

## Development of two series of lighting LEDs which contribute to a reduction in environmental load Contributing to power saving of luminaire through improvement in luminous efficacy

Citizen Electronics Co., Ltd. (Head Office: Fujiyoshida City, Yamanashi Prefecture. President: Sekiguchi Kanetaka) has developed packages for lighting LEDs, new COB Series “CITILED Standard COB Series Version9” and “CITILED High Intensity COB Series Version4.” They have better performance than conventional products and contribute to a reduction in the load on the environment.

### Background for development

The new series brings together the core technologies that Citizen Electronics has created since developing the first COB packages for lighting LEDs in the world in 2005. In the “COB Series,” which is our representative product, we have doubled the luminous efficiency of Version 1, developed in 2011, with the latest Version 9. In addition, the new series has improved two properties which are required for lighting LEDs: one is long-term reliability which ensures constant brightness even if the LEDs are used for a long period of time, and the other is gas-resistance. The two properties will contribute to reduction in environmental load as the improved luminous efficacy saves power (which leads to reduction of carbon dioxide emissions) and, also, reduces the frequency of change or repair of the LED light source and luminaires. Citizen Electronics Co., Ltd., as the world’s first supplier of COB package series for lighting LEDs, will continue to develop and produce products that will result in a reduction in the load on the environment.

### Package for lighting LEDs “CITILED Standard COB Series Version9”

Product series: 4 series, 14 types

Applications: Streetlights, tunnel lights,  
floodlights, stadium lighting, downlights, etc.

Mass production: Shipment is scheduled  
to start from October 2021



### Main characteristics of CITILED Standard COB Series Version9

#### 1. Luminous efficacy has been improved by a maximum of 7 to 8 %

##### Preserving the product appearance of conventional series

##### Available in color lineups


By not only pursuing light extraction efficiency and better heat dissipation but also by reviewing materials such as of the dice, we have succeeded in improving luminous efficiency by a maximum of 7 to 8 % while improving long-term reliability and maintaining the appearance of the conventional series and size of the luminous area. It is easy to replace conventional products with the new one as the new series is available in a color lineup according to color temperature and color rendering.

**2.Both high-current drive and reduction of chromaticity variations (2SDCM※4) are achieved**

We have raised the maximum rating of drive current (by 27%) while reducing chromaticity variations to the same level as the conventional model (Version8). As the amount of light obtained per package has increased, this will contribute to downsizing of luminaire and cost reduction.

**Package for lighting LEDs**  
**“CITILED High Intensity COB Series Version4”**  
**Narrow LES (light-emitting surface) LED**

Product series: 8 series, 8 types  
 Applications: Where narrow angles are required, such as in spotlights.  
 Mass production: Shipment is scheduled to start from the end of November 2021



**Main characteristics of CITILED High Intensity COB Series Version4**

**1 .Available in a lineup of the industry’s smallest class (2.4mm in diameter of LES) for spotlights**

Luminaires used for professional lighting in commercial establishments, such as in facilities, shops, hotels and restaurants, require precise light distribution control as well as high quality of design. The COB High Intensity Series, which has “narrow LES (light-emitting surface)” that pursues the goal of providing a point light source, enables customers to create optical designs such as lenses easily, and improve quality of design by downsizing the device. This time, LES size of 3.5 mm in diameter (CLU7S3) and 4.2mm in diameter (CLU7R3) are added to lineups newly to expand the lineup of narrow LES products.

New small packages (3 types)

CLU7L3	CLU7S3	CLU7R3
		
LES : Φ2.4mm	LES : Φ3.5mm	LES : 4.2mm
Size : □9.5mm	Size : □9.5mm	Size : □11.5mm



Image

**2. Luminous efficacy has been improved by a maximum of 8 % (compared with Version 3)**

By not only pursuing light extraction efficiency and better heat dissipation but also by reviewing materials such as in the dice, we have succeeded in improving luminous efficiency by a maximum of 8 %. Emitting bright light with reduced power contributes to energy-saving of luminaires.

- \*1 COB: stands for Chip on Board and is a structure where more than one LED die is mounted on a board. It realizes a bright LED with high power.
- \*2 Compared with typical product CLU02x-1204xx with 3000K, Ra90, Tc=25°C and IF=90mA/Die
- \*3 Compared to our company's products by in-house test
- \*4 SDMC is the acronym for Standard Deviation Color Matching. It is an indicator of chromaticity variation. The smaller the figure, the less the variation
- \*5 Comparison when light is emitted under the same conditions (2700K, Ra90,IF=350mA and Tj = 85°C)  
 New product Version4 : CLU703-1202E1-273H5X3 108 (lm/W)  
 Conventional product Version3 : CLU702-1202C9-273H5R2 100 (lm/W)



“CITILED The Light Engine” is the brand name for lighting LEDs of CITIZEN ELECTRONICS CO., LTD.

“C I T I L E D” is a registered trademark of CITIZEN WATCH CO. LTD.

\* Information provided on this news release was accurate at the time of announcement. Design of the product, date of sale, specifications, etc. may change.

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