

# PRODUCT SPECIFICATION

*Part Number*  
**PL16K-WCWW32**

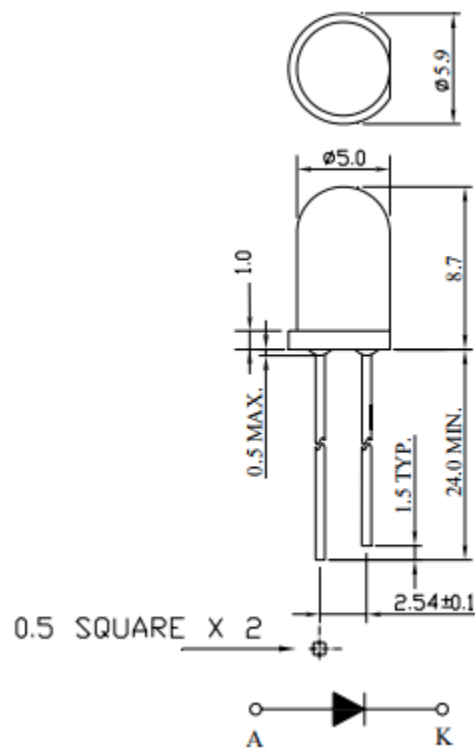
***Details***

- 5mm Round Thru-Hole LED
- Emitting Color: Warm White
- InGaN chip material
- Water Clear Epoxy Resin

***Features***

- RoHS Compliant
- Low Power Consumption
- Rugged and Durable

***Mechanical Dimensions***



**Notes:**

1. All dimensions are in millimeters unless otherwise noted
2. Tolerance is  $\pm 0.25$  mm unless otherwise noted





**Device Selection Guide**

Part Number	Chip		Lens Type
	Material	Emitting Color	
PL16K-WCWW32	InGaN	Warm White	Water Clear

**Absolute Maximum Ratings at Ta=25 °C**

Parameter	Symbol	Rating	Unit
Power Dissipation	Pd	120	mW
Reverse Voltage	VR	5	V
DC Forward Current	IF	30	mA
Reverse (Leakage) Current	Ir	50	μA
Peak Current (duty cycle 1/10, 1KHz)	IPF	100	mA
Operating Temperature	Topr	-25~+85	°C
Storage Temperature	Tstg	-40~+100	°C
Soldering Temperature (1.6mm from body)	Tsol.	Dip Soldering : 260°C for 5 sec. Hand Soldering : 350°C for 3 sec.	
Electrostatic Discharge	ESD	2000	V

**Electrical and Optical Characteristics at Ta=25 °C**

Parameter	Symbol	Min.	Typ.	Max.	Unit	Condition
Luminous Intensity	Iv	5400	11000	--	mcd	IF=20mA
Forward Voltage	Vf	--	3.2	4.0	V	
CIE Chromaticity Coordinates:X Axis	X	--	0.31	--		
CIE Chromaticity Coordinates:Y Axis	Y	--	0.30	--		
Reverse (Leakage) Current	Ir	--	--	50	μA	Vr=5V
Viewing Angle	2θ1/2	--	55	--	--	deg

- Notes: 1. Tolerance of Luminous Intensity is ±15%  
 2. Tolerance of Forward Voltage is ±0.1V  
 3. Tolerance of Dominant Wavelength is ±1nm  
 4. Customer's special requirements are welcome.

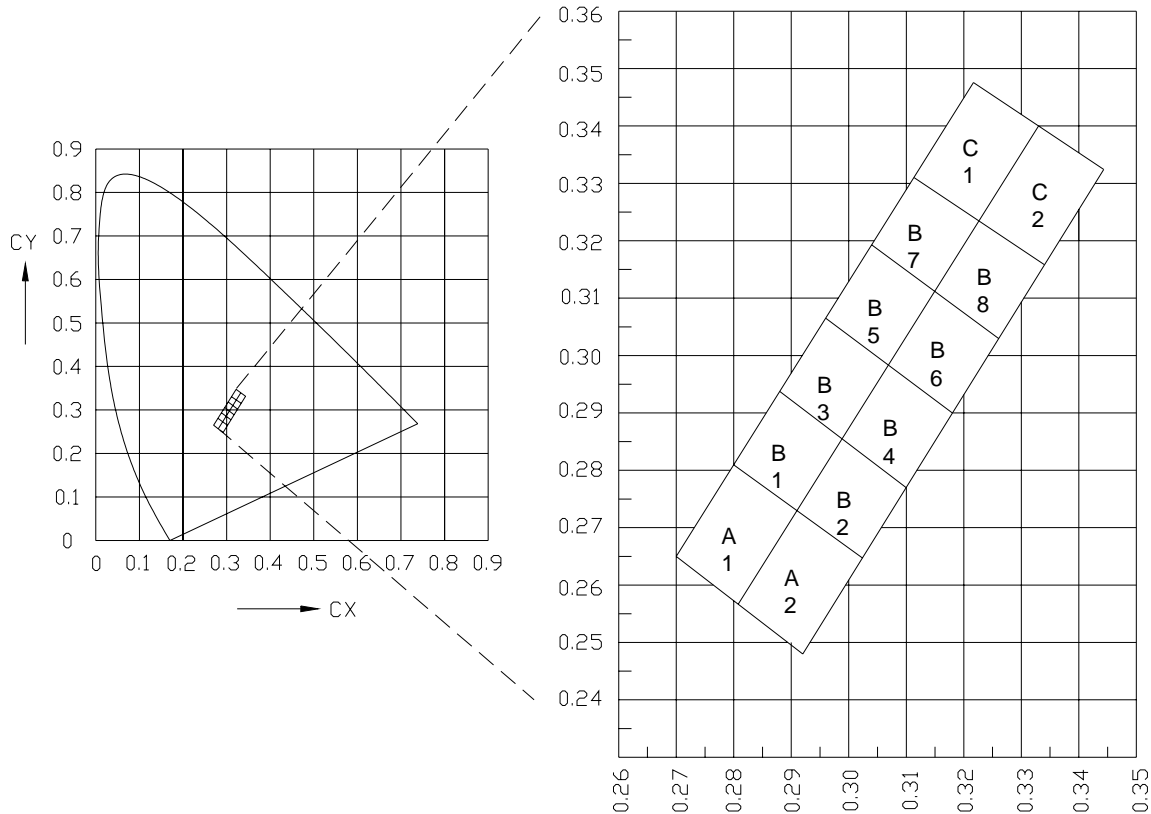
### Chromaticity Coordinates Specifications for Bin Grading

COLOR RANKS(IF=20mA, Ta=25°C)

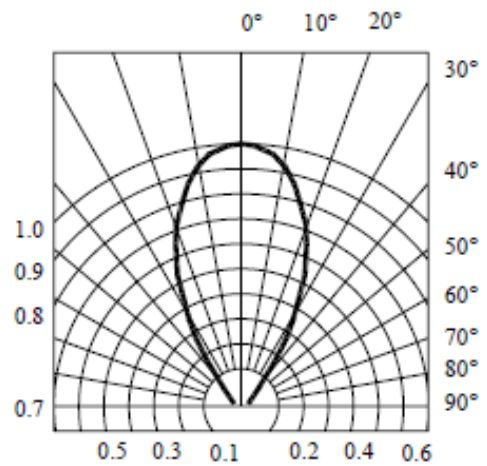
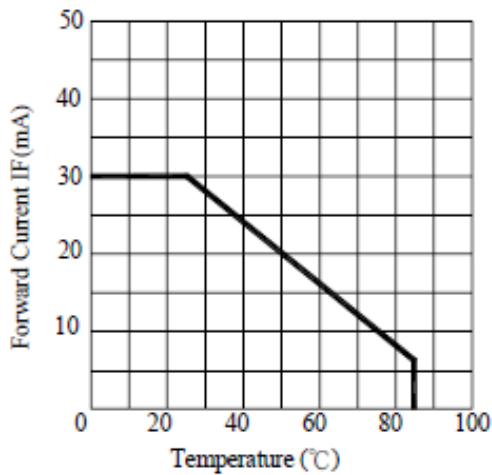
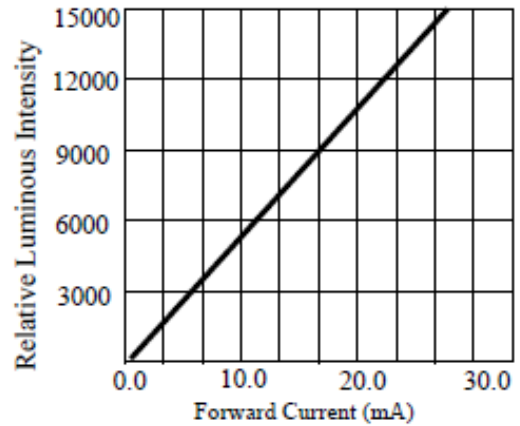
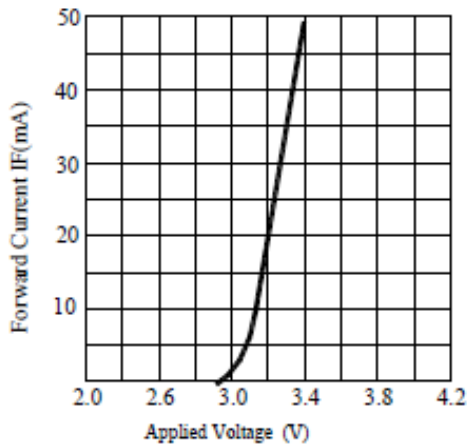
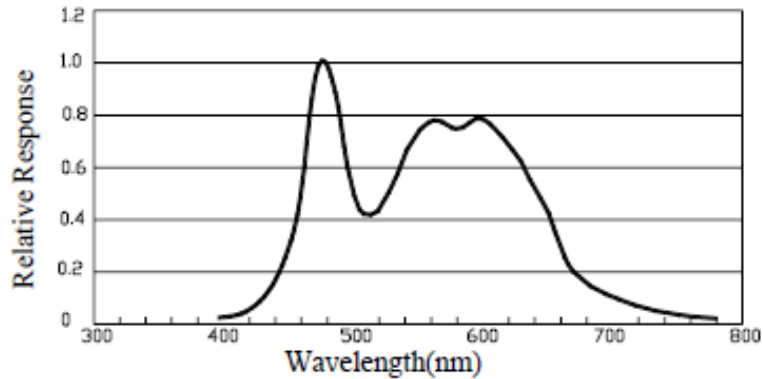
Bin	RANK					Bin	RANK				
A1	X	0.27	0.28	0.291	0.281	B5	X	0.296	0.304	0.315	0.307
	Y	0.265	0.282	0.273	0.256		Y	0.307	0.319	0.311	0.298
A2	X	0.281	0.291	0.302	0.292	B6	X	0.307	0.315	0.326	0.318
	Y	0.256	0.273	0.265	0.248		Y	0.298	0.311	0.303	0.29
B1	X	0.28	0.288	0.299	0.291	B7	X	0.304	0.312	0.323	0.315
	Y	0.282	0.294	0.286	0.273		Y	0.319	0.331	0.323	0.311
B2	X	0.291	0.299	0.31	0.302	B8	X	0.315	0.323	0.334	0.326
	Y	0.273	0.286	0.277	0.265		Y	0.311	0.323	0.315	0.303
B3	X	0.288	0.296	0.307	0.299	C1	X	0.312	0.322	0.333	0.323
	Y	0.294	0.307	0.298	0.286		Y	0.331	0.348	0.34	0.323
B4	X	0.299	0.307	0.318	0.31	C2	X	0.323	0.333	0.344	0.334
	Y	0.286	0.298	0.29	0.277		Y	0.323	0.34	0.332	0.315

Notes: X, Y Tolerance each Bin limit is  $\pm 0.01$ .

### Chromaticity Coordinates & Bin Grading Diagram



*Typical Electrical / Optical Characteristic Curves*



## *Precautions for Use*

### TAKE NOTE OF THE FOLLOWING IN USE OF LED

#### 1. Temperature in use

Since the light generated inside the LED needs to be emitted to outside efficiently, a resin with high light transparency is used; therefore, additives to improve the heat resistance or moisture resistance (silica gel, etc) which are used for semiconductor products such as transistors cannot be added to the resin.

Consequently, the heat resistant ability of the resin used for LED is usually low; therefore, please be careful on the following during use.

Avoid applying external force, stress, and excessive vibration to the resins and terminals at high temperature. The glass transition temperature of epoxy resin used for the LED is approximately 120-130°C.

At a temperature exceeding this limit, the coefficient of linear expansion of the resin doubles or more compared to that at normal temperature and the resin is softened.

If external force or stress is applied at that time, it may cause a wire rupture.

#### 2. Soldering

Please be careful on the following at soldering.

After soldering, avoid applying external force, stress, and excessive vibration until the products go to cooling process (normal temperature), <Same for products with terminal leads>

##### (1) Soldering measurements:

Distance between melted solder side to bottom of resin shall be 1.6mm or longer.

##### (2) Dip soldering :

Pre-heat: 90°C max. (Backside of PCB), Within 60 seconds.

Solder bath: 260±5°C (Solder temperature), Within 5 seconds.

##### (3) Hand soldering: 350°C max. (Temperature of soldering iron tip), Within 3 seconds.

#### 3. Insertion

Pitch of the LED leads and pitch of mounting holes need to be same.

#### 4. Others

Since the heat resistant ability of the LED resin is low, SMD components are used on the same PCB, please mount the LED after adhesive baking process for SMD components. In case adhesive baking is done after LED lamp insertion due to a production process reason, make sure not to apply external force, stress, and excessive vibration to the LED and follow the conditions below.

Baking temperature: 120°C max. Baking time: Within 60 seconds.

If soldering is done sequentially after the adhesive baking, please perform the soldering after cooling down the LED to normal temperature.

**Packaging**

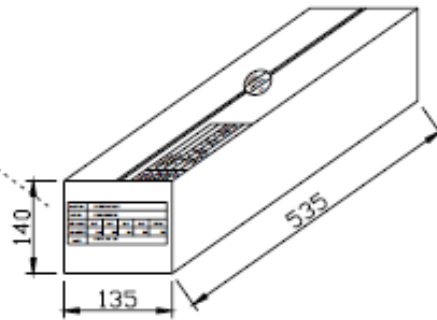
PLASTIC PACKAGE  
 QUANTITY: 200 PCS

PART NO	:XXXX-XX
QTY	: PCS
LOT NO	:XXXXXXXXXX
DATE	:
BIN CODE:	



INNER BOX  
 QUANTITY: 40 PACKETS  
 TOTAL: 8,000 PCS

PART NO.	XXXXX-XX-XX				
LOT NO.	XXXXXXXXXX				
BIN CODE	Xx X	Xx X	Xx X	Xx X	TOTAL
QUANTITY	PCS	PCS	PCS	PCS	PCS
DATE	XXXX, XX, XX				



OUTER CARTON  
 QUANTITY: 4 BOX  
 TOTAL: 32,000 PCS

CT NO. 箱 號	XX
PART NO. 料 號	XXXXX-XX-XX
QUANTITY 數 量	PCS
N.W. 淨 重	KGS
G.W. 毛 重	KGS
REMARK 備 註	

