

**Intertek**

# COB C8C white

Octa Light Aluminum Base  
Chip on Board Series

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## TECHNICAL DATASHEET

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Octa Light C8C COB Series are the new breakthrough technology for high density, high uniformity and long life high power Chip On Board modules.

All Octa Light COB LEDs provide high thermal conductivity and biggest substrate stability.

Octa Light COB LEDs are provided with standard ANSI binning, assuring close-up color choice according to application request.

### Main features

- High thermal conductance (>200 W/mK) pure aluminum base, low thermal resistance packages
- Supplied in series connection – 220.0V DC nominal @ test current 350mA
- Supplied Bare, with Easy Solder stack-up or standard holders assuring no need of connection wire soldering
- More light delivered at both low and high operating temperatures
- Specified CCT & CRI combinations
- ANSI compliant Quarter binning
- Exceed Energy Star® lumen maintenance requirements
- Low voltage operation and instant lighting
- Reflow process compatibility



## General Coding instructions for Octa Light C8C LED series

### Product Binning and Labelling

**OCTL – C8C – WW J2 - A 8A C – B1 70**  
 X1            X2            X3    X6            X4 X5    X7            X8    X9

X1 Comp. name	X2 Series name	X3 Color type	X4 Optical type	X5 Chromaticity coordinates BIN <sup>1</sup>	X6 Minimum Flux BIN (Lm)	X7 Testing current (mA)	X8 Vf range at nominal current (V)	X9 CRI Range
OCTL	C8C	CW – Cool White	A – 120 deg Lambertian	1 (A, B, C, D, E, F, O) <sup>2</sup>	H2 – 8 000	C – 350	B1 – 216– 238	60 -> 60
		NW – Neutral White	B – Batwing	2 (A, B, C, D, E, F, O)	I2 – 9 000			70 -> 70
		WW – Warm White	C – 100 deg Lambertian	3 (A, B, C, D, E, F, O)	J2 – 10 000			80 -> 80
		BL – Blue	E – Side Emitting	4 (A, B, C, D, E, F, O)	K2 – 11 000			90 -> 90
		RD – Red	F – 110 deg Focused	5 (A, B, C, D, E, F, O)	L2 – 12 000			95 -> 95
		YE – Yellow	L – 140 deg Lambertian	6 (A, B, C, D, E, F, O)				
		GN – Green		7 (A, B, C, D, E, F, O)				
		CL – Color		8 (A, B, C, D, E, F, O)				
				BL (Blue)				
				RB (Royal Blue)				
				VL (Violet)				
				RD (Red)				
				RO (Red- Orange)				
				PK (Pink)				
				OR (Orange)				
				AM (Amber)				
		GN (Green)						
		CL (Color, for RGB)						

**Notes:**

1. Information about chromaticity coordinates bin can be found in Binning information file.
2. Chromaticity coordinates bin 10 includes all of the bins 1A, 1B, 1C, 1D, 1E, 1F. This applies for all bins.
3. \* stands for future product



PRODUCT SELECTION

Table 2.1 Product Selection for Octa Light C8C Series LEDs- **High lm/W range**

Example nomenclatures for C8C LEDs series with highest lm/W combinations

	Nominal CCT	Part Number	Minimum CRI	Typical CRI	Minimal Luminous Flux (lm) @350mA	Typical Luminous Flux (lm) @350mA	Forward voltage range
Warm White	2700K	OCTL-C8C-WWK2-A80C-B170	70	75	11000	11500	216- 238 V
	3000 K	OCTL-C8C-WWK2-A70C-B170	70	75	11000	11500	216- 238 V
	3500 K	OCTL-C8C-WWK2-A60C-B170	70	75	11000	11500	216- 238 V
Neutral White	4000K	OCTL-C8C-NWL2-A50C-B170	70	75	11500	12000	216- 238 V
	4500K	OCTL-C8C-NWL2-A40C-B170	70	75	11500	12000	216- 238 V
Cool White	5000K	OCTL-C8C-CWL2-A30C-B170	70	75	11500	12000	216- 238 V
	5700K	OCTL-C8C-CWL2-A20C-B170	70	75	11500	12000	216- 238 V
	6500K	OCTL-C8C-CWL2-A10C-B170	70	75	11500	12000	216- 238 V

Table 2.2 Product Selection for Octa Light C8C Series LEDs- **High CRI range**

Example nomenclatures for C8C LEDs series with high lm/W and High CRI combinations

	Nominal CCT	Part Number	Minimum CRI	Typical CRI	Minimal Luminous Flux(lm) @350A	Typical Luminous Flux (lm) @350mA	Forward voltage range
Warm White	2700K	OCTL-C8C-WWJ2-A80C-B180	80	85	10000	10500	216- 238 V
	3000 K	OCTL-C8C-WWJ2-A70C- B180	80	85	10000	10500	216- 238 V
	3500 K	OCTL-C8C-WWJ2-A60C- B180	80	85	10000	10500	216- 238 V
Neutral White	4000K	OCTL-C8C-NWK2-A50C- B180	80	85	10500	11000	216- 238 V
	4500K	OCTL-C8C-NWK2-A40C- B180	80	85	10500	11000	216- 238 V
Cool White	5000K	OCTL-C8C-CWK2-A30C- B180	80	85	10500	11000	216- 238 V
	5700K	OCTL-C8C-CWK2-A20C- B180	80	85	10500	11000	216- 238 V
	6500K	OCTL-C8C-CWK2-A10C- B180	80	85	10500	11000	216- 238 V

Notes:

1. Octa Light PLC maintains a tolerance of ±5% on forward voltage measurements.
2. All binnings are at 25°C case temperature



## ELECTRICAL CHARACTERISTICS

Table 3. Forward voltage characteristics for series connection, test current  $I_f = 350\text{ mA}$  and thermal pad temperature  $25^\circ\text{C}$ :

Color	Part Name	Forward Voltage $V_f$ (V)			$\Delta V_f/\Delta T_j$ (mV/ $^\circ\text{C}$ )	$R_{th\ j-c}$ ( $^\circ\text{C}/\text{W}$ )
		Min.	Typical	Max.		
Warm white	OCTL-C8C - WWX-A80X-X70	216	220	238	20	0.35
	OCTL-C8C - WWX-A70X-X70	216	220	238	20	0.35
	OCTL-C8C - WWX-A60X-X70	216	220	238	20	0.35
Neutral white	OCTL-C8C - NWX-A50X-X70	216	220	238	20	0.35
	OCTL-C8C - NWX-A40X-X70	216	220	238	20	0.35
Cool white	OCTL-C8C - CWX-A30X-X70	216	220	238	20	0.35
	OCTL-C8C - CWX-A20X-X70	216	220	238	20	0.35
	OCTL-C8C - CWX-A10X-X70	216	220	238	20	0.35

- Notes:
1. Octa Light PLC maintains a tolerance of  $\pm 5\%$  on forward voltage measurements.
  2. Based on order codes, Octa Light PLC can deliver a specific  $V_f$  binning range as follows:
    - a.  $V_f$  Range 216 - 238 –  $V_f$  bin B1, see column X8 in C8C coding guidelines

## ABSOLUTE MAXIMUM RATINGS

Table 4. Absolute maximum ratings for thermal pad temperature  $25^\circ\text{C}$ , Series connection test current  $700\text{mA}$

Parameter	Symbol	Max rate
Maximum DC forward current (continuous)	$I_{fmax}$	700 mA
Maximum Pulse current (10 mS pulse width, 10% duty cycle)	$I_{fpeak}$	1000 mA
Absolute Max forward voltage @ 700 mA	$V_{fmax}$	250 V
Maximal Led junction temperature	$T_{jmax}$	150 C
ESD sensitivity	V	Class 2 *
Operating Case temperature @ 350 mA	$T_{cmax}$	-60 + 140
Soldering temperature	$T_{soldermax}$	260 C **
Storage temperature	$T_{store}$	-40C to +120 C
Allowable Reflow cycles	/	3 times
Reverse current	$I_r$	10 $\mu\text{A}$

\* ESD sensitivity C\*LASS II, human body model, ANSI/ESDA/JEDEC JS-001-2012

\*\* JEDEC 020D

## THERMAL AND OPTICAL CHARACTERISTICS

Table 5. Absolute maximum ratings for thermal pad temperature  $25^\circ\text{C}$

Parameter	Symbol	Typical
Thermal resistance, junction to solder point	C/W	0.35
Viewing Angle Lambertian Distribution (FWHM)	Degrees	120
Color Shift Versus angle $\Delta x$ and $\Delta y$ on CIE 1931, Optical distribution type A	$\Delta x, \Delta y$	0.04, 0.04

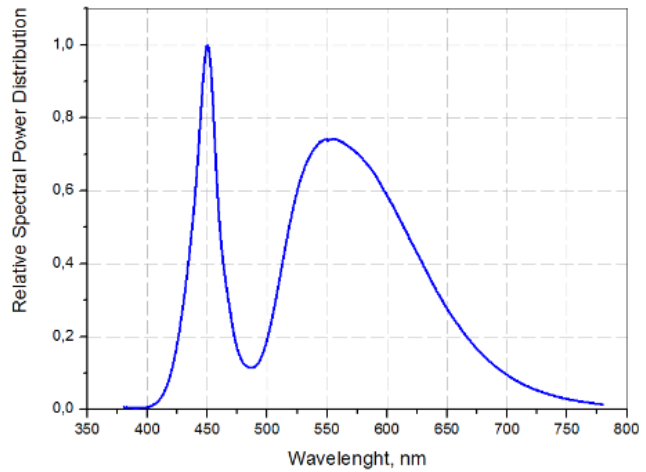
## JEDEC MOISTURE SENSITIVITY

LEVEL	Floor Life		Soak Requirements	
	Time	Condition	Time	Condition
3	168 hours	30, 60% RH	192 Hrs +5 -0 Hrs	30 C 62% RH

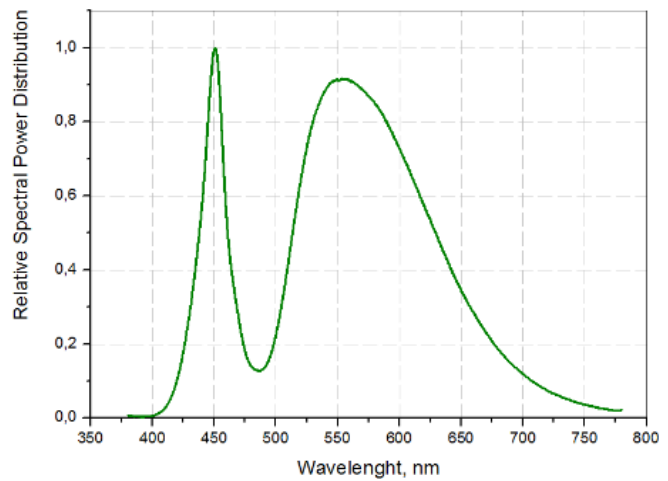


## RELATIVE SPECTRAL DISTRIBUTION (MW VERSUS WAVELENGTH)

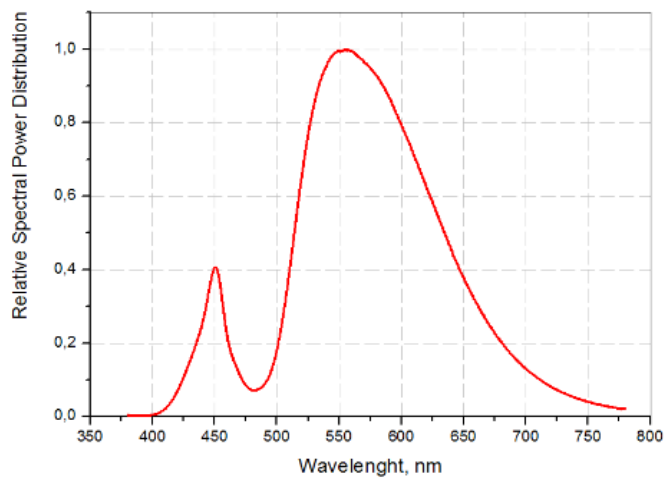
Relative Cool White Spectral power distribution



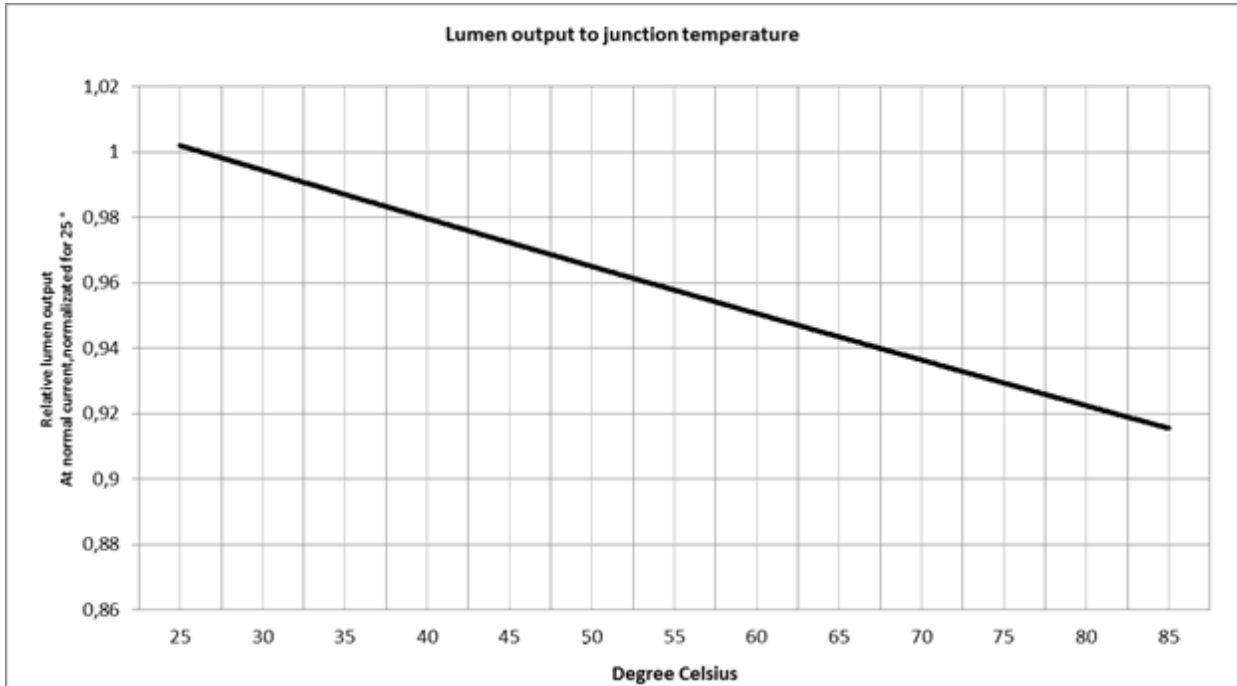
Relative Neutral White Spectral power distribution



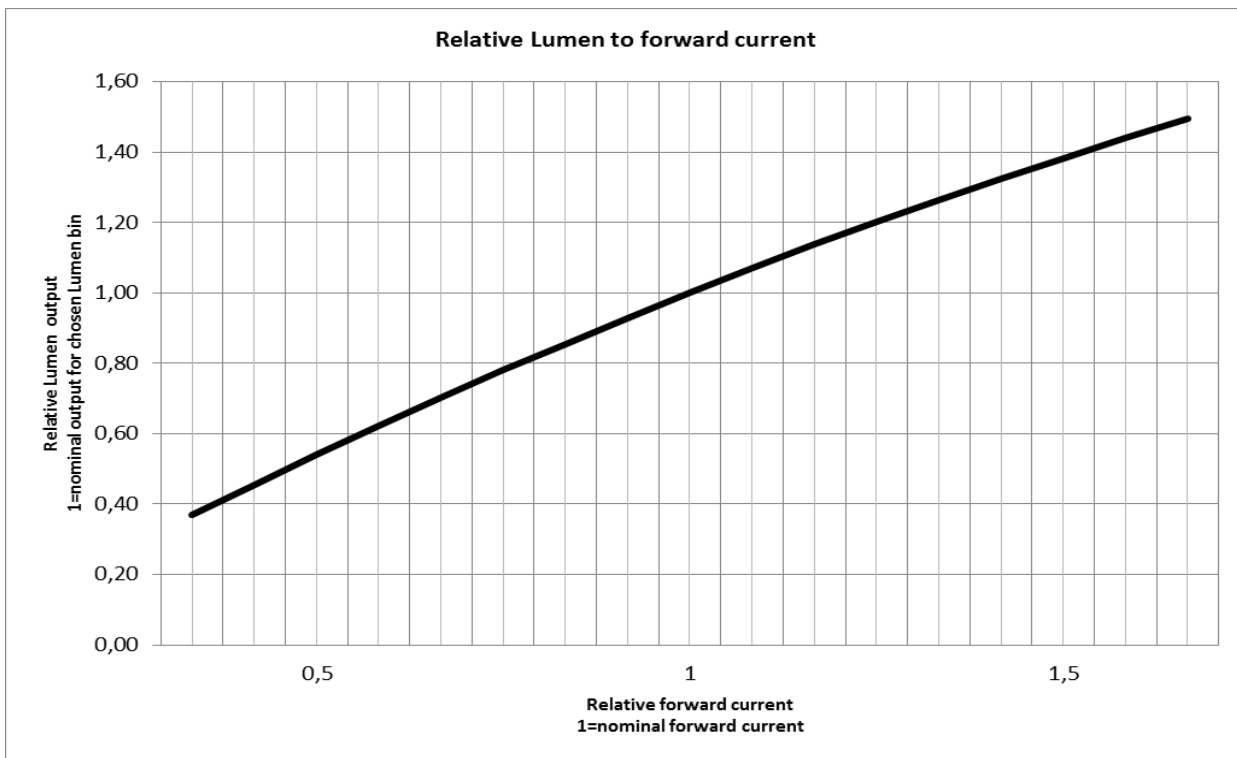
Relative Warm White Spectral power distribution



## LIGHT OUTPUT CHARACTERISTICS OVER TEMPERATURE



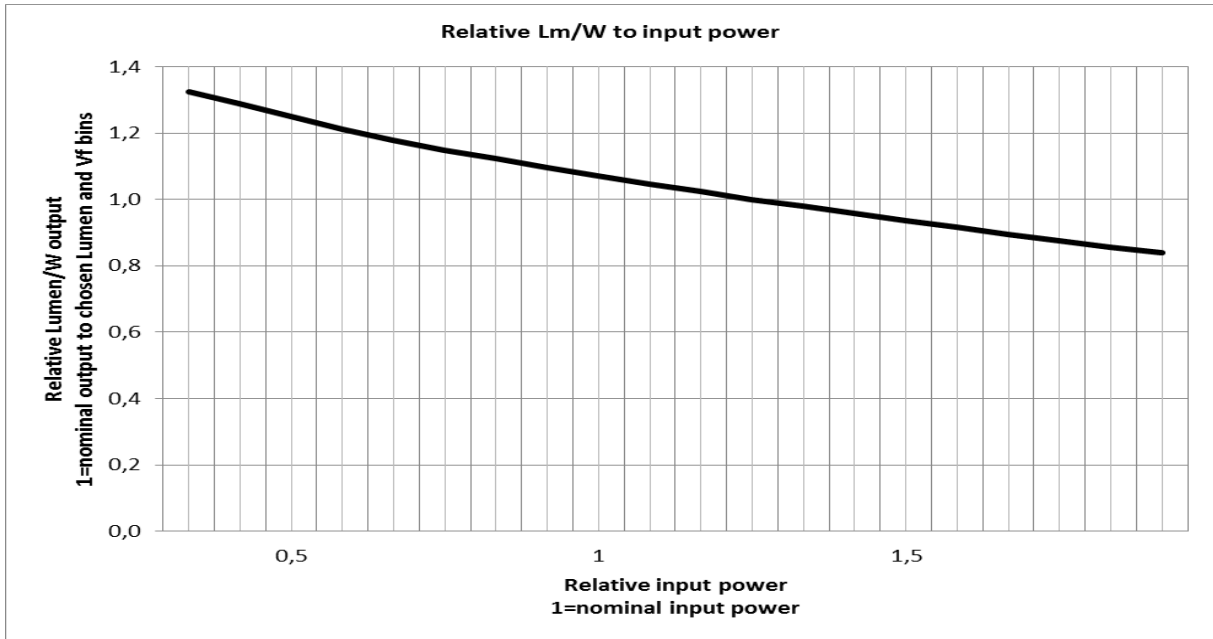
## RELATIVE LUMINOUS FLUX FROM FORWARD CURRENT AT CASE TEMPERATURE 25 °C



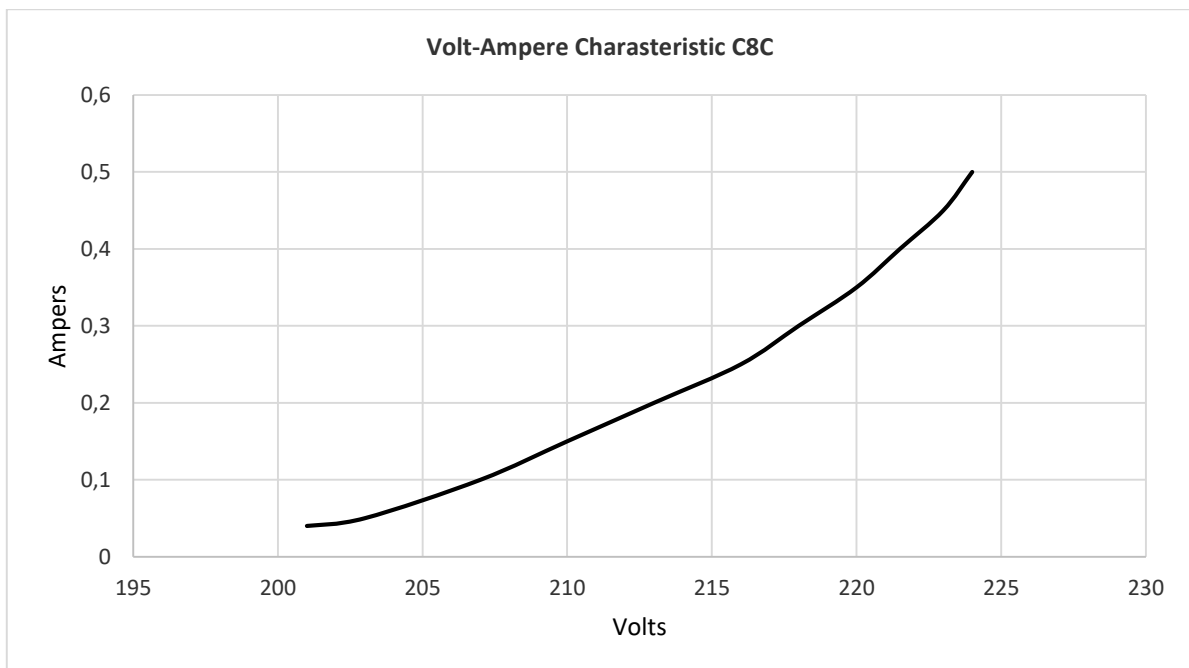
## RELATIVE LUMEN/W OUTPUT FROM INPUT POWER



## CONSUMPTION AT CASE TEMPERATURE 25 °C



## VOLT-AMPERE CHARACTERISTICS AT CASE TEMPERATURE 25 °C



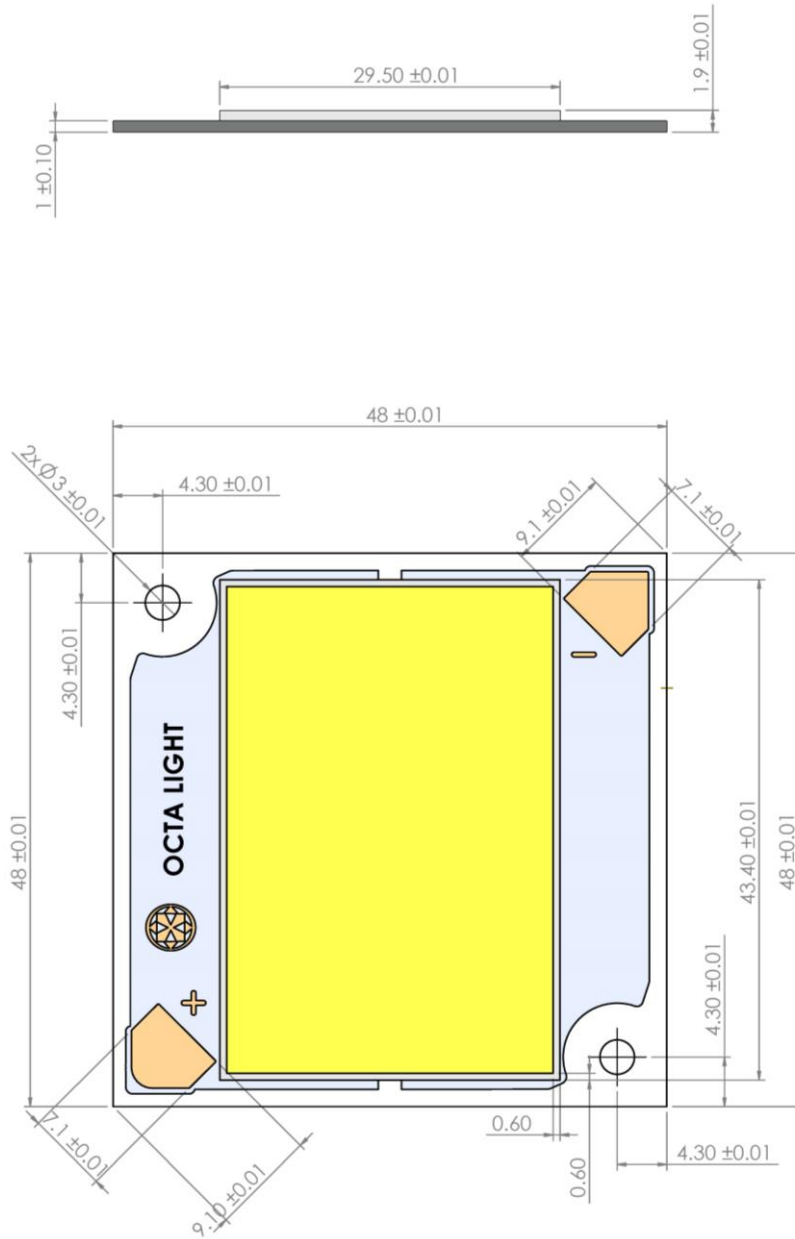
**Notes:**

1. Octa Light PLC maintains a tolerance of  $\pm 5\%$  on forward voltage measurements.
2. Proper current derating must be observed to maintain junction temperature below the maximum at all time.
3. Light Emitting Diodes are not designed to be driven in reverse bias.



## LED PACKAGE DIMENSIONS AND POLARITY

*Bare LED Dimensional characteristics*





## LABELLING INFORMATION

LED PART NUMBER

ROHS DIRECTIVE COMPLIANCE

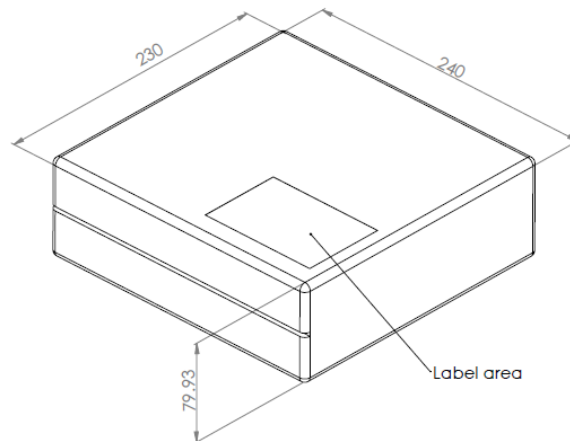
LEAD FREE MARK



INTERNAL COMPANY INFORMATION

QUANTITY

## PACKAGING SPECIFICATION



### Packaging notes:

- All dimensions are in mm
- LEDs are delivered in Carton Boxes, each containing up to 5 Trays within one carton BOX.
- Label information contains the information regarding the LEDs inside each box, as well as tray number inside

## COMPANY INFORMATION

Octa Light Bulgaria was established in 2010 as a research and manufacturing center for Light Emitting Diodes (LED) and is entirely based in the EU. Octa Light Bulgaria own LED portfolio includes powerful high-brightness light emitting diodes, last generation of low-power & mid-power LEDs, wide range of COBs and innovative AC LED modules. The company manufactures LEDs in in all three base colors - red, green, blue and white, as well as exotic colors as pink, cyan, yellow, purple and other on basis of client requirements. We constantly upgrade our LEDs range to bring highest performance and quality of light sources for today's wide range of lighting applications.

The company is also OEM and ODM supplier of LED packages.

Today Octa Light Bulgaria is fully vertically integrated manufacturer of LED packages, LED modules, LED lamps and LED luminaires.

Octa Light Bulgaria offers also complete lighting solutions accomplishing a variety of lighting projects with own range of LED luminaires. Further to its core lighting business the company offers Electronic Manufacturing Services (EMS).

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