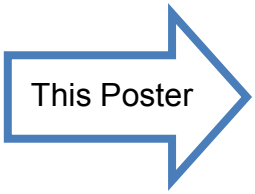
FOURTEENTH ANNUAL BiTS 2013 Burn-in & Test Strategies Workshop

Archive Poster Session

Poster Sessions are a great way to multitask during a break, stretch your legs after a long session, and even network through interaction with the poster presenters and other curious attendees. This year's session offers a variety of relevant topics that augment what you'll learn sitting in the general sessions.



CSH Coating for High Temperature
Ichiro Fujishiro—Yamaichi Electronics

Top Side Probing on Handler
Shaul Lupo—Intel Israel

"Auto-Centering Manual Actuator" — One Manual Lid for Different Package Sizes Testing
Ying Hoe Mah, Shamal Mundiyath—JF Technology Berhad

Novel Approach Of Enabling Customer Shadow EPROM aka "EXTERNAL-EPROM" In HVM Environment
Maroon Maroon, Moulller Keren—Intel Corporation

BiTS Burn-in & Test Strategies Workshop

BiTS 2013

YAMAICHI ELECTRONICS

CSH Coating for High Temperature

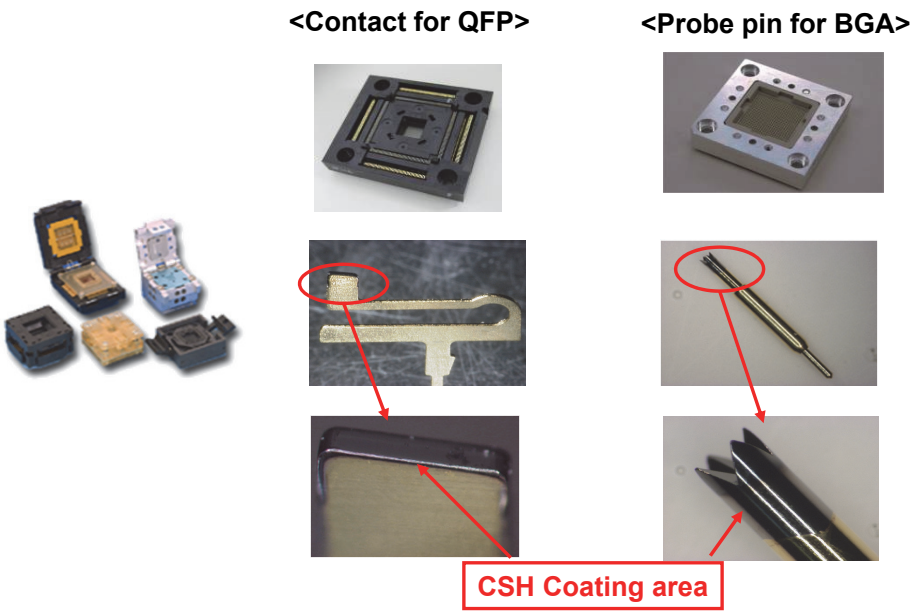
Ichiro Fujishiro
Yamaichi Electronics

Why Develop a CSH (Conductive Super Hard) Coating?

CSH coating was developed to improve contact reliability and reduce contact maintenance frequency, which results in higher yield.

High Temperature CSH Coating

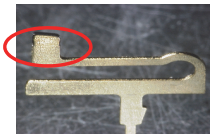
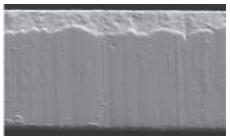
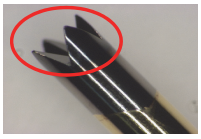
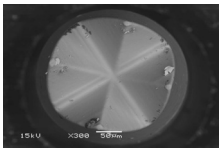
- A conductive hard thin coating technology based on Diamond Like Carbon was developed
- High abrasion resistance and low solder adhesion
- Maintains the characteristics of conventional electrical conductivity at high temperatures
- Enables more stable and reliable testing at high temperatures



Characteristic of CSH

- Excellent adhesion resistance to soft metal (such as solder)
- High Wear resistance
- Low Coefficient of friction and less damage to the opposing metal
- Does not lose the characteristics of hard carbon thin film, hard carbon thin film insulating

Contact tip after 100K Cycle at room temperature

	CSH	Conventional Au plating
		
		

Solder contamination

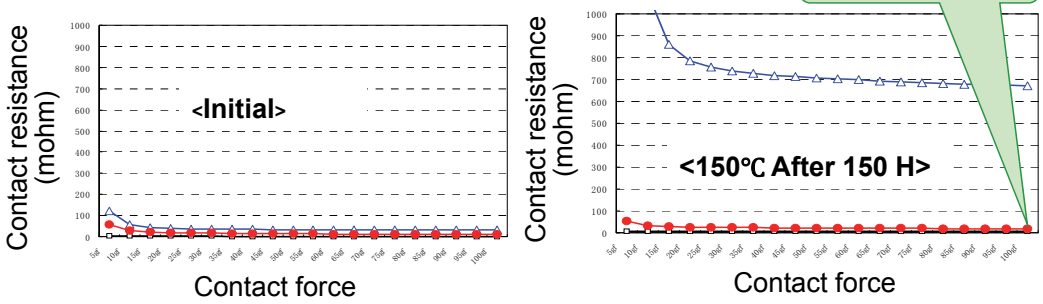
Solder contamination and crushed tip

Hardness for High-temperature CSH

	Surface Film Thickness	Surface Film Hardness
High-temp CSH	0.6 μm	14.0 GPa
Conventional CSH	0.6 μm	18.0 GPa
Hard Au Plating	0.3 μm	3.8 GPa

Resistance stability after high temperature test

Resistance maintained



Poster #1
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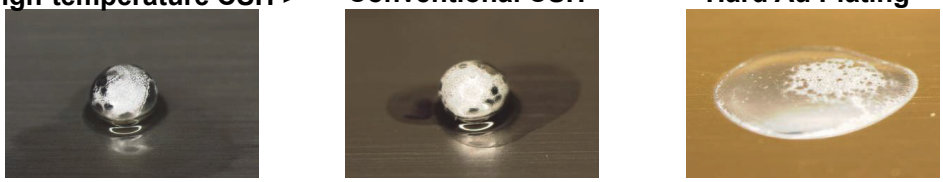
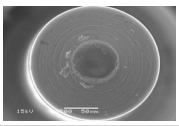
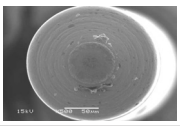
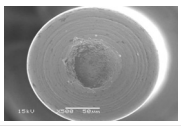
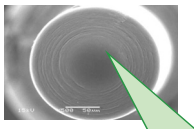
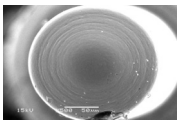
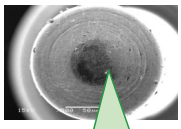
Solder Affinity Check under high temperature.

< High-temperature CSH > < Conventional CSH > < Hard Au Plating >



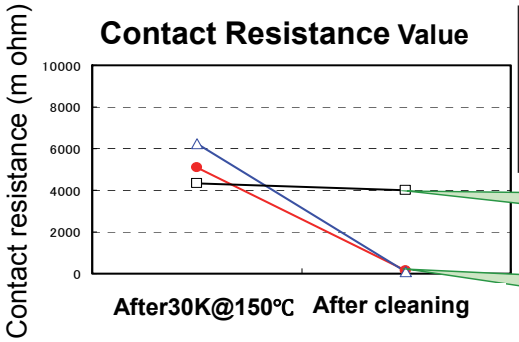
Cleaning Characteristic of CSH

	High Temp. CSH	Conventional CSH	Hard Au Plating
After30K @150℃			
After Cleaning			

Solder removed

Exposed Ni

Contact Resistance Value



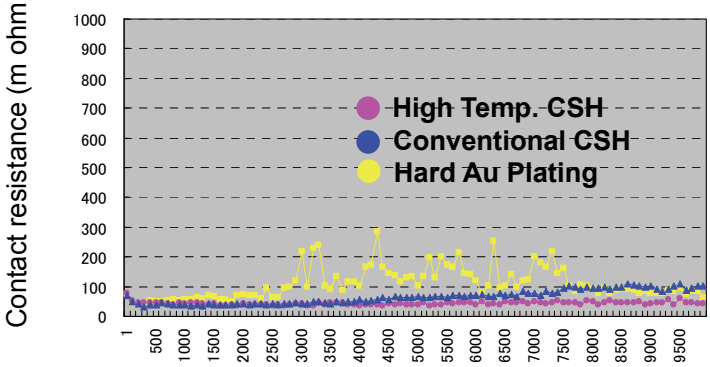
Cleaning sheet:
Commercial type.
Polyurethane-based foam+Al oxide abrasive grain
Cleaning method:
Wipe against cleaning sheet 10 times - Back and forth

Exposed Ni
Unstable Contact Resistances

Solder is removed
Stable Contact Resistances

High Temp. CSH	Conventional CSH	Hard Au Plating
— ● —	— △ —	— □ —

Contact Resistance Transition up to 10K cycles



Test temperature:
125 deg.C
Package: Sn plating