

PLCC Series

ET-3014x-1F2W Series Datasheet



Features :

- High luminous Intensity and high efficiency
- Based on Blue/Green : InGaN
- 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 Lighting
- Backlighting (illuminated advertising, general lighting)

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General Information

Introduction

Ultra high luminous efficacy, combined with the flexibility in design due to its slim and miniature size, PLCC LED Series are optimized to be used as backlight for LCD display and portable computers.

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 3014 series Nomenclature

ET		3014		X	-	1	F	2	W
X1		X2		X3		X4	X5	X6	X7
X1 LED Item		X2 Module		X3 Emitting Color		X4 Chip Quantity		X5~X6 Serial No.	
Code	Type	Code	Type	Code	Type	Code	Type	Code	Type
ET	Edison Top LED	3014	3.0x1.4mm	W	Cool White	1	1pcs	--	--
				H	Neutral White				
				X	Warm White				
X7 Feature									
Code	Type								
W	White surface								

LED Package Dimension and Polarity

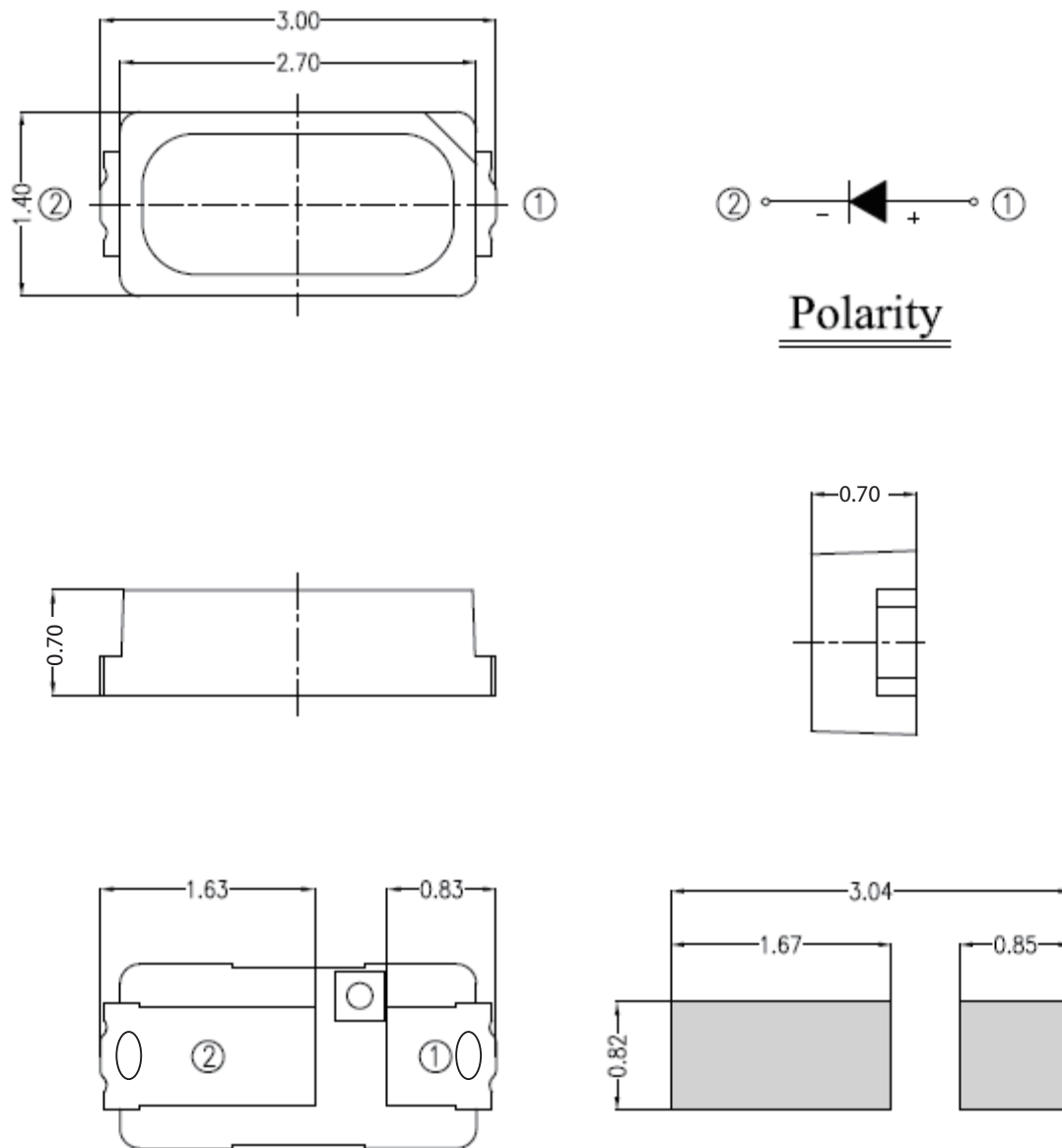


Figure 1. PLCC 3014 series circuit diagram

Notes:

1. All dimensions are measured in mm.
2. Tolerance : ± 0.20 mm

Absolute Maximum Ratings

The following table describe absolute maximum ratings of PLCC 3014 series.

Table 2 . Absolute maximum ratings for PLCC 3014 series

Parameter	Rating	Units	Symbol
Forward Current	60	mA	I_F
Pulse Forward Current ($t_p \leq 100\mu s$, Duty cycle=0.25)	100	mA	-
Reverse Voltage	3.3	mA	V_R
LED Junction Temperature	125	$^{\circ}C$	T_J
Operating Temperature	-40 ~ +80	$^{\circ}C$	-
Storage Temperature	-40 ~ +80	$^{\circ}C$	-
Soldering Temperature	260	$^{\circ}C$	-
Manual Soldering at 350 $^{\circ}C$ (Max.)	3	Sec	-

Notes:

1. Proper current derating must be observed to maintain junction temperature below the maximum at all time.
2. LEDs are not designed to be driven in reverse bias.
3. t_p : Pulse width time

Luminous Flux Characteristics

The following table describes luminous Flux of PLCC 3014 series.

Table 3. Luminous Flux characteristics at $T_a=25^{\circ}C$ for PLCC 3014 series

Part Name	Color	Luminous Flux (lm)			Luminous Intensity Typ.(mcd)	Forward Current (mA)
		Group	Min.	Max.		
ET-3014X-1F2W	Cool White	ZP	16.6	20.3	7,500	60
		ZQ	20.3	24.5		
ET-3014X-1F2W	Neutral White	ZP	16.6	20.3	7,500	60
		ZQ	20.3	24.5		
ET-3014X-1F2W	Warm White	ZO	13.6	16.6	7,200	60
		ZP	16.6	20.3		
		ZQ	20.3	24.5		

Note: Luminous intensity is measured with an accuracy of $\pm 10\%$

Characteristic

Optical Characteristics

The following table describes CCT of PLCC 3014 series

Table 4. Optical characteristics at $I_f=30\text{mA}$ and $T_a=25^\circ\text{C}$

Part Name	Color	V_F (V)		CRI	Viewing Angle (Degree)
		Min.	Max.		
ET-3014W-1F2W	Cool White	3.0	3.6	70	120
ET-3014H-1F2W	Neutral White	3.0	3.6	70	120
ET-3014X-1F2W	Warm White	3.0	3.6	70	120

Note: CRI is measured with an accuracy of ± 5

Electrical Characteristics

The following table describes forward voltage of PLCC 3014 series

Table 5. Electrical Characteristics Characteristics at $T_j=25^\circ\text{C}$

Part Name	Color	CCT(K)		Forward Current (mA)	Thermal Resistance ($^\circ\text{C/W}$)
		Min.	Max.		
ET-3014W-1F2W	Cool White	5,000	8,000	60	40
ET-3014H-1F2W	Neutral White	3,800	4,500	60	40
ET-3014X-1F2W	Warm White	2,670	3,250	60	40

Note: Forward Voltage is measured with an accuracy of $\pm 0.1\text{V}$

Forward Voltage Ranks

Table 6. Forward voltage rank at $T_a=25^\circ\text{C}$

Bin	Condition	Min	Max	Unit
UK-1	$I_f=60\text{mA}$	3.0	3.1	V
UK-2		3.1	3.2	
UL-1		3.2	3.3	
UL-2		3.3	3.4	
UM-1		3.4	3.5	
UM-2		3.5	3.6	
UN-1		3.6	3.7	

Note:

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

Reliability Test Items

The following table describes operating life, mechanical, and environmental tests performed on PLCC series package.

Test 1⁽¹⁾: JEDEC LEVEL 2a Test

Stress Test	Stress Conditions	Duration	Failure Criteria
Temperature and Humidity	60°C/ 60%RH	120 Hr(<0.5W) 168 Hr(≥0.5W)	No Catastrophes
IR reflow	Peak temp. = 255~260°C/ <10 Sec.	3 Times	No Catastrophes

Test 2: Other Test

Stress Test	Stress Conditions	Duration	Failure Criteria
Room Temperature Operating Life	25°C , I _F =I DCmax (2)	1000 Hours	(3)
High Temperature High Humidity Operating Life	85°C/ 85%RH , I _F = I DCmax×0.5	1000 Hours	(3)
High Temperature Storage Life	85°C	1000 Hours	(3)
Low Temperature Storage Life	-40°C	1000 Hours	(3)
Non-Operating Thermal Shock	-40°C/125°C 15 min dwell<10 sec transfer	1000Hours/ 200 Cycles	No Catastrophes
Non-Operating Thermal Cycle	-40°C/100°C 30 min dwell <15min transfer	1000Hours/ 200 Cycles	No Catastrophes

Notes:

- Reliability test 2 is performed after reliability test 1.
- DC max is defined to be under the indicated driving current for PLCC respectively/
- Failure Criteria:
 - Electrical failures: VF shifts ≥10%
 - Light Output Degradation: Percentage level shift ≥ 35% for PLCC<0.5W
 - Light Output Degradation: Percentage level shift ≥ 50% at 1,000hrs or 500cycle for PLCC≥0.5W
 - Visual failures: Broken or damaged package on lens or substrate

Characteristic Curves

Beam Pattern Diagram

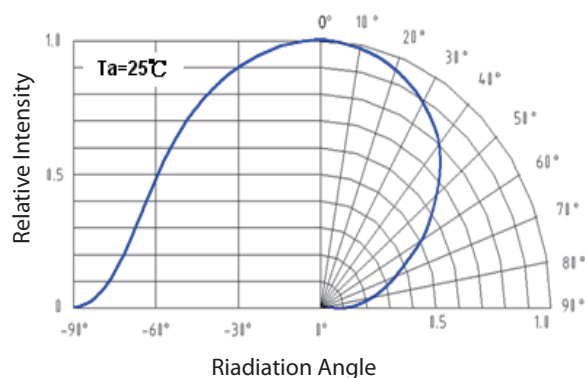


Figure 2. Beam pattern diagram for PLCC 3014 series

Luminous Flux & Wavelength

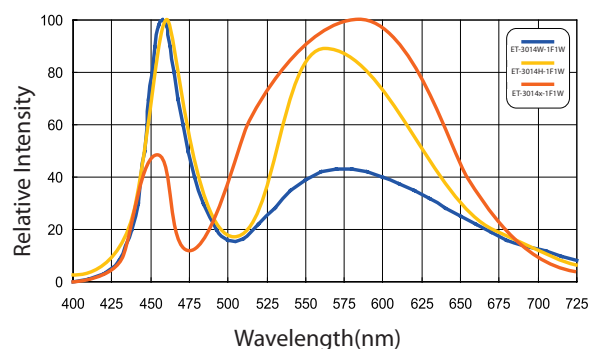


Figure 3. Wavelength & relative intensity for PLCC 3014 series

Luminous Flux & Temperature

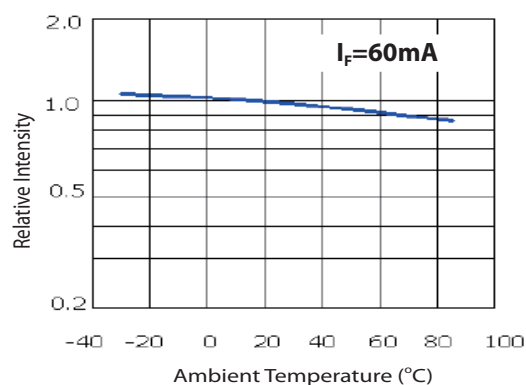


Figure 4. Ambient temperature & relative intensity for PLCC 3014 series

Forward Voltage & Forward Current

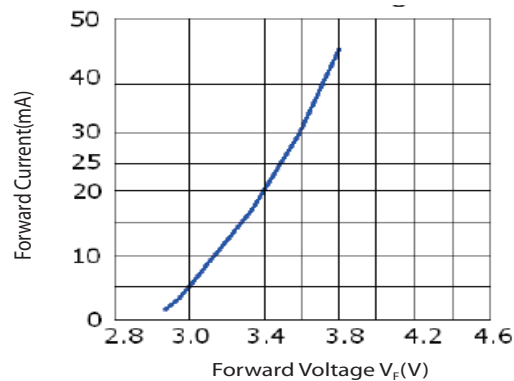


Figure 5. Forward current & forward voltage for PLCC 3014 series

Forward Current & Temperature

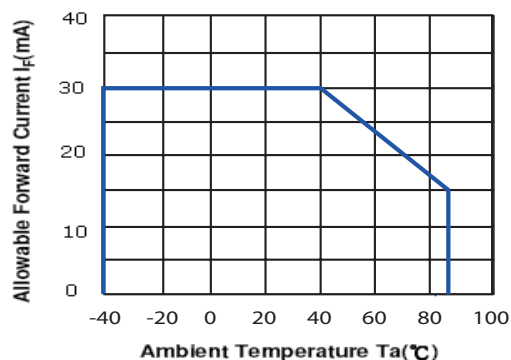


Figure 6. Ambient temperature & forward current for PLCC 3014 series

Luminous Flux & Forward Current

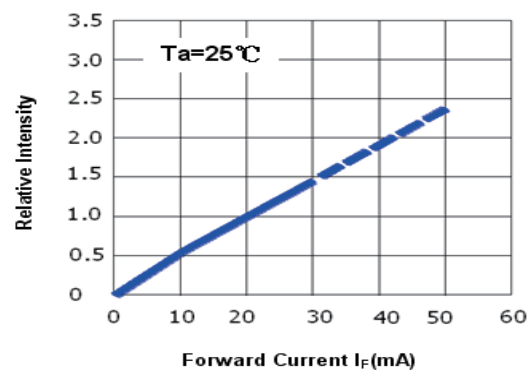
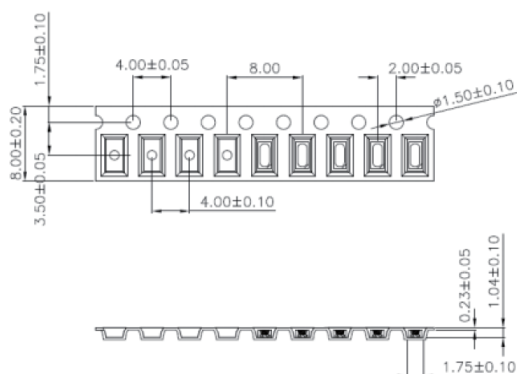


Figure 7. Forward current & relative intensity for PLCC 3014 series

Product Packaging Information

3014 Diemson



Taping Reel

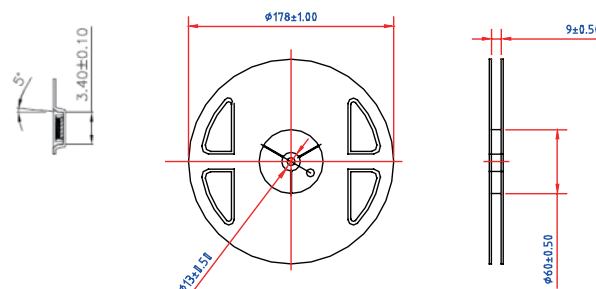
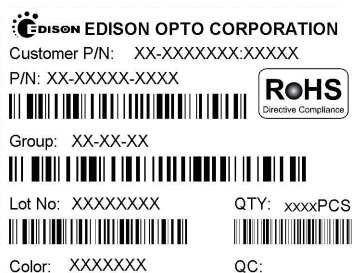


Figure 8. Taping reel dimensions

Package Label



Quantity and Package Dimension

There are two different package quantities for PLCC LEDs. Please confirm the noted quantity before unseal.

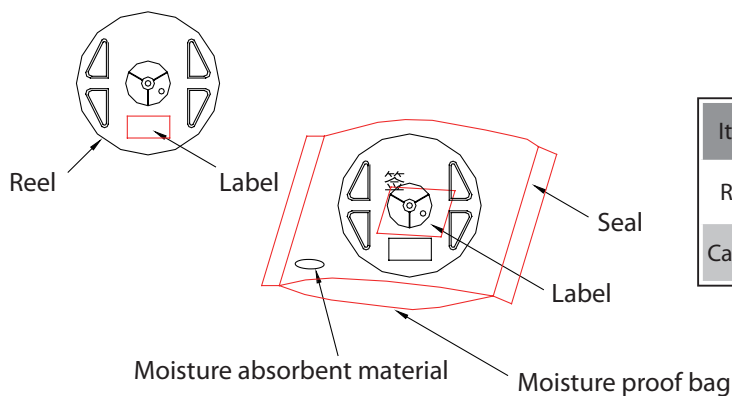


Figure 9. Package label

Table 7. Package dimensions and quantity

Item	Quantity	Total	Dimensions(mm)
Reel	3,000pcs	3,000pcs	Diameter=178
Carton	50 reels	15,000pcs	353*254*256mm

Revision History

Table 8. Revision history of PLCC 3014.

Versions	Modification	Date
1	1. Establish a Datasheet.	2012/01/16
2	1.Update mcd and forward voltage bin on P.6/7 2. Update Characteristic Curve on P.10	2012/02/03
3	1.Update Luminous Intensity Characteristic	2012/08/09

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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