




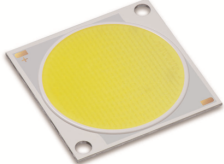
Development of LED for lighting, 'COB Series, Version 5' - Reducing thermal resistance by 35 % of that of the current model -

Citizen Electronics Co., Ltd. (Head Office: Fujiyoshida City, Yamanashi Prefecture. President: Yoshihiro Gohta) has developed LEDs for lighting, "COB *1 Series, Version 5," by improving performance of our current models. The products will be exhibited during the 'Hong Kong International Lighting Fair 2015' starting on October 27, 2015.

LED packages for lighting, 'COB Series, Version 5'

Series: 4 series and 13 types
 Maximum luminous flux: 29 lm to 64,184 lm (0.2 W to 526 W)
 Applications: LED bulbs, downlights, streetlights, floodlights, stadium lighting, etc.
 Mass production is scheduled to start in January 2016



CLU028 Series	CLU038 Series	CLU048 Series	CLU058 Series
			

◆ Main features

1. Luminous efficacy and luminous flux have been improved by up to 7 % respectively over those of the current model

Luminous efficacy and luminous flux have been improved by up to 7 % over those of the current model through enhancement of light extraction efficiency and heat dissipation.

* Comparison of the two models below made when they light up under the same conditions (3000K, Ra 80 min., Tj=85°C)

	Luminous flux	Luminous efficacy	Product code
New product:	3,586 lm	144 lm/W	CLU038-1208C4
Current model:	3,389 lm	136 lm/W	CLU036-1208C1
	[about 6 % increase]	[about 6 % increase]	

2. Thermal resistance has been reduced 35 % of that of the current model

As a result of improvement in manufacturing accuracy, thermal resistance has been reduced by 35 % of that of the current model.








	Thermal resistance	Product code
New product:	0.51 °C/W	CLU038-1208C4
Current model:	0.78 °C/W	CLU036-1208C1
	[about 35 % reduction]	

As a result of the reduction in thermal resistance, the following advantageous effects can be expected:

- 1) Luminous flux is increased due to decrease in T_j value (junction temperature).
- 2) As a result of the range of temperature at which the products can be used being increased, the range of driving power is also increased
- 3) Heat sink can be miniaturized while the same luminous flux as that of the current model is retained.

◆ Main specifications

(5,000K, Ra 80 min., T_j=85°C)

Series	CLU028 Series	CLU038 Series	CLU048 Series	CLU058 Series			
Product name	CLU028-1201 CLU028-1202 CLU028-1203 CLU028-1204	CLU038-1205 CLU038-1206 CLU038-1208 CLU038-1210	CLU048-1212 CLU048-1812 CLU048-1818	CLU058-1825 CLU058-3618			
Size (mm)	13.5×13.5×1.4	19.0×19.0×1.4	28.0×28.0×1.4	38.0×38.0×1.4			
Power (W)	0.2–39.2	0.8–98.0	1.9–263.8	6.0–526.0			
Maximum luminous flux (lm)	29–4,383	146–10,973	350–29,726	1,288–60,579			
Color temperature (K)	Ra 70 min. (ANSI C78.377): 3,000K, 4,000K, and 5,000K Ra 80 min. (3-Step MacAdam ellipse): 2,700K, 3,000K, 3,500K, 4,000K, 5,000K, and 6,500K Ra 90 min. (3-Step MacAdam ellipse): 2,700K, 3,000K, 3,500K, and 4,000K Ra 97 Typ. (3-Step MacAdam ellipse): 2,700K, 3,000K, and 4,000K Below B.B.L. (3-Step MacAdam ellipse): 2,700K, 3,000K, and 3,500K						
Applications	 Bulb	 Spot light	 Down light	 High bay	 Street light	 Flood light	 Stadium light

*1 COB: stands for Chip on Board and is a structure where LED dies are directly mounted on a board.



"CITILED The Light Engine" is a brand name of LEDs for lighting manufactured by CITIZEN ELECTRONICS CO., Japan.
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