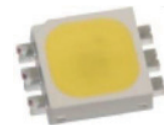


PLCC Series

# ET-5050x-BF6W

## Datasheet



### Features :

- High luminous Intensity and high efficiency
- Based on GaN technology
- Wide viewing angle : 120°
- Excellent performance and visibility
- Suitable for all SMT assembly methods
- IR reflow process compatible
- Environmental friendly; RoHS compliance

### Typical Applications

- Signal and symbol luminaire
- Indoor displays
- Backlighting (illuminated advertising, general lighting)
- Interior automotive lighting
- Emergency lighting



Lighting Design Manufacturing Service

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## General Information

### Introduction

High power PLCC is a surface mount, compact, high brightness LED that is built for various illumination needs. A single Cool White high power PLCC can deliver typical luminous flux of 115 lm while driving at 350mA suitable for any kind of lighting sources, including general illumination, flashlights, spotlights, tube light source, freezer lighting, industrial and commercial lightings. The small physical dimension can free customers from any constraints or limitations in these fields of applications. Furthermore, the reflow-solderable nature of high power PLCC provides an easy path towards the optimum thermal management to achieve a promising reliability.

### Product Nomenclature

The following table describes the available color, power, and lens type. For more flux and forward voltage information, please consult the Bin Group document.

**E T - 5050 W - B F 6 W**

X1                  X2          X3                  X4 X5 X6 X7

X1		X2		X3		X4		X5~X6		X7	
LED Item		Package Type		Emitting Color		Chip Quantity		Serial No.		Feature	
Code	Type	Code	Type	Code	Type	Code	Type			Code	Type
ET	Edison Top LED	5050	5.0x5.0mm	W	Cool White	A	0.5W			W	White surface
				H	Neutral White	B	1W				
				X	Warm White						
				R	Red						
				A	Amber(590nm)						
				T	True Green						
				B	Blue						
				RTB	RGB 3chips						

Figure 1. PLCC 5050 series Nomenclature

## Mechanical Dimensions

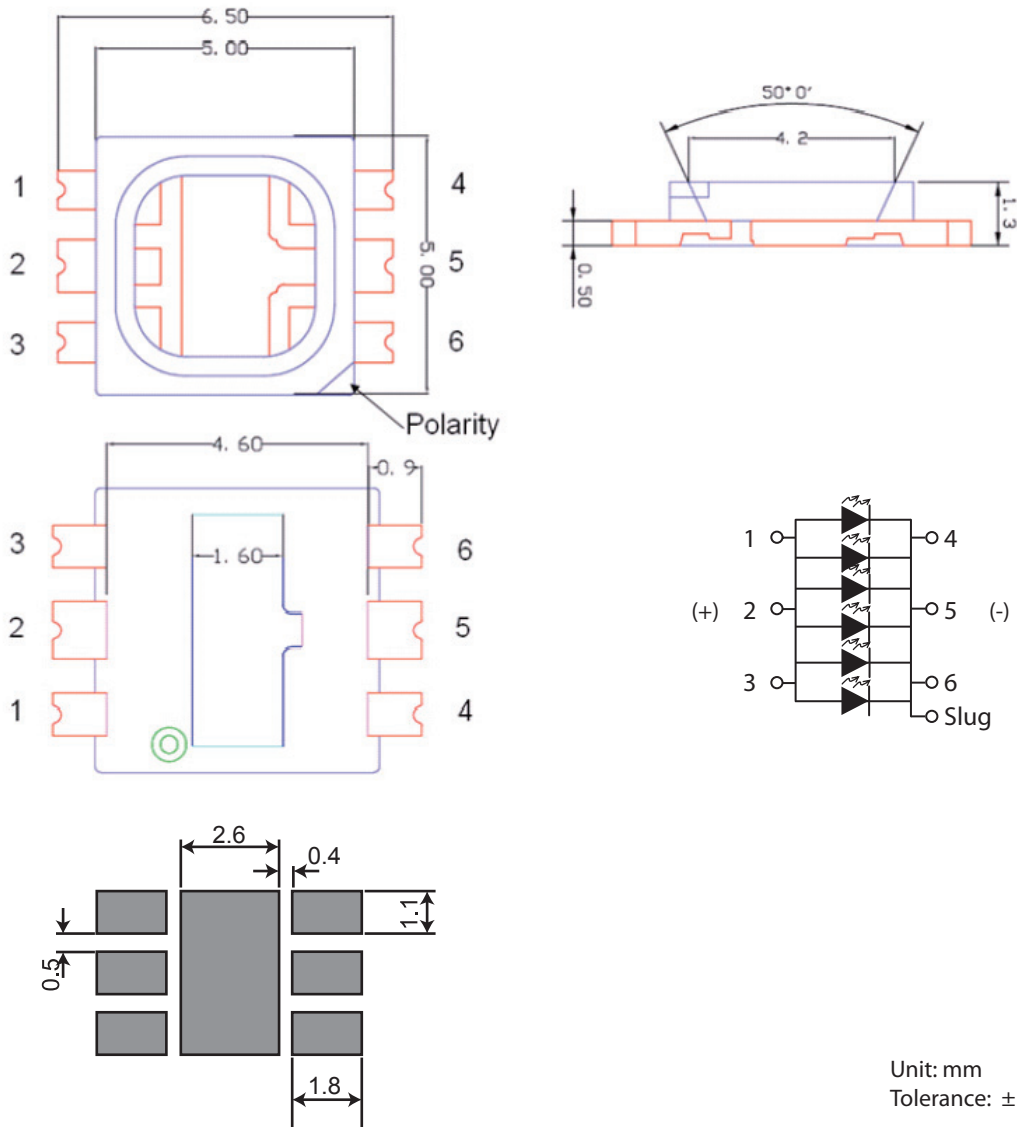


Figure 2. 5050W PLCC Dimension, circuit diagram and recommended soldering pad

Notes:

1. 1W PLCC slug has cathode. (Red and Amber as anode)
2. It is important that the slug cannot contact aluminum surface, it is strongly recommended that there should coat a uniform electrically isolated heat dissipation film on the aluminum surface.

## Absolute Maximum Ratings

The following table describe absolute maximum ratings of PLCC 5050 series.

Table 1. Absolute maximum ratings for PLCC 5050 series

Parameter	Rating	Units	Symbol
Forward Current	350	mA	$I_F$
Pulse Forward Current	500	mA	$I_{pulse}$
Reverse Current ( $V_R=5V$ )	10	$\mu A$	$I_R$
Power Dissipation	1.15	W	$P_D$
Viewing angle (FWHM)	120	Degrees	
LED Junction Temperature	125	$^{\circ}C$	$T_J$
Operating Temperature	-30 ~ +70	$^{\circ}C$	
Storage Temperature	-40 ~ +120	$^{\circ}C$	
ESD Sensitivity (HBM)	2,000	V	$V_B$
Soldering Temperature	Reflow Soldering : 255~260 $^{\circ}C$ /10~30sec Manual Soldering : 350 $^{\circ}C$ /3sec		

Note:

$I_{pulse}$  condition: pulse width  $\leq 0.1$ msec and duty  $\leq 1/10$ .

## Luminous Flux Characteristics

The following table describes luminous flux characteristics of PLCC 5050 series.

Table 2. Luminous Flux characteristics at  $I_F=350$ mA for PLCC 5050 series

Part Name	Color	Min Luminous Flux@350mA		Unit
		Group	Flux	
ET-5050W-BF6W	Cool White	U2	90	lm
		U3	100	
		V	112.5	
ET-5050H-BF6W	Neutral White	U2	90	lm
		U3	100	
		V	112.5	
ET-5050X-BF6W	Warm White	U1	86.5	lm
		U2	90	
		U3	100	

Note:

The luminous flux performance is guaranteed within published operating conditions. Edison maintains a tolerance of  $\pm 10\%$  on flux measurements.



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## Characteristics

### Optical Characteristics

Table 3. PLCC color temperature or CRI characteristics.

Part Name	Color	CCT/Wavelength (K)			CRI	Viewing Angle (Degree)
		Min.	Typ.	Max.		
ET-5050W-BF6W	Cool White	5,000	--	10,000	68	120
ET-5050H-BF6W	Neutral White	3,800	--	5,000	75	120
ET-5050X-BF6W	Warm White	2,670	--	3,800	77	120

Note:

Edison maintains a tolerance of  $\pm 5\%$  on CCT measurement and  $\pm 3$  on CRI

### Electrical Characteristics

Table 4. PLCC voltage and thermal resistance characteristics.

Part Name	Color	$V_F$			Forward Current (mA)	Thermal Resistance ( $^{\circ}\text{C}/\text{W}$ )
		Min.	Typ.	Max.		
ET-5050W-BF6W	Cool White	2.8	--	3.7	350	10
ET-5050H-BF6W	Neutral White	2.8	--	3.7	350	10
ET-5050X-BF6W	Warm White	2.8	--	3.7	350	10

Note:

\* Forward voltage measurement allowance is  $\pm 0.1\text{V}$ .

## Characteristic Curves

### Spectrum

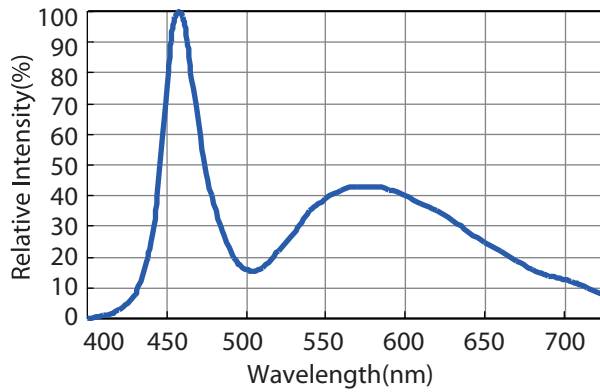


Figure 3. Color Spectrum for Cool White at a typical CCT

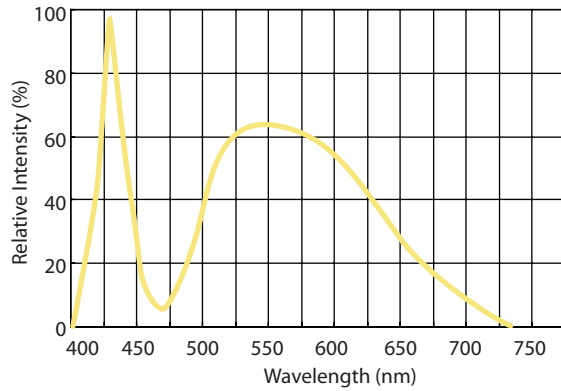


Figure 4. Color Spectrum for Neutral White at a typical CCT

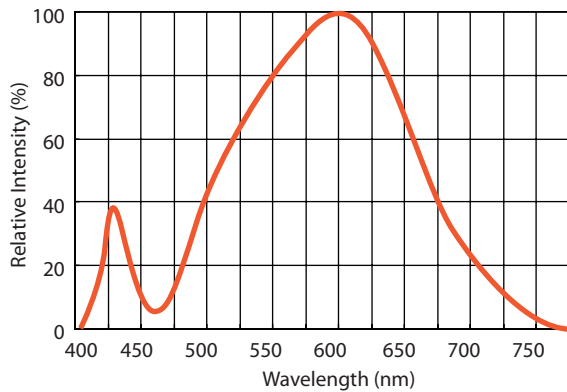


Figure 5. Color Spectrum for Warm White at a typical CCT

### Radiation Diagram

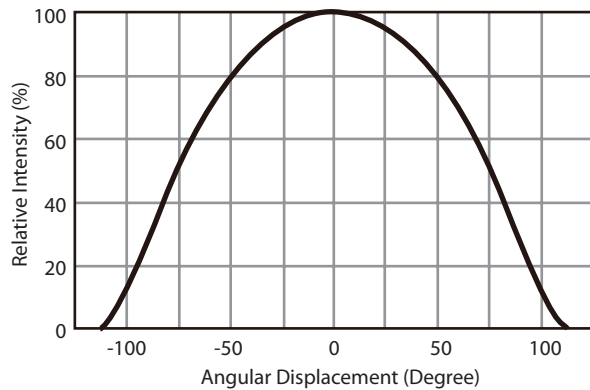


Figure 6. Emission Angle

### Forward Voltage & Forward Current

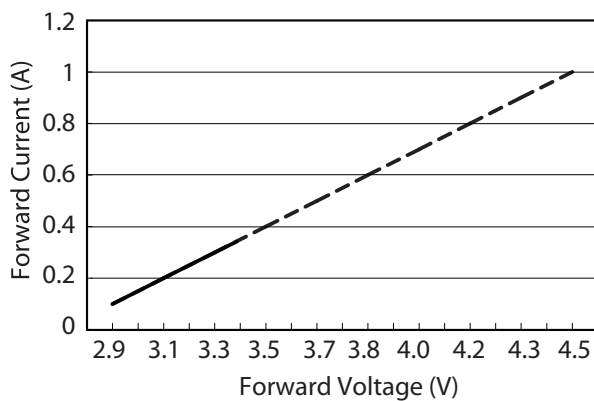


Figure 7. Forward current & forward voltage for 1.1W PLCC

### Luminous Flux & Forward Current

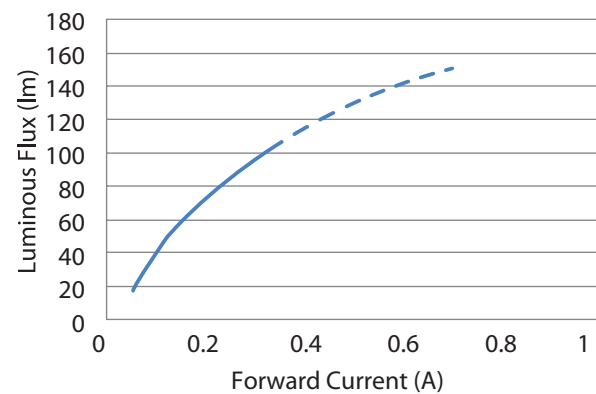


Figure 8. Forward current & relative luminous at  $T_a=25^{\circ}\text{C}$  for 1.1W PLCC

### CCT & Forward Current

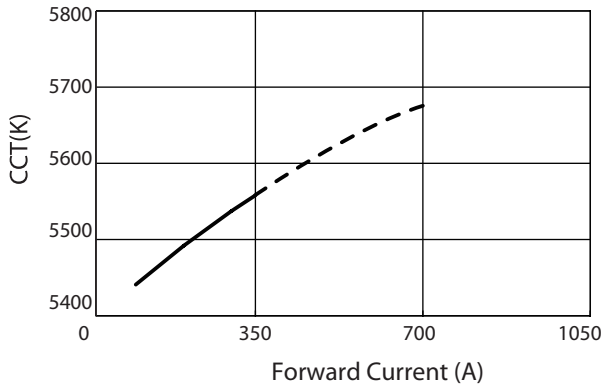


Figure 9. Forward current & CCT at Ta =25°C for 1.1W PLCC Cool White

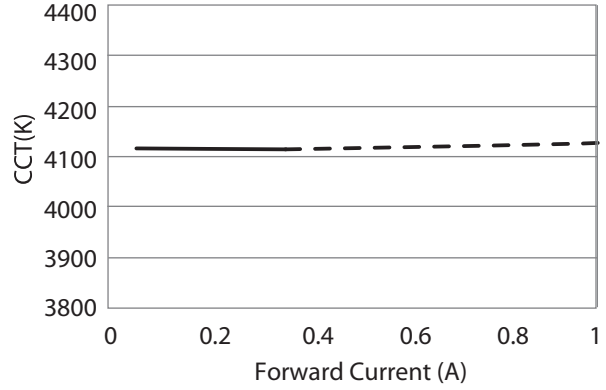


Figure 10. Forward current & CCT at Ta =25°C for PLCC Neutral White

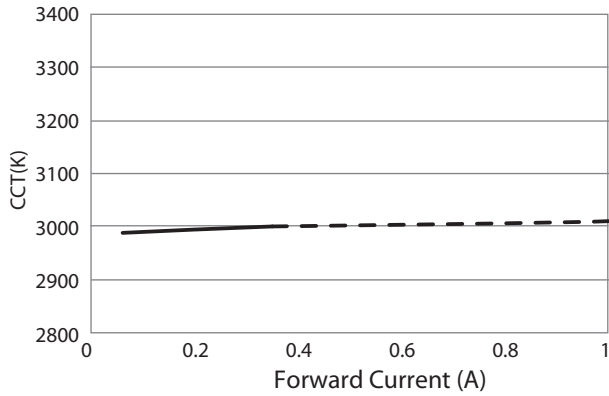
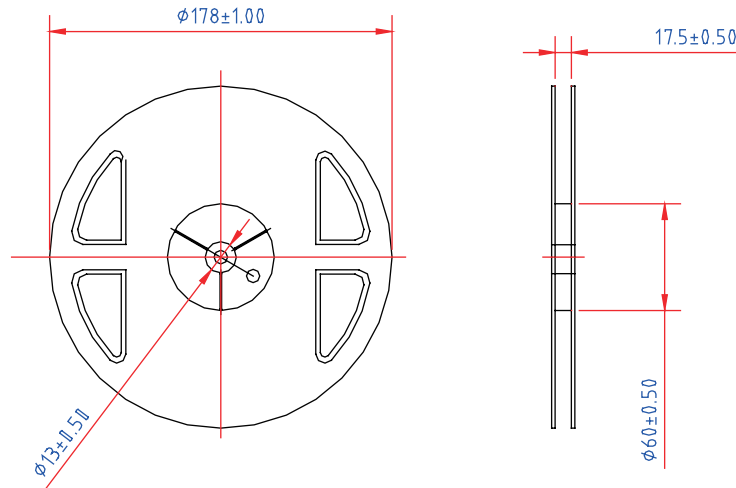


Figure 11. Forward current & CCT at Ta =25°C for PLCC Warm White



## Product Packaging Information

### Taping Reel



#### 1. Common dimensions.

Item	Specification	Tol. (+/-)
W	16.00	$\pm 0.30$
E	1.75	$\pm 0.10$
F	7.50	$\pm 0.10$
D0	1.50	$\pm 0.10$
D1	1.50	$\pm 0.10$
P0	4.00	$\pm 0.10$
P1	8.00	$\pm 0.10$
P2	2.00	$\pm 0.10$
P0 x10	40.00	$\pm 0.20$

#### 2. Pocket & other dimensions.

Item	Specification	Tol. (+/-)
t	0.30	$\pm 0.05$
A0	5.30	$\pm 0.10$
B0	7.50	$\pm 0.10$
K0	1.60	$\pm 0.10$

#### 3. Drawing. ( Conform to EIA-481 standard )

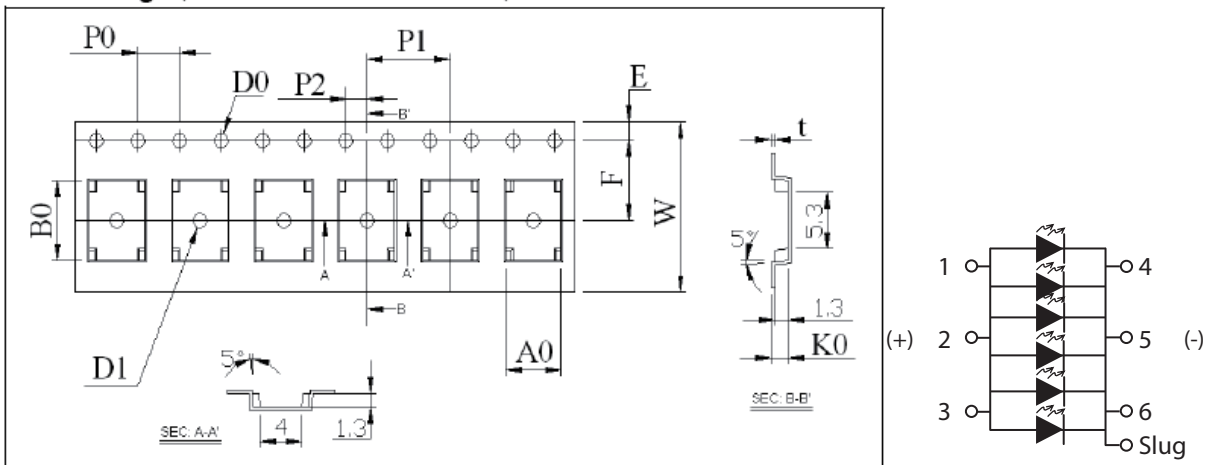


Figure 12. Taping reel dimensions

## Packaging

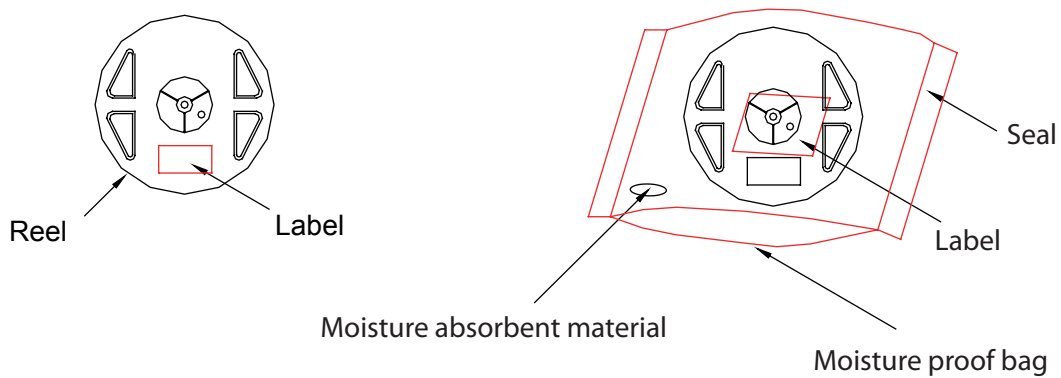


Figure 13. Packaging diagram

## Package Label

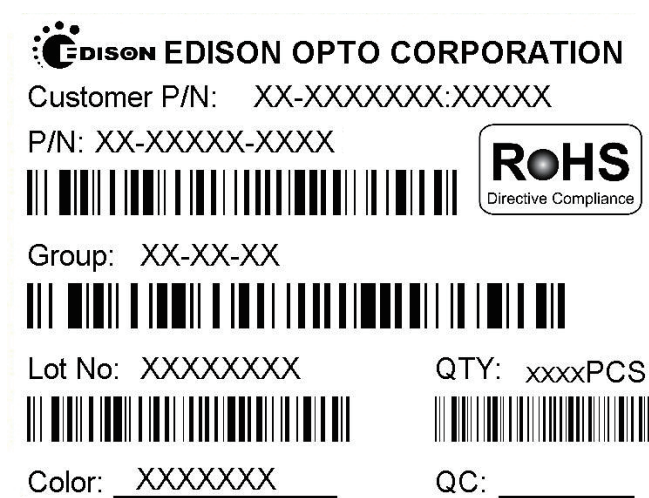


Figure 14. Package label

Table 5. Package dimensions and quantity

Item	Quantity	Total	Dimensions(mm)
Reel	1,000pcs	1,000pcs	Diameter=178
Box	3 reels	3,000pcs	240*235*67
Carton	10 boxes	30,000pcs	500*260*355



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## Revision History

Table 6. Revision history of ET-5050x-BF6W series datasheet

Version	Description	Release Date
1	1. Establish a datasheet	2011.07.20

## About Edison Opto

Edison Opto is a leading manufacturer of high power LED and a solution provider experienced in LDMS. LDMS is an integrated program derived from the four essential technologies in LED lighting applications- Thermal Management, Electrical Scheme, Mechanical Refinement, Optical Optimization, to provide customer with various LED components and modules. More Information about the company and our products can be found at [www.edison-opto.com](http://www.edison-opto.com)

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