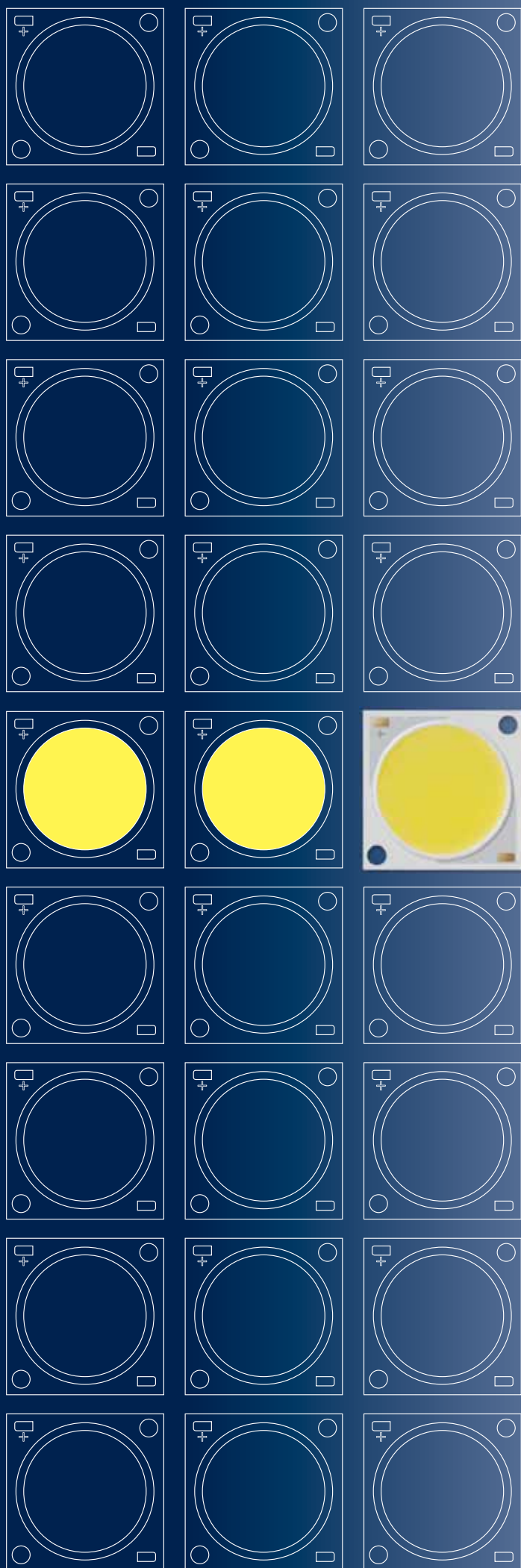




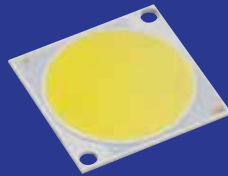
LED for General Lighting 2016

CITILED COB Series Standard Type

PP.4-13

ver.5

Widely recognized product, usable in variable applications from outdoors to indoors



Ra 70 Model, Ra 80 Model, Ra 90 On B. B. L. Model

Ra 90 Below B. B. L. Model

Ra 97 Super High-CRI Model

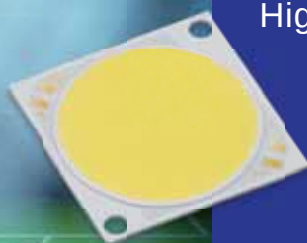


Lighting LED Solution

CITILED COB Series CLU550

PP.14-16

World Class
High Power COB

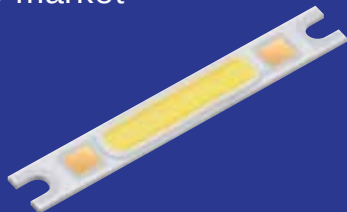


CITILED COB Series

CL-L104

PP.26-27

The first COB LED
in the market



CITILED COB Series

High Intensity Type ver.2

PP.18-21

Smaller LES and higher
lumen density COB,
suitable for narrow light
distribution



CITILED VIVID Series

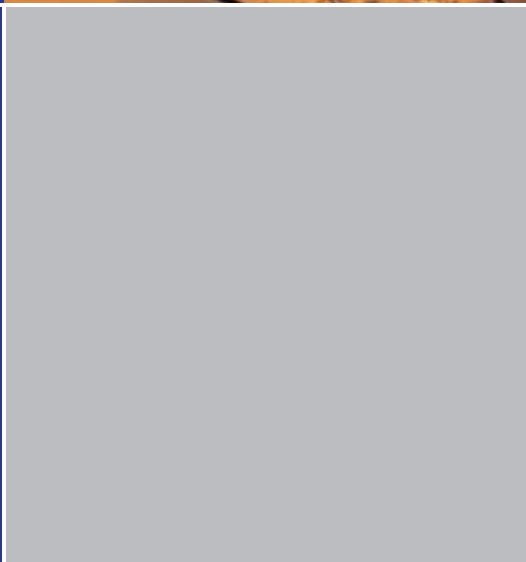
PP.28-35

COB emphasizing
more vividness

Standard Type

High Intensity Type

SMD Type



CITILED SMD Series

PP.22-25



High quality compact LED achieved
3-step MacAdam ellipse



Widely recognized product, usable in variable applications from outdoors to indoors.

CITILED COB Series

Standard Type

ver.5

Ra 70 Model

Ra 80 Model

Ra 90 On B. B. L. Model

Ra 90 Below B. B. L. Model

Ra 97 Super High-CRI Model



Thermal resistance and lumen densities is improved.
New lineup CLL038-1210 is added.

Extensive lineups and solution support

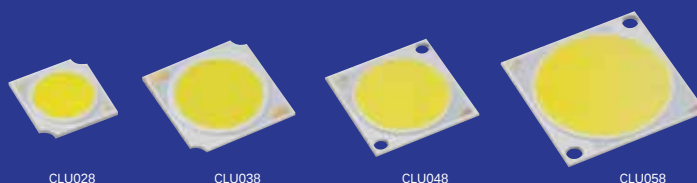
Lineup with various colors and wide luminous flux range for each package structure, and higher drive current. Package outline has remained the same since version 1 of the product, and large selection of solutions like optical parts and connectors is available.

Superior light quality

3-step MacAdam ellipse color definition in typical application conditions $T_j=85^\circ\text{C}$ is available. Below B. B. L. model which has brilliant white without greenish tint and Ra97 Super High-CRI model, which has higher color reproducibility, are available.

High efficiency and high power, outstanding reliability, long service life

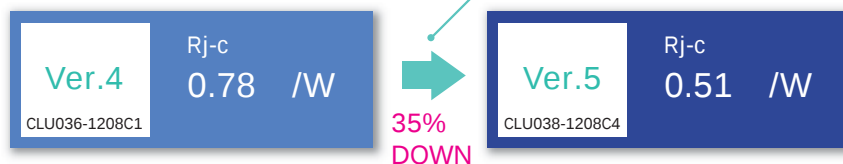
Original aluminum COB through long time accumulated technology achieved the high performance, outstanding reliability and long service life.



Feature of Ver.5

Thermal resistance reduction

Ver.5 reduce 35% of thermal resistance. It effects to make a lot of benefits for luminaire design.



Benefit

1. Decreasing Tj value
2. Increasing luminous flux output
3. Expanding driving range
4. Downsizing of heat sink

Application



Down light



Stadium



Commercial lighting



Museum lighting

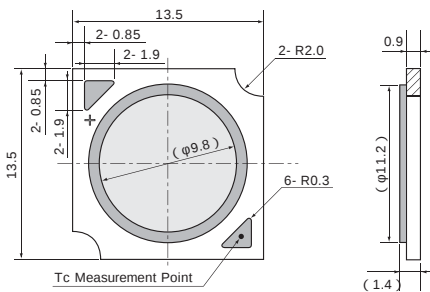
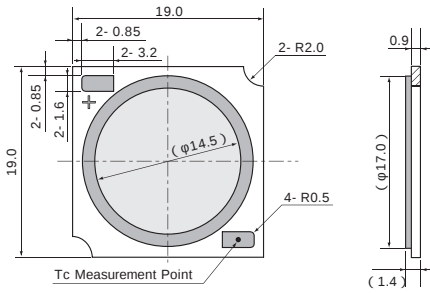
Wattage Range

(Tj = 85 °C)

Shape	Die pattern	Input Wattage				
		0.1W	1 W	10 W	100 W	1,000 W
CLU028	1201	0.2	3.1	9.8		
	1202	0.3	6.2	19.6		
	1203	0.5	9.3	29.4		
	1204	0.6	12.5	39.2		
CLU038	1205	0.8	15.6	49.0		
	1206	0.9	18.7	58.8		
	1208	1.2	24.9	78.3		
	1210	1.5	31.1	98.0		
CLU048	1212	1.9	37.4	117.5		
	1812	2.8	56.2	175.8		
	1818	4.2	84.2	263.8		
CLU058	1825	5.8	117.0	364.6		
	3618	8.3	181.9	526.0		

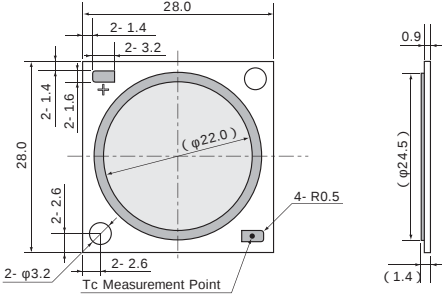
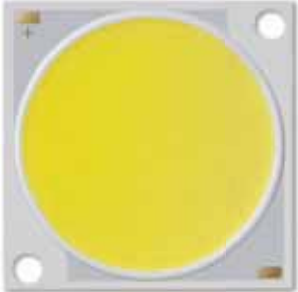
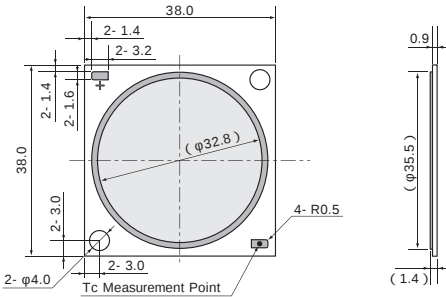


Outline Drawings

Shape	Appearance (Actual size)	Outline drawing
CLU028	 13.5 × 13.5 mm	 Unit:mm
CLU038	 19.0 × 19.0 mm	 Unit:mm

Color Variations

Shape	Die pattern	Ra 70 Model (ANSI C78.377)			Ra 80 Model (3-step MacAdam ellipse)					
		Ra 70 Min.			Ra 80 Min.					
		5,000K	4,000K	3,000K	6,500K	5,000K	4,000K	3,500K	3,000K	2,700K
CLU028	1201C4	•	•	•	•	•	•	•	•	•
	1202C4	•	•	•	•	•	•	•	•	•
	1203C4	•	•	•	•	•	•	•	•	•
	1204C4	•	•	•	•	•	•	•	•	•
CLU038	1205C4	•	•	•	•	•	•	•	•	•
	1206C4	•	•	•	•	•	•	•	•	•
	1208C4	•	•	•	•	•	•	•	•	•
	1210C4	•	•	•	•	•	•	•	•	•
CLU048	1212C4	•	•	•	•	•	•	•	•	•
	1812C4	•	•	•	•	•	•	•	•	•
	1818C4	•	•	•	•	•	•	•	•	•
CLU058	1825C4	•	•	•	•	•	•	•	•	•
	3618C4	•	•	•	•	•	•	•	•	•

Shape	Appearance (Actual size)	Outline drawing
CLU048	 28.0 × 28.0 mm	 Unit:mm
CLU058	 38.0 × 38.0 mm	 Unit:mm

Ra 90 On B. B. L. Model (3-step MacAdam ellipse)				Ra90 Below B. B. L. Model (3-step MacAdam ellipse)			Ra97 Super High-CRI Model (3-step MacAdam ellipse)		
Ra 90 Min.				Ra 90 Min.			Ra 97 Typ.		
4,000K	3,500K	3,000K	2,700K	3,500K	3,000K	2,700K	4,000K	3,000K	2,700K
•	•	•	•				•	•	•
•	•	•	•				•	•	•
•	•	•	•	•	•	•	•	•	•
•	•	•	•				•	•	•
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Chromaticity Range

- 3-step MacAdam Ellipse

Standard Type Ra 80 Min. , Ra 90 Typ. , Ra 97 Typ.

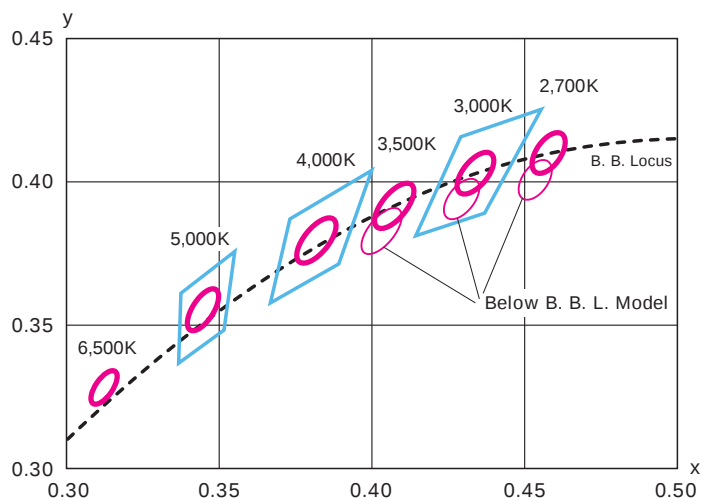
- ANSI C78.377

Standard Type Ra 70 Min.

The measurement temperature is specified at $T_j=85^\circ\text{C}$.

Explanatory notes

- 3-Step MacAdam ellipse*
- ANSI C78.377
- *3-Step MacAdam ellipse is based on ANSI C78.377.



Product List

Ra70 Model, Ra80 Model, Ra90 On B. B. L. Model

* They are the reference data driven at max. current. ($T_j = 85^\circ\text{C}$)

Shape	Product code	Electro-optical Characteristics									Absolute Maximum Rating	
		Ra	CCT	Forward current (mA)	Voltage Typ. (V)	Input power Typ. (W)	Luminous flux Typ. (lm)	Luminous efficacy Typ. (lm/W)	Luminous flux Typ. at max. current (lm)	Thermal resistance R_{j-c} (°C/W)	P_o (W)	Forward current (mA)
CLU028	CLU028-1201C4-403H5K2	90 Min.	4,000K				392	126	919			
	CLU028-1201C4-353H5K2		3,500K				388	125	910			
	CLU028-1201C4-303H5K2		3,000K				380	122	891			
	CLU028-1201C4-273H5K2		2,700K				364	117	854			
	CLU028-1201C4-653M2K1	80 Min.	6,500K	90	34.6	3.1	491	158	1,151	2.7	9.8	230
	CLU028-1201C4-503M2K1		5,000K				482	155	1,130			
	CLU028-1201C4-403M2K1		4,000K				474	152	1,112			
	CLU028-1201C4-353M2K1		3,500K				469	151	1,100			
	CLU028-1201C4-303M2K1		3,000K				460	148	1,079			
	CLU028-1201C4-273M2K1		2,700K				441	142	1,034			
	CLU028-1201C4-50AL7K3	70 Min.	5,000K				511	164	1,198			
	CLU028-1201C4-40AL7K3		4,000K				502	161	1,177			
	CLU028-1201C4-30AL7K3		3,000K				486	156	1,140			
	CLU028-1202C4-403H5K2	90 Min.	4,000K				789	127	1,859			
	CLU028-1202C4-353H5K2		3,500K				780	125	1,837			
	CLU028-1202C4-303H5K2		3,000K				764	123	1,800			
	CLU028-1202C4-273H5K2		2,700K				732	118	1,724			
	CLU028-1202C4-653M2K1	80 Min.	6,500K	180	34.6	6.2	986	158	2,323	1.6	19.6	460
	CLU028-1202C4-503M2K1		5,000K				968	155	2,280			
	CLU028-1202C4-403M2K1		4,000K				956	154	2,252			
	CLU028-1202C4-353M2K1		3,500K				945	152	2,226			
	CLU028-1202C4-303M2K1		3,000K				926	149	2,181			
	CLU028-1202C4-273M2K1		2,700K				886	142	2,087			

* They are the reference data driven at max. current. (Tj = 85)

Shape	Product code	Electro-optical Characteristics									Absolute Maximum Rating	
		Ra	CCT	Forward current (mA)	Voltage Typ. (V)	Input power Typ. (W)	Luminous flux Typ. (lm)	Luminous efficacy Typ. (lm/W)	Luminous flux Typ. at max. current (lm)	Thermal resistance Rj-c (/W)	Po (W)	Forward current (mA)
CLU028	CLU028-1202C4-50AL7K3	70 Min.	5,000K	180	34.6	6.2	1,026	165	2,417	1.6	19.6	460
	CLU028-1202C4-40AL7K3		4,000K				1,011	162	2,382			
	CLU028-1202C4-30AL7K3		3,000K				978	157	2,304			
	CLU028-1203C4-403H5K2	90 Min.	4,000K				1,151	123	2,718			
	CLU028-1203C4-353H5K2		3,500K				1,137	122	2,685			
	CLU028-1203C4-303H5K2		3,000K				1,117	120	2,637			
	CLU028-1203C4-273H5K2		2,700K				1,069	114	2,524			
	CLU028-1203C4-653M2K1	80 Min.	6,500K	270	34.6	9.3	1,439	154	3,398	1.1	29.4	690
	CLU028-1203C4-503M2K1		5,000K				1,414	151	3,339			
	CLU028-1203C4-403M2K1		4,000K				1,394	149	3,292			
	CLU028-1203C4-353M2K1		3,500K				1,378	148	3,254			
	CLU028-1203C4-303M2K1		3,000K				1,352	145	3,192			
	CLU028-1203C4-273M2K1		2,700K				1,294	139	3,055			
	CLU028-1203C4-50AL7K3	70 Min.	5,000K				1,498	160	3,537			
	CLU028-1203C4-40AL7K3		4,000K				1,476	158	3,485			
	CLU028-1203C4-30AL7K3		3,000K				1,428	153	3,372			
	CLU028-1204C4-403H5K2	90 Min.	4,000K				1,507	121	3,571			
	CLU028-1204C4-353H5K2		3,500K				1,490	120	3,530			
	CLU028-1204C4-303H5K2		3,000K				1,463	117	3,466			
	CLU028-1204C4-273H5K2		2,700K				1,399	112	3,315			
	CLU028-1204C4-653M2K1	80 Min.	6,500K	360	34.6	12.5	1,884	151	4,464	0.91	39.2	920
	CLU028-1204C4-503M2K1		5,000K				1,850	149	4,383			
	CLU028-1204C4-403M2K1		4,000K				1,826	147	4,326			
	CLU028-1204C4-353M2K1		3,500K				1,805	145	4,277			
	CLU028-1204C4-303M2K1		3,000K				1,770	142	4,194			
	CLU028-1204C4-273M2K1		2,700K				1,693	136	4,011			
	CLU028-1204C4-50AL7K3	70 Min.	5,000K				1,960	157	4,644			
	CLU028-1204C4-40AL7K3		4,000K				1,932	155	4,577			
	CLU028-1204C4-30AL7K3		3,000K				1,870	150	4,431			

CLU038	CLU038-1205C4-403H5K2	90 Min.	4,000K				1,965	126	4,654			
	CLU038-1205C4-353H5K2		3,500K				1,943	125	4,602			
	CLU038-1205C4-303H5K2		3,000K				1,907	122	4,516			
	CLU038-1205C4-273H5K2		2,700K				1,825	117	4,322			
	CLU038-1205C4-653M2K1	80 Min.	6,500K	450	34.6	15.6	2,458	158	5,821	0.72	49.0	1,150
	CLU038-1205C4-503M2K1		5,000K				2,414	155	5,717			
	CLU038-1205C4-403M2K1		4,000K				2,380	153	5,636			
	CLU038-1205C4-353M2K1		3,500K				2,355	151	5,577			
	CLU038-1205C4-303M2K1		3,000K				2,309	148	5,468			
	CLU038-1205C4-273M2K1		2,700K				2,209	142	5,232			
	CLU038-1205C4-50AL7K3	70 Min.	5,000K				2,557	164	6,056			
	CLU038-1205C4-40AL7K3		4,000K				2,519	162	5,966			
	CLU038-1205C4-30AL7K3		3,000K				2,439	157	5,776			
	CLU038-1206C4-403H5K2	90 Min.	4,000K	540	34.6	18.7	2,333	125	5,539	0.64	58.8	1,380
	CLU038-1206C4-353H5K2		3,500K				2,309	124	5,483			
	CLU038-1206C4-303H5K2		3,000K				2,265	121	5,378			

Note Product names and specifications in this catalog are subject to change without notice for the purpose of improvement, or manufacturing may be discontinued. Please contact our sales team in terms of release date and latest specifications for each product.



CITILED COB Series

Standard Type

* They are the reference data driven at max. current. (Tj = 85)

Shape	Product code	Electro-optical Characteristics									Absolute Maximum Rating	
		Ra	CCT	Forward current (mA)	Voltage Typ. (V)	Input power Typ. (W)	Luminous flux Typ. (lm)	Luminous efficacy Typ. (lm/W)	Luminous flux Typ. at max. current (lm)	Thermal resistance Rj-c (/W)	Po (W)	Forward current (mA)
CLU038	CLU038-1206C4-273H5K2	90 Min.	2,700K	540	34.6	18.7	2,168	116	5,148	0.64	58.8	1,380
	CLU038-1206C4-653M2K1	80 Min.	6,500K				2,919	156	6,931			
	CLU038-1206C4-503M2K1		5,000K				2,867	153	6,807			
	CLU038-1206C4-403M2K1		4,000K				2,827	151	6,712			
	CLU038-1206C4-353M2K1		3,500K				2,798	150	6,644			
	CLU038-1206C4-303M2K1		3,000K				2,742	147	6,511			
	CLU038-1206C4-273M2K1		2,700K				2,625	140	6,233			
	CLU038-1206C4-50AL7K3	70 Min.	5,000K				3,038	163	7,213			
	CLU038-1206C4-40AL7K3		4,000K				2,992	160	7,104			
	CLU038-1206C4-30AL7K3		3,000K				2,897	155	6,879			
	CLU038-1208C4-403H5K2	90 Min.	4,000K				3,051	122	7,263			
	CLU038-1208C4-353H5K2		3,500K				3,020	121	7,189			
	CLU038-1208C4-303H5K2		3,000K				2,962	119	7,051			
	CLU038-1208C4-273H5K2		2,700K				2,835	114	6,749			
	CLU038-1208C4-653M2K1	80 Min.	6,500K	720	34.6	24.9	3,817	153	9,086	0.51	78.3	1,840
	CLU038-1208C4-503M2K1		5,000K				3,749	150	8,924			
	CLU038-1208C4-403M2K1		4,000K				3,697	148	8,800			
	CLU038-1208C4-353M2K1		3,500K				3,658	147	8,708			
	CLU038-1208C4-303M2K1		3,000K				3,586	144	8,536			
	CLU038-1208C4-273M2K1		2,700K				3,431	138	8,167			
	CLU038-1208C4-50AL7K3	70 Min.	5,000K				3,972	159	9,455			
	CLU038-1208C4-40AL7K3		4,000K				3,913	157	9,315			
	CLU038-1208C4-30AL7K3		3,000K				3,788	152	9,017			
	CLU038-1210C4-403H5K2	90 Min.	4,000K				3,736	120	8,904			
	CLU038-1210C4-353H5K2		3,500K				3,650	117	8,699			
	CLU038-1210C4-303H5K2		3,000K				3,582	115	8,537			
	CLU038-1210C4-273H5K2		2,700K				3,396	109	8,094			
	CLU038-1210C4-653M2K1	80 Min.	6,500K	900	34.6	31.1	4,641	149	11,061	0.42	98.0	2,300
	CLU038-1210C4-503M2K1		5,000K				4,604	148	10,973			
	CLU038-1210C4-403M2K1		4,000K				4,527	145	10,790			
	CLU038-1210C4-353M2K1		3,500K				4,422	142	10,539			
	CLU038-1210C4-303M2K1		3,000K				4,337	139	10,337			
	CLU038-1210C4-273M2K1		2,700K				4,111	132	9,798			
	CLU038-1210C4-50AL7K3	70 Min.	5,000K				4,878	157	11,626			
	CLU038-1210C4-40AL7K3		4,000K				4,792	154	11,421			
	CLU038-1210C4-30AL7K3		3,000K				4,582	147	10,921			

CLU048	CLU048-1212C4-403H5K2	90 Min.	4,000K	1,080	34.6	37.4	4,732	127	11,264	0.34	117.5	2,760
	CLU048-1212C4-353H5K2		3,500K				4,682	125	11,145			
	CLU048-1212C4-303H5K2		3,000K				4,594	123	10,936			
	CLU048-1212C4-273H5K2		2,700K				4,396	118	10,464			
	CLU048-1212C4-653M2K1	80 Min.	6,500K				5,920	158	14,092			
	CLU048-1212C4-503M2K1		5,000K				5,815	156	13,842			
	CLU048-1212C4-403M2K1		4,000K				5,734	153	13,649			
	CLU048-1212C4-353M2K1		3,500K				5,674	152	13,507			
	CLU048-1212C4-303M2K1		3,000K				5,562	149	13,240			

* They are the reference data driven at max. current. (T_j = 85)

Shape	Product code	Electro-optical Characteristics									Absolute Maximum Rating	
		Ra	CCT	Forward current (mA)	Voltage Typ. (V)	Input power Typ. (W)	Luminous flux Typ. (lm)	Luminous efficacy Typ. (lm/W)	Luminous flux Typ. at max. current (lm)	Thermal resistance R _{j-c} (°C/W)	P ₀ (W)	Forward current (mA)
CLU048	CLU048-1212C4-273M2K1	80 Min.	2,700K	1,080	34.6	37.4	5,321	142	12,666	0.34	117.5	2,760
	CLU048-1212C4-50AL7K3	70 Min.	5,000K				6,161	165	14,666			
	CLU048-1212C4-40AL7K3		4,000K				6,069	162	14,447			
	CLU048-1212C4-30AL7K3		3,000K				5,877	157	13,990			
	CLU048-1812C4-403H5K2	90 Min.	4,000K				6,926	123	16,558			
	CLU048-1812C4-353H5K2		3,500K				6,848	122	16,371			
	CLU048-1812C4-303H5K2		3,000K				6,724	120	16,075			
	CLU048-1812C4-273H5K2		2,700K				6,432	115	15,337			
	CLU048-1812C4-653M2K1	80 Min.	6,500K	1,080	52.0	56.2	8,664	154	20,713	0.25	175.8	2,760
	CLU048-1812C4-503M2K1		5,000K				8,511	152	20,347			
	CLU048-1812C4-403M2K1		4,000K				8,392	149	20,063			
	CLU048-1812C4-353M2K1		3,500K				8,299	148	19,840			
	CLU048-1812C4-303M2K1		3,000K				8,140	145	19,640			
	CLU048-1812C4-273M2K1		2,700K				7,787	139	18,616			
	CLU048-1812C4-50AL7K3	70 Min.	5,000K				9,017	161	21,557			
	CLU048-1812C4-40AL7K3		4,000K				8,883	158	21,237			
	CLU048-1812C4-30AL7K3		3,000K				8,601	153	20,562			
	CLU048-1818C4-403H5K2	90 Min.	4,000K				10,108	120	24,187			
	CLU048-1818C4-353H5K2		3,500K				10,003	119	23,936			
	CLU048-1818C4-303H5K2		3,000K				9,815	117	23,486			
	CLU048-1818C4-273H5K2		2,700K				9,391	111	22,471			
	CLU048-1818C4-653M2K1	80 Min.	6,500K	1,620	52.0	84.2	12,648	150	30,625	0.17	263.8	4,140
	CLU048-1818C4-503M2K1		5,000K				12,423	147	29,726			
	CLU048-1818C4-403M2K1		4,000K				12,249	145	29,310			
	CLU048-1818C4-353M2K1		3,500K				12,121	144	29,004			
	CLU048-1818C4-303M2K1		3,000K				11,881	141	28,429			
	CLU048-1818C4-273M2K1		2,700K				11,367	135	27,200			
	CLU048-1818C4-50AL7K3	70 Min.	5,000K				13,162	156	31,495			
	CLU048-1818C4-40AL7K3		4,000K				12,965	154	31,023			
	CLU048-1818C4-30AL7K3		3,000K				12,552	149	30,035			

CLU058	CLU058-1825C4-403H5K2	90 Min.	4,000K				14,803	127	35,893			
	CLU058-1825C4-353H5K2		3,500K				14,648	125	35,517			
	CLU058-1825C4-303H5K2		3,000K				14,372	123	34,848			
	CLU058-1825C4-273H5K2		2,700K				13,750	118	33,340			
	CLU058-1825C4-653M2K1	80 Min.	6,500K	2,250	52.0	117.0	18,520	158	44,905	0.14	364.6	5,750
	CLU058-1825C4-503M2K1		5,000K				18,191	155	44,108			
	CLU058-1825C4-403M2K1		4,000K				17,936	153	43,489			
	CLU058-1825C4-353M2K1		3,500K				17,748	152	43,033			
	CLU058-1825C4-303M2K1		3,000K				17,398	149	42,185			
	CLU058-1825C4-273M2K1		2,700K				16,645	142	40,359			
	CLU058-1825C4-50AL7K3	70 Min.	5,000K				19,274	165	46,734			
	CLU058-1825C4-40AL7K3		4,000K				18,986	162	46,035			
	CLU058-1825C4-30AL7K3		3,000K				18,382	157	44,571			
	CLU058-3618C4-403H5K2	90 Min.	4,000K	1,620	112.3	181.9	20,387	112	49,165	0.10	526.0	4,140
	CLU058-3618C4-353H5K2		3,500K				20,219	111	48,760			

Note Product names and specifications in this catalog are subject to change without notice for the purpose of improvement, or manufacturing may be discontinued. Please contact our sales team in terms of release date and latest specifications for each product.



CITILED COB Series Standard Type

* They are the reference data driven at max. current. ($T_j = 85$)

Shape	Product code	Electro-optical Characteristics									Absolute Maximum Rating	
		Ra	CCT	Forward current (mA)	Voltage Typ. (V)	Input power Typ. (W)	Luminous flux Typ. (lm)	Luminous efficacy Typ. (lm/W)	Luminous flux Typ. at max. current (lm)	Thermal resistance Rj-c (°C/W)	P ₀ (W)	Forward current (mA)
CLU058	CLU058-3618C4-303H5K2	90 Min.	3,000K				19,791	109	47,727			
	CLU058-3618C4-273H5K2		2,700K				18,902	104	45,584			
	CLU058-3618C4-653M2K1	80 Min.	6,500K	1,620	112.3	181.9	25,573	141	61,671	0.10	526.0	4,140
	CLU058-3618C4-503M2K1		5,000K				25,120	138	60,579			
	CLU058-3618C4-403M2K1		4,000K				24,703	136	59,573			
	CLU058-3618C4-353M2K1		3,500K				24,499	135	59,081			
	CLU058-3618C4-303M2K1		3,000K				23,958	132	57,777			
	CLU058-3618C4-273M2K1		2,700K				22,882	126	55,182			
	CLU058-3618C4-50AL7K3	70 Min.	5,000K				26,615	146	64,184			
	CLU058-3618C4-40AL7K3		4,000K				26,148	144	63,058			
	CLU058-3618C4-30AL7K3		3,000K				25,313	139	61,044			

Note Product names and specifications in this catalog are subject to change without notice for the purpose of improvement, or manufacturing may be discontinued. Please contact our sales team in terms of release date and latest specifications for each product.

Ra90 Bellow B. B. L. Model

* They are the reference data driven at max. current. ($T_j = 85$)

Shape	Product code	Electro-optical Characteristics									Absolute Maximum Rating	
		Ra	CCT	Forward current (mA)	Voltage Typ. (V)	Input power Typ. (W)	Luminous flux Typ. (lm)	Luminous efficacy Typ. (lm/W)	Luminous flux Typ. at max. current (lm)	Thermal resistance Rj-c (°C/W)	P ₀ (W)	Forward current (mA)
CLU028	CLU028-1203C4-353H6K2	90 Min.	3,500K	270	34.6	9.3	1,080	116	2,550	1.11	29.4	690
	CLU028-1203C4-303H6K2		3,000K				1,061	114	2,505			
	CLU028-1203C4-273H6K2		2,700K				1,015	109	2,397			

CLU038	CLU038-1205C4-353H6K2	90 Min.	3,500K	450	34.6	15.6	1,847	119	4,374	0.72	49.0	1,150
	CLU038-1205C4-303H6K2		3,000K				1,811	116	4,289			
	CLU038-1205C4-273H6K2		2,700K				1,734	111	4,107			
	CLU038-1206C4-353H6K2	90 Min.	3,500K	540	34.6	18.7	2,193	117	5,207	0.64	58.8	1,380
	CLU038-1206C4-303H6K2		3,000K				2,151	115	5,107			
	CLU038-1206C4-273H6K2		2,700K				2,059	110	4,889			
	CLU038-1208C4-353H6K2	90 Min.	3,500K	720	34.6	24.9	2,868	115	6,827	0.51	78.3	1,840
	CLU038-1208C4-303H6K2		3,000K				2,814	113	6,699			
	CLU038-1208C4-273H6K2		2,700K				2,693	108	6,410			

CLU048	CLU048-1212C4-353H6K2	90 Min.	3,500K	1,080	34.6	37.4	4,448	119	10,588	0.34	117.5	2,760
	CLU048-1212C4-303H6K2		3,000K				4,365	117	10,391			
	CLU048-1212C4-273H6K2		2,700K				4,177	112	9,943			

Note Product names and specifications in this catalog are subject to change without notice for the purpose of improvement, or manufacturing may be discontinued. Please contact our sales team in terms of release date and latest specifications for each product.

Ra97 Super High-CRI Model

* They are the reference data driven at max. current. ($T_j = 85$)

Shape	Product code	Electro-optical Characteristics									Absolute Maximum Rating	
		Ra	CCT	Forward current (mA)	Voltage Typ. (V)	Input power Typ. (W)	Luminous flux Typ. (lm)	Luminous efficacy Typ. (lm/W)	Luminous flux Typ. at max. current (lm)	Thermal resistance R _{j-c} (°C/W)	P ₀ (W)	Forward current (mA)
CLU028	CLU028-1201C4-403H7K4	97 Typ.	4,000K	90	34.6	3.1	357	115	837	2.73	9.8	230
	CLU028-1201C4-303H7K4		3,000K				347	111	814			
	CLU028-1201C4-273H7K4		2,700K				332	107	779			
	CLU028-1202C4-403H7K4	97 Typ.	4,000K	180	34.6	6.2	720	116	1,696	1.56	19.6	460
	CLU028-1202C4-303H7K4		3,000K				697	112	1,642			
	CLU028-1202C4-273H7K4		2,700K				668	107	1,574			
	CLU028-1203C4-403H7K4	97 Typ.	4,000K	270	34.6	9.3	1,049	112	2,477	1.11	29.4	690
	CLU028-1203C4-303H7K4		3,000K				1,019	109	2,406			
	CLU028-1203C4-273H7K4		2,700K				976	104	2,305			
	CLU028-1204C4-403H7K4	97 Typ.	4,000K	360	34.6	12.5	1,375	110	3,258	0.91	39.2	920
	CLU028-1204C4-303H7K4		3,000K				1,334	107	3,161			
	CLU028-1204C4-273H7K4		2,700K				1,276	102	3,023			

CLU038	CLU038-1205C4-403H7K4	97 Typ.	4,000K	450	34.6	15.6	1,792	115	4,244	0.72	49.0	1,150
	CLU038-1205C4-303H7K4		3,000K				1,740	112	4,121			
	CLU038-1205C4-273H7K4		2,700K				1,665	107	3,943			
	CLU038-1206C4-403H7K4	97 Typ.	4,000K	540	34.6	18.7	2,128	114	5,053	0.64	58.8	1,380
	CLU038-1206C4-303H7K4		3,000K				2,066	111	4,906			
	CLU038-1206C4-273H7K4		2,700K				1,978	106	4,697			
	CLU038-1208C4-403H7K4	97 Typ.	4,000K	720	34.6	24.9	2,784	112	6,627	0.51	78.3	1,840
	CLU038-1208C4-303H7K4		3,000K				2,702	108	6,432			
	CLU038-1208C4-273H7K4		2,700K				2,586	104	6,156			

CLU048	CLU048-1212C4-403H7K4	97 Typ.	4,000K	1,080	34.6	37.4	4,317	116	10,276	0.34	117.5	2,760
	CLU048-1212C4-303H7K4		3,000K				4,191	112	9,976			
	CLU048-1212C4-273H7K4		2,700K				4,010	107	9,546			
	CLU048-1812C4-403H7K4	97 Typ.	4,000K	1,080	52.0	56.2	6,318	113	15,104	0.25	175.8	2,760
	CLU048-1812C4-303H7K4		3,000K				6,135	109	14,667			
	CLU048-1812C4-273H7K4		2,700K				5,868	104	14,029			

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Product Nomenclature

CLU028-1201C4-503M2K1

- Product shape
- Die count in series
12:12
- Die count in parallel
01:1
- Correlated color temperature
50:5,000K
- Color rendering
M2:Ra 80 Min.

World Class High Power COB

CITILED COB Series

CLU550



70,000 lm at 530 W *5,000K Ra=70 min

High power output

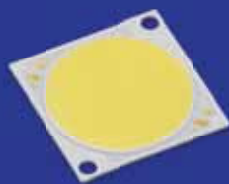
70,000 lm is available as maximum value. Outline of previous size of CLL05X is followed.

1 core, 2 drive COB design

Circuit is separated into 2 lines, and high versatility driver is available.

Extensive lineup

10 colors are available (Ra70, Ra80). 6,500K, Ra70 for outdoor application is added.



CLU550

Application



Golf practice gym



Port



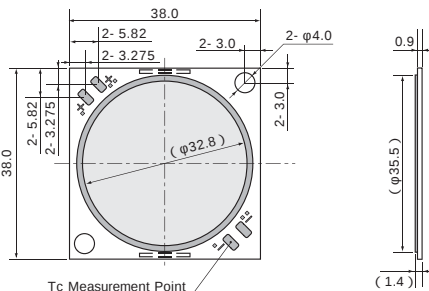
High bay lighting



Stadium

Outline Drawings



Shape	Appearance (Actual size)	Outline drawing
CLU550	 38.0 × 38.0 mm	 Unit:mm

Chromaticity Range

- 3-step MacAdam Ellipse

CLU550 Ra 80 Min.

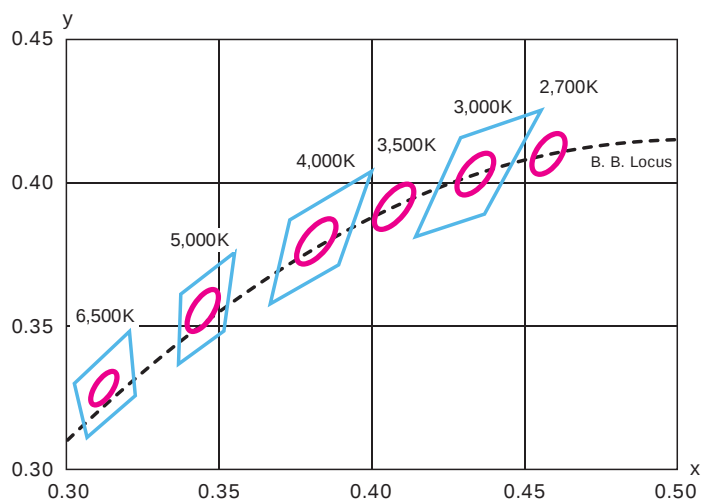
- ANSI C78.377

CLU550 Ra 70 Min.

The measurement temperature is specified at $T_j = 85^\circ\text{C}$.

Explanatory notes

- 3-Step MacAdam ellipse*
- ANSI C78.377
- * 3-Step MacAdam ellipse is based on ANSI C78.377.



Color Variations

Shape	Die pattern	Ra 70 (ANSI C78.377)				Ra 80 (3-step MacAdam ellipse)					
		6,500K	5,000K	4,000K	3,000K	6,500K	5,000K	4,000K	3,500K	3,000K	2,700K
CLU550	3626(3613 × 2)	•	•	•	•	•	•	•	•	•	•

Product List

* They are the reference data driven at max. current. ($T_j = 85^\circ\text{C}$)

Shape	Product code	Electro-optical Characteristics									Absolute Maximum Rating	
		Ra	CCT	Forward current (mA)	Voltage Typ. (V)	Input power Typ. (W)	Luminous flux Typ. (lm)	Luminous e cacy Typ. (lm/W)	Luminous flux Typ. at max. current (lm)	Thermal resistance Rj-c (/W)	P ₀ (W)	Forward current (mA)
CLU550	CLU550-3626C1-653M2G2B-24	80 Min.	6,500K	2,340	103.9	243.1	34,400	141	67,331	0.1	595	4.68
	CLU550-3626C1-503M2G2B-24		5,000K				33,800	139	66,157			
	CLU550-3626C1-403M2G2B-24		4,000K				33,150	136	64,885			
	CLU550-3626C1-353M2G2B-24		3,500K				32,500	134	63,613			
	CLU550-3626C1-303M2G2B-24		3,000K				31,700	130	62,047			
	CLU550-3626C1-273M2G2B-24		2,700K				30,250	124	59,209			
	CLU550-3626C1-65AL7G4B-24	70 Min.	6,500K				36,650	151	71,735			
	CLU550-3626C1-50AL7G4B-24		5,000K				36,000	148	70,463			
	CLU550-3626C1-40AL7G4B-24		4,000K				35,500	146	69,485			
	CLU550-3626C1-30AL7G4B-24		3,000K				33,900	139	66,353			

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Customer support

We offer various kinds of customer support. Our goal is to support your application development efficiently.

Product selector

▶ http://ce.citizen.co.jp/productse/led_category.php

Visit our website to find the best product solutions in the CITILED COB Series that meet your application.

CITILED®
The Light Engine

Lighting LED Selection Tool

Condition input
CCT Ra: 5000K/90Ra Forward current: 230 mA Tc (C): 25

Product code	φ (mm)	VF (V)	PF (W)	lm/W	Tj (C)
CLU027-0303C1-503M2G2	311	8.9	2.9	163	36
CLU028-1201C1-503M2G2	1134	39.5	9.1	126	63
CLU028-1202C1-503M2G2	1263	36.7	8.4	148	46
CLU028-1203C1-503M2G2	1268	36.4	8.1	165	39
CLU028-1204C1-503M2G2	1282	34.8	8.0	167	36
CLU036-1205C1-503M2G2	1322	34.1	7.9	168	34
CLU036-1206C1-503M2G2	1316	33.8	7.8	169	33
CLU036-1208C1-503M2G2	1303	33.4	7.7	170	31
CLU046-1812C1-503M2G2	1368	33.0	7.6	181	29
CLU046-1812C1-503M2G2	1993	49.4	11.4	176	29
CLU046-1818C1-503M2G2	1976	48.9	11.3	176	28
CLU056-1825C1-503M2G2	2090	48.4	11.1	188	28
CLU056-3618C1-503M2G2	3967	97.8	22.8	177	28

CITILED is a registered trademark of CITIZEN ELECTRONICS CO., LTD. Japan.

Solution Information

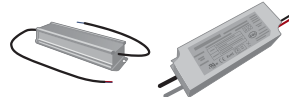
▶ <http://ce.citizen.co.jp/productse/solutions.php>

We have introduced a variety of solutions produced by manufacturers in several countries, in order to support business solutions.

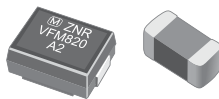
• Optical solutions



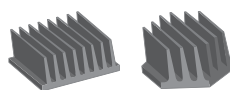
• Electrical solutions



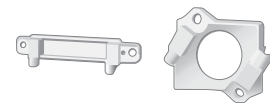
• Electrical devices



• Thermal solutions



• Connectors



Application Notes

▶ <http://ce.citizen.co.jp/productse/technology.php>

We have prepared a variety of technical information to support your development easily. Our application notes solve your design problems with Thermal management, Driving, LM80, Instruction Manual.

• Instruction Manual (COB LED Package)



• LM80 (Laboratory accreditation)



Smaller LES and higher lumen density COB,
suitable for narrow light distribution

CITILED COB Series

High Intensity Type

ver.2



Ver.2 Performance improvement, higher lumen densities.
New lineup for low VF product. (9V)

Small LES Package

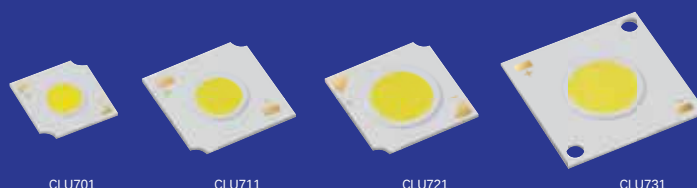
Our new small LES (Light emitting surface) package has succeeded in producing higher flux intensity through use of our advanced packaging technology. It is suitable for luminaires with a narrow beam angle such as spot lights.

Effective use of light

Enough space around LES on the PCB creates flexibility for optics attachment.

Hot binning

3-Step MacAdam ellipse in hot binning.



Application



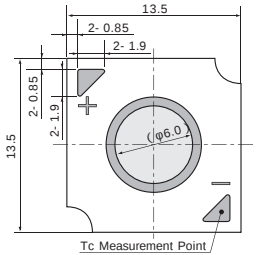
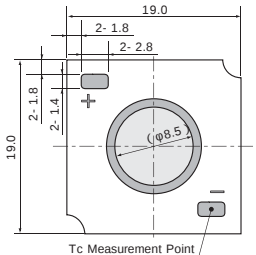
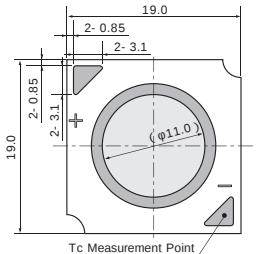
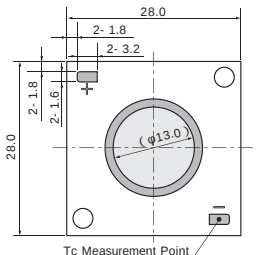
Commercial lighting



Spot light

Outline Drawings



Shape	Appearance (Actual size)	Outline drawing
CLU701	 13.5 × 13.5 mm	 Unit:mm
CLU711	 19.0 × 19.0 mm	 Unit:mm
CLU721	 19.0 × 19.0 mm	 Unit:mm
CLU731	 28.0 × 28.0 mm	 Unit:mm



Color Variations

Shape	Die pattern	Ra 70	Ra 80					Ra 90			
		5,000K	5,000K	4,000K	3,500K	3,000K	2,700K	4,000K	3,500K	3,000K	2,700K
CLU701	0303		•	•	•	•	•	•	•	•	•
	0304		•	•	•	•	•	•	•	•	•
	1002	•	•	•	•	•	•	•	•	•	•
CLU711	1204	•	•	•	•	•	•	•	•	•	•
CLU721	1206	•	•	•	•	•	•	•	•	•	•
CLU731	1210	•	•	•	•	•	•	•	•	•	•

Product List

* They are the reference data driven at max. current. (Tj = 85)

Shape	Product code	Electro-optical Characteristics									Absolute Maximum Rating	
		Ra	CCT	Forward current (mA)	Voltage Typ. (V)	Input power Typ. (W)	Luminous flux Typ. (lm)	Luminous efficacy Typ. (lm/W)	Luminous flux Typ. at max. current* (lm)	Thermal resistance Rj-c (°C/W)	P ₀ (W)	Forward current (mA)
CLU701	CLU701-0303C4-403H5K2	90 Min.	4,000K				516	105	657			
	CLU701-0303C4-353H5K2		3,500K				511	103	650			
	CLU701-0303C4-303H5K2		3,000K				502	102	639			
	CLU701-0303C4-273H5K2		2,700K				480	97	611			
	CLU701-0303C4-503M2K1	80 Min.	5,000K	525	9.4	4.9	636	129	811	3.45	7.8	690
	CLU701-0303C4-403M2K1		4,000K				625	127	796			
	CLU701-0303C4-353M2K1		3,500K				618	125	787			
	CLU701-0303C4-303M2K1		3,000K				607	123	773			
	CLU701-0303C4-273M2K1		2,700K				581	118	740			
	CLU701-0304C4-403H5K2	90 Min.	4,000K				687	104	876			
	CLU701-0304C4-353H5K2		3,500K				680	103	867			
	CLU701-0304C4-303H5K2		3,000K				668	102	851			
	CLU701-0304C4-273H5K2		2,700K				640	97	816			
	CLU701-0304C4-503M2K1	80 Min.	5,000K	700	9.4	6.6	848	129	1,081	2.73	10.4	920
	CLU701-0304C4-403M2K1		4,000K				834	127	1,063			
	CLU701-0304C4-353M2K1		3,500K				824	125	1,050			
	CLU701-0304C4-303M2K1		3,000K				809	123	1,032			
	CLU701-0304C4-273M2K1		2,700K				775	118	987			
	CLU701-1002C4-403H5K2	90 Min.	4,000K				1,055	96	1,345			
	CLU701-1002C4-353H5K2		3,500K				1,037	95	1,322			
	CLU701-1002C4-303H5K2		3,000K				1,011	92	1,288			
	CLU701-1002C4-273H5K2		2,700K				962	88	1,225			
	CLU701-1002C4-503M2K1	80 Min.	5,000K	350	31.3	11.0	1,305	119	1,663	1.63	17.3	460
	CLU701-1002C4-403M2K1		4,000K				1,278	117	1,629			
	CLU701-1002C4-353M2K1		3,500K				1,257	115	1,601			
	CLU701-1002C4-303M2K1		3,000K				1,224	112	1,559			
	CLU701-1002C4-273M2K1		2,700K				1,163	106	1,483			
	CLU701-1002C4-50AL7K3	70 Min.	5,000K				1,372	125	1,748			

* They are the reference data driven at max. current. (Tj = 85)

Shape	Product code	Electro-optical Characteristics									Absolute Maximum Rating	
		Ra	CCT	Forward current (mA)	Voltage Typ. (V)	Input power Typ. (W)	Luminous flux Typ. (lm)	Luminous efficacy Typ. (lm/W)	Luminous flux Typ. at max. current (lm)	Thermal resistance Rj-c (/W)	Po (W)	Forward current (mA)
CLU711 New	CLU711-1204C4-403H5K2	90 Min.	4,000K				2,619	100	3,351			
	CLU711-1204C4-353H5K2		3,500K				2,565	97	3,282			
	CLU711-1204C4-303H5K2		3,000K				2,514	96	3,217			
	CLU711-1204C4-273H5K2		2,700K				2,378	90	3,042			
	CLU711-1204C4-503M2K1	80 Min.	5,000K	700	37.6	26.3	3,232	123	4,135	0.91	41.2	920
	CLU711-1204C4-403M2K1		4,000K				3,172	121	4,059			
	CLU711-1204C4-353M2K1		3,500K				3,107	118	3,976			
	CLU711-1204C4-303M2K1		3,000K				3,042	116	3,892			
	CLU711-1204C4-273M2K1		2,700K				2,877	109	3,681			
	CLU711-1204C4-50AL7K3	70 Min.	5,000K				3,398	129	4,347			

CLU721 New	CLU721-1206C4-403H5K2	90 Min.	4,000K				3,922	99	5,017			
	CLU721-1206C4-353H5K2		3,500K				3,845	97	4,919			
	CLU721-1206C4-303H5K2		3,000K				3,764	95	4,815			
	CLU721-1206C4-273H5K2		2,700K				3,560	90	4,553			
	CLU721-1206C4-503M2K1	80 Min.	5,000K	1,050	37.6	39.5	4,836	123	6,186	0.60	61.7	1,380
	CLU721-1206C4-403M2K1		4,000K				4,750	120	6,076			
	CLU721-1206C4-353M2K1		3,500K				4,658	118	5,959			
	CLU721-1206C4-303M2K1		3,000K				4,555	115	5,826			
	CLU721-1206C4-273M2K1		2,700K				4,307	109	5,510			
	CLU721-1206C4-50AL7K3	70 Min.	5,000K				5,084	129	6,503			

CLU731 New	CLU731-1210C4-403H5K2	90 Min.	4,000K				6,634	101	8,507			
	CLU731-1210C4-353H5K2		3,500K				6,505	99	8,341			
	CLU731-1210C4-303H5K2		3,000K				6,362	97	8,158			
	CLU731-1210C4-273H5K2		2,700K				6,031	92	7,733			
	CLU731-1210C4-503M2K1	80 Min.	5,000K	1,750	37.6	65.8	8,176	124	10,484	0.42	102.4	2,300
	CLU731-1210C4-403M2K1		4,000K				8,036	122	10,304			
	CLU731-1210C4-353M2K1		3,500K				7,879	120	10,103			
	CLU731-1210C4-303M2K1		3,000K				7,699	117	9,872			
	CLU731-1210C4-273M2K1		2,700K				7,298	111	9,358			
	CLU731-1210C4-50AL7K3	70 Min.	5,000K				8,595	131	11,022			

Note Product names and specifications in this catalog are subject to change without notice for the purpose of improvement, or manufacturing may be discontinued. Please contact our sales team in terms of release date and latest specifications for each product.

High quality compact LED achieved 3-step MacAdam ellipse

CITILED SMD Series



New color lineups to the wide light distribution product CLL131.

Superior color quality

3-step MacAdam ellipse color definition is achieved in a small SMD package. Superior color quality is proposed through the reduction in color difference between luminaires.

Small package design

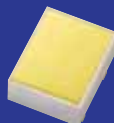
Precise light control is available by a compact light emitting surface. Small packages help flexible luminaire design and high color consistency between luminaires.

Side view type

Side view LED usable for general lighting applications is offered.



CLL620



CLL130



CLL131



CLL630

Chromaticity Range

- 3-step MacAdam Ellipse

CLL620, CLL130, CLL131 4,000K, 3,500K, 3,000K, 2,700K. (Ra 80 Min.)

- ANSI C78.377

CLL620, CLL130, CLL131 5,000K, 6,500K. (Ra 80 Min.)

CLL630 4,000K, 3,000K, 2,700K. (Ra 80 Min.)

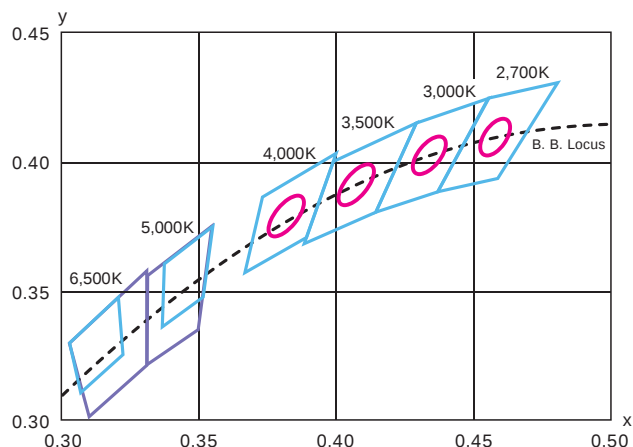
- Original range

CLL630 6,500K, 5,000K. (Ra 80 Min.)

Explanatory notes

- 3-Step MacAdam ellipse*
- ANSI C78.377
- Original range(CLL630)

* 3-Step MacAdam ellipse is based on ANSI C78.377.



Color Variations

Shape	Ra 80 Min. (ANSI C78.377)					Ra 80 Min. (3-step MacAdam ellipse)				Ra 80 Min. (Original range)	
	6,500K	5,000K	4,000K	3,000K	2,700K	4,000K	3,500K	3,000K	2,700K	6,500K	5,000K
CLL620	•	•				•	•	•	•		
CLL130	•	•				•	•	•	•		
CLL131	•	•				•	•	•	•		
CLL630			•	•	•					•	•

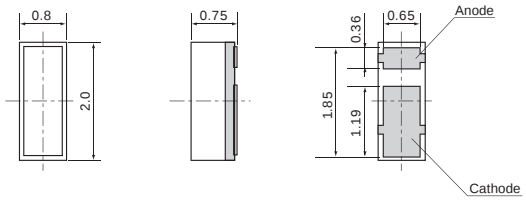
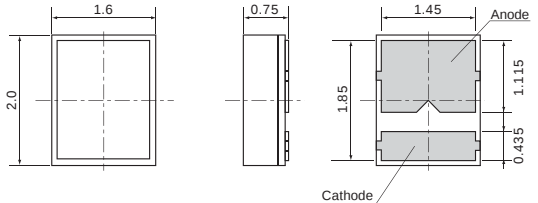
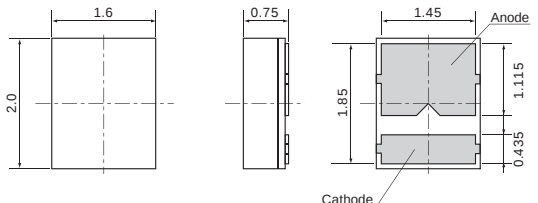
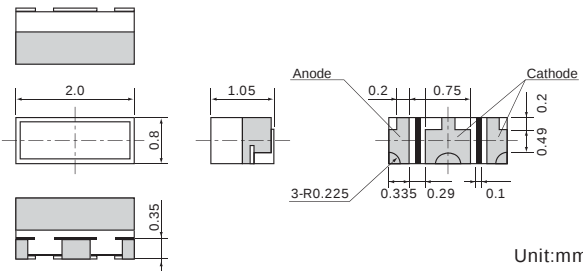
Product Nomenclature

CLL620-0101B2-50AM1C5

- Product shape
- Die count in series
01:1
- Die count in parallel
01:1
- Correlated color temperature
50:5,000K
- Color rendering
M1:Ra 80 Min.

Outline Drawings



Shape	Appearance (Size)	Outline drawing
CLL620	 $0.8(L) \times 2.0(W) \times 0.75(H)$ mm	 Unit:mm
CLL130	 $1.6(L) \times 2.0(W) \times 0.75(H)$ mm	 Unit:mm
CLL131	 $1.6(L) \times 2.0(W) \times 0.75(H)$ mm	 Unit:mm
CLL630	 $1.05(L) \times 2.0(W) \times 0.8(H)$ mm	 Unit:mm

Product List

* They are the reference data driven at max. current. (Ts = 25)

Shape	Product code	Electro-optical Characteristics									Absolute Maximum Rating	
		Ra	CCT	Forward current (mA)	Voltage Typ. (V)	Input power Typ. (W)	Luminous flux Typ. (lm)	Luminous efficacy Typ. (lm/W)	Luminous flux Typ. at max. current* (lm)	Thermal resistance Rj-c (/W)	Po (W)	Forward current (mA)
CLL620	CLL620-0101B2-65AM1C5	80 Min.	6,500K	80	3.2	0.256	26.5	103.5	33.5	90	0.315	90
	CLL620-0101B2-50AM1C5		5,000K				27.5	107.4	34.9			
	CLL620-0101B2-403M1C5		4,000K				27.0	105.5	34.2			
	CLL620-0101B2-353M1C5		3,500K				25.9	101.2	33.0			
	CLL620-0101B2-303M1C5		3,000K				25.5	99.6	32.3			
	CLL620-0101B2-273M1C5		2,700K				24.9	97.3	31.5			
CLL130	CLL130-0101B2-65AM1C5	80 Min.	6,500K	50	3.02	0.151	19.7	130.5	35.9	45	0.289	85
	CLL130-0101B2-50AM1C5		5,000K				20.8	137.7	37.7			
	CLL130-0101B2-403M1C5		4,000K				19.3	127.8	35.1			
	CLL130-0101B2-353M1C5		3,500K				18.9	125.2	34.4			
	CLL130-0101B2-303M1C5		3,000K				18.2	120.5	33.2			
	CLL130-0101B2-273M1C5		2,700K				17.6	116.6	32.1			
CLL131 	CLL131-0101C1-65AM1J1	80 Min.	6,500K	65	2.87	0.187	28.6	153.3	32.9	40	0.289	85
	CLL131-0101C1-50AM1J1		5,000K				29.8	159.7	34.3			
	CLL131-0101C1-403M1F2		4,000K				26.9	144.2	30.9			
	CLL131-0101C1-353M1F2		3,500K				26.4	141.5	30.4			
	CLL131-0101C1-303M1F2		3,000K				25.3	135.6	29.1			
	CLL131-0101C1-273M1F2		2,700K				24.5	131.3	28.2			
CLL630	CLL630-0101B2-65CM1A2	80 Min.	6,500K	60	3.10	0.186	20.2	108.6	29.1	120	0.280	80
	CLL630-0101B2-50CM1A2		5,000K				21.0	112.9	30.4			
	CLL630-0101B2-40AM1A2		4,000K				20.6	110.8	29.7			
	CLL630-0101B2-30AM1A2		3,000K				19.6	105.4	28.2			
	CLL630-0101B2-27AM1A2		2,700K				19.1	102.7	27.6			

Note Product names and specifications in this catalog are subject to change without notice for the purpose of improvement, or manufacturing may be discontinued. Please contact our sales team in terms of release date and latest specifications for each product.

The first COB LED in the market

The slim-type linear package is used for a wide variety of light source modules. The beginning version of CL-L104 records an actual lumen maintenance test over 70,000 hours. The unique package outline create new idea for your design.



Outline Drawings



Shape	Appearance (Actual size)	Outline drawing
CL-L104	50.0 × 7.0 mm	Unit:mm

Chromaticity Range

• 3-step MacAdam Ellipse

CL-L104 Ra 80 Min. , Ra 90 Min.

• Original range

CL-L104 Ra 65 Typ.

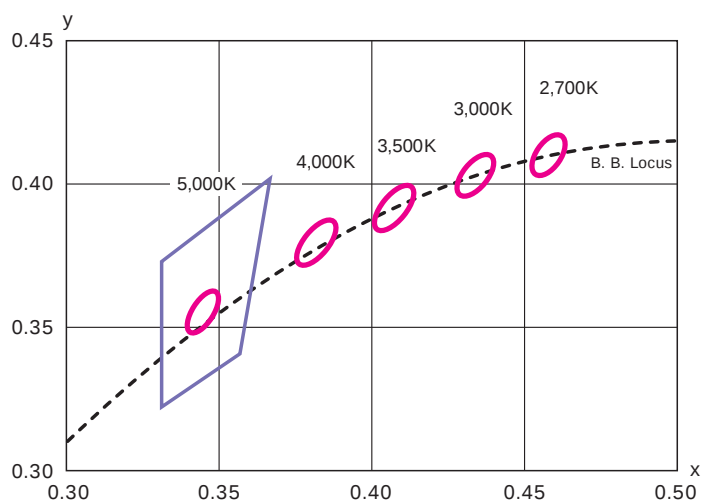
The measurement temperature is specified at Tc=25 .

Explanatory notes

— 3-Step MacAdam ellipse*

— Original range

* 3-Step MacAdam ellipse is based on ANSI C78.377.



Color Variations

Shape	Wattage	Ra 65 Typ. (Original range)	Ra 80 Min. (3-step MacAdam ellipse)					Ra 90 Min. (3-step MacAdam ellipse)				
		5,000K	5,000K	4,000K	3,500K	3,000K	2,700K	5,000K	4,000K	3,500K	3,000K	2,700K
CL-L104	3W	•	•	•	•	•	•	•	•	•	•	•
	6W	•	•	•	•	•	•	•	•	•	•	•

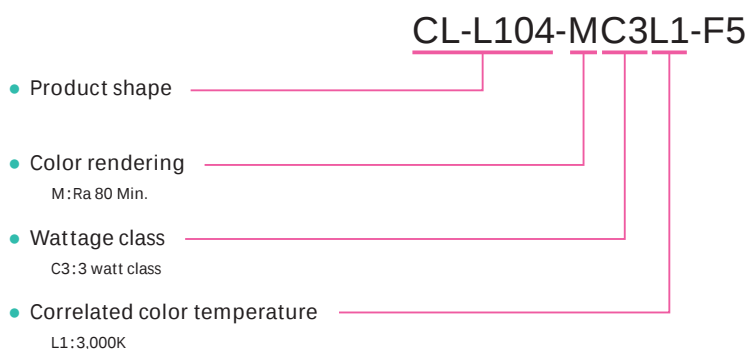
Product List

* They are the reference data driven at max. current. (T_c = 25)

Shape	Product code	Electro-optical Characteristics									Absolute Maximum Rating	
		Ra	CCT	Forward current (mA)	Voltage Typ. (V)	Input power Typ. (W)	Luminous flux Typ. (lm)	Luminous e cacy Typ. (lm/W)	Luminous flux Typ. at max. current (lm)	Thermal resistance R _{j-c} (/W)	P ₀ (W)	Forward current (mA)
CL-L104 (3W)	CL-L104-HC3N1-F5	90 Min.	5,000K	350	9.2	3.2	280	87	510	6.4	7.5	720
	CL-L104-HC3W1-F5		4,000K				275	85	501			
	CL-L104-HC3WW1-F5		3,500K				265	82	483			
	CL-L104-HC3L1-F5		3,000K				260	81	474			
	CL-L104-HC3L2-F5		2,700K				250	78	455			
	CL-L104-MC3N1-F5	80 Min.	5,000K	350	9.2	3.2	325	101	592	6.4	7.5	720
	CL-L104-MC3W1-F5		4,000K				320	99	583			
	CL-L104-MC3WW1-F5		3,500K				315	98	574			
	CL-L104-MC3L1-F5		3,000K				305	95	556			
	CL-L104-MC3L2-F5		2,700K				295	92	537			
	CL-L104-C3N-F	65 Typ.	5,000K				385	120	701			
CL-L104 (6W)	CL-L104-HC6N1-F5	90 Min.	5,000K	700	9.2	6.4	565	88	1,033	5.0	15.0	1,440
	CL-L104-HC6W1-F5		4,000K				550	85	1,006			
	CL-L104-HC6WW1-F5		3,500K				530	82	969			
	CL-L104-HC6L1-F5		3,000K				520	81	951			
	CL-L104-HC6L2-F5		2,700K				500	78	914			
	CL-L104-MC6N1-F5	80 Min.	5,000K	700	9.2	6.4	650	101	1,188	5.0	15.0	1,440
	CL-L104-MC6W1-F5		4,000K				640	99	1,170			
	CL-L104-MC6WW1-F5		3,500K				630	98	1,152			
	CL-L104-MC6L1-F5		3,000K				610	95	1,115			
	CL-L104-MC6L2-F5		2,700K				595	92	1,088			
	CL-L104-C6N-F	65 Typ.	5,000K				760	118	1,390			

Note Product names and specifications in this catalog are subject to change without notice for the purpose of improvement, or manufacturing may be discontinued. Please contact our sales team in terms of release date and latest specifications for each product.

Product Nomenclature



COB emphasizing more vividness

CITILED VIVID Series

Standard Type
High Intensity Type
SMD Type



New lineup for High Intensity Type and SMD Type

Much more vividness for LED lighting

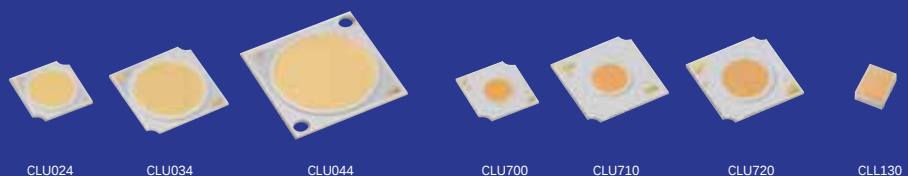
In addition to the high color rendering LEDs aimed at making the color of objects truer, the demands on high chromatic LEDs targeted for making objects more vivid are increasing.

For more brilliant & attractive display

These new products are the most suitable for the applications that place emphasis on the appearance of commercial products such as for store lighting, and lighting for sign boards.

Spectrum tuning technology

Citizen Electronics has developed high chromatic LEDs that enable the vivid appearance of objects by selecting LED dice or phosphor and tuning the light emitting spectrum.



Development of Light

CITILED VIVID Series is able to create beautiful saturated colors which represent a full range of fine color gradation in comparison with a conventional light source. In addition, this product is available to represent the texture of the object and enhance the impression vividly.

VIVID Series (Warm)



Halogen Lamp (3,000K, Ra100)

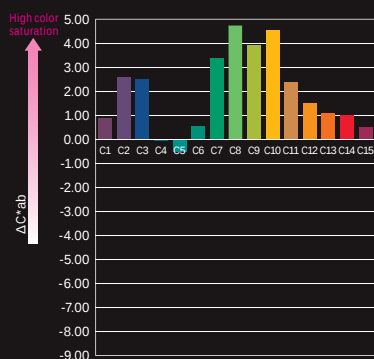


Color Saturation

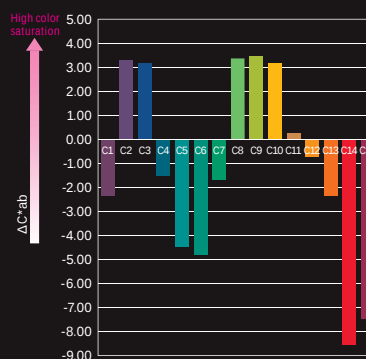
CITILED VIVID Series was developed based on a new parameter of "Color Saturation" so that an illuminated object appears more beautiful in the visible light domain.

• Evaluation of color saturation

VIVID Series (Warm)



Standard product (3,000K, Ra80 Min.)



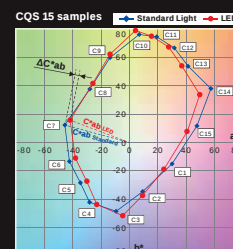
*The data above is an example, it is not guaranteed the product performance.

[Evaluation method]

15 colors scaled by CQS (Color Quality Scale) are plotted on CIE LAB, and enable the color saturation to be compared with the standard light source.

$\Delta C^*_{ab} = C^*_{ab \text{ LED}} - C^*_{ab \text{ standard light source}}$
is calculated each value at 15 points.

$\Delta C^*_{ab} > 0$: High color saturation
 $\Delta C^*_{ab} < 0$: Low color saturation



Application

Standard Type



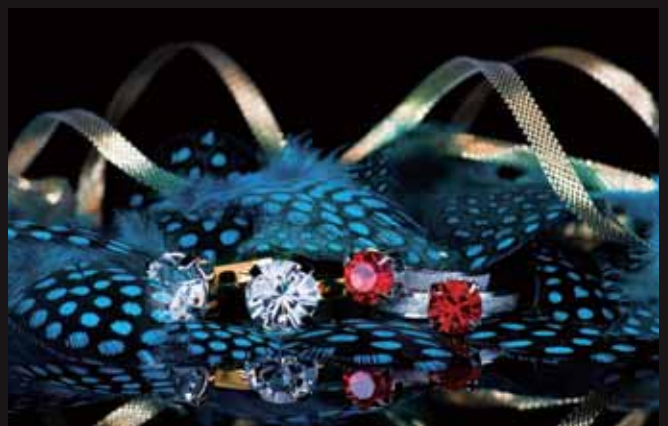
Apparel shop



Fresh food shop



Cosmetic shop



Jewelry shop

High Intensity Type



Commercial spot light

SMD Type



Shelf light

Color Variations

We introduce 4 color variations which achieve the innovation of vividness. It is possible to choose a suitable color for your application and purpose.

Standard Type

Shape	Die pattern	Vivid color			
		White	Warm	Warm Plus	Light Pink
CLU024	1204	•	•	•	•
CLU034	1206	•	•	•	•
	1208	•	•	•	•
CLU044	1212	•	•	•	•
	1812	•	•	•	•

High Intensity Type

Shape	Die pattern	Vivid color			
		White	Warm	Warm Plus	Light Pink
CLU700	0303	•	•	•	
	0602	•	•	•	
	0603	•	•	•	
	1002	•	•	•	
CLU710	1204	•	•	•	
CLU720	1206	•	•	•	

SMD Type

Shape	Die pattern	Vivid color			
		White	Warm	Warm Plus	Light Pink
CLL130	0101	•	•	•	

White



The light color emphasizes beautiful white and represent all colors vividly.

Warm



The light color represents a warm atmosphere and colors vividly.

Warm Plus



The light color represents the atmosphere of a light bulb and colors vividly.

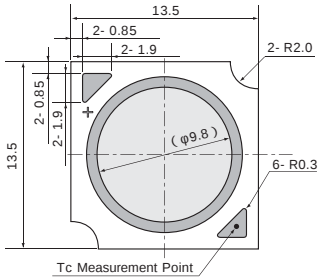
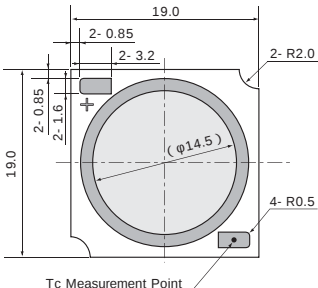
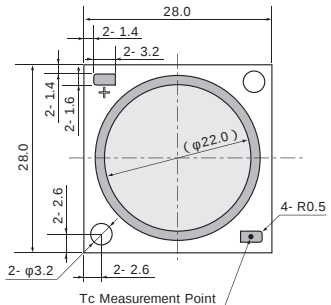
Light Pink



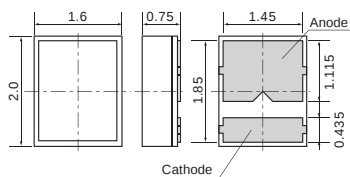
The light color emphasizes red and represents white beautifully.

Outline Drawings

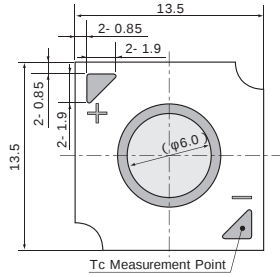
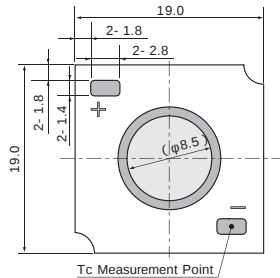
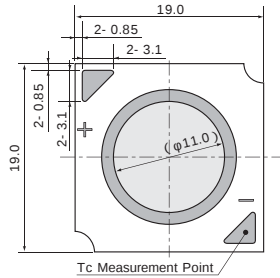
Standard Type

Shape	Appearance (Actual size)	Outline drawing
CLU024	 13.5 × 13.5 mm	 Unit:mm
CLU034	 19.0 × 19.0 mm	 Unit:mm
CLU044	 28.0 × 28.0 mm	 Unit:mm

SMD Type

Shape	Appearance(Size)	Outline drawing
CLL130	 1.6(L) × 2.0(W) × 0.75(H) mm	 Unit:mm

High Intensity Type

Shape	Appearance (Actual size)	Outline drawing
CLU700	 13.5 × 13.5 mm	 Unit:mm
CLU710	 19.0 × 19.0 mm	 Unit:mm
CLU720	 19.0 × 19.0 mm	 Unit:mm

Product List

Standard Type

* They are the reference data driven at max. current. (T_c = 25)

Shape	Product code	Electro-optical Characteristics								Absolute Maximum Rating	
		Color	Forward current (mA)	Voltage Typ. (V)	Input power Typ. (W)	Luminous flux Typ. (lm)	Luminous efficacy Typ. (lm/W)	Luminous flux Typ. at max. current* (lm)	Thermal resistance R _{j-c} (°C/W)	P _D (W)	Forward current (mA)
CLU024	CLU024-1204B8-42GV1F6	White	360	35.7	12.8	1,329	103	2,423	1.4	29.7	720
	CLU024-1204B8-34GV1F6	Warm				1,250	97	2,279			
	CLU024-1204B8-32GV1F6	Warm Plus				1,225	95	2,231			
	CLU024-1204B8-LPGV1F7	Light Pink				787	61	1,465			
CLU034	CLU034-1206B8-42GV1F6	White	540	35.7	19.3	2,142	111	3,890	0.98	44.6	1,080
	CLU034-1206B8-34GV1F6	Warm				2,011	104	3,660			
	CLU034-1206B8-32GV1F6	Warm Plus				1,971	102	3,588			
	CLU034-1206B8-LPGV1F7	Light Pink				1,302	68	2,412			
	CLU034-1208B8-42GV1F6	White	720	35.7	25.7	2,765	108	5,022	0.78	59.5	1,440
	CLU034-1208B8-34GV1F6	Warm				2,598	101	4,728			
	CLU034-1208B8-32GV1F6	Warm Plus				2,546	99	4,637			
	CLU034-1208B8-LPGV1F7	Light Pink				1,665	65	3,083			
CLU044	CLU044-1212B8-42GV1F6	White	1,080	35.7	38.5	4,289	111	7,792	0.52	89.3	2,160
	CLU044-1212B8-34GV1F6	Warm				4,030	105	7,337			
	CLU044-1212B8-32GV1F6	Warm Plus				3,948	102	7,197			
	CLU044-1212B8-LPGV1F7	Light Pink				2,632	68	4,881			
	CLU044-1812B8-42GV1F6	White	1,080	53.5	57.8	6,262	108	11,378	0.39	134.0	2,160
	CLU044-1812B8-34GV1F6	Warm				5,884	102	10,712			
	CLU044-1812B8-32GV1F6	Warm Plus				5,763	100	10,505			
	CLU044-1812B8-LPGV1F7	Light Pink				3,682	64	6,830			

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High Intensity Type

* They are the reference data driven at max. current. ($T_j = 85$)

Shape	Product code	Electro-optical Characteristics								Absolute Maximum Rating	
		Color	Forward current (mA)	Voltage Typ. (V)	Input power Typ. (W)	Luminous flux Typ. (lm)	Luminous e cacy Typ. (lm/W)	Luminous flux Typ. at max. current * (lm)	Thermal resistance R _{j-c} (°C/W)	P ₀ (W)	Forward current (mA)
CLU700	CLU700-0303C1-41GV1J8	White	525	9.4	4.9	465	94	593	5.3	7.8	690
	CLU700-0303C1-33GV1J8	Warm				435	88	554			
	CLU700-0303C1-31GV1J8	Warm Plus				425	86	542			
	CLU700-0602C1-41GV1J8	White	350	18.8	6.6	625	95	797	4.2	10.4	460
	CLU700-0602C1-33GV1J8	Warm				585	89	746			
	CLU700-0602C1-31GV1J8	Warm Plus				570	87	727			
	CLU700-0603C1-41GV1J8	White	525	18.8	9.9	935	95	1,193	2.9	15.5	690
	CLU700-0603C1-33GV1J8	Warm				875	89	1,117			
	CLU700-0603C1-31GV1J8	Warm Plus				855	87	1,091			
	CLU700-1002C1-41GV1J8	White	350	31.1	10.9	1,035	95	1,320	2.5	17.3	460
	CLU700-1002C1-33GV1J8	Warm				970	89	1,237			
	CLU700-1002C1-31GV1J8	Warm Plus				945	87	1,205			
CLU710	CLU710-1204C1-41GV1J8	White	700	37.6	26.3	2,540	97	3,254	1.4	41.2	920
	CLU710-1204C1-33GV1J8	Warm				2,370	90	3,036			
	CLU710-1204C1-31GV1J8	Warm Plus				2,310	88	2,959			
CLU720	CLU720-1206C1-41GV1J8	White	1,050	37.6	39.5	3,835	97	4,890	0.92	61.7	1,380
	CLU720-1206C1-33GV1J8	Warm				3,590	91	4,577			
	CLU720-1206C1-31GV1J8	Warm Plus				3,500	89	4,462			

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SMD Type

* They are the reference data driven at max. current. ($T_s = 25$)

Shape	Product code	Electro-optical Characteristics								Absolute Maximum Rating	
		Color	Forward current (mA)	Voltage Typ. (V)	Input power Typ. (W)	Luminous flux Typ. (lm)	Luminous e cacy Typ. (lm/W)	Luminous flux Typ. at max. current * (lm)	Thermal resistance R _{j-c} (°C/W)	P ₀ (W)	Forward current (mA)
CLL130	CLL130-0101C1-42GV1J7	White	65	2.87	0.187	22.6	121	26.0	40	0.289	85
	CLL130-0101C1-34GV1J7	Warm				21.1	113	24.3			
	CLL130-0101C1-32GV1J7	Warm Plus				20.9	112	24.0			

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