

PLCC Series

1W PLCC Single Color Red & Amber Datasheet

Features :

- High luminous Intensity and high efficiency
- Base on InGaN / 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 and outdoor displays
- Backlighting (illuminated advertising, general lighting)
- Interior automotive lighting
- Emergency lighting

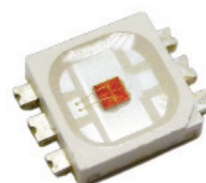


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General Information

Introduction

High power PLCC is a surface mount, compact, high brightness LED that is built for various illumination needs. A Red and Amber single color high power PLCC can deliver typical luminous flux of 34lm and 33lm respectively while driving at 350mA suitable for any kind of lighting sources, including display, stage, ambient, signal and street lighting. 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. In conclusion, high power PLCC offers you an extraordinary LED experience.

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.

Table 1. PLCC nomenclature

ET 5050 R - B 1 1 W
X1 X2 X3 X4 X5 X6 X7

X1 LED Items		X2 Package Type		X3 Emitting Color		X4 Chip Quantity		X5~X6 Serial No.		X7 Feature	
Code	Type	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 (615nm)						
				T	True Green						
				B	Blue						
				RTB	RGB-3in1						

Mechanical Dimensions

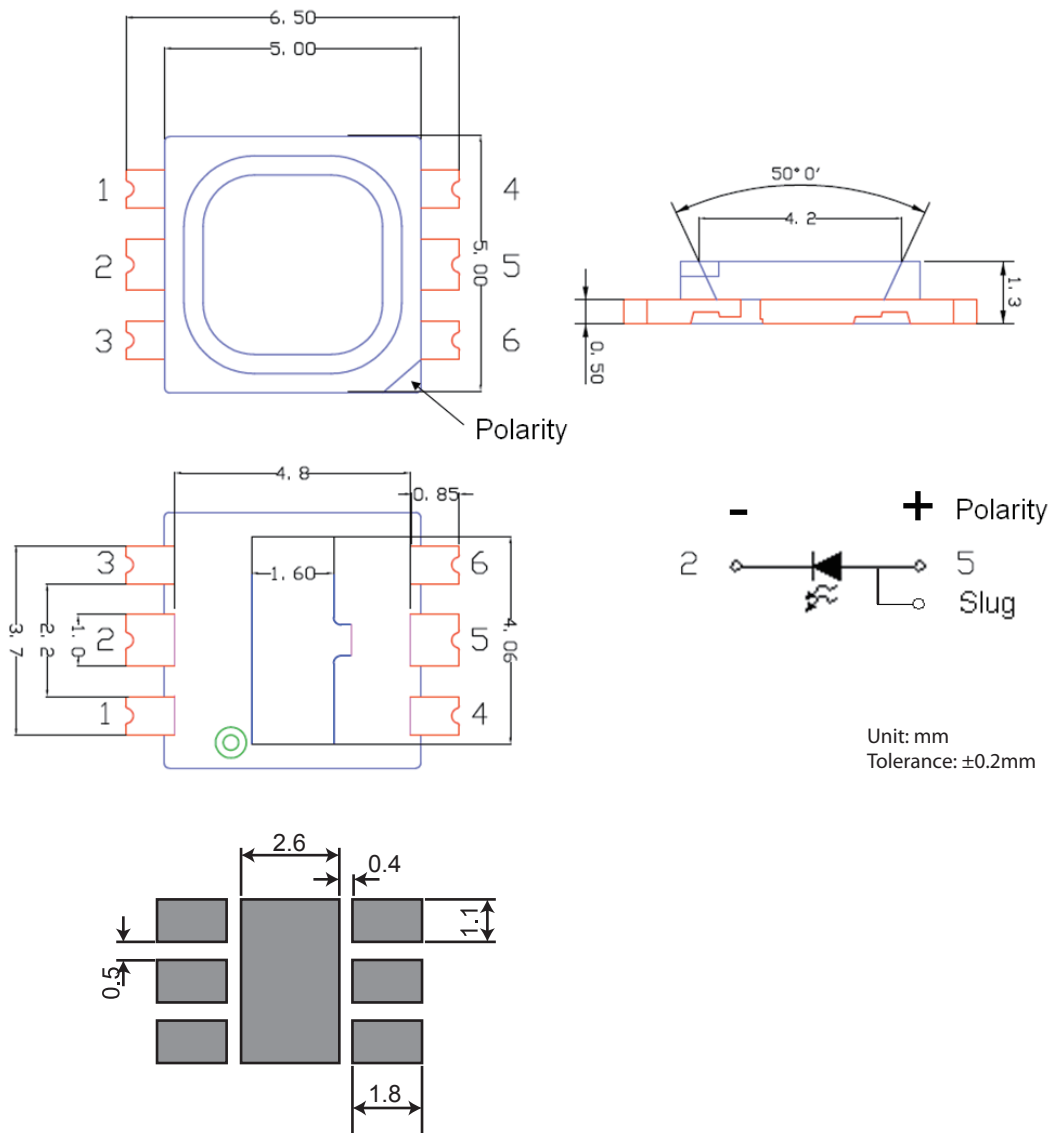


Figure 1. 5050W PLCC dimension, circuit diagram and recommended soldering pad

Notes:

- 1W PLCC slug has polarity as anode.
- It is important that the slug can not 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

Table 2. PLCC absolute maximum ratings ($T_a=25^{\circ}\text{C}$)

Parameter	Symbol	Value	Unit
Forward Current	I_F	350	mA
Pulse Forward Current	I_{pulse}	700	mA
Reverse Voltage	V_R	5	V
LED Junction Temperature	T_J	125	$^{\circ}\text{C}$
Operating Temperature		-30 ~ +85	$^{\circ}\text{C}$
Storage Temperature		-40 ~ +120	$^{\circ}\text{C}$
ESD Sensitivity	V_B	2,000	V
Soldering Temperature		Reflow Soldering : 255~260 $^{\circ}\text{C}$ /10~30sec Manual Soldering : 350 $^{\circ}\text{C}$ /3sec	

Notes:

1. The values are based on 1-die performance.
2. I_{pulse} condition: pulse width $\leq 0.1\text{msec}$ and duty $\leq 1/10$.

Luminous Flux Characteristics

The following table describes luminous intensity of 1W PLCC Single Color - Red & Amber series.

Table 3 . PLCC luminous flux characteristics ($T_a=25^{\circ}\text{C}$)

Part Name	Color	Min Luminous Flux @350mA		Unit
		Group	Flux(lm)	
ET-5050R-B11W	Red	Q	30.3	lm
		R	39.4	
ET-5050A-B11W	Amber	Q	30.3	lm
		R	39.4	

Note:

Luminous Intensity Measurement Allowance is $\pm 10\%$.

Characteristics

Optical Characteristics

Table 4. PLCC optical characteristics, $T_a=25^{\circ}\text{C}$ at 350mA

Part Name	Color	Wavelength			Viewing Angle (Degree)
		Min.	Typ.	Max.	
ET-5050R-B11W	Red	620	--	630	120
ET-5050A-B11W	Amber	585	--	595	120

Notes:

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

$2\theta_{1/2}$ is the off-axis angle where the luminous intensity is half of the axial luminous intensity.

Electrical Characteristics

Table 5. PLCC electrical characteristics, $T_a=25^{\circ}\text{C}$

Part Name	Color	V_F (V)			Forward Current (mA)	Thermal Resistance ($^{\circ}\text{C/W}$)
		Min.	Typ.	Max.		
ET-5050R-B11W	Red	1.8	--	2.8	350	10
ET-5050A-B11W	Amber	1.8	--	2.8	350	10

Characteristic Curves

Forward Voltage & Forward Current

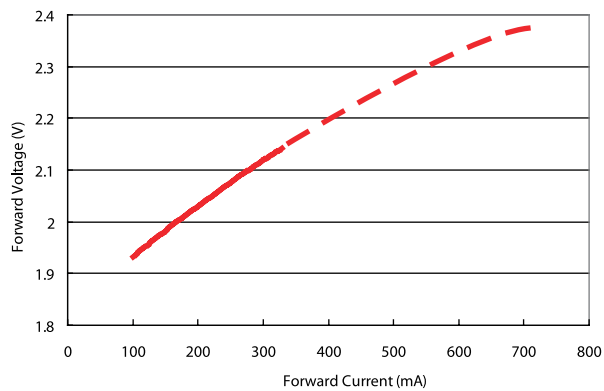


Figure 2. Forward current & forward voltage for 1W PLCC red & amber

Luminous Flux & Forward Current

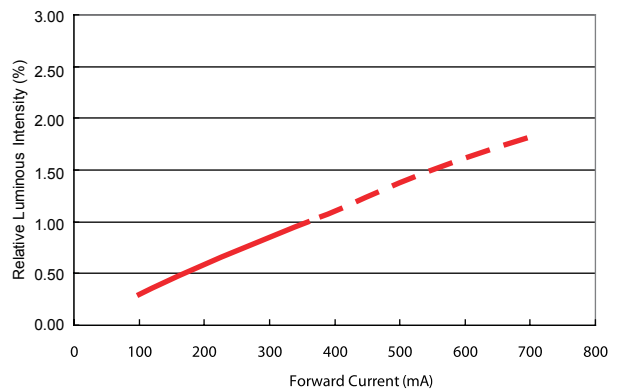


Figure 3. Forward current & relative luminous at $T_a=25^{\circ}\text{C}$ for 1W PLCC red & amber

Wavelength & Forward Current

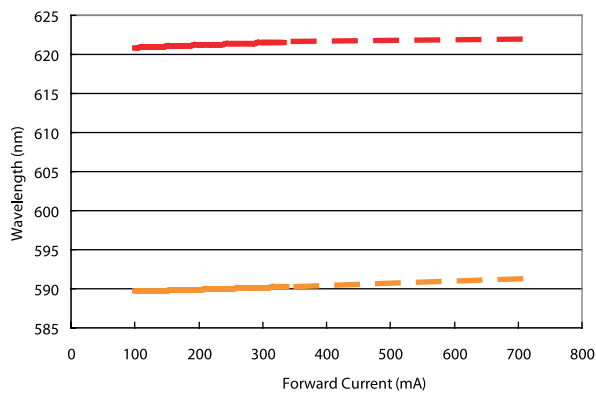


Figure 4. Wavelength length vs. forward current for red & amber

Revision History

Table 6. Revision history of 1W PLCC single color - red & amber series datasheet

Version	Description	Release Date
5	1. Update Datasheet's layout	2011.08.08

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

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