

Etching of plating seeds at least undercut and dimension loss

nb technologies
consulting engineers



NBT has optimised process sequences for the wet chemical removal or patterning of seed layers for electroplating. Advanced seed removal steps after plating provide good selectivity to all materials involved or least dimension loss, in case the plated material and seed material are the same. If patterning of the seed prior to the plating step is favoured, least undercut of the etching mask may be desired for achieving high resolution features.

Seed etching is highly applicable for the **manufacturing of cells with backside contact**. When lithography is not preferred, screen printed resist can be used for patterning etching masks or plating moulds.

Post-plating removal

Cr/Ti/TiW + Cu seed + Cu plating

- full selectivity to plated Ni, Au, Ag, Sn
- least dimension loss of plated Cu topped in stacks with Ni, Au, Ag or Sn
- no undercut of Cr / Ti or TiW layer enables small features and optimum adhesion

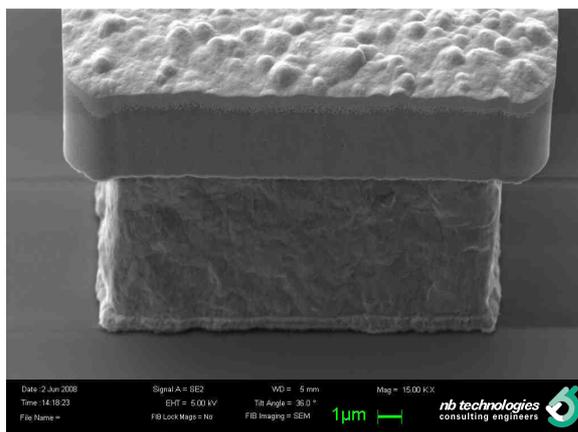
Ask for seed layer etch chemistry
- Copper etch SE
- TiW etch plus

Pre-plating patterning using photo resist mask or screen printed resist mask

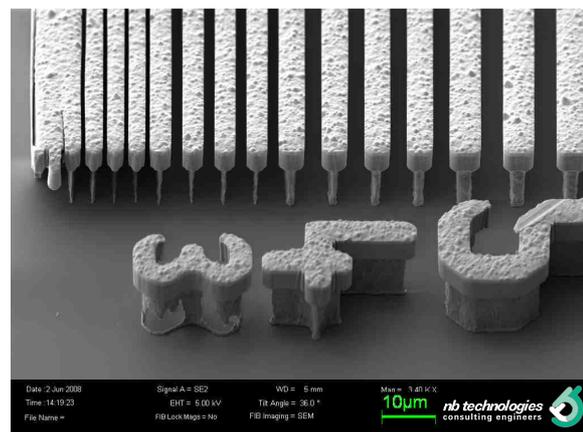
Cr/Ti/TiW + Cu or Au seed

- undercut of Cu and Au in the range of layer thickness !
- undercut of Cr/Ti/TiW (under Cu or Au) in the range of layer thickness !
- least undercut provides small features (least bias)

Stack of TiW/Cu seed + Cu plating (10µm) under roof layer (e.g. for **solar cell** plating)



- least (~1µm) dimension loss of plated Cu
- no TiW/Cu undercut



- high resolution capability (limited by lithography for plating mould)

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