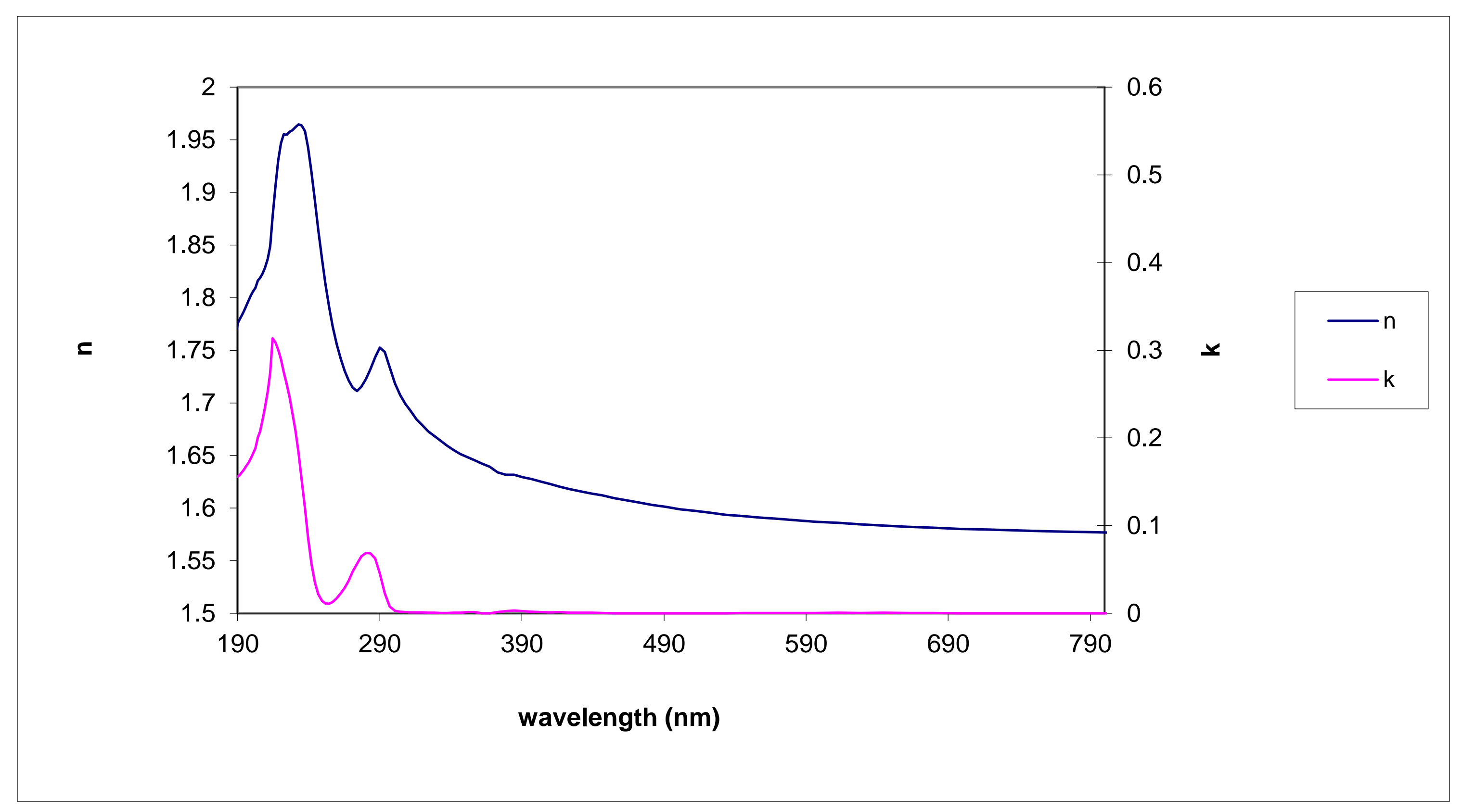
AZ® 3DT-102M-15

March 8, 2017

Outline

- ❑ 3DT-102M n&k
- ❑ Spin Curve
- ❑ FT=15um on SUSS
- ❑ FT=15um on ASML
- ❑ PEB Sensitivity Study
- ❑ PCD PED
- ❑ Plating

AZ® 3DT-102M Photoresist
n&k



At 365 nm, n=1.641, k=0;
Cauchy Parameters: A=1.5635; B=0.0083869; C=0;

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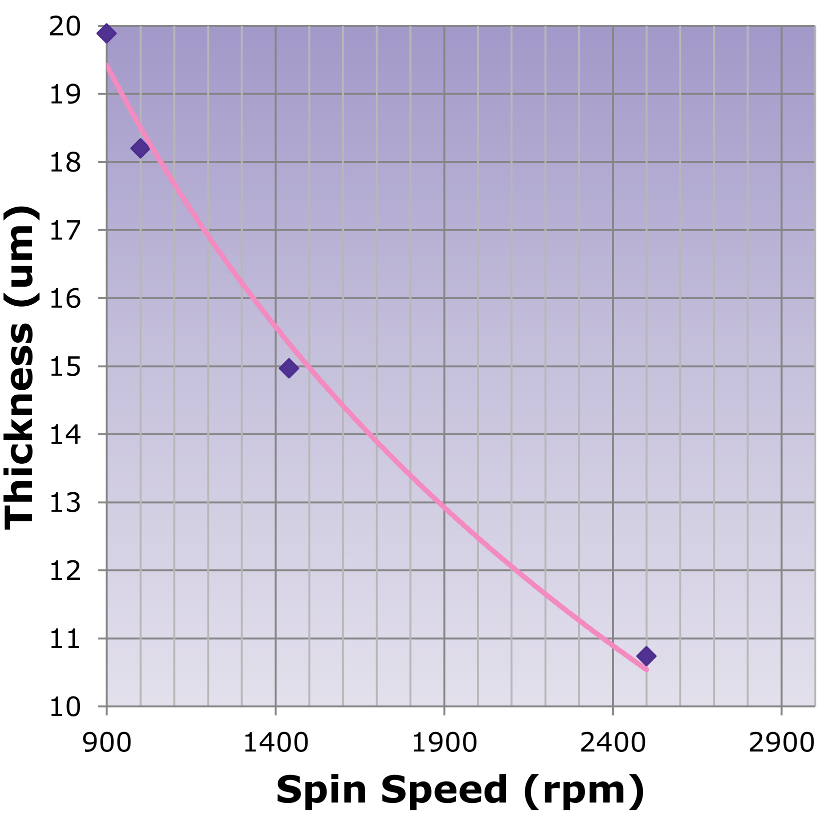
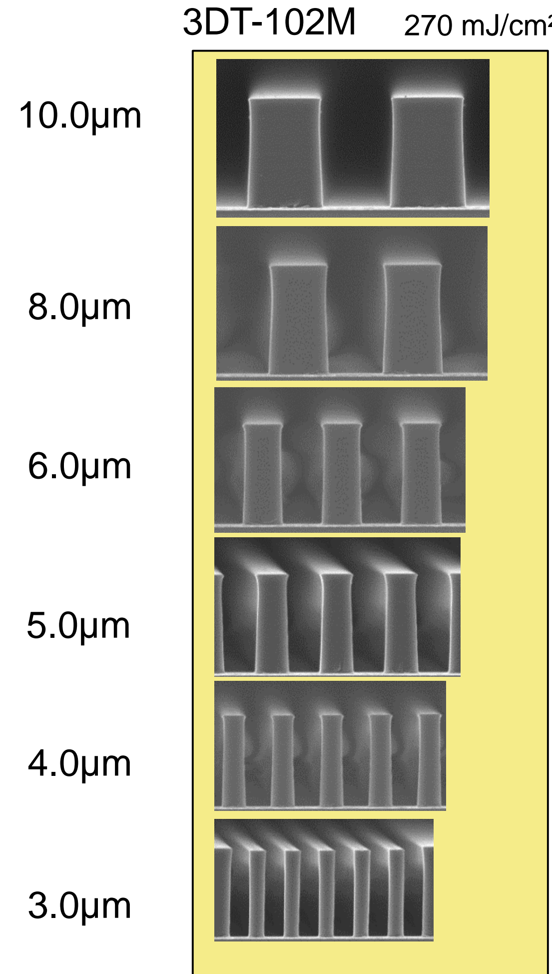
AZ® 3DT-102M-15 Photoresist
Spin Curve



Coater :ACS 300 (Suss)
Substrate :8inch bare-Si
Dispense :hand dispense
SB :110degC/180sec

AZ® 3DT-102M-15 Photoresist

Resolution on Suss Aligner



Coat Track: Suss ACS 300 Plus (open coat bowl)
Substrate: 200 mm Cu Wafer
Target Film Thickness: 15 µm
Coat: Dynamic hand dispense @ 1440rpm/30sec
Softbake: 120°C hotplate/ 180 sec
Exposure: **Suss MA200 CC Mask Aligner** with 20 µm proximity gap
PEB: 100°C hotplate/ 10 sec @ 1.3 mm
100°C hotplate/ 60 sec @ 0.0 mm
Develop: AZ® 300 MIF/ 3X60sec spray/puddle @ 23°C

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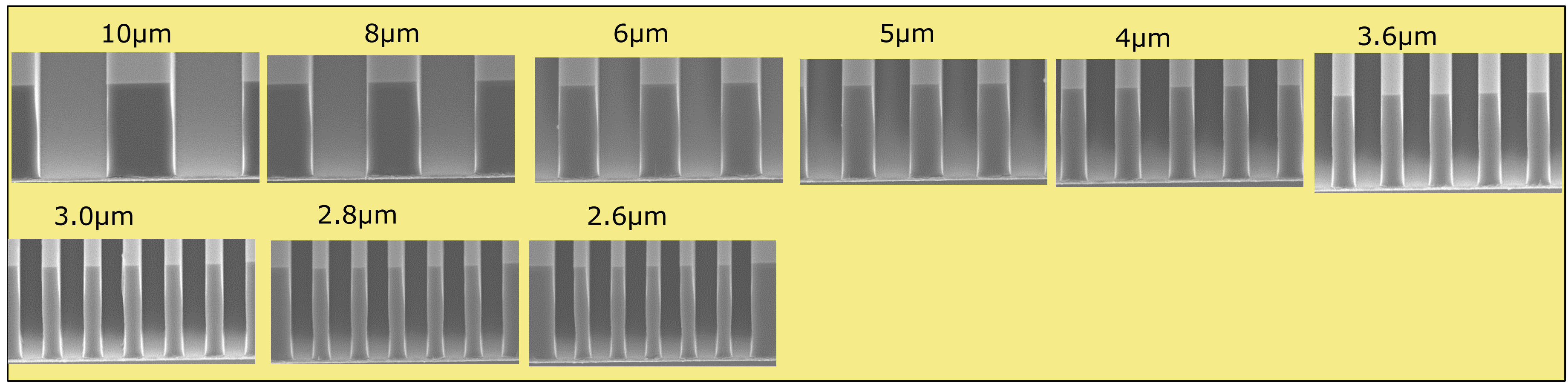
AZ® 3DT-102M-15 Photoresist

Resolution on ASML

PEB=85°C/90sec

F=3.5



Aspect ratio: 5.8/1

Coat: Static dispense on Copper
Target Film Thickness: 15.0 µm @1400rpm/30sec
Soft bake: 130°C hotplate/ 180 sec contact
PEB: 85°C/90sec hotplate contact
Exposure: ASML /250 i-line stepper Conventional Illumination: NA=0.48 σ = 0.55
Develop: AZ® 300 MIF 3 X 60 sec spray/puddle @ 23°C

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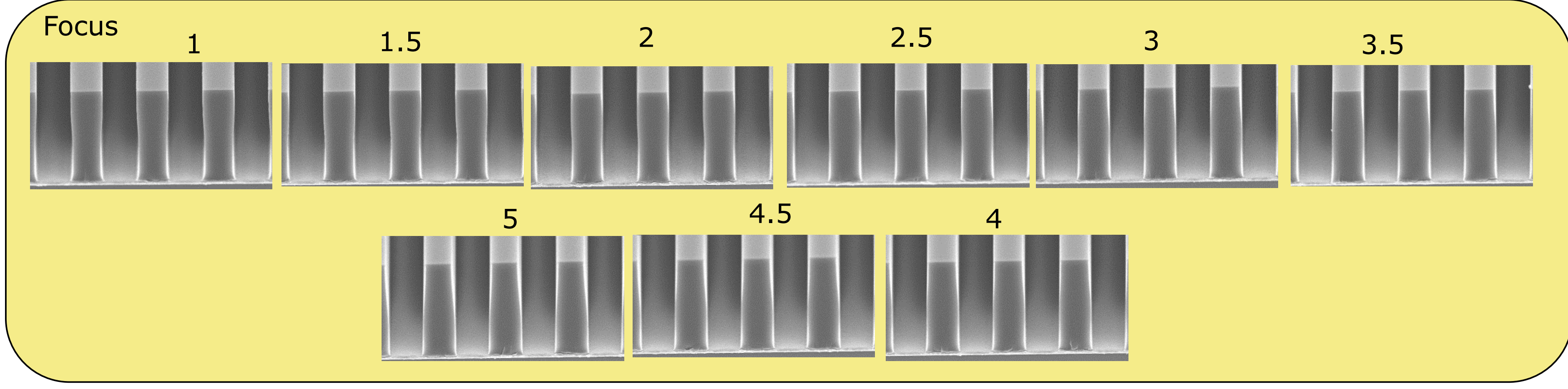
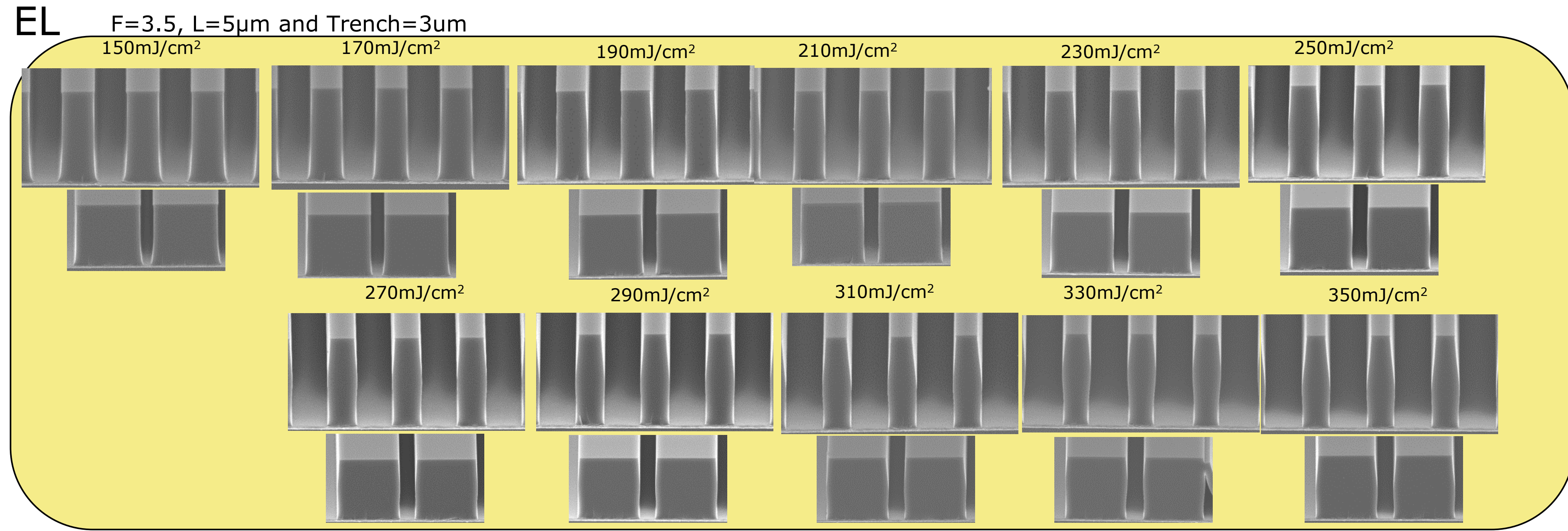
AZ® 3DT-102M-15 Photoresist

FT= 15.0 µm on ASML



EL F=3.5, L=5µm and Trench=3um



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AZ® 3DT-102M-15 Photoresist: PEB sensitivity

	3DT-102M	3DT-102M	3DT-102M	3DT-102M
Exposure	ASML stepper (Focus: 3.5um)			
F.T	15um			
SB	130degC/3min	130degC/3min	130degC/3min	130degC/3min
PEB	85degC/90s	90degC/60s	90degC/90s	100degC/60s
Eop	210mJ	190mJ	190mJ	170mJ
10um L/S				
5um L/S				
3um L/S				
3um Trench				

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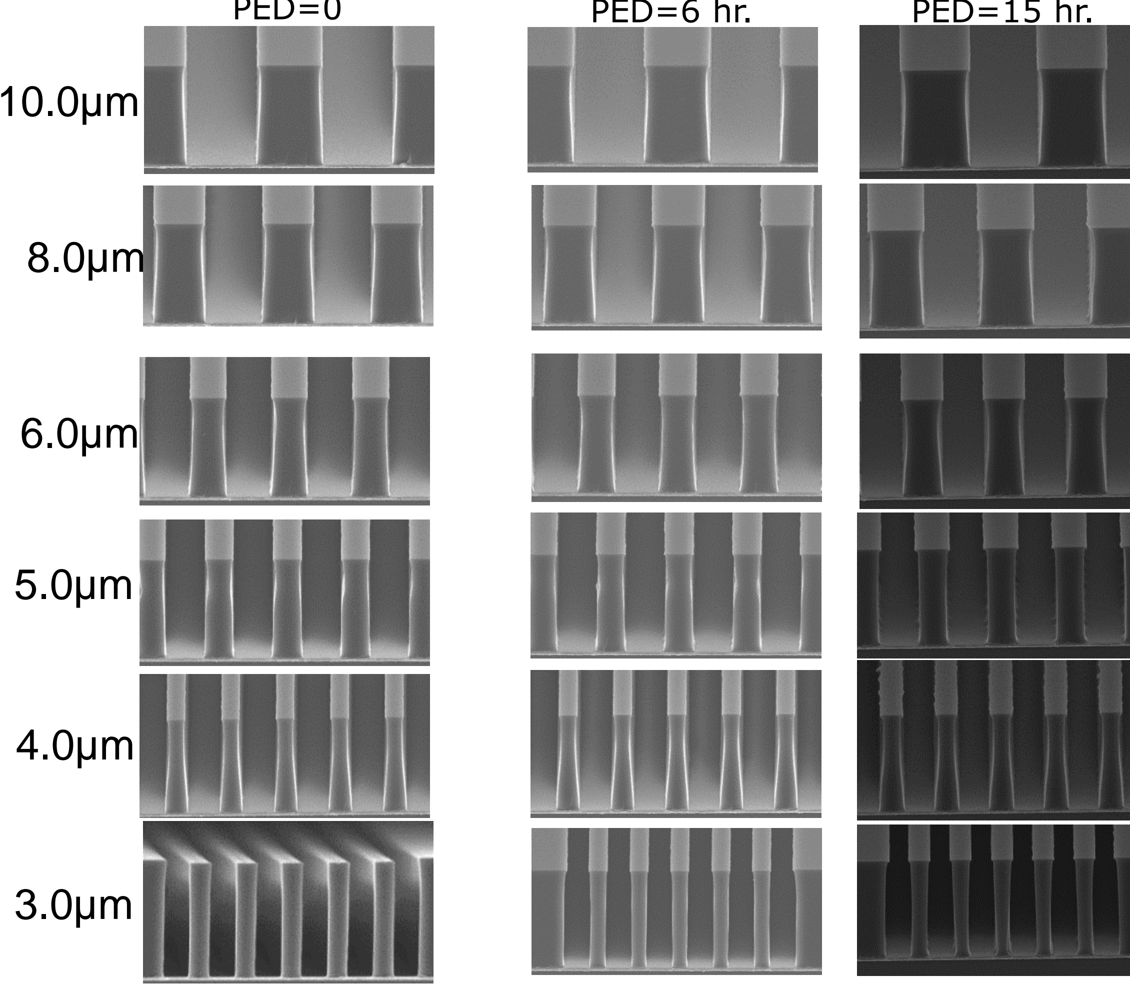
AZ® 3DT-102M-15 Photoresist: PED

Resolution on Copper; FT=15 µm on SUSS GHI Line;



AZ® 3DT-102M Cu Plating Performance / Enthone MICROFAB® SC-40

FT=10µm on ASML

Resist Patterns

Cu Plated Patterns

10µm

7µm

5µm

4.5µm

4µm

3.6µm

3µm

2.4µm

2.0µm

10µm Film Thickness Process:
Current: Current: 25 MILLAMPS
Voltage: 0.24V
Temperature: 23°C
Time: 30min

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SUMMARY

- High aspect ratio & fast photosensitivity TFR is essential for future fine pitch RDL applications.

- AZ® 3DT-102M-15 demonstrated desired litho performance on ASML / 250i and Suss MA 200 (broadband exposure)at 10 -20 um FT.

- Good delay stability & Cu plating performance of AZ® 3DT-102M pass the advance packing requirements.

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