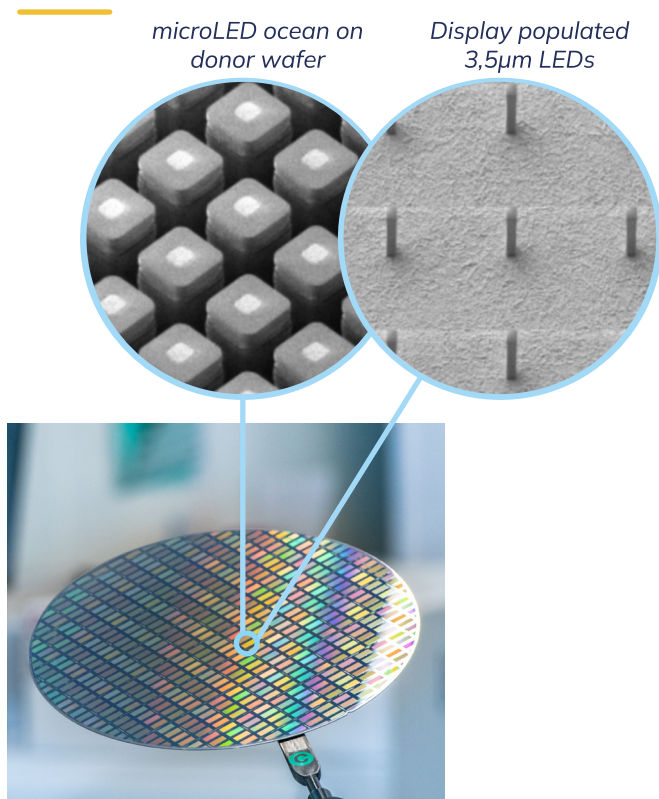


FlexiNOVA BLUE MICROLED

Unique Solution Enabling Cost-Competitive MicroLED Mass Production



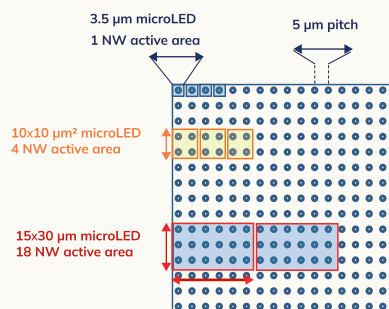
Main features

- **microLED Structure:**
 - Chip sizes range from $15 \times 30 \mu\text{m}^2$ to $3.5 \times 3.5 \mu\text{m}^2$, maintaining the same efficiency
 - Up to 1.1 billion chips per 8-inch wafer, scalable to 12-inch
 - LED quantity per wafer: Up to 40 4K resolution displays
 - Can operate at high voltages (6V / 9V)
- **Market-Leading Efficiency (>40% Blue):**
 - Record external quantum efficiency (EQE) achieving 40% for all microLED sizes down to $3.5 \mu\text{m}$
 - Efficiency is maintained even with chip size reduction
 - Efficiency improvements exceeding 40% targeted for 2025 by year-end

Versatile Chip Design:

Customizable Chip Size

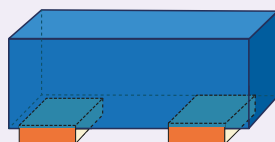
Size defined according to trench pitch in between nanowires



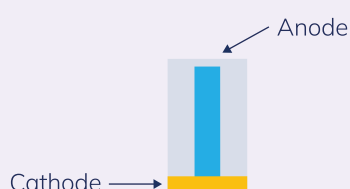
Down to 1 nanowire: $3.5 \mu\text{m} \times 3.5 \mu\text{m}$
40% EQE demonstrated

Chip Design

Flip Chip: anode and cathode on the same side

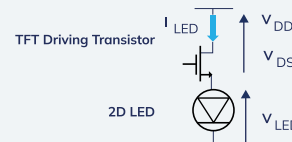


Vertical: cathode top contact
Anode Bottom contact

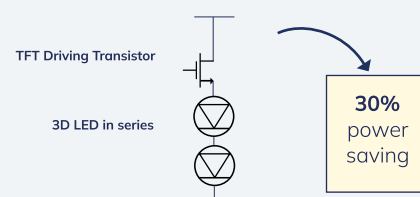


Chip Voltage

Standard Voltage: nanowire block connected in parallel



High Voltage: nanowire blocks: connected in series



Chip Details and Performance (applicable to all sizes and LED types)

LED Size		Nanowire LED Count	Chip Type	Chip Voltage	Chip EQE (%)	
x (μm)	y (μm)				In Air	Domed
28	13	18 (6x3)	Vertical or Flip Chip	3V or High Voltage	>30	>40
18	8	8 (4x2)	Vertical or Flip Chip	3V or High Voltage	>30	>40
13	13	9 (3x3)	Vertical or Flip Chip	3V or High Voltage	>30	>40
8	8	8 (4x2)	Vertical or Flip Chip	3V or High Voltage	>30	>40
3.5	3.5	1	Vertical or Flip Chip	3V or High Voltage	>30	>40

Distinctive Advantages

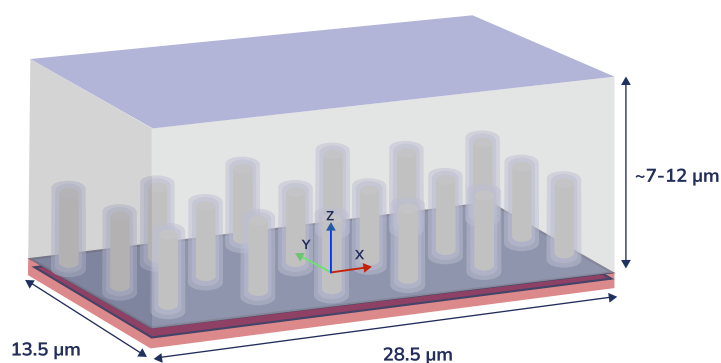
✓ High-Voltage for Efficiency Boost:

The nanowire structure enables series connection of LEDs on the chip, allowing for high-voltage operation and reduced power loss.

✓ Cost-Effective Breakthrough:

- Ultra-high chip density on large wafers yields over 1 billion microLEDs per 200mm wafer
- Utilizes standard semiconductor processing on Silicon wafers
- Eliminates dicing streets through advanced etching processes

3D view



Applications

Mid-Size Displays: Ideal for smartwatches, laptops, and other devices requiring micron-scale microLEDs



- **Mid-Size Displays:** Ideal for smartwatches, laptops, and other devices requiring micron-scale microLEDs
- **Larger Displays:** Flip-chip and high-voltage designs enable applications in tablets and high-end TVs
- **Build Your Own Solution!**
The FlexiNova Blue microLED empowers you to create custom display solutions tailored to your specific needs



For more information or to place an order, contact us
→ product@aledia.com