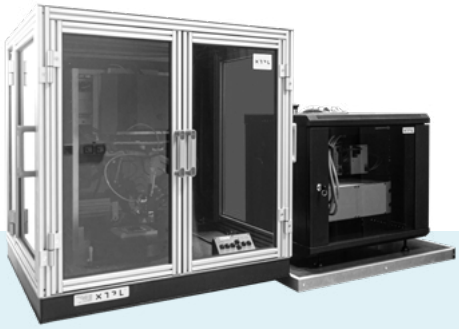
The first truly additive method for printing 1 µm features without external electric field

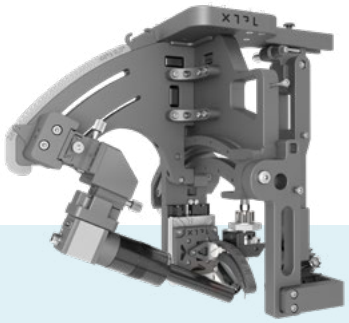
shaping global nanofuture



XTPL DELTA PRINTING SYSTEM

Tabletop, simple-to-use, rapid application development platform that enables:

- Features down to 1 µm, conductive after single pass
- Up to 500 nm single pass thickness at 5 µm
- Up to 45% of bulk Silver conductivity
- Conductive and not conductive materials
- Printing on heterogeneous materials
- Printing on 3D topographies
- Uniform & clean features geometries: no overflow or spills
- 8 hours continuous printing stability
- Up to 60 days of on/off printing



XTPL EPSILON PRINTING MODULE

Epsilon Printing Module brings the benefits of XTPL UPD printing technology to integrators and manufacturers in flat-panel display applications such as:

- Open Defect Repair
- MicroLED interconnection repair
- Quantum Dots Color Filter repair
- Black matrix repair
- Local via filling

by allowing for the integration with custom and OEM printing platforms.

XTPL CONDUCTIVE INKS

Highly concentrated metallic inks that overcome dispensing size limitations:

- Developed for ultra-high-resolution printing
- Very high metal content
- Superior homogeneity and stability
- Adhesion to multiple types of surfaces
- Compatibility with a wide range of polar solvents
- Thermal (100–300°C) or photonic (laser, flash) sintering
- Anti-clogging behavior

XTPL R&D SERVICES

The services in the field of the proof of concept and development projects:

- Proof of feasibility/proof of concept
- Custom application development
- Custom process development
- Custom material development
- 3rd party and OEM integration support
- Joint development and industrialization projects

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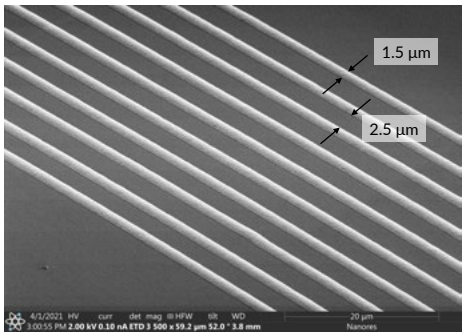
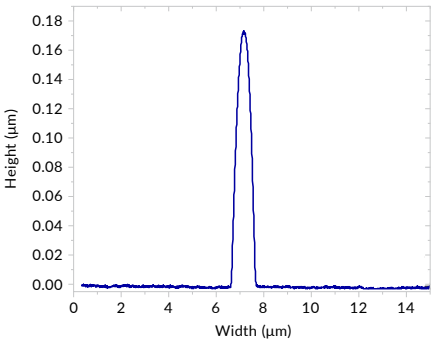
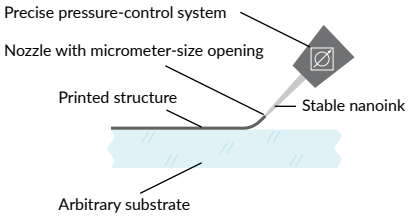
ULTRA HIGH RESOLUTION PRINTING

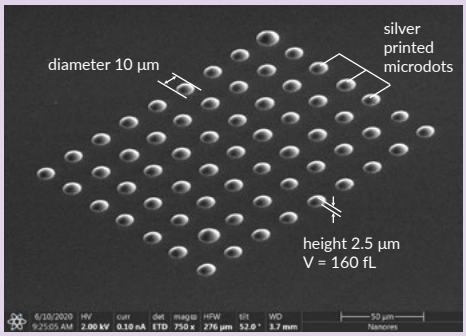


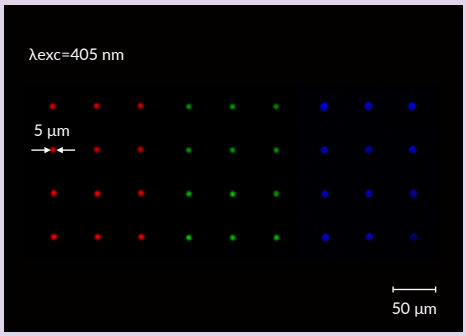




- Ultra-high resolution with high-density for miniaturization of electronic devices
- High height to width aspect ratio after single printing pass
- Homogeneous, smooth and clean structures are demonstrated by Ultra–Precise Deposition technique

MICROBUMPS PRINTING

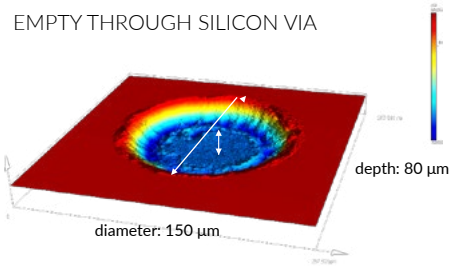




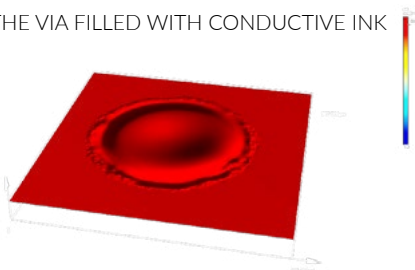
- Regular microdots with individual micrometers diameter and parabolic profile were printed for variety of ink including silver based paste, quantum dots ink or photoresist
- High resolution conductive microbumps interconnection is demonstrated for flip chip microLED repair

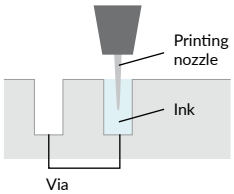
MICRO VIA FILLING FOR TSV RDL APPLICATION

EMPTY THROUGH SILICON VIA



THE VIA FILLED WITH CONDUCTIVE INK





- TSV and RDL via filling with conductive and/or dielectric material
- Precise deposition of the ink directly to the via without overflow
- Possibility to control the volume of the ink in fL scale
- Possibility to fill deep and narrow vias

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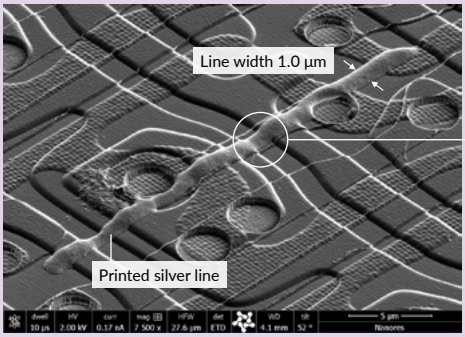
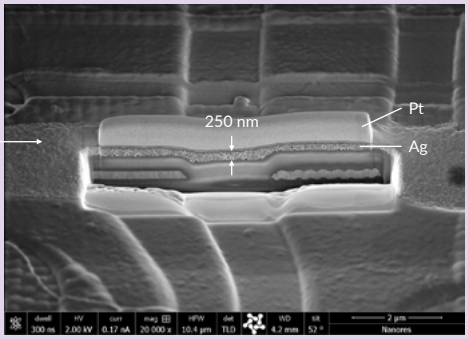
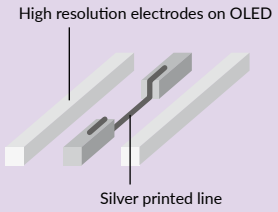
OPEN DEFECT REPAIR FOR NEXT GENERATION OLED

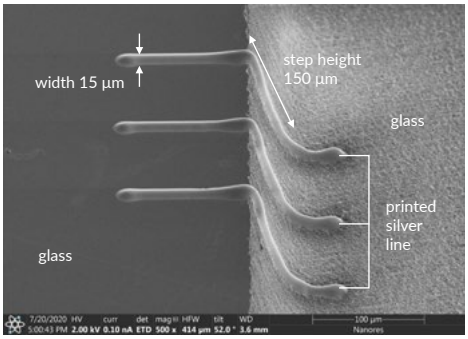


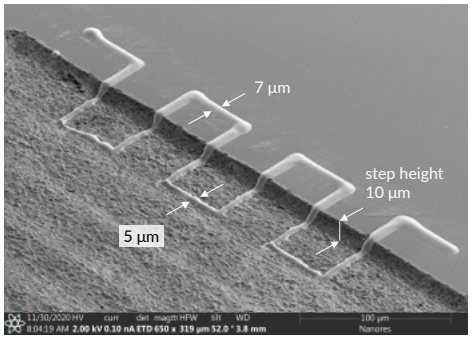


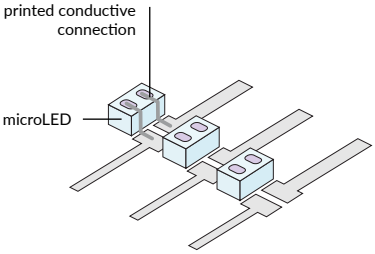


- Open Defect Repair for next generation, high resolution OLEDs
- Silver lines with 1 µm width printed over complex and heterogeneous OLEDs topographies
- Silver lines with 250 nm height after single pass printing
- Repaired defect resistance < 1 Ω/µm

ADVANCED PACKAGING







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XTPL is a globally innovative company developing breakthrough, additive manufacturing technology for ultra-precise printing of nanomaterials. Contact us for more details.

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