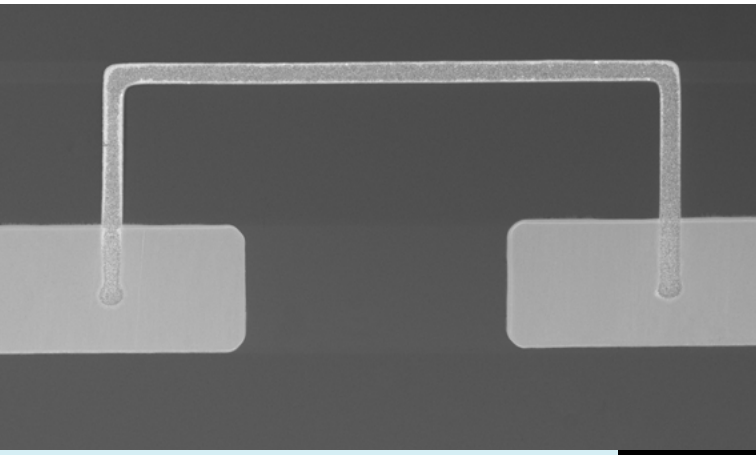
shaping global nanofuture



ADDITIVE MANUFACTURING FOR FLAT PANEL DISPLAYS

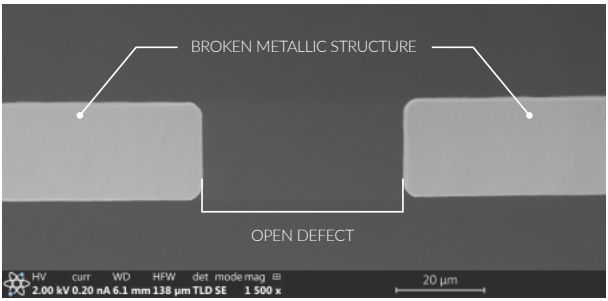
INDUSTRIAL YIELD IMPROVEMENT SOLUTIONS

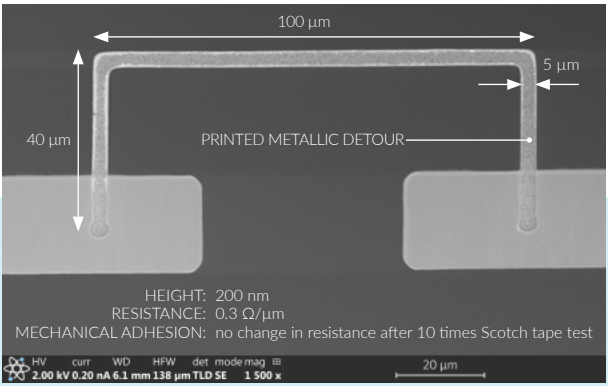
Application: open defect repair
Structure width range: 1-8 µm

INTRODUCTION

One of the challenges faced by the modern FPD manufacturing lies in the fact that fine conductive structures on the individual micron scale are prone to damage. This is a major factor contributing to the decrease of the production yield. XTPL has developed an advanced additive method for open defect repair that responds to manufacturers requirements.

EXAMPLE





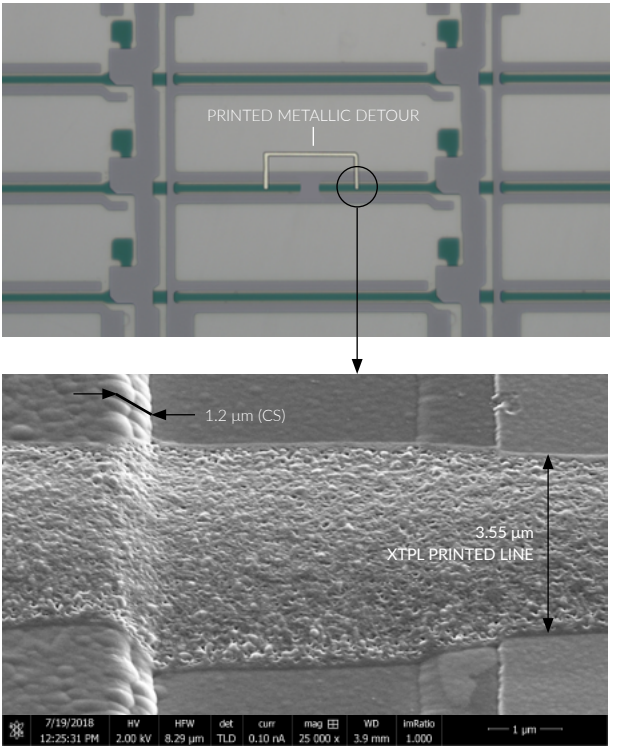
GENERAL SPECIFICATION

Feature size:	1-8 µm
Voltage required for printing:	no
Printed material:	open defect repair dedicated nanoink based on silver nanoparticles
Substrates:	conductive and nonconductive, flat and 2.5D, e.g. glass, silicon wafers, kapton, PEN, PC, PDMS, PET
Resistance of detour:	0.3 Ω/µm @ 5µm line width
Height of detour:	<250 nm
Length of detour:	no limit

ADVANTAGES

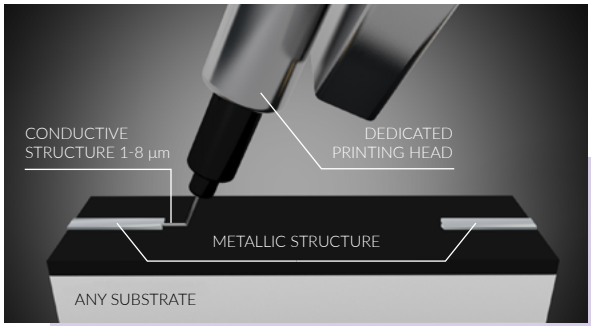
- **no electric field required for printing - no risk of damage to the substrate and other electrically active components**
- non-electrostatic alternative to the EHD technology
- solution strongly contributing to the increase of yield
- ultra-precise additive technology
- repairing broken conductive lines at the production stage
- reduced takt time
- high spatial density of printed features
- high adhesion to the substrate
- no toxic substances
- lower production cost for the manufacturers

Open defect on a LCD TFT backplane (2.5D substrate) repaired by silver ink detour printed using ultra-precise deposition method developed by XTPL.

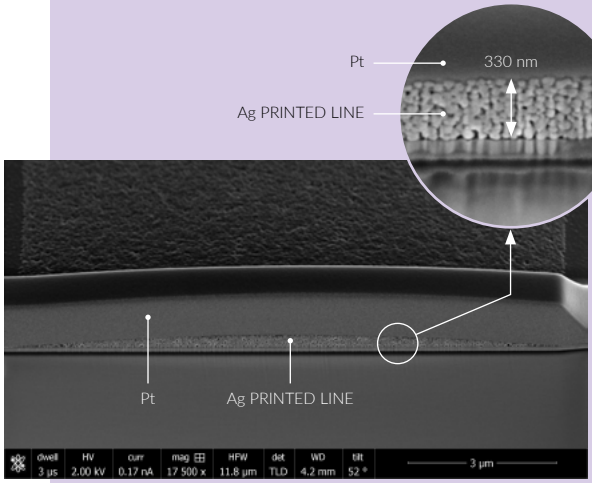


XTPL advanced solution works on most substrates, even ones that are flexible and non-flat.

PROCESS



XTPL technology allows defects in conductive paths to be repaired already at the production stage with unparalleled precision, speed and no voltage applied during the printing process.

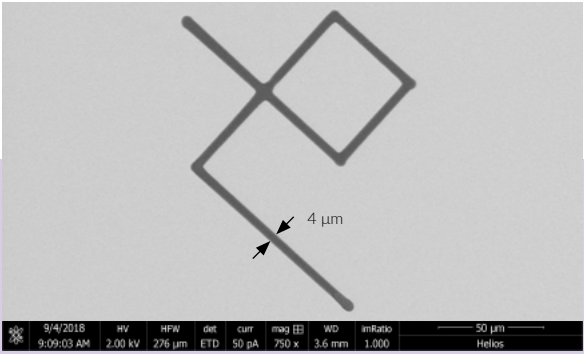


Cross section of a printed conductive line. Features printed using the XTPL technology have smooth edges which allows for deposition of continuous structures on top of them.

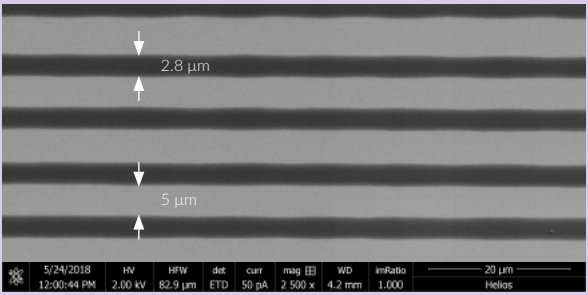
In order to achieve outstanding results XTPL creates its own conductive nanoink formulas based mostly on metallic nanoparticles (Ag, Au and Cu) and semiconductors (TiO_2).

PRECISION

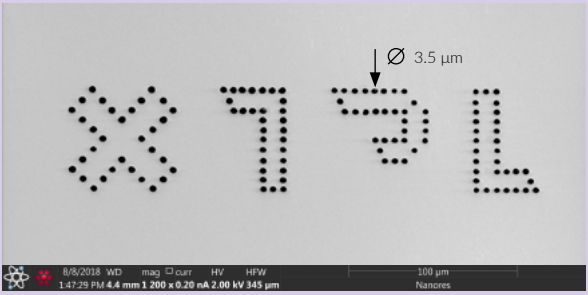
The main competitive advantage of XTPL additive manufacturing solution is the unprecedented precision.



SEM image of a printed trail with 4 µm width.



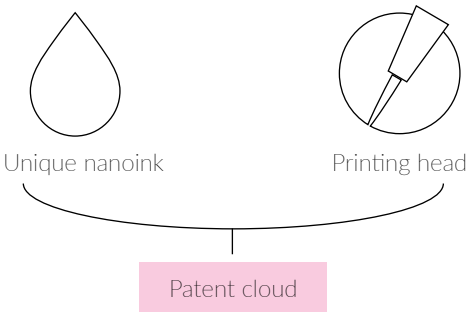
SEM image of parallel lines printed with approximately 3 µm width and 5 µm distance between the lines.



SEM image of XTPL logo pattern composed of microdots deposited on the glass. Dots obtained using technologies available on the market achieve minimum feature size of 20 µm in diameter, while implementing XTPL method allows for depositing dots with the diameter as small as 1 µm.

INTELECTUAL PROPERTY

XTPL offers a complete solution for printing electrically conductive & nonconductive structures on the individual micron scale. This includes proprietary technology, innovative printing heads and dedicated nanoinks. Patent protection is executed by the British law firm, Gill Jennings & Every LLP as well as American company K&L Gates.



CONTACT US FOR IMPLEMENTATION SOLUTIONS

欢迎来电咨询, XTPL期待与您的合作。

XTPL constantly optimizes its innovative technology and adapts the process to various implementation requirements. XTPL aims to build partnerships and strategic alliances with well-established partners within the FPD sector and to cooperate in the form of joint development or technology transfer.

HEADQUARTERS

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