

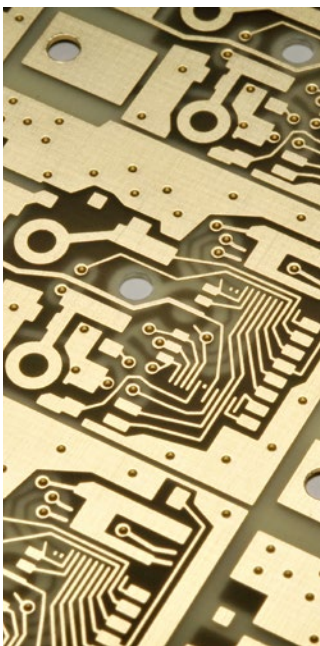


Version: 24 March 2025



ISIG PROCESS

IMMERSION SILVER AND IMMERSION GOLD PLATING

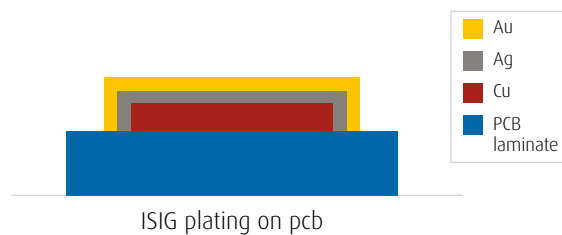


Immersion Silver and Semi-Autocatalytic Gold Plating

Umicore's silver and gold plating process (ISIG) provides customers a high performance nickel-free coating which meets most of the common assembly requirements like multiple solderability and bondability with aluminium and gold wire even by existing thermal ageing stress before assembly.

Due to its outstanding film characteristics ISIG deposition is very well suited to withstand the higher requirements of PCB designer concerning fine pattern ability and high frequency signal transfer in combination with complying newest RoHs and WEEE regulations.

ISIG as Final Finish



Advantages

- Nickel free coating
- High conductivity
- Thin and very uniform electroless desposition
- Suitable for (ultra) fine pitch layouts
- Ductile final finish compatible for flex PCB
- Dense and homogenous gold protection layer up to 0.3 μm feasible
- Reliable Pb-free and Sn/Pb soldering
- Excellent Al- and Au-wire bondability

Applications

- Flexboard PCB (FPC)
- Medical technology
- High frequency technology

ISIG PROCESS

IMMERSION SILVER AND IMMERSION GOLD PLATING

TECHNICAL SPECIFICATIONS IMMERSION SILVER PLATING

Electrolyte characteristics Presa® RGA-14		Coating characteristics	
Electrolyte type	Displacement process	Coating composition	Fine silver
Metal content	1.0 (0.8 - 1.2) g/l Ag	Purity	99.9 wt%
pH value	acidic	Colour of film	Silver
Operating temperature	50 °C	Recommended thickness	0.1 - 0.4 µm
Deposition rate	approx. 0.2 µm/min		

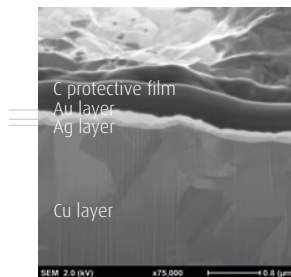
TECHNICAL SPECIFICATIONS IMMERSION (SEMI AUTOCATALYTIC) GOLD PLATING

Electrolyte characteristics Gobright® TWX-40		Coating characteristics	
Electrolyte type	Semi autocatalytic	Coating composition	Fine gold
Metal content	1.2 (1.0 - 1.4) g/l Au	Purity	99.9 wt %
pH value	7.1 (6.9 - 7.4)	Colour of film	Yellow
Operating temperature	78 (76 - 84) °C	Recommended thickness	0.05 - 0.2 µm
Deposition rate	0.12 µm/15 min at 78°C		

ISIG PROCESS

IMMERSION SILVER AND IMMERSION GOLD PLATING

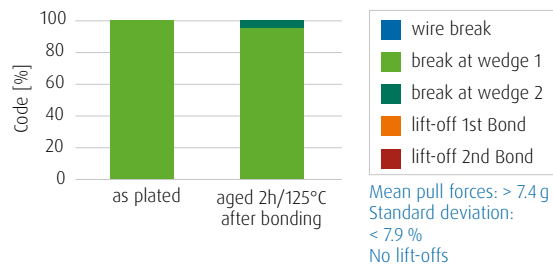
Cross-Section Observation by FIB of ISIG Film



Thin and uniform Au/Ag deposition

Aluminium Wire Pull Test Results, AlSi1 25 μm

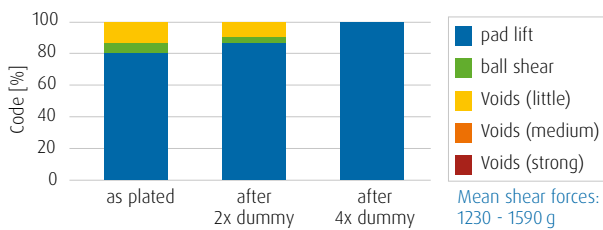
ISIG PCB, plated with 0.18 μm Ag and 0.15 μm Au



BGA Solder Ball Shear Results

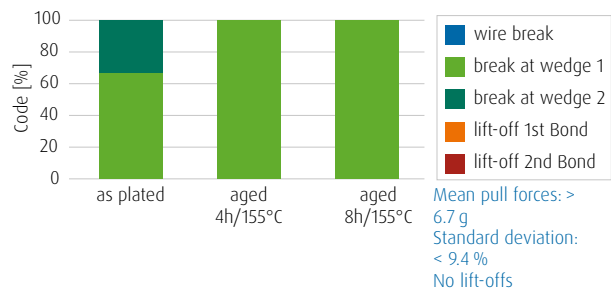
(ball size 0.76 mm, 30 mil, SAC solder)

ISIG PCB, plated with 0.18 μm Ag and 0.15 μm Au



Gold Wire Pull Test Results, Au Heraeus HD2 25 μm

ISIG PCB, plated with 0.18 μm Ag and 0.15 μm Au



YOUR CONTACT

Do you have a specific question or would you like a no-obligation quote calculation?
Our specialist will be happy to help you with any technical questions you might have.



Markus Legeler
Manager Sales International

Mail: markus.legeler@eu.umicore.com
Phone: +49 (0) 7171 607 - 204

