AZ® 12XT Series

Chemically Amplified Positive Tone Photoresist
Cu RDL and TSV Applications

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### AZ® EXP 12XT Photoresist, DoF on Cu Wafer

**DTP = 375mJ/cm²**

**Process condition:**

- **FT = 10µm**
- **SB: 110°C/180sec contact**
- **Exposure:** ASML, 0.54NA i-line stepper, conventional illumination, 0.55 sigma
- **E_{cd} = 375mJ/cm²**
- **PEB 110°C/30sec contact**
- **DEV: 60sec single puddle, in AZ 300 MIF Developer @23°C**
- **Substrate:** Cu wafer

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<th>10µm</th>
<th>7.0µm</th>
<th>5.0µm</th>
<th>F =</th>
<th>0.6</th>
<th>1.4</th>
<th>2.2</th>
<th>3.0</th>
<th>3.8</th>
<th>4.6</th>
<th>5.4</th>
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<td><img src="image1.png" alt="Image" /></td>
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AZ® 12XT Photoresist, Cu plated, 10µm posts after resist removal

Plating conditions:
0.0448 A Current
Current density: 4.0 A/dm²

N8- 5 minutes

N8- 8 minutes

Plating conditions:
0.028 A Current
Current density: 2.0 A/dm²

N8-5 minutes

N8-8 minutes

N8-10 minutes
AZ® EXP 12XT-20PL Photoresist
FT=10.0 µm; L/S Linearity on Silicon @ 50 mJ/cm²

Film Thickness: 10.0 µm
Optitrac coat and Bake
SB: 110°C/ 180 sec Contact
ASML 0.48 NA 0.55 σ i-Line
PEB: 90°C/ 60 sec Contact
AZ 300 MIF 2 X 60 sec spray puddle @ 23 °C

2.0 µm 2.2 µm 2.6 µm 3.0 µm 3.4 µm
AZ® 12XT-20PL Photoresist
FT=10.0 µm; Contact Holes Linearity on Silicon @ 50 mJ/cm²

Film Thickness: 10.0 µm
Optitrac coat and Bake
SB: 110°C/ 180 sec Contact
ASML 0.48 NA 0.55 σ i-Line
PEB: 90°C/ 60 sec Contact
AZ 300 MIF 2 X 60 sec spray puddle @ 23 °C