Performance
Engineered
Films™

UNIPIXEL

NASDAQ: UNXL

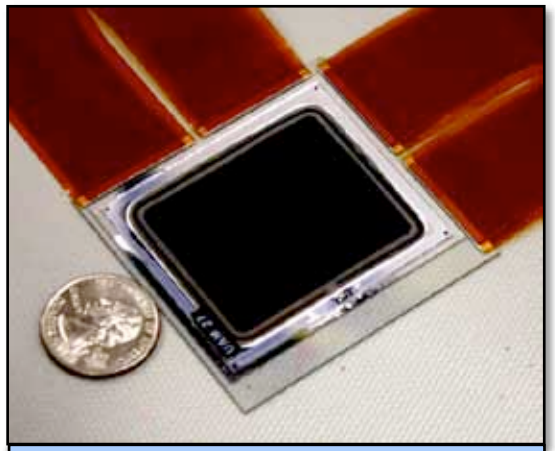
UniBoss™ Printing Technology

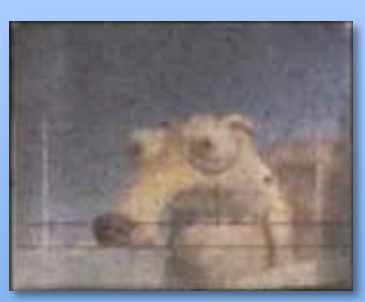
December 7, 2011

Important Cautions Regarding Forward Looking Statements

All statements in this presentation that are not based on historical fact are "forward-looking statements" within the meaning of the Private Securities Litigation Reform Act of 1995 and the provisions of Section 27A of the Securities Act of 1933, as amended, and Section 21E of the Securities Exchange Act of 1934, as amended. While management has based any forward-looking statements contained herein on its current expectations, the information on which such expectations were based may change. These forward-looking statements rely on a number of assumptions concerning future events and are subject to a number of risks, uncertainties, and other factors, many of which are outside of our control, that could cause actual results to materially differ from such statements. Such risks, uncertainties, and other factors include, but are not necessarily limited to, those set forth under Item 1 "Risk Factors" in the Company's Annual Report on Form 10K for the year ended December 31, 2010. We operate in a highly competitive and rapidly changing environment, thus new or unforeseen risks may arise. Accordingly, investors should not place any reliance on forward-looking statements as a prediction of actual results. We disclaim any intention to, and undertake no obligation to, update or revise any forward-looking statements. Recipients are also urged to carefully review and consider the other various disclosures in the Company's Annual Report on Form 10K for the year ended December 31, 2010, as well as other public filings with the SEC since such date.

Corporate History = TMOS Display

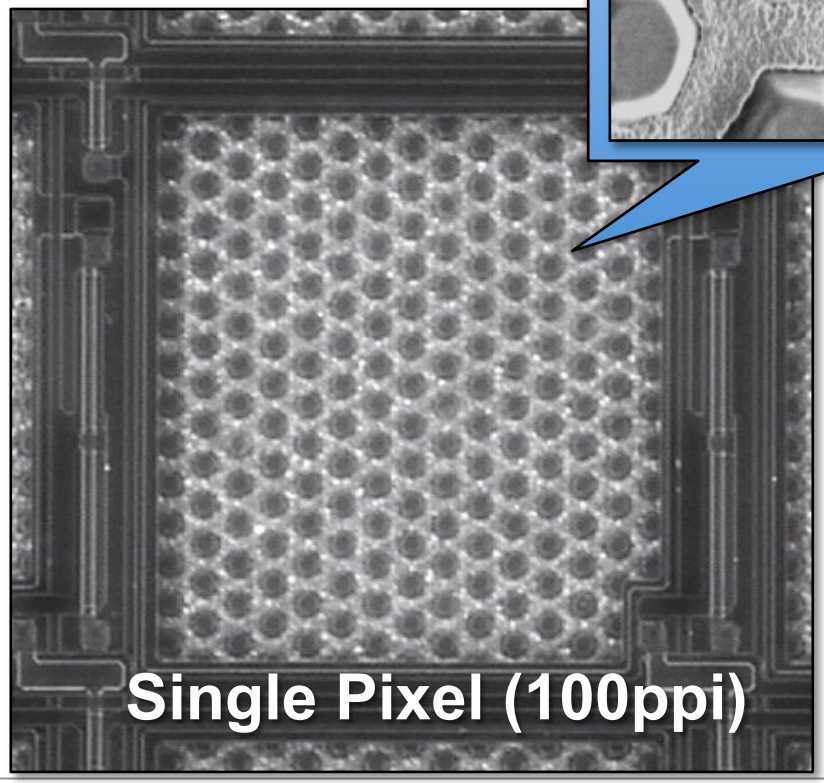


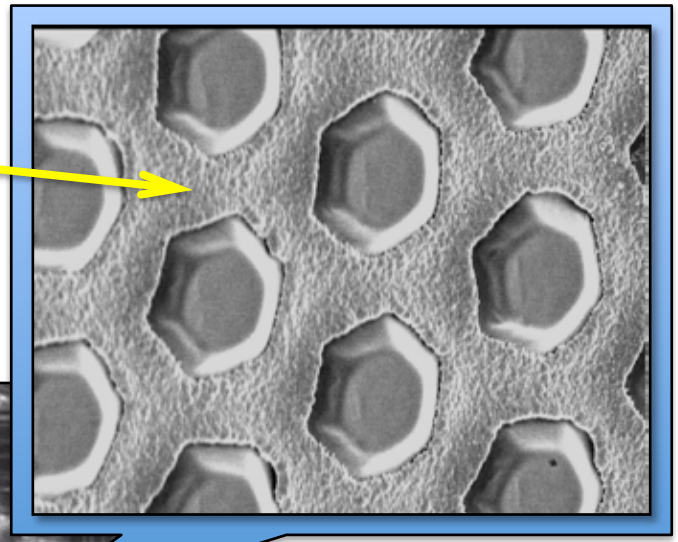


TFT Active Matrix
(16M colors, 60fps)

Direct Drive – Segment

4µm copper traces between micro-optical structures





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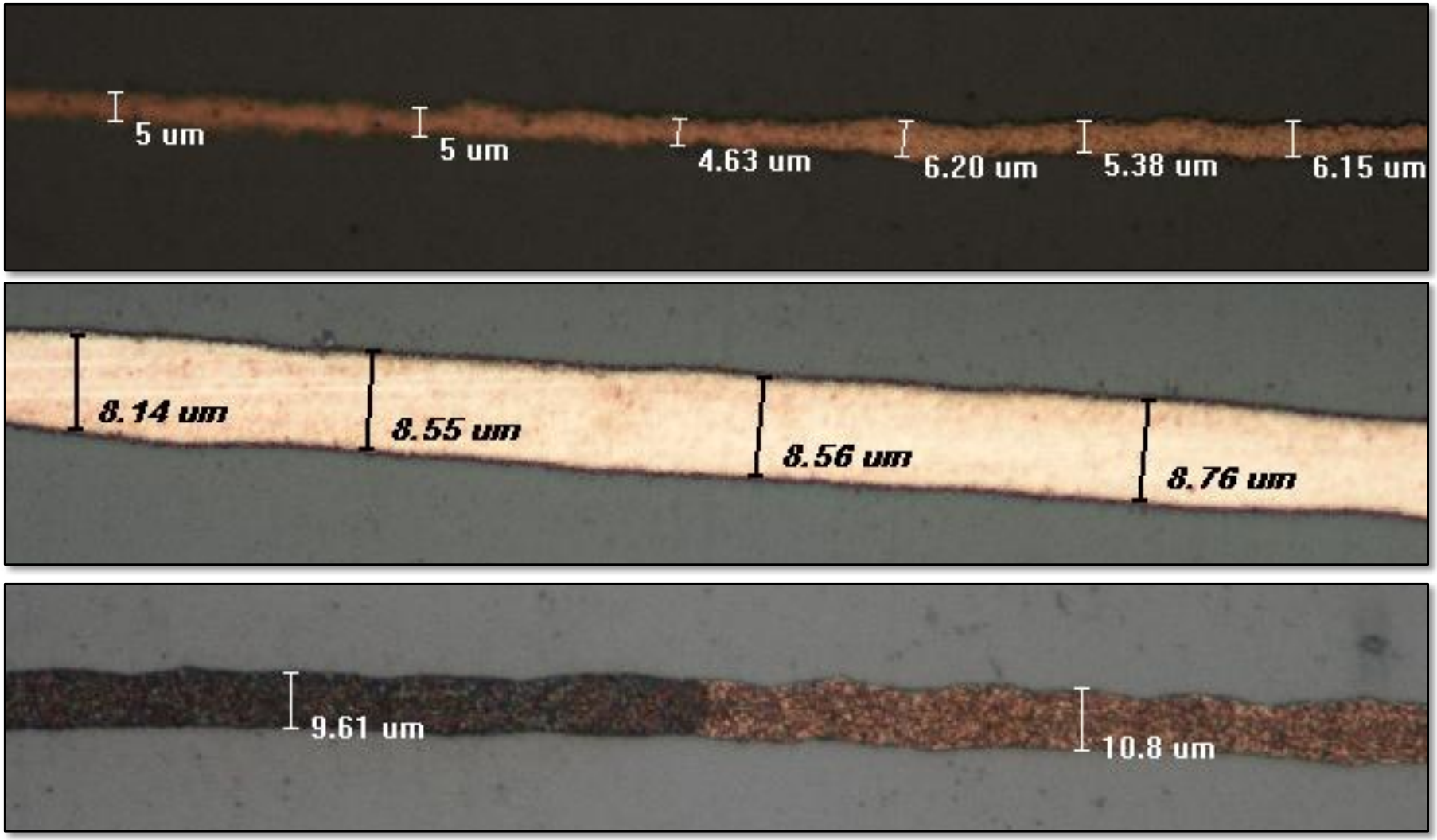
Fine Line Printed Conductor Film



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UniBoss™

Printed Electronics Film

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UniBoss™
Flexible Printed Electronics

- UniBoss™ is:
  - Printed conductor patterns on film
  - ~5µm trace width
  - <0.050 Ohms/sq
  - Available with a variety of coatings

Key Benefits:
1. Embossed Conductor Film
2. Roll to roll process
3. Many flexible film substrates (e.g. PET)
4. High Conductivity
5. High Transparency
6. Durable (not brittle)
7. Short Design Cycle
8. Eliminates need for Flex Cable Tab Bond
9. Can add functional coatings

Applications:
- Touch Sensors
- Antennas
  - RF
  - RFID
- EMI/RFI Shielding
- Printed Circuits
- Others...

UniBoss™ Film Layers

Optional Coatings
PET Film
Optional Coatings
Conductor

UniPixel Website
Download Datasheet

Rev 1.4

UniBoss™ Flexible Embossed Conductor Film
Datasheet

Conductor Grid so small it becomes invisible

Double sided multi-touch sensor plugs directly into controller board

UniPixel's UniBoss flexible embossed conductor film is manufactured on our patent pending roll-to-roll process. Our dual-sided UniBoss process yields invisible lines with best in class conductivity and provides high transparency. We can produce virtually any fine or thick line circuit. The UniBoss process allows us to produce most circuits in just days (or less). As a performance engineered film provider we can also add coatings (anti-glare, anti-reflective, finger print resistant, anti-viral, anti-bacterial, or your specific coatings) and adhesives upon request.

UniBoss™ Film Technical

Specification	Value
Trace Thickness	< 0.005mm thick
Trace Width	0.005mm to 5mm+
Trace Pitch	0.100m, up to full pattern width
Pattern Area	300mm x 300mm (Larger patterned area available as custom order)
Conductive Layers	Single or Double sided patterned conductors
Base Substrate Film	0.125mm (0.005in) PET (Other thicknesses and film material available as custom order)
Hard Coat	up to 9H available
Adhesive Layer	Available
Release Liner	Available
Transmittance	up to 92+% (Varies with pattern density)
Adhesion	Passes Scotch tape test
Operating Temperature	-20°C to +60°C
Conductivity	~0.01 Ohms/sq (for Cu, tunable for different applications)
Metals	Cu, Ni, Sn, Cr, Ag, Au

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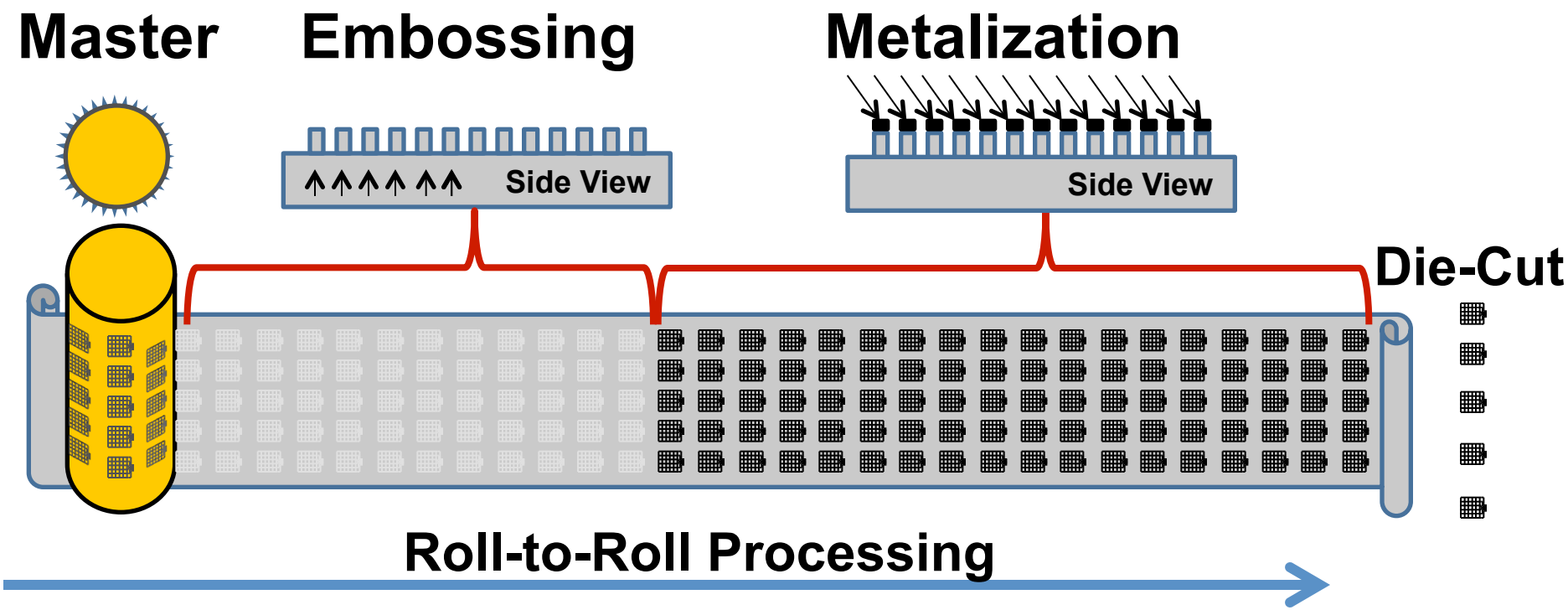
UniBoss™
Roll to Roll Printing Process



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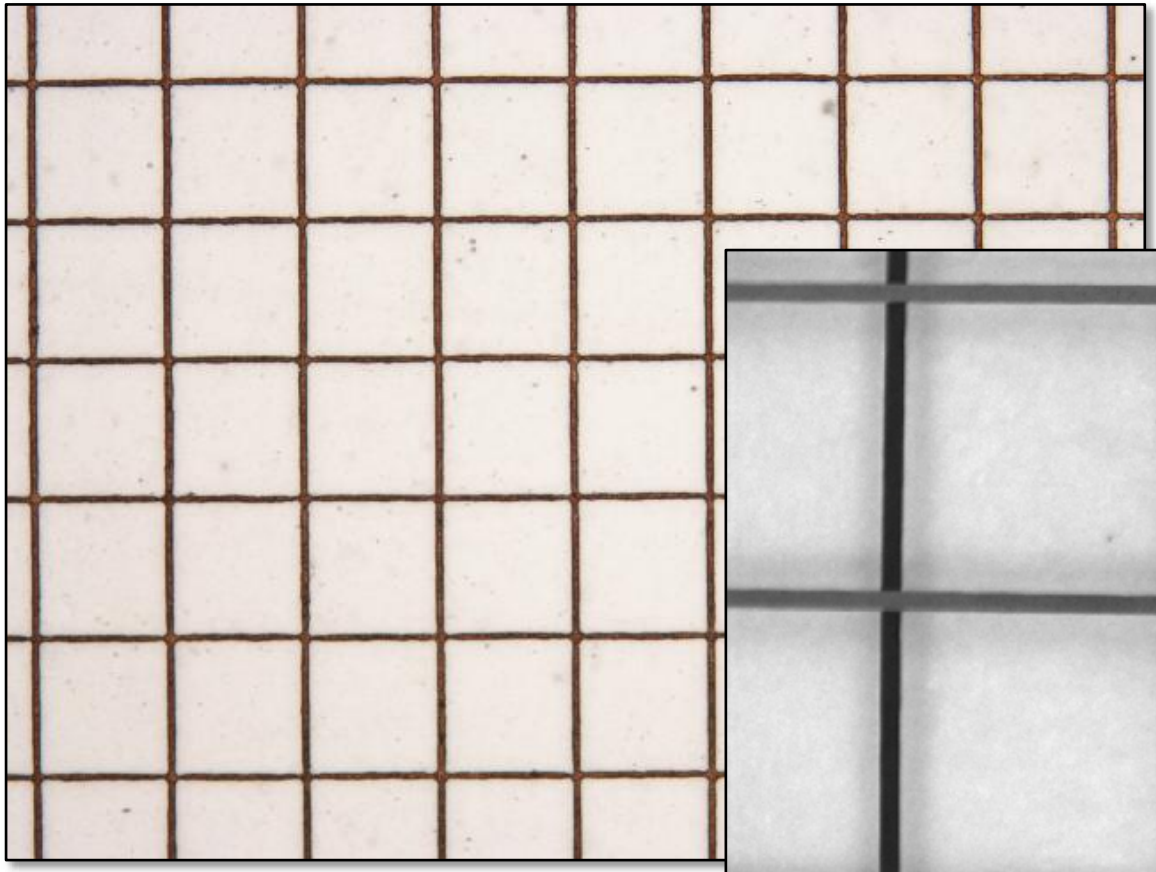
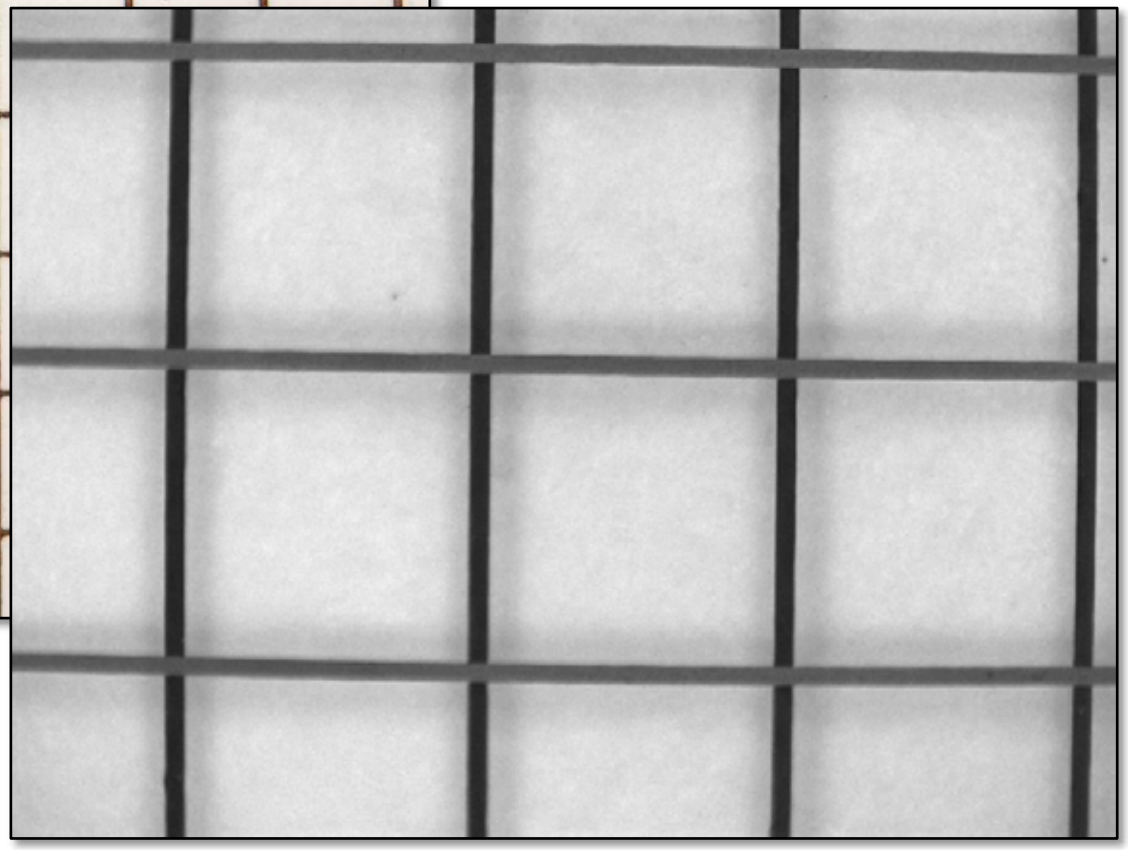
Grid Pattern Samples



20µm lines on
300µm grid (one side)

100µm lines on
1mm grid (**two sides**)



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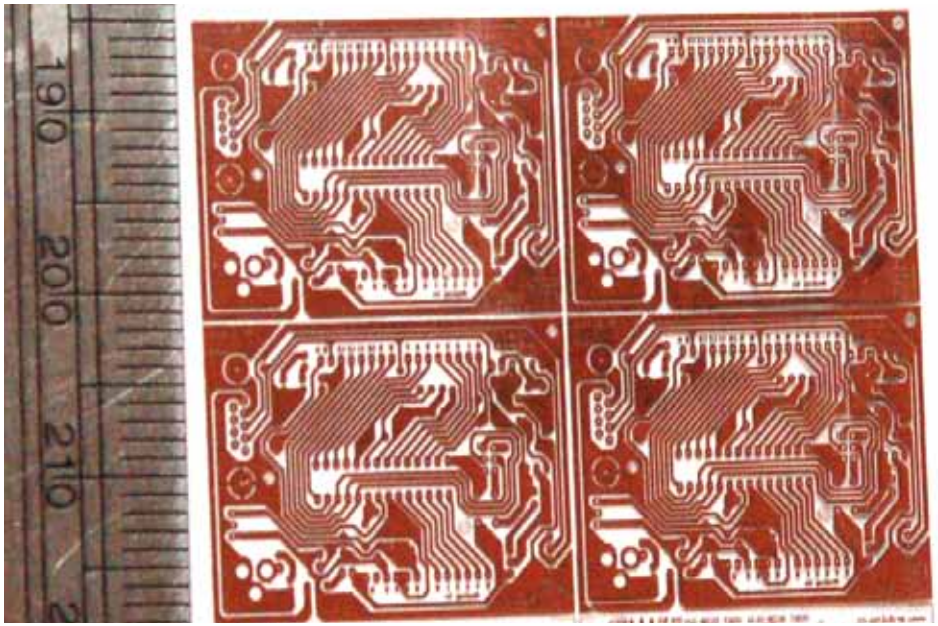
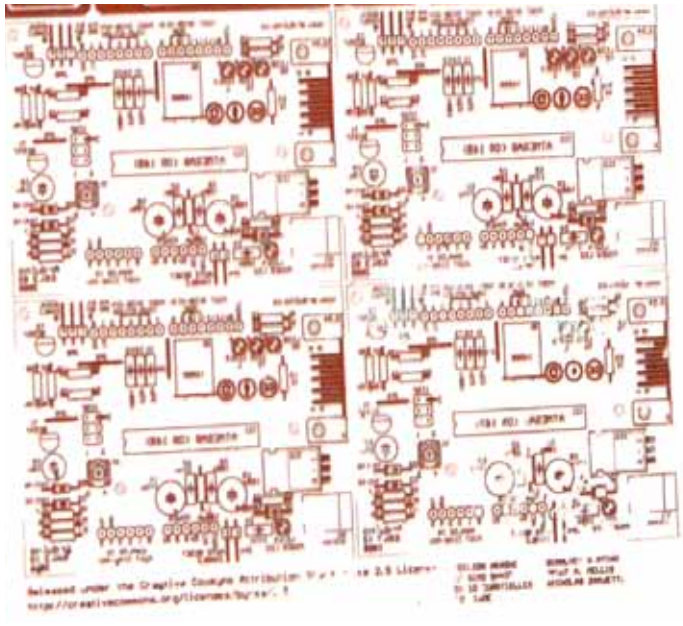
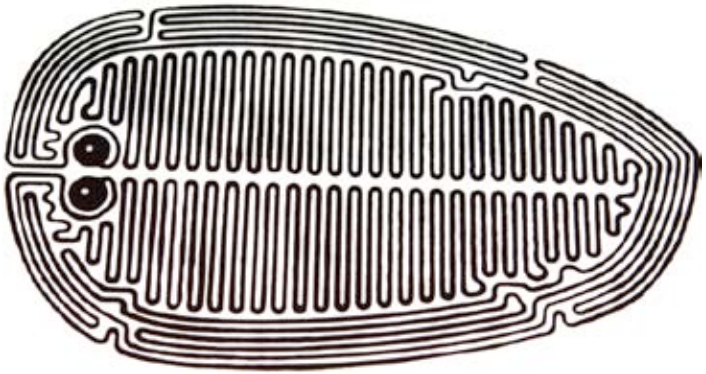
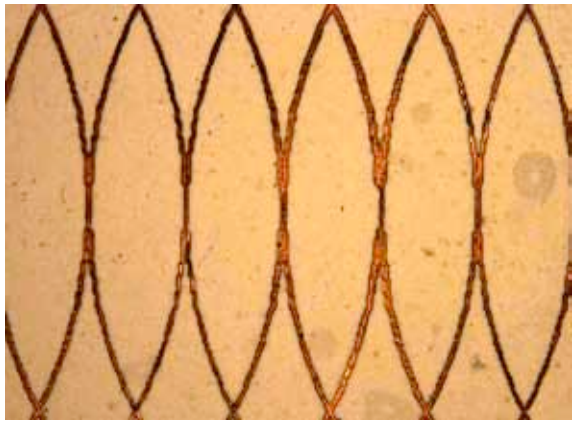
Conductive Patterns









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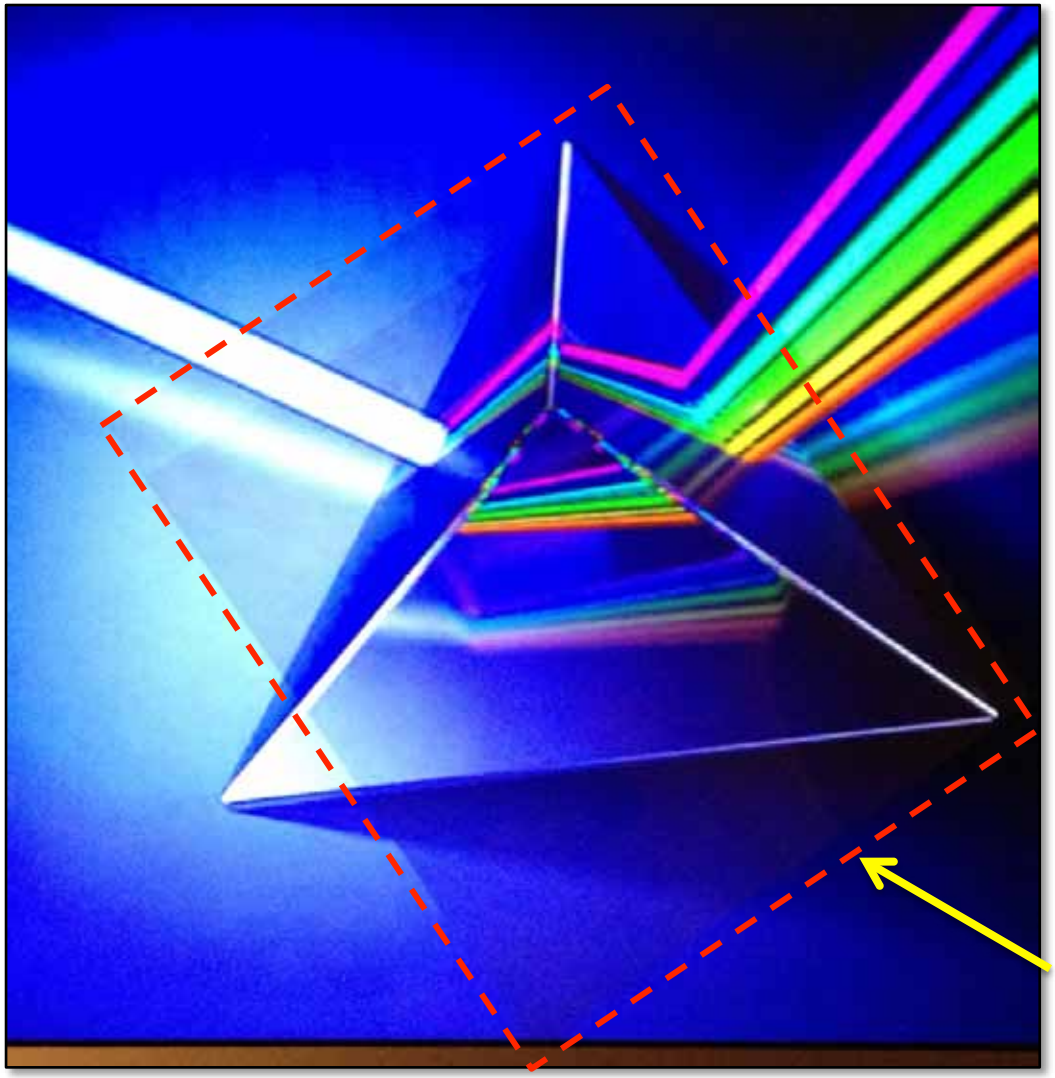
Transparent Conductor



UniBoss™ Grid pattern in front of LCD display

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UniBoss™

Touch Sensor Film

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UniBoss™ Application

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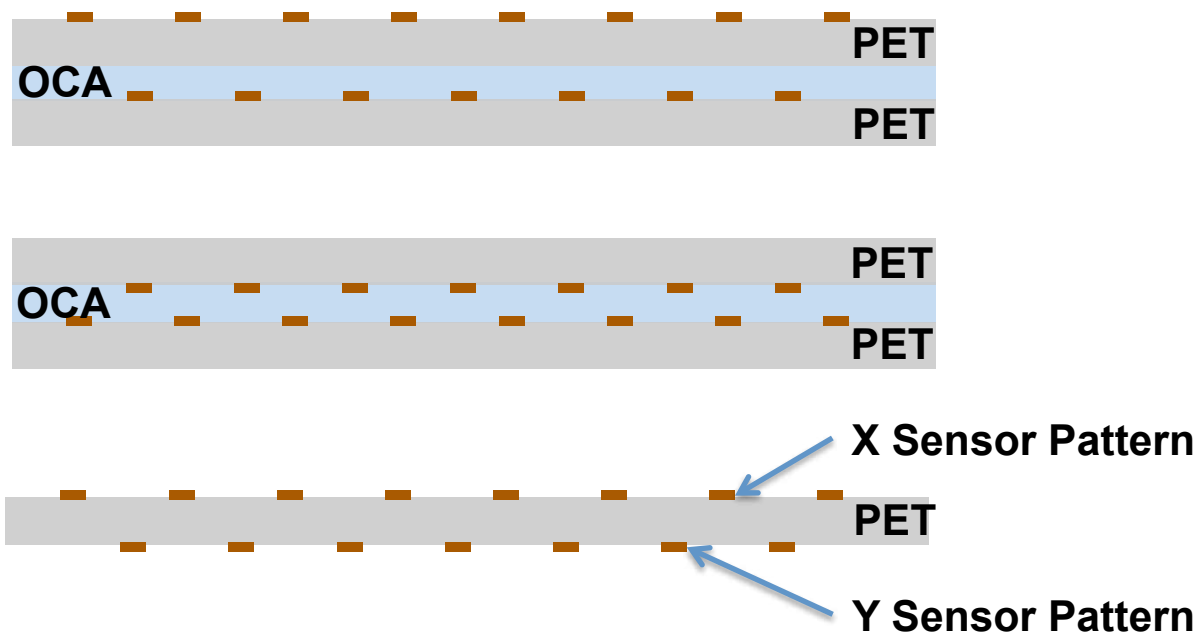
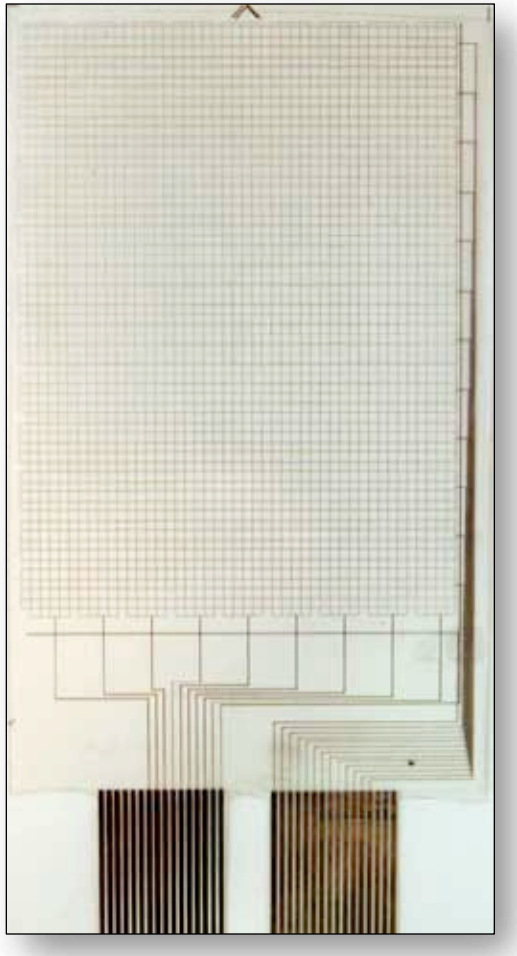
Touch Sensor

Available Configurations:





(Note: test sample with wide lines)

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UniBoss™ Value Proposition

UniBoss™ Copper compared with ITO based touch panel		
Performance Advantages	**ITO**	**UniBoss™ Copper**
Lower power		**Much lower power ($P = CV^2f$)** (up to 1/10,000 the capacitance)
Higher scan speed	**~60 – 300Hz**	**up to 10,000x faster scan rate**
Larger form factor	**up to 17”**	**up to 80”**
Thinner	**requires glass to protect from cracking**	**no glass**
Lower weight	**requires glass to protect from cracking**	**no glass**
Cost Advantages		
Manufacturing		
Deposition method	**Vacuum**	**Normal atmosphere, roll to roll**
Patterning process	**Subtractive - Batch photo-lithography** (100% of surface area covered, x2 layers)	**Additive - Roll to roll plating process** (~1% area covered, x2 layers)
Materials	**Indium = $800.00/kg** (Indium is 75% of ITO by weight)	**Cu = $7.31/kg**
Assembly	**Silver silk screen / lamination / flex cable attach**	**Optionally, fully integrated circuit**

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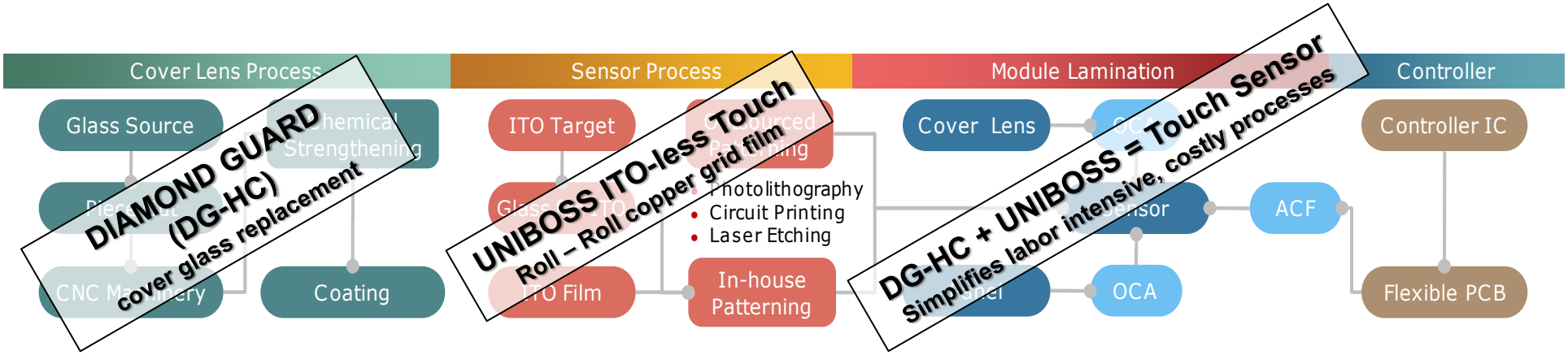
Market Drivers & Trends

- UniBoss™ Touch Sensor technology simplifies sensor patterning and can reduce cost.

- Diamond Guard™ - Hard Coat is a 9H polymer coating that is a replacement for glass cover lenses.



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UniBoss™: Solution for Today's Problems

- UniBoss™ brings Value-Add solutions to;
  - Transparent Touch Sensors
  - Precision flex cables with reduced lead time
  - Micro-Antenna
    - RFID, cell phones, RF, WiFi, Bluetooth, remote video, etc.
  - Transparent EMI/RFI shielding
  - OLED backside electrode grid
  - Solar electrode grid

  - More under development…

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Who We Are

- UniPixel is the innovation leader in the design and manufacturing of Performance Engineered Films™ (PEF)
- We modify industrial base films at the micro/nano level to effect the surface geometry, chemistry, optical and/or electrical properties
- Target applications include;
  - Flexible Electronics (including touch screens, RFID, antennas, etc.)
  - Lighting & Display
  - Optical Communications

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The Performance Engineering Process

Design: UniPixel experts in optical physics, chemistry and electronics work with you to design the coatings and microstructures that will give your film its unique properties

Mastering: Once the ideal design for a particular application is optimized and approved, we create master tooling

Manufacturing: Master tooling enables high-fidelity replication of the master design to be reproduced on fast, efficient roll-to-roll equipment capable of printing millions of square feet per day.

In essence, we have become experts at engineering micro/nano-structures on film surfaces that can be used in a variety of applications and markets

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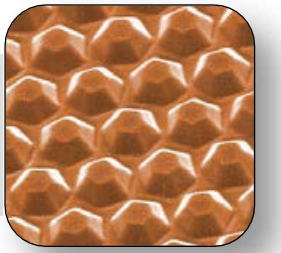
Possible Solutions are Limitless…

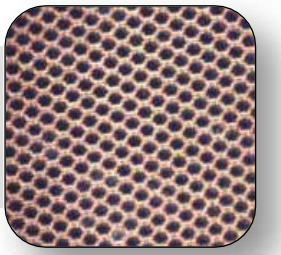
Raised surfaces wick away fingerprints to ensure clean displays even with heavy use.

Optical microstructures increase display and lighting efficiency and improve uniformity.



Near 5µm wide Copper lines allow thin touch sensors to be printed at much lower cost.

Advanced MEMS display film: A 4µm conductive mesh surrounding micro-optical structures on ultra-thin film.



Optical switches enable digital communication at light speed without fiber-optic cable.

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Broad, Multi-Billion Dollar Addressable Markets

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UniBoss™
Flexible Printed Electronics

- Touch Panel Sensor
- Antenna (RFID)
- EMI/RFI Shielding

Diamond Guard™
Display Films

- Protective Cover Films
- Cover Glass Replacement
- Backlight Film

Energy Efficiency

- General Lighting
- Solar
- Transportation

Optical Communications

- Free Space Optics
- Optical Routers
- Optical Interconnects

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Summary

- UniPixel is the industry leader in Performance Engineered Films
- Award winning patented technology
- Multi-billion dollar markets
  - Flexible Electronic Films
  - Optical Films
  - Optical Communications
- Experienced Board of Directors and Management Team with track record of commercial success

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The future belongs to the innovative…

UNIPIXEL