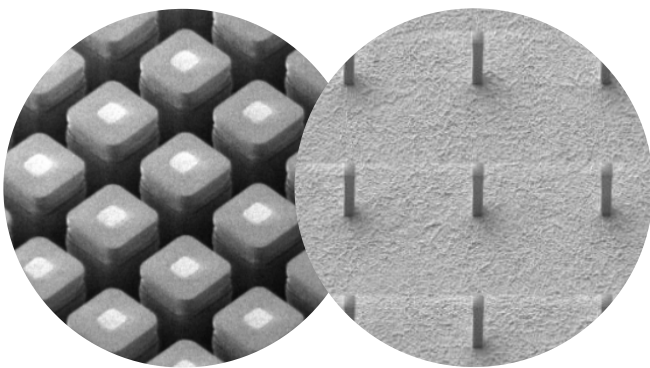


# NOVA BLUE MICROLED ALD-LD-000X

## Unique Solution Enabling Cost-Competitive MicroLED Mass Production



microLED ocean on donor wafer

Display populated 3,5µm LEDs

### Main features

- **microLED Structure:**
  - 3.5µm Blue microLED chip «ocean» fabricated on large-size silicon wafers
  - 1.1 billion chips per 8-inch wafer, scalable to 12-inch
  - LED quantity per wafer is more than 40 4k resolution displays
- **Market-Leading Efficiency (>32% Blue):**
  - Record external quantum efficiency (EQE) exceeding 32% for 1µm LED size
  - Efficiency is maintained even with chip size reduction
  - On track to achieve >40% EQE by year-end

### Advanced Control Features

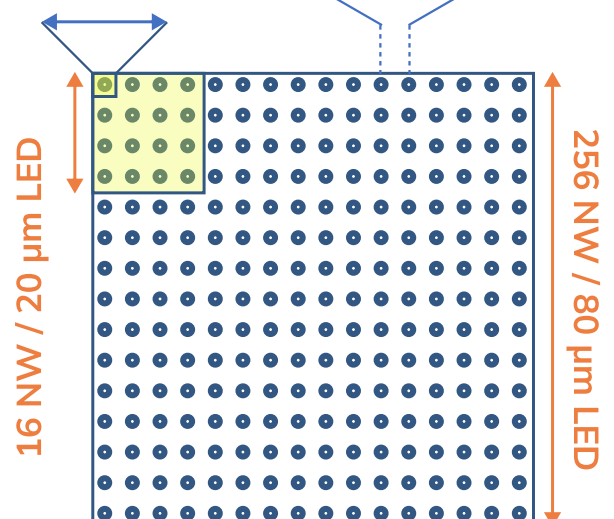
Versatile Chip Design:

- ✓ **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.

1 µLED = 3.5µm with

1 NW of 1 µm active area

5 µm pitch



## 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](mailto:product@aledia.com)