Visions to Products

Hahn Schickard

StarJet Technology: 3D Interconnections & Micro Assembly

StarJet Technology:

- Non-contact molten metal printing technology
- Direct printing molten metal at high reservoir temperature, e.g. solder SAC305 (320 °C) and Al alloy (950 °C)
- Low cost of material (i.e. bulk material used)
- Advantages:
- High direction stability (printing distance up to 30 mm)
- Operation under ambient condition (oxidation protection via inert sheath flow)
- Tunable droplets / jet diameters via nozzle orifice modification (e.g. 70 µm – 300 µm)

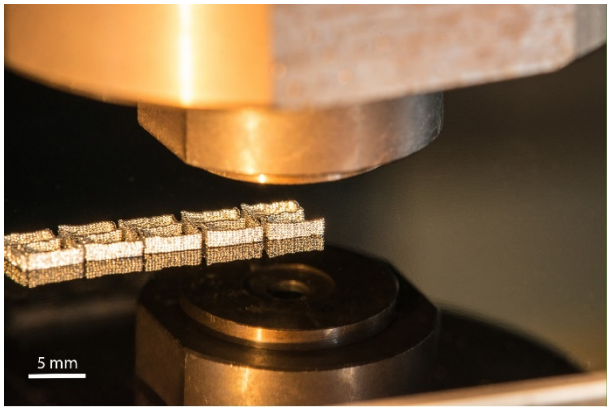
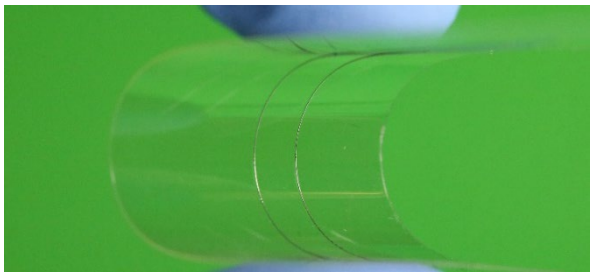


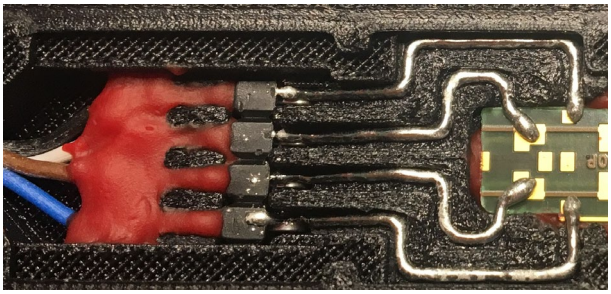
Photo of StarJet printhead with printed 3D metal structure on Si-wafer

Application case: flexible interconnections

- Non-contact printing of interconnections on flexible substrates, e.g. polymer, textiles
- High printed line aspect ratio (close to 1)
- Low electrical resistance
- High adhesion and flexibility
- Compatible to temperature sensitive substrates



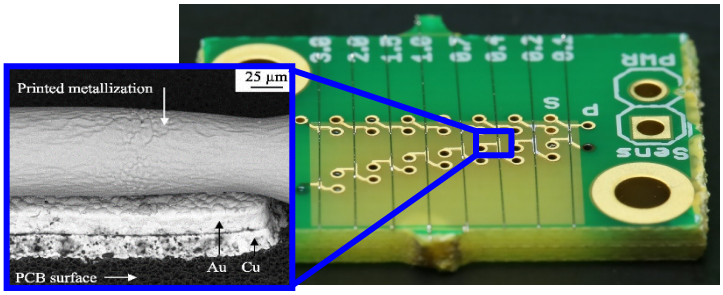
Metallization for flexible electronics: printed solder lines on a bent PET foil



Interconnecting PCBs and cable connectors through 3D printed housing

Application case: PCB interconnecting (2D & 3D)

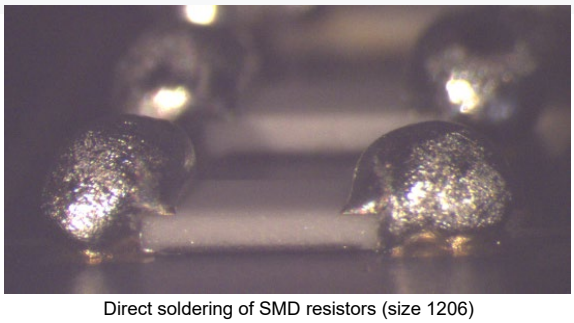
- Non-contact printing of interconnections on PCBs
- High printed line aspect ratio (close to 1)
- Low electrical resistance (4 µΩ/mm) for 10 mil lines
- Comparable adhesion to standard solder joint
- **Vertical interconnection printing (Via filling)**



Direct printing of interconnections on printed circuit boards (PCB)

Application case: Soldering of electronics

- Non-contact soldering of electronic components on various substrates (e.g. ENIG contact pads)
- Adhesion strength close to standard solder joints
- Low contact resistance
- **Localized soldering on temperature sensitive substrate**



Direct soldering of SMD resistors (size 1206)

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Hahn-Schickard-Gesellschaft für angewandte Forschung e.V.
Georges-Köhler-Allee 103
79110 Freiburg, Germany

Phone: +49 761 203-73200
Fax: +49 761 203-73299
E-mail: Info@Hahn-Schickard.de
Website: www.Hahn-Schickard.de

Contact
Dr. Zhe Shu
Phone: +49 761 203-54057
E-mail: Zhe.Shu@Hahn-Schickard.de