

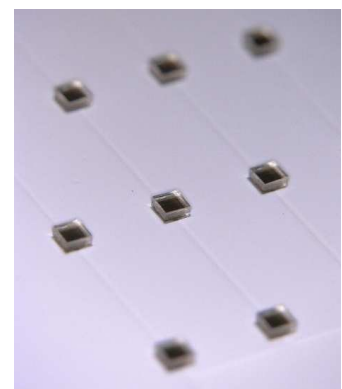
DOWA Has Developed Deep Ultraviolet LEDs with the World's Highest Output Power for Curing and Skin Therapy

DOWA ELECTRONICS MATERIALS CO., LTD. (Headquarters: 14-1 Sotokanda 4-chome, Chiyoda-ku, Tokyo; Capital: 1 billion yen; President: Akira Otsuka), a subsidiary of DOWA HOLDINGS CO., LTD. (Headquarters: same as above; Capital: 36.4 billion yen; President: Masao Yamada), has successfully developed a deep ultraviolet LED chip featuring the world's highest output power of 90 mW, with a peak wavelength of 310 nm, and dimensions of 1 mm × 1 mm.

Deep ultraviolet lights with a wavelength of 310 nm are used for curing and skin therapy. Replacing conventional mercury and excimer lamps with these LEDs enables equipment to be smaller and mercury-free. With the advantages of long life time and power saving, this product is expected to find new applications.

Combining a high-quality aluminum nitride (AlN) template with unique crystal growth technology, DOWA ELECTRONICS MATERIALS has been prepared for a mass production for deep ultraviolet LED chips, which boast the world's highest output power in the disinfection wavelength of 280 nm. For the wavelength of 310 nm, combining this technology and the fine-structured sapphire substrate developed by Oji Holdings Corporation (Headquarters: 7-5 Ginza 4-chome, Chuo-ku, Tokyo; Capital: 103.8 billion yen; President: Susumu Yajima), DOWA ELECTRONICS MATERIALS proceeded to improve luminous efficiency, enabling a 20% higher output power compared to current products, resulting in an output power of 90 mW, the highest in the world for the wavelength of 310 nm. It will begin to mass-produce the newly developed deep ultraviolet LEDs with the wavelength of 310 nm in April 2018.

DOWA ELECTRONICS MATERIALS offers an extensive lineup of products in the gallium based compound semiconductor industry, from materials such as high-purity gallium to wafers, LED chips, and some lamp modules. As it seeks to continue expanding its semiconductor business, the company remains committed to enhancing the performance of its next-generation products and improving productivity of the factory.



**Deep ultraviolet LEDs
with a wavelength of 310 nm**

<Reference> Related past press release

“DOWA to be ready for Mass Production of Highest Output Power Deep Ultraviolet LEDs for disinfection” dated June 22, 2017
<http://www.dowa.co.jp/en/ir/news/2017/20170622.html>