

IEEE SW Test Workshop

Semiconductor Wafer Test Workshop

REYNAUD Vincent
MESATRONIC

D.O.D. TECHNOLOGY® brings new evolutionary solutions in front end probing to face in pad reduction and probing contamination during intermediate level parametric test.

June 3-6, 2007

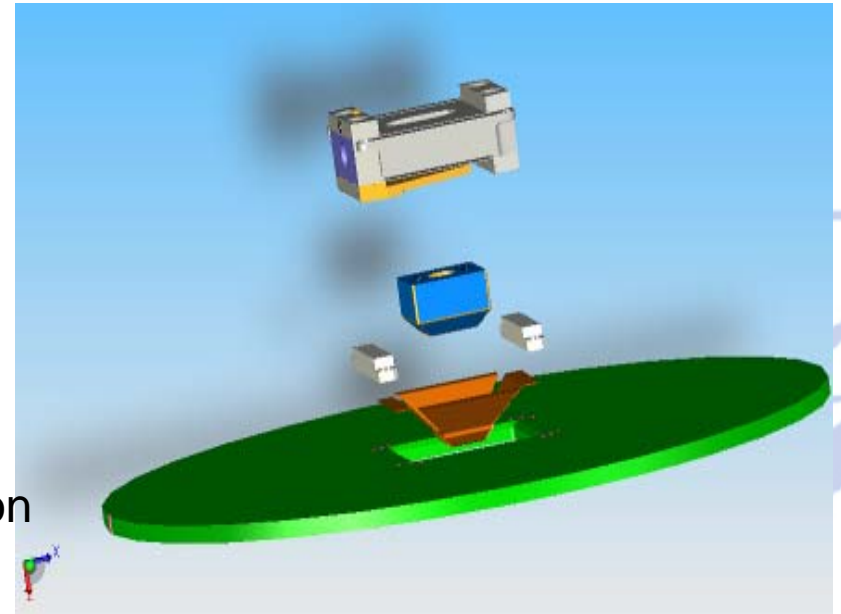
San Diego, CA USA



mesatronic

The D.O.D. TECHNOLOGY®

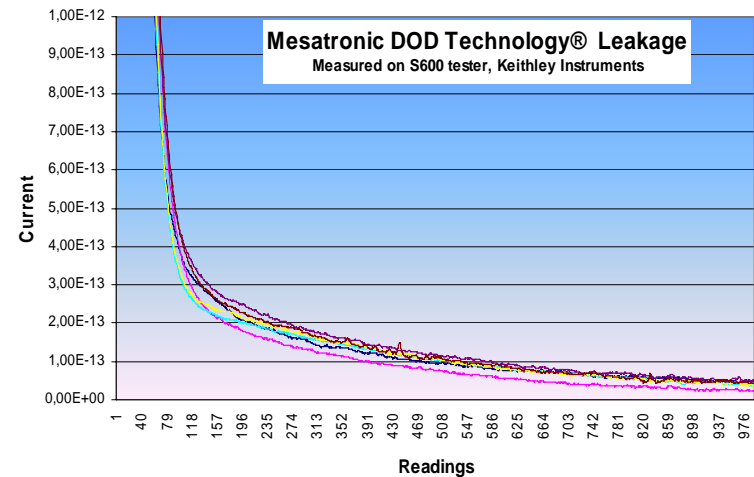
- Vertical technology
- Based on a semiconductor process
- Membrane technology
- Field adjustable probe force
- No alignment variation during Z movement
- Overdrive : $50\mu\text{m} \pm 5$
- Constrained reliable connection
- Shape : Mesatower
- Typical dimensions
 - Base diameter : 30 to 50 μm
 - Typical Contact diameter : 23 μm
 - Typical Overall height : 50 μm
 - Alignment accuracy $\pm 2\mu\text{m}$
 - Pad size : 35 μm
- Material : Hard Nickel alloy
- Shear resistant probes



Parametric DOD electrical results

- The Parametric DOD development program has involved Joint Development Agreements with **Keithely Instruments** and the **CEA-LETI Research Laboratory**.

- Leakage
10 fA/V
- Parasitic Capacitance
60 fF



DOD Parametric main advantages

Probe marks / Contamination

Depth inside the pad : **-0.4 μm**

Height up on the pad : **0.6 μm**

The number and the size of particles removed from the pads is reduced compared to a cantilever probe cards

Contact Resistance reliability

Contact resistance :
0.2 to 0.5 ohm on blank aluminum wafers

After 1 Million TouchDowns	
Path Resistance	= 2.3 Ω
R _{contact}	= 1.1 Ω
standard deviation	= 0.4 Ω
yield	= 99.6%

Cantilever vs. DoD

