

Lighting LED Catalog 2015
Products for General Lighting



CITILED COB Series & CITILED SMD Series



CITILED COB Series

Continuing to break COB LED records, a huge lineup

As the 1st COB manufacturer Citizen Electronics has been developing products that provide better brightness and efficacy in the LED industry.

Our advanced expertise and packaging technology over many years means our products have excellent reliability and quality. CITILED COB Series brings you an impressive lighting life with full of delight and beauty.

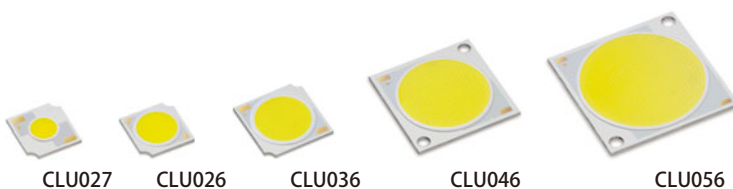
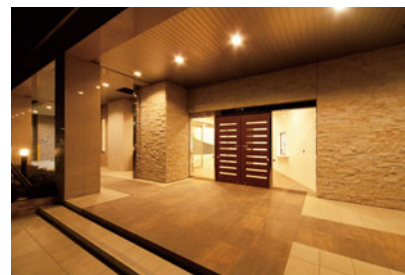


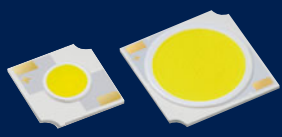
CITILED COB Series
Standard Type Version 4
 CLU027/ CLU026/
 CLU036/ CLU046/
 CLU056

-  Bulb
-  Spot light
-  Down light
-  High bay
-  Street light
-  Flood light
-  Stadium light

Significant performance increase from previous ver.

The new version of CITILED COB series increases the performance significantly from previous version. New version creates more options to match luminaire's products design (ex. High performance, Cost effective, Small Light Emitting Surface (LES), increased allowable max. If). Emitted light density of the LED package is improved higher for suitable use of light-condensing products. The outline and LES size is the same as for previous version. Thus existing parts of 3rd parties are compatible in mechanical characteristics. All specs are at hot binning ($T_j=85^\circ\text{C}$).





CITILED COB Series
High-CRI Type Version 4
 CLU027/ CLU026/ CLU036/
 CLU046/ CLU056



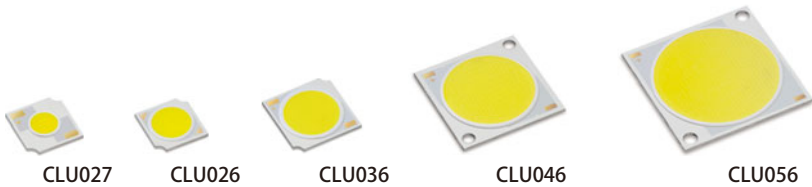
High-CRI products create an attractive visual experience

The new series of CITILED COB Series offers superior color quality. CITIZEN' s high technology and huge knowledge succeed to enable developing high CRI products. Products which have high CRI create rich lighting for your lifestyle. There are 3 models in High CRI Type. "On B. B. L. Model" and "Below B. B. L. Model" are for Ra90, "Super High-CRI" is for Ra97. High-CRI Type achieved 3-step MacAdam ellipse at hot binning (Tj=85°C). New version of High-CRI type increased product performance significantly and add new color variations.

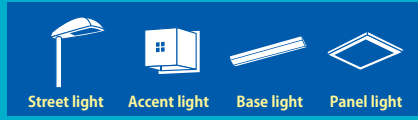


■ Lineups

- Version 4
4
4
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- Version 4
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- Version 4
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4



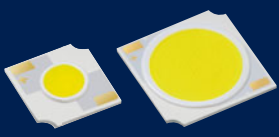
CITILED COB Series
CL-L104




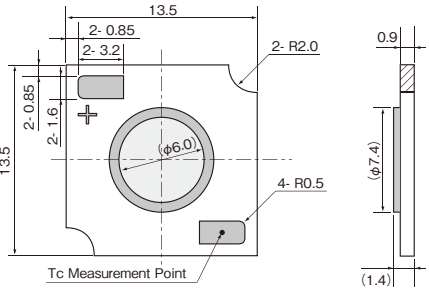

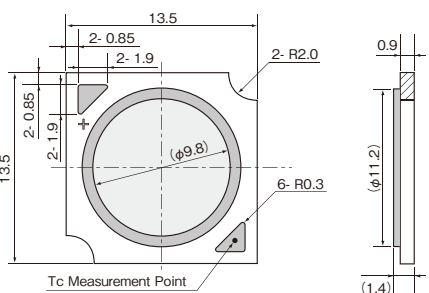

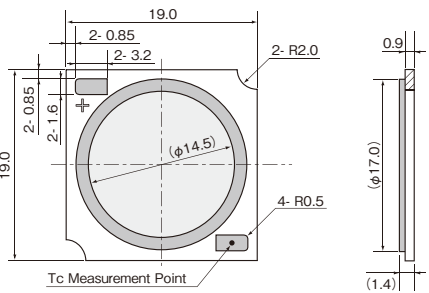
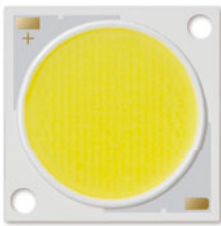
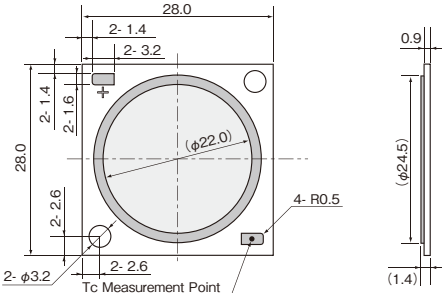
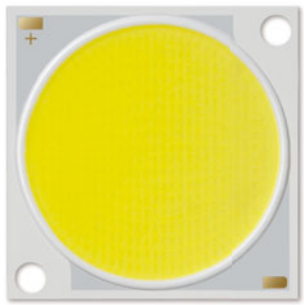
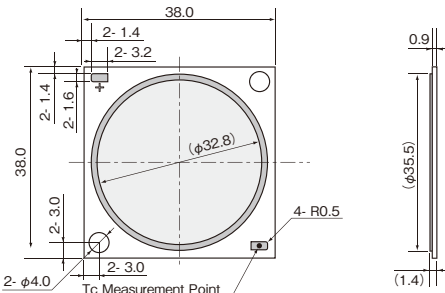
The first COB LED in the market

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.


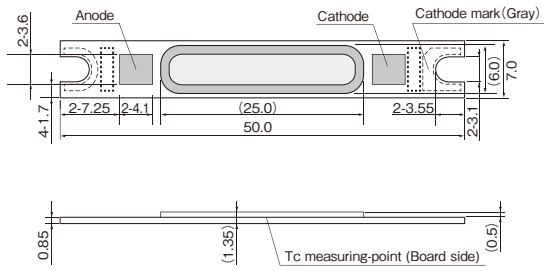




Outline Drawings

Shape	Appearance (Actual size)	Outline drawing
<p>CLU027</p>	 <p>13.5×13.5 mm</p>	 <p>Unit:mm</p>
<p>CLU026</p>	 <p>13.5×13.5 mm</p>	 <p>Unit:mm</p>
<p>CLU036</p>	 <p>19.0×19.0 mm</p>	 <p>Unit:mm</p>
<p>CLU046</p>	 <p>28.0×28.0 mm</p>	 <p>Unit:mm</p>
<p>CLU056</p>	 <p>38.0×38.0 mm</p>	 <p>Unit:mm</p>



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

CITILED COB Series

Chromaticity Range

● 3-step MacAdam Ellipse

- Standard Type Ra 80 Min.
- High-CRI Type Ra 90 Min. , Ra 97 Typ.
- CL-L104 Ra 80 Min. , Ra 90 Min.

● ANSI C78.377

- Standard Type Ra 70 Min.

● Original range

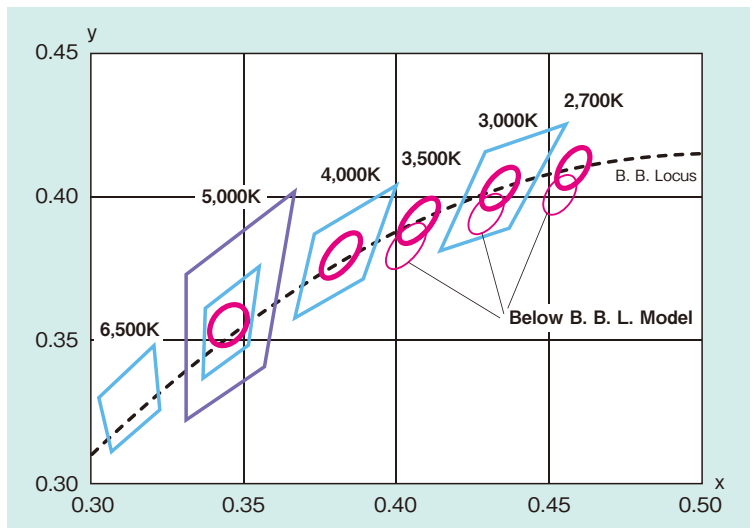
- CL-L104 Ra 65 Typ.

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

Explanatory notes

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

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



Product Nomenclature

Standard Type (CLU027, CLU026, CLU036, CLU046, CLU056)

High-CRI Type (CLU027, CLU026, CLU036, CLU046, CLU056)

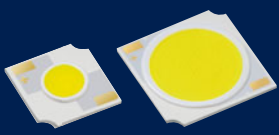
CLU026-1201C1-503M2G2

- 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.

CL-L104

CL-L104-MC3L1-F5

- Product shape
- Color rendering
M: Ra 80 Min.
- Wattage class
C3:3 watt class
- Correlated color temperature
L1:3,000K



Color Variations

Standard Type

Shape	Die pattern	Ra 70 Min. (ANSI C78.377)			Ra 80 Min. (3-step MacAdam ellipse)					
		5,000K	4,000K	3,000K	6,500K	5,000K	4,000K	3,500K	3,000K	2,700K
CLU027	0303C1					○	○	○	○	○
CLU026	1201C1	○	○	○	○	○	○	○	○	○
	1202C1	○	○	○	○	○	○	○	○	○
	1203C1	○	○	○	○	○	○	○	○	○
	1204C1	○	○	○	○	○	○	○	○	○
CLU036	1205C1	○	○	○	○	○	○	○	○	○
	1206C1	○	○	○	○	○	○	○	○	○
	1208C1	○	○	○	○	○	○	○	○	○
CLU046	1212C1	○	○	○	○	○	○	○	○	○
	1812C1	○	○	○	○	○	○	○	○	○
	1818C1	○	○	○	○	○	○	○	○	○
CLU056	1825C1	○	○	○	○	○	○	○	○	○
	3618C1	○	○	○	○	○	○	○	○	○

High-CRI Type

Shape	Die pattern	On B. B. L. Model/ Ra 90 Min. (3-step MacAdam ellipse)				Below B. B. L. Model/ Ra 90 Min. (3-step MacAdam ellipse)			Super High-CRI Model/ Ra 97 Typ. (3-step MacAdam ellipse)		
		4,000K	3,500K	3,000K	2,700K	3,500K	3,000K	2,700K	4,000K	3,000K	2,700K
CLU027	0303C1	○	○	○	○						
CLU026	1201C1	○	○	○	○				○	○	○
	1202C1	○	○	○	○				○	○	○
	1203C1	○	○	○	○	○	○	○	○	○	○
	1204C1	○	○	○	○				○	○	○
CLU036	1205C1	○	○	○	○	○	○	○	○	○	○
	1206C1	○	○	○	○	○	○	○	○	○	○
	1208C1	○	○	○	○	○	○	○	○	○	○
CLU046	1212C1	○	○	○	○	○	○	○	○	○	○
	1812C1	○	○	○	○				○	○	○
	1818C1	○	○	○	○						
CLU056	1825C1	○	○	○	○						
	3618C1	○	○	○	○						

CL-L104

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

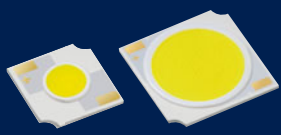
Standard Type

(Tj = 85°C)

Shape	Product code	Electro-optical Characteristics								Absolute Maximum Rating	
		Ra	CCT	Forward current (mA)	Luminous flux Typ. (lm)	Luminous efficacy Typ. (lm/W)	Voltage Typ. (V)	Input power Typ. (W)	Thermal resistance Rj-c (°C/W)	Pd (W)	Forward current (mA)
CLU027	CLU027-0303C1-503M2G2	80 Min.	5,000K	270	329	141	8.7	2.3	5.3	7.3	690
				540	630	124	9.4	5.1			
	CLU027-0303C1-403M2G2		4,000K	270	323	138	8.7	2.3			
				540	619	122	9.4	5.1			
	CLU027-0303C1-353M2G2		3,500K	270	319	136	8.7	2.3			
				540	611	121	9.4	5.1			
	CLU027-0303C1-303M2G2		3,000K	270	313	134	8.7	2.3			
				540	599	118	9.4	5.1			
	CLU027-0303C1-273M2G2		2,700K	270	299	128	8.7	2.3			
				540	573	113	9.4	5.1			

CLU026	CLU026-1201C1-653M2G2	80 Min.	6,500K	90	466	149	34.6	3.1	4.2	9.8	230			
				180	894	132	37.7	6.8						
	CLU026-1201C1-503M2G2		5,000K	90	457	147	34.6	3.1						
				180	877	130	37.7	6.8						
	CLU026-1201C1-403M2G2		4,000K	90	449	144	34.6	3.1						
				180	861	127	37.7	6.8						
	CLU026-1201C1-353M2G2		3,500K	90	444	142	34.6	3.1						
				180	852	126	37.7	6.8						
	CLU026-1201C1-303M2G2		3,000K	90	435	140	34.6	3.1						
				180	834	123	37.7	6.8						
	CLU026-1201C1-273M2G2		2,700K	90	416	133	34.6	3.1						
				180	798	118	37.7	6.8						
	CLU026-1201C1-50AL7G4		5,000K	70 Min.	5,000K	90	494	158				34.6	3.1	
						180	947	140				37.7	6.8	
	CLU026-1201C1-40AL7G4		4,000K		90	485	156	34.6				3.1		
					180	930	138	37.7				6.8		
	CLU026-1201C1-30AL7G4		3,000K		90	470	151	34.6				3.1		
					180	901	133	37.7				6.8		
	CLU026-1202C1-653M2G2		6,500K		80 Min.	6,500K	180	936				150	34.6	6.2
							360	1,802				133	37.7	13.6
	CLU026-1202C1-503M2G2		5,000K			180	918	147				34.6	6.2	
						360	1,768	131				37.7	13.6	
	CLU026-1202C1-403M2G2		4,000K			180	905	145				34.6	6.2	
						360	1,743	129				37.7	13.6	
CLU026-1202C1-353M2G2	3,500K	180	894			143	34.6	6.2						
		360	1,722			127	37.7	13.6						
CLU026-1202C1-303M2G2	3,000K	180	875			140	34.6	6.2						
		360	1,685			124	37.7	13.6						
CLU026-1202C1-273M2G2	2,700K	180	836			134	34.6	6.2						
		360	1,610			119	37.7	13.6						
CLU026-1202C1-50AL7G4	5,000K	70 Min.	5,000K			180	991	159	34.6	6.2				
						360	1,909	141	37.7	13.6				

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CITILED COB Series

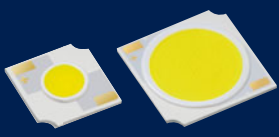
(T_j = 85°C)

Shape	Product code	Electro-optical Characteristics								Absolute Maximum Rating	
		Ra	CCT	Forward current (mA)	Luminous flux Typ. (lm)	Luminous efficacy Typ. (lm/W)	Voltage Typ. (V)	Input power Typ. (W)	Thermal resistance R _{jc} (°C/W)	P ₀ (W)	Forward current (mA)
CLU026	CLU026-1202C1-40AL7G4	70 Min.	4,000K	180	977	157	34.6	6.2	2.4	19.6	460
	360			1,882	139	37.7	13.6				
	CLU026-1202C1-30AL7G4		3,000K	180	945	152	34.6	6.2			
	360			1,820	134	37.7	13.6				
	CLU026-1203C1-653M2G2	80 Min.	6,500K	270	1,367	146	34.6	9.4	1.7	29.4	690
	540			2,638	130	37.7	20.3				
	CLU026-1203C1-503M2G2		5,000K	270	1,340	143	34.6	9.4			
	540			2,585	127	37.7	20.3				
	CLU026-1203C1-403M2G2		4,000K	270	1,320	141	34.6	9.4			
	540			2,547	125	37.7	20.3				
	CLU026-1203C1-353M2G2		3,500K	270	1,304	139	34.6	9.4			
	540			2,516	124	37.7	20.3				
	CLU026-1203C1-303M2G2		3,000K	270	1,278	137	34.6	9.4			
	540			2,466	121	37.7	20.3				
	CLU026-1203C1-273M2G2		2,700K	270	1,221	131	34.6	9.4			
	540			2,356	116	37.7	20.3				
	CLU026-1203C1-50AL7G4	70 Min.	5,000K	270	1,447	155	34.6	9.4			
	540			2,792	137	37.7	20.3				
	CLU026-1203C1-40AL7G4		4,000K	270	1,426	152	34.6	9.4			
	540			2,751	135	37.7	20.3				
	CLU026-1203C1-30AL7G4		3,000K	270	1,380	148	34.6	9.4			
	540			2,663	131	37.7	20.3				
	CLU026-1204C1-653M2G2	80 Min.	6,500K	360	1,789	143	34.6	12.5	1.4	39.2	920
	720			3,462	128	37.7	27.1				
	CLU026-1204C1-503M2G2		5,000K	360	1,754	141	34.6	12.5			
	720			3,395	125	37.7	27.1				
	CLU026-1204C1-403M2G2		4,000K	360	1,729	139	34.6	12.5			
	720			3,346	124	37.7	27.1				
	CLU026-1204C1-353M2G2		3,500K	360	1,708	137	34.6	12.5			
	720			3,306	122	37.7	27.1				
CLU026-1204C1-303M2G2	3,000K		360	1,673	134	34.6	12.5				
720			3,238	120	37.7	27.1					
CLU026-1204C1-273M2G2	2,700K		360	1,597	128	34.6	12.5				
720			3,091	114	37.7	27.1					
CLU026-1204C1-50AL7G4	70 Min.	5,000K	360	1,894	152	34.6	12.5				
720			3,666	135	37.7	27.1					
CLU026-1204C1-40AL7G4		4,000K	360	1,867	150	34.6	12.5				
720			3,614	133	37.7	27.1					
CLU026-1204C1-30AL7G4		3,000K	360	1,807	145	34.6	12.5				
720			3,497	129	37.7	27.1					

(Tj = 85°C)

Shape	Product code	Electro-optical Characteristics								Absolute Maximum Rating	
		Ra	CCT	Forward current (mA)	Luminous flux Typ. (lm)	Luminous efficacy Typ. (lm/W)	Voltage Typ. (V)	Input power Typ. (W)	Thermal resistance Rj-c (°C/W)	Pd (W)	Forward current (mA)
CLU036	CLU036-1205C1-653M2G2	80 Min.	6,500K	450	2,334	150	34.6	15.6	1.1	49.0	1,150
				900	4,514	133	37.7	33.9			
	5,000K		450	2,288	147	34.6	15.6				
			900	4,425	130	37.7	33.9				
	4,000K		450	2,254	145	34.6	15.6				
			900	4,360	128	37.7	33.9				
	3,500K		450	2,228	143	34.6	15.6				
			900	4,309	127	37.7	33.9				
	3,000K		450	2,182	140	34.6	15.6				
			900	4,220	124	37.7	33.9				
	2,700K	450	2,084	134	34.6	15.6					
		900	4,031	119	37.7	33.9					
	CLU036-1205C1-50AL7G4	70 Min.	5,000K	450	2,471	159	34.6	15.6	0.98	58.8	1,380
				900	4,779	141	37.7	33.9			
		4,000K	450	2,434	156	34.6	15.6				
			900	4,708	139	37.7	33.9				
	CLU036-1205C1-30AL7G4	3,000K	450	2,357	151	34.6	15.6				
			900	4,558	134	37.7	33.9				
	CLU036-1206C1-653M2G2	80 Min.	6,500K	540	2,772	148	34.6	18.7	0.98	58.8	1,380
				1,080	5,374	132	37.7	40.8			
			5,000K	540	2,718	145	34.6	18.7			
				1,080	5,269	129	37.7	40.8			
			4,000K	540	2,677	143	34.6	18.7			
				1,080	5,189	127	37.7	40.8			
			3,500K	540	2,647	141	34.6	18.7			
				1,080	5,131	126	37.7	40.8			
			3,000K	540	2,592	139	34.6	18.7			
				1,080	5,025	123	37.7	40.8			
		2,700K	540	2,476	132	34.6	18.7				
			1,080	4,800	118	37.7	40.8				
CLU036-1206C1-50AL7G4	70 Min.	5,000K	540	2,935	157	34.6	18.7	0.78	78.3	1,840	
			1,080	5,690	140	37.7	40.8				
	4,000K	540	2,891	155	34.6	18.7					
		1,080	5,605	137	37.7	40.8					
CLU036-1206C1-40AL7G4	3,000K	540	2,799	150	34.6	18.7					
		1,080	5,427	133	37.7	40.8					
CLU036-1208C1-653M2G2	80 Min.	6,500K	720	3,625	145	34.6	24.9	0.78	78.3	1,840	
			1,440	7,042	129	37.7	54.3				
		5,000K	720	3,554	142	34.6	24.9				
			1,440	6,904	127	37.7	54.3				
		4,000K	720	3,501	140	34.6	24.9				
			1,440	6,801	125	37.7	54.3				
CLU036-1208C1-353M2G2	3,500K	720	3,461	139	34.6	24.9					
		1,440	6,723	124	37.7	54.3					

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CITILED COB Series

(T_j = 85°C)

Shape	Product code	Electro-optical Characteristics								Absolute Maximum Rating	
		Ra	CCT	Forward current (mA)	Luminous flux Typ. (lm)	Luminous efficacy Typ. (lm/W)	Voltage Typ. (V)	Input power Typ. (W)	Thermal resistance B _{j-c} (°C/W)	P ₀ (W)	Forward current (mA)
CLU036	CLU036-1208C1-303M2G2	80 Min.	3,000K	720	3,389	136	34.6	24.9	0.78	78.3	1,840
				1,440	6,583	121	37.7	54.3			
	2,700K		720	3,237	130	34.6	24.9				
			1,440	6,288	116	37.7	54.3				
	70 Min.		5,000K	720	3,838	154	34.6	24.9			
				1,440	7,456	137	37.7	54.3			
		4,000K	720	3,781	152	34.6	24.9				
			1,440	7,345	135	37.7	54.3				
	3,000K	720	3,660	147	34.6	24.9					
		1,440	7,110	131	37.7	54.3					

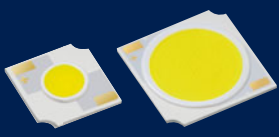
CLU046	CLU046-1212C1-653M2G2	80 Min	6,500K	1,080	5,622	150	34.6	37.4	0.52	117.5	2,760
				2,160	10,921	134	37.7	81.4			
	5,000K		1,080	5,512	147	34.6	37.4				
			2,160	10,707	131	37.7	81.4				
	4,000K		1,080	5,430	145	34.6	37.4				
			2,160	10,548	129	37.7	81.4				
	3,500K		1,080	5,368	143	34.6	37.4				
			2,160	10,428	128	37.7	81.4				
	3,000K		1,080	5,257	141	34.6	37.4				
			2,160	10,212	125	37.7	81.4				
	2,700K		1,080	5,020	134	34.6	37.4				
			2,160	9,752	119	37.7	81.4				
	70 Min..	CLU046-1212C1-50AL7G4	5,000K	1,080	5,953	159	34.6	37.4			
				2,160	11,564	142	37.7	81.4			
		4,000K	1,080	5,864	157	34.6	37.4				
			2,160	11,392	140	37.7	81.4				
		3,000K	1,080	5,678	152	34.6	37.4				
			2,160	11,029	135	37.7	81.4				
	80 Min	CLU046-1812C1-653M2G2	6,500K	1,080	8,228	147	52.0	56.1	0.39	175.8	2,760
				2,160	16,051	131	57.2	123.6			
		5,000K	1,080	8,067	144	52.0	56.1				
			2,160	15,737	128	57.2	123.6				
		4,000K	1,080	7,947	142	52.0	56.1				
			2,160	15,502	126	57.2	123.6				
3,500K		1,080	7,851	140	52.0	56.1					
		2,160	15,315	125	57.2	123.6					
3,000K		1,080	7,694	137	52.0	56.1					
		2,160	15,009	122	57.2	123.6					
2,700K		1,080	7,346	131	52.0	56.1					
		2,160	14,330	117	57.2	123.6					
70 Min.	CLU046-1812C1-50AL7G4	5,000K	1,080	8,712	155	52.0	56.1				
			2,160	16,995	138	57.2	123.6				
	4,000K	1,080	8,583	153	52.0	56.1					
		2,160	16,743	136	57.2	123.6					

(Tj = 85°C)

Shape	Product code	Electro-optical Characteristics								Absolute Maximum Rating			
		Ra	CCT	Forward current (mA)	Luminous flux Typ. (lm)	Luminous efficacy Typ. (lm/W)	Voltage Typ. (V)	Input power Typ. (W)	Thermal resistance Rj-c (°C/W)	P ₀ (W)	Forward current (mA)		
CLU046 <small>New</small>	CLU046-1812C1-30AL7G4	70 Min.	3,000K	1,080	8,310	148	52.0	56.1	0.39	175.8	2,760		
				2,160	16,210	132	57.2	123.6					
	CLU046-1818C1-653M2G2	80 Min.	6,500K	1,620	12,011	143	52.0	84.2	0.26	263.8	4,140		
				3,240	23,430	127	57.2	185.3					
				CLU046-1818C1-503M2G2	5,000K	1,620	11,775	140				52.0	84.2
						3,240	22,970	125				57.2	185.3
				CLU046-1818C1-403M2G2	4,000K	1,620	11,599	138				52.0	84.2
						3,240	22,627	123				57.2	185.3
				CLU046-1818C1-353M2G2	3,500K	1,620	11,467	136				52.0	84.2
						3,240	22,369	121				57.2	185.3
	CLU046-1818C1-303M2G2	3,000K	1,620	11,230	133	52.0	84.2						
			3,240	21,907	119	57.2	185.3						
	CLU046-1818C1-273M2G2	2,700K	1,620	10,724	127	52.0	84.2						
			3,240	20,920	114	57.2	185.3						
	CLU046-1818C1-50AL7G4	70 Min.	5,000K	1,620	12,717	151	52.0	84.2	0.22	364.6	5,750		
				3,240	24,807	135	57.2	185.3					
CLU046-1818C1-40AL7G4				4,000K	1,620	12,527	149	52.0				84.2	
					3,240	24,437	133	57.2				185.3	
CLU046-1818C1-30AL7G4	3,000K	1,620	12,128	144	52.0	84.2							
		3,240	23,659	128	57.2	185.3							

CLU056 <small>New</small>	CLU056-1825C1-653M2G2	80 Min.	6,500K	2,250	17,588	150	52.0	116.9	0.22	364.6	5,750		
				4,500	34,683	134	57.2	257.4					
	CLU056-1825C1-503M2G2	5,000K	2,250	17,243	147	52.0	116.9						
			4,500	34,003	132	57.2	257.4						
	CLU056-1825C1-403M2G2	4,000K	2,250	16,985	145	52.0	116.9						
			4,500	33,494	130	57.2	257.4						
	CLU056-1825C1-353M2G2	3,500K	2,250	16,791	144	52.0	116.9						
			4,500	33,112	128	57.2	257.4						
	CLU056-1825C1-303M2G2	3,000K	2,250	16,444	141	52.0	116.9						
			4,500	32,427	126	57.2	257.4						
	CLU056-1825C1-273M2G2	2,700K	2,250	15,703	134	52.0	116.9						
			4,500	30,966	120	57.2	257.4						
	CLU056-1825C1-50AL7G4	70 Min.	5,000K	2,250	18,622	159	52.0	116.9	0.15	526.0	4,140		
				4,500	36,723	142	57.2	257.4					
				CLU056-1825C1-40AL7G4	4,000K	2,250	18,344	157				52.0	116.9
						4,500	36,174	140				57.2	257.4
CLU056-1825C1-30AL7G4	3,000K	2,250	17,760	152	52.0	116.9							
		4,500	35,021	136	57.2	257.4							
CLU056-3618C1-653M2G2	80 Min.	6,500K	1,620	24,286	144	103.9	168.4	0.15	526.0	4,140			
			3,240	47,627	129	114.2	369.9						
CLU056-3618C1-503M2G2	5,000K	1,620	23,810	141	103.9	168.4							
		3,240	46,694	126	114.2	369.9							

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CITILED COB Series

(T_j = 85°C)

Shape	Product code	Electro-optical Characteristics								Absolute Maximum Rating	
		Ra	CCT	Forward current (mA)	Luminous flux Typ. (lm)	Luminous efficacy Typ. (lm/W)	Voltage Typ. (V)	Input power Typ. (W)	Thermal resistance R _{j-c} (°C/W)	P ₀ (W)	Forward current (mA)
CLU056 New	CLU056-3618C1-403M2G2	80 Min.	4,000K	1,620	23,393	139	103.9	168.4	0.15	526.0	4,140
				3,240	45,876	124	114.2	369.9			
	CLU056-3618C1-353M2G2		3,500K	1,620	23,178	138	103.9	168.4			
				3,240	45,454	123	114.2	369.9			
	CLU056-3618C1-303M2G2		3,000K	1,620	22,645	134	103.9	168.4			
				3,240	44,409	120	114.2	369.9			
	CLU056-3618C1-273M2G2		2,700K	1,620	21,587	128	103.9	168.4			
				3,240	42,334	114	114.2	369.9			
	CLU056-3618C1-50AL7G4		5,000K	1,620	25,715	153	103.9	168.4			
				3,240	50,429	136	114.2	369.9			
	CLU056-3618C1-40AL7G4		4,000K	1,620	25,264	150	103.9	168.4			
				3,240	49,546	134	114.2	369.9			
	CLU056-3618C1-30AL7G4		3,000K	1,620	24,457	145	103.9	168.4			
				3,240	47,962	130	114.2	369.9			

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High-CRI Type

On B. B. L. Model

(T_j = 85°C)

Shape	Product code	Electro-optical Characteristics								Absolute Maximum Rating			
		Ra	CCT	Forward current (mA)	Luminous flux Typ. (lm)	Luminous efficacy Typ. (lm/W)	Voltage Typ. (V)	Input power Typ. (W)	Thermal resistance R _{j-c} (°C/W)	P ₀ (W)	Forward current (mA)		
CLU027 New	CLU027-0303C1-403H5G3	90 Min.	4,000K	270	268	115	8,7	2.3	5.3	7.3	690		
	CLU027-0303C1-353H5G3		3,500K									265	113
	CLU027-0303C1-303H5G3		3,000K									260	111
	CLU027-0303C1-273H5G3		2,700K									248	106

CLU026 New	CLU026-1201C1-403H5G3	90 Min.	4,000K	90	373	120	34.6	3.1	4.2	9.8	230		
	CLU026-1201C1-353H5G3		3,500K									369	118
	CLU026-1201C1-303H5G3		3,000K									361	116
	CLU026-1201C1-273H5G3		2,700K									345	111
	CLU026-1202C1-403H5G3	90 Min.	4,000K	180	751	120	34.6	6.2	2.4	19.6	460		
	CLU026-1202C1-353H5G3		3,500K									742	119
	CLU026-1202C1-303H5G3		3,000K									726	116
	CLU026-1202C1-273H5G3		2,700K									694	111
	CLU026-1203C1-403H5G3	90 Min.	4,000K	270	1,096	117	34.6	9.4	1.7	29.4	690		
	CLU026-1203C1-353H5G3		3,500K									1,082	116
	CLU026-1203C1-303H5G3		3,000K									1,061	113
	CLU026-1203C1-273H5G3		2,700K									1,013	108

(Tj = 85°C)

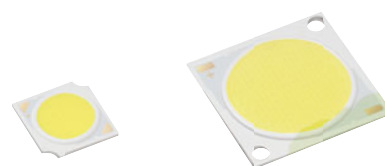
Shape	Product code	Electro-optical Characteristics								Absolute Maximum Rating	
		Ra	CCT	Forward current (mA)	Luminous flux Typ. (lm)	Luminous efficacy Typ. (lm/W)	Voltage Typ. (V)	Input power Typ. (W)	Thermal resistance Rj-c (°C/W)	Pd (W)	Forward current (mA)
CLU026 New	CLU026-1204C1-403H5G3	90 Min.	4,000K	360	1,435	115	34.6	12.5	1.4	39.2	920
	CLU026-1204C1-353H5G3		3,500K		1,418	114					
	CLU026-1204C1-303H5G3		3,000K		1,389	111					
	CLU026-1204C1-273H5G3		2,700K		1,326	106					

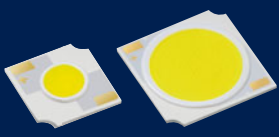
CLU036 New	CLU036-1205C1-403H5G3	90 Min.	4,000K	450	1,871	120	34.6	15.6	1.1	49.0	1,150
	CLU036-1205C1-353H5G3		3,500K		1,849	119					
	CLU036-1205C1-303H5G3		3,000K		1,811	116					
	CLU036-1205C1-273H5G3		2,700K		1,730	111					
	CLU036-1206C1-403H5G3	90 Min.	4,000K	540	2,222	119	34.6	18.7	0.98	58.8	1,380
	CLU036-1206C1-353H5G3		3,500K		2,197	117					
	CLU036-1206C1-303H5G3		3,000K		2,151	115					
	CLU036-1206C1-273H5G3		2,700K		2,055	110					
	CLU036-1208C1-403H5G3	90 Min.	4,000K	720	2,906	117	34.6	24.9	0.78	78.3	1,840
	CLU036-1208C1-353H5G3		3,500K		2,873	115					
	CLU036-1208C1-303H5G3		3,000K		2,813	113					
	CLU036-1208C1-273H5G3		2,700K		2,687	108					

CLU046 New	CLU046-1212C1-403H5G3	90 Min.	4,000K	1,080	4,507	120	34.6	37.4	0.52	117.5	2,760
	CLU046-1212C1-353H5G3		3,500K		4,455	119					
	CLU046-1212C1-303H5G3		3,000K		4,363	117					
	CLU046-1212C1-273H5G3		2,700K		4,167	111					
	CLU046-1812C1-403H5G3	90 Min.	4,000K	1,080	6,596	118	52.0	56.1	0.39	175.8	2,760
	CLU046-1812C1-353H5G3		3,500K		6,516	116					
	CLU046-1812C1-303H5G3		3,000K		6,386	114					
	CLU046-1812C1-273H5G3		2,700K		6,097	109					
	CLU046-1818C1-403H5G3	90 Min.	4,000K	1,620	9,627	114	52.0	84.2	0.26	263.8	4,140
	CLU046-1818C1-353H5G3		3,500K		9,518	113					
	CLU046-1818C1-303H5G3		3,000K		9,321	111					
	CLU046-1818C1-273H5G3		2,700K		8,901	106					

CLU056 New	CLU056-1825C1-403H5G3	90 Min.	4,000K	2,250	14,098	121	52.0	116.9	0.22	364.6	5,750
	CLU056-1825C1-353H5G3		3,500K		13,937	119					
	CLU056-1825C1-303H5G3		3,000K		13,649	117					
	CLU056-1825C1-273H5G3		2,700K		13,033	111					
	CLU056-3618C1-403H5G3	90 Min.	4,000K	1,620	19,416	115	103.9	168.4	0.15	526.0	4,140
	CLU056-3618C1-353H5G3		3,500K		19,238	114					
	CLU056-3618C1-303H5G3		3,000K		18,795	112					
	CLU056-3618C1-273H5G3		2,700K		17,917	106					

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CITILED COB Series

Below B. B. L. Model

(T_j = 85°C)

Shape	Product code	Electro-optical Characteristics								Absolute Maximum Rating	
		Ra	CCT	Forward current (mA)	Luminous flux Typ. (lm)	Luminous efficacy Typ. (lm/W)	Voltage Typ. (V)	Input power Typ. (W)	Thermal resistance R _{jc} (°C/W)	P ₀ (W)	Forward current (mA)
CLU026	New CLU026-1203C1-353H6G3	90 Min.	3,500K	270	1,028	110	34.6	9.4	1.7	29.4	690
	CLU026-1203C1-303H6G3		3,000K		1,008	108					
	CLU026-1203C1-273H6G3		2,700K		962	103					

CLU036	CLU036-1205C1-353H6G3	90 Min.	3,500K	450	1,757	113	34.6	15.6	1.1	49.0	1,150
	CLU036-1205C1-303H6G3		3,000K		1,720	110					
	CLU036-1205C1-273H6G3		2,700K		1,644	105					
	New CLU036-1206C1-353H6G3	90 Min.	3,500K	540	2,087	112	34.6	18.7	0.98	58.8	1,380
	CLU036-1206C1-303H6G3		3,000K		2,043	109					
	CLU036-1206C1-273H6G3		2,700K		1,952	104					
	CLU036-1208C1-353H6G3	90 Min.	3,500K	720	2,729	109	34.6	24.9	0.78	78.3	1,840
	CLU036-1208C1-303H6G3		3,000K		2,672	107					
	CLU036-1208C1-273H6G3		2,700K		2,553	102					

CLU046	New CLU046-1212C1-353H6G3	90 Min.	3,500K	1,080	4,232	113	34.6	37.4	0.52	117.5	2,760
	CLU046-1212C1-303H6G3		3,000K		4,145	111					
	CLU046-1212C1-273H6G3		2,700K		3,959	106					

Super High-CRI Model

(T_j = 85°C)

Shape	Product code	Electro-optical Characteristics								Absolute Maximum Rating	
		Ra	CCT	Forward current (mA)	Luminous flux Typ. (lm)	Luminous efficacy Typ. (lm/W)	Voltage Typ. (V)	Input power Typ. (W)	Thermal resistance R _{jc} (°C/W)	P ₀ (W)	Forward current (mA)
CLU026	CLU026-1201C1-403H7G5	97 Typ.	4,000K	90	337	108	34.6	3.1	4.2	9.8	230
	CLU026-1201C1-303H7G5		3,000K		326	105					
	CLU026-1201C1-273H7G5		2,700K		312	100					
	CLU026-1202C1-403H7G5	97 Typ.	4,000K	180	679	109	34.6	6.2	2.4	19.6	460
	CLU026-1202C1-303H7G5		3,000K		656	105					
	CLU026-1202C1-273H7G5		2,700K		627	101					
	CLU026-1203C1-403H7G5	97 Typ.	4,000K	270	990	106	34.6	9.4	1.7	29.4	690
	CLU026-1203C1-303H7G5		3,000K		959	103					
	CLU026-1203C1-273H7G5		2,700K		916	98					
	CLU026-1204C1-403H7G5	97 Typ.	4,000K	360	1,297	104	34.6	12.5	1.4	39.2	920
CLU026-1204C1-303H7G5	3,000K		1,255		101						
CLU026-1204C1-273H7G5	2,700K		1,198		96						

CLU036	CLU036-1205C1-403H7G5	97 Typ.	4,000K	450	1,691	108	34.6	15.6	1.1	49.0	1,150
	CLU036-1205C1-303H7G5		3,000K		1,637	105					
	CLU036-1205C1-273H7G5		2,700K		1,563	100					
	New CLU036-1206C1-403H7G5	97 Typ.	4,000K	540	2,008	107	34.6	18.7	0.98	58.8	1,380
	CLU036-1206C1-303H7G5		3,000K		1,944	104					
	CLU036-1206C1-273H7G5		2,700K		1,857	99					
	CLU036-1208C1-403H7G5	97 Typ.	4,000K	720	2,626	105	34.6	24.9	0.78	78.3	1,840
	CLU036-1208C1-303H7G5		3,000K		2,542	102					
	CLU036-1208C1-273H7G5		2,700K		2,428	97					

(Tj = 85°C)

Shape	Product code	Electro-optical Characteristics								Absolute Maximum Rating	
		Ra	CCT	Forward current (mA)	Luminous flux Typ. (lm)	Luminous efficacy Typ. (lm/W)	Voltage Typ. (V)	Input power Typ. (W)	Thermal resistance Rj-c (°C/W)	P ₀ (W)	Forward current (mA)
CLU046 <small>New</small>	CLU046-1212C1-403H7G5	97 Typ.	4,000K	1,080	4,073	109	34.6	37.4	0.52	117.5	2,760
	CLU046-1212C1-303H7G5		3,000K		3,943	105					
	CLU046-1212C1-273H7G5		2,700K		3,765	101					
	CLU046-1812C1-403H7G5	97 Typ.	4,000K	1,080	5,960	106	52.0	56.1	0.39	175.8	2,760
	CLU046-1812C1-303H7G5		3,000K		5,771	103					
	CLU046-1812C1-273H7G5		2,700K		5,510	98					

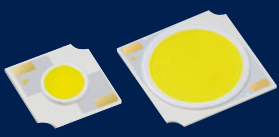
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CL-L104

(Tc = 25°C)

Shape	Product code	Electro-optical Characteristics								Absolute Maximum Rating	
		Ra	CCT	Forward current (mA)	Luminous flux Typ. (lm)	Luminous efficacy Typ. (lm/W)	Voltage Typ. (V)	Input power Typ. (W)	Thermal resistance Rj-c (°C/W)	P ₀ (W)	Forward current (mA)
CL-L104 (3W)	CL-L104-HC3N1-F5	90 Min.	5,000K	350	280	87	9.2	3.2	6.4	7.5	720
	CL-L104-HC3W1-F5		4,000K		275	85					
	CL-L104-HC3WW1-F5		3,500K		265	82					
	CL-L104-HC3L1-F5		3,000K		260	81					
	CL-L104-HC3L2-F5		2,700K		250	78					
	CL-L104-MC3N1-F5	80 Min.	5,000K	700	325	101	9.2	6.4	5.0	15.0	1,440
	CL-L104-MC3W1-F5		4,000K		320	99					
	CL-L104-MC3WW1-F5		3,500K		315	98					
	CL-L104-MC3L1-F5		3,000K		305	95					
	CL-L104-MC3L2-F5		2,700K		295	92					
CL-L104-C3N-F	65 Typ.	5,000K		385	120						
CL-L104 (6W)	CL-L104-HC6N1-F5	90 Min.	5,000K	700	565	88	9.2	6.4	5.0	15.0	1,440
	CL-L104-HC6W1-F5		4,000K		550	85					
	CL-L104-HC6WW1-F5		3,500K		530	82					
	CL-L104-HC6L1-F5		3,000K		520	81					
	CL-L104-HC6L2-F5		2,700K		500	78					
	CL-L104-MC6N1-F5	80 Min.	5,000K	700	650	101	9.2	6.4	5.0	15.0	1,440
	CL-L104-MC6W1-F5		4,000K		640	99					
	CL-L104-MC6WW1-F5		3,500K		630	98					
	CL-L104-MC6L1-F5		3,000K		610	95					
	CL-L104-MC6L2-F5		2,700K		595	92					
CL-L104-C6N-F	65 Typ.	5,000K		760	118						

*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.



Customer support

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

Solution Information

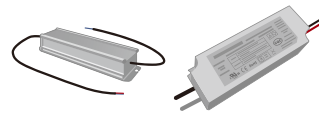
➔ http://ce.citizen.co.jp/lighting_led/en/technology/solutions/index.html

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

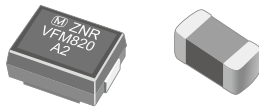
Optical solutions



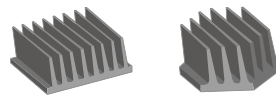
Electrical solutions



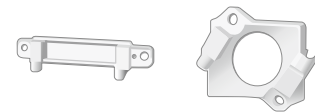
Electrical devices



Thermal solutions



Connectors



Application Notes

➔ http://ce.citizen.co.jp/lighting_led/en/technology/index.html

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.

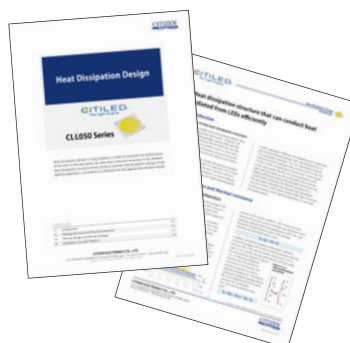
Instruction Manual (COB LED Package)



LM80 (Laboratory accreditation)



Thermal management



CITILED SMD Series

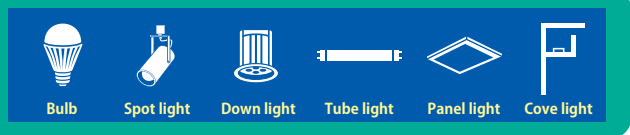
Continuing to improve light grace, 3-step MacAdam Ellipse

Our smallest LED components enable us to create and design new LED lighting as you desire; linear, rectangular, spiral.
Our CITILED SMD Series aims to provide our lighting life with more excitement and inspire luminaire designers with fantastic ideas.



CITILED SMD Series

CLL620/ CLL130/ CLL131

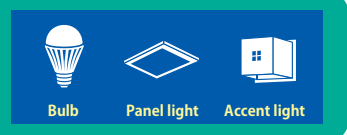


Compactness is one of the outstanding features of these products. Two types of power are available to support your application utility; 0.1 watt to 0.2 watt (CLL620, CLL130, CLL131). New product CLL131 is available wide light distribution.



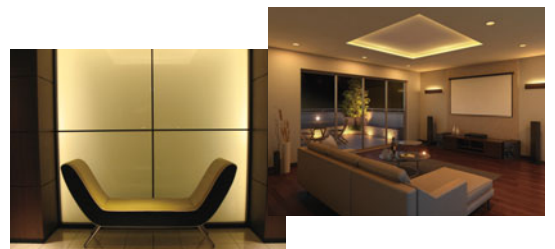
CITILED SMD Series — Side view LED —

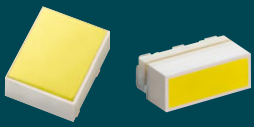
CLL630



Small side view LEDs for general lighting

Expand your design ideas with the new expression of side view LEDs. There are many suitable applications ; thin panel lighting, circular panel light, low angle light intensity, etc.





CITILED SMD Series

Chromaticity Range

● 3-step MacAdam Ellipse

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

● ANSI C78.377

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

CLL131 5,000K. (Ra 80 Min.)

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

● Original range

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

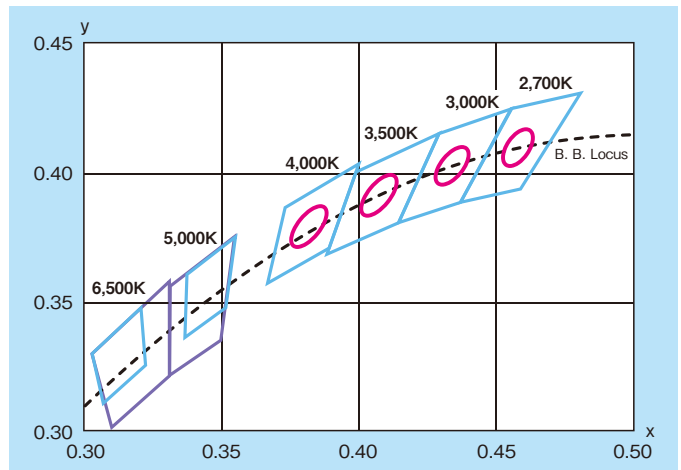
Explanatory notes

— 3-Step MacAdam ellipse*

— ANSI C78.377

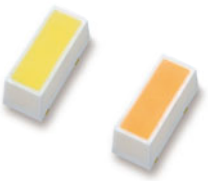
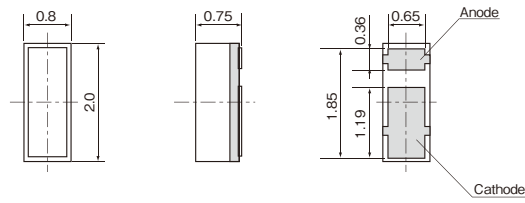

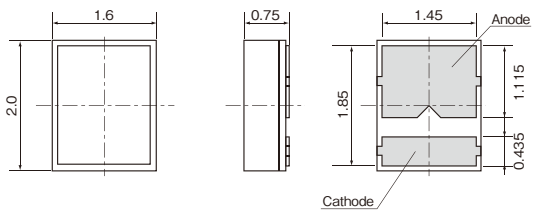

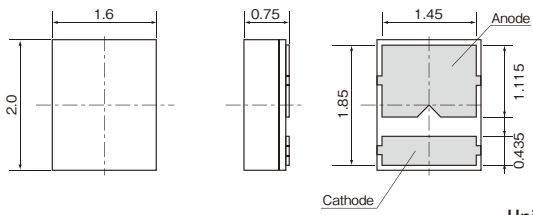

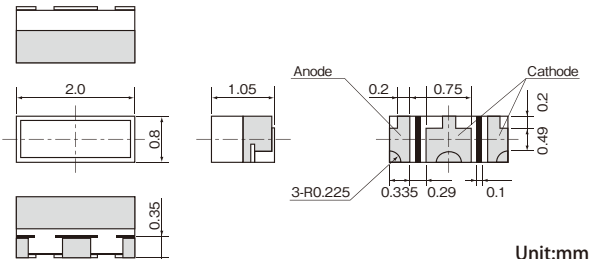
— Original range (CLL630)

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



Outline Drawings



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

Color Variations

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

Shape	Ra 80 Min. (Original range)		Ra 80 Min. (ANSI C78.377)			
	6,500K	5,000K	4,000K	3,500K	3,000K	2,700K
CLL630	○	○	○		○	○

Product List

(Ts = 25°C)

Shape	Product code	Electro-optical Characteristics								Absolute Maximum Rating			
		Ra	CCT	Forward current (mA)	Luminous flux Typ. (lm)	Luminous efficacy Typ. (lm/W)	Voltage Typ. (V)	Input power Typ. (W)	Thermal resistance R _{jc} (°C/W)	P _d (W)	Forward current (mA)		
CLL620	CLL620-0101B2-65AM1C5	80 Min.	6,500K	80	26.5	103.5	3.2	0.256	90	0.315	90		
	CLL620-0101B2-50AM1C5		5,000K									27.5	107.4
	CLL620-0101B2-403M1C5		4,000K									27.0	105.5
	CLL620-0101B2-353M1C5		3,500K									25.9	101.2
	CLL620-0101B2-303M1C5		3,000K									25.5	99.6
	CLL620-0101B2-273M1C5		2,700K									24.9	97.3
CLL130	CLL130-0101B2-65AM1C5	80 Min.	6,500K	50	19.7	130.5	3.02	0.151	45	0.289	85		
	CLL130-0101B2-50AM1C5		5,000K									20.8	137.7
	CLL130-0101B2-403M1C5		4,000K									19.3	127.8
	CLL130-0101B2-353M1C5		3,500K									18.9	125.2
	CLL130-0101B2-303M1C5		3,000K									18.2	120.5
	CLL130-0101B2-273M1C5		2,700K									17.6	116.6
CLL131	CLL131-0101C1-50AM1J1	80 Min.	5,000K	65	29.8	160.0	2.87	0.187	45	0.289	85		
CLL630	CLL630-0101B2-65CM1A2	80 Min.	6,500K	60	20.2	108.6	3.10	0.186	120	0.280	80		
	CLL630-0101B2-50CM1A2		5,000K									21.0	112.9
	CLL630-0101B2-40AM1A2		4,000K									20.6	110.8
	CLL630-0101B2-30AM1A2		3,000K									19.6	105.4
	CLL630-0101B2-27AM1A2		2,700K									19.1	102.7

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CITILED SMD Series

Product Nomenclature

CLL620, CLL130, CLL131, CLL630

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.






Product selector available on our website

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

http://ce.citizen.co.jp/lighting_led/en/products/index.html


[Reference] Lighting LED Selection Tool

Condition input

CCT,Ra

5000K,80lm

Forward current

230 mA

Tc (C)

25

Product code	ϕ (lm)	Vf (V)	Pd (W)	lm/W	Tj (C)
CLU027-0303C1-503M2G2	311	8.9	2.0	153	36
CLU026-1201C1-503M2G2	1134	39.5	9.1	125	63
CLU026-1202C1-503M2G2	1253	36.7	8.4	148	45
CLU026-1203C1-503M2G2	1258	35.4	8.1	155	39
CLU026-1204C1-503M2G2	1252	34.6	8.0	157	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
CLU046-1212C1-503M2G2	1369	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	97.6	22.5	177	28

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

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● Please visit our website for more information. http://ce.citizen.co.jp/lighting_led/en/

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<http://ce.citizen.co.jp/e/>