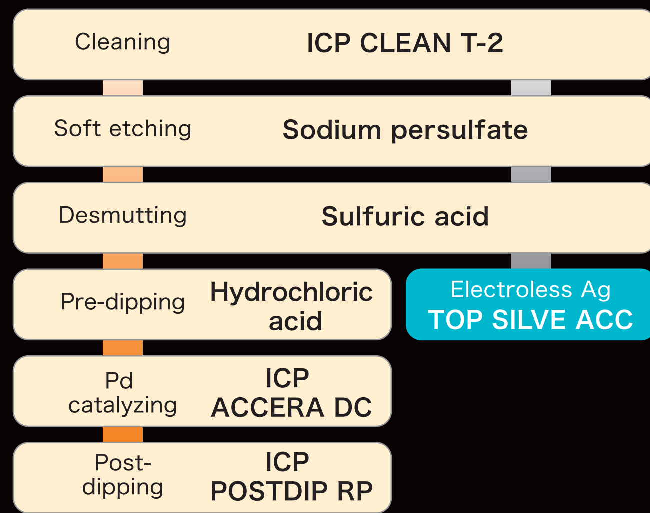
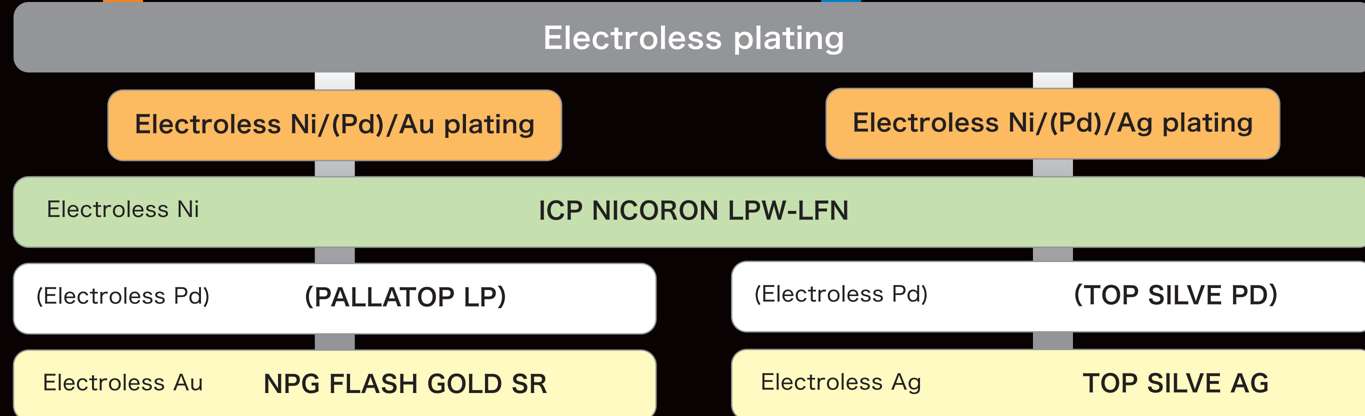
Electroless plating process for power modules

- Electroless Ni plating solution with high solder wettability and joint strength
- Electroless Ag, Ni/(Pd)/Ag plating process for silver sintered joint, prevent base metal corrosion

For Cu clad dielectric substrate

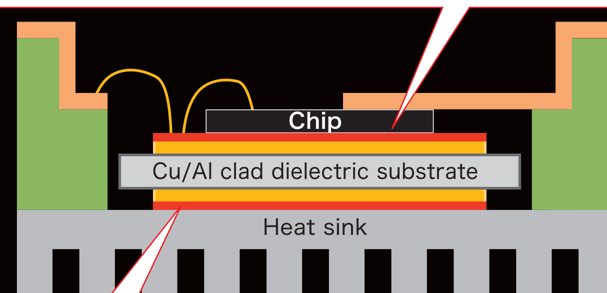


For Al clad dielectric substrate



Application for power modules

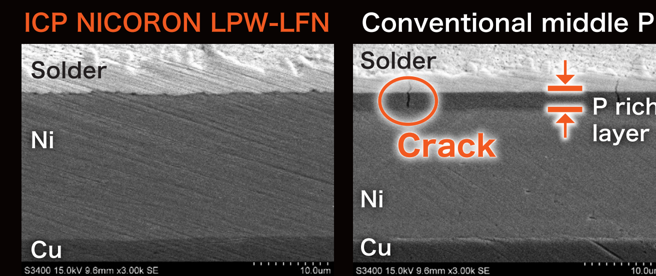
Undercoat for solder joint, silver sintered joint between electrode under chip and Cu/Al clad dielectric substrate



Undercoat for solder joint, silver sintered joint between Cu/Al clad dielectric substrate and heat sink

S-free, low P content electroless Ni plating solution: ICP NICORON LPW-LFN

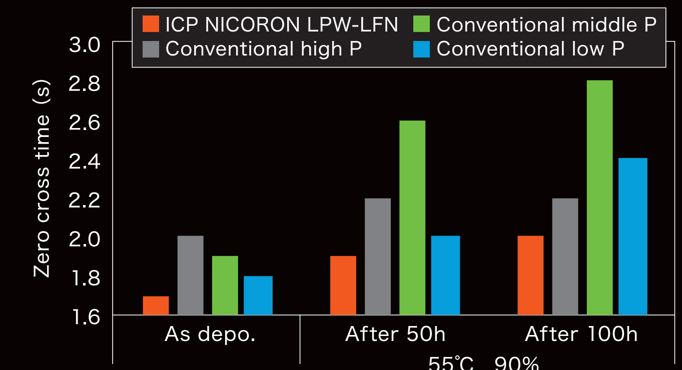
High solder joint performance



Sn-3.0 Ag-0.5 Cu solder dipping
Cross-section SEM image
after 200℃, 300h heat treatment

Even after a long-time heat treatment, prevent the formation of P rich layer, ensure high solder joint performance

High solder wettability

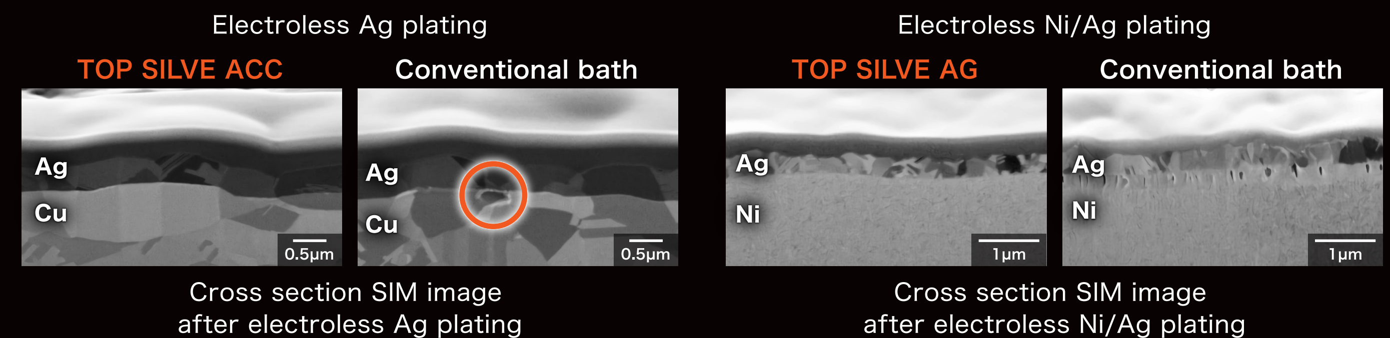


Measuring zero cross time by Meniscograph method
(Dip into Sn-3.0Ag-0.5Cu solder at 250℃)

Reduce the decrease of solder wettability after time passage

Electroless Ag plating solution: TOP SILVE ACC/TOP SILVE AG

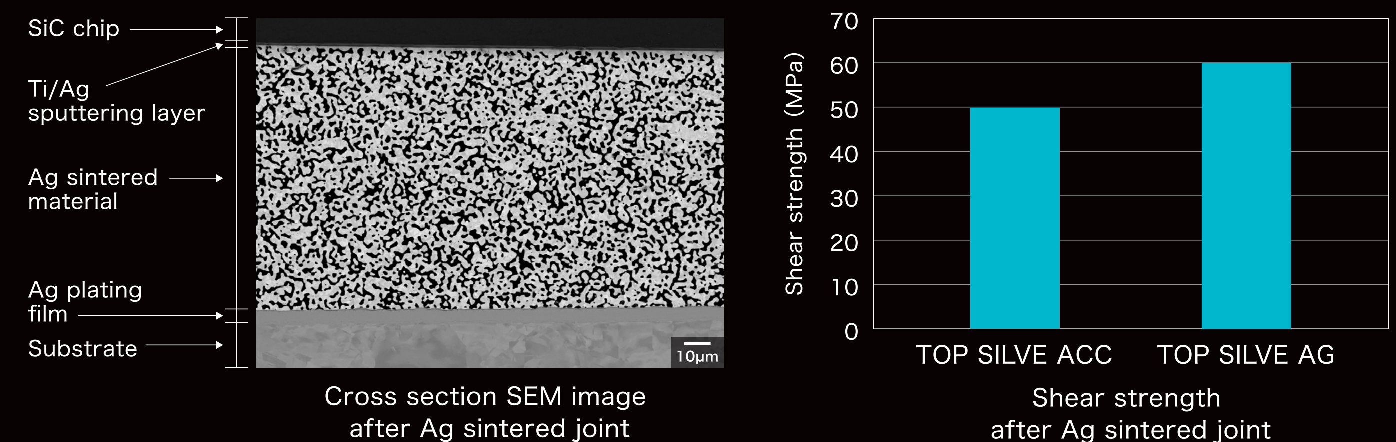
Plating process to prevent base metal corrosion



Cross section SIM image after electroless Ag plating

Cross section SIM image after electroless Ni/Ag plating

High bonding strength in Ag sintered joint



Cross section SEM image after Ag sintered joint

Shear strength after Ag sintered joint

*Ag sintered joint: Presented by SANKEN, Osaka University Flexible 3D JISSO Collaborative Research Institute

For Ag sintered joint as the replacement of solder joint