CITIZEN ELECTRONICS CO., LTD. JAPAN

LED for General Lighting 2020

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• Please visit our website for more information. http://ce.citizen.co.jp/e/index.php

These LEDs are intended to be used for general electronic equipment (such as office equipment, communication equipment, measurement instruments, and home appliances). Except as otherwise specified in specifications, we will not guarantee any application suitability for goods that require special quality and reliability (e.g. airplanes, spaceships, submarine repeaters, atomic energy control systems, automobiles, traffic control equipment, life-support systems, and safety devices) , of which failure and malfunction may threaten human life or health directly. Please contact our sales team in advance if you consider using the LEDs for goods like those described above.
When adopting the products for mass production, please exchange formal specifications with us.

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Ref.CE-0567P-201909

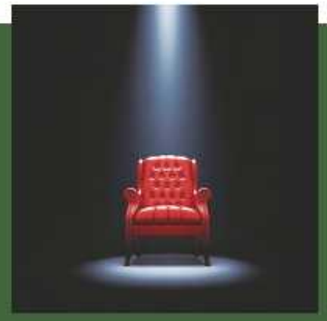
CITILED®
The Light Engine

4 Lighting Solutions

High Efficacy and 2-step ellipse Standard

CITILED COB Series Ver.8

By optimizing each production process, the chromaticity range has achieved 2-step ellipse as a standard specification.
The 2-step ellipse color definition at Tj=85C ensures uniform optical performance in various applications.
The new model shares the same outline design and LES size as the traditional Standard Type（Ver.1 ～ 6).



Point Source

CITILED COB Series
High Intensity Type Ver.3

High Intensity Type Ver.3 has been developed as a high performance product with high luminous flux through the full use of the Citizen Electronics' packaging techniques. We have added the new LES size of ϕ4.2mm and ϕ3.3mm to our product lineup, which makes it possible to realize narrower light distribution than before and as a result contribute to the downsizing of optical parts. High Intensity Type Ver.3 offers an opportunity to develop compact and high performance truck light, downlight, lamp and other lighting products due to its high performance.

High Color Quality

CITILED VIVID Series

Much more vividness for LED lighting. In addition to the high color rendering LEDs aim 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 emphasize the appearance of commercial products like store lighting and lighting for signboards. **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.

Tunable White

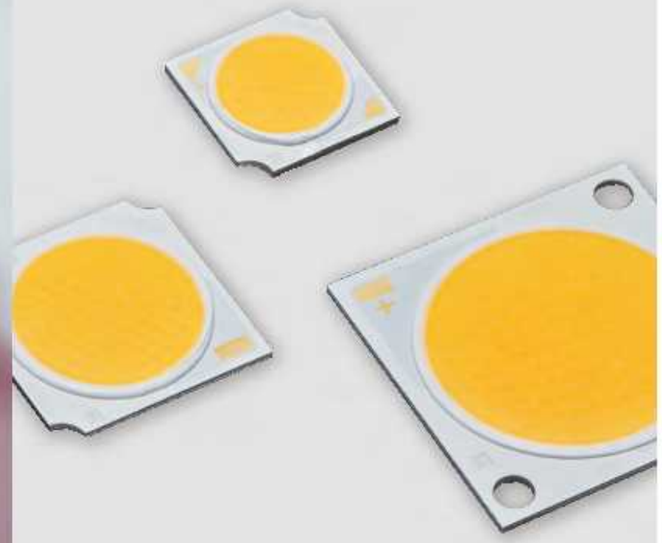
CITILED Tunable White

Tunable White is a module PKG product that achieves thin, small size and LES small size by using ultra-small CSP.
By using the two-color LED, it is possible to freely change the luminous flux and color tone, so it is possible to produce light according to the scene.

Contents

High Efficacy and 2-step ellipse Standard

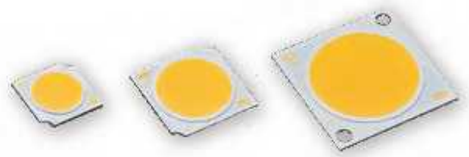
High efficacy LED solutions make a great contribution to the high performance luminaires and luminaire design flexibility.



- Persuit of color Quality
- High Efficacy
- 2-step Standardized
  for Ra80, 90, 97 series / 2,700K to 6,500K

CITILED COB Series Ver.8

By optimizing each production process, the chromaticity range has achieved 2-step ellipse as a standard specification. The 2-step ellipse color definition at Tj=85C ensures uniform optical performance in various applications. The new model shares the same outline design and LES size as the traditional Standard Type (Ver.1~6).



CLU02J CLU03J CLU04J

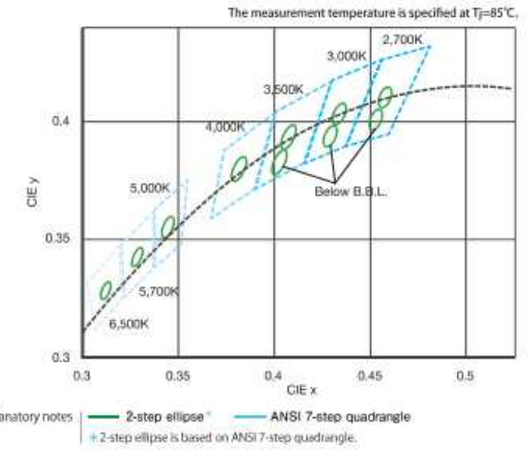
High Efficacy

By improved LED mounting and heat dissipation technology, higher efficacy than Ver.6 is realized. Realizing energy savings with higher efficacy COBs, while creating environmentally friendly products.

2-step Standardized

for Ra80, 90, 97 series / 2,700K to 6,500K.

CITILED COB Ver.8 has realized a narrower color chromaticity. 2-step, about a half of the area ratio compared to the conventional 3-step chromaticity range, has been realized with all colors of Ra80, 90 and 97 series. It could be an effective solution for lighting environments that require strict color homogeneity.



Color Variation

Package	Die Configuration	80 CRI Min.							90 CRI Min.					Below B.B.L. 90 CRI Min.			Super High CRI 97 CRI Typ.		
		2,700K	3,000K	3,500K	4,000K	5,000K	5,700K	6,500K	2,700K	3,000K	3,500K	4,000K	5,700K	2,700K	3,000K	3,500K	2,700K	3,000K	4,000K
CLU02J (LES φ9.7mm)	1201C9	★	★	★	★	★		★	★	★	★	★					★	★	★
	1202C9	★	★	★	★	★		★	★	★	★	★					★	★	★
	1203C9	●	●	●	●	★		★	●	●	●	●		★	★	★	★	★	★
	1204C9	●	●	●	●	●		★	●	●	●	●					★	★	★
CLU03J (LES φ14.5mm)	1205C9	●	●	●	●	●		★	●	●	●	●		★	★	★	★	★	★
	1206C9	●	●	●	●	★		★	●	●	●	●		●	●	●	●	●	●
	1208C9	●	●	●	●	●	★	★	●	●	●	●	★	★	★	★	★	★	★
	1210C9	●	●	●	●	★	★	★	●	●	●	●	★						
CLU04J (LES φ22.0mm)	1211C9	★	★	★	★	★	★	★	★	★	★	★	★	★	★	★	★	★	★
	1212C9	●	●	●	●	●	★	★	●	●	●	●	★	●	●	●	●	●	●
	1812C9	●	●	●	●	●	★	★	●	●	●	●	★				★	★	★
	1818C9	●	●	●	●	●	★	★	●	●	●	●	★						

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(Tj = 85°C)

Package	Product code	Electro-optical Characteristics								Absolute Maximum Rating
		CRI	CCT	Forward current (mA)	Voltage Typ. (V)	Input power Typ.(W)	Luminous flux Typ. (lm)	Efficacy Typ. (lm/W)	Thermal resistance Rj-c(°C/W)	Forward Current (mA)
CLU02J (LES φ9.7mm)	CLU02J-1201C9-272M2U1 ★	80min	2700K	90	33.3	3.0	455	152	2.6	180
	CLU02J-1201C9-302M2U1 ★	80min	3000K	90	33.3	3.0	474	158	2.6	180
	CLU02J-1201C9-352M2U1 ★	80min	3500K	90	33.3	3.0	482	161	2.6	180
	CLU02J-1201C9-402M2U1 ★	80min	4000K	90	33.3	3.0	487	162	2.6	180
	CLU02J-1201C9-502M2U1 ★	80min	5000K	90	33.3	3.0	494	165	2.6	180
	CLU02J-1201C9-652M2U1 ★	80min	6500K	90	33.3	3.0	498	166	2.6	180
	CLU02J-1201C9-272H5U2 ★	90min	2700K	90	33.3	3.0	396	132	2.6	180
	CLU02J-1201C9-302H5U2 ★	90min	3000K	90	33.3	3.0	412	138	2.6	180
	CLU02J-1201C9-352H5U2 ★	90min	3500K	90	33.3	3.0	419	140	2.6	180
	CLU02J-1201C9-402H5U2 ★	90min	4000K	90	33.3	3.0	419	140	2.6	180
	CLU02J-1201C9-272H7U4 ★	97typ	2700K	90	33.3	3.0	345	115	2.6	180
	CLU02J-1201C9-302H7U4 ★	97typ	3000K	90	33.3	3.0	361	120	2.6	180
	CLU02J-1201C9-402H7U4 ★	97typ	4000K	90	33.3	3.0	374	125	2.6	180
	CLU02J-1202C9-272M2U1 ★	80min	2700K	180	33.3	6.0	898	150	1.5	360
	CLU02J-1202C9-302M2U1 ★	80min	3000K	180	33.3	6.0	937	156	1.5	360
	CLU02J-1202C9-352M2U1 ★	80min	3500K	180	33.3	6.0	954	159	1.5	360
	CLU02J-1202C9-402M2U1 ★	80min	4000K	180	33.3	6.0	961	160	1.5	360
	CLU02J-1202C9-502M2U1 ★	80min	5000K	180	33.3	6.0	973	162	1.5	360
	CLU02J-1202C9-652M2U1 ★	80min	6500K	180	33.3	6.0	982	164	1.5	360
	CLU02J-1202C9-272H5U2 ★	90min	2700K	180	33.3	6.0	784	131	1.5	360
	CLU02J-1202C9-302H5U2 ★	90min	3000K	180	33.3	6.0	814	136	1.5	360
	CLU02J-1202C9-352H5U2 ★	90min	3500K	180	33.3	6.0	826	138	1.5	360
	CLU02J-1202C9-402H5U2 ★	90min	4000K	180	33.3	6.0	828	138	1.5	360
	CLU02J-1202C9-272H7U4 ★	97typ	2700K	180	33.3	6.0	680	113	1.5	360
	CLU02J-1202C9-302H7U4 ★	97typ	3000K	180	33.3	6.0	714	119	1.5	360
	CLU02J-1202C9-402H7U4 ★	97typ	4000K	180	33.3	6.0	739	123	1.5	360
	CLU02J-1203C9-272M2U1 ●	80min	2700K	270	33.3	9.0	1324	147	1.0	540
	CLU02J-1203C9-302M2U1 ●	80min	3000K	270	33.3	9.0	1381	153	1.0	540
	CLU02J-1203C9-352M2U1 ●	80min	3500K	270	33.3	9.0	1403	156	1.0	540
	CLU02J-1203C9-402M2U1 ●	80min	4000K	270	33.3	9.0	1416	157	1.0	540
	CLU02J-1203C9-502M2U1 ★	80min	5000K	270	33.3	9.0	1433	159	1.0	540
	CLU02J-1203C9-652M2U1 ★	80min	6500K	270	33.3	9.0	1447	161	1.0	540
	CLU02J-1203C9-272H5U2 ●	90min	2700K	270	33.3	9.0	1154	128	1.0	540
	CLU02J-1203C9-302H5U2 ●	90min	3000K	270	33.3	9.0	1200	133	1.0	540
	CLU02J-1203C9-352H5U2 ●	90min	3500K	270	33.3	9.0	1216	135	1.0	540
	CLU02J-1203C9-402H5U2 ●	90min	4000K	270	33.3	9.0	1219	135	1.0	540
	CLU02J-1203C9-272H6U2 ★	90min below	2700K	270	33.3	9.0	1106	123	1.0	540
	CLU02J-1203C9-302H6U2 ★	90min below	3000K	270	33.3	9.0	1151	128	1.0	540
	CLU02J-1203C9-352H6U2 ★	90min below	3500K	270	33.3	9.0	1166	130	1.0	540
	CLU02J-1203C9-272H7U4 ★	97typ	2700K	270	33.3	9.0	1004	112	1.0	540
	CLU02J-1203C9-302H7U4 ★	97typ	3000K	270	33.3	9.0	1053	117	1.0	540
	CLU02J-1203C9-402H7U4 ★	97typ	4000K	270	33.3	9.0	1089	121	1.0	540
	CLU02J-1204C9-272M2U1 ●	80min	2700K	360	33.3	12.0	1732	144	0.86	720
	CLU02J-1204C9-302M2U1 ●	80min	3000K	360	33.3	12.0	1807	151	0.86	720
	CLU02J-1204C9-352M2U1 ●	80min	3500K	360	33.3	12.0	1839	153	0.86	720
	CLU02J-1204C9-402M2U1 ●	80min	4000K	360	33.3	12.0	1855	155	0.86	720
	CLU02J-1204C9-502M2U1 ●	80min	5000K	360	33.3	12.0	1875	156	0.86	720
	CLU02J-1204C9-652M2U1 ★	80min	6500K	360	33.3	12.0	1891	158	0.86	720

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Product List

(Tj = 85°C)

Package	Product code	Electro-optical Characteristics								Absolute Maximum Rating
		CRI	CCT	Forward current (mA)	Voltage Typ. (V)	Input power Typ.(W)	Luminous flux Typ. (lm)	Efficacy Typ. (lm/W)	Thermal resistance Rj-c(°C/W)	Forward Current (mA)
CLU02J (LES φ9.7mm)	CLU02J-1204C9-272H5U2 ●	90min	2700K	360	33.3	12.0	1510	126	0.86	720
	CLU02J-1204C9-302H5U2 ●	90min	3000K	360	33.3	12.0	1572	131	0.86	720
	CLU02J-1204C9-352H5U2 ●	90min	3500K	360	33.3	12.0	1593	133	0.86	720
	CLU02J-1204C9-402H5U2 ●	90min	4000K	360	33.3	12.0	1596	133	0.86	720
	CLU02J-1204C9-272H7U4 ★	97typ	2700K	360	33.3	12.0	1312	109	0.86	720
	CLU02J-1204C9-302H7U4 ★	97typ	3000K	360	33.3	12.0	1379	115	0.86	720
	CLU02J-1204C9-402H7U4 ★	97typ	4000K	360	33.3	12.0	1428	119	0.86	720
CLU03J (LES φ14.5mm)	CLU03J-1205C9-272M2U1 ●	80min	2700K	450	33.3	15.0	2261	151	0.68	900
	CLU03J-1205C9-302M2U1 ●	80min	3000K	450	33.3	15.0	2358	157	0.68	900
	CLU03J-1205C9-352M2U1 ●	80min	3500K	450	33.3	15.0	2398	160	0.68	900
	CLU03J-1205C9-402M2U1 ●	80min	4000K	450	33.3	15.0	2417	161	0.68	900
	CLU03J-1205C9-502M2U1 ●	80min	5000K	450	33.3	15.0	2447	163	0.68	900
	CLU03J-1205C9-652M2U1 ★	80min	6500K	450	33.3	15.0	2467	165	0.68	900
	CLU03J-1205C9-272H5U2 ●	90min	2700K	450	33.3	15.0	1971	131	0.68	900
	CLU03J-1205C9-302H5U2 ●	90min	3000K	450	33.3	15.0	2049	137	0.68	900
	CLU03J-1205C9-352H5U2 ●	90min	3500K	450	33.3	15.0	2078	139	0.68	900
	CLU03J-1205C9-402H5U2 ●	90min	4000K	450	33.3	15.0	2081	139	0.68	900
	CLU03J-1205C9-272H6U2 ★	90min below	2700K	450	33.3	15.0	1890	126	0.68	900
	CLU03J-1205C9-302H6U2 ★	90min below	3000K	450	33.3	15.0	1965	131	0.68	900
	CLU03J-1205C9-352H6U2 ★	90min below	3500K	450	33.3	15.0	1994	133	0.68	900
	CLU03J-1205C9-272H7U4 ★	97typ	2700K	450	33.3	15.0	1712	114	0.68	900
	CLU03J-1205C9-302H7U4 ★	97typ	3000K	450	33.3	15.0	1798	120	0.68	900
	CLU03J-1205C9-402H7U4 ★	97typ	4000K	450	33.3	15.0	1861	124	0.68	900
	CLU03J-1206C9-272M2U1 ●	80min	2700K	540	33.3	18.0	2687	149	0.61	1080
	CLU03J-1206C9-302M2U1 ●	80min	3000K	540	33.3	18.0	2800	156	0.61	1080
	CLU03J-1206C9-352M2U1 ●	80min	3500K	540	33.3	18.0	2849	158	0.61	1080
	CLU03J-1206C9-402M2U1 ●	80min	4000K	540	33.3	18.0	2872	160	0.61	1080
	CLU03J-1206C9-502M2U1 ★	80min	5000K	540	33.3	18.0	2906	162	0.61	1080
	CLU03J-1206C9-652M2U1 ★	80min	6500K	540	33.3	18.0	2929	163	0.61	1080
	CLU03J-1206C9-272H5U2 ●	90min	2700K	540	33.3	18.0	2341	130	0.61	1080
	CLU03J-1206C9-302H5U2 ●	90min	3000K	540	33.3	18.0	2434	135	0.61	1080
	CLU03J-1206C9-352H5U2 ●	90min	3500K	540	33.3	18.0	2470	137	0.61	1080
	CLU03J-1206C9-402H5U2 ●	90min	4000K	540	33.3	18.0	2471	137	0.61	1080
	CLU03J-1206C9-272H6U2 ●	90min below	2700K	540	33.3	18.0	2244	125	0.61	1080
	CLU03J-1206C9-302H6U2 ●	90min below	3000K	540	33.3	18.0	2334	130	0.61	1080
	CLU03J-1206C9-352H6U2 ●	90min below	3500K	540	33.3	18.0	2368	132	0.61	1080
	CLU03J-1206C9-272H7U4 ●	97typ	2700K	540	33.3	18.0	2034	113	0.61	1080
	CLU03J-1206C9-302H7U4 ●	97typ	3000K	540	33.3	18.0	2135	119	0.61	1080
	CLU03J-1206C9-402H7U4 ●	97typ	4000K	540	33.3	18.0	2210	123	0.61	1080
	CLU03J-1208C9-272M2U1 ●	80min	2700K	720	33.3	24.0	3512	146	0.48	1440
	CLU03J-1208C9-302M2U1 ●	80min	3000K	720	33.3	24.0	3661	153	0.48	1440
	CLU03J-1208C9-352M2U1 ●	80min	3500K	720	33.3	24.0	3726	155	0.48	1440
	CLU03J-1208C9-402M2U1 ●	80min	4000K	720	33.3	24.0	3756	157	0.48	1440
	CLU03J-1208C9-502M2U1 ●	80min	5000K	720	33.3	24.0	3800	158	0.48	1440
	CLU03J-1208C9-572M2U1 ★	80min	5700K	720	33.3	24.0	3800	158	0.48	1440
	CLU03J-1208C9-652M2U1 ★	80min	6500K	720	33.3	24.0	3831	160	0.48	1440
	CLU03J-1208C9-272H5U2 ●	90min	2700K	720	33.3	24.0	3061	128	0.48	1440
	CLU03J-1208C9-302H5U2 ●	90min	3000K	720	33.3	24.0	3183	133	0.48	1440

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CLU03J (LES φ14.6mm)	CLU03J-1208C9-352H5U2 ●	90min	3500K	720	33.3	24.0	3230	135	0.48	1440
	CLU03J-1208C9-402H5U2 ●	90min	4000K	720	33.3	24.0	3232	135	0.48	1440
	CLU03J-1208C9-572H5U2 ★	90min	5700K	720	33.3	24.0	3343	139	0.48	1440
	CLU03J-1208C9-272H6U2 ★	90min below	2700K	720	33.3	24.0	2936	122	0.48	1440
	CLU03J-1208C9-302H6U2 ★	90min below	3000K	720	33.3	24.0	3053	127	0.48	1440
	CLU03J-1208C9-352H6U2 ★	90min below	3500K	720	33.3	24.0	3097	129	0.48	1440
	CLU03J-1208C9-272H7U4 ★	97typ	2700K	720	33.3	24.0	2659	111	0.48	1440
	CLU03J-1208C9-302H7U4 ★	97typ	3000K	720	33.3	24.0	2793	116	0.48	1440
	CLU03J-1208C9-402H7U4 ★	97typ	4000K	720	33.3	24.0	2892	121	0.48	1440
	CLU03J-1210C9-272M2U1 ●	80min	2700K	900	33.3	30.0	4354	145	0.40	1800
	CLU03J-1210C9-302M2U1 ●	80min	3000K	900	33.3	30.0	4548	152	0.40	1800
	CLU03J-1210C9-352M2U1 ●	80min	3500K	900	33.3	30.0	4626	154	0.40	1800
	CLU03J-1210C9-402M2U1 ●	80min	4000K	900	33.3	30.0	4664	156	0.40	1800
	CLU03J-1210C9-502M2U1 ★	80min	5000K	900	33.3	30.0	4719	157	0.40	1800
	CLU03J-1210C9-572M2U1 ★	80min	5700K	900	33.3	30.0	4720	157	0.40	1800
	CLU03J-1210C9-652M2U1 ★	80min	6500K	900	33.3	30.0	4758	159	0.40	1800
	CLU03J-1210C9-272H5U2 ●	90min	2700K	900	33.3	30.0	3794	127	0.40	1800
	CLU03J-1210C9-302H5U2 ●	90min	3000K	900	33.3	30.0	3954	132	0.40	1800
	CLU03J-1210C9-352H5U2 ●	90min	3500K	900	33.3	30.0	4007	134	0.40	1800
	CLU03J-1210C9-402H5U2 ●	90min	4000K	900	33.3	30.0	4014	134	0.40	1800
	CLU03J-1210C9-572H5U2 ★	90min	5700K	900	33.3	30.0	4151	138	0.40	1800
CLU04J (LES φ22.0mm)	CLU04J-1211C9-272M2U1 ★	80min	2700K	990	33.3	33.0	4993	151	0.36	1980
	CLU04J-1211C9-302M2U1 ★	80min	3000K	990	33.3	33.0	5207	158	0.36	1980
	CLU04J-1211C9-352M2U1 ★	80min	3500K	990	33.3	33.0	5298	161	0.36	1980
	CLU04J-1211C9-402M2U1 ★	80min	4000K	990	33.3	33.0	5341	162	0.36	1980
	CLU04J-1211C9-502M2U1 ★	80min	5000K	990	33.3	33.0	5402	164	0.36	1980
	CLU04J-1211C9-572M2U1 ★	80min	5700K	990	33.3	33.0	5403	164	0.36	1980
	CLU04J-1211C9-652M2U1 ★	80min	6500K	990	33.3	33.0	5446	165	0.36	1980
	CLU04J-1211C9-272H5U2 ★	90min	2700K	990	33.3	33.0	4352	132	0.36	1980
	CLU04J-1211C9-302H5U2 ★	90min	3000K	990	33.3	33.0	4526	137	0.36	1980
	CLU04J-1211C9-352H5U2 ★	90min	3500K	990	33.3	33.0	4590	139	0.36	1980
	CLU04J-1211C9-402H5U2 ★	90min	4000K	990	33.3	33.0	4596	139	0.36	1980
	CLU04J-1211C9-572H5U2 ★	90min	5700K	990	33.3	33.0	4753	144	0.36	1980
	CLU04J-1211C9-272H6U2 ★	90min below	2700K	990	33.3	33.0	4175	127	0.36	1980
	CLU04J-1211C9-302H6U2 ★	90min below	3000K	990	33.3	33.0	4342	132	0.36	1980
	CLU04J-1211C9-352H6U2 ★	90min below	3500K	990	33.3	33.0	4403	134	0.36	1980
	CLU04J-1211C9-272H7U4 ★	97typ	2700K	990	33.3	33.0	3781	115	0.36	1980
	CLU04J-1211C9-302H7U4 ★	97typ	3000K	990	33.3	33.0	3972	120	0.36	1980
	CLU04J-1211C9-402H7U4 ★	97typ	4000K	990	33.3	33.0	4111	125	0.36	1980
	CLU04J-1212C9-272M2U1 ●	80min	2700K	1080	33.3	36.0	5447	151	0.32	2160
	CLU04J-1212C9-302M2U1 ●	80min	3000K	1080	33.3	36.0	5679	158	0.32	2160
	CLU04J-1212C9-352M2U1 ●	80min	3500K	1080	33.3	36.0	5779	161	0.32	2160
	CLU04J-1212C9-402M2U1 ●	80min	4000K	1080	33.3	36.0	5826	162	0.32	2160
	CLU04J-1212C9-502M2U1 ●	80min	5000K	1080	33.3	36.0	5894	164	0.32	2160
	CLU04J-1212C9-572M2U1 ★	80min	5700K	1080	33.3	36.0	5894	164	0.32	2160
	CLU04J-1212C9-652M2U1 ★	80min	6500K	1080	33.3	36.0	5941	165	0.32	2160
	CLU04J-1212C9-272H5U2 ●	90min	2700K	1080	33.3	36.0	4747	132	0.32	2160
	CLU04J-1212C9-302H5U2 ●	90min	3000K	1080	33.3	36.0	4937	137	0.32	2160

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Product List

(Tj = 85°C)

Package	Product code	Electro-optical Characteristics								Absolute Maximum Rating
		CRI	CCT	Forward current (mA)	Voltage Typ. (V)	Input power Typ.(W)	Luminous flux Typ. (lm)	Efficacy Typ. (lm/W)	Themal resistance Rj-c(°C/W)	Forward Current (mA)
CLU04J (LES φ22.0mm)	CLU04J-1212C9-352H5U2 ●	90min	3500K	1080	33.3	36.0	5008	139	0.32	2160
	CLU04J-1212C9-402H5U2 ●	90min	4000K	1080	33.3	36.0	5012	139	0.32	2160
	CLU04J-1212C9-572H5U2 ★	90min	5700K	1080	33.3	36.0	5185	144	0.32	2160
	CLU04J-1212C9-272H6U2 ●	90min below	2700K	1080	33.3	36.0	4554	127	0.32	2160
	CLU04J-1212C9-302H6U2 ●	90min below	3000K	1080	33.3	36.0	4737	132	0.32	2160
	CLU04J-1212C9-352H6U2 ●	90min below	3500K	1080	33.3	36.0	4803	133	0.32	2160
	CLU04J-1212C9-272H7U4 ●	97typ	2700K	1080	33.3	36.0	4124	115	0.32	2160
	CLU04J-1212C9-302H7U4 ●	97typ	3000K	1080	33.3	36.0	4332	120	0.32	2160
	CLU04J-1212C9-402H7U4 ●	97typ	4000K	1080	33.3	36.0	4485	125	0.32	2160
	CLU04J-1812C9-272M2U1 ●	80min	2700K	1080	50.0	54.0	7971	148	0.24	2160
	CLU04J-1812C9-302M2U1 ●	80min	3000K	1080	50.0	54.0	8312	154	0.24	2160
	CLU04J-1812C9-352M2U1 ●	80min	3500K	1080	50.0	54.0	8453	157	0.24	2160
	CLU04J-1812C9-402M2U1 ●	80min	4000K	1080	50.0	54.0	8526	158	0.24	2160
	CLU04J-1812C9-502M2U1 ●	80min	5000K	1080	50.0	54.0	8626	160	0.24	2160
	CLU04J-1812C9-572M2U1 ★	80min	5700K	1080	50.0	54.0	8627	160	0.24	2160
	CLU04J-1812C9-652M2U1 ★	80min	6500K	1080	50.0	54.0	8695	161	0.24	2160
	CLU04J-1812C9-272H5U2 ●	90min	2700K	1080	50.0	54.0	6946	129	0.24	2160
	CLU04J-1812C9-302H5U2 ●	90min	3000K	1080	50.0	54.0	7227	134	0.24	2160
	CLU04J-1812C9-352H5U2 ●	90min	3500K	1080	50.0	54.0	7324	136	0.24	2160
	CLU04J-1812C9-402H5U2 ●	90min	4000K	1080	50.0	54.0	7337	136	0.24	2160
	CLU04J-1812C9-572H5U2 ★	90min	5700K	1080	50.0	54.0	7591	141	0.24	2160
	CLU04J-1812C9-272H7U4 ★	97typ	2700K	1080	50.0	54.0	6035	112	0.24	2160
	CLU04J-1812C9-302H7U4 ★	97typ	3000K	1080	50.0	54.0	6342	118	0.24	2160
	CLU04J-1812C9-402H7U4 ★	97typ	4000K	1080	50.0	54.0	6564	122	0.24	2160
	CLU04J-1818C9-272M2U1 ●	80min	2700K	1620	50.0	81.0	11636	144	0.16	3240
	CLU04J-1818C9-302M2U1 ●	80min	3000K	1620	50.0	81.0	12132	150	0.16	3240
	CLU04J-1818C9-352M2U1 ●	80min	3500K	1620	50.0	81.0	12346	152	0.16	3240
	CLU04J-1818C9-402M2U1 ●	80min	4000K	1620	50.0	81.0	12446	154	0.16	3240
	CLU04J-1818C9-502M2U1 ●	80min	5000K	1620	50.0	81.0	12592	156	0.16	3240
	CLU04J-1818C9-572M2U1 ★	80min	5700K	1620	50.0	81.0	12592	156	0.16	3240
	CLU04J-1818C9-652M2U1 ★	80min	6500K	1620	50.0	81.0	12693	157	0.16	3240
	CLU04J-1818C9-272H5U2 ●	90min	2700K	1620	50.0	81.0	10141	125	0.16	3240
	CLU04J-1818C9-302H5U2 ●	90min	3000K	1620	50.0	81.0	10549	130	0.16	3240
	CLU04J-1818C9-352H5U2 ●	90min	3500K	1620	50.0	81.0	10700	132	0.16	3240
	CLU04J-1818C9-402H5U2 ●	90min	4000K	1620	50.0	81.0	10708	132	0.16	3240
	CLU04J-1818C9-572H5U2 ★	90min	5700K	1620	50.0	81.0	11079	137	0.16	3240

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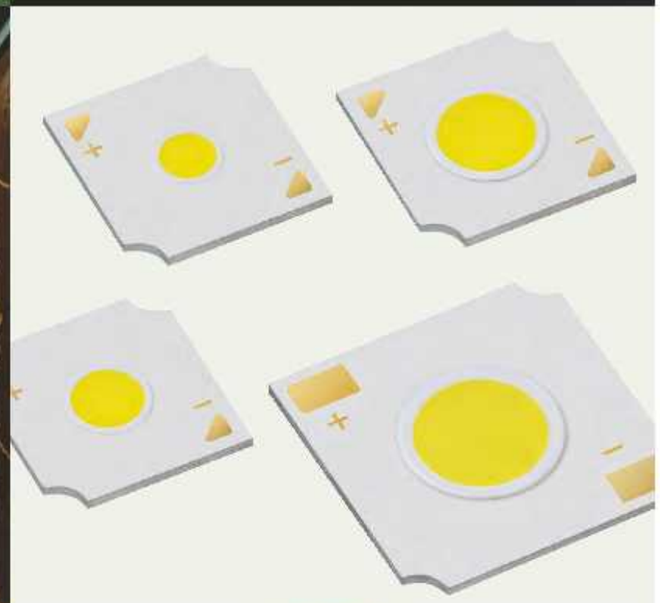
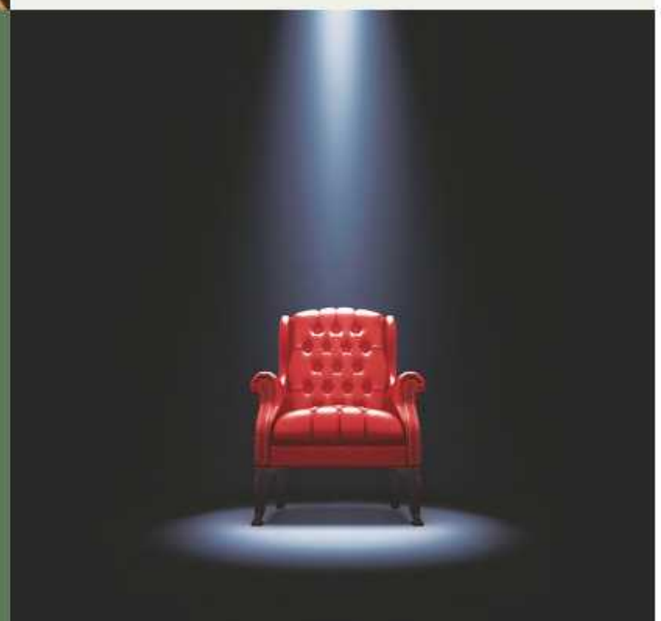
Point Source

Point light source makes light beam control easier with optics and downsize luminaires.



- **The world's smallest LES COB (ϕ3.3mm) ***
- **Easy optical control**
- **Extremely high light output with narrower LES**
- **Contributes to downsizing of luminaires**

* According to our investigation as of August 2019.



CITILED COB Series High Intensity Type Ver.3

High Intensity Type Ver.3 has been developed as a high performance product with high luminous flux through the full use of the Citizen Electronics' packaging techniques. We have added the new LES size of ϕ4.2mm and ϕ3.3mm to our product lineup, which makes it possible to realize narrower light distribution than before and as a result contribute to the downsizing of optical parts.

CLU7B2　CLU7A2　CLU702　CLU712

Color Variation

Package	Die Configuration	80 CRI Min.			90 CRI Min.			Super High CRI 97 CRI Typ.		
		2,700K	3,000K	4,000K	2,700K	3,000K	4,000K	2,700K	3,000K	4,000K
CLU7B2	0701C4	●	●	●	●	●	●	●	●	●
CLU7A2	1201C9	●	●	●	●	●	●	●	●	●
	0403C9	●	●	●	●	●	●	●	●	●
CLU702	1202C9	●	●	●	●	●	●	●	●	●
CLU712	1204C9	●	●	●	●	●	●	●	●	●

Note 1: " ● " indicates that it is a standard product.

Product List

(Tj = 85°C)

Package	Product code	Electro-optical Characteristics								Absolute Maximum Rating
		CRI	CCT	Forward current (mA)	Voltage Typ. (V)	Input power Typ.(W)	Luminous flux Typ.(lm)	Efficacy Typ. (lm/W)	Thermal resistance Rj-c(°C/W)	Forward Current (mA)
CLU7B2 (LES ϕ3.3mm)	CLU7B2-0701C4-273M2R1	80min	2700K	175	21.3	3.7	431	116	5.4	300
	CLU7B2-0701C4-303M2R1	80min	3000K	175	21.3	3.7	451	121	5.4	300
	CLU7B2-0701C4-403M2R1	80min	4000K	175	21.3	3.7	477	128	5.4	300
	CLU7B2-0701C4-273H5R2	90min	2700K	175	21.3	3.7	368	99	5.4	300
	CLU7B2-0701C4-303H5R2	90min	3000K	175	21.3	3.7	389	104	5.4	300
	CLU7B2-0701C4-403H5R2	90min	4000K	175	21.3	3.7	416	112	5.4	300
	CLU7B2-0701C4-273H7R4	97typ	2700K	175	21.3	3.7	326	87	5.4	300
	CLU7B2-0701C4-303H7R4	97typ	3000K	175	21.3	3.7	343	92	5.4	300
	CLU7B2-0701C4-403H7R4	97typ	4000K	175	21.3	3.7	378	101	5.4	300
CLU7A2 (LES ϕ4.2mm)	CLU7A2-1201C9-273M2R1	80min	2700K	175	35.6	6.2	745	120	3.0	300
	CLU7A2-1201C9-303M2R1	80min	3000K	175	35.6	6.2	779	125	3.0	300
	CLU7A2-1201C9-403M2R1	80min	4000K	175	35.6	6.2	818	131	3.0	300
	CLU7A2-1201C9-273H5R2	90min	2700K	175	35.6	6.2	625	100	3.0	300
	CLU7A2-1201C9-303H5R2	90min	3000K	175	35.6	6.2	660	106	3.0	300
	CLU7A2-1201C9-403H5R2	90min	4000K	175	35.6	6.2	716	115	3.0	300
	CLU7A2-1201C9-273H7R4	97typ	2700K	175	35.6	6.2	562	90	3.0	300
	CLU7A2-1201C9-303H7R4	97typ	3000K	175	35.6	6.2	586	94	3.0	300
	CLU7A2-1201C9-403H7R4	97typ	4000K	175	35.6	6.2	660	106	3.0	300
	CLU7A2-0403C9-273M2R1	80min	2700K	525	11.9	6.2	745	120	3.0	900
	CLU7A2-0403C9-303M2R1	80min	3000K	525	11.9	6.2	779	125	3.0	900
	CLU7A2-0403C9-403M2R1	80min	4000K	525	11.9	6.2	818	131	3.0	900
	CLU7A2-0403C9-273H5R2	90min	2700K	525	11.9	6.2	625	100	3.0	900
	CLU7A2-0403C9-303H5R2	90min	3000K	525	11.9	6.2	660	106	3.0	900
	CLU7A2-0403C9-403H5R2	90min	4000K	525	11.9	6.2	716	115	3.0	900
	CLU7A2-0403C9-273H7R4	97typ	2700K	525	11.9	6.2	562	90	3.0	900
	CLU7A2-0403C9-303H7R4	97typ	3000K	525	11.9	6.2	586	94	3.0	900
	CLU7A2-0403C9-403H7R4	97typ	4000K	525	11.9	6.2	660	106	3.0	900
CLU702 (LES ϕ6.0mm)	CLU702-1202C9-273M2R1	80min	2700K	350	35.6	12.5	1502	121	1.6	600
	CLU702-1202C9-303M2R1	80min	3000K	350	35.6	12.5	1576	126	1.6	600
	CLU702-1202C9-403M2R1	80min	4000K	350	35.6	12.5	1658	133	1.6	600
	CLU702-1202C9-273H5R2	90min	2700K	350	35.6	12.5	1246	100	1.6	600
	CLU702-1202C9-303H5R2	90min	3000K	350	35.6	12.5	1342	108	1.6	600
	CLU702-1202C9-403H5R2	90min	4000K	350	35.6	12.5	1424	114	1.6	600
	CLU702-1202C9-273H7R4	97typ	2700K	350	35.6	12.5	1130	91	1.6	600
	CLU702-1202C9-303H7R4	97typ	3000K	350	35.6	12.5	1187	95	1.6	600
	CLU702-1202C9-403H7R4	97typ	4000K	350	35.6	12.5	1363	109	1.6	600
CLU712 (LES ϕ8.5mm)	CLU712-1204C9-273M2R1	80min	2700K	700	35.6	24.9	3094	124	0.91	1200
	CLU712-1204C9-303M2R1	80min	3000K	700	35.6	24.9	3196	128	0.91	1200
	CLU712-1204C9-403M2R1	80min	4000K	700	35.6	24.9	3363	135	0.91	1200
	CLU712-1204C9-273H5R2	90min	2700K	700	35.6	24.9	2560	103	0.91	1200
	CLU712-1204C9-303H5R2	90min	3000K	700	35.6	24.9	2728	109	0.91	1200
	CLU712-1204C9-403H5R2	90min	4000K	700	35.6	24.9	2920	117	0.91	1200
	CLU712-1204C9-273H7R4	97typ	2700K	700	35.6	24.9	2319	93	0.91	1200
	CLU712-1204C9-303H7R4	97typ	3000K	700	35.6	24.9	2446	98	0.91	1200
	CLU712-1204C9-403H7R4	97typ	4000K	700	35.6	24.9	2696	108	0.91	1200

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High Color Quality

CITILED VIVID Series provides beautiful and enriched high color quality light.

- Light that makes an illuminated object look more vivid
- High-chromatic LED that pursues more vividness
- Available in two lineups according to purpose
  - —Brilliant Series which pursues reproduction of texture
  - —Natural Series which makes objects look more natural while maintaining vividness

CITILED VIVID Series

Much more vividness for LED lighting.
In addition to the high color rendering LEDs aim 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 emphasize the appearance of commercial products like store lighting and lighting for signboards.

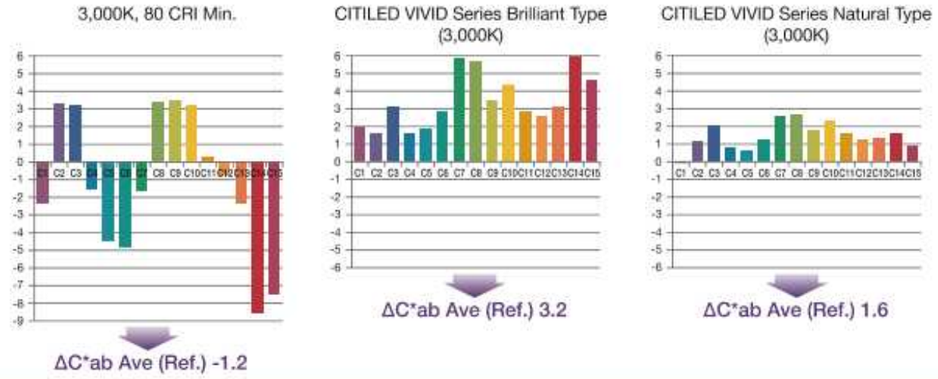
Spectrum tuning technology.
Citizen Electronics has developed high chromatic LEDs that enable the vivid appearance of objects by selecting LED dice or phosphor and tuning the light emitting spectrum.

CLU038 Natural Type | CLU038 Brilliant Type | CLU701 Natural Type

Toward more vivid and beautiful colors

They are not only bright but have a high chroma to make the original colors of the object look more vivid. At the same time the contrast between brightness and darkness is improved, enabling fine details to be expressed.

• Comparison of the chroma difference



Sophisticated expression even in illumination at night

They are LEDs pursuing not only energy saving and high efficiency, but 'quality of light,' which enables an illuminated object to look more vivid. They express pale and subtle color of petals of cherry blossoms vividly and light up cherry blossoms at night more beautifully than before.

Illuminating vividly without color cast

With spectrum tuning technique, which controls light, chroma was increased to make the original colors of the object look more vivid. At the same time the contrast between brightness and darkness is improved, enabling fine details to be expressed.
Lighting which makes illuminated objects look more beautiful has been realized for museums, cultural properties, stores and cosmetic counters.

Product List

CITILED VIVID Series Brilliant Type

(Tj = 85°C)

Package	Product code	Electro-optical Characteristics							Absolute Maximum Rating	ΔC*ab Ave (Ref.)
		CCT	Forward current (mA)	Voltage Typ. (V)	Input power Typ.(W)	Luminous flux Typ. (lm)	Efficacy Typ. (lm/W)	Themal resistance Rj-c(°C/W)	Forward Current (mA)	
CLU028 (LES φ9.7mm)	CLU028-1204C4-27BV1N3	2,700K	360	34.6	12.5	1,001	80	0.91	720	3.2
	CLU028-1204C4-30BV1N3	3,000K	360	34.6	12.5	1,056	85	0.91	720	
	CLU028-1204C4-35BV1N3	3,500K	360	34.6	12.5	1,112	89	0.91	720	
	CLU028-1204C4-40BV1N3	4,000K	360	34.6	12.5	1,151	92	0.91	720	
	CLU028-1204C4-50BV1N3	5,000K	360	34.6	12.5	1,179	95	0.91	720	
CLU038 (LES φ14.5mm)	CLU038-1206C4-27BV1N3	2,700K	540	34.6	18.7	1,554	83	0.64	1,080	3.2
	CLU038-1206C4-30BV1N3	3,000K	540	34.6	18.7	1,638	88	0.64	1,080	
	CLU038-1206C4-35BV1N3	3,500K	540	34.6	18.7	1,726	92	0.64	1,080	
	CLU038-1206C4-40BV1N3	4,000K	540	34.6	18.7	1,786	96	0.64	1,080	
	CLU038-1206C4-50BV1N3	5,000K	540	34.6	18.7	1,830	98	0.64	1,080	
	CLU038-1208C4-27BV1N3	2,700K	720	34.6	24.9	2,031	82	0.51	1,440	3.2
	CLU038-1208C4-30BV1N3	3,000K	720	34.6	24.9	2,141	86	0.51	1,440	
	CLU038-1208C4-35BV1N3	3,500K	720	34.6	24.9	2,256	91	0.51	1,440	
	CLU038-1208C4-40BV1N3	4,000K	720	34.6	24.9	2,335	94	0.51	1,440	
	CLU038-1208C4-50BV1N3	5,000K	720	34.6	24.9	2,392	96	0.51	1,440	
CLU048 (LES φ22.0mm)	CLU048-1212C4-27BV1N3	2,700K	1,080	34.6	37.4	3,148	84	0.34	2,160	3.2
	CLU048-1212C4-30BV1N3	3,000K	1,080	34.6	37.4	3,319	89	0.34	2,160	
	CLU048-1212C4-35BV1N3	3,500K	1,080	34.6	37.4	3,497	94	0.34	2,160	
	CLU048-1212C4-40BV1N3	4,000K	1,080	34.6	37.4	3,619	97	0.34	2,160	
	CLU048-1212C4-50BV1N3	5,000K	1,080	34.6	37.4	3,708	99	0.34	2,160	
	CLU048-1812C4-27BV1N3	2,700K	1,080	52.0	56.2	4,610	82	0.25	2,160	3.2
	CLU048-1812C4-30BV1N3	3,000K	1,080	52.0	56.2	4,860	87	0.25	2,160	
	CLU048-1812C4-35BV1N3	3,500K	1,080	52.0	56.2	5,121	91	0.25	2,160	
	CLU048-1812C4-40BV1N3	4,000K	1,080	52.0	56.2	5,300	94	0.25	2,160	
	CLU048-1812C4-50BV1N3	5,000K	1,080	52.0	56.2	5,430	97	0.25	2,160	

CITILED VIVID Series Natural Type

(Tj = 85°C)

Package	Product code	Electro-optical Characteristics							Absolute Maximum Rating	ΔC*ab Ave (Ref.)
		CCT	Forward current (mA)	Voltage Typ. (V)	Input power Typ.(W)	Luminous flux Typ. (lm)	Efficacy Typ. (lm/W)	Themal resistance Rj-c(°C/W)	Forward Current (mA)	
CLU028 (LES φ9.7mm)	CLU028-1204C4-27NV1N2	2,700K	360	34.6	12.5	1,167	94	0.91	720	1.6
	CLU028-1204C4-30NV1N2	3,000K	360	34.6	12.5	1,246	100	0.91	720	
	CLU028-1204C4-35NV1N2	3,500K	360	34.6	12.5	1,290	104	0.91	720	
	CLU028-1204C4-40NV1N2	4,000K	360	34.6	12.5	1,324	106	0.91	720	
	CLU028-1204C4-50NV1N2	5,000K	360	34.6	12.5	1,368	110	0.91	720	
CLU038 (LES φ14.5mm)	CLU038-1206C4-27NV1N2	2,700K	540	34.6	18.7	1,812	97	0.64	1,080	1.6
	CLU038-1206C4-30NV1N2	3,000K	540	34.6	18.7	1,934	104	0.64	1,080	
	CLU038-1206C4-35NV1N2	3,500K	540	34.6	18.7	2,002	107	0.64	1,080	
	CLU038-1206C4-40NV1N2	4,000K	540	34.6	18.7	2,054	110	0.64	1,080	
	CLU038-1206C4-50NV1N2	5,000K	540	34.6	18.7	2,123	114	0.64	1,080	
	CLU038-1208C4-27NV1N2	2,700K	720	34.6	24.9	2,368	95	0.51	1,440	1.6
	CLU038-1208C4-30NV1N2	3,000K	720	34.6	24.9	2,528	101	0.51	1,440	
	CLU038-1208C4-35NV1N2	3,500K	720	34.6	24.9	2,617	105	0.51	1,440	
	CLU038-1208C4-40NV1N2	4,000K	720	34.6	24.9	2,685	108	0.51	1,440	
	CLU038-1208C4-50NV1N2	5,000K	720	34.6	24.9	2,775	111	0.51	1,440	

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CITILED VIVID Series Natural Type

(Tj = 85°C)

Package	Product code	Electro-optical Characteristics							Absolute Maximum Rating	ΔC*ab Ave (Ref.)
		CCT	Forward current (mA)	Voltage Typ. (V)	Input power Typ.(W)	Luminous flux Typ. (lm)	Efficacy Typ. (lm/W)	Themal resistance Rj-c(°C/W)	Forward Current (mA)	
CLU048 (LES φ22.0mm)	CLU048-1212C4-27NV1N2	2,700K	1,080	34.6	37.4	3,670	98	0.34	2,160	1.6
	CLU048-1212C4-30NV1N2	3,000K	1,080	34.6	37.4	3,918	105	0.34	2,160	
	CLU048-1212C4-35NV1N2	3,500K	1,080	34.6	37.4	4,056	109	0.34	2,160	
	CLU048-1212C4-40NV1N2	4,000K	1,080	34.6	37.4	4,162	111	0.34	2,160	
	CLU048-1212C4-50NV1N2	5,000K	1,080	34.6	37.4	4,301	115	0.34	2,160	
	CLU048-1812C4-27NV1N2	2,700K	1,080	52.0	56.2	5,375	96	0.25	2,160	1.6
	CLU048-1812C4-30NV1N2	3,000K	1,080	52.0	56.2	5,739	102	0.25	2,160	
	CLU048-1812C4-35NV1N2	3,500K	1,080	52.0	56.2	5,941	106	0.25	2,160	
	CLU048-1812C4-40NV1N2	4,000K	1,080	52.0	56.2	6,095	109	0.25	2,160	
	CLU048-1812C4-50NV1N2	5,000K	1,080	52.0	56.2	6,299	112	0.25	2,160	

CITILED VIVID Series Natural Type High Intensity COB

(Tj = 85°C)

Package	Product code	Electro-optical Characteristics							Absolute Maximum Rating	ΔC*ab Ave (Ref.)
		CCT	Forward current (mA)	Voltage Typ. (V)	Input power Typ.(W)	Luminous flux Typ. (lm)	Efficacy Typ. (lm/W)	Themal resistance Rj-c(°C/W)	Forward Current (mA)	
CLU701 (LES φ6.0mm)	CLU701-0303C4-27NV1N8	2,700K	525	9.4	4.9	433	88	3.5	690	1.6
	CLU701-0303C4-30NV1N8	3,000K	525	9.4	4.9	455	93	3.5	690	
	CLU701-0303C4-35NV1N8	3,500K	525	9.4	4.9	469	96	3.5	690	
	CLU701-0303C4-40NV1N8	4,000K	525	9.4	4.9	501	102	3.5	690	
	CLU701-0303C4-50NV1N8	5,000K	525	9.4	4.9	517	105	3.5	690	
	CLU701-1002C4-27NV1N8	2,700K	350	31.3	11.0	901	82	1.6	460	1.6
	CLU701-1002C4-30NV1N8	3,000K	350	31.3	11.0	946	86	1.6	460	
	CLU701-1002C4-35NV1N8	3,500K	350	31.3	11.0	976	89	1.6	460	
	CLU701-1002C4-40NV1N8	4,000K	350	31.3	11.0	1,042	95	1.6	460	
	CLU701-1002C4-50NV1N8	5,000K	350	31.3	11.0	1,074	98	1.6	460	
CLU711 (LES φ8.5mm)	CLU711-1204C4-27NV1N8	2,700K	700	37.6	26.3	2,186	83	0.91	920	1.6
	CLU711-1204C4-30NV1N8	3,000K	700	37.6	26.3	2,295	87	0.91	920	
	CLU711-1204C4-35NV1N8	3,500K	700	37.6	26.3	2,368	90	0.91	920	
	CLU711-1204C4-40NV1N8	4,000K	700	37.6	26.3	2,528	96	0.91	920	
	CLU711-1204C4-50NV1N8	5,000K	700	37.6	26.3	2,606	99	0.91	920	
CLU721 (LES φ11.0mm)	CLU721-1206C4-27NV1N8	2,700K	1,050	37.6	39.5	3,246	82	0.60	1,380	1.6
	CLU721-1206C4-30NV1N8	3,000K	1,050	37.6	39.5	3,408	86	0.60	1,380	
	CLU721-1206C4-35NV1N8	3,500K	1,050	37.6	39.5	3,516	89	0.60	1,380	
	CLU721-1206C4-40NV1N8	4,000K	1,050	37.6	39.5	3,754	95	0.60	1,380	
	CLU721-1206C4-50NV1N8	5,000K	1,050	37.6	39.5	3,869	98	0.60	1,380	
CLU731 (LES φ13.0mm)	CLU731-1210C4-27NV1N8	2,700K	1,750	37.6	65.8	5,414	82	0.42	2,300	1.6
	CLU731-1210C4-30NV1N8	3,000K	1,750	37.6	65.8	5,684	86	0.42	2,300	
	CLU731-1210C4-35NV1N8	3,500K	1,750	37.6	65.8	5,864	89	0.42	2,300	
	CLU731-1210C4-40NV1N8	4,000K	1,750	37.6	65.8	6,261	95	0.42	2,300	
	CLU731-1210C4-50NV1N8	5,000K	1,750	37.6	65.8	6,453	98	0.42	2,300	

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Tunable White

Tunable White is a module PKG product that achieves thin, small size and LES small size by using ultra-small CSP.
By using the two-color LED, it is possible to freely change the luminous flux and color tone, so it is possible to produce light according to the scene.

- Narrow LES module with CSPs of high-density
- Color temperature can be adjusted freely
- Extensive CCT range Warm 2,700K - Cool 6,500K
- Arrangement design of CSPs for better color homogeneity
- Covers up to 3000lm class

CITILED Tunable White

LCN-C01B/C04B

LCN-C02B/C05B

LCN-C03A/C06A

Color temperature can be changed according to scenes where the light is used.

For example, in a living room, Cool Color makes it easier for children to study, and Warm Color creates a comfortable atmosphere at mealtime.
In addition, color temperature can be changed from morning through night as if the natural light changes its color by time of day, so that workers can stay more comfortable in the workplace.

Product List

(Tc=25°C)

Package	Product code	Electro-optical Characteristics								Absolute Maximum Rating
		CRI	CCT	Forward current (mA)	Voltage Typ. (V)	Input power Typ.(W)	Luminous flux Typ. (lm)	Efficacy Typ. (lm/W)	Thermal resistance Rj-c(°C/W)	Forward Current (mA) *1
	LCN-C01B	80min	2700K	350	24.0	8.4	965	115	3.5	400
		80min	6500K	350	24.0	8.4	1116	133	3.5	400
	LCN-C04B	90min	2700K	350	24.0	8.4	828	99	3.5	400
		90min	6500K	350	24.0	8.4	1011	120	3.5	400
	LCN-C02B	80min	2700K	700	24.0	16.8	1929	115	2.3	800
		80min	6500K	700	24.0	16.8	2232	133	2.3	800
	LCN-C05B	90min	2700K	700	24.0	16.8	1655	99	2.3	800
		90min	6500K	700	24.0	16.8	2023	120	2.3	800
	LCN-C03A	80min	2700K	700	36.0	25.2	2894	115	1.5	800
		80min	6500K	700	36.0	25.2	3348	133	1.5	800
	LCN-C06A	90min	2700K	700	36.0	25.2	2483	99	1.5	800
		90min	6500K	700	36.0	25.2	3034	120	1.5	800

*1 Absolute maximum of power input and Forward current are the summation of cool color & warm color, not for individual value of each input.

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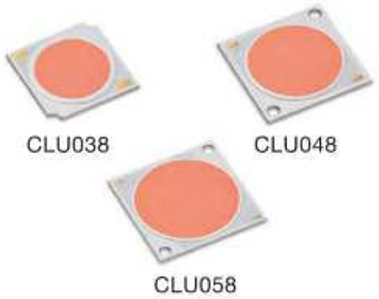
This product has sales restrictions. Please contact our sales team prior to placing your order.

CITILED Amber color COB

Replacement of High Pressure Sodium Lamps

The solution for the replacement of high pressure sodium lamps used in street lights, seaport lights and high masts.



Product List

(Tj = 85°C)

Package	Product code	Electro-optical Characteristics								Absolute Maximum Rating
		CRI	CCT	Forward current (mA)	Voltage Typ. (V)	Input power Typ.(W)	Luminous flux Typ. (lm)	Efficacy Typ. (lm/W)	Thermal resistance Rj-c(°C/W)	Forward Current (mA)
CLU038 (LES φ14.5mm)	CLU038-1208C4-22AL1K3	65typ.	2200K	720	34.6	24.9	3,495	140	0.51	1,440
	CLU038-1210C4-22AL1K3	65typ.	2200K	900	34.6	31.1	4,339	139	0.42	1,800
CLU048 (LES φ22.0mm)	CLU048-1212C4-22AL1K3	65typ.	2200K	1,080	34.6	37.4	5,422	145	0.34	2,160
	CLU048-1812C4-22AL1K3	65typ.	2200K	1,080	52.0	56.2	7,935	141	0.25	2,160
	CLU048-1818C4-22AL1K3	65typ.	2200K	1,620	52.0	84.2	11,583	138	0.17	3,240
CLU058 (LES φ32.8mm)	CLU058-1825C4-22AL1K3	65typ.	2200K	2,250	52.0	117.0	16.961	145	0.14	4,500
	CLU058-3618C4-22AL1K3	65typ.	2200K	1,620	103.9	168.3	23,421	139	0.10	3,240

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CITILED Blue color COB

High Power Blue LED

High-power blue LED suitable for various applications such as lighting for swimming pools and architectural lighting.

Product List

(Tc = 25°C)

Package	Product code	Electro-optical Characteristics								Absolute Maximum Rating
		Forward current (mA)	Voltage Typ. (V)	Input power Typ.(W)	Radiant Flux (W)		Wave Length Dominant (nm)		Thermal resistance Rj-c (°C/W)	Forward Current (mA)
					Min.	Max.	Min.	Max.		
CLU038 (LES φ14.5mm)	CLU038-1208C4-B455-XX	720	35.8	25.8	11	17	445	465	0.51	1,440
	CLU038-1210C4-B455-XX	900	35.8	32.2	13	21	445	465	0.42	1,800
CLU048 (LES φ22.0mm)	CLU048-1212C4-B455-XX	1,080	35.8	38.7	17	27	445	465	0.34	2,160
	CLU048-1812C4-B455-XX	1,080	53.6	57.9	25	39	445	465	0.25	2,160
	CLU048-1818C4-B455-XX	1,620	53.6	86.8	37	57	445	465	0.17	3,240
CLU058 (LES φ32.8mm)	CLU058-1825C4-B455-XX	2,250	53.6	120.6	54	82	445	465	0.14	4,500
	CLU058-3618C4-B455-XX	1,620	107.1	173.5	75	113	445	465	0.10	3,240

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Technical Note

■ Chromaticity Range

CITILED COB Series Ver.8

• 2-step Ellipse

80 CRI Min. : 2,700K, 3,000K, 3,500K, 4,000K, 5,000K, 5,700K, 6,500K
90 CRI Min. : 2,700K, 3,000K, 3,500K, 4,000K, 5,700K
90 CRI Min.(Below B.B.L.) : 2,700K, 3,000K, 3,500K
97 CRI Typ. : 2,700K, 3,000K, 4,000K

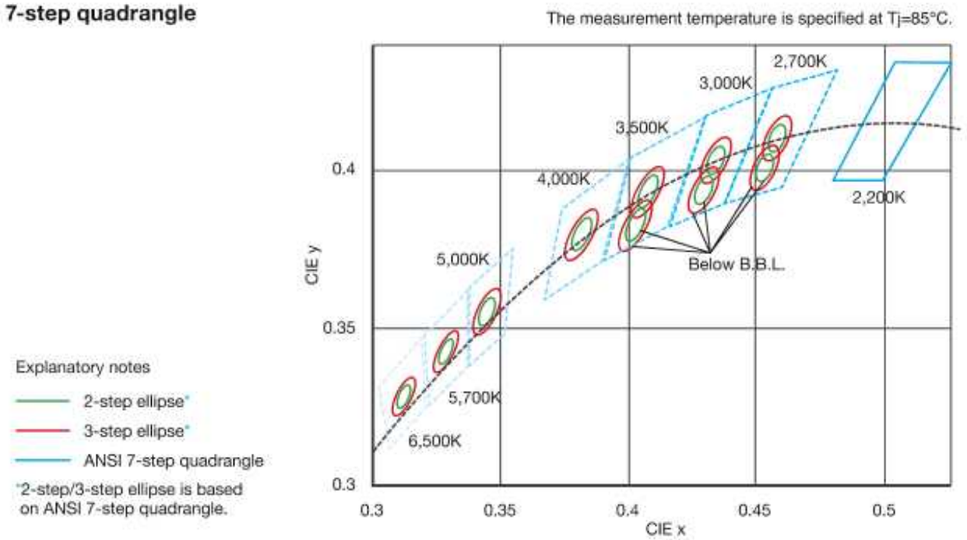
CITILED COB Series High Intensity Type Ver.3

• 3-step Ellipse

80 CRI Min. : 2,700K, 3,000K, 4,000K
90 CRI Min. : 2,700K, 3,000K, 4,000K
97 CRI Typ. : 2,700K, 3,000K, 4,000K

CITILED Amber color COB

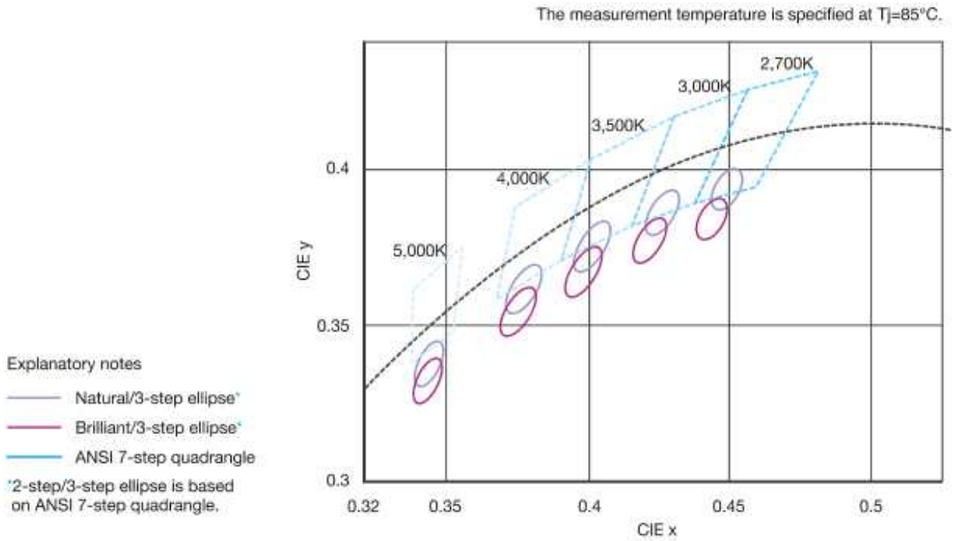
• ANSI 7-step quadrangle



CITILED VIVID Series

• 3-step Ellipse

Natural series : 2,700K, 3,000K, 3,500K, 4,000K, 5,000K
Brilliant series : 2,700K, 3,000K, 3,500K, 4,000K, 5,000K



■ Outline Drawing

CITILED COB Series Ver.8, CITILED COB Series High Intensity Type Ver.3, CITILED VIVID Series, CITILED Tunable White, CITILED Amber color COB, CITILED Blue color COB

Package	Appearance (Actual size)	Outline drawing
CLU02J	13.5×13.5 mm	Unit:mm
CLU03J	19.0×19.0 mm	Unit:mm
CLU04J	28.0×28.0 mm	Unit:mm
CLU7B2	13.5×13.5 mm	Unit:mm
CLU7A2	13.5×13.5 mm	Unit:mm
CLU702	13.5×13.5 mm	Unit:mm
CLU712	19.0×19.0 mm	Unit:mm
CLU028	13.5×13.5 mm	Unit:mm
CLU038	19.0×19.0 mm	Unit:mm

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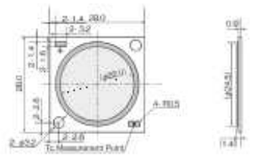
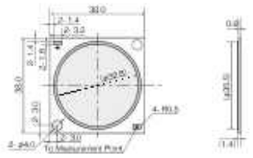
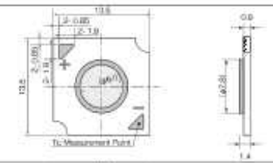
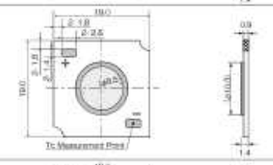
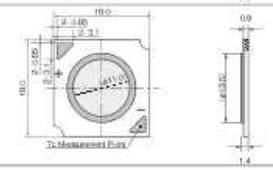
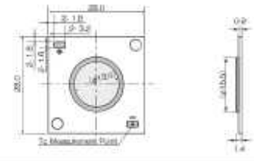
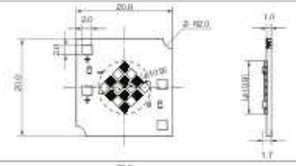
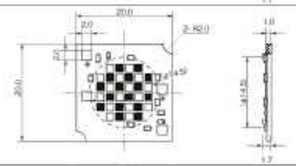
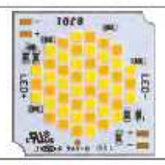
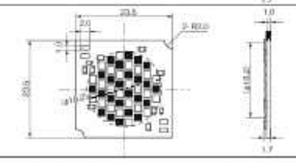
Package	Appearance (Actual size)	Outline drawing
CLU048	 **28.0×28.0 mm**	 Unit:mm
CLU058	 **38.0×38.0 mm**	 Unit:mm
CLU701	 **13.5×13.5 mm**	 Unit:mm
CLU711	 **19.0×19.0 mm**	 Unit:mm
CLU721	 **19.0×19.0 mm**	 Unit:mm
CLU731	 **28.0×28.0 mm**	 Unit:mm
LCN-C01B / C04B	 **20.0×20.0 mm**	 Unit:mm
LCN-C02B / C05B	 **20.0×20.0 mm**	 Unit:mm
LCN-C03A / C06A	 **23.5×23.5 mm**	 Unit:mm

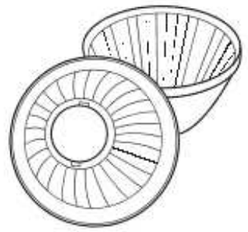
Note 3: Product codes and specifications in this catalogue are subject to change without notice for improvement, and products may be discontinued. We will not be held liable for any damages or costs caused by such change or discontinuation. Please ask our sales team for details of the release date and the latest specifications of each product.

■ Customer Support

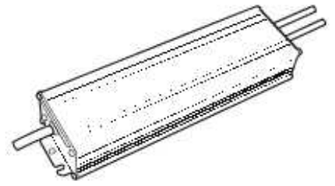
We offer various kinds of customer support.
Our goal is to support your application development efficiently.

Solution Information

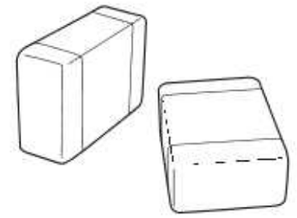
We have introduced a variety of solutions produced by manufacturers in several countries, in order to support business solutions.



Optical solutions



Electrical solutions



Electrical devices

Thermal solutions

Connectors

http://ce.citizen.co.jp/productse/solutions.php

Application Notes

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

Instruction manual
(COB LED Package)

Thermal management

http://ce.citizen.co.jp/productse/technology.php