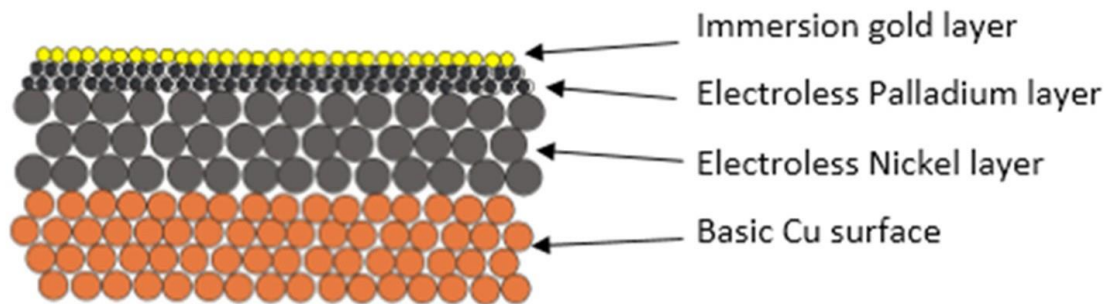


Electroless Nickel Electroless Palladium Immersion Gold (ENEPIG) Process for Printed Circuit Boards



Electroless Nickel Electroless Palladium Immersion Gold (ENEPIG) surface finish

Space Applications Centre (SAC) has developed Electroless Nickel Electroless Palladium Immersion Gold (ENEPIG) surface finish is most suitable surface finish. Here palladium is added between electroless nickel and immersion gold as shown in fig. Palladium layer plays a role in stopping immersion gold technology from corroding nickel layer. As a result, ENEPIG is capable of defeating the defect of black pad held by ENIG. Moreover, ENEPIG provides planner solderable finish, Al and gold wire bondable, nickel strengthen the PTH, Nickel barrier prevent the copper dissolution during thermal exposure, it has good shelf life and does not tarnish. This process overcomes some of the limitations of Hot Air Solder levelling and electrolytic gold types of surface finish, being used for digital/analog and RF/Microwave applications

Applications area

- PPTH Gold plated PCBs for RF/Microwave applications.
- MLBs with high aspect ratio boards.

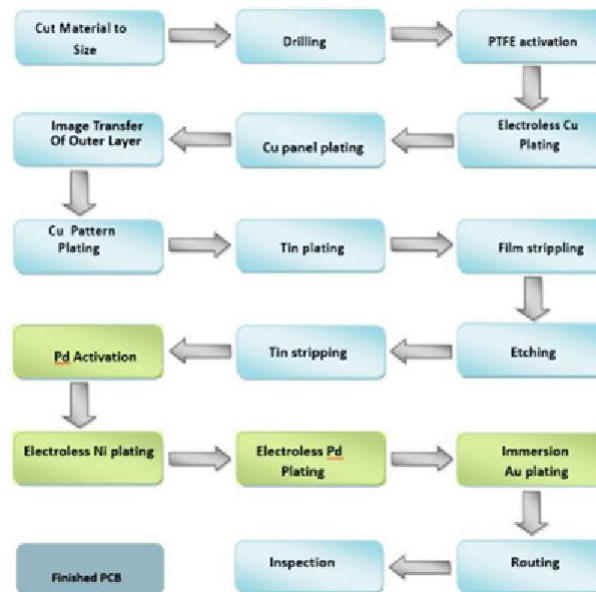
Salient features

Optimised fabrication process is passes through all qualification tests including following environmental and functional tests.

- Hot Storage: 125 °C - 168 Hours
- Thermal Cycling: - 65 °C - 10 min., +125 °C - 10 min., No. of Cycles: 200 (100 + 100)
- Humidity: - 40 °C ± 2 °C 90 - 95 % RH for 21 days
- 1mil Wire, 5/10/20mil Ribbon Bonding (5 bonds of each) using parallel gap method.

Broad Specifications

- Immersion Gold layer thickness: 0.07 to 0.15 μm
- Electroless Pd layer thickness: 0.1 to 0.30
- Electroless Ni layer thickness: 3 to 5 μm



Technology Transfer from ISRO

ISRO is willing to offer the knowhow of this technology to suitable entrepreneurs / industries in India. Capable manufacturing industries interested in acquiring this knowhow may write with details of their present activities, requirements and plans for implementation, infrastructure and technical expertise available with them, their own market assessment, if any, and plans for diversification to the address given below: