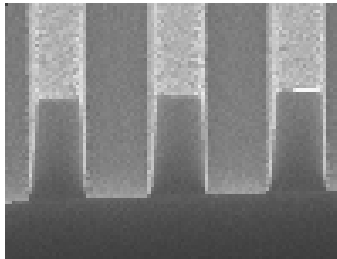
Puddle: 60 sec AZ 300 MIF Developer at 23.0°C

Nikon 0.54 NA **i-Line**

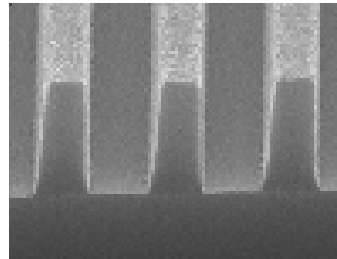
AZ 3312 Photoresist (18 cps)

Linearity on Silicon for Dense Lines, FT = 0.974 μm

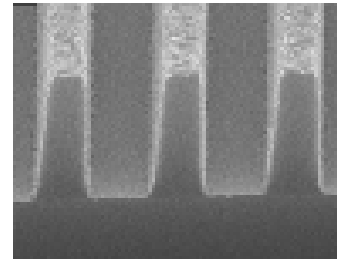
0.6 μm



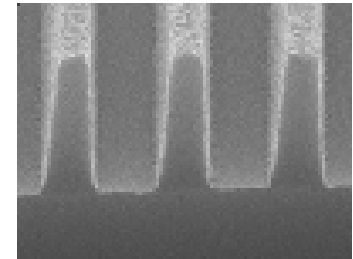
0.5 μm



0.45 μm

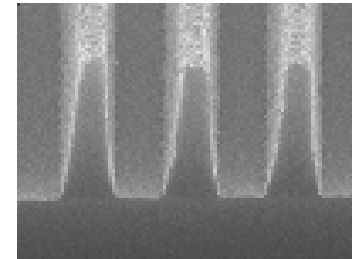


0.4 μm

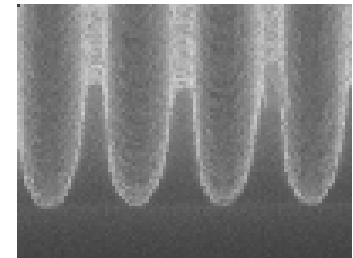


90 mJ/cm²

0.36 μm



0.34 μm

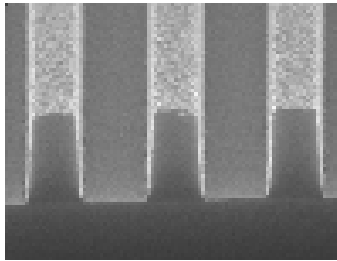


SB: 90°C, 60 sec; PEB: 110°C, 60 sec
AZ 300 MIF Developer, 60 sec at 23.0°C
Nikon 0.54 NA **i-Line**,

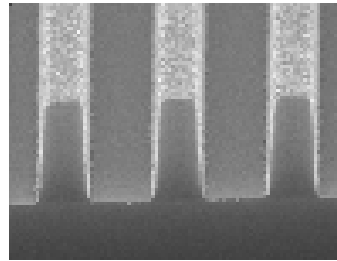
AZ 3312 Photoresist (18 cps)

Linearity on Silicon for Dense Lines, FT = 0.974 μm

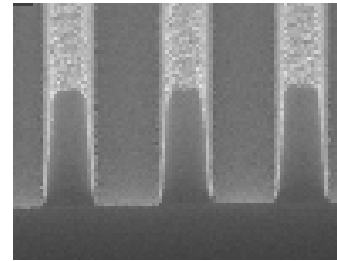
0.6 μm



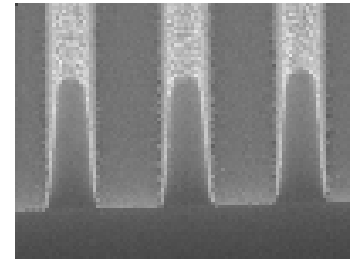
0.5 μm



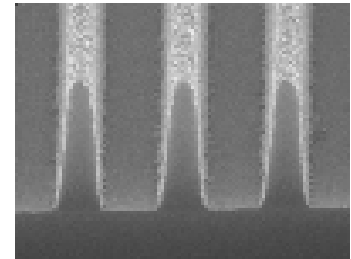
0.45 μm



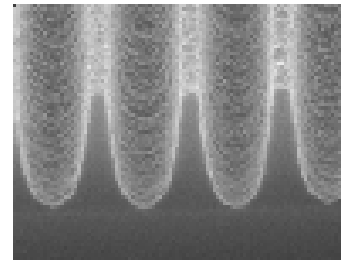
0.4 μm



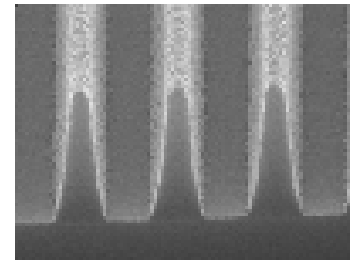
0.36 μm



100 mJ/cm²



0.32 μm



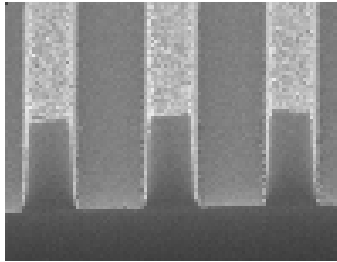
0.34 μm

SB: 90°C, 60 sec; PEB: 110°C, 60 sec
AZ 300 MIF Developer, 60 sec at 23.0°C
Nikon 0.54 NA **i-Line**,

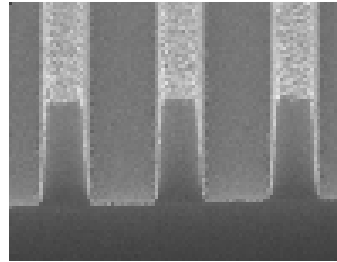
AZ 3312 Photoresist (18 cps)

Linearity on Silicon for Dense Lines, FT = 0.974 μm

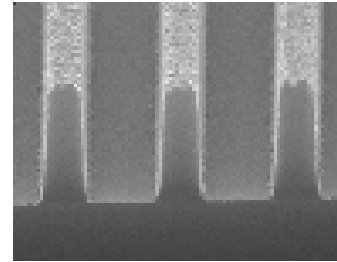
0.6 μm



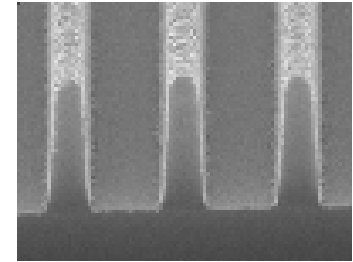
0.5 μm



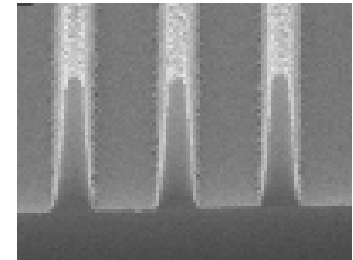
0.45 μm



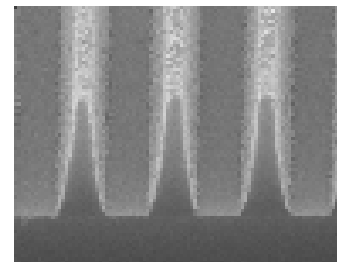
0.4 μm



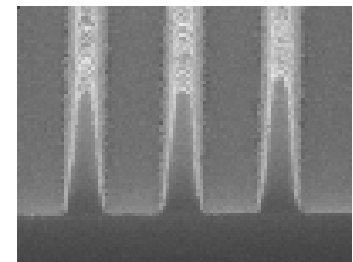
0.36 μm



110 mJ/cm²



0.32 μm

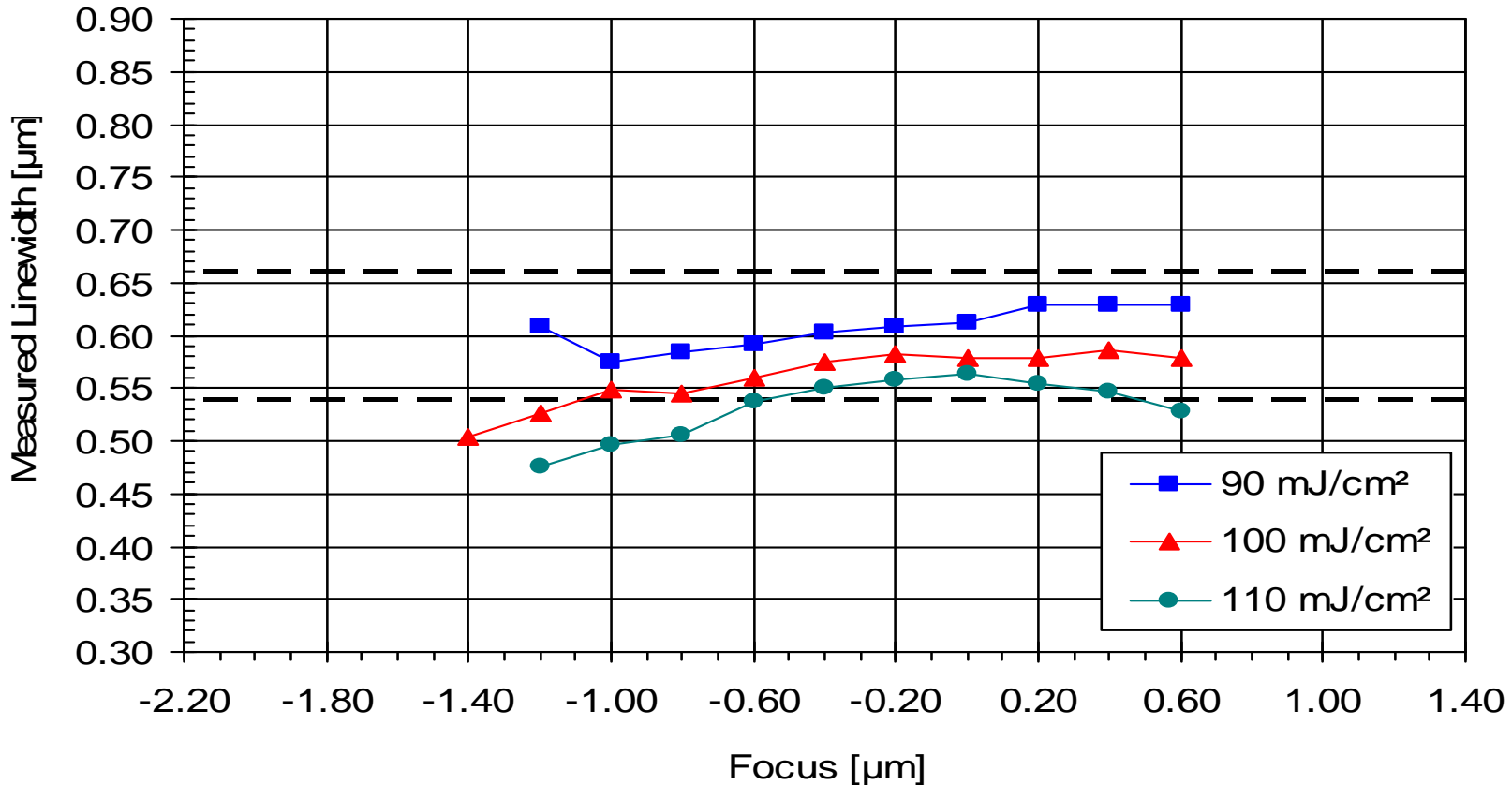


0.34 μm

SB: 90°C, 60 sec; PEB: 110°C, 60 sec
AZ 300 MIF Developer, 60 sec at 23.0°C
Nikon 0.54 NA **i-Line**,

AZ 3312 Photoresist (18 cps)

0.60 μm L/S DOF on Silicon for Dense Lines, FT = 0.974 μm

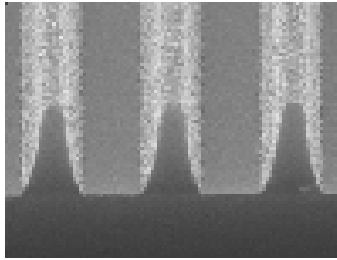


SB: 90°C, 60 sec; PEB: 110°C, 60 sec
Puddle: 60 sec AZ 300 MIF Developer at 23.0°C
Nikon 0.54 NA **i-Line**

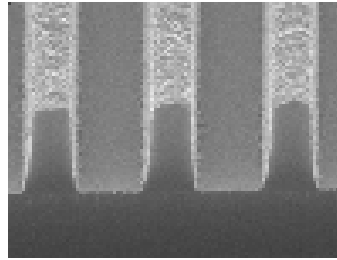
AZ 3312 Photoresist (18 cps)

DOF on Silicon for 0.6 μm Dense Lines, FT = 0.974 μm

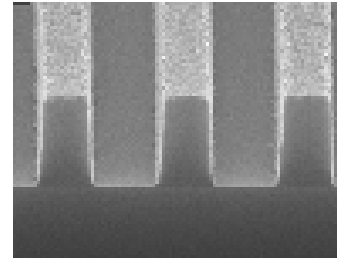
-1.2 μm



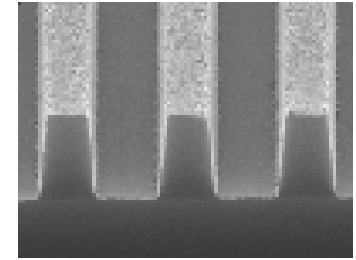
-1.0 μm



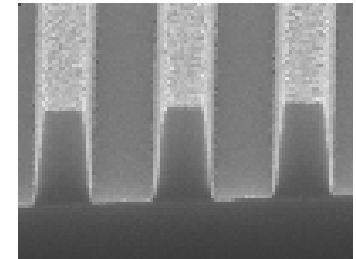
-0.6 μm



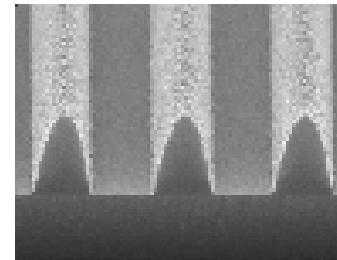
-0.2 μm



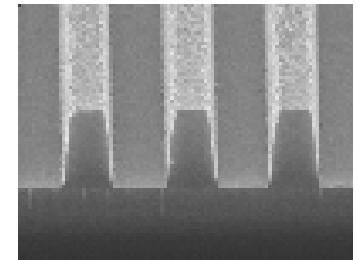
0.0 μm



90 mJ/cm²



0.6 μm

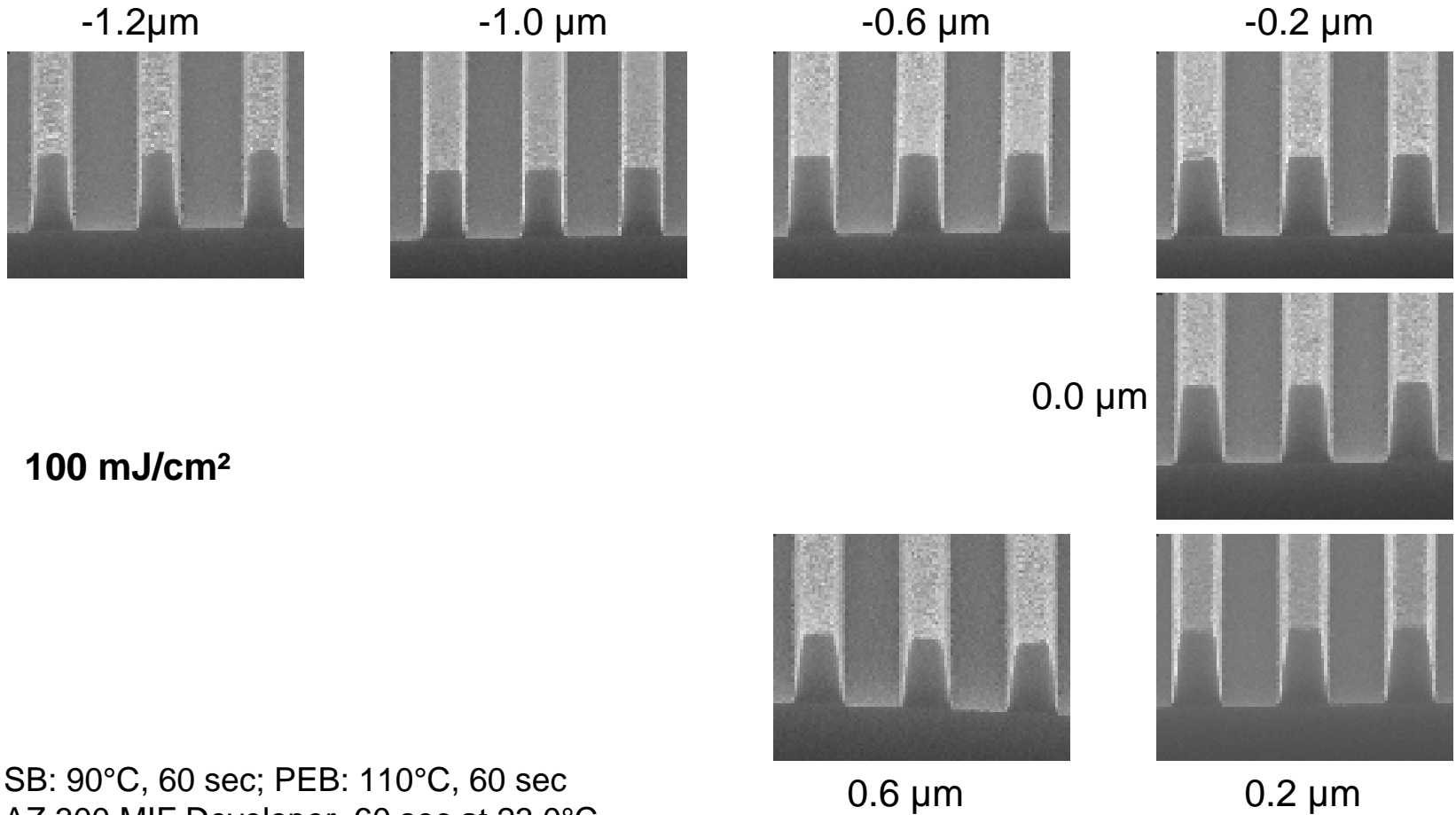


0.2 μm

SB: 90°C, 60 sec; PEB: 110°C, 60 sec
AZ 300 MIF Developer, 60 sec at 23.0°C
Nikon 0.54 NA **i-Line**,

AZ 3312 Photoresist (18 cps)

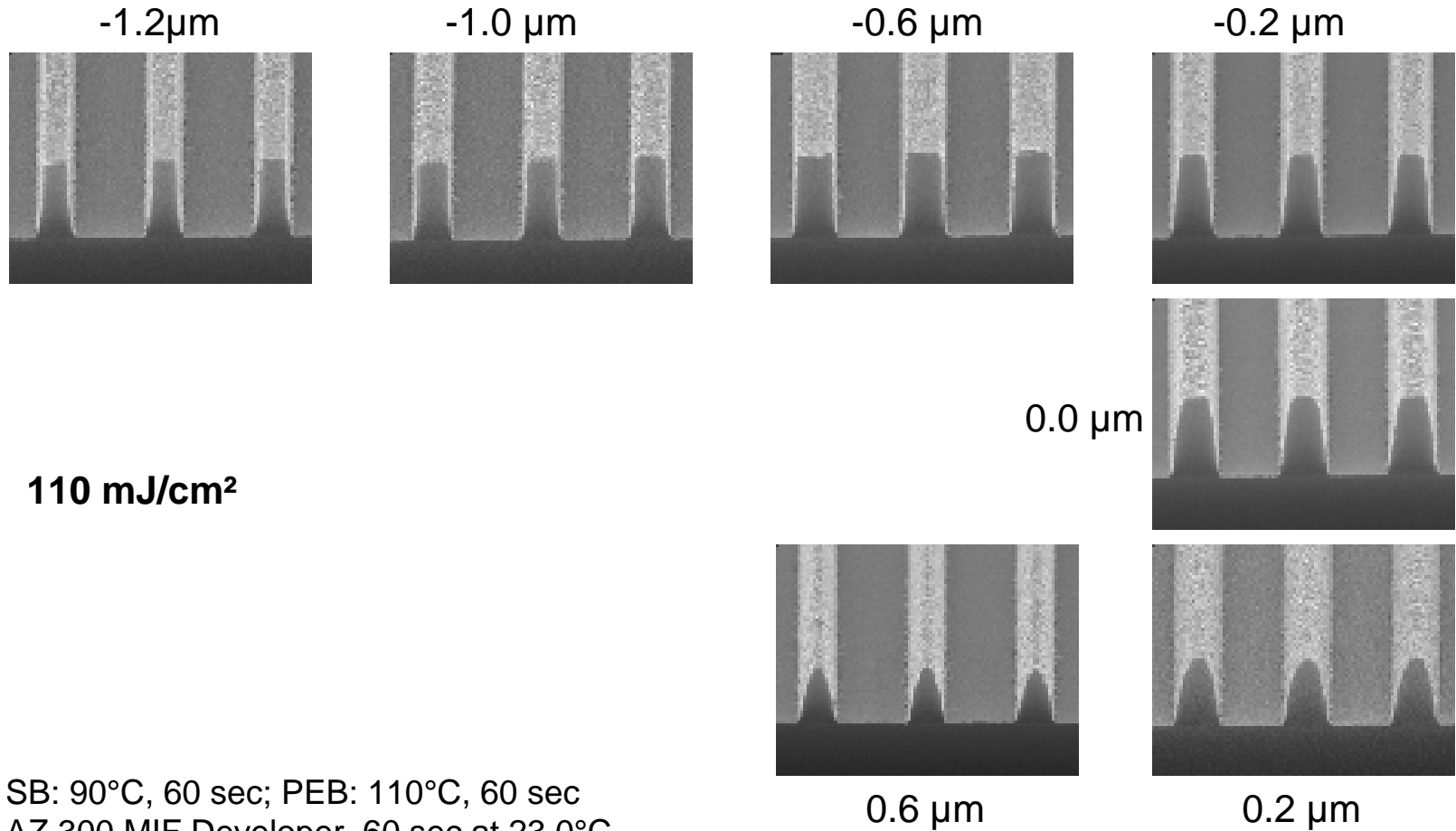
DOF on Silicon for 0.6 μm Dense Lines, FT = 0.974 μm



SB: 90°C, 60 sec; PEB: 110°C, 60 sec
AZ 300 MIF Developer, 60 sec at 23.0°C
Nikon 0.54 NA **i-Line**,

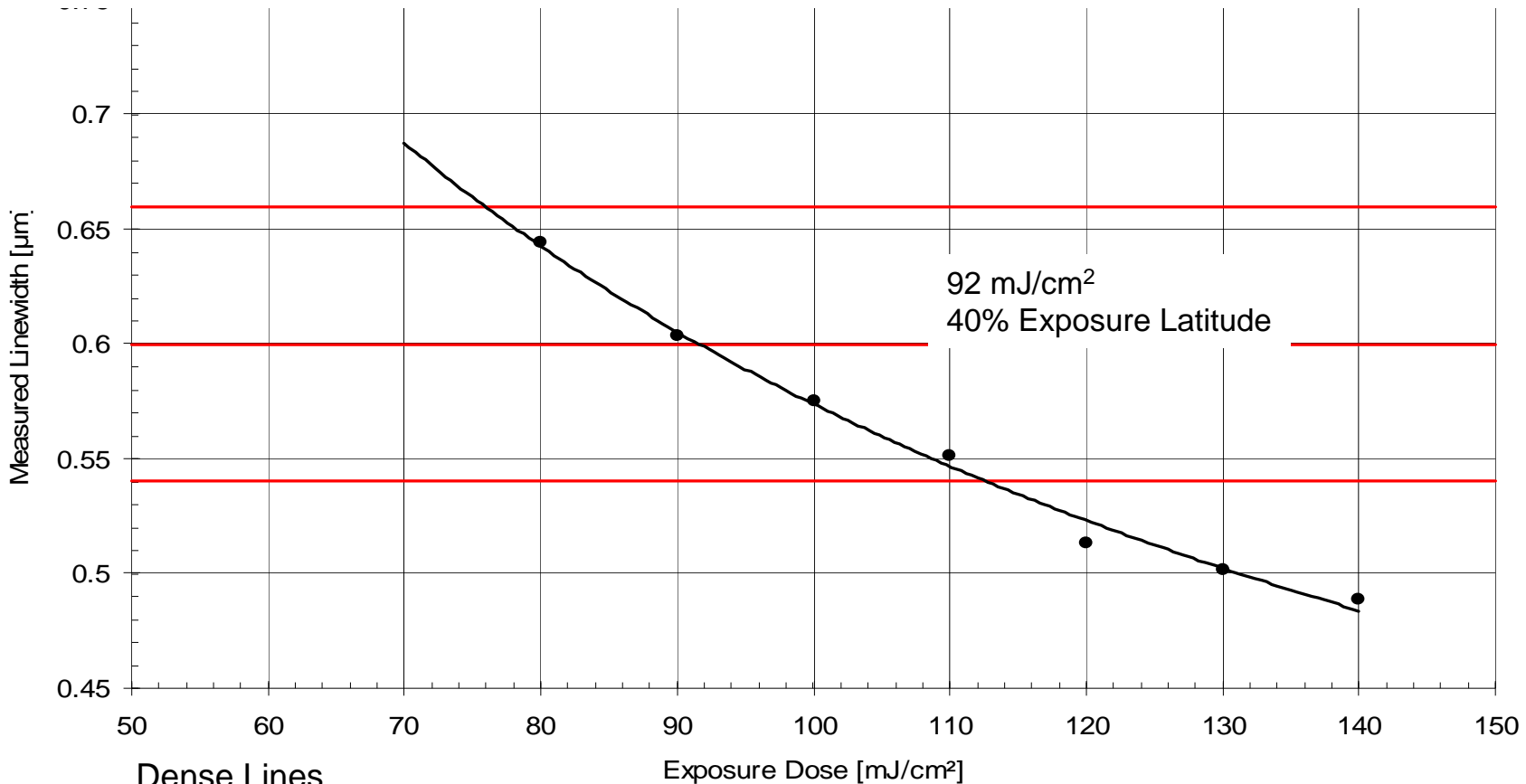
AZ 3312 Photoresist (18 cps)

DOF on Silicon for 0.6 μm Dense Lines, FT = 0.974 μm



AZ 3312 Photoresist (18 cps)

0.60 μm L/S Exposure Latitude on Silicon, FT = 0.974 μm



Dense Lines

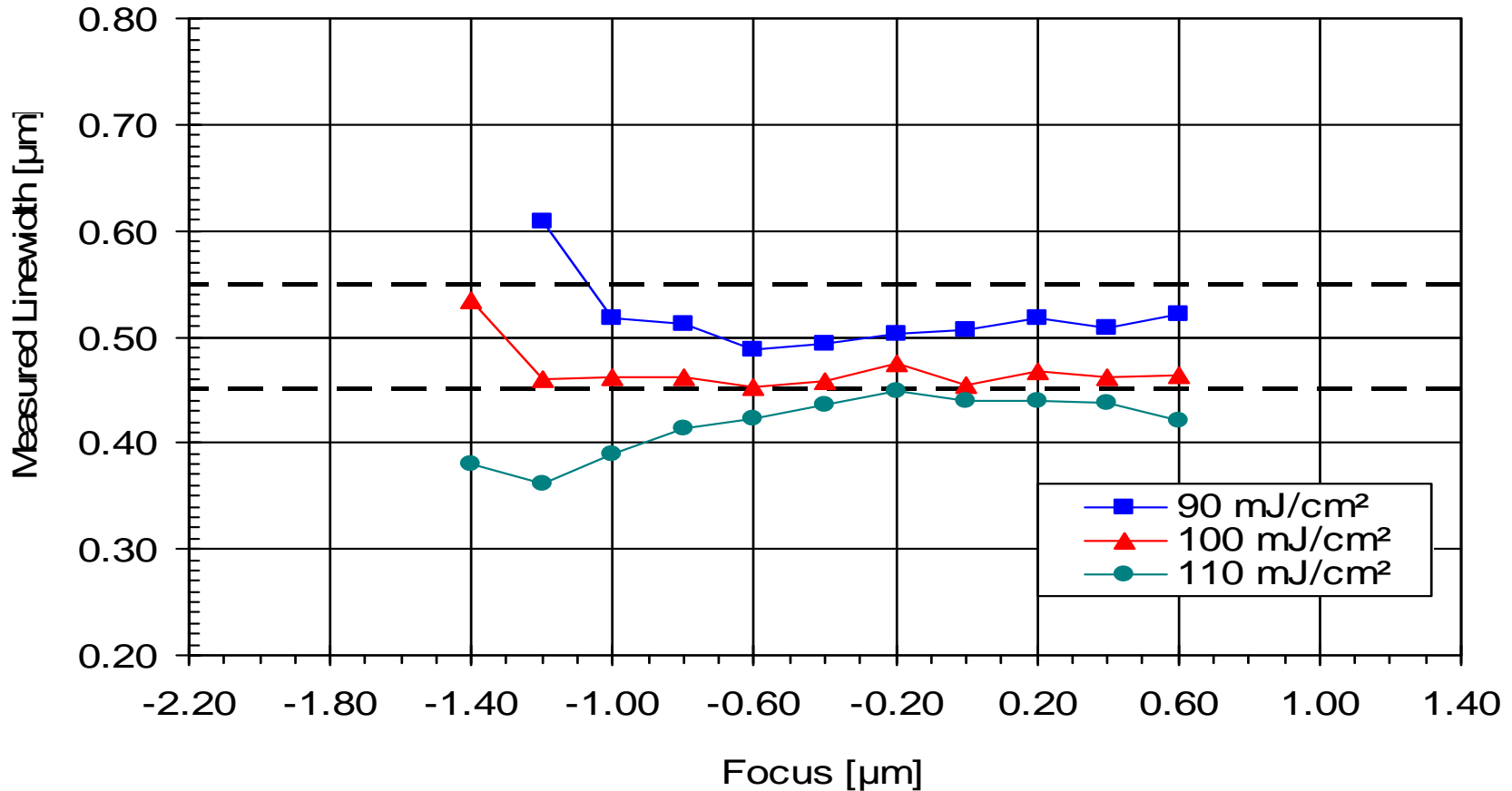
SB: 90°C, 60 sec; PEB: 110°C, 60 sec

Puddle: 60 sec AZ 300 MIF Developer at 23°C

Nikon 0.54 NA **i-Line**

AZ 3312 Photoresist (18 cps)

0.50 μm L/S DOF on Silicon for Dense Lines, FT = 0.974 μm



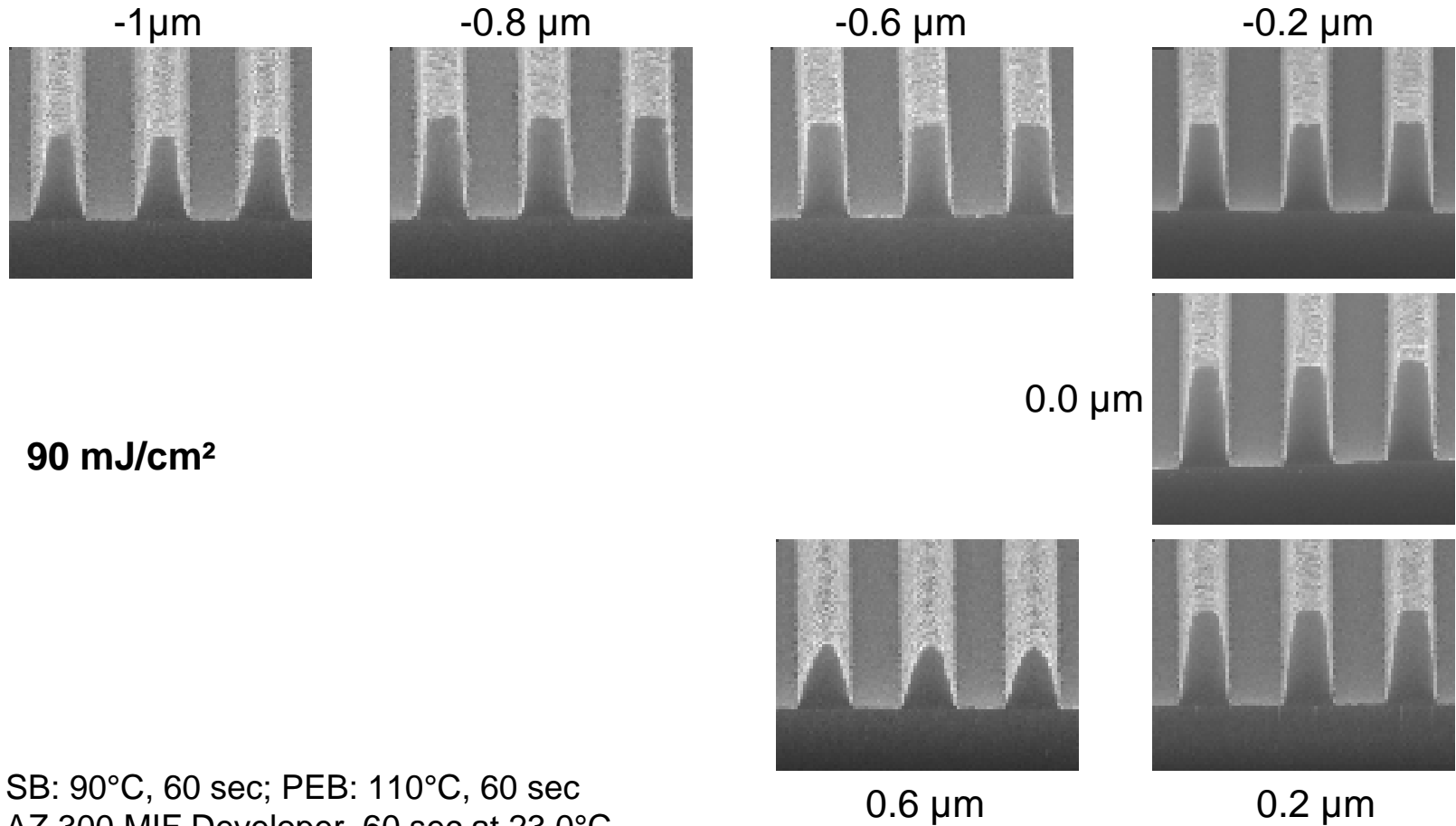
SB: 90°C, 60 sec; PEB: 110°C, 60 sec

Puddle: 60 sec AZ 300 MIF Developer at 23.0°C

Nikon 0.54 NA **i-Line**

AZ 3312 Photoresist (18 cps)

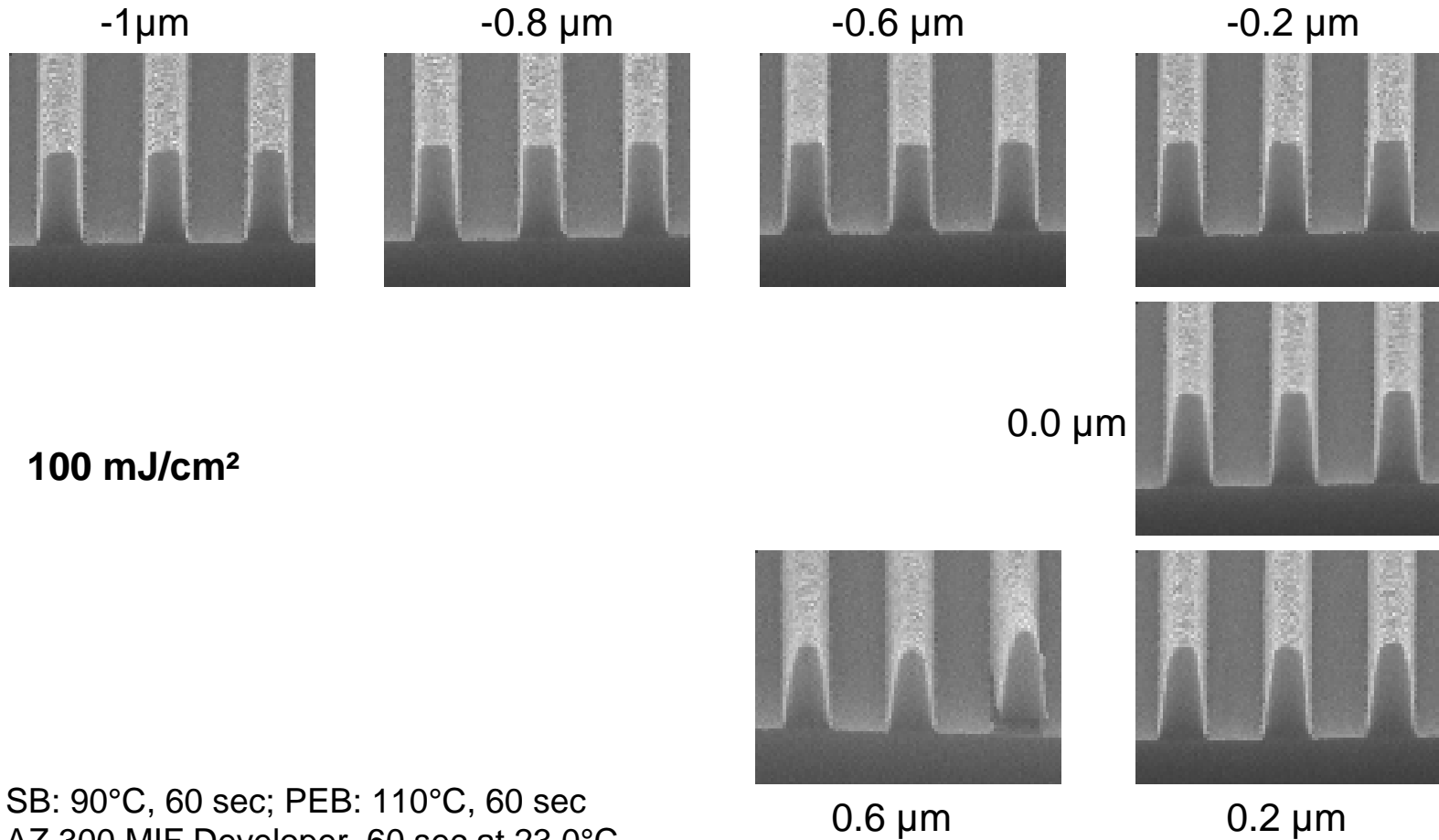
DOF on Silicon for 0.5 μm Dense Lines, FT = 0.974 μm



SB: 90°C, 60 sec; PEB: 110°C, 60 sec
AZ 300 MIF Developer, 60 sec at 23.0°C
Nikon 0.54 NA **i-Line**,

AZ 3312 Photoresist (18 cps)

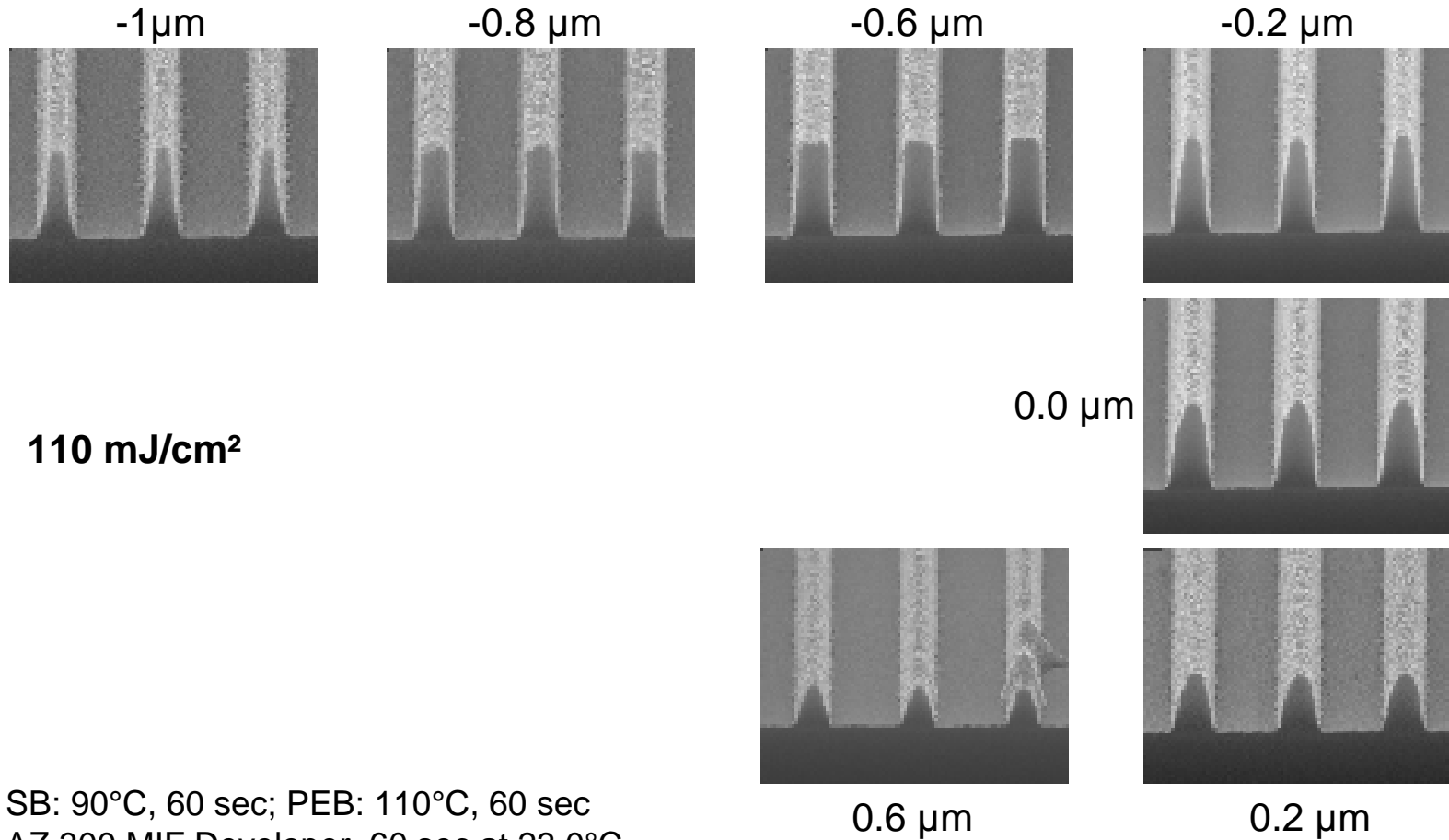
DOF on Silicon for 0.5 μm Dense Lines, FT = 0.974 μm



SB: 90°C, 60 sec; PEB: 110°C, 60 sec
AZ 300 MIF Developer, 60 sec at 23.0°C
Nikon 0.54 NA **i-Line**,

AZ 3312 Photoresist (18 cps)

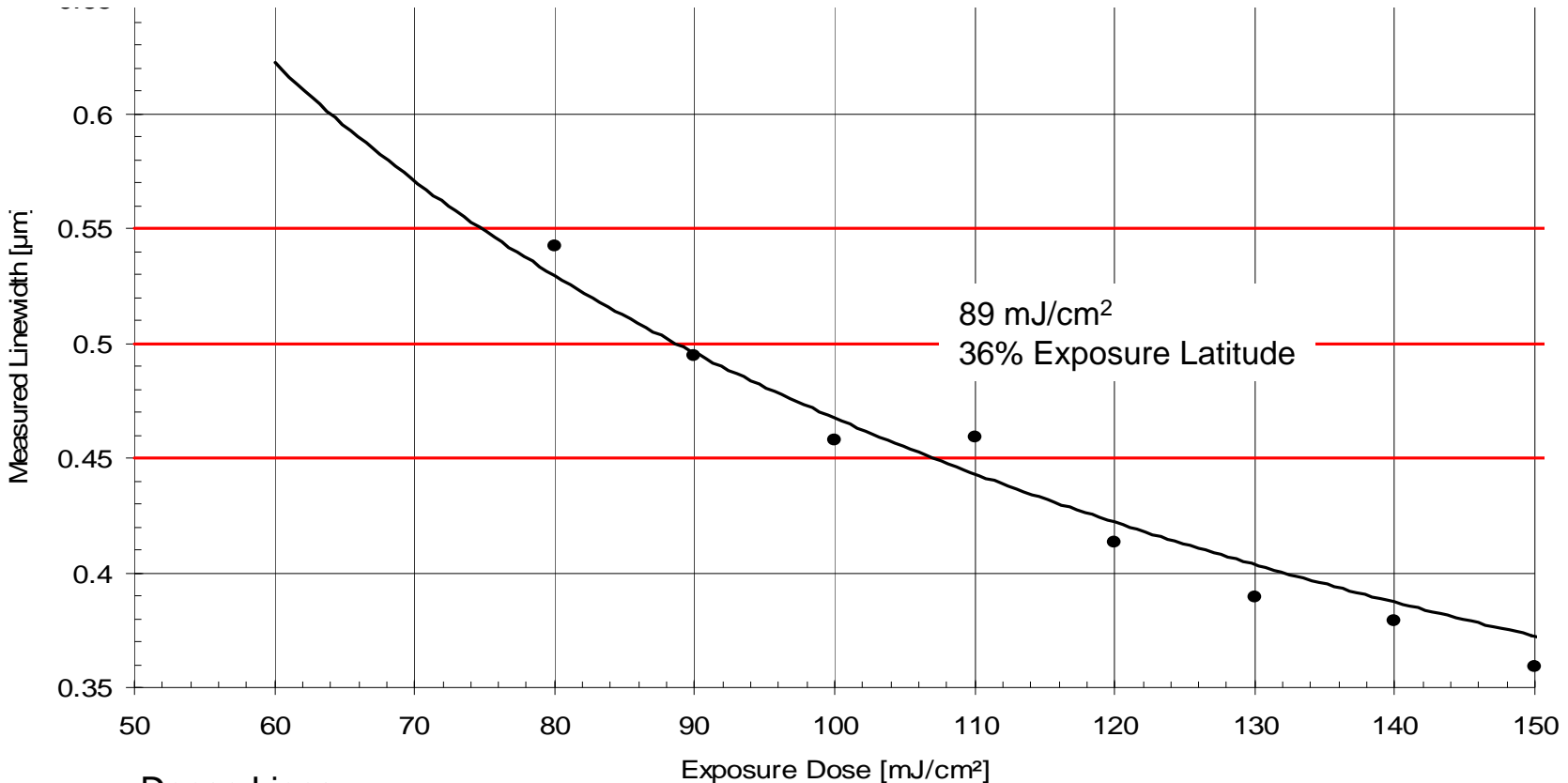
DOF on Silicon for 0.5 μm Dense Lines, FT = 0.974 μm



SB: 90°C, 60 sec; PEB: 110°C, 60 sec
AZ 300 MIF Developer, 60 sec at 23.0°C
Nikon 0.54 NA **i-Line**,

AZ 3312 Photoresist (18 cps)

0.50 μm L/S Exposure Latitude on Silicon, FT = 0.974 μm



Dense Lines

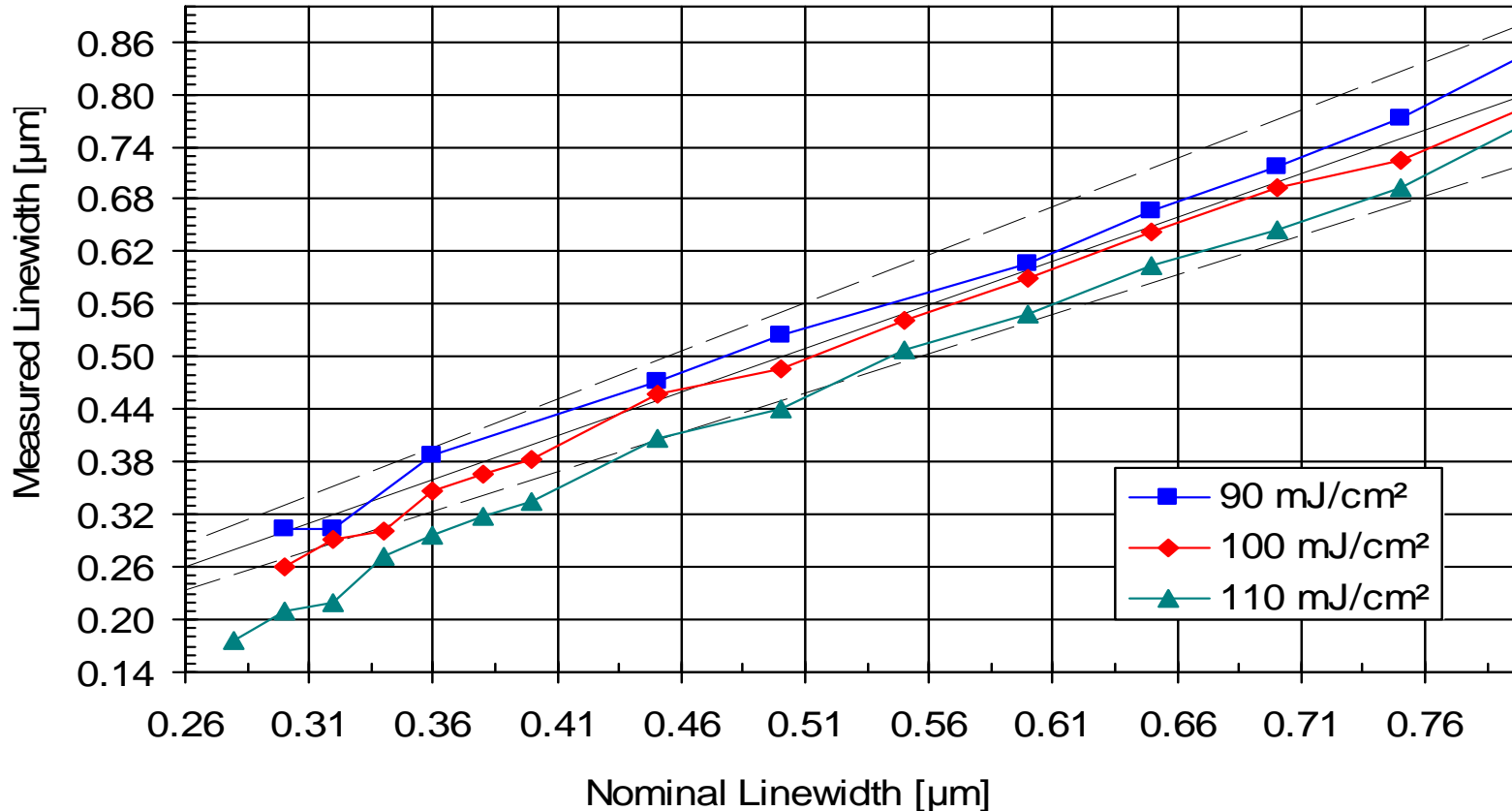
SB: 90°C, 60 sec; PEB: 110°C, 60 sec

Puddle: 60 sec AZ 300 MIF Developer at 23°C

Nikon 0.54 NA **i-Line**

AZ 3312 Photoresist (18 cps)

Linearity on Silicon for Isolated Lines, FT = 0.974 μm



SB: 90°C, 60 sec; PEB: 110°C, 60 sec

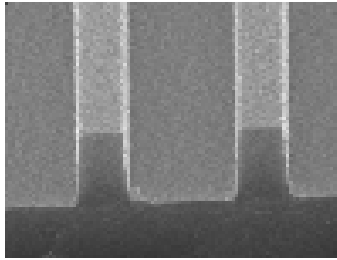
Puddle: 60 sec AZ 300 MIF Developer at 23.0°C

Nikon 0.54 NA **i-Line**

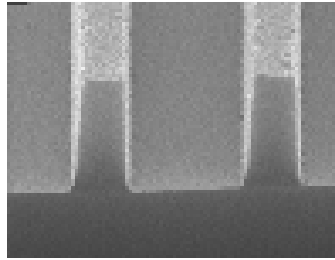
AZ 3312 Photoresist (18 cps)

Linearity on Silicon for Isolated Lines, FT = 0.974 μm

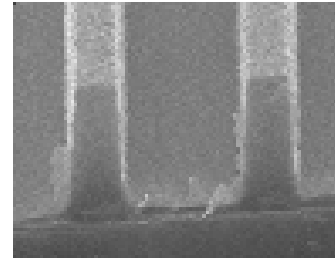
0.75 μm



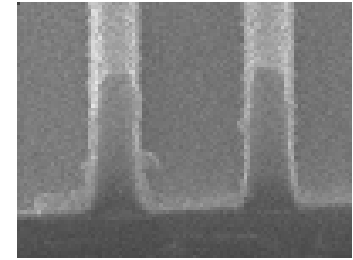
0.55 μm



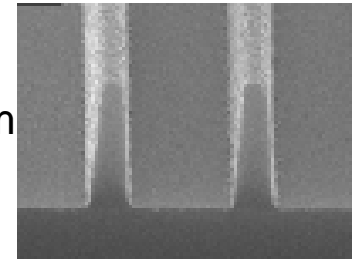
0.45 μm



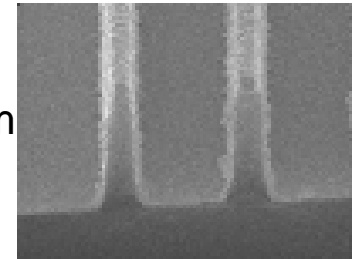
0.36 μm



0.34 μm



0.30 μm



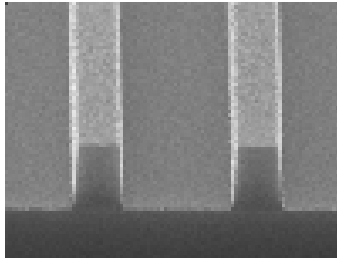
90 mJ/cm²

SB: 90°C, 60 sec; PEB: 110°C, 60 sec
AZ 300 MIF Developer, 60 sec at 23.0°C
Nikon 0.54 NA **i-Line**,

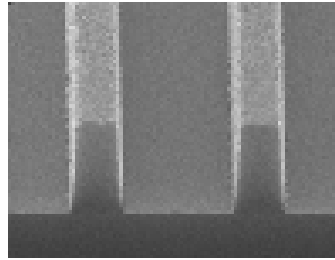
AZ 3312 Photoresist (18 cps)

Linearity on Silicon for Isolated Lines, FT = 0.974 μm

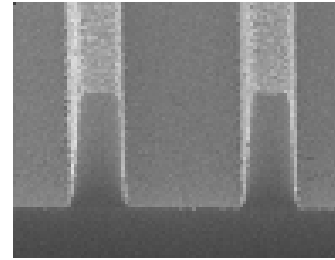
0.75 μm



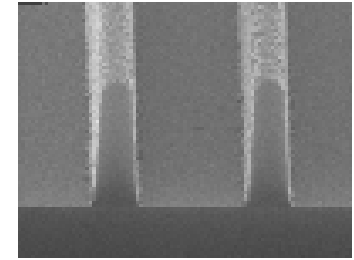
0.55 μm



0.45 μm

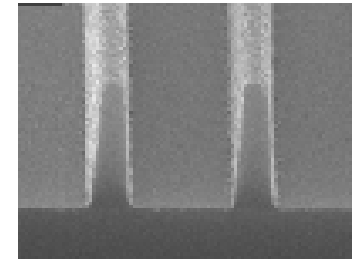


0.36 μm

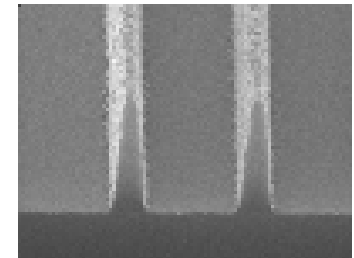


100 mJ/cm²

0.34 μm



0.30 μm

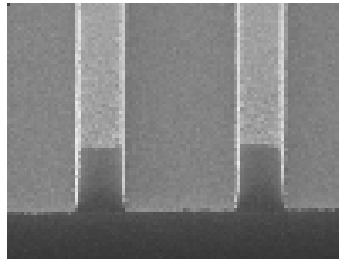


SB: 90°C, 60 sec; PEB: 110°C, 60 sec
AZ 300 MIF Developer, 60 sec at 23.0°C
Nikon 0.54 NA **i-Line**,

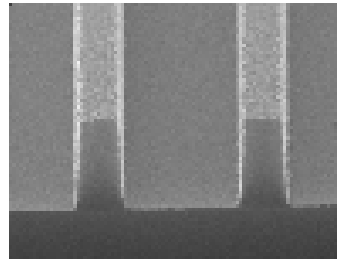
AZ 3312 Photoresist (18 cps)

Linearity on Silicon for Isolated Lines, FT = 0.974 μm

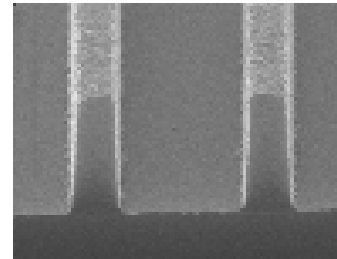
0.75 μm



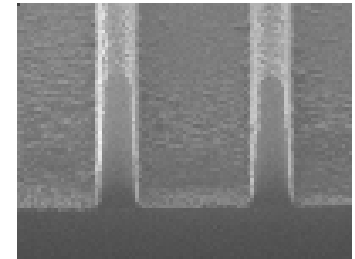
0.55 μm



0.45 μm

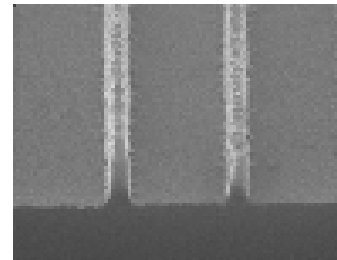
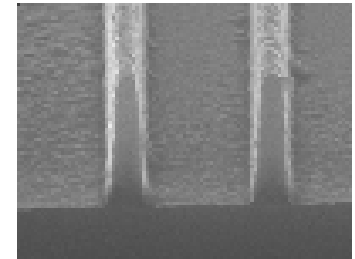


0.36 μm

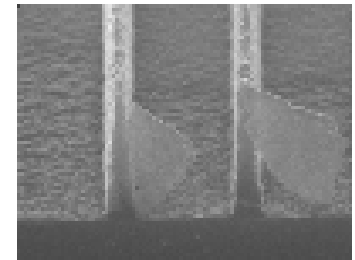


110 mJ/cm²

0.34 μm



0.28 μm

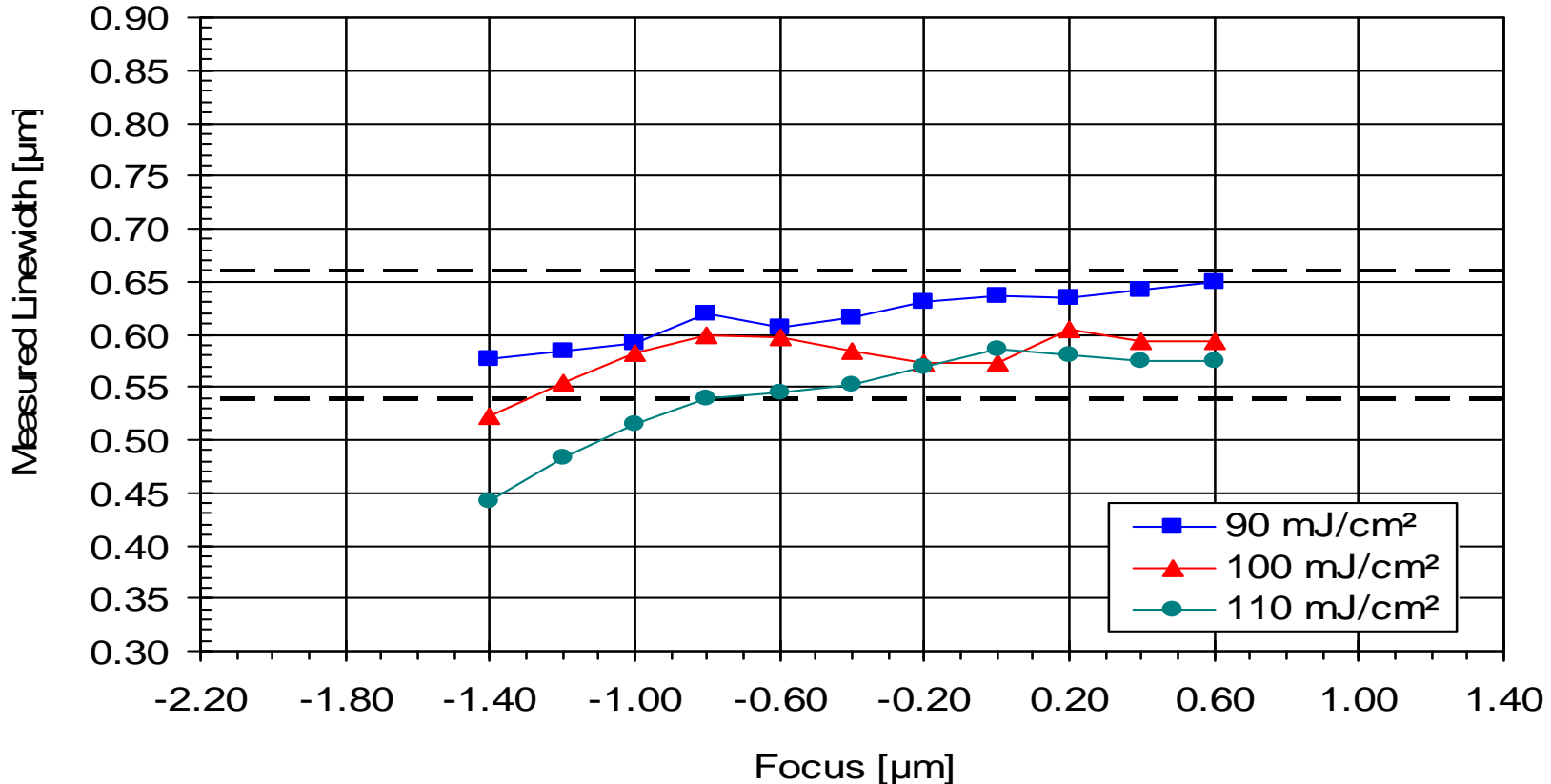


0.30 μm

SB: 90°C, 60 sec; PEB: 110°C, 60 sec
AZ 300 MIF Developer, 60 sec at 23.0°C
Nikon 0.54 NA **i-Line**,

AZ 3312 Photoresist (18 cps)

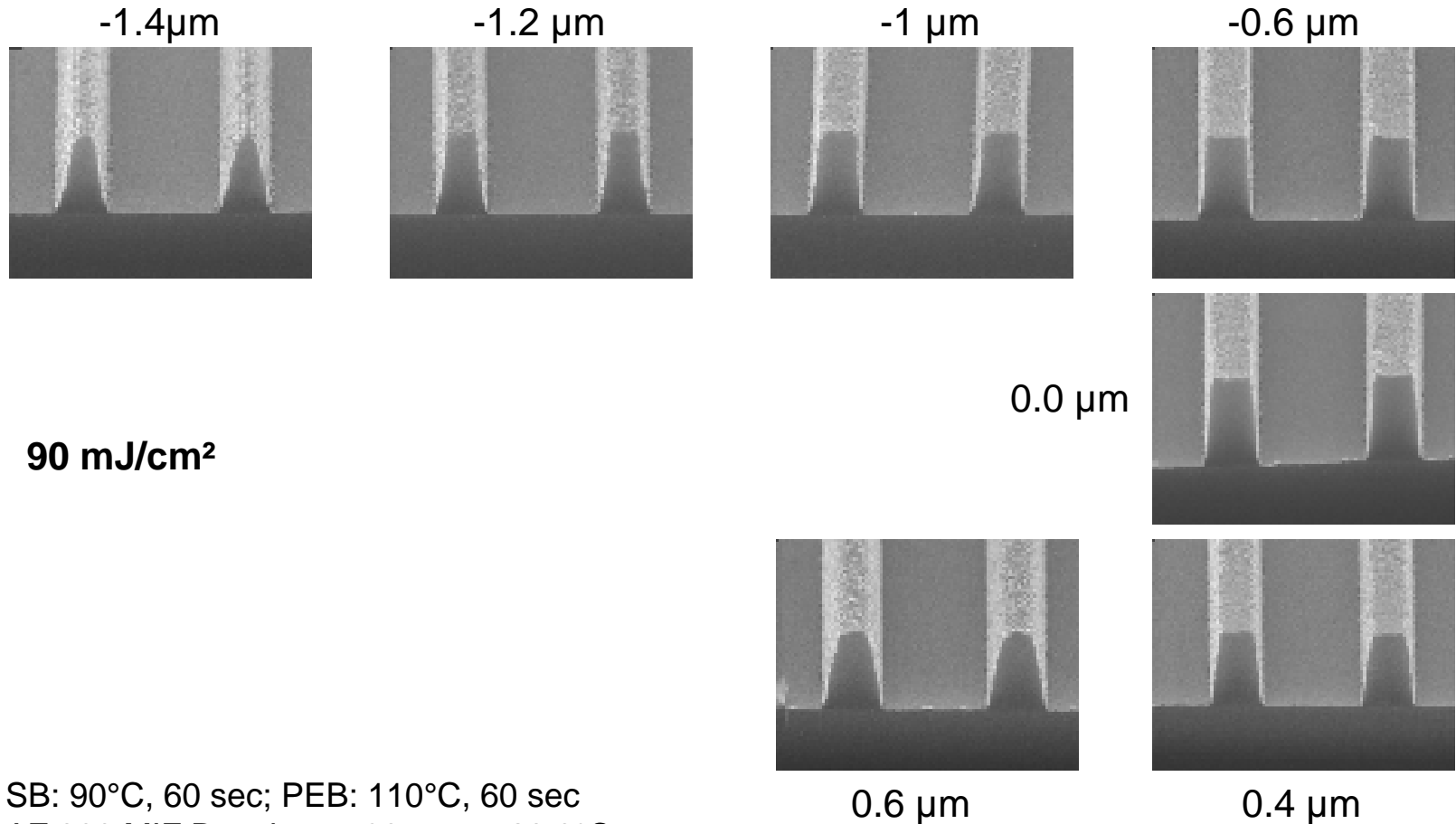
0.60 μm L/S DOF on Silicon for Isolated Lines, FT = 0.974 μm



SB: 90°C, 60 sec; PEB: 110°C, 60 sec
Puddle: 60 sec AZ 300 MIF Developer at 23.0°C
Nikon 0.54 NA **i-Line**

AZ 3312 Photoresist (18 cps)

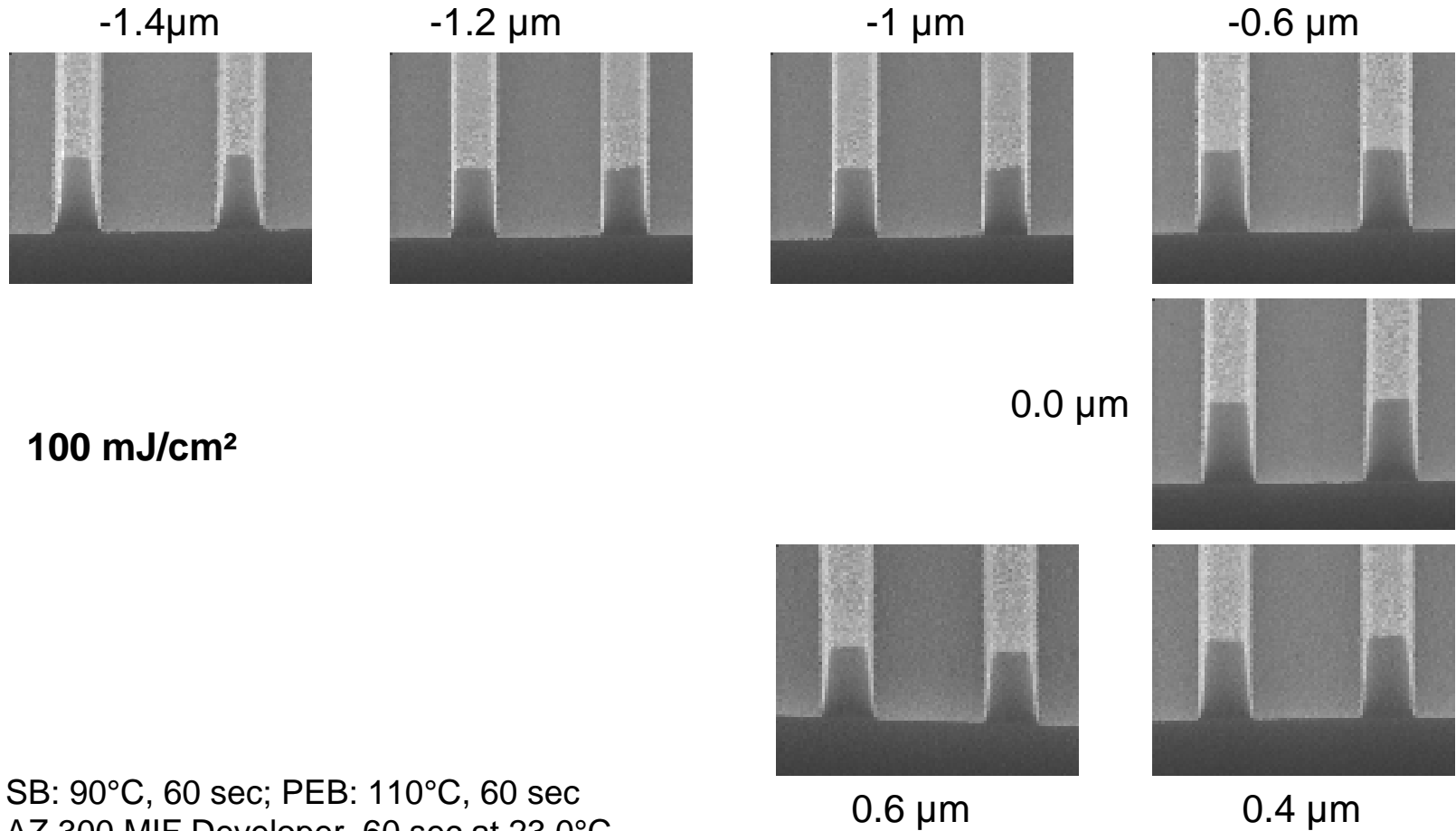
DOF on Silicon for 0.6 μm Isolated Lines, FT = 0.974 μm



SB: 90°C, 60 sec; PEB: 110°C, 60 sec
AZ 300 MIF Developer, 60 sec at 23.0°C
Nikon 0.54 NA **i-Line**,

AZ 3312 Photoresist (18 cps)

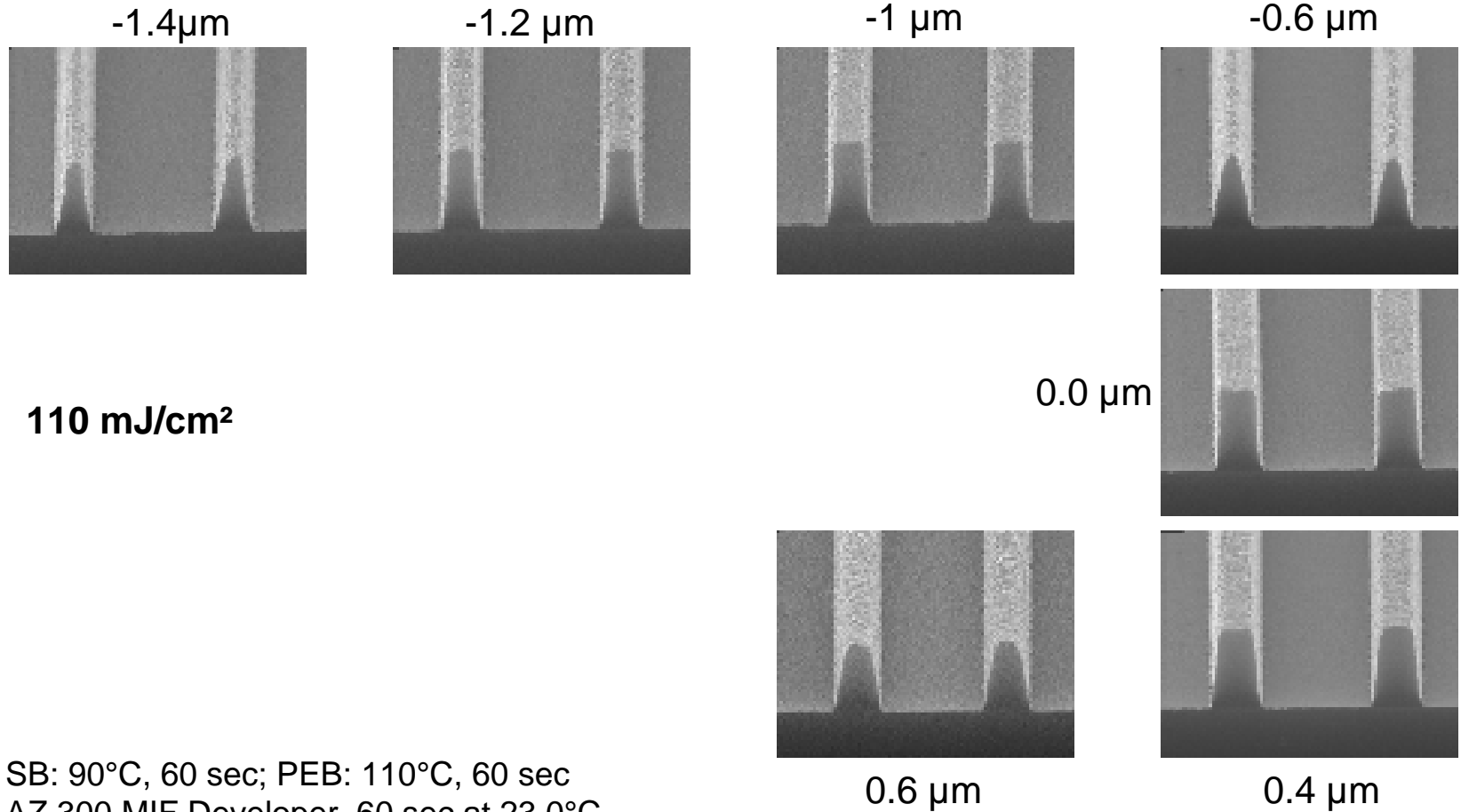
DOF on Silicon for 0.6 μm Isolated Lines, FT = 0.974 μm



SB: 90°C, 60 sec; PEB: 110°C, 60 sec
AZ 300 MIF Developer, 60 sec at 23.0°C
Nikon 0.54 NA **i-Line**,

AZ 3312 Photoresist (18 cps)

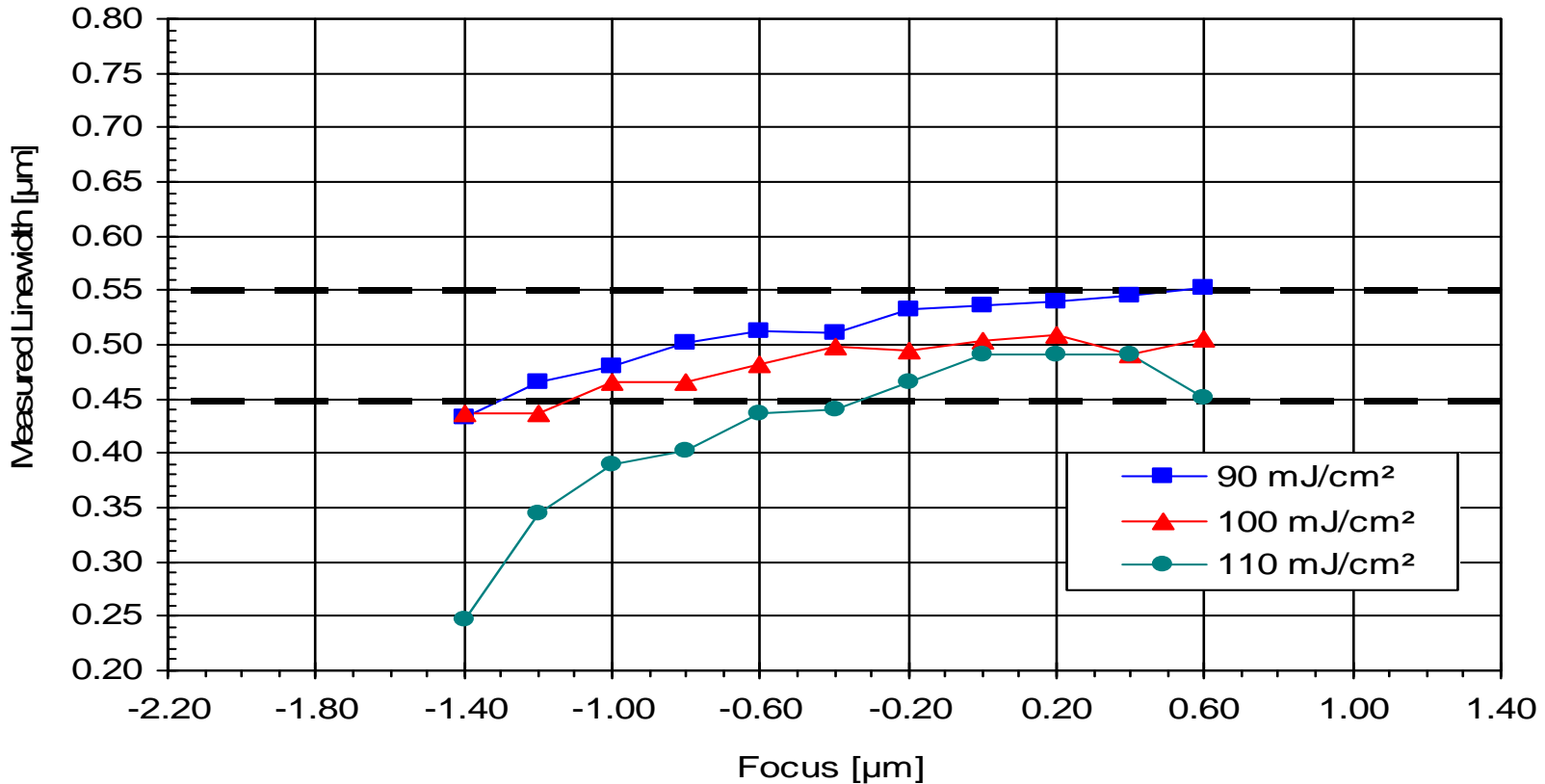
DOF on Silicon for 0.6 μm Isolated Lines, FT = 0.974 μm



SB: 90°C, 60 sec; PEB: 110°C, 60 sec
AZ 300 MIF Developer, 60 sec at 23.0°C
Nikon 0.54 NA **i-Line**,

AZ 3312 Photoresist (18 cps)

0.50 μm L/S DOF on Silicon for Isolated Lines, FT = 0.974 μm

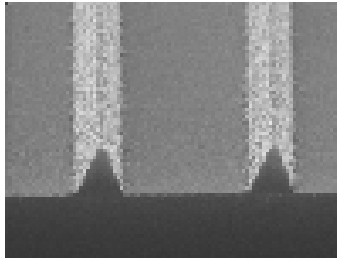


SB: 90°C, 60 sec; PEB: 110°C, 60 sec
Puddle: 60 sec AZ 300 MIF Developer at 23.0°C
Nikon 0.54 NA **i-Line**

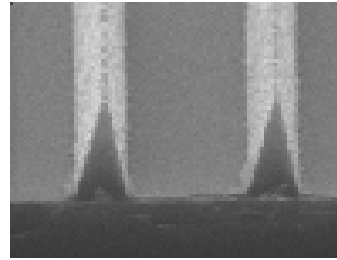
AZ 3312 Photoresist (18 cps)

DOF on Silicon for 0.5 μm Isolated Lines, FT = 0.974 μm

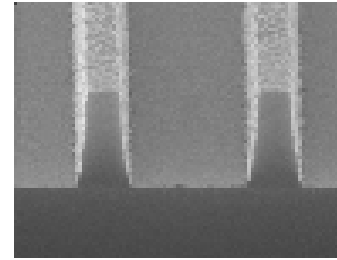
-1.4 μm



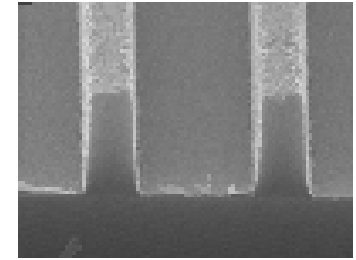
-1.2 μm



-1 μm

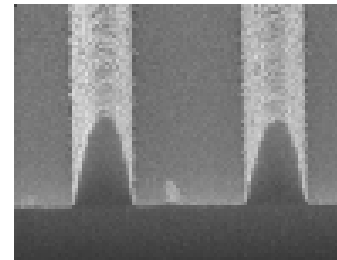
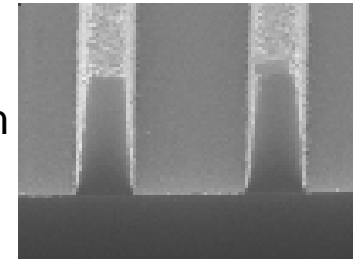


-0.6 μm

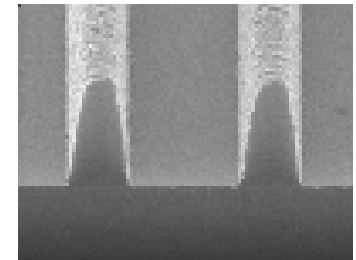


90 mJ/cm²

0.0 μm



0.6 μm

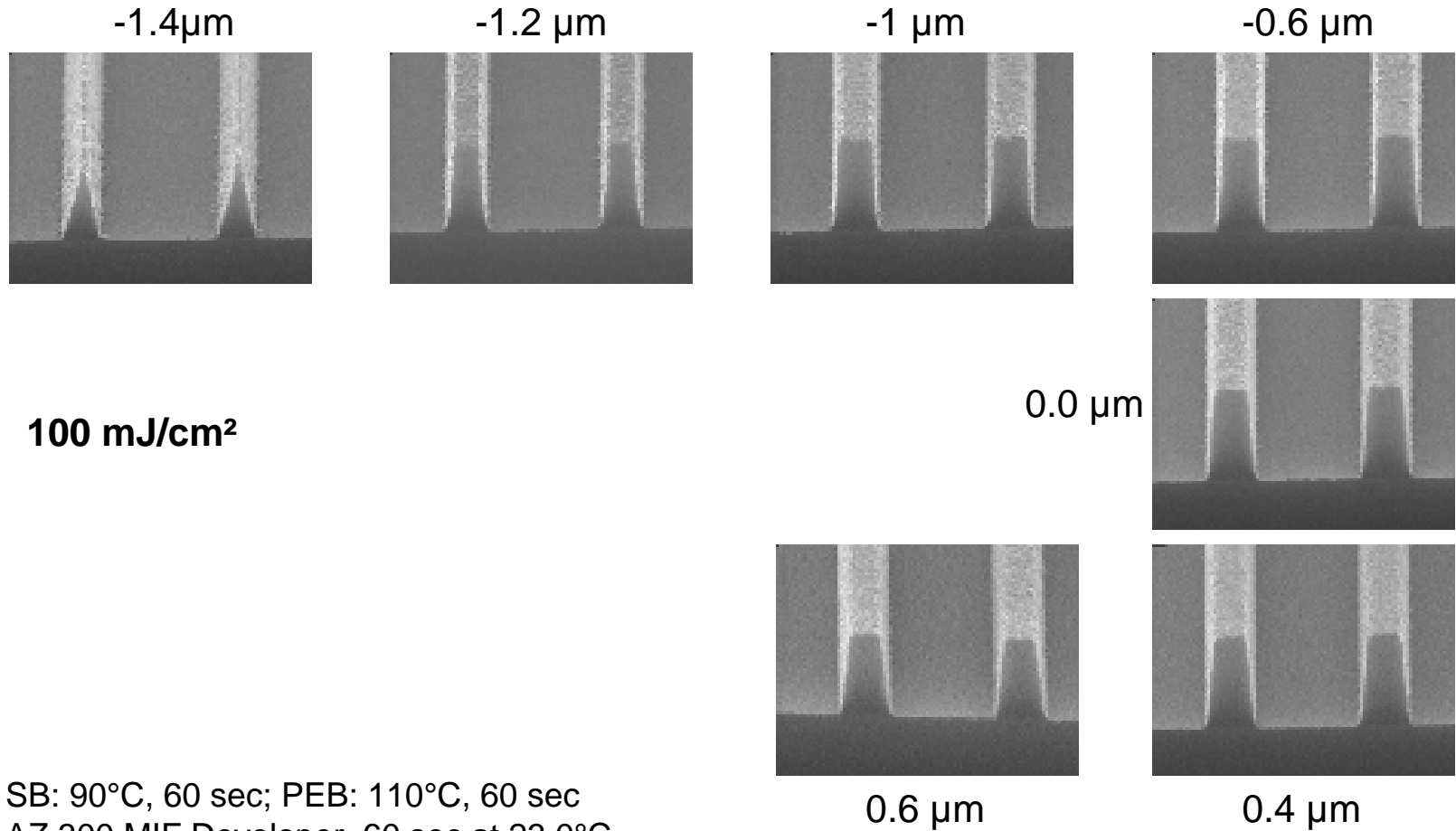


0.4 μm

SB: 90°C, 60 sec; PEB: 110°C, 60 sec
AZ 300 MIF Developer, 60 sec at 23.0°C
Nikon 0.54 NA **i-Line**,

AZ 3312 Photoresist (18 cps)

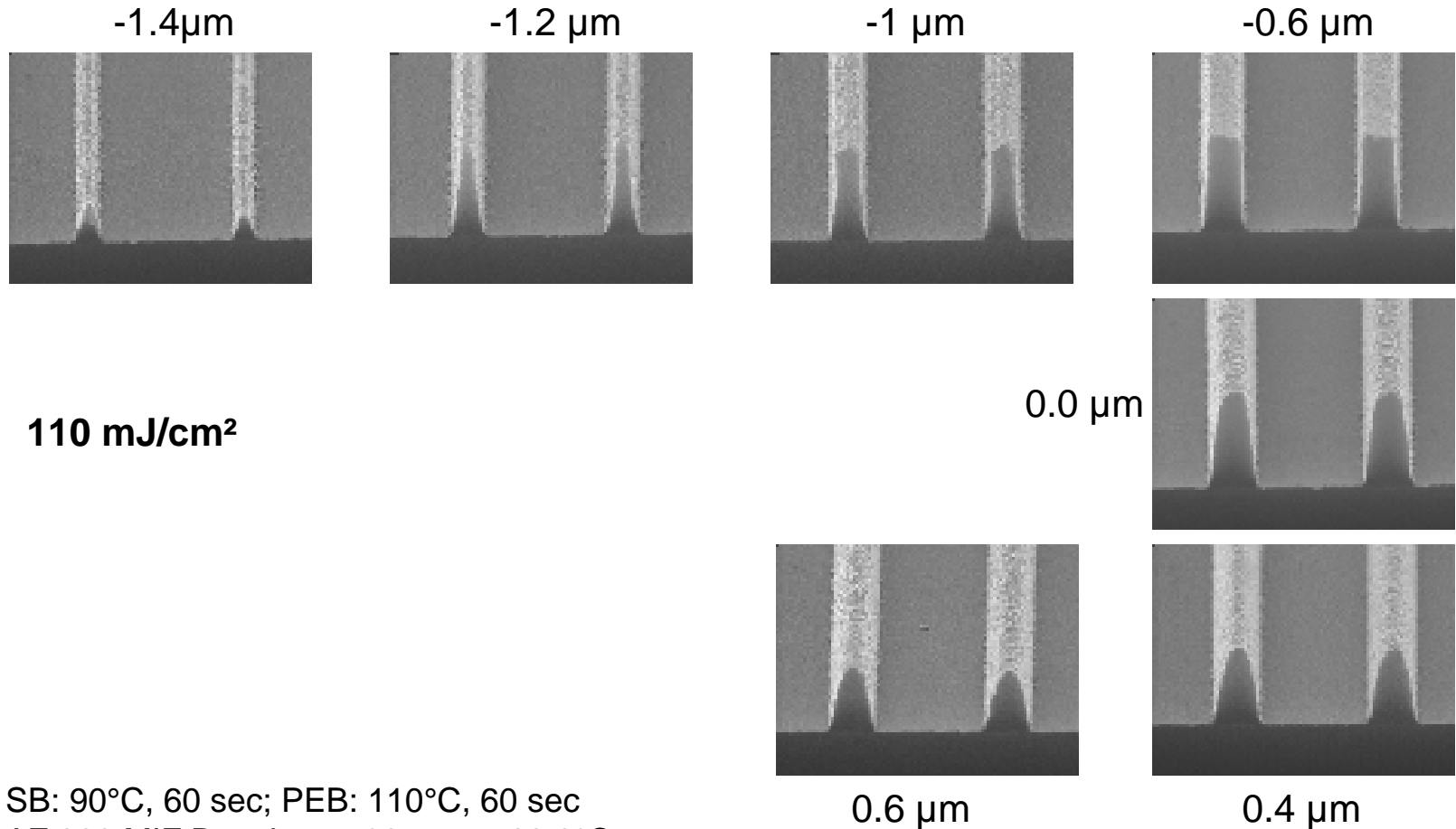
DOF on Silicon for 0.5 μm Isolated Lines, FT = 0.974 μm



SB: 90°C, 60 sec; PEB: 110°C, 60 sec
AZ 300 MIF Developer, 60 sec at 23.0°C
Nikon 0.54 NA **i-Line**,

AZ 3312 Photoresist (18 cps)

DOF on Silicon for 0.5 μm Isolated Lines, FT = 0.974 μm

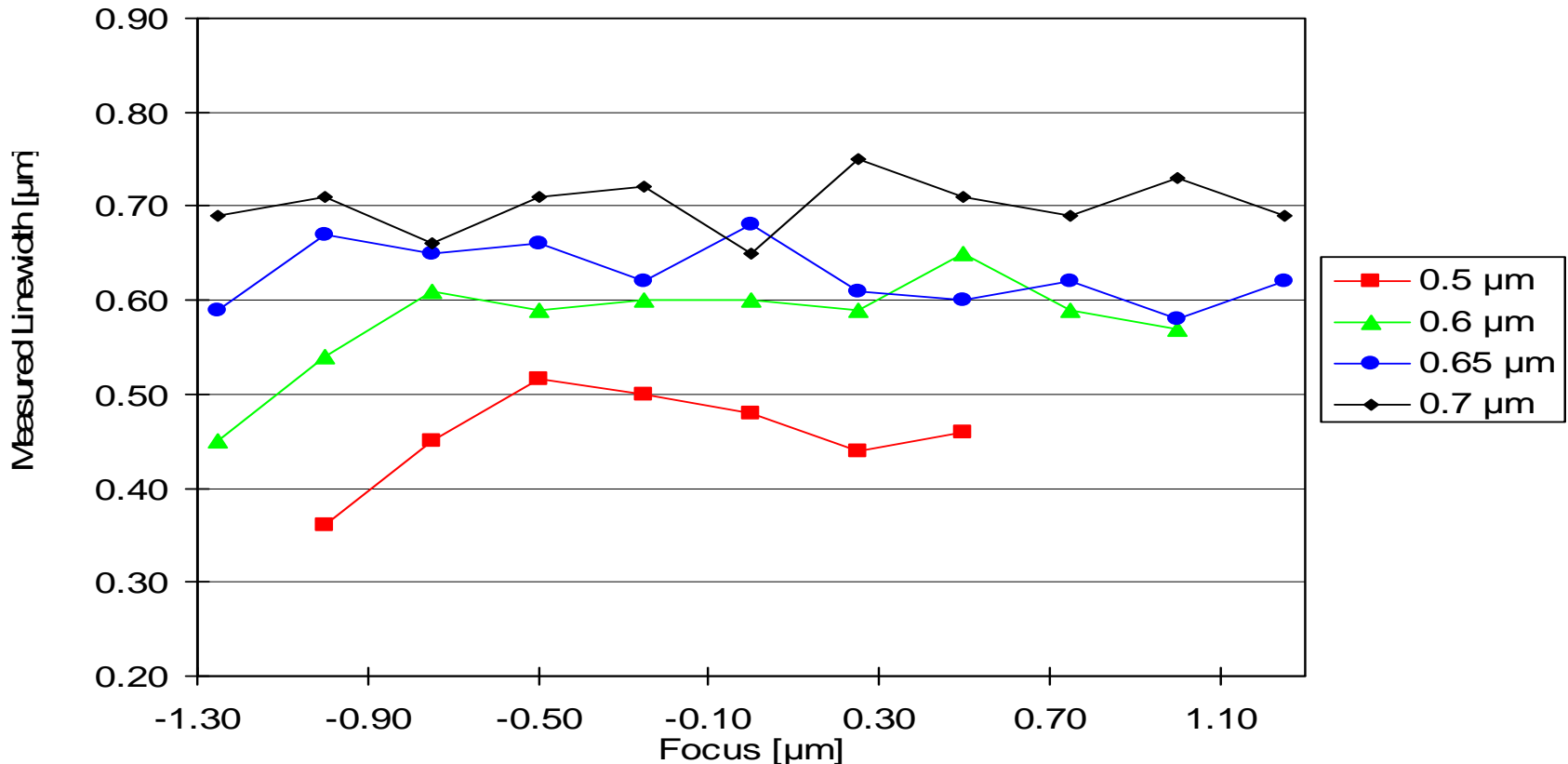


SB: 90°C, 60 sec; PEB: 110°C, 60 sec
AZ 300 MIF Developer, 60 sec at 23.0°C
Nikon 0.54 NA **i-Line**,

AZ 3312 Photoresist (18 cps)

Contact Hole Focus Latitude, FT = 1.076 μm

140 mJ/cm²



SB: 90°C/ 60 sec, Nikon **i-line**, 0.54 NA

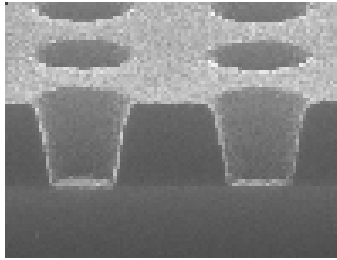
PEB: 110°C/ 60 sec

AZ 300 MIF developer/ double puddle 52 sec

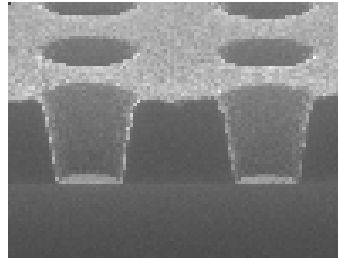
AZ 3312 Photoresist (18 cps)

DOF on Silicon for 0.7 μm Contact Holes, FT=1.076 μm

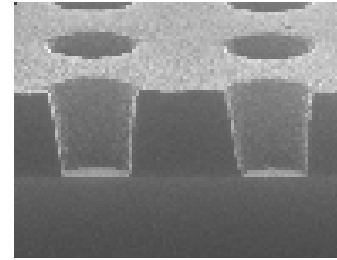
1.25 μm



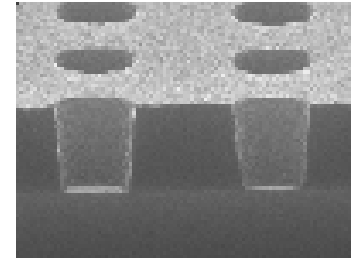
1.0 μm



0.5 μm

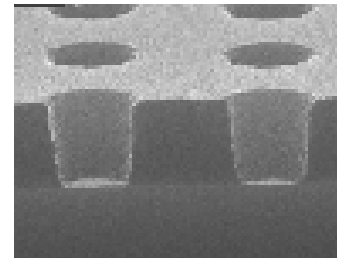
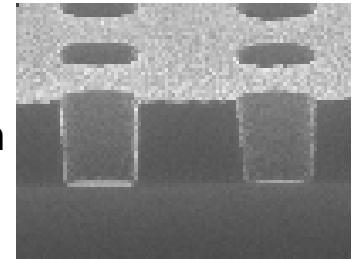


0.0 μm

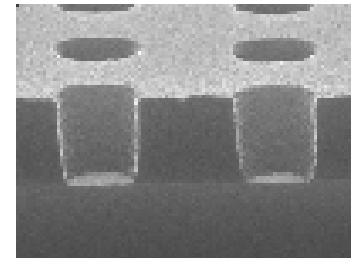


140 mJ/cm^2

-0.5 μm



-1.25 μm



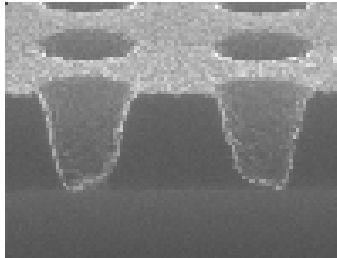
-1.0 μm

SB: 90°C, 60 sec; PEB: 110°C, 60 sec
AZ 300 MIF Developer, 60 sec at 23.0°C
Nikon 0.54 NA **i-Line**,

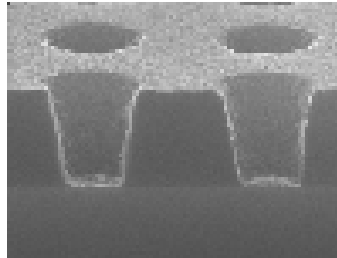
AZ 3312 Photoresist (18 cps)

DOF on Silicon for 0.6 μm Contact Holes, FT=1.076 μm

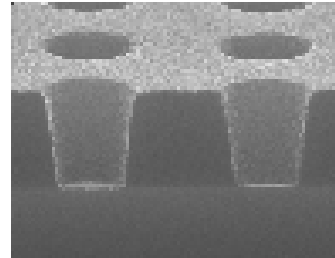
1.25 μm



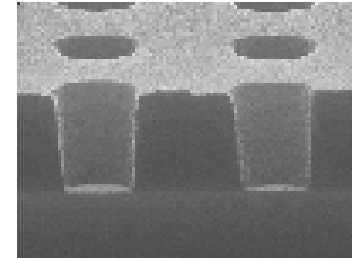
1.0 μm



0.5 μm

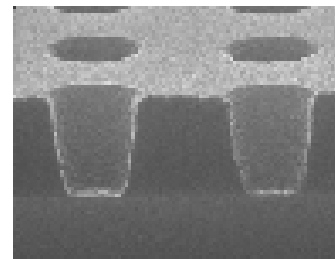
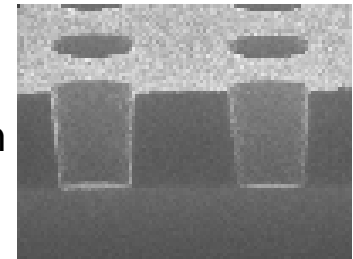


0.0 μm

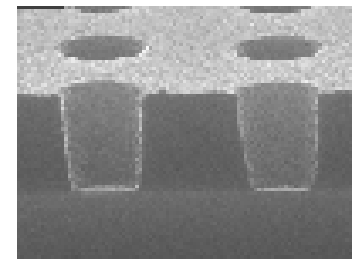


140 mJ/cm²

-0.5 μm



-1.25 μm



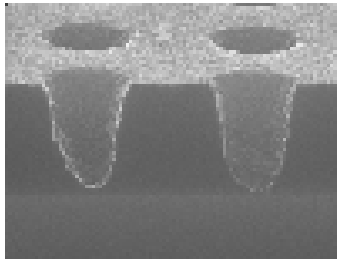
-1.0 μm

SB: 90°C, 60 sec; PEB: 110°C, 60 sec
AZ 300 MIF Developer, 60 sec at 23.0°C
Nikon 0.54 NA **i-Line**,

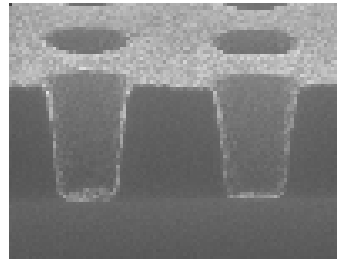
AZ 3312 Photoresist (18 cps)

DOF on Silicon for 0.5 μm Contact Holes, $FT=1.076 \mu\text{m}$

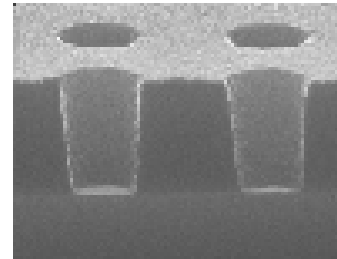
1.0 μm



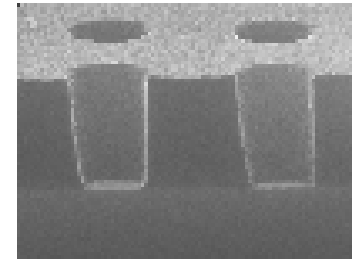
0.5 μm



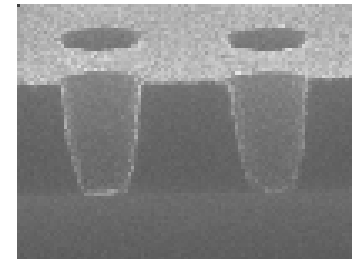
0.0 μm



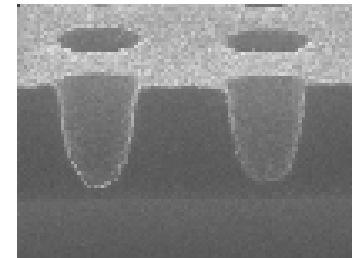
-0.5 μm



-1.0 μm



-1.25 μm



140 mJ/cm^2

SB: 90°C, 60 sec; PEB: 110°C, 60 sec
AZ 300 MIF Developer, 60 sec at 23.0°C
Nikon 0.54 NA **i-Line**,

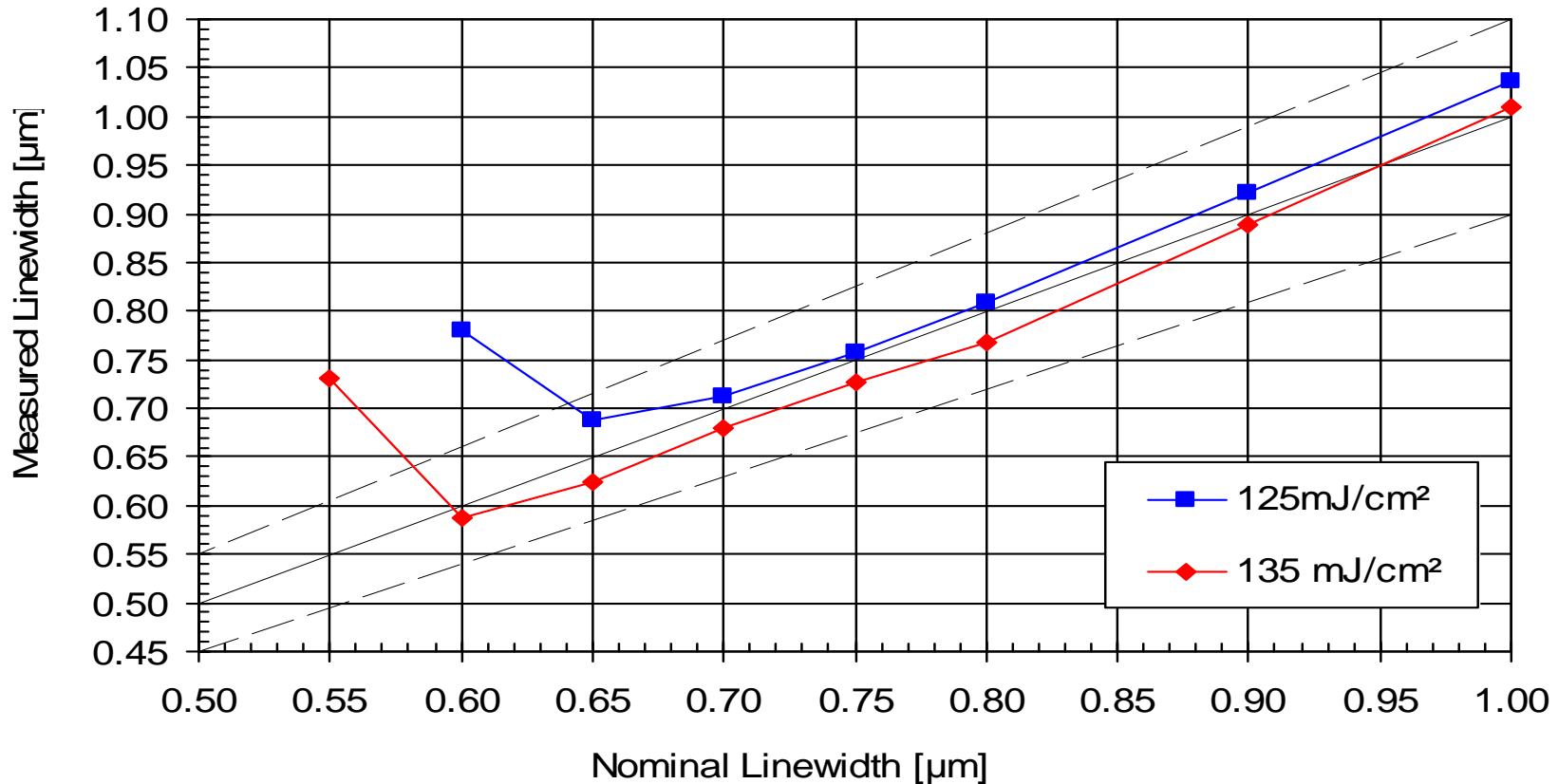


AZ 3312 Photoresist (18 cps)

Film Thickness 1.17 μm @ Emax
Exposure with GCA 0.42 NA **g-line** Stepper
Using AZ 300 MIF Developer

AZ 3312 Photoresist (18 cps)

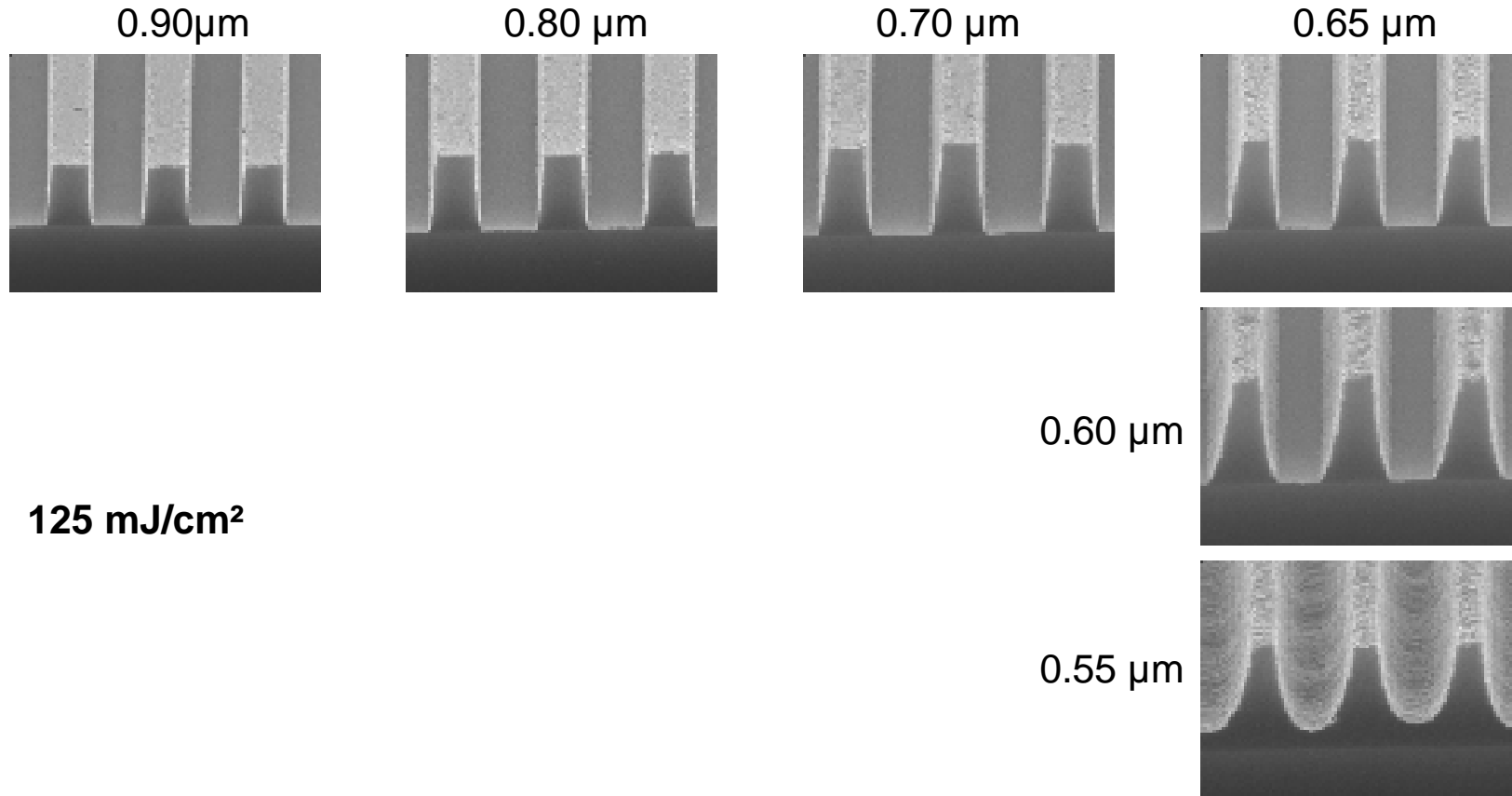
Linearity on Silicon for Dense Lines, FT = 1.17 μm



SB: 90°C, 60 sec; PEB: 110°C, 60 sec
Puddle: 60 sec AZ 300 MIF Developer at 23°C
GCA 0.42 NA, [g-Line](#)

AZ 3312 Photoresist (18 cps)

Linearity on Silicon for Dense Lines, FT = 1.17 μm



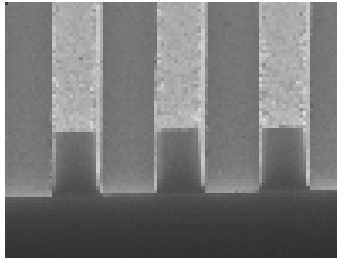
125 mJ/cm²

SB: 90°C, 60 sec; PEB: 110°C, 60 sec
AZ 300 MIF Developer, 60 sec at 23.0°C
GCA 0.42 NA, **g-Line**

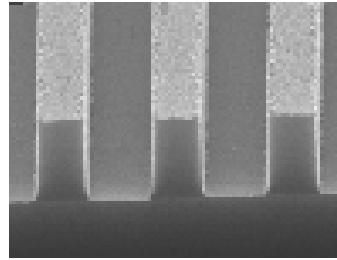
AZ 3312 Photoresist (18 cps)

Linearity on Silicon for Dense Lines, FT = 1.17 μm

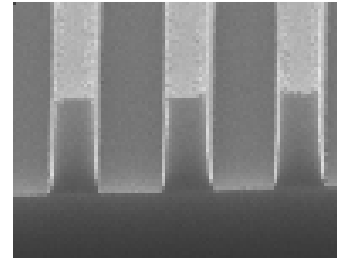
0.90 μm



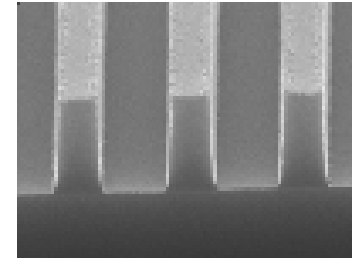
0.80 μm



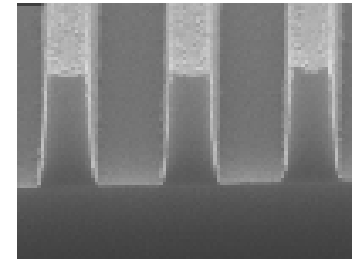
0.70 μm



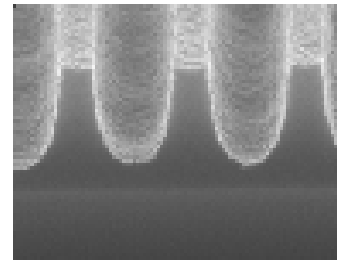
0.65 μm



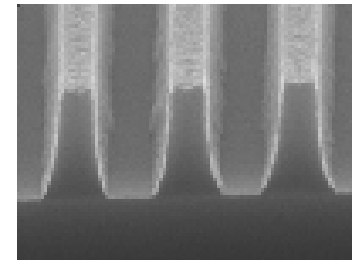
0.60 μm



135 mJ/cm²



0.50 μm

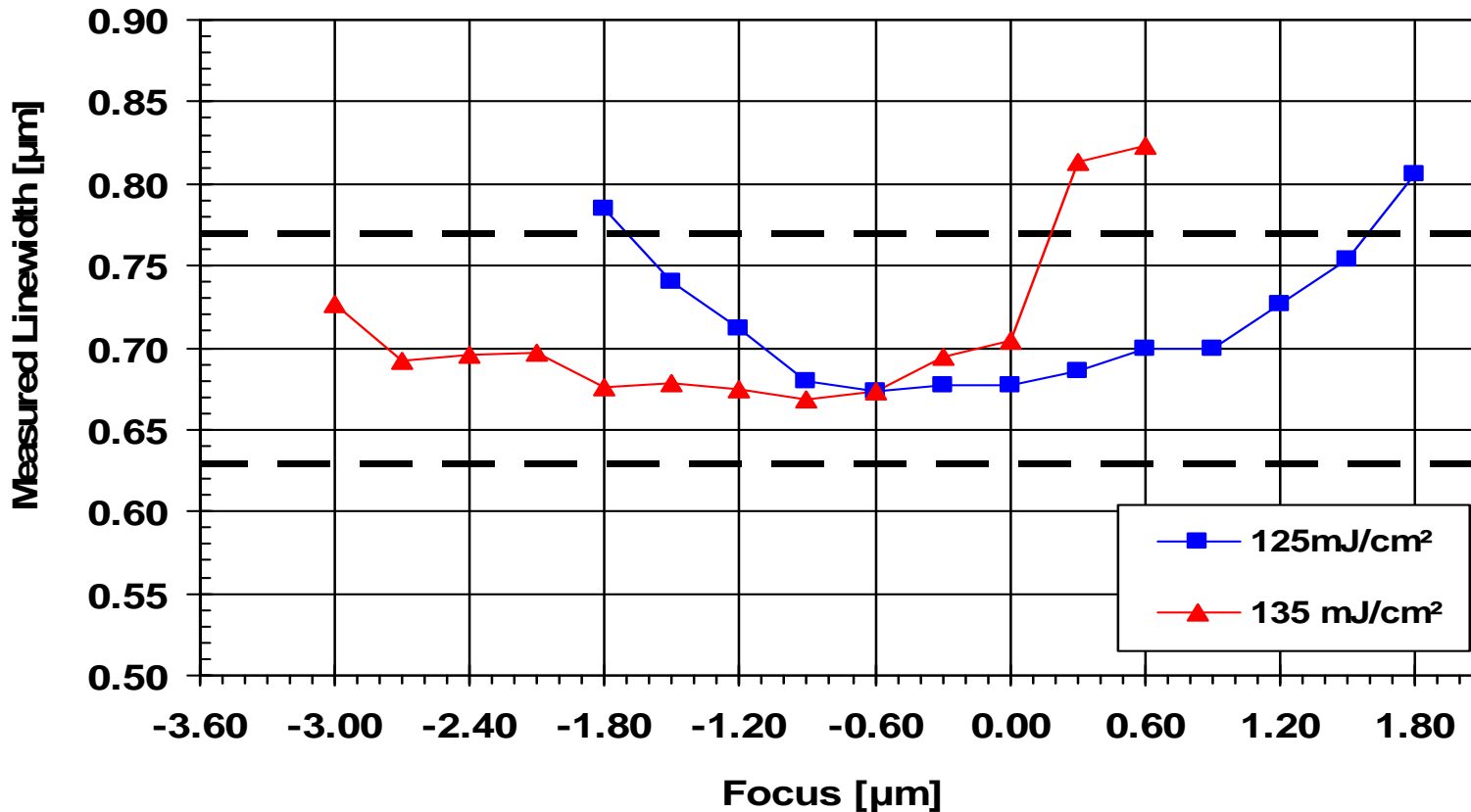


0.55 μm

SB: 90°C, 60 sec; PEB: 110°C, 60 sec
AZ 300 MIF Developer, 60 sec at 23.0°C
GCA 0.42 NA, **g-Line**

AZ[®] 3312 Photoresist (18 cps)

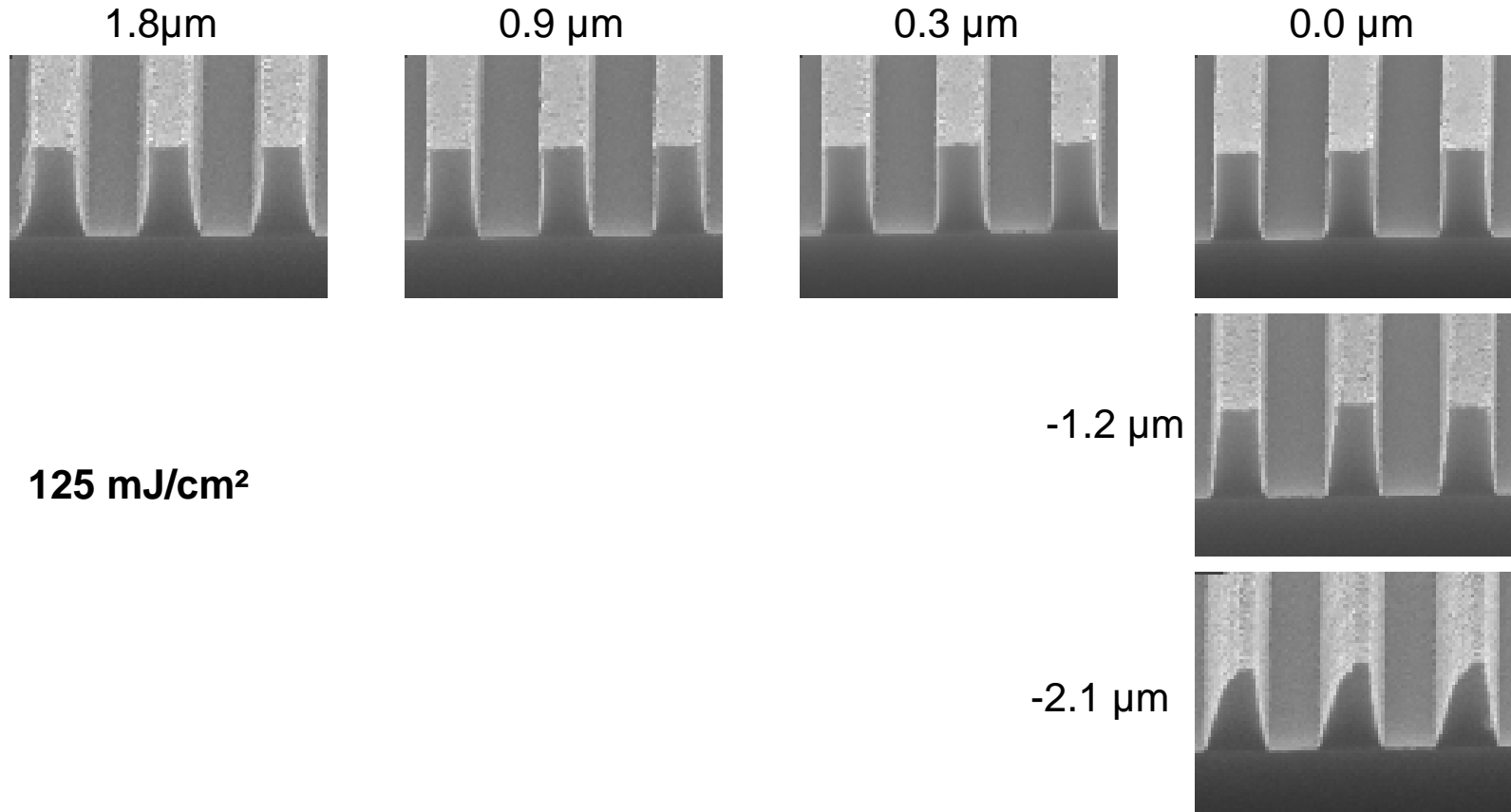
0.7 μm L/S DOF on Silicon for Dense Lines, FT = 1.17 μm



SB: 90°C, 60 sec; PEB: 110°C, 60 sec
Puddle: 60 sec AZ[®] 300 MIF Developer at 23°C
GCA 0.42 NA, **g-Line**

AZ 3312 Photoresist (18 cps)

DOF on Silicon for 0.7 μm Dense Lines, FT = 1.17 μm

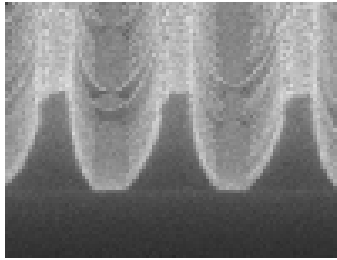


SB: 90°C, 60 sec; PEB: 110°C, 60 sec
AZ 300 MIF Developer, 60 sec at 23.0°C
GCA 0.42 NA, **g-Line**

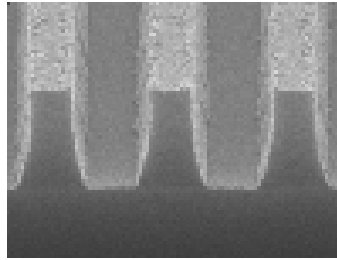
AZ 3312 Photoresist (18 cps)

DOF on Silicon for 0.7 μm Dense Lines, FT = 1.17 μm

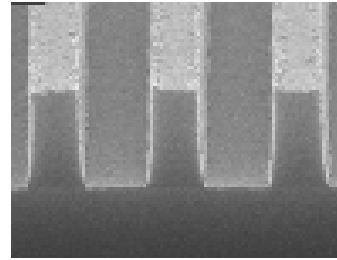
0.9 μm



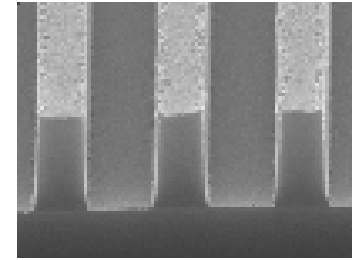
0.3 μm



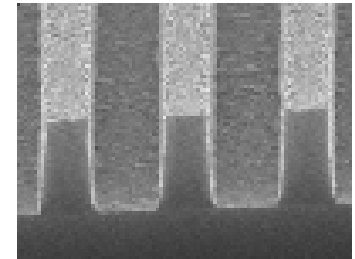
0.0 μm



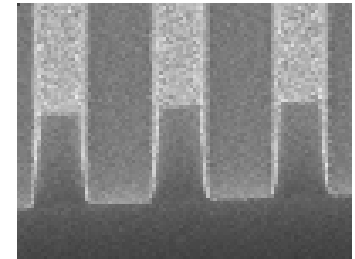
-1.2 μm



-2.1 μm



-2.7 μm

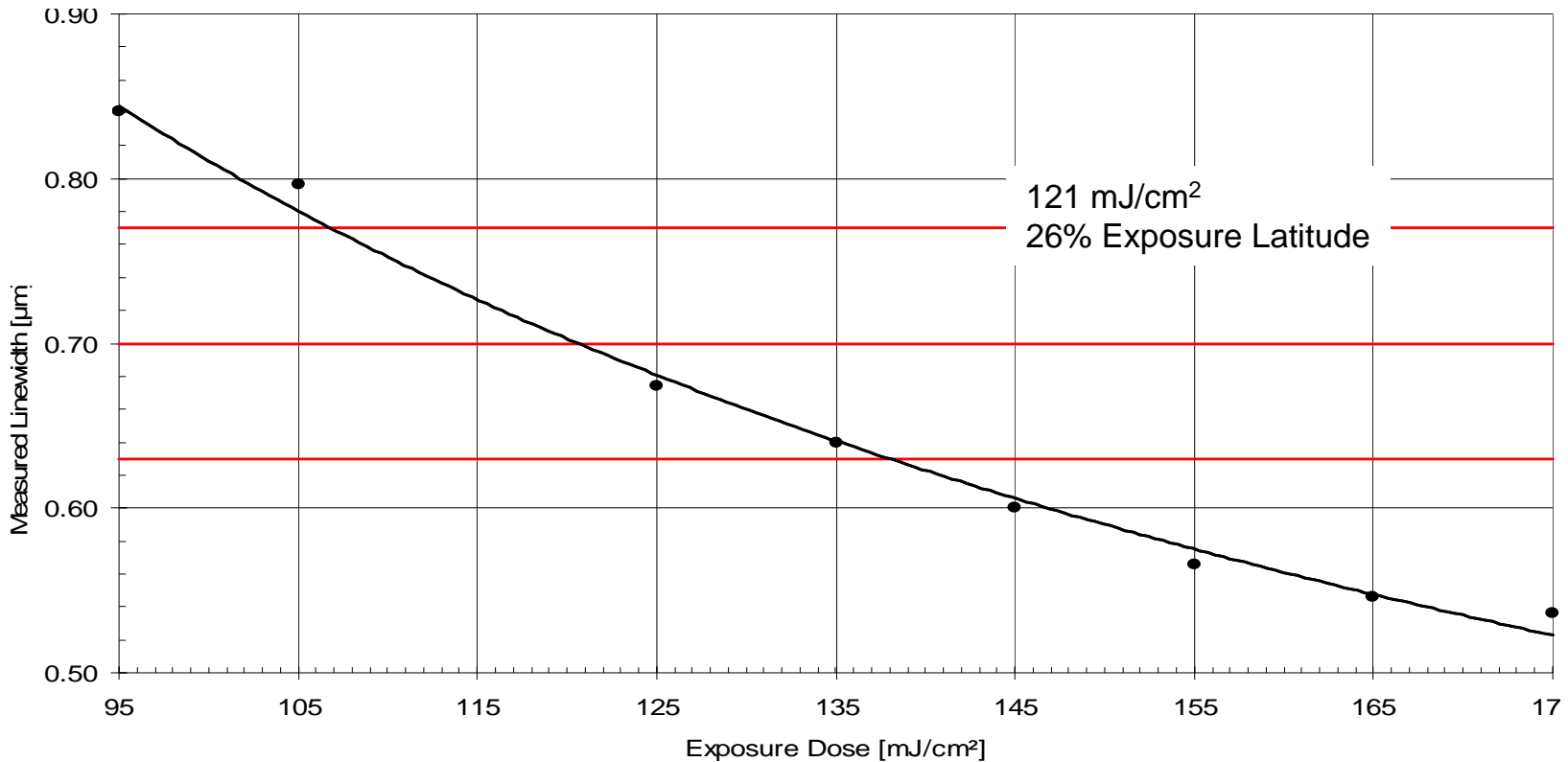


135 mJ/cm²

SB: 90°C, 60 sec; PEB: 110°C, 60 sec
AZ 300 MIF Developer, 60 sec at 23.0°C
GCA 0.42 NA, **g-Line**

AZ 3312 Photoresist (18 cps)

0.7 μm L/S Exposure Latitude on Silicon, FT = 1.171 μm



Dense Lines

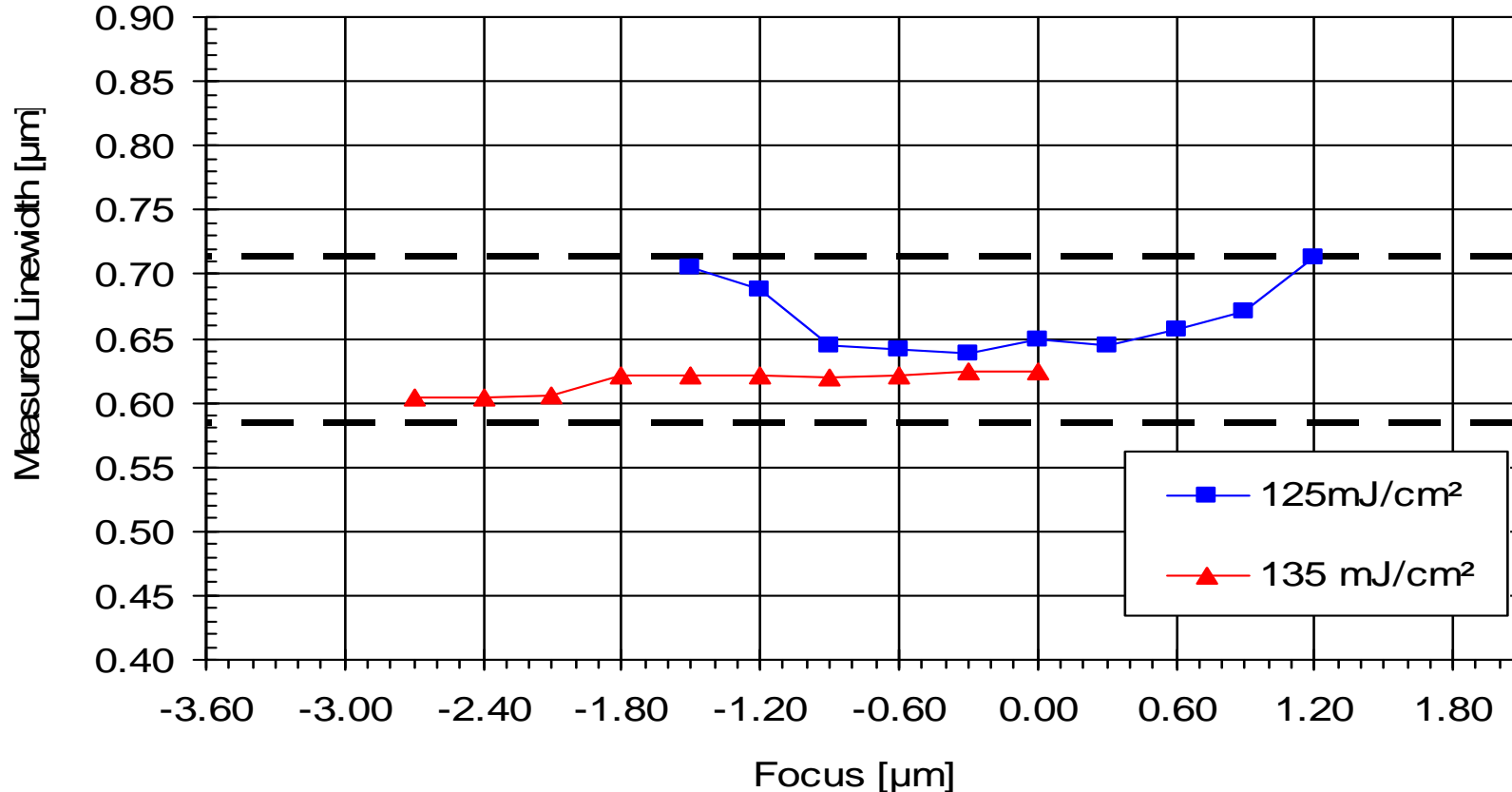
SB: 90°C, 60 sec; PEB: 110°C, 60 sec

AZ® 300MIF, 60 sec Spray-puddle Developer @23°C

GCA 0.42 NA, **g-Line**

AZ 3312 Photoresist (18 cps)

0.65 μm L/S DOF on Silicon for Dense Lines, FT = 1.17 μm

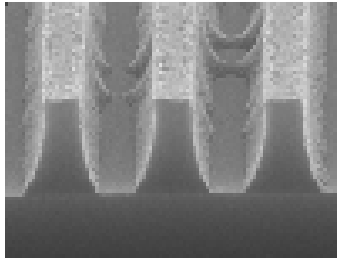


SB: 90°C, 60 sec; PEB: 110°C, 60 sec
Puddle: 60 sec AZ 300 MIF Developer at 23°C
GCA 0.42 NA, [g-Line](#)

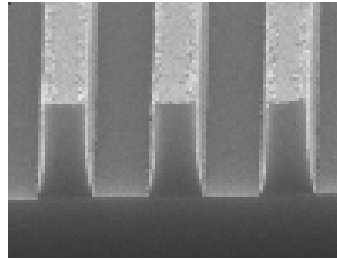
AZ 3312 Photoresist (18 cps)

DOF on Silicon for 0.65 μm Dense Lines, FT = 1.17 μm

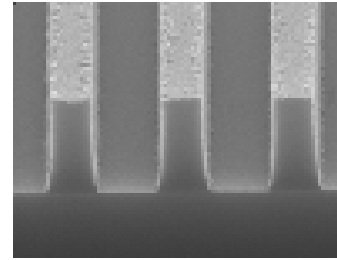
1.8 μm



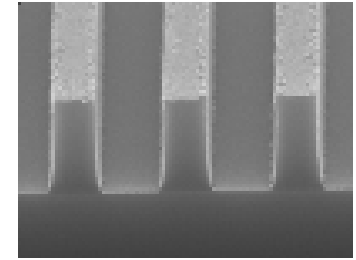
0.9 μm



0.3 μm

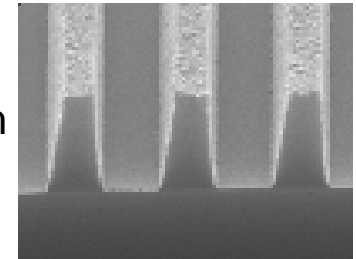


0.0 μm

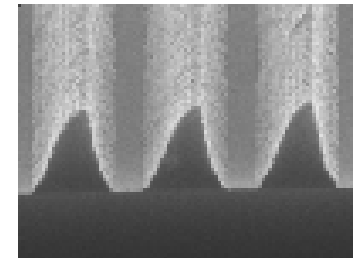


125 mJ/cm²

-1.2 μm



-2.1 μm

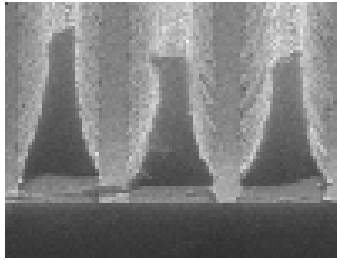


SB: 90°C, 60 sec; PEB: 110°C, 60 sec
AZ 300 MIF Developer, 60 sec at 23.0°C
GCA 0.42 NA, **g-Line**

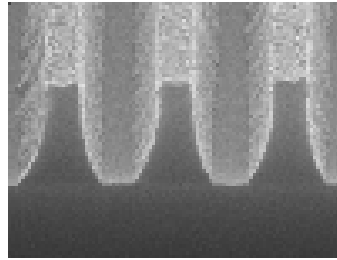
AZ 3312 Photoresist (18 cps)

DOF on Silicon for 0.65 μm Dense Lines, FT = 1.17 μm

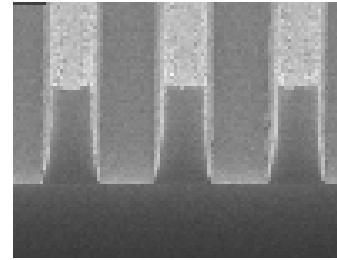
0.9 μm



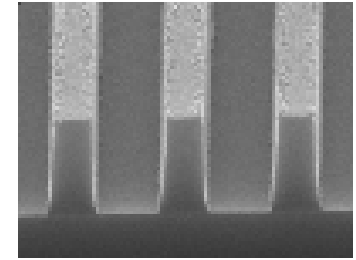
0.3 μm



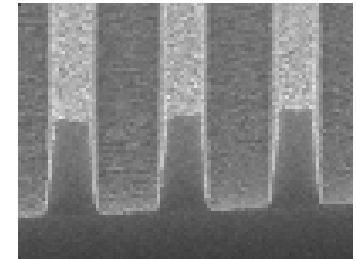
0.0 μm



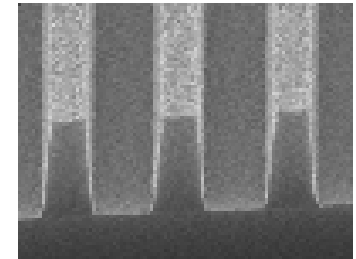
-1.2 μm



-2.1 μm



-2.7 μm

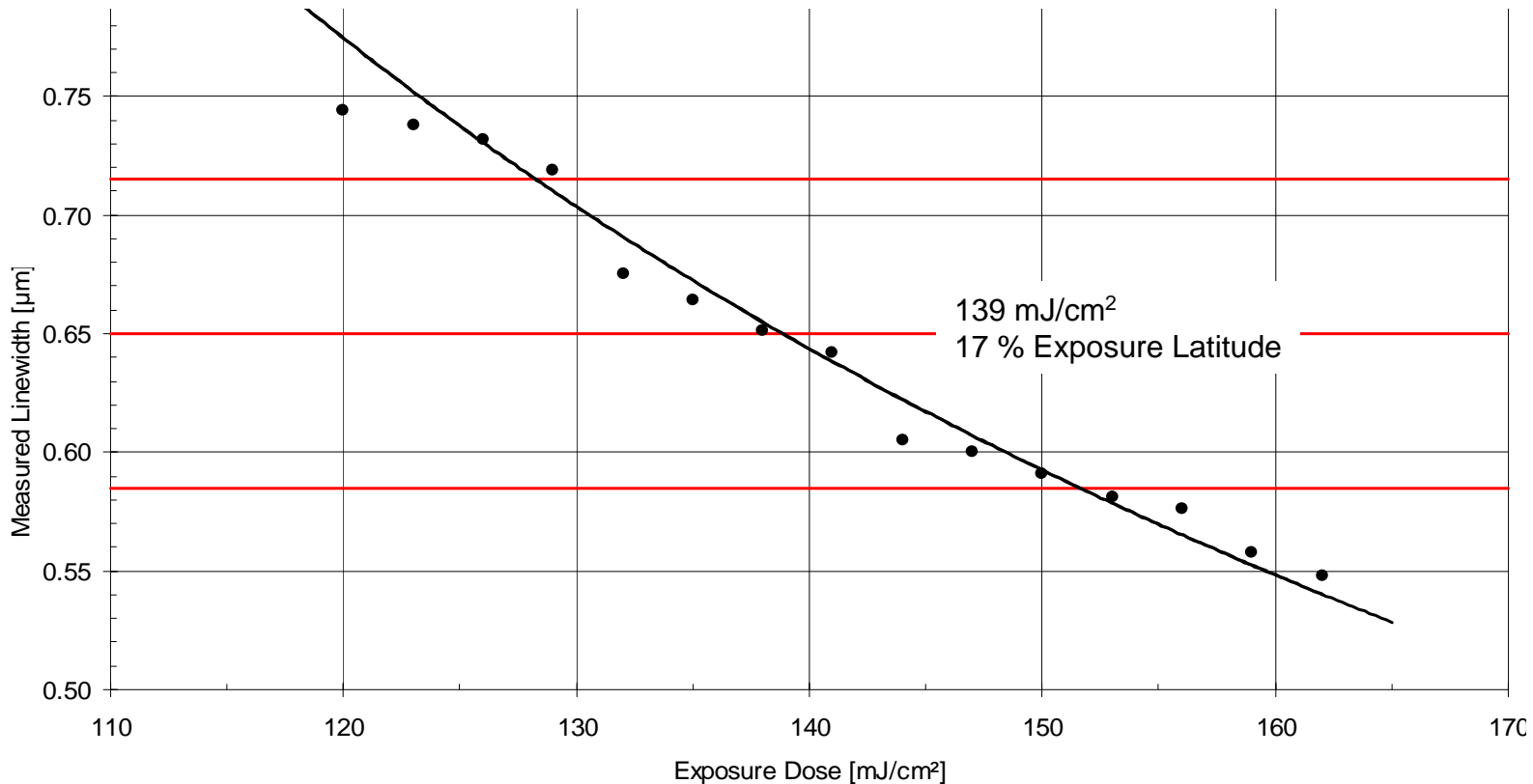


135 mJ/cm²

SB: 90°C, 60 sec; PEB: 110°C, 60 sec
AZ 300 MIF Developer, 60 sec at 23.0°C
GCA 0.42 NA, **g-Line**

AZ 3312 Photoresist (18 cps)

0.65 μm L/S Exposure Latitude on Silicon, FT = 1.171 μm



Dense Lines

SB: 90°C, 60 sec; PEB: 110°C, 60 sec

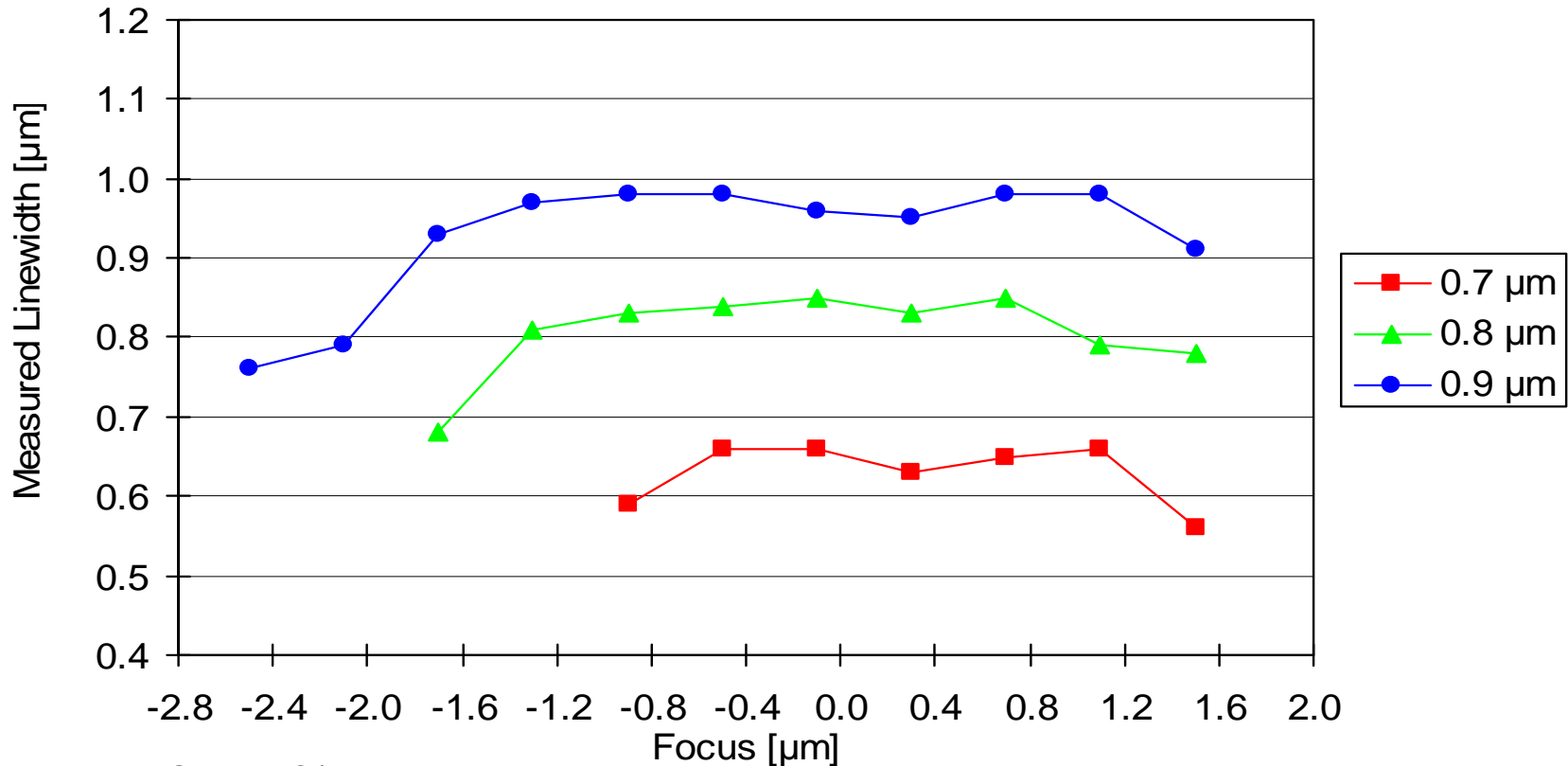
AZ 300 MIF, 60 sec Spray-puddle Developer @23°C

GCA 0.42 NA, **g-Line**

AZ 3312 Photoresist (18 cps)

Contact Hole Focus Latitude, FT = 1.171 μm

180 mJ/cm²



SB: 90°C/ 60 sec

GCA **g-line**, 0.42 NA

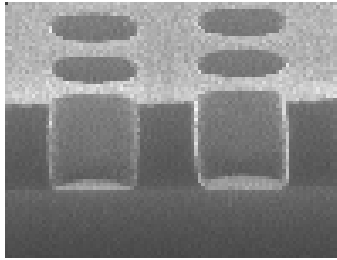
PEB: 110°C/ 60 sec

AZ 300 MIF Developer/ 60 s spray puddle.

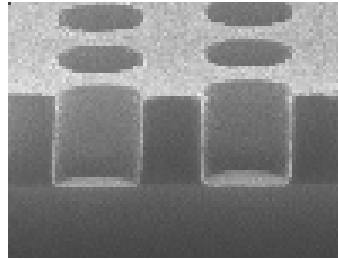
AZ 3312 Photoresist (18 cps)

DOF on Silicon for 0.9 μm Contact Holes, FT=1.171 μm

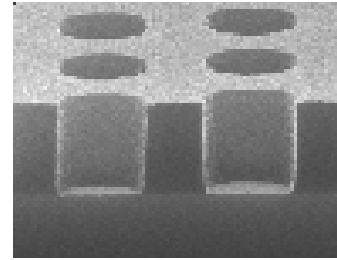
1.5 μm



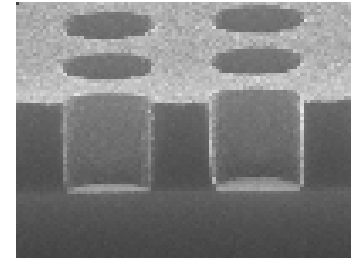
1.1 μm



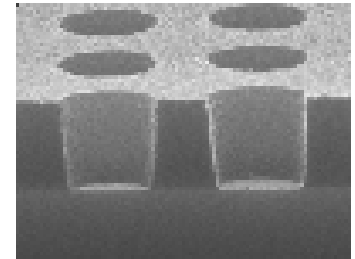
0.3 μm



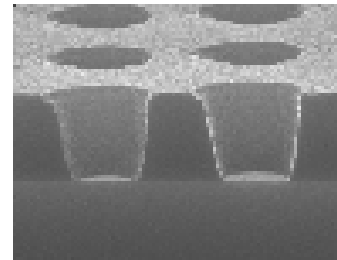
-0.5 μm



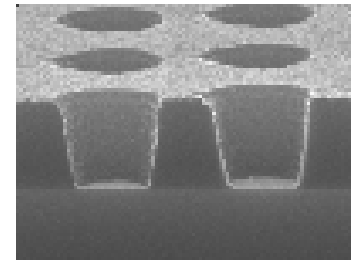
-1.3 μm



180mJ/cm²



-2.5 μm



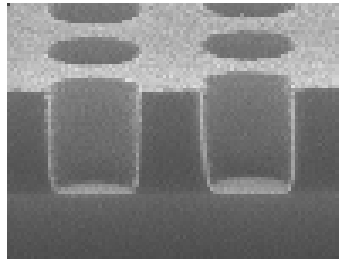
-2.1 μm

SB: 90°C, 60 sec; PEB: 110°C, 60 sec
AZ 300 MIF Developer, 60 sec at 23.0°C
GCA 0.42 NA, **g-Line**

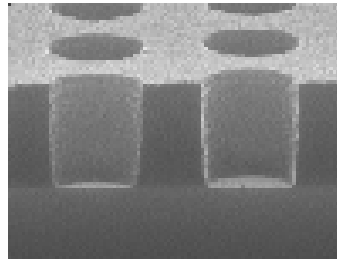
AZ 3312 Photoresist (18 cps)

DOF on Silicon for 0.8 μm Contact Holes, FT=1.171 μm

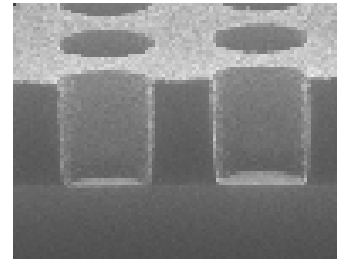
1.5 μm



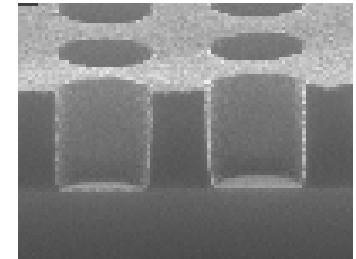
1.1 μm



0.3 μm

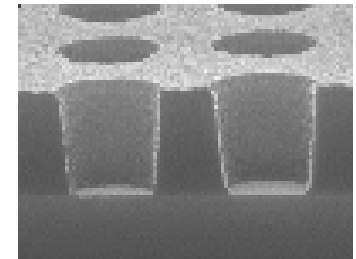


-0.5 μm

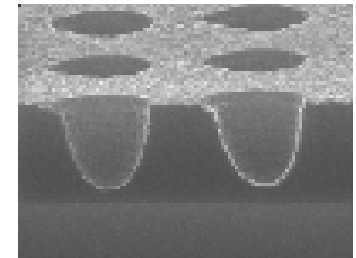


180mJ/cm²

-1.3 μm



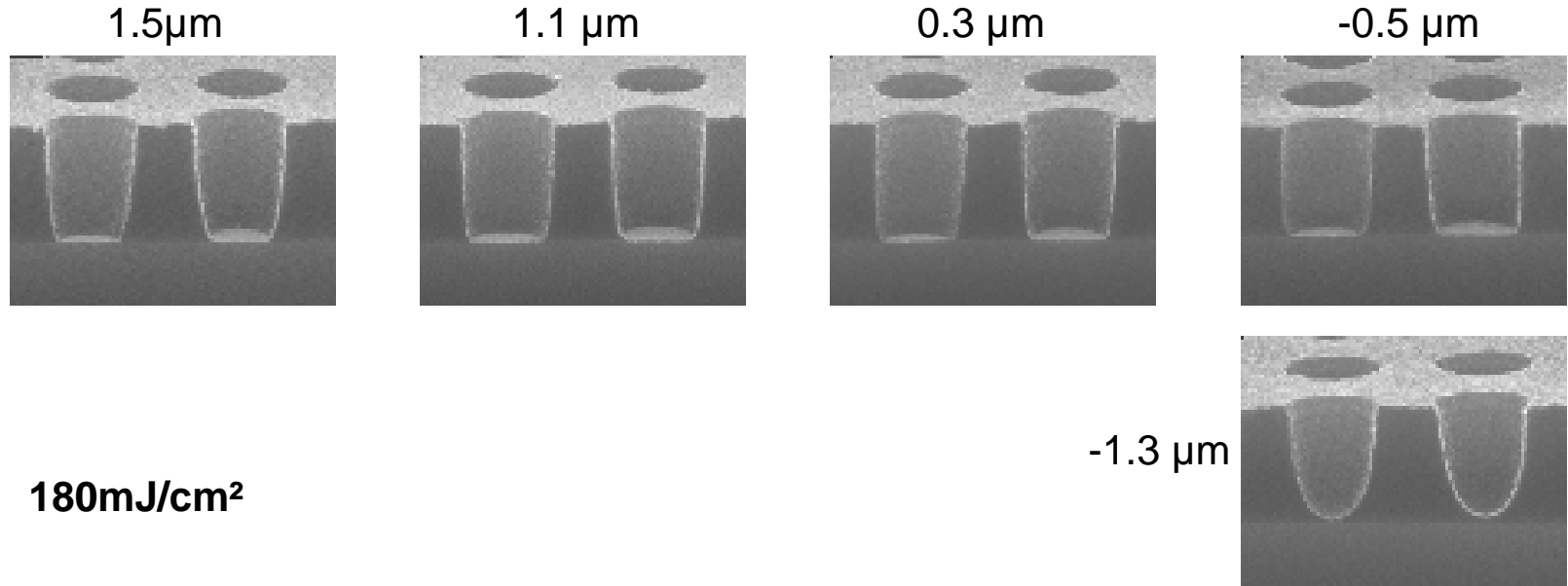
-2.1 μm



SB: 90°C, 60 sec; PEB: 110°C, 60 sec
AZ 300 MIF Developer, 60 sec at 23.0°C
GCA 0.42 NA, **g-Line**

AZ 3312 Photoresist (18 cps)

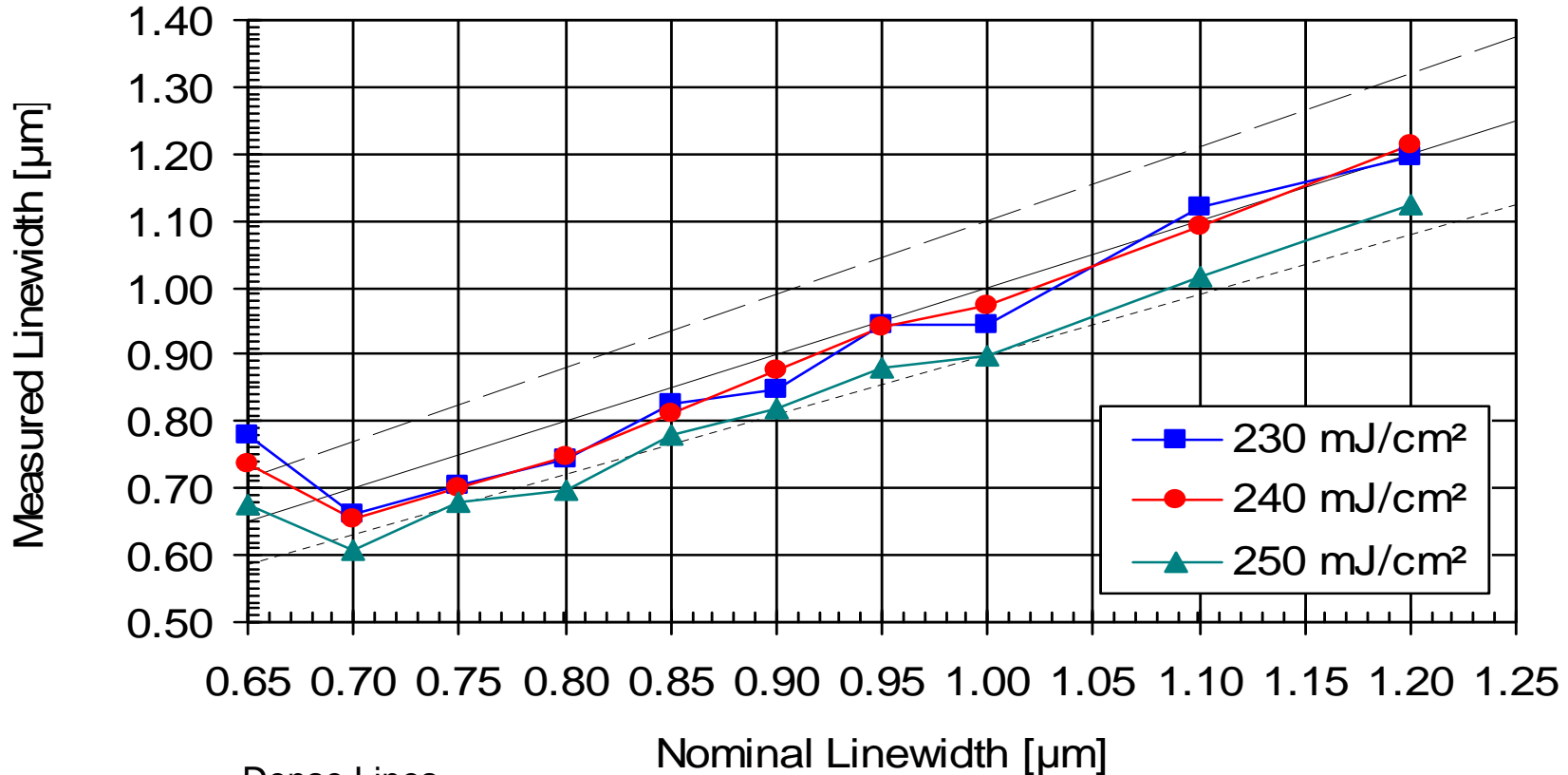
DOF on Silicon for 0.7 μm Contact Holes, FT=1.171 μm



SB: 90°C, 60 sec; PEB: 110°C, 60 sec
AZ 300 MIF Developer, 60 sec at 23.0°C
GCA 0.42 NA, **g-Line**

AZ 3312 Photoresist (18 cps)

Broadband, Linearity on Silicon, FT = 1.171 μm



Dense Lines

SB: 90°C, 60 sec; PEB: 110°C, 60 sec

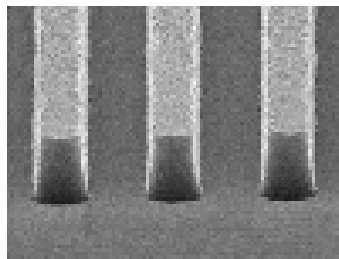
AZ 915 MIF Developer, 60 sec Spray-puddle Developer @23°C

Ultratech 1500 0.32 NA, **Broadband**

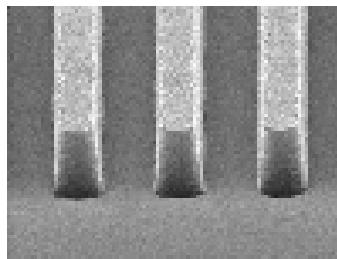
AZ 3312 Photoresist (18 cps)

Linearity on Silicon for Dense Lines, FT = 1.171 μm

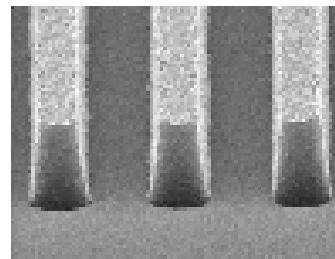
1.0 μm



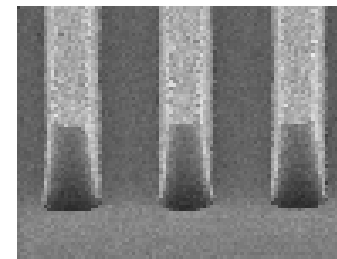
0.9 μm



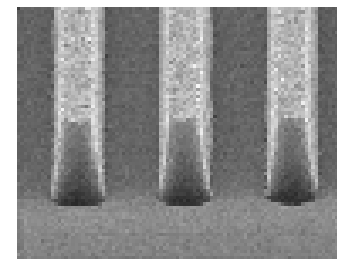
0.85 μm



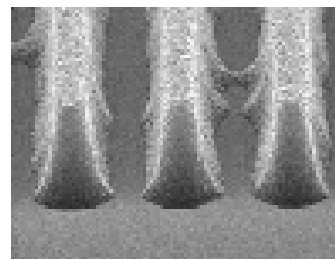
0.8 μm



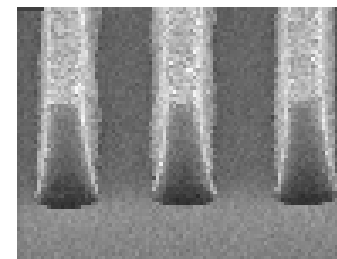
0.75 μm



220 mJ/cm^2



0.65 μm



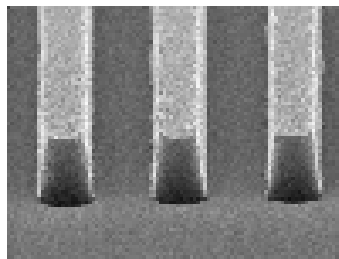
0.7 μm

SB: 90°C, 60 sec; PEB: 110°C, 60 sec
AZ 300 MIF Developer, 60 sec at 23.0°C
Ultratech 1500, 0.32 NA, **Broadband**

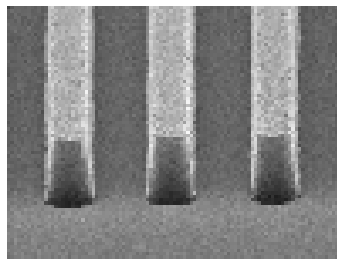
AZ 3312 Photoresist (18 cps)

Linearity on Silicon for Dense Lines, FT = 1.171 μm

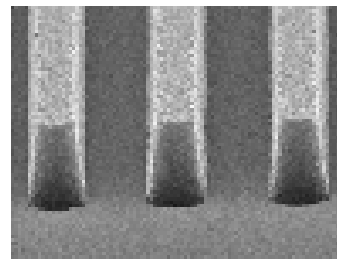
1.0 μm



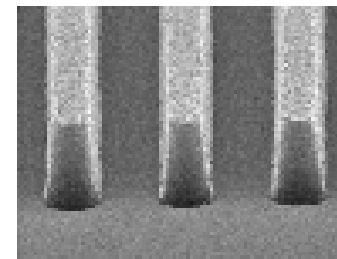
0.9 μm



0.85 μm

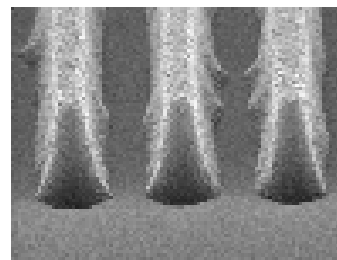
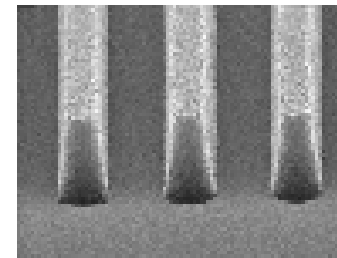


0.8 μm

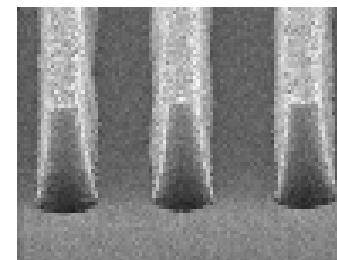


230 mJ/cm²

0.75 μm



0.65 μm

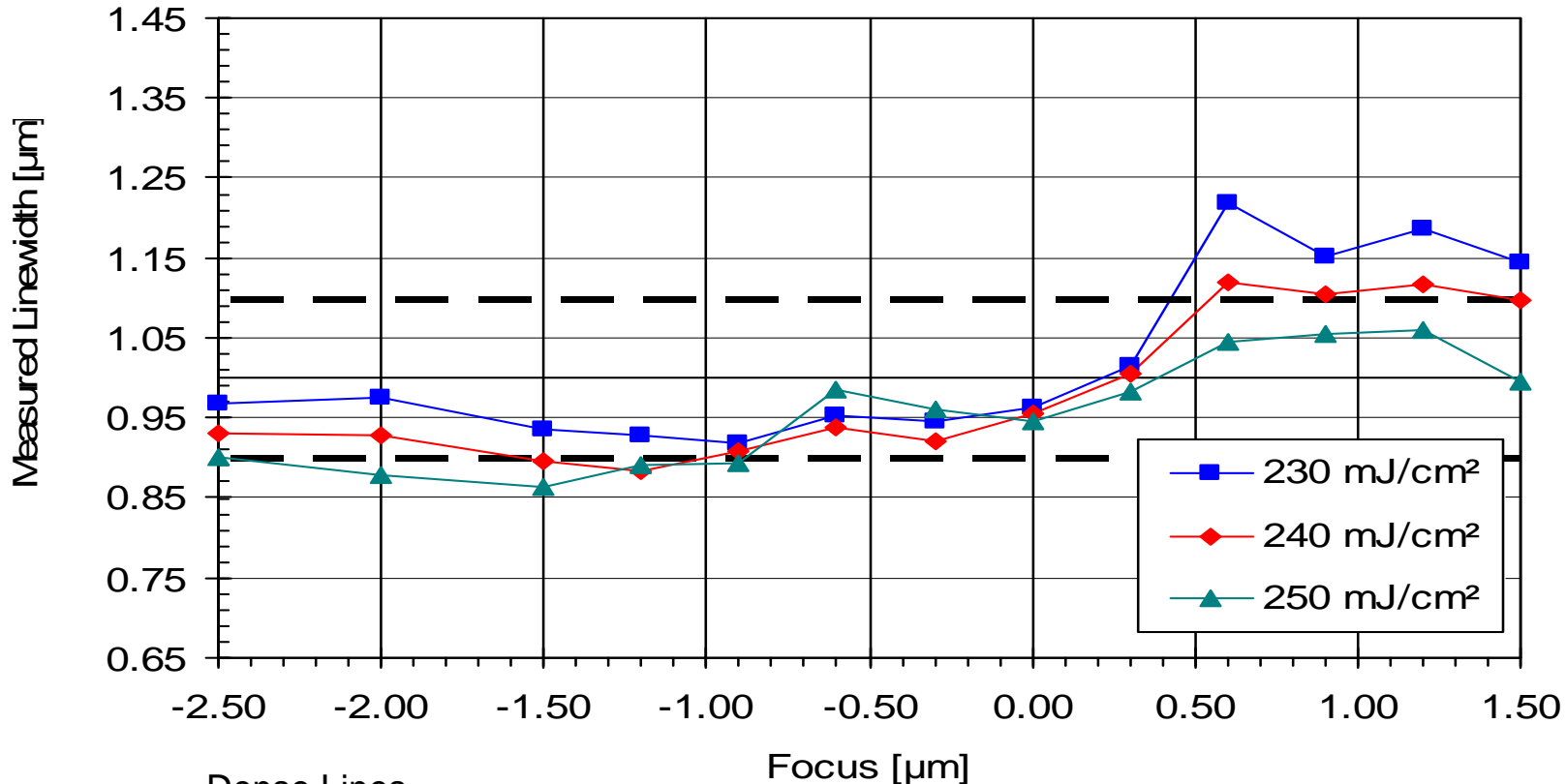


0.7 μm

SB: 90°C, 60 sec; PEB: 110°C, 60 sec
AZ 300 MIF Developer, 60 sec at 23.0°C
Ultratech 1500, 0.32 NA, **Broadband**

AZ 3312 Photoresist (18 cps)

DOF for 1.0 μm Dense Lines on Silicon, FT = 1.171 μm



Dense Lines

SB: 90°C, 60 sec; PEB: 110°C, 60 sec

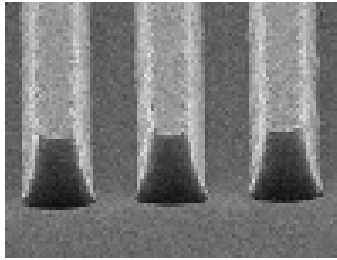
AZ 915 MIF Developer, 60 sec Spray-puddle Developer @ 23 °C

Ultratech 1500 0.32 NA, **Broadband**

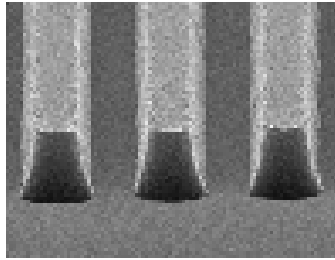
AZ 3312 Photoresist (18 cps)

DOF on Silicon for 1.0 μm Dense Lines, FT = 1.171 μm

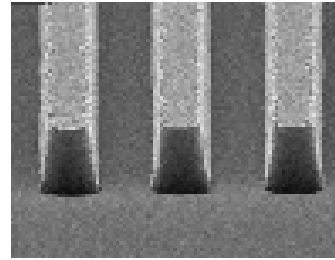
1.2 μm



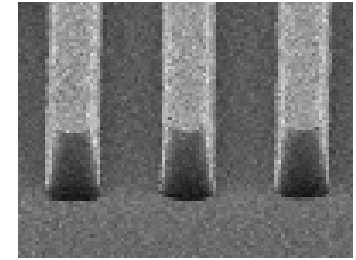
0.6 μm



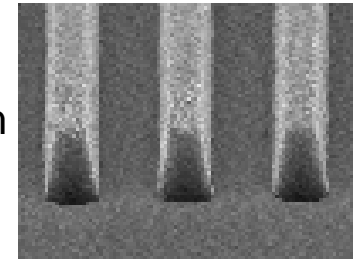
0.0 μm



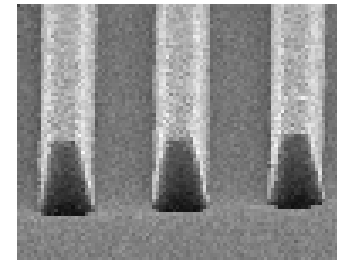
-0.6 μm



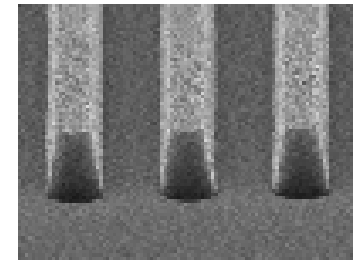
-1.2 μm



220 mJ/cm²



-2.0 μm



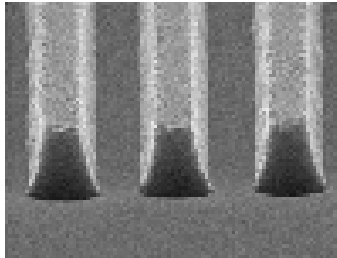
-1.5 μm

SB: 90°C, 60 sec; PEB: 110°C, 60 sec
AZ 300 MIF Developer, 60 sec at 23.0°C
Ultratech 1500, 0.32 NA, **Broadband**

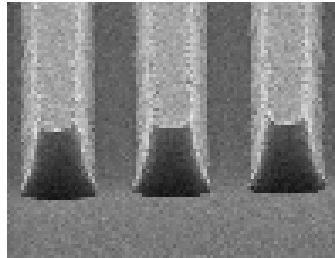
AZ 3312 Photoresist (18 cps)

DOF on Silicon for 1.0 μm Dense Lines, FT = 1.171 μm

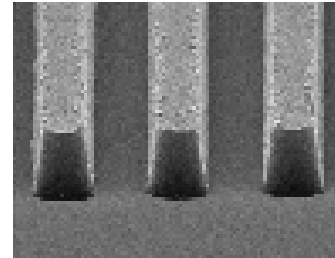
1.2 μm



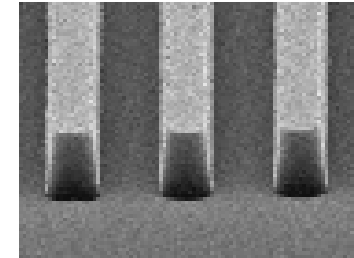
0.6 μm



0.0 μm

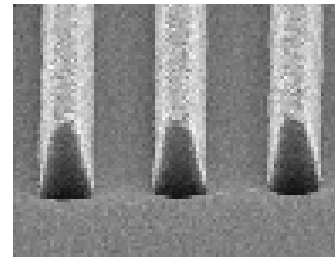
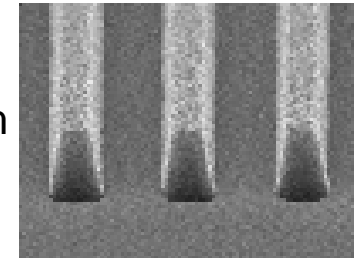


-0.6 μm

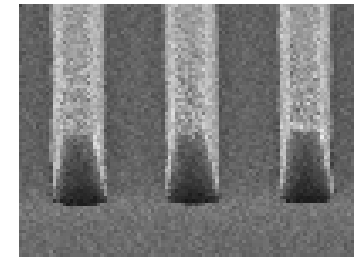


230 mJ/cm²

-1.2 μm



-2.0 μm

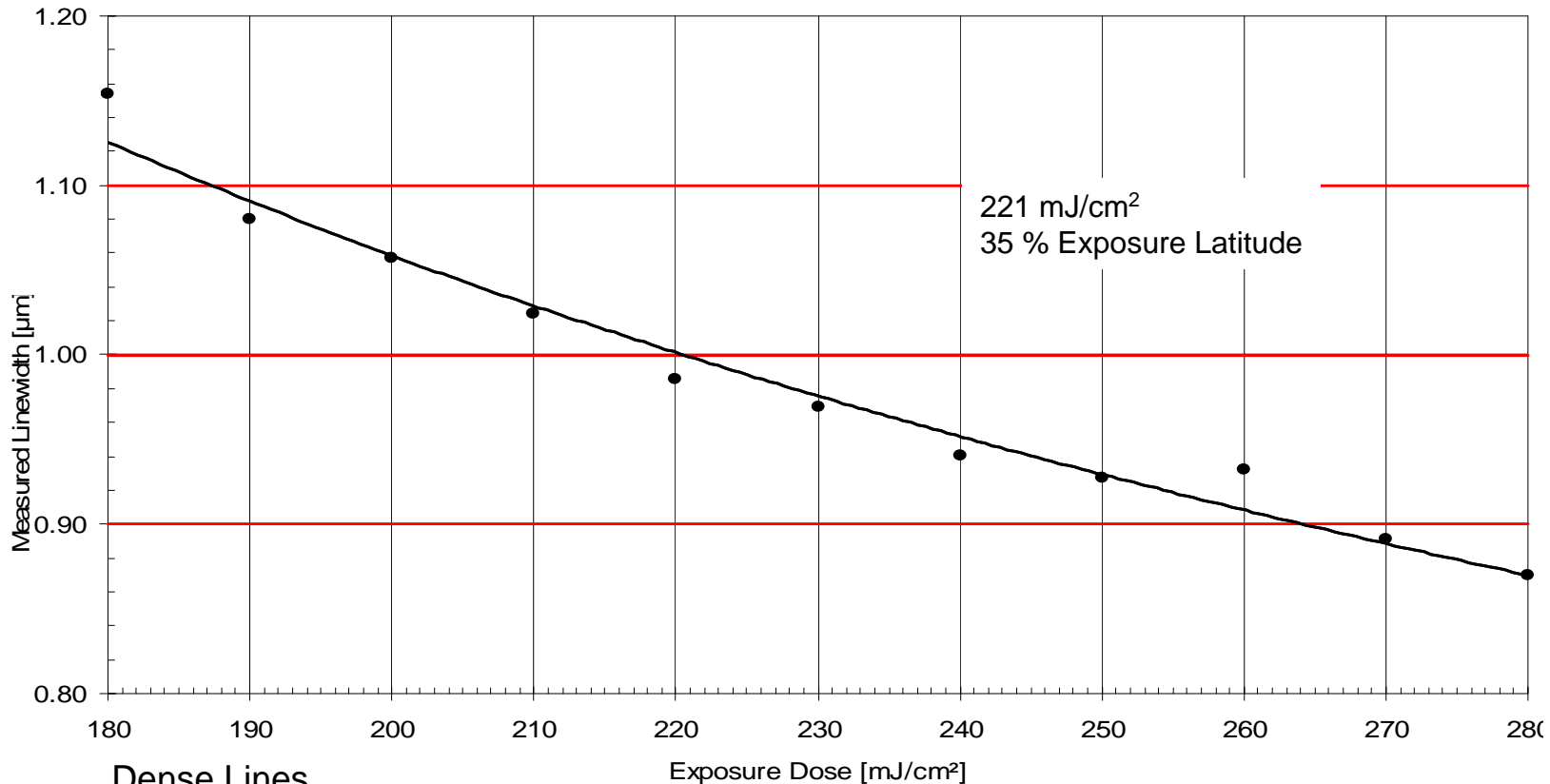


-1.5 μm

SB: 90°C, 60 sec; PEB: 110°C, 60 sec
AZ 300 MIF Developer, 60 sec at 23.0°C
Ultratech 1500, 0.32 NA, **Broadband**

AZ 3312 Photoresist (18 cps)

1.0 μm L/S Exposure Latitude on Silicon, FT = 1.171 μm



Dense Lines

SB: 90°C, 60 sec; PEB: 110°C, 60 sec

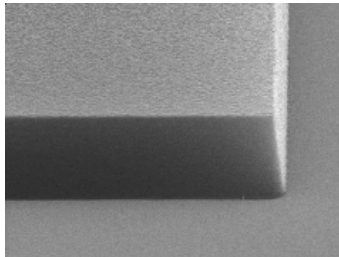
AZ 915 MIF, 60 sec Spray-puddle Developer @23°C

Ultratech 1500 0.32 NA, **Broadband**

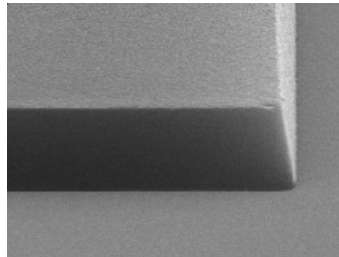
AZ 3312 Photoresist (18 cps)

Thermal Stability, 120 sec Hard Bake

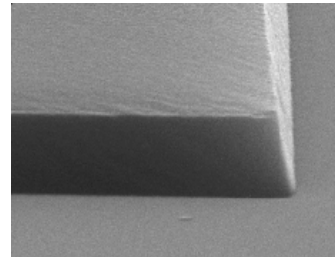
No bake



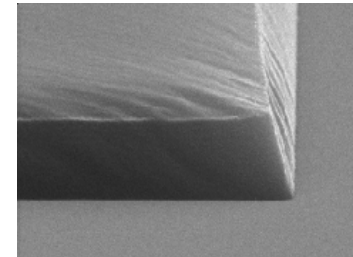
115°C



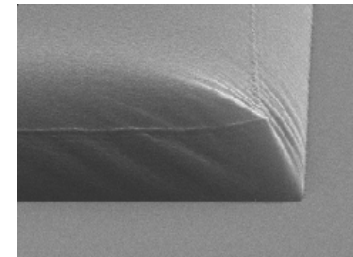
120°C



125°C



130°C



FT = 1.187 μ m

SB: 90°C, 60 sec; PEB: 110°C, 60 sec

Spray Puddle: 60 sec AZ 300 MIF Developer at 23.0°C

Nikon 0.54 NA **i-Line**