
Smartkem
OUR TRANSISTORS YOUR ADVANTAGE

Cautionary Note Regarding
Forward Looking Statements

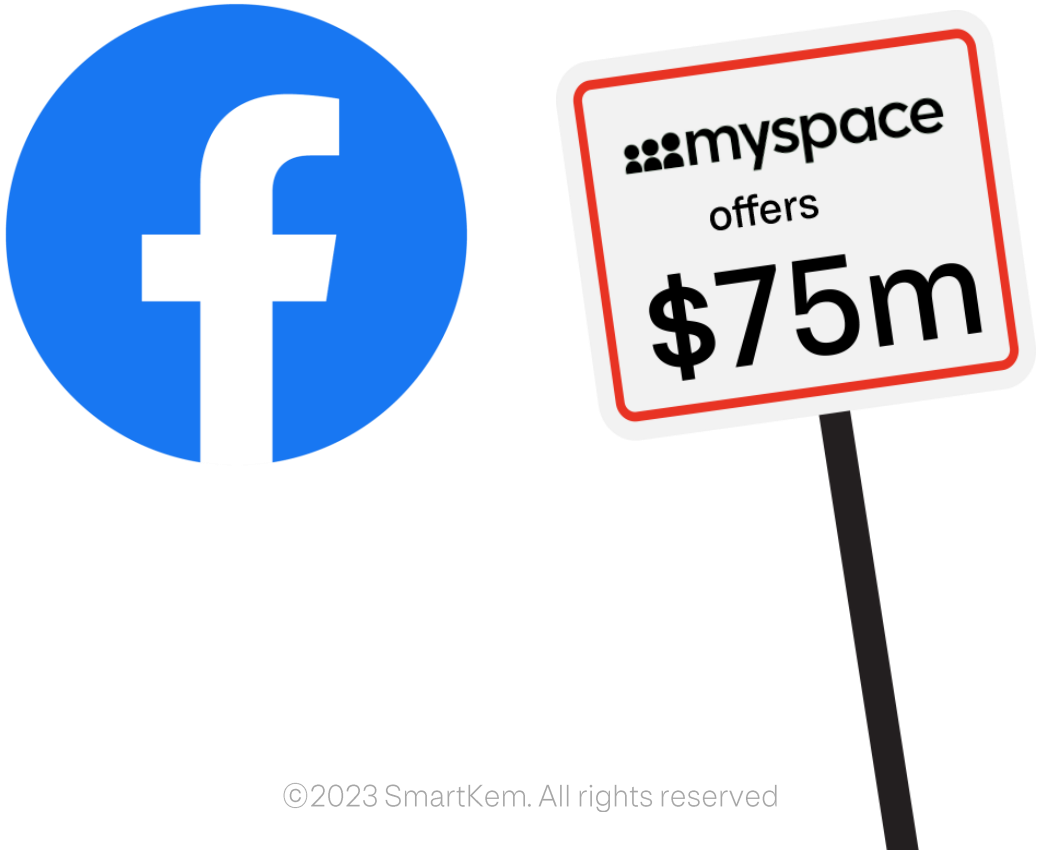
This presentation contains certain forward-looking statements within the meaning of Section 27A of the Securities Act of 1933 and Section 21E of the Securities Exchange Act of 1934 and Private Securities Litigation Reform Act, as amended, including those relating to the Company's product development, market opportunity, competitive position, possible or assumed future results of operations, business strategies, potential growth opportunities and other statements that are predictive in nature. These forward-looking statements are based on current expectations, estimates, forecasts and projections about the industry and markets in which we operate and management's current beliefs and assumptions.

These statements may be identified by the use of forward-looking expressions, including, but not limited to, "expect," "anticipate," "believe," "estimate," "potential," "predict," "project," "should," "would," and similar expressions and the negatives of those terms. These statements relate to future events or our financial performance and involve known and unknown risks, uncertainties, and other factors which may cause actual results, performance or achievements to be materially different from any future results, performance or achievements expressed or implied by the forward-looking statements. Such factors include those set forth in the Company's filings with the Securities and Exchange Commission. Prospective investors are cautioned not to place undue reliance on such forward-looking statements, which speak only as of the date of this presentation. The Company undertakes no obligation to publicly update any forward-looking statement, whether as a result of new information, future events or otherwise.

2005

The Crazy Frog

2005



2005

2005

Nokia N90

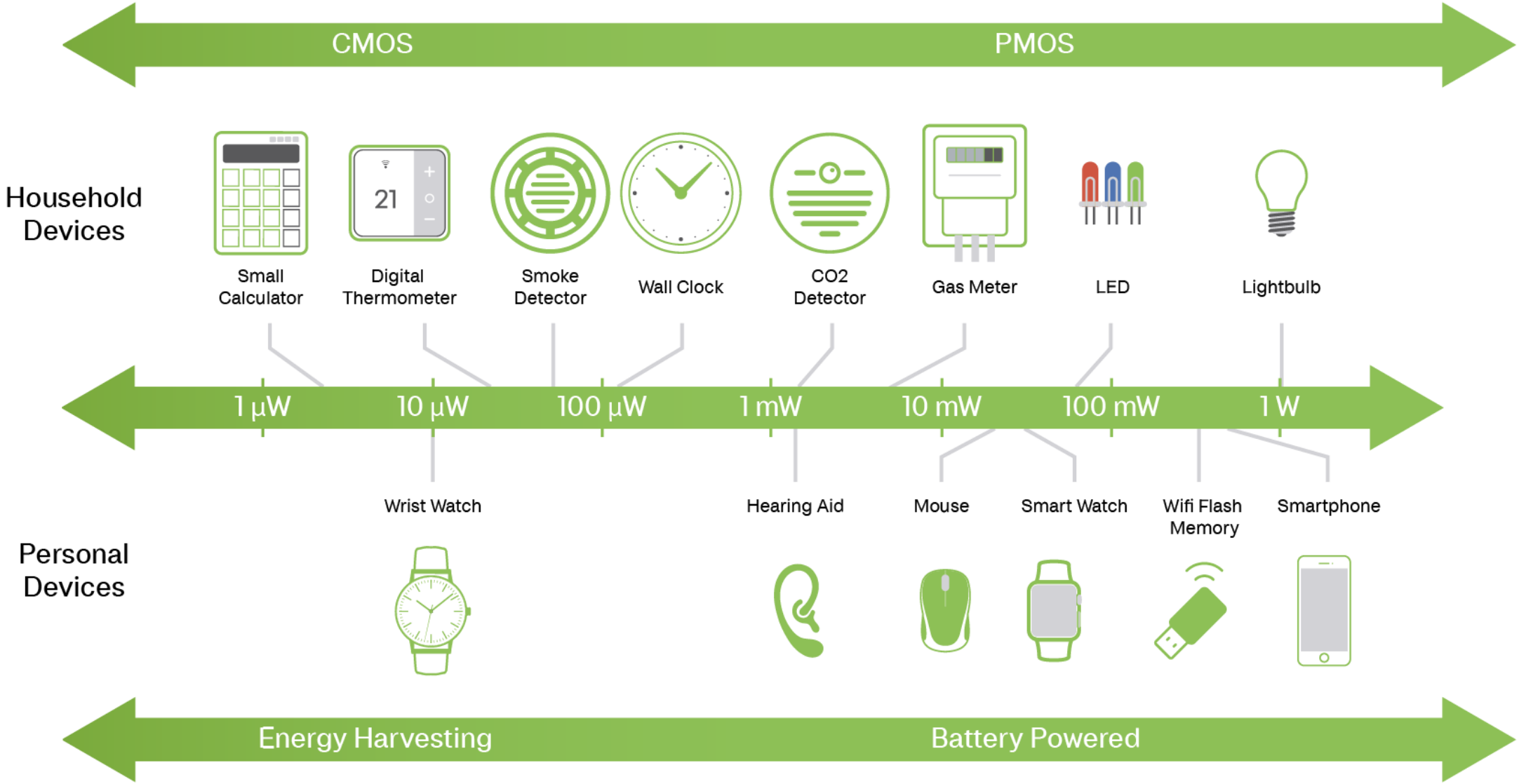
NOKIA

2007

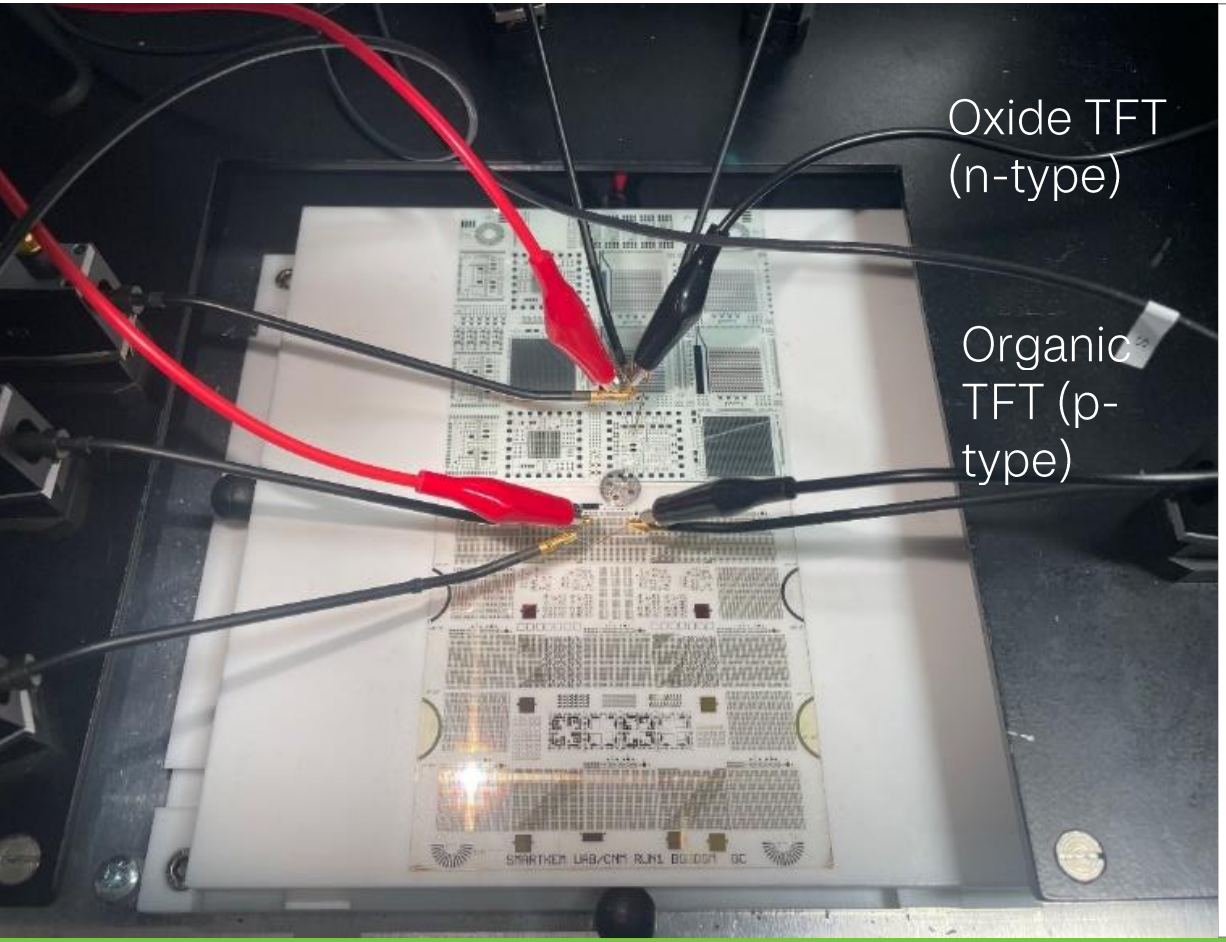
iPhone 2G

The Internet of Things

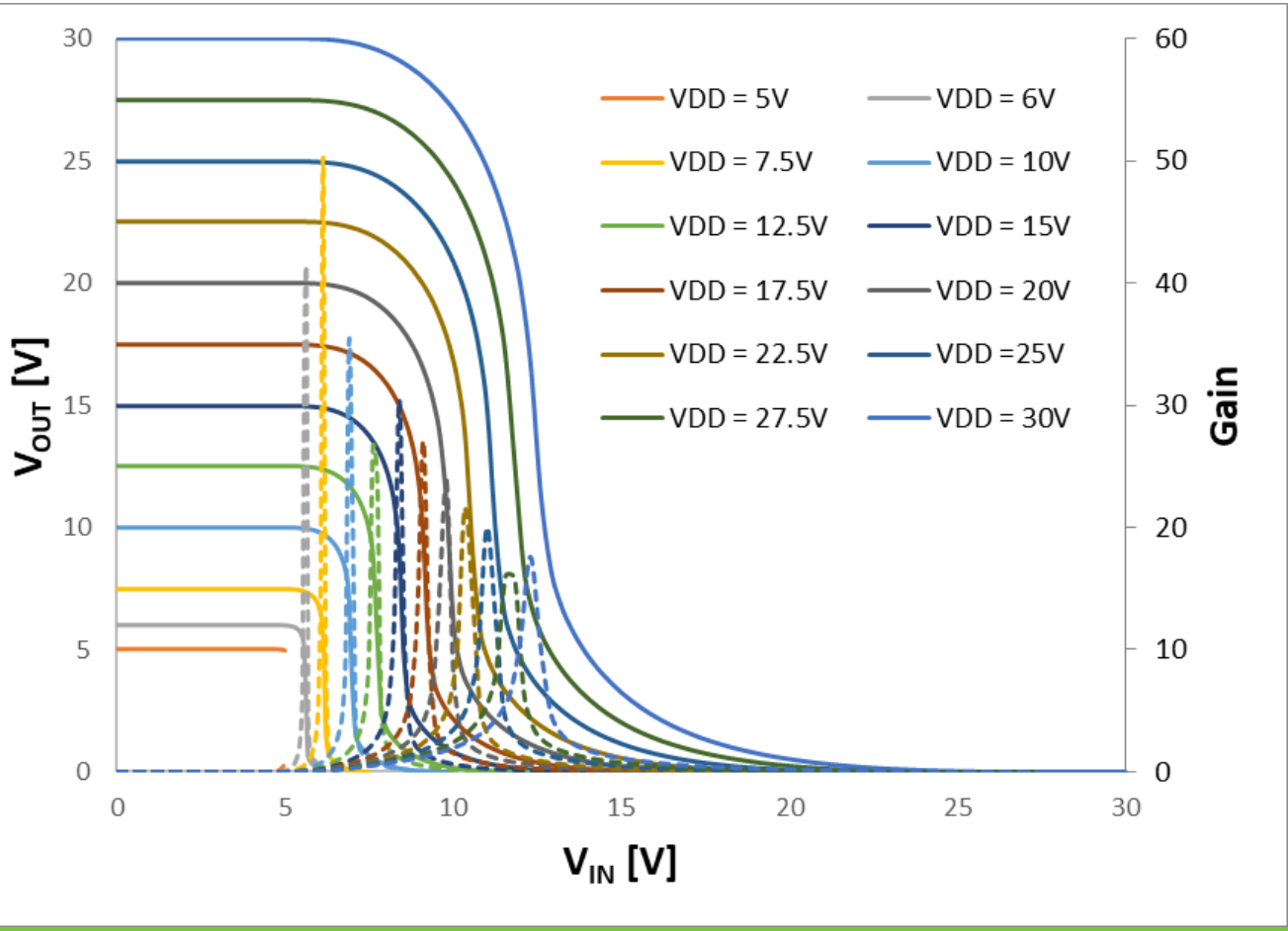
Market Size: **$544bn**



Using OTFT and IGZO to make CMOS



Perfect Inversion



Tianma and SmartKem Cooperation for AOS and OTFT

TIANMA

SHANGHAI JIAO TONG UNIVERSITY

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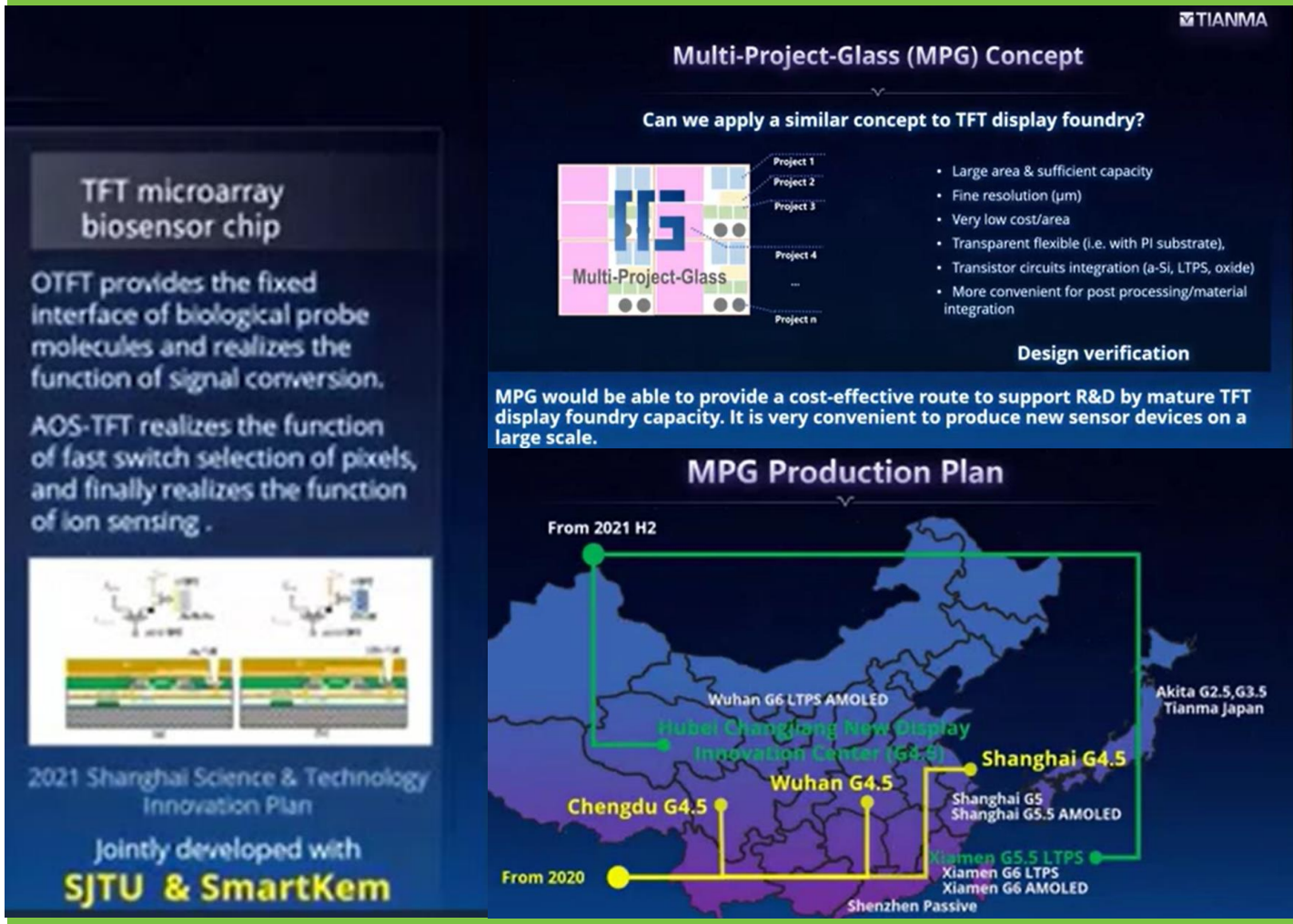
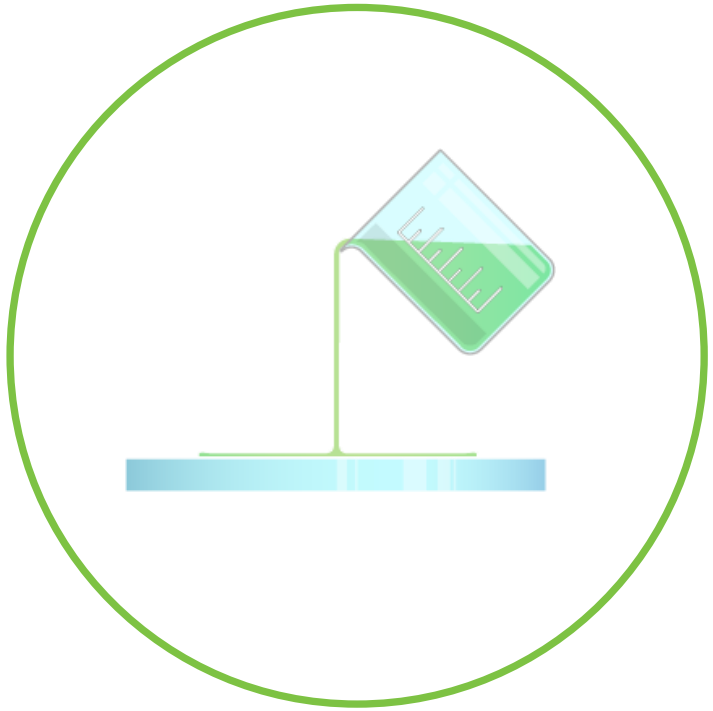
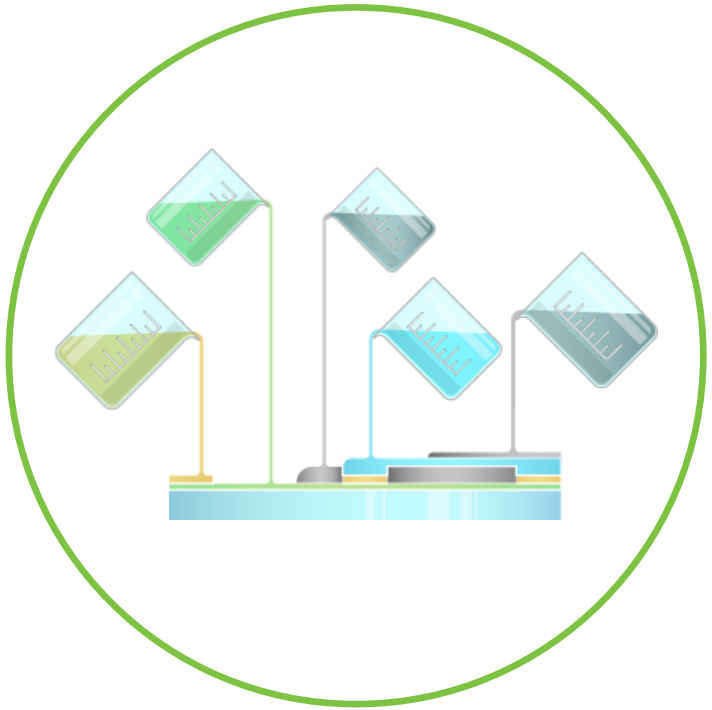
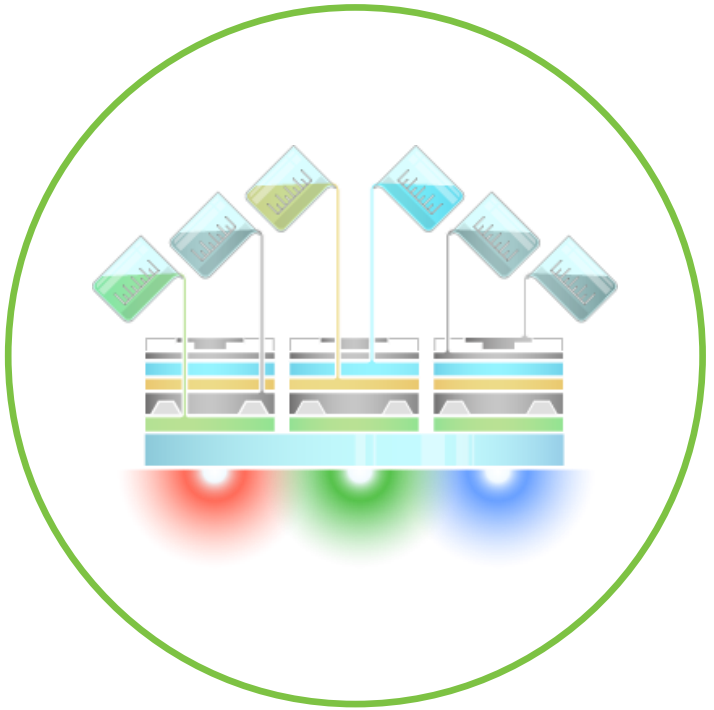


We manufacture “TRUFLEX®” inks used to make transistors

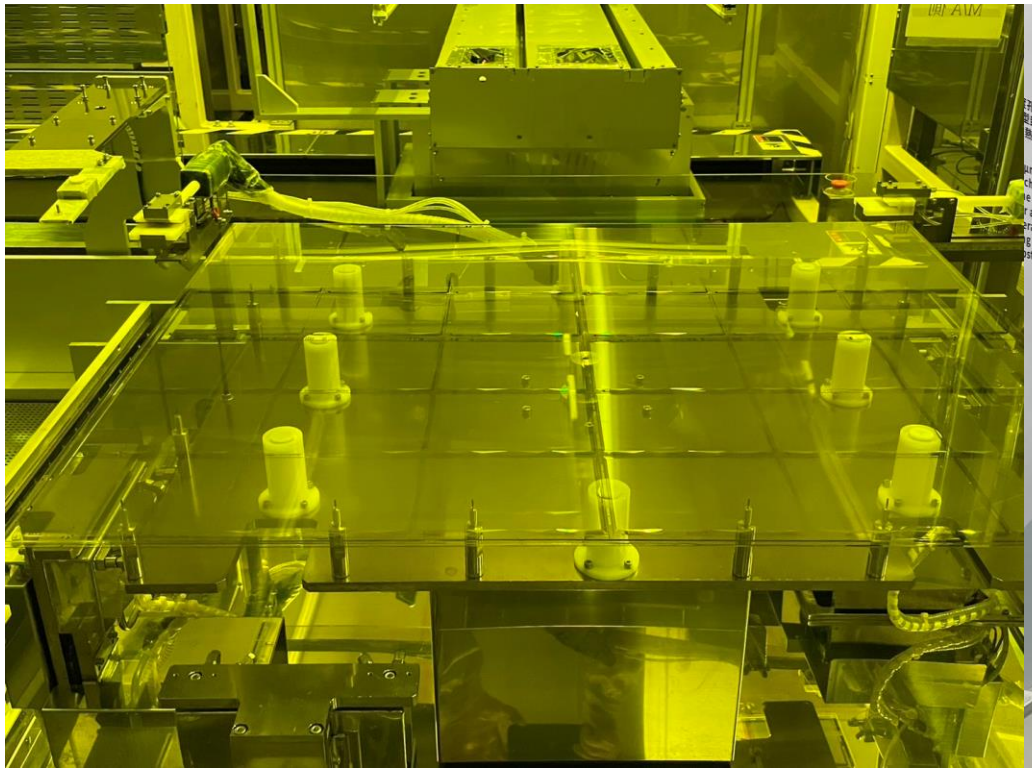




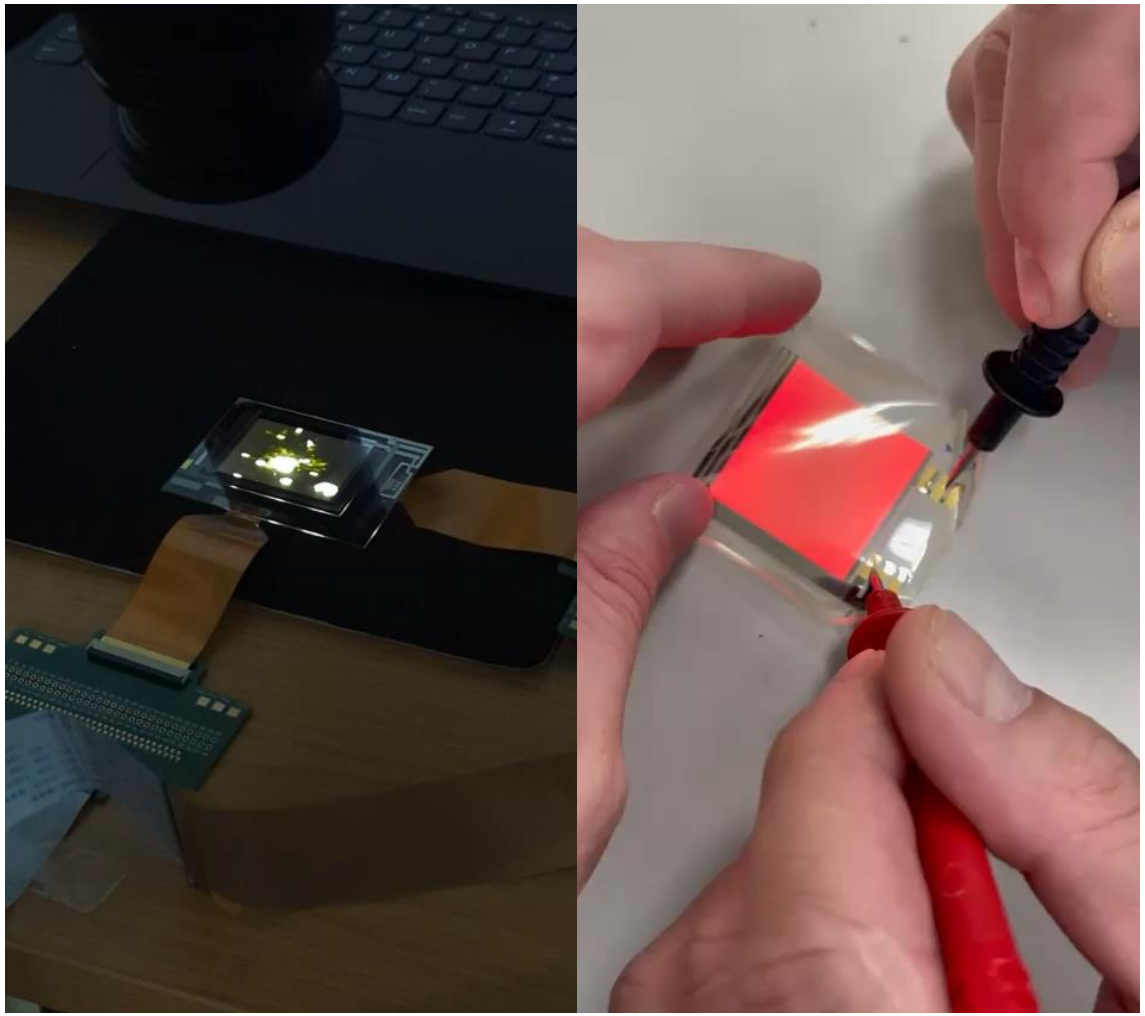


Sell materials, licence processes and fields of use

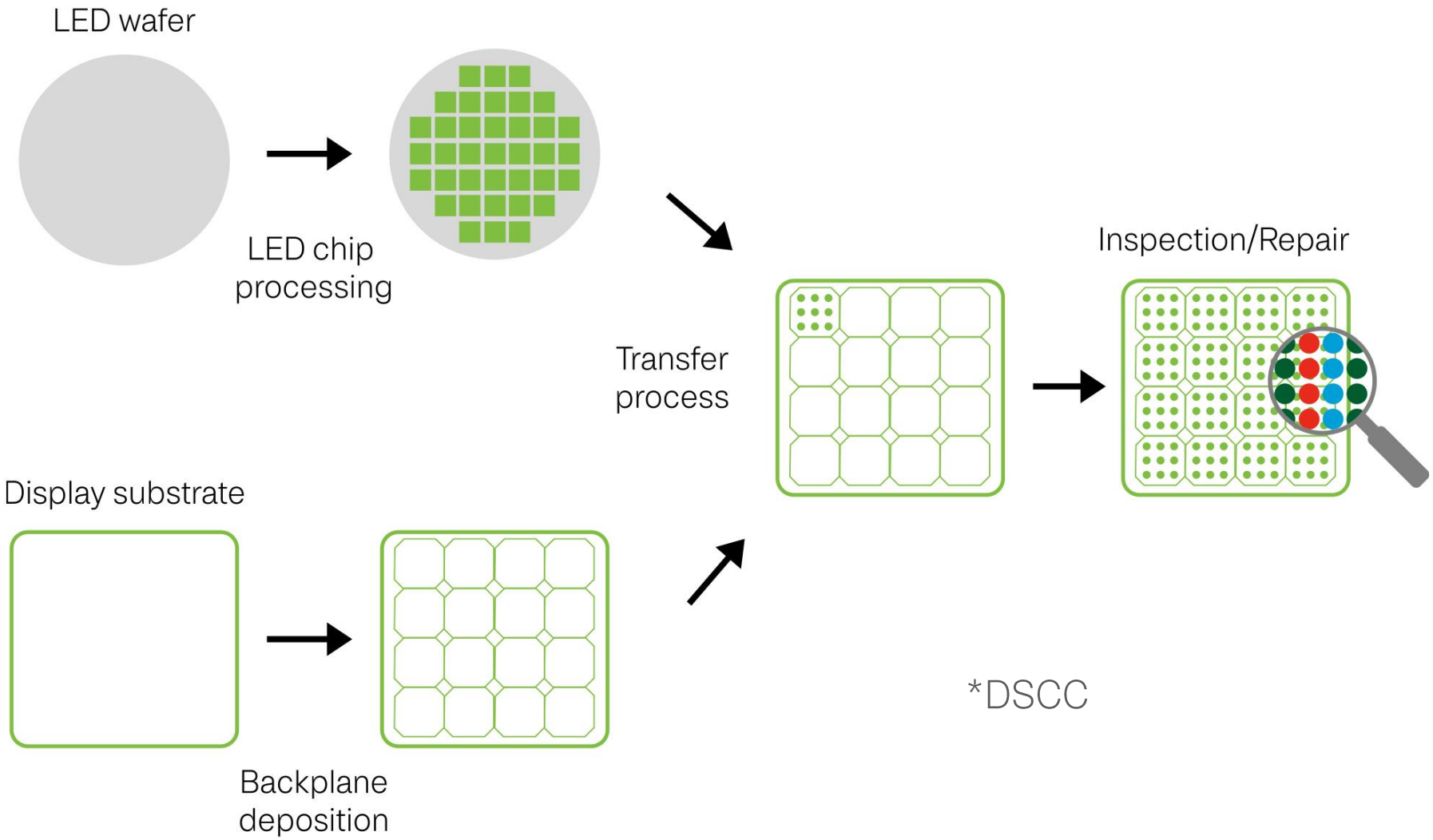
Single layer application



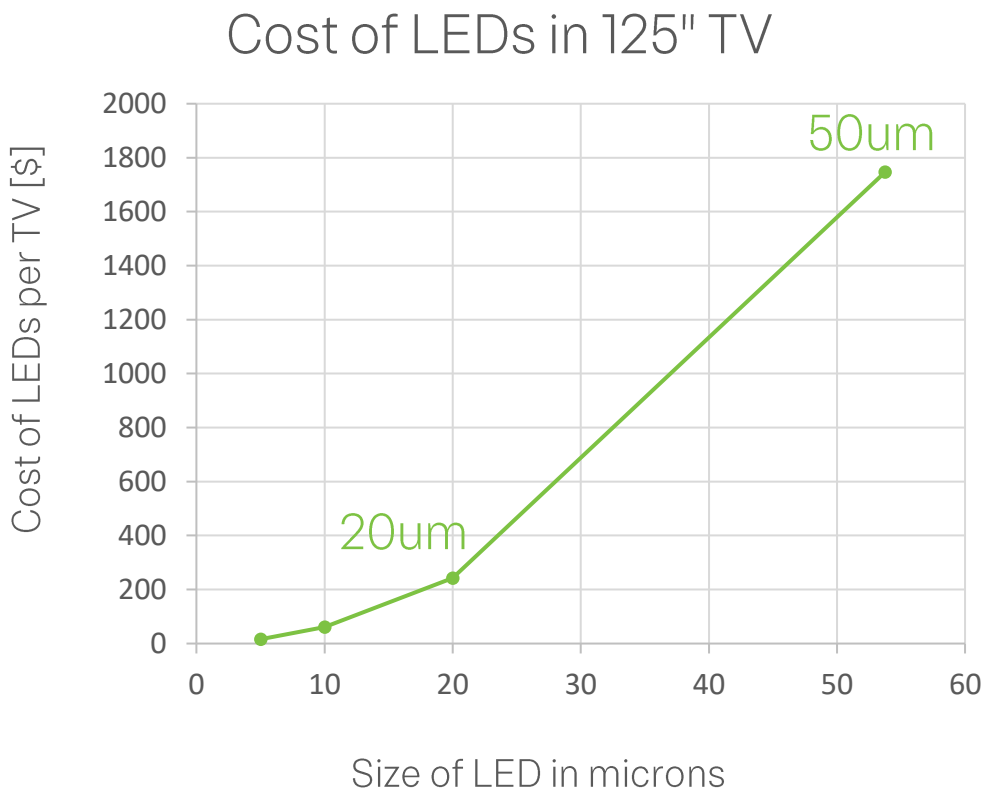
Transistor Backplanes



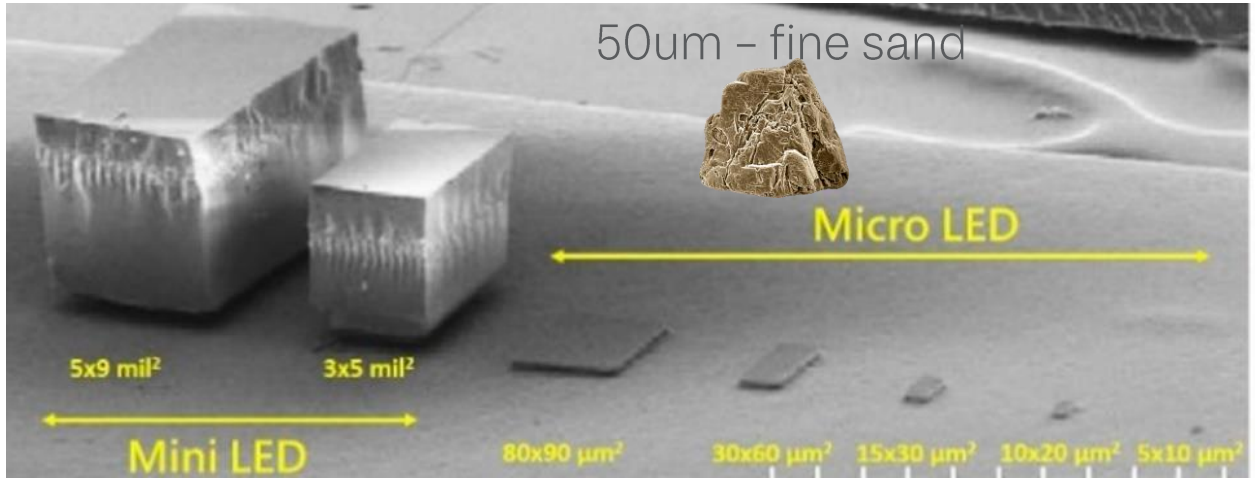
Making MicroLED Displays



MicroLEDs need to be small to make them viable at large scale

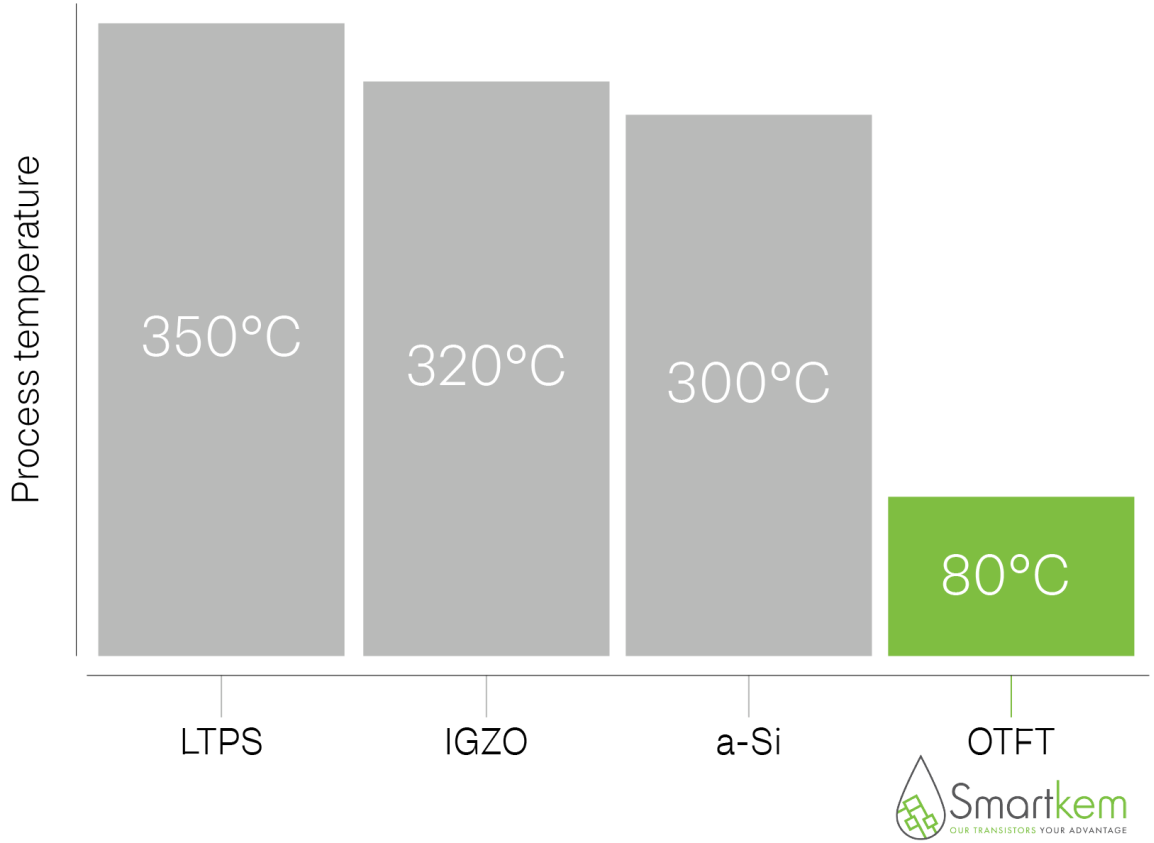


For microLED to be economical we need to be using <20 micron size LEDs for TV applications



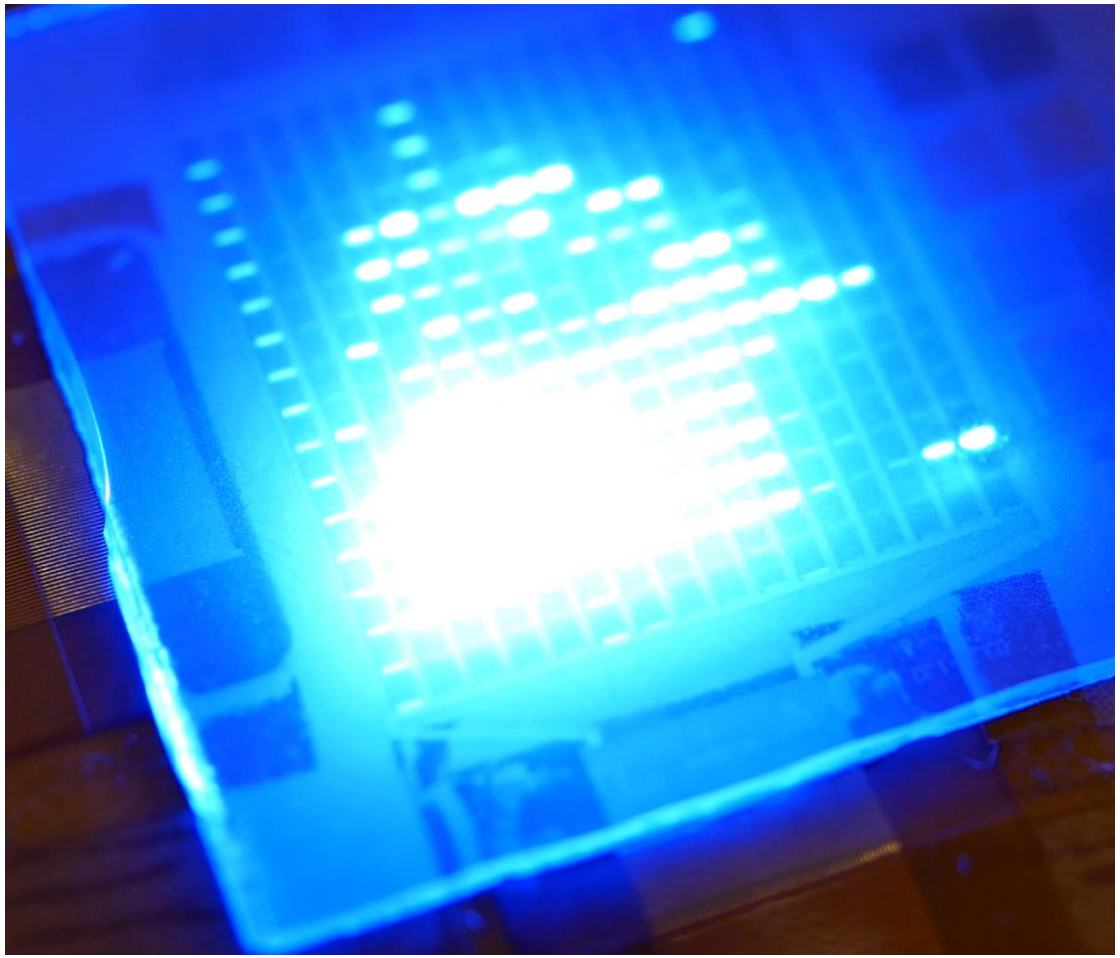
What's unique about SmartKem's transistors - Low processing temperature

- High temperature processing will damage LEDs
- SmartKem processes at 80°C
- Scalable solution-based process
- Uses existing manufacturing infrastructure



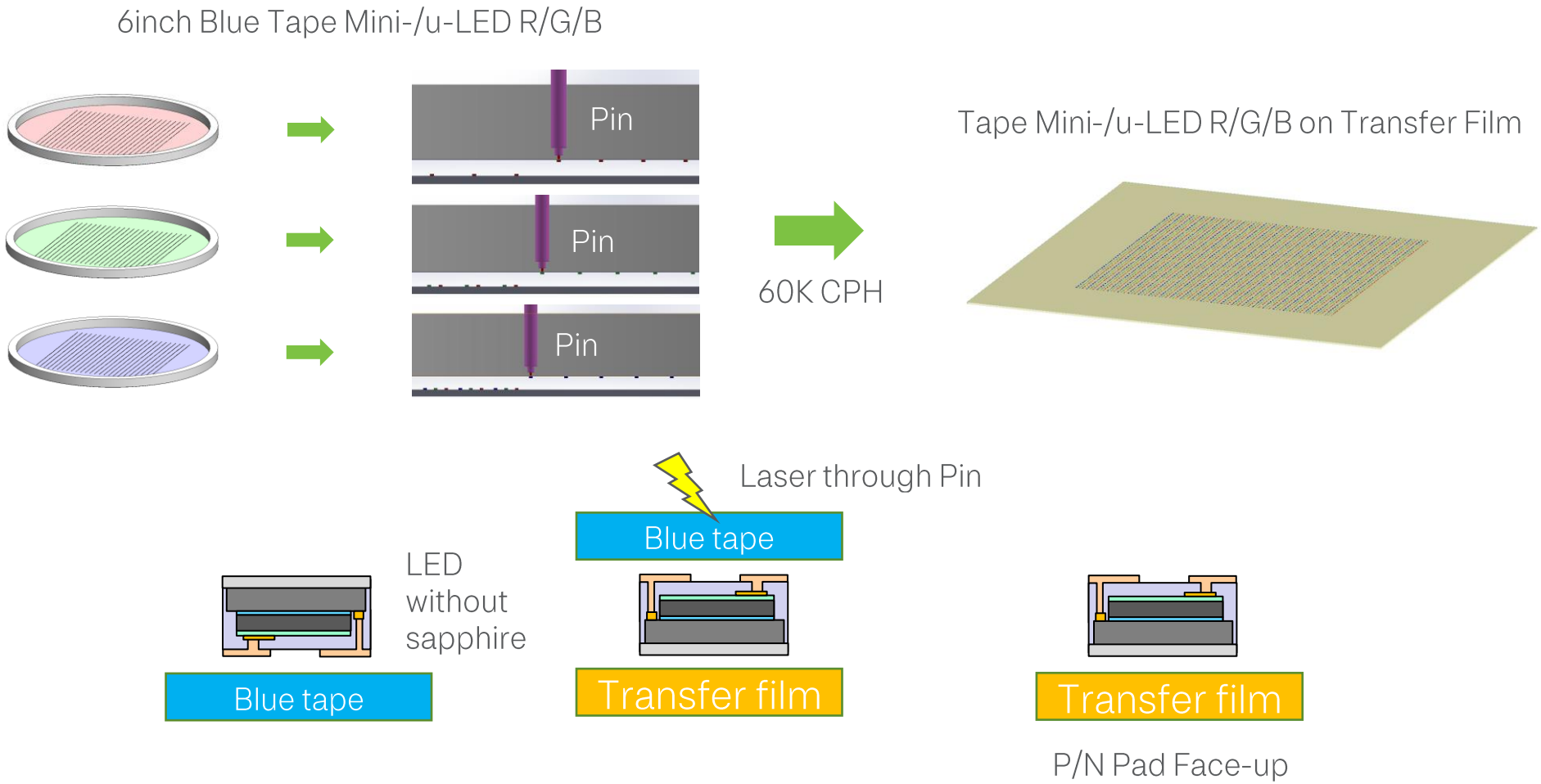
MicroLED Monolithically Integrated transistors – It works

- Low temperature process
- Standard process equipment
- Initial demos tested to >100K nits



Mini/MicroLED Monolithically Integrated OTFT at large scale

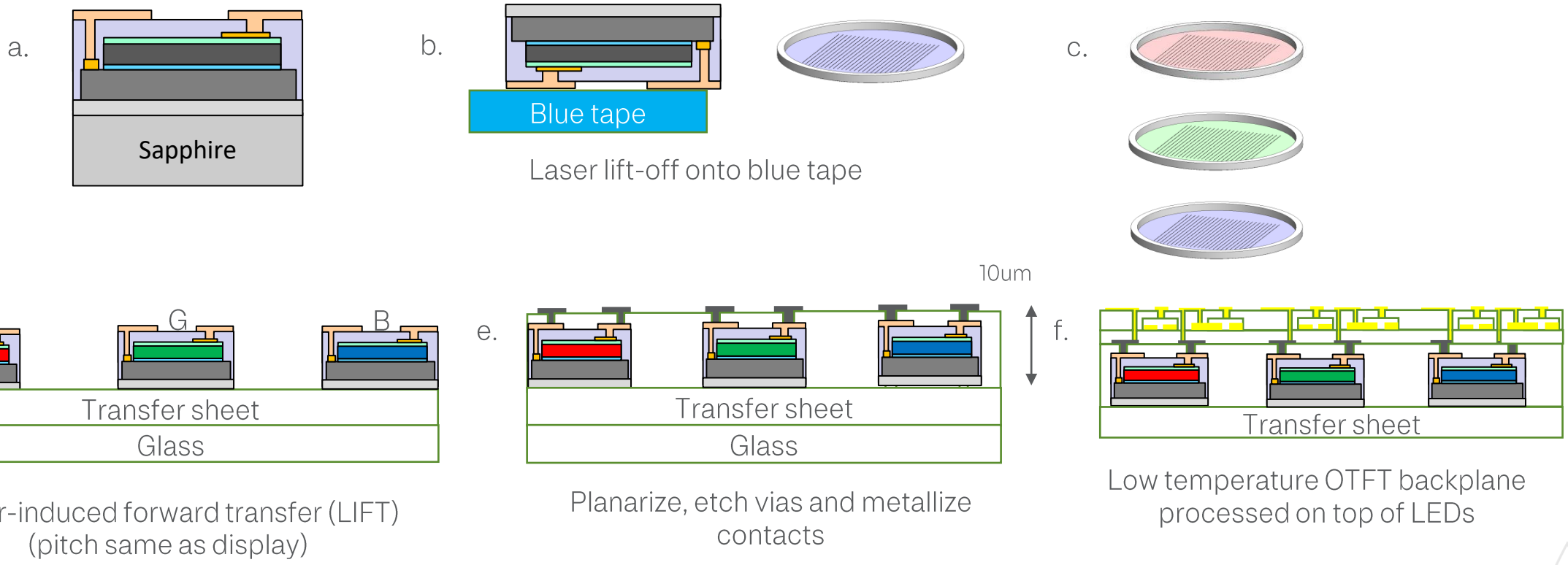
Mini/MicroLED Chip on Transfer Film process



Reducing the μ-LED Cost

Part Transfer, Part Monolithic Process

Processing OTFT on the transfer sheet will be the best way to achieve good display size scalability at low GaN cost



Advantages of chip first MicroLED displays

Lower cost emitters

- Can use much smaller flip chip u-LEDs immediately 30x15um instead of 34x85um (84% reduction in GaN wafer cost)

Flexible microLED display

- Transfer sheet is a flexible film that can be removed from the glass carrier

Monolithic single sided architecture

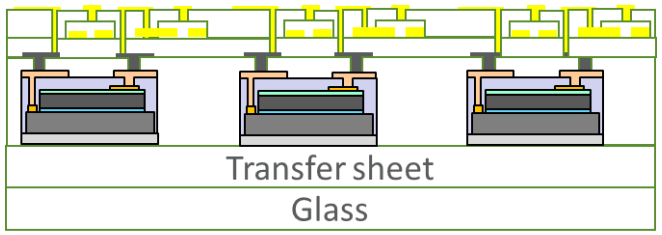
- No side wiring required - Driver attach CoF can be on TFT side (since light is emitted through the substrate)
- Lower driver cost

Substrate scalability

- OTFT can use a-Si line tools so can scale to larger Gen sizes if transfer sheet substrate can be made at larger size
- Moves away from the constraints of an LTPS processing environment
- Option to move to larger Gen depreciated, lower processing cost (per m^2) facilities

Higher yield

- No laser anneal - contact is made through metallized via in Interlayer Dielectric (ILD)
- No thick In/Sn bumping or electroless nickel deposition required
- No lift-off processes for patterning



SUMMARY

Best in class Organic Electronic Polymers that are used to make transistors arrays

Demonstrated the ability to drive AMOLED and MicroLED displays

Introducing a way of manufacturing Monlithic MicroLEDs at large scale

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THANK YOU

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Manchester Technology Center
Hexagon Tower, Delaunays Road,
Blackley, Manchester M9 8GQ UK

+44 (0) 161 721 1514
enquiries@smartkem.com