



LUXEON CoB Core Range

Uniform, high efficacy and easy to design array

LUXEON CoB represents a new breakthrough for arrays. The efficacies will be >160 lm/W for 70CRI and 80CRI products. Due to its small Light Emitting Surface (LES) and industry-leading thermal resistance, LUXEON CoB is easy to work with, enabling simplified and less expensive luminaire designs. LUXEON CoBs are hot-tested at 85°C—real world operating conditions—which means additional testing can be minimized. LUXEON CoB LEDs are available in 3-step MacAdam ellipse, ensuring uniform optical performance in a wide range of applications.



FEATURES AND BENEFITS

Highest flux densities with industry's smallest LES

3-step MacAdam ellipse color definition: *Freedom from Binning* for color consistency from luminaire to luminaire

Up to 4x lower thermal resistance than competition, enabling smaller heatsinks and higher lumens

Supported by a comprehensive optical, mechanical and electrical ecosystem

PRIMARY APPLICATIONS

Spotlights

Track Lights

Downlights

High Bay

Low Bay

Floodlights

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Table 1. Product performance of LUXEON CoB Core Range at specified test current, T_j=85°C (continued).

PRODUCT	NOMINAL CCT	MINIMUM CRI ^[1, 2, 3]	LUMINOUS FLUX ^[1] (lm)		TYPICAL LUMINOUS EFFICACY (lm/W)	TEST CURRENT (mA)	LES ^[4] (mm)	ENERGY EFFICIENCY CLASS ^[5]	PART NUMBER
			MINIMUM	TYPICAL					
LUXEON CoB 1211	3000K	70	6065	6739	164	1200	19	D	L2C5-30701211F1900
		70	5695	6328	152	1200	19	D	L2C5-30701211E1900
	3500K	70	5695	6328	152	1200	19	D	L2C5-35701211E1900
	4000K	70	6447	7163	174	1200	19	C	L2C5-40701211F1900
		70	6053	6726	161	1200	19	D	L2C5-40701211E1900
	5000K	70	6447	7163	174	1200	19	C	L2C5-50701211F1900
		70	6053	6726	161	1200	19	D	L2C5-50701211E1900
	5700K	70	6265	6961	169	1200	19	D	L2C5-57701211F1900
		70	5882	6536	157	1200	19	D	L2C5-57701211E1900
	6500K	70	6104	6782	165	1200	19	D	L2C5-65701211F1900
		70	5731	6368	152	1200	19	D	L2C5-65701211E1900
	2200K	80	4390	4878	117	1200	19	F	L2C5-22801211E1900
	2700K	80	5519	6132	149	1200	19	D	L2C5-27801211F1900
		80	5182	5758	138	1200	19	E	L2C5-27801211E1900
	3000K	80	5675	6305	153	1200	19	D	L2C5-30801211F1900
		80	5328	5920	142	1200	19	E	L2C5-30801211E1900
	3500K	80	5787	6430	156	1200	19	D	L2C5-35801211F1900
		80	5434	6038	145	1200	19	E	L2C5-35801211E1900
	4000K	80	5979	6643	161	1200	19	D	L2C5-40801211F1900
		80	5614	6238	149	1200	19	D	L2C5-40801211E1900
	5000K	80	5979	6643	161	1200	19	D	L2C5-50801211F1900
		80	5614	6238	149	1200	19	D	L2C5-50801211E1900
	5700K	80	5962	6624	161	1200	19	D	L2C5-57801211F1900
		80	5598	6220	149	1200	19	D	L2C5-57801211E1900
	6500K	80	5661	6290	153	1200	19	D	L2C5-65801211F1900
	2200K	90	3749	4165	100	1200	19	Note 6	L2C5-22901211E1900
	2700K	90	4692	5213	127	1200	19	E	L2C5-27901211F1900
		90	4305	4783	115	1200	19	F	L2C5-27901211E1900
	3000K	90	4910	5455	133	1200	19	E	L2C5-30901211F1900
		90	4505	5005	120	1200	19	E	L2C5-30901211E1900
3500K	90	5119	5688	138	1200	19	E	L2C5-35901211F1900	
	90	4696	5218	125	1200	19	E	L2C5-35901211E1900	
4000K	90	5256	5840	142	1200	19	E	L2C5-40901211F1900	
	90	4822	5358	128	1200	19	E	L2C5-40901211E1900	
5000K	90	5256	5840	142	1200	19	E	L2C5-50901211F1900	
2700K	95	4032	4480	109	1200	19	F	L2C5-27951211F1910	
3000K	95	4221	4690	114	1200	19	F	L2C5-30951211F1910	
LUXEON CoB 1213	5000K	70	7072	7858	177	1300	23	C	L2C5-50701213F2300
	3000K	80	6188	6875	155	1300	23	D	L2C5-30801213F2300
	4000K	80	6623	7359	166	1300	23	D	L2C5-40801213F2300

Table 1 continued on next page. Notes:

1. Lumileds maintains a tolerance of ±2 on CRI and ±6.5% on luminous flux measurements.
2. Typical CRI is approximately 2 points higher than the minimum CRI specified, but this is not guaranteed.
3. R9 value of 90CRI products is >50.
4. Light Emitting Surface (LES) is the inner diameter (phosphor area) inside the dam.
5. Energy efficiency class as specified in Commission Delegated Regulation (EU) 2019/2015. The available range of energy efficiency classes is A-G.
6. Exception: Not available in EU or UK.

Electrical and Thermal Characteristics

Table 3. Electrical and thermal characteristics for LUXEON CoB Core Range at specified test current, $T_j=85^\circ\text{C}$.

PART NUMBER	FORWARD VOLTAGE ^[1] (V_f)			TYPICAL TEMPERATURE COEFFICIENT OF FORWARD VOLTAGE ^[2] (mV/ $^\circ\text{C}$)	TYPICAL THERMAL RESISTANCE—JUNCTION TO CASE ^[3] ($^\circ\text{C}/\text{W}$)
	MINIMUM	TYPICAL	MAXIMUM		
L2C5-xxxx1202E0600	32.5	34.5	37.5	-16	0.98
L2C5-xxxx1202E0900	32.5	34.5	37.5	-16	0.98
L2C5-xxxx1203F0900	32.5	34.2	37.5	-16	0.62
L2C5-xxxx1203E0900	32.5	34.5	37.5	-16	0.70
L2C5-xxxx1204F1300	32.5	34.7	37.5	-16	0.46
L2C5-xxxx1204E1300	32.5	34.8	37.5	-16	0.55
L2C5-xxxx1205F1300	32.5	34.7	37.5	-16	0.37
L2C5-xxxx1205E1300	32.5	35.0	37.5	-16	0.51
L2C5-xxxx1208F1500	32.5	34.7	37.5	-16	0.25
L2C5-xxxx1208E1500	32.5	34.8	37.5	-16	0.29
L2C5-xxxx1210F1500	32.5	34.0	37.5	-16	0.20
L2C5-xxxx1211F1900	32.5	34.3	37.5	-16	0.18
L2C5-xxxx1211E1900	32.5	34.8	37.5	-16	0.23
L2C5-xxxx1213F2300	32.5	34.2	37.5	-16	0.16
L2C5-xxxx1216F2300	32.5	34.0	37.5	-16	0.13
L2C5-xxxx1216E2300	32.5	34.5	37.5	-16	0.14
L2C5-xxxx1812F2300	48.8	51.1	56.3	-16	0.12
L2C5-xxxx1812G2300	48.8	51.7	56.3	-16	0.12
L2C5-xxxx1321F2900	35.2	37.5	40.6	-16	0.08
L2C5-xxxx1321E2900	35.2	37.5	40.6	-16	0.08
L2C5-xxxx1825F3200	48.8	50.4	56.3	-16	0.05
L2C5-xxxx1825G3200	48.8	51.7	56.3	-16	0.05

Notes for Table 3:

1. Lumileds maintains a tolerance of $\pm 2\%$ on forward voltage measurements.
2. Measured between 25°C and 85°C .
3. Thermal resistance is measured between junction and the bottom of the LUXEON CoB substrate.

Absolute Maximum Ratings

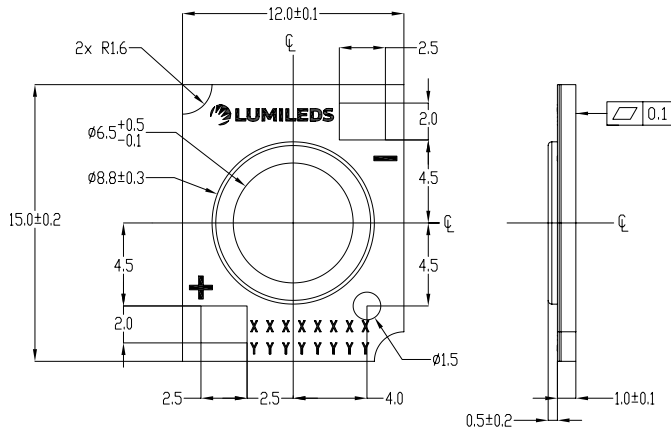
Table 4. Absolute maximum ratings for LUXEON CoB Core Range.

PARAMETER	MAXIMUM PERFORMANCE
DC Forward Current ^[1,2]	2x test current ^[3]
LED Junction Temperature ^[1] (DC & Pulse)	125°C
ESD Sensitivity (ANSI/ESDA/JEDEC JS-001-2012)	Class 3B
Operating Case Temperature ^[1]	-40°C to 105°C
LED Storage Temperature	-40°C to 120°C
Allowable Reflow Cycles	3
Reverse Voltage (V_{reverse})	LUXEON LEDs are not designed to be driven in reverse bias

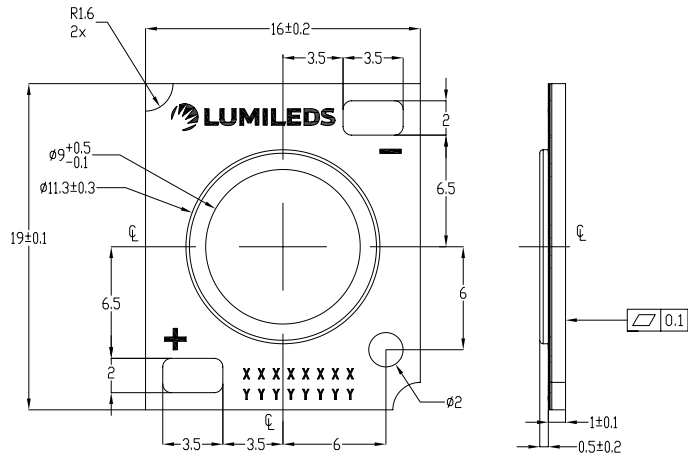
Notes for Table 4:

1. Proper current derating must be observed to maintain the junction temperature below the maximum allowable junction temperature.
2. Residual periodic variations due to power conversion from alternating current (AC) to direct current (DC), also called "ripple," are acceptable if the following conditions are met:
 - The frequency of the ripple current is 100Hz or higher
 - The average current for each cycle does not exceed the maximum allowable DC forward current
 - The maximum amplitude of the ripple does not exceed 20% of the maximum allowable DC forward current
3. Exception: LUXEON CoB 1812 has a maximum DC forward current of 2.1A (1.75x test current).

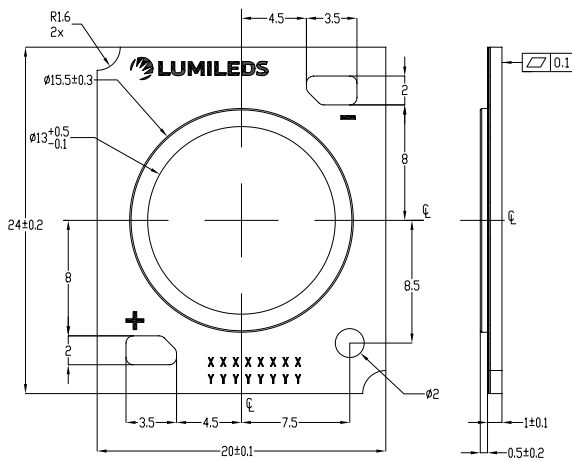
Mechanical Dimensions



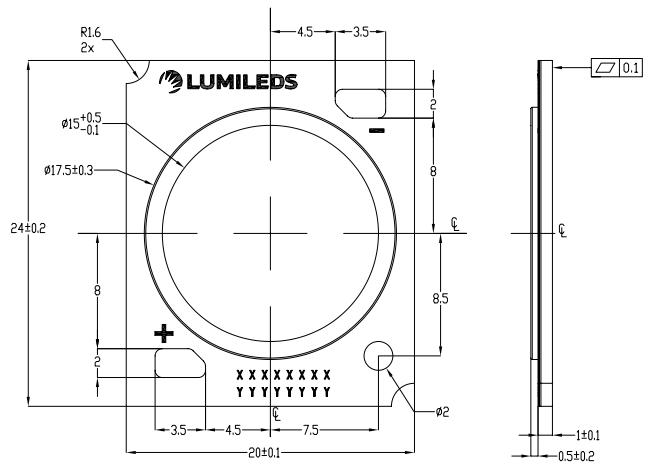
L2C5-xxxx1202x0600



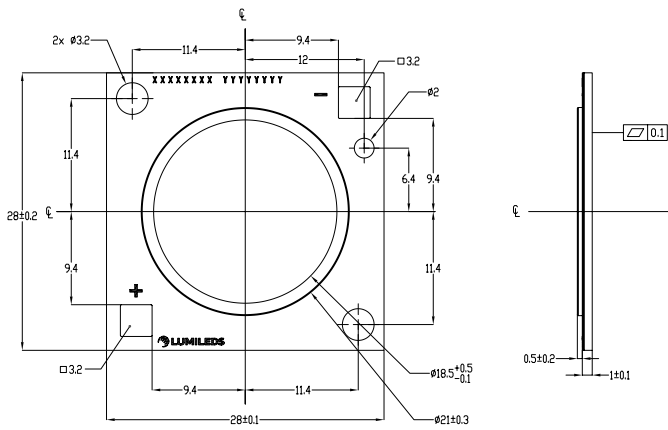
L2C5-xxxx1202x0900, L2C5-xxxx1203x0900



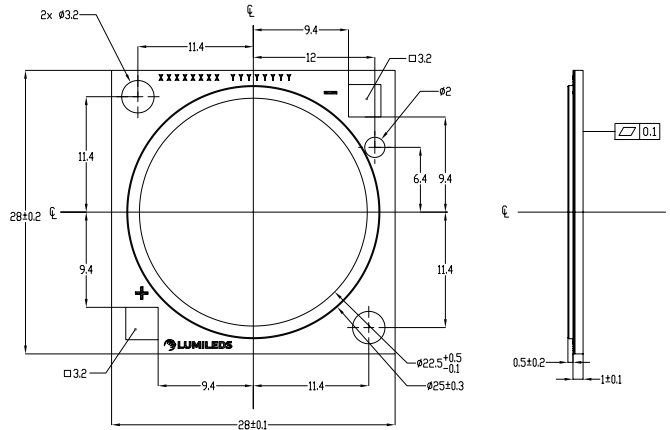
L2C5-xxxx1204x1300, L2C5-xxxx1205x1300



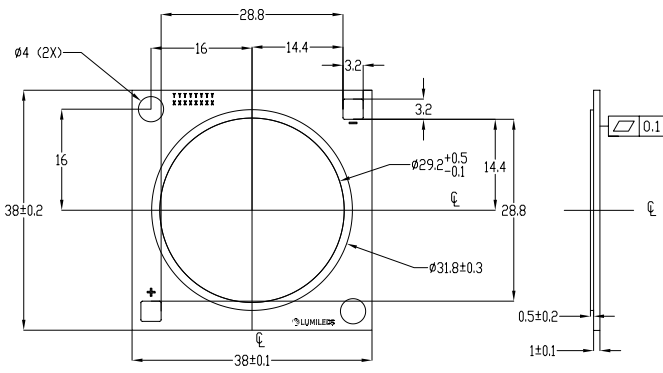
L2C5-xxxx1208x1500, L2C5-xxxx1210x1500



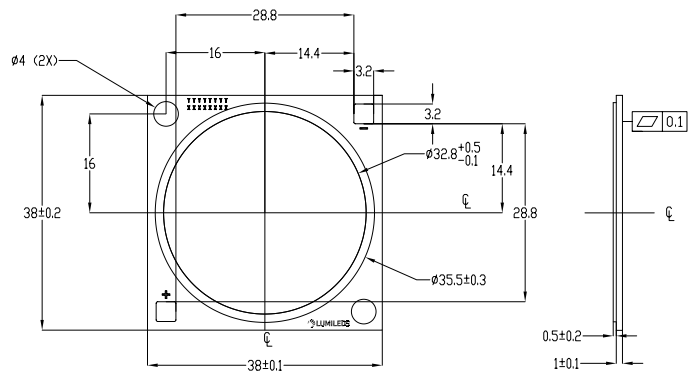
L2C5-xxxx1211x1900



L2C5-xxxx1213x2300, L2C5-xxxx1216x2300
and L2C5-xxxx1812x2300



L2C5-xxxx1321x2900



L2C5-xxxx1825x3200

Figure 8. Mechanical dimensions for LUXEON CoB Core Range.

Notes for Figure 8:

1. Drawings not to scale.
2. All dimensions are in millimeters.