

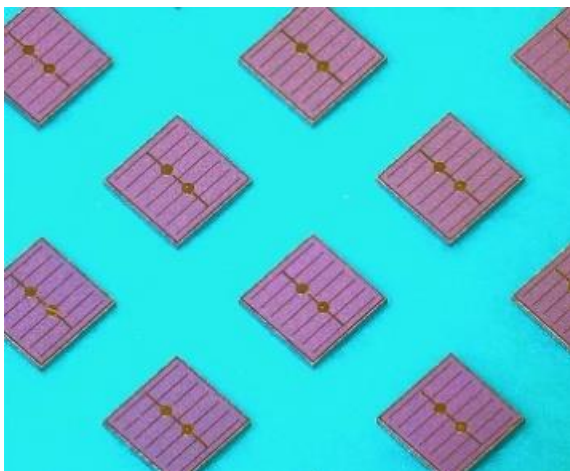
**DOWA ELECTRONICS MATERIALS Announces SWIR LEDs  
with the World's Highest Efficiency**

DOWA ELECTRONICS MATERIALS CO., LTD. (14-1 Sotokanda 4-chome, Chiyoda-ku, Tokyo; Capital: 1 billion yen; President: SUZUKI Takehiko; hereinafter DOWA), a subsidiary of DOWA HOLDINGS CO., LTD. (same location; Capital: 36.4 billion yen; President: SEKIGUCHI Akira) has successfully developed and released a high-efficiency Short-Wavelength-Infrared (hereinafter SWIR) LED chip series which has the world's highest efficiency in the peak wavelength range of 1,200 to 1,900 nm.

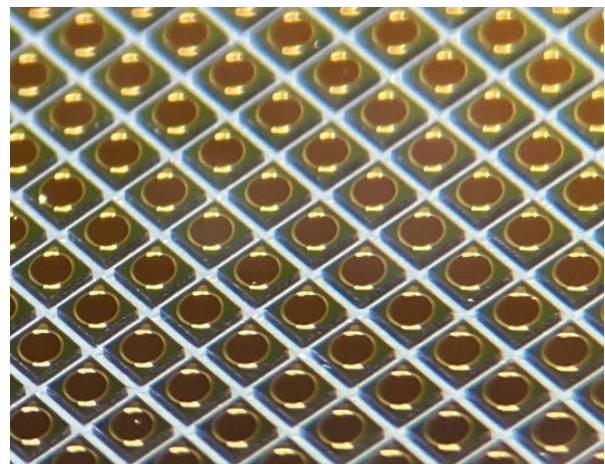
LED-based optical sensors offer smaller size, lower power consumption, and longer lifetime. In addition, Near-Infrared (NIR) and SWIR light<sup>\*1</sup> is highly penetrative to organisms. SWIR LEDs can be applied to agriculture / food analysis, drug discovery, and healthcare. In healthcare applications, implementing SWIR LED into various medical sensors enables non-destructive, non-contact, and non-blood-drawing sample analysis. As a result, it reduces the load on test subject's body and helps the progress of protective medicine. The SWIR LED healthcare market is expected to grow in the future.

DOWA has developed SWIR LEDs based on its proprietary crystal growth and processing technologies, resulting in the world's highest output power LED chip in the peak wavelength range of 1,200 to 1,900 nm. The newly developed SWIR-LED chip has higher luminous efficiency, achieving 170mW output power (Figure 1) with a 1mm square chip at 1,350nm, two times higher than comparable products. Even at 1,900nm, where it is considered difficult to improve luminous efficiency, the 1mm square chip achieves 45mW<sup>\*2</sup>, 30% more power compared to the conventional devices. Such significant power increase improves analysis and testing accuracy, and reduces power consumption.

New SWIR LED



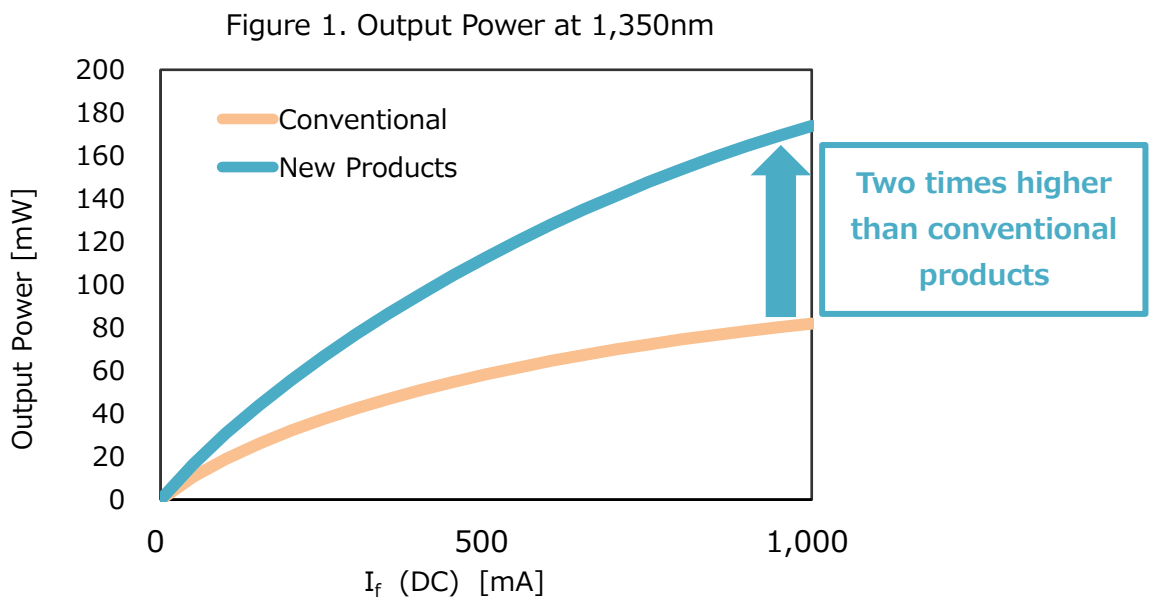
InGaAs Photo Diode



In addition to the 350  $\mu\text{m}$  square and 1 mm square chip sizes, DOWA is introducing a 250  $\mu\text{m}$  square version to its SWIR-LED series. When paired with a DOWA InGaAs Photo Diode already in mass production, the new SWIR LED can be used in sensors. Being offered in 3 different sizes, DOWA SWIR LED can be used in a wide range of applications from telecommunication equipment and wearables that require device miniaturization to machine vision where high radiant power must be required. The DOWA SWIR LED is expected to expand its market and sales.

In the field of gallium-based compound semiconductors, DOWA offers an extensive lineup of products, ranging from materials such as High-purity Gallium metal, Gallium Arsenide wafers, LED chips and lamp modules. DOWA can flexibly accommodate various customer needs such as custom wavelengths.

DOWA focuses on enhancing the features of next-generation products and streamlining production to further expand its semiconductor business.



\*1: Explanation of Wavelength

Wavelength range with high penetration to organisms  
800  $\leftarrow$   $\rightarrow$  2,000

Wavelength (nm)	280	325	400	750	1,000	3,000	8,000
Classification of light	UVC	UVB	UVA	Visible Light	NIR	SWIR	MWIR, LWIR
Application	Sterilization	Skin therapy Curing	Lighting	Display	SpO2 sensor	Proximity sensor Healthcare sensor Freshness sensor	

\*2: Driving Current is 1A with DC condition.



**[Overview of DOWA ELECTRONICS MATERIALS CO., LTD.]**

- Head office : 14-1, Sotokanda 4-chome, Chiyoda-ku, Tokyo
- Representative : SUZUKI Takehiko
- Founded : May 2006
- Capital : 1 billion yen
- Shareholder : DOWA HOLDINGS CO., LTD. 100.0%
- Business outline : Electronics materials and other related businesses

**Contact for inquiries**

Inquiries about this release

DOWA HOLDINGS CO., LTD.

<https://ir.dowa.co.jp/en/ir/contact1.html>

Inquiries about products

DOWA ELECTRONICS MATERIALS CO., LTD.

<https://www.dowa-electronics.co.jp/en/inquiry/>