



Native Color microdisplays for AR

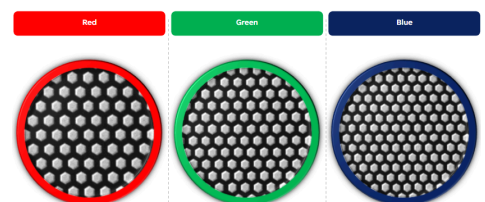
Optimizing power efficiency and form factor for Augmented Reality (AR) optical engines

Native monochrome microLEDs for high-end AI/AR glasses microdisplays

Unique nanowire technology to produce monochromatic and monolithic AR microdisplays



R,G, B logo light up for AR microdisplays from 200 mm wafer



Main Features

Manufacturing

- 200mm Silicon manufacturing in Aledia facility
- Native growth GaN on Silicon 3D Nanowire
- Industrial flow - Semiconductor standard processes

Technology

- 0.1" Scale display surface light up
- 14000 pixels light up - 100 % yield
- Nanowire redundancy robustness demonstrated

Resolution

- 2.5 μm subpixel pitch ↔ 5 μm monolithic RGB pitch
- Pixel light up surface as low as 1.3 μm^2
- Resolution close to VGA for 0.13" RGB monolithic microdisplay



Distinctive features



Material and structure:

- Utilizes Gallium Nitride (GaN) nanowires grown on Silicon substrates.



Directional emission:

- Achieved through the periodic arrangement of nanowires, enhancing coupling efficiency with optical waveguides.



Ultra-compact microdisplay module:

- Integrates a unique monolithic RGB or monochrome microdisplay.



Power efficiency:

- Exceptionnally low power consumption due to high directionality, achieving 2 to 6 times more light directed to the waveguide.

Applications: specifically tailored for outdoor augmented reality glasses, offering:



Outdoor Brightness:

Sufficient brightness for visibility in sunlight



High Resolution:

allows precise viewing of fine details



High Power Efficiency:

Supports extensive battery life due to efficient power use



Compatibility:

Works well with cube optical combiners due to high directivity



Compactness:

Fits elegantly within eyeglasses branches

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