

Fine Via Filling and Copper Cap Plating Process for Printed Wiring Boards (PWBs)

U R Rao Satellite Centre (URSC) of Indian Space Research Organisation (ISRO) has developed the technology of Fine Via Filling and Copper Cap Plating Process for Printed Wiring Boards (PWBs). In this technology, copper metalized through holes (PTHs) are selectively and completely filled with permanently curable epoxy resin and followed by copper cap plating. Vias are filled with vacuum based filling machine.

Salient Features & Major Specifications

- ✦ Technology involves the following major processes:
 - Via Plating
 - Via Filling
 - Surface planarization
 - Cap Plating
- ✦ Via Plating Specifications
 - The plating thickness is restricted to 25 microns to 35 microns to limit the finished copper thickness on surface
- ✦ Via Filling Parameters
 - Speed : 80 mm/min
 - Paste pressure Back : 3.5 bar
 - Paste pressure Front : 0.5 bar
- ✦ Surface Planarisation
 - Most critical step
 - Removal of extra resin from surface
 - Copper reduction to meet fine line requirement
 - Parameters fine tuned to ensure minimum wrap plating thickness

✦ Parameter	: Specification
✦ Resin used	: Taiyo make THP 100DX
✦ Min and Max through hole size	: 0.4 to 0.8mm
✦ Aspect Ratio	: 1:6
✦ Copper Cap plating thickness	: 15 microns
✦ Min wrap plating thickness	: 5 microns
✦ Min wrap plating distance	: 25 microns
✦ Max Dimple	: 50 microns
✦ Final Finish	: SMOBC 20 microns thickness
✦ Specific Equipment requirements	: Via filling machine, Planariser machine

Technology Transfer

URSC/ISRO offers to transfer this technology of Fine Via Filling and Copper Cap Plating Process for Printed Wiring Boards (PWBs) to industries in India with adequate experience and facilities. Industries interested in obtaining knowhow may write giving details of their present activities, infrastructure and facilities.

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