Attains a maximum optical output of 26 mW (with an IF of 20 mA) at a wavelength of 375 nm.

UV-LED NS375L-ERLM

Features

- Attains an output as high as 26 mW at a wavelength of 375 nm at the world's highest efficiency rate.
- Ensures a long life with the adoption of highly permeable silicone resin.
- Highly efficient with low power consumption.

Overview (Technical principles, actions, etc.)

NITRIDE SEMICONDUCTORS Co., Ltd., which manufactures UV-LED wafers in its own factory, recently developed the NS375L-ERLM. This LED lamp has an output of 26 mW (with an IF of 20 mA) at a wavelength of 375 nm. The output is approximately twice as high as that of NITRIDE SEMICONDUCTORS' conventional UV-LED lamp NS375L-5RLO, which has an output of 8.4 to 11 mW (with an IF of 20 mA).
This newly developed chip (with a size of 350 µm x 360 µm) is a little larger than the conventional model (with a size of 280 µm x 280 µm). The new model has the following features to maintain the high output.

① Consists of a GaN-based LED with a structural change to increase the internal quantum efficiency (patent pending).
② Provides improved light fetching efficiency by processing the surface of the sapphire substrate.
③ Uses a new transparent electrode material.
④ Molded with special resin with high UV permeability.

This product received the Semiconductor of the Year award of 2009 from the Semiconductor Industry News.

NS375L-ERLM

Model	Product dimensions L×W×H (mm)	Peak wavelength λp (nm)		Forward voltage Wf (V)		Optical output Po (mW)	Directional pattern 2θ 1/2 (degree)
		Min.	Max.	Typ.	Max.	Max.	Typ.
NS375L-ERLM	5φ	375	380	3.6	4.2	26	40

Introductory Track Record

■ **NITRIDE SEMICONDUCTORS' UV-LED as a light source applied to machines for euro banknote identification have been highly evaluated in Asia and Europe.**
The light emission of NITRIDE SEMICONDUCTORS' UV-LED do not include much visible light in comparison with other companies' models, and that is the reason NITRIDE SEMICONDUCTORS' UV-LED is suitable for sensor applications.
The elements of UV-LED with a wavelength range not exceeding 380 nm will provide a photocatalyst effect if they are combined with titanium dioxide, and that is the reason the UV-LED are used for compact air cleaners.
UV-LED in place of UV lamps have been adopted by UV curing equipment for the hardening of resin nails. Besides, the development of UV-LED application to large-sized inkjet printers has been making progress.
Although false white LED light sources consisting of blue LEDs and yttrium aluminum garnet (YAG) phosphors already exist, the industry is expecting the dissemination of next-generation lighting equipment with good color rendering made with UV-LED and RGB phosphors.

Effects

◎ **Compared with conventional incandescent lamps and fluorescent lamps, UV-LED have a long life, thus making it possible to reduce the running cost.**
Besides, UV-LED have a large number of merits, such as low-heat radiation, compactness, and ease of lighting.
The practical use of UV-LED for illumination purposes as well as industrial purposes is making progress. Furthermore, UV-LED do not use mercury, thus attracting attention as an earth-friendly product.

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