

ams OSRAM unveils ultra-efficient microLED array for slow-and-wide AI optical interconnects and advances to product development

Premstaetten, Austria, and Munich, Germany (18 March 2026) -- ams OSRAM advances its proven EVIYOS microLED technology to next-gen slow-and-wide AI optical interconnects, demonstrating ultra-low-power at high speed and moving toward product development

“We industrialized microLED arrays at scale with EVIYOS™ for highly pixelated automotive forward lighting. As the leader in Digital Photonics, we are now leveraging this expertise to tackle a key bottleneck of AI infrastructure — the power required for data links between and within AI server racks,” said Aldo Kamper, CEO of ams OSRAM. *“This achievement positions us strongly in a high-growth segment of AI infrastructure.”*

Outstanding Efficiency for AI data-center connectivity

The new microLED array prototype leverages a proprietary epitaxy stack and delivers:

- Cut-off frequency >1 GHz
- Energy consumption below 2 pJ/bit
- Massively parallel, short-reach optical IO paths

These characteristics directly address the interconnect bottleneck emerging in modern AI compute architectures, where data movement increasingly dominates system power budgets.

From award-winning EVIYOS™ to AI infrastructure optical interconnects

ams OSRAM microLED leadership is rooted in EVIYOS™, the world’s first high-volume automotive micro-emitter array. Delivering 25,600 individually addressable pixels, each approximately half the width of a human hair, combined with a CMOS driver chip in a compact package. This unique microLED - CMOS integration - a textbook example of Digital Photonics - was recognized with the [German Future Prize](#) as “[Digital Light](#)” established the company’s industrial-scale capabilities and has since demonstrated exceptional robustness in series production vehicles.

The same core technology now forms the basis for optical IO components targeting AI servers and rack-level communication.

Proven micro-emitter technology for optical data communication

For optical interconnects, the fabrication process is similar to that used for automotive matrix emitters, with one key difference: while EVIYOS™ uses monolithic arrays, data-center applications use singulated microLEDs. These emitters are diced from the wafer and mounted on a substrate, so each device couples to its own fiber-optic channel in a multi-channel fiber optics cable. The substrate can then be assembled onto a target CMOS wafer for system integration.

Due to their extremely small footprint, microLED based transceivers can achieve very high bandwidth density. Individual emitters support per lane data rates of **≥3.0 Gbit/s** at energy levels **below 2 pJ/bit** over a full 10 meter link, while meeting industry **bit-error-rate** specifications **below 10⁻¹⁵**.

Replacing a single ultra-high-speed line with hundreds of parallel channels in a slow-and-wide architecture offers multiple advantages for AI infrastructure:

- **Reliability** – microLED based optical interconnect systems can include redundant channels, enabling graceful degradation and rapid replacement of faulty emitters.
- **Efficiency** – in a slow-and-wide architecture, power consumption is significantly reduced versus ultra-high-frequency laser transmitters typically used in internet backbone applications. Lower power also reduces heat, providing valuable thermal headroom for data-center operators.
- **Simplicity** – microLED-based interconnects are inherently parallel. They eliminate the complex and costly serialization/deserialization steps required by fast-and-narrow architectures.

For further information – visit: [MicroLED Innovation News – From Headlamps to Data Centers | ams OSRAM](#)

From Prototype to Product Development

With the successful adaptation of its EVIYOS™ base technology to the needs of data-communication markets, ams OSRAM is now transitioning rapidly into the product-development phase — fully aligned with the Digital Photonics strategy announced on 05 February 2026.

About ams OSRAM

The ams OSRAM Group (SIX: AMS) is a global leader in innovative light and sensor solutions. As a specialist in Digital Photonics, we combine engineering excellence with cutting-edge global manufacturing to offer our customers the broadest portfolio of digital light and sensing technologies.

“Sense the power of light” — our success has ever since been based on a deep understanding of the potential of light. For 120 years, we have been developing innovations that move markets: from automotive applications and industrial manufacturing to medical and consumer electronics. In the anniversary year of the OSRAM brand, around 18,500 employees worldwide are working on pioneering solutions alongside societal megatrends such as smart mobility, artificial intelligence, augmented reality, smart health, and robotics. This is reflected in around 12,000 patents granted and applied for. Headquartered in Premstaetten/Graz (Austria) with co-headquarters in Munich (Germany), the group achieved EUR 3.3 billion revenues in 2025 and is listed as ams-OSRAM AG on the SIX Swiss Exchange (ISIN: AT0000A3EPA4).

Find out more about us on <https://ams-osram.com>

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For further information

Investor Relations

ams-OSRAM AG

Dr Juergen Rebel

Senior Vice President

Investor Relations

T: +43 3136 500-0

investor@ams-osram.com

Media Relations

ams-OSRAM AG

Bernd Hops

Senior Vice President

Corporate Communications

T: +43 3136 500-0

press@ams-osram.com