Electroless copper plating process with high adhesion on glass substrate

PLOPX

Jointly developed with Panasonic Environment Systems & Engineering Co., Ltd.

- Electroless copper plating process from tin oxide layer by Liquid Phase Deposition (LPD method)
- High peel strength on low profile glass substrates
- Excellent in the deposition performance into TGV (Through Glass Via)
- Excellent in insulation reliability and heat-resistant reliability

Treatment process

Forming tin oxide, LPD layer
PLOPX SEED
41 ℃, 2.5 h

Pd catalyzing
PLOPX ACTIVATOR
Room temp., 3 min

Heat treatment ①
300 ℃, 1 h

Accelerating
PLOPX REDUCER
Room temp., 2 min

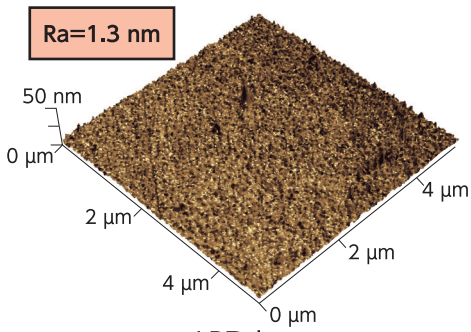
Electroless copper plating
PLOPX COPPER
32 ℃, 30 min

Heat treatment ②
150 ℃, 1 h

Acid copper plating

Heat treatment ③
(Nitrogen atmosphere)
370 ℃, 50 min

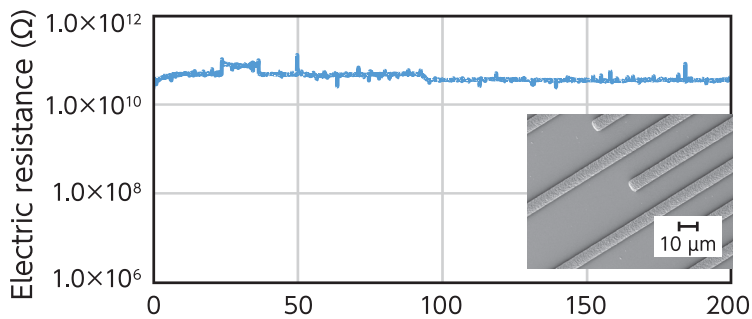
Form flat and smooth tin oxide layer



LPD layer
AFM surface image

	Glass	Glass/ LPD layer
Dielectric constant	5.10	5.11
Loss tangent	0.0057	0.0057

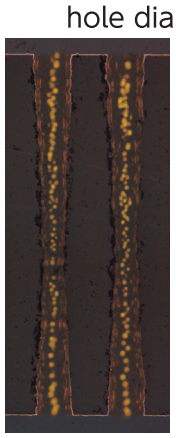
Excellent in insulation reliability



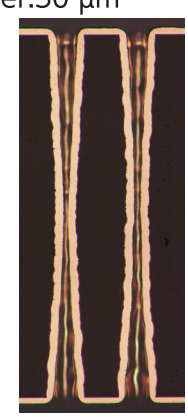
Migration test (L/S=10/10 μm)
Test condition:110 ℃, 85 %RH, 3.5 V, 200 h

Excellent in through-hole deposition performance into TGV

Board thickness:500 μm, hole diameter:50 μm



After electroless Cu plating



After copper electroplating

Board thickness:200 μm, hole diameter:50 μm

After copper electroplating