

4-8W COB LED

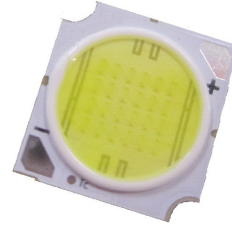
Updated on 2013/02/06

Approval Sheet

4~8W COB LED
 Product Specification

RoHS

Product	COB
Part Number	PB04H06
Customer	
Issue Date	2013/02



Feature

- ✓ High Power DC white LED
- ✓ External dimension : 13.0mmx13.5mmx1.0mm
- ✓ ANSI white binning COB package
- ✓ Multi-GaN-based LED solution
- ✓ View angle 120°, uniform chromaticity profile
- ✓ Pb free
- ✓ Green product, remain within RoHS
- ✓ Thermocouple attaching point

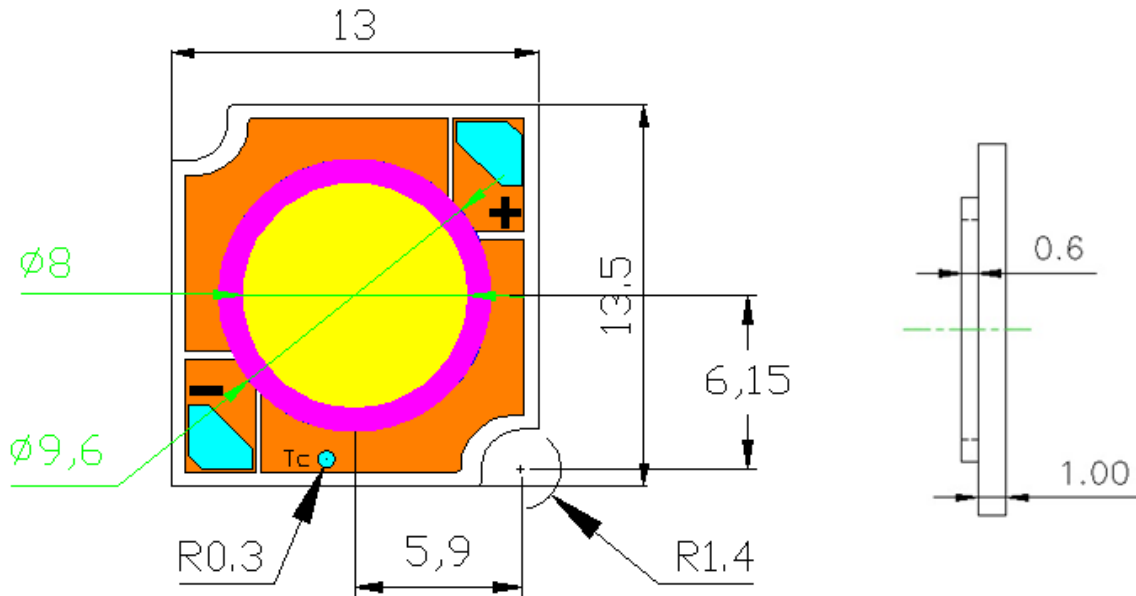
Applications

- ✓ Indoor general lighting
- ✓ Decoration lighting

MAKER			CUSTOMER			
Prepared	Checked	Approved				

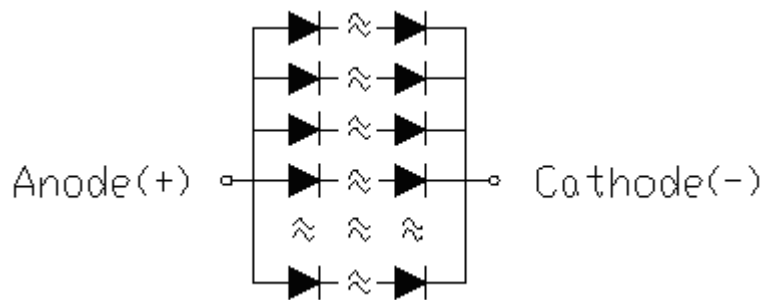
Outline Dimension

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Unit:mm

Tolerance : ± 0.15 mm



Note: Circuit layout is 3 series and 8 parallels

Performance

4~8W COB LED

Product Specification

■ Electro-Optical Characteristics

Parameter	Symbol	Condition	Min.	Typical	Max.	Unit
Forward Voltage ⁽¹⁾	V_F		8.5	9	10.5	V
Color Temperature ⁽²⁾	CCT			2700		K
Color Rendering Index	R_a	$I_F = 480 \text{ mA}$	80	3000		
View Angle	θ			120		deg
Thermal Resistance	R_{th}			2.5		$^{\circ}\text{C}/\text{W}$

Parameter	Symbol	Condition	Min.	Typical	Max.	Unit
Forward Voltage ⁽¹⁾	V_F		8	9	10.5	V
Color Temperature ⁽²⁾	CCT			5000		K
Color Rendering Index	R_a	$I_F = 480 \text{ mA}$	70	5700		
View Angle	θ			120		deg
Thermal Resistance	R_{th}			2.5		$^{\circ}\text{C}/\text{W}$

(1) The Forward Voltage tolerance is $\pm 3\%$.

(2) Correlated Color Temperature is derived from the CIE 1931 Chromaticity diagram.

■ Luminous Flux⁽¹⁾ ($T_a=25^{\circ}\text{C}$)

CCT	Condition	Lumen			Unit
		Min.	Typical	Max.	
2700K	$I_F = 480 \text{ mA}$	400	420		Lm
3000K		420	440		
5000K		500	520		
5700K		480	500		

(1) The luminous flux tolerance is $\pm 10\%$

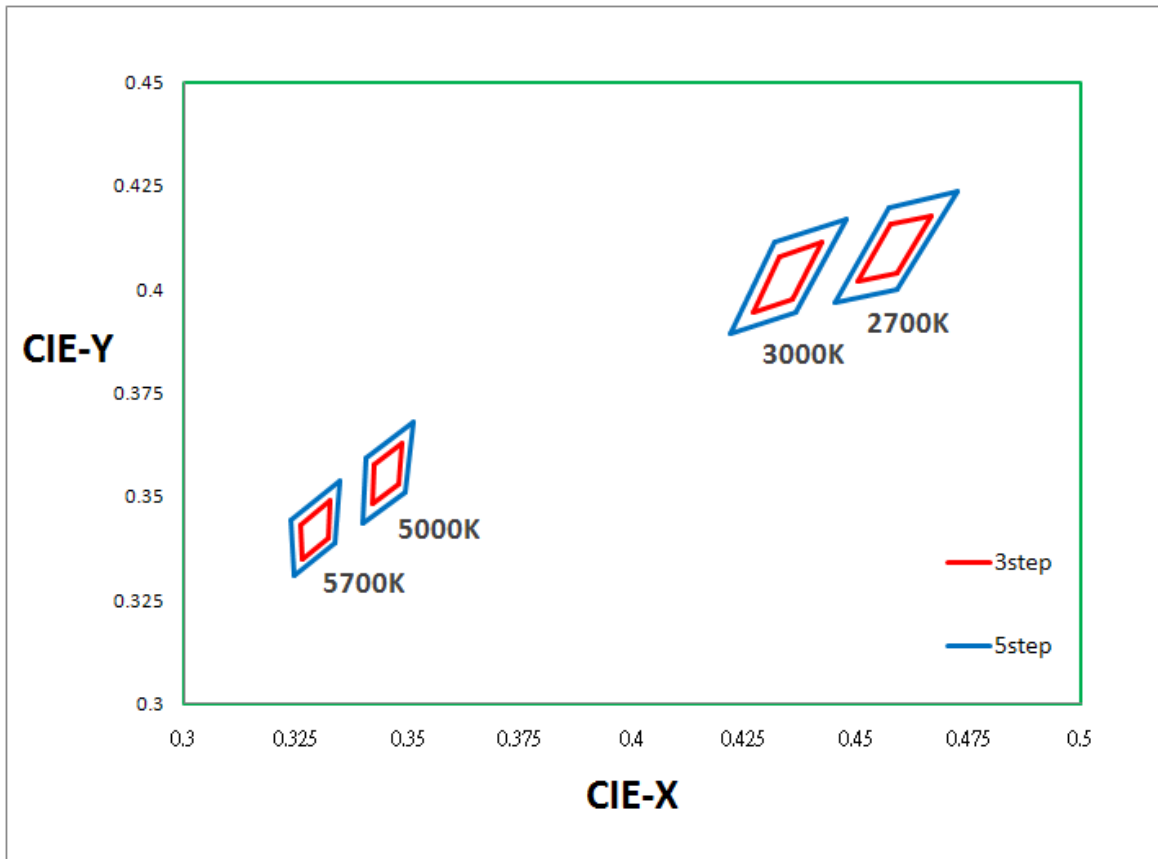
(2) The power consumption is typical value.

■ **Absolute Maximum Ratings**

Parameter	Symbol		Unit
DC Forward Current ⁽¹⁾	I_F	960	mA
Power Dissipation	P_d	8	W
Storage Temperature	T_s	-40 ~ 100	°C
Junction Temperature	T_J	125	°C
Substrate Temperature	T_{sub}	100	°C
Manual Soldering Time at 300 °C(Max)	T_{sol}	60	sec

- (1) Proper current rating must be observed to maintain junction temperature below maximum at all time.
- (2) Thermal resistance is calculated from junction to substrate.

■ **Chromaticity Coordinates**



	CIE-x	CIE-y		CIE-x	CIE-y
273	0.4501	0.402	275	0.4449	0.3968
	0.4576	0.4158		0.457	0.4198
	0.4666	0.4179		0.4724	0.4235
	0.4588	0.404		0.459	0.4002
303	0.4422	0.4113	305	0.4317	0.4113
	0.4328	0.4079		0.4218	0.3892
	0.4267	0.3946		0.4363	0.3943
	0.4355	0.3977		0.4476	0.417
503	0.3425	0.3579	505	0.3406	0.3594
	0.3487	0.3629		0.3396	0.3435
	0.3477	0.353		0.3492	0.3512
	0.3418	0.3483		0.3511	0.3679
573	0.3325	0.3492	575	0.3345	0.354
	0.3258	0.3432		0.3238	0.3444
	0.3263	0.335		0.3246	0.3308
	0.332	0.3401		0.3336	0.3387

(1) Tolerance of measurement is Chromaticity (x,y) \pm 0.005

Binning

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■ Binning ($I_F=480\text{mA}$, $T_a=25^\circ\text{C}$)

CCT	Step	CRI	Lumen	V_F
50	3	8	L1	AI

CCT Bin Code	CCT
273/ 275	2700K-3/5step
303/ 305	3000K-3/5step
503/ 505	5000K-3/5step
573/ 575	5700K-3/5step

CRI Bin Code	CRI
8	>80
7	>70

Lumen Bin Code	Lumen Range	
	From	To
L1	380	417
L2	417	454
L3	454	490
L4	490	543
L5	543	595

V_F Bin Code	V_F Range	
	From	To
AI	8	10.5

M1	595	648
M2	648	706
M3	706	770
M4	770	839

Note:

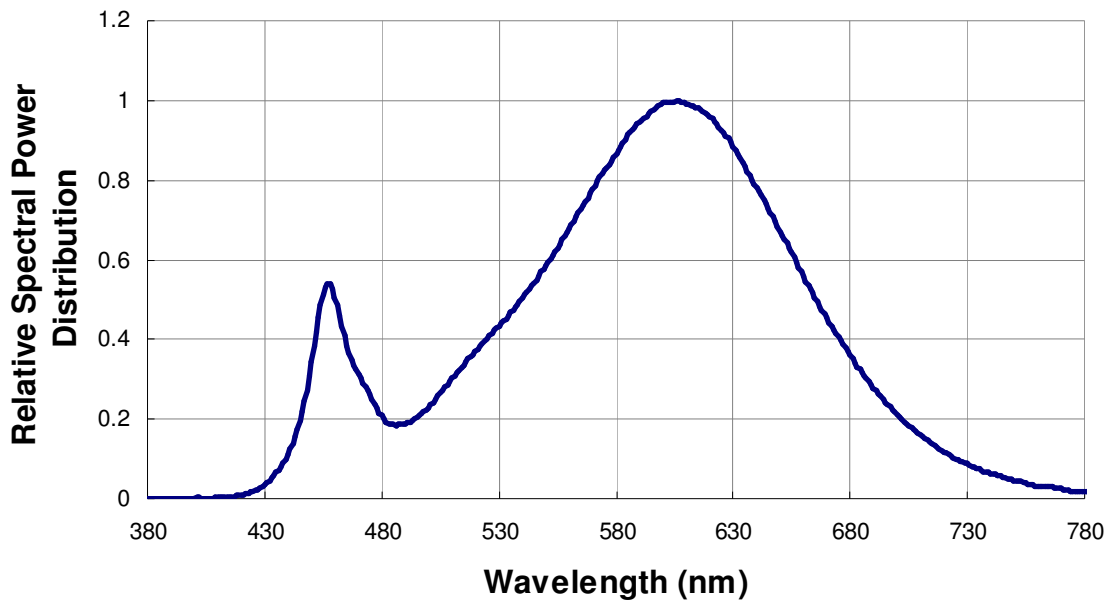
- (1) Correlated color Temperature is derived from the CIE 1931 Chromaticity diagram.
- (2) The CRI tolerance is ± 2
- (3) The Forward Voltage tolerance is $\pm 3\%$.

Characteristics

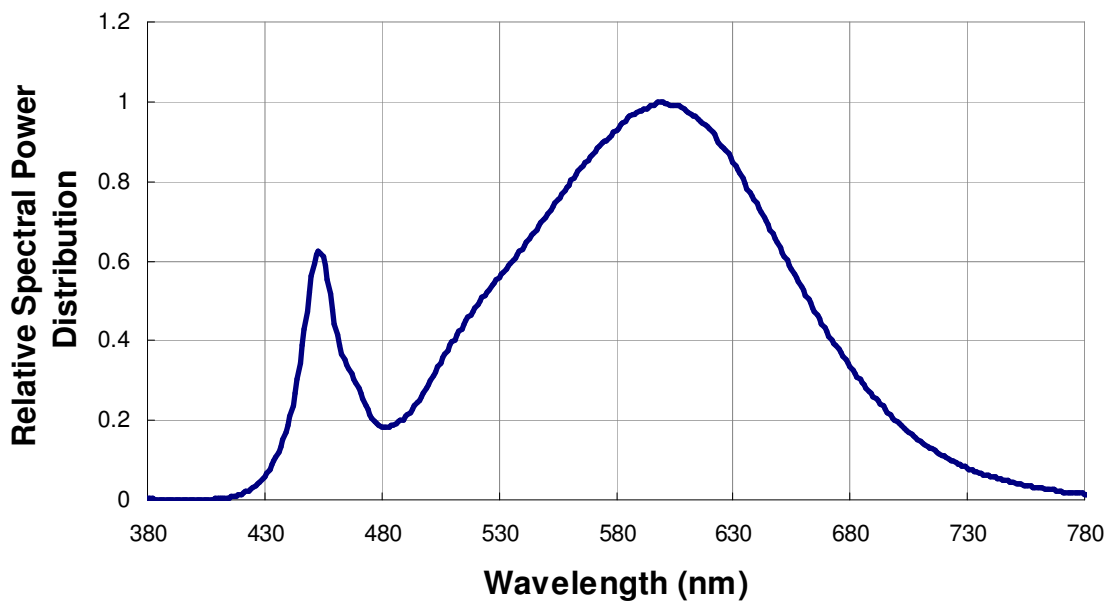
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■ Spectrum ($I_F=480\text{mA}$, $T_a=25^\circ\text{C}$)

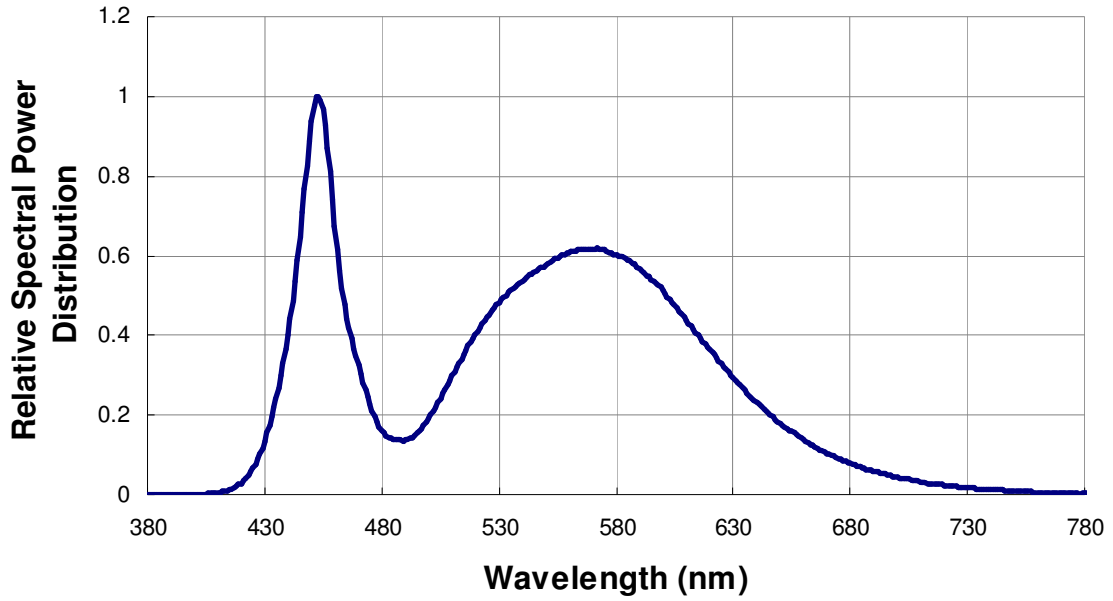
2700K



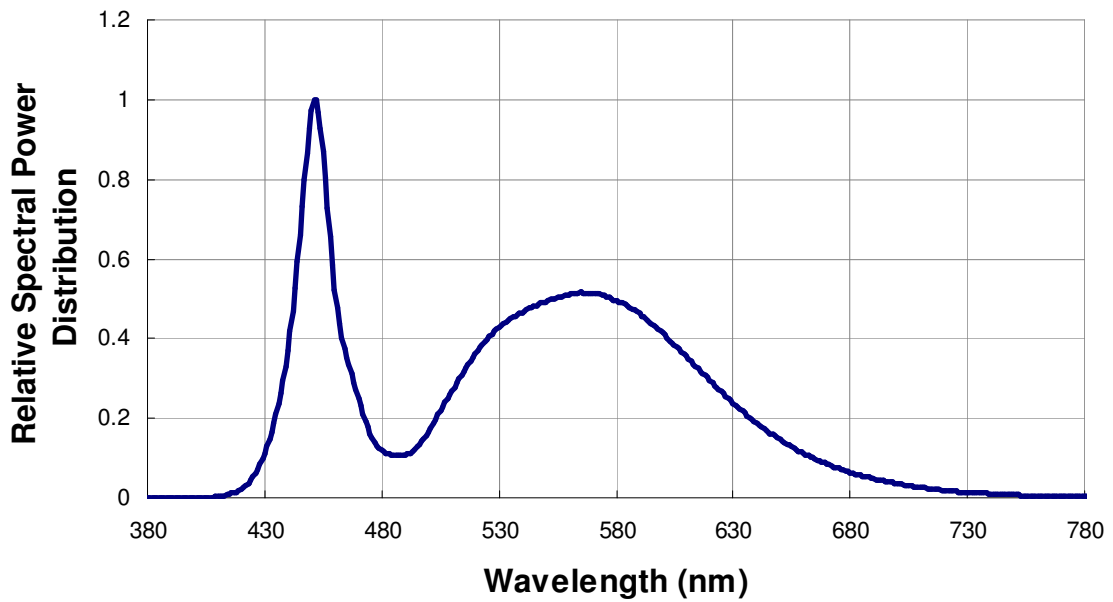
3000K



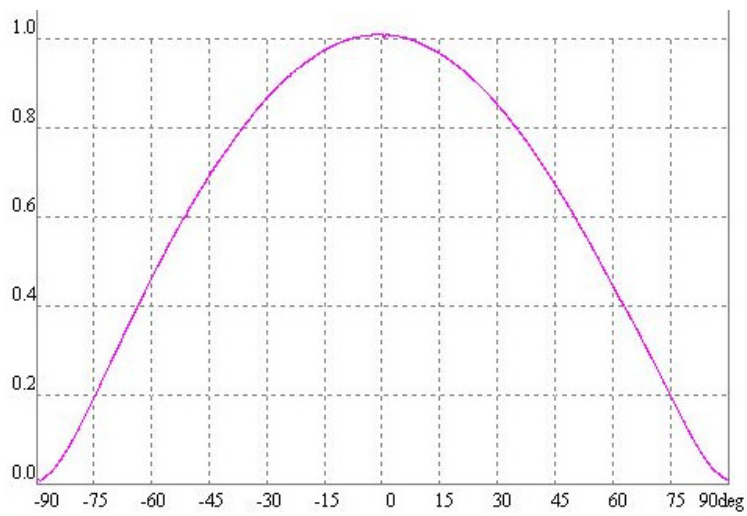
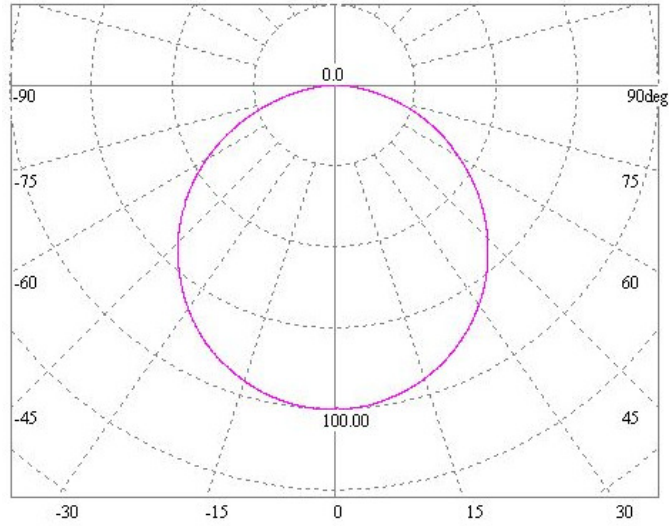
5000K



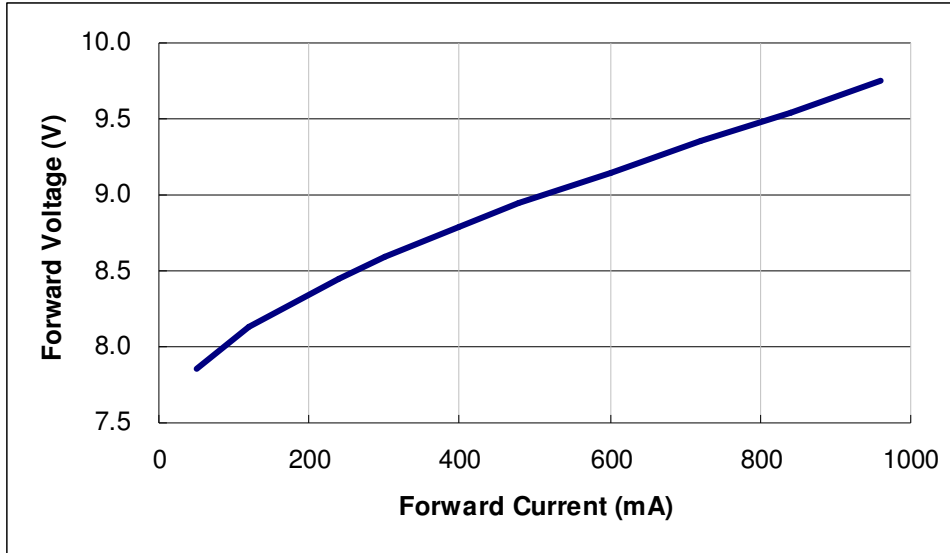
5700K



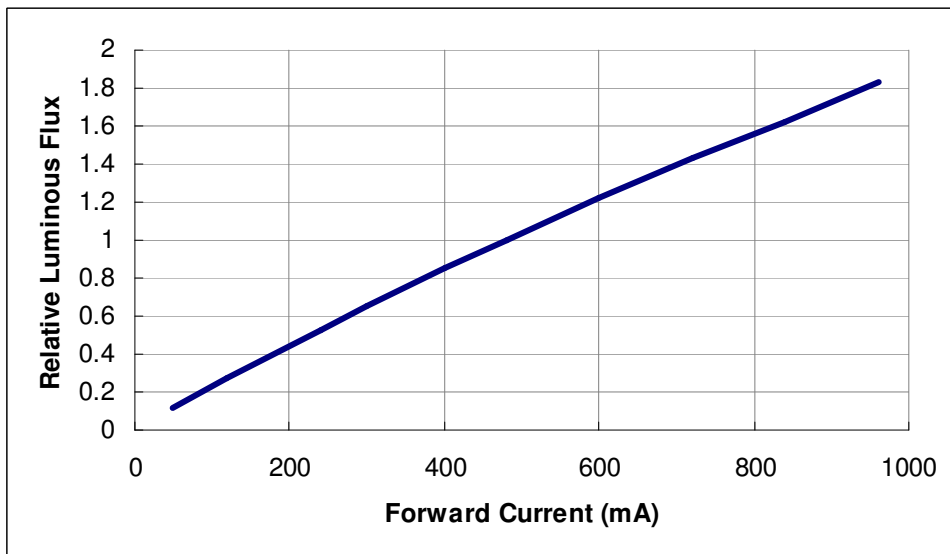
■ Radiation Pattern (IF=480mA, Ta=25°C)



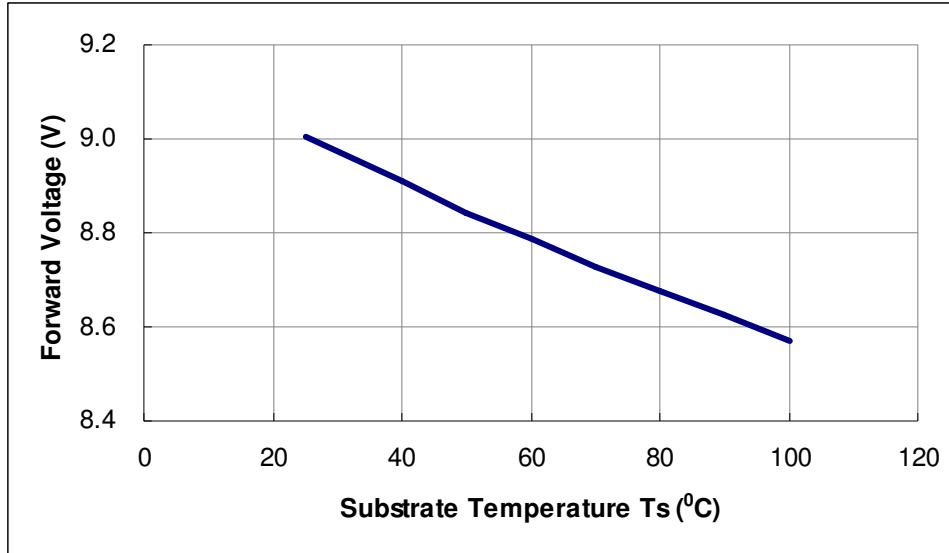
■ **Forward Voltage vs. Forward Current (Ta=25°C)**



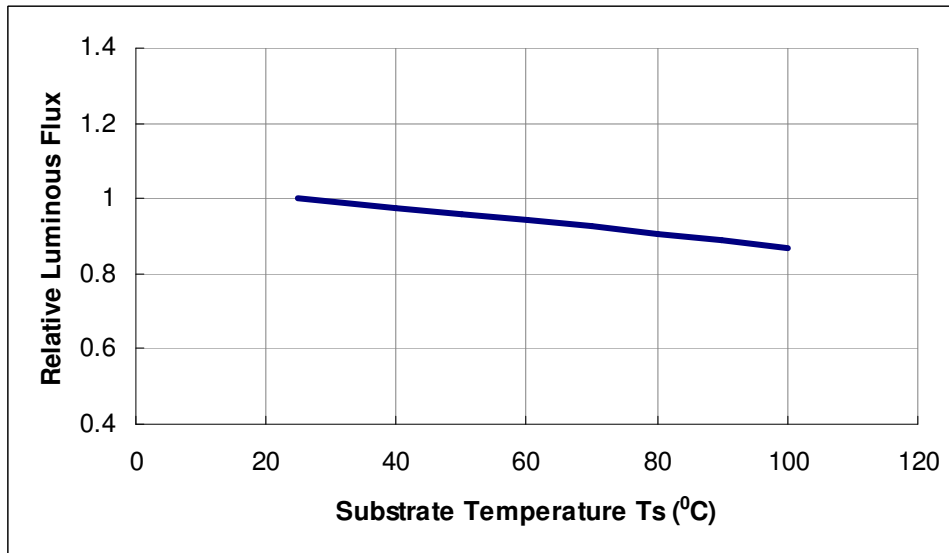
■ **Forward Current vs. Related Luminous Flux (Ta=25°C)**



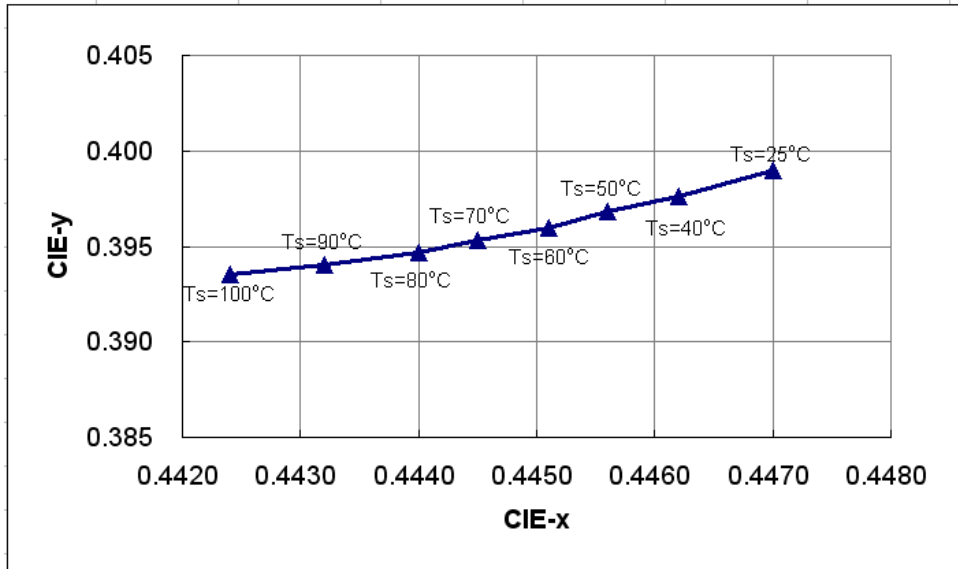
■ **Substrate Temperature vs. Forward Voltage ($I_F=480\text{mA}$)**



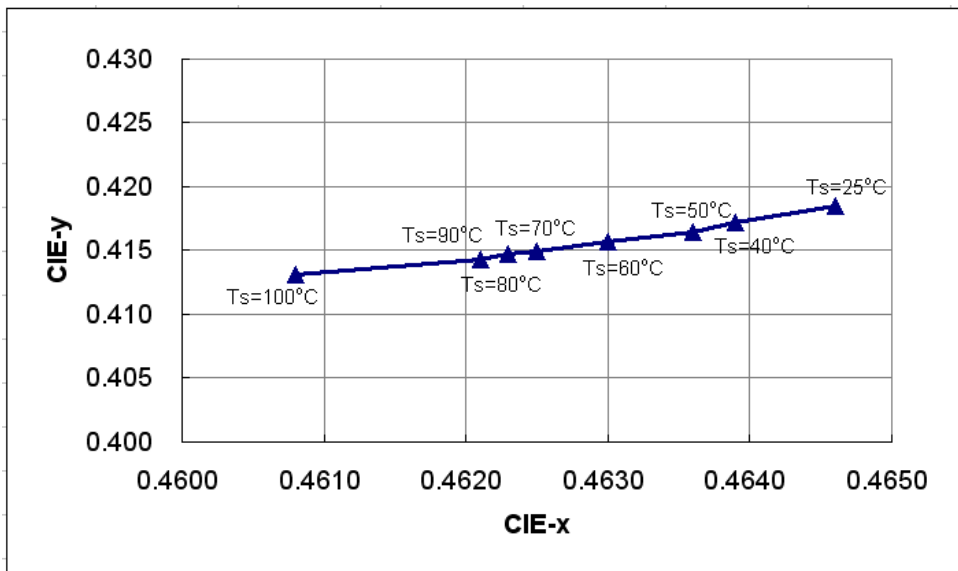
■ **Substrate Temperature vs. Relative Luminous Flux ($I_F=480\text{mA}$)**



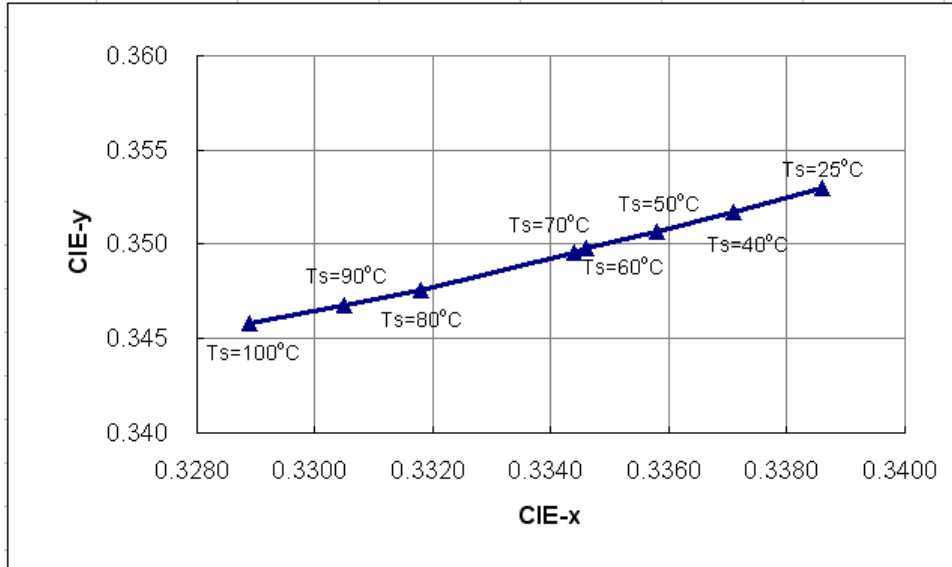
■ **Substrate Temperature vs. Chromaticity Coordinate ($I_f=480\text{mA}$)**
2700K



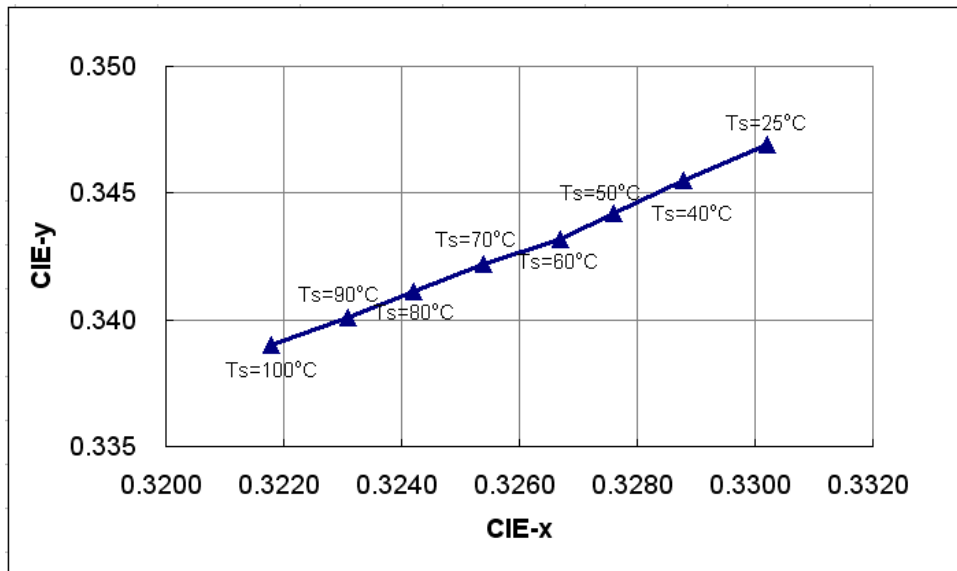
3000K



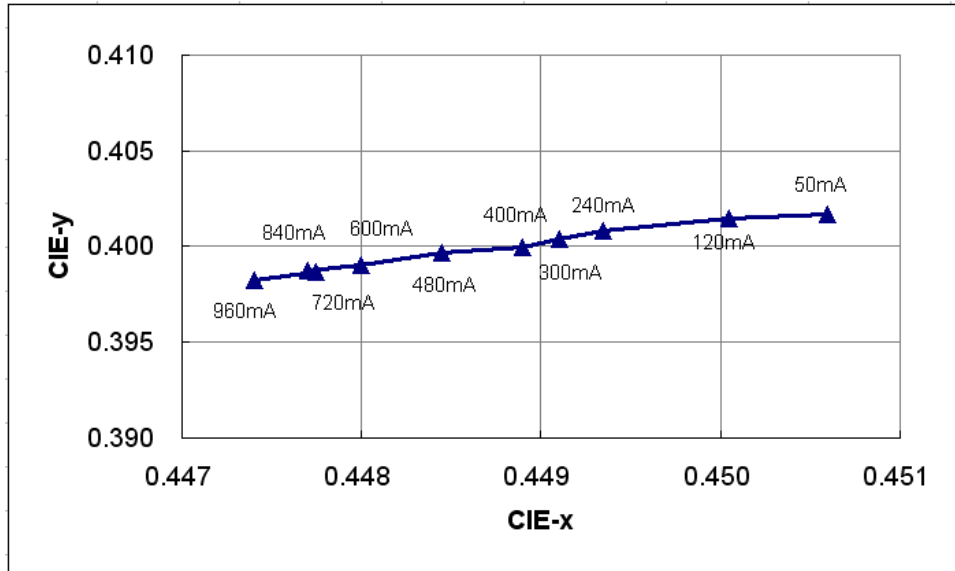
5000K



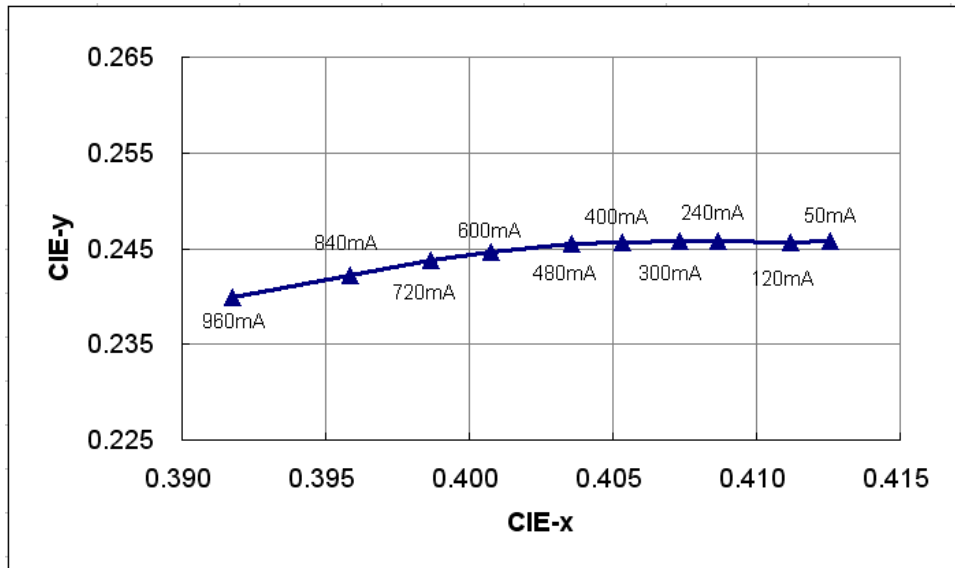
5700K



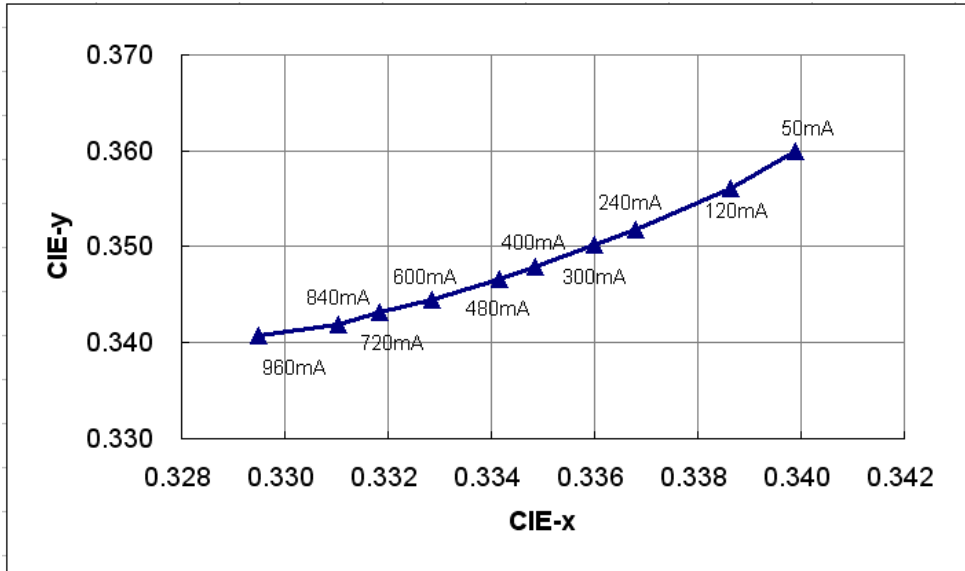
■ **Forward Current vs. Chromaticity Coordinate (Ta=25°C)**
2700K



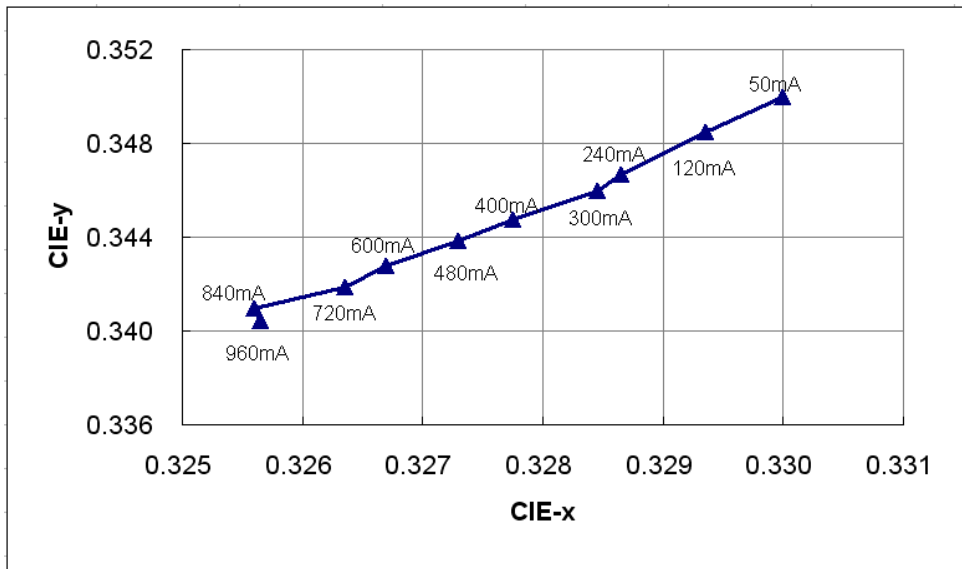
3000K



5000K



5700K



Reliability

4~8W COB LED
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No	Item	Condition	Time/Cycle
1	2 nd Temp. Operation Life Test	T _c =85°C, I _F =720mA	1000 Hrs
2	High Temp. and High Humidity Operation Life Test	85°C, 85%RH I _F =720mA	1000 Hrs
3	High Temp. Storage	85°C	1000 Hrs
4	Low Temp. Storage	-40°C	1000 Hrs
5	Temperature Cycle Storage	-40°C ~100°C (30min dwell) /<5min transfer	300cles

Judgment Criteria

Item	Symbol	Test Condition	Judgment Criteria
Forward Voltage	V _f	Note1	Δ% < 10 %
Luminous Flux	I _v	Note1	Decay < 30 %

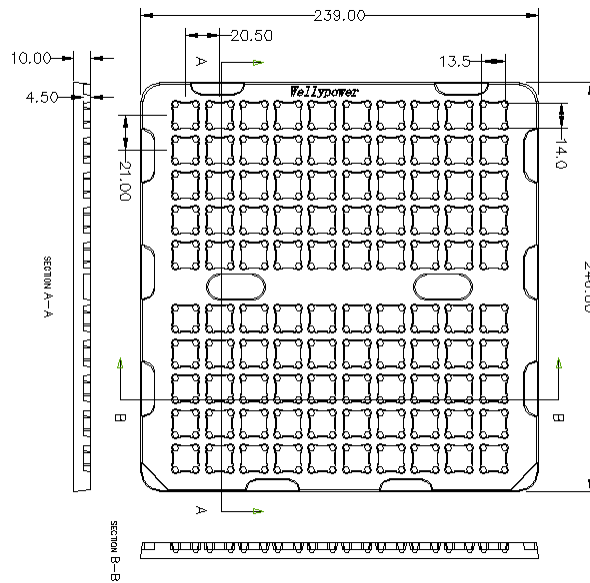
Notes:

1. Refer to operating Current and Luminous Flux Characteristics for different value operating current regarding each type of Light Engine Series.

Packing

4~8W COB LED
Product Specification

Tray



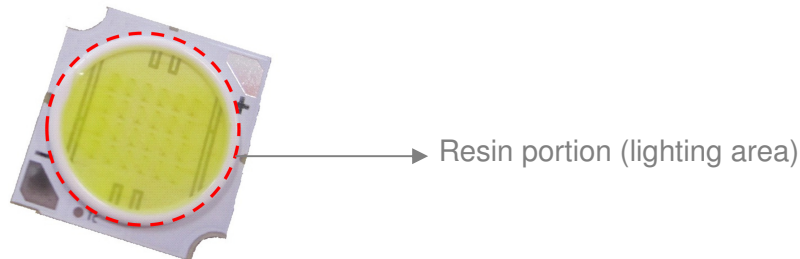
Tray contains 100 units

Precautions

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Product Specification

1. Avoid the application of any stress to the resin portion (lighting area).
2. Avoid any contact by a sharp metal nail or other materials with the resin portion (lighting area).



3. This product should be secured firmly by fastening screws on both sides of the product.
Please be careful not to apply any stress to the product during the clamping operation.



4. For fixing this product to the outer heat sink, thermal pad or thermal glue should be applied between backside of substrate and heat sink so that the product can dissipate heat completely.
Please avoid product deformation when fixing the clamping operation.
5. Handling of static electricity
 - These products are sensitive to static electricity charge. Please prevent any static electricity within the assembling process.
 - All devices, equipment and machinery must be properly grounded. It is recommended that precautions be taken against surge voltage to the equipment that mounts the LEDs.
 - ESD sensitivity of this product is 1000V (HBM, based on JEITA ED-4701/304).
 - It is easy to find static-damaged LEDs by a light-on test.
6. Before open the package, should kept at room temperature, 90% RH environment or less. The LED should be used within 6 months.
7. After open the package, the LED should be kept at room temperature, 60% RH environment or less. The LED should be soldered within 168 hours (7 days) after opening the package. If unused LEDs remain, they should be stored in moisture proof packages, such as sealed containers with packages of moisture absorbent material (silica gel).
8. Applying proper resistor for the circuit design is recommended. Otherwise slight voltage shift may cause big current change and the LED may be burn out.
9. Please ensure that heat and electronic generation is not in excess of the absolute maximum rating.

Smart Lighting

Amazing Life

Lextar Electronics Corp. is the leading LED (Light Emitting Diode) maker integrating upper stream epitaxial, middle stream chip, and downstream package, SMT and LED lighting applications. Founded in May, 2008, Lextar is a subsidiary of AU Optronics, the leading TFT-LCD and solar PV manufacturer. Lextar's product applications include lighting and LCD backlight. Lextar's manufacturing sites include Hsinchu and Chunan in Taiwan, and Suzhou in China. The company turnover in 2010 is 266 million USD.