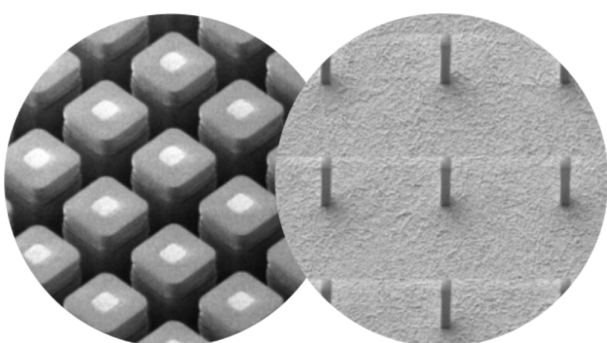


NOVA BLUE MICROLED

ALD-LD-000X

Unique Solution Enabling Cost-Competitive MicroLED Mass Production



microLED ocean on donor wafer

Display populated 3,5µm LEDs

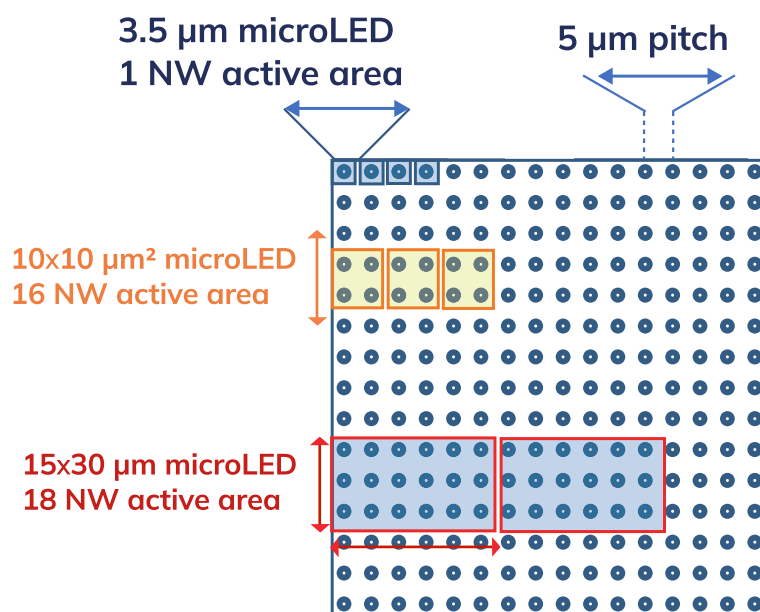
Main features

- microLED Structure:**
 - Chip sizes range from 15 x 30 µm² to 3.5 x 3.5 µm², 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 µm
 - Efficiency is maintained even with chip size reduction
 - Efficiency improvements exceeding 40% targeted for 2025 by year-end

Advanced Control Features

Versatile Chip Design:

- ✓ Adaptable to Diverse Requirements:** Easily fits various microLED mass transfer and backplane integration processes through simple mask changes.
- ✓ Customization Options:** A wide range of chip sizes, LED types (vertical or flip-chip), and operating voltages (standard or high) are available.



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 Flip Chip	Standard - High Voltage	>30	>40
...	...	n (pxg)	Vertical Flip Chip	Standard - High Voltage	>30	>40
18	8	4 (4x2)	Vertical Flip Chip	Standard - High Voltage	>30	>40
13	13	9 (3x3)	Vertical Flip Chip	Standard Development required for HV	>30	>40
8	8	4 (2x2)	Vertical Flip Chip	Standard Development required for HV	>30	>40
3.5	3.5	1	Vertical	Standard	>30	>40

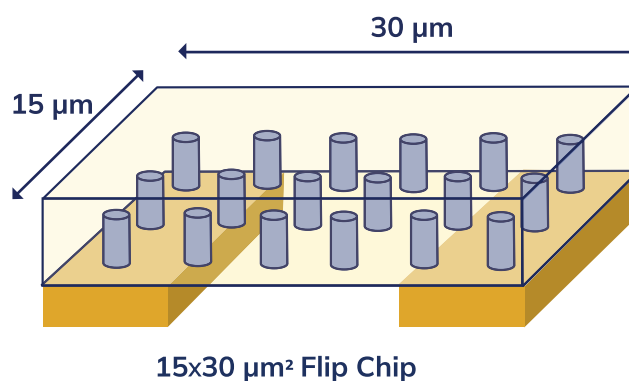
Distinctive Advantages

✓ **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



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 Nova 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