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Lighting Design Manufacturing Service

PLCC 3014 0.1W PINK Series Datasheet



Features :

- High luminous Intensity and high efficiency
- Based on Blue : InGaN 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

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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 lighting for signboard.

Ordering Code Format

2	T	0 1	X 1	P X	x x	0 0 0	x x x
X1	X2	X3-X4	X5-X6	X7-X8	X9-X10	X11-X13	X14-X16

X1		X2		X3-X4		X5-X6		X7-X8	
Type		Component		Series		Wattage		Color	
2	Emitter	T	PLCC	01	3014	X1	0.1W	PX	Pink

X9-X10		X11-X13		X14-X16	
Internal code		PCB Board		Serial Number	
-	-	000	-	-	-

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Absolute Maximum Ratings

Absolute maximum ratings (T_a=25°C)

Parameter	Symbol	Value	Units
Forward Current	I_F	40	mA
Pulse Forward Current (tp<=100μs, Duty cycle=0.25)	I_{pulse}	100	mA
Reverse Current	I_R	10	uA
Reverse Voltage	V_R	5	V
LED Junction Temperature	T_J	125	°C
Operating Temperature	-	-40 ~ +85	°C
Storage Temperature	-	-40 ~ +125	°C
ESD Sensitivity (HBM)	V_B	2,000	V
Soldering Temperature	T_s	Reflow Soldering : 255~260°C/10~30sec Manual Soldering : 350°C/3sec	

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.

Characteristics

Parameter		Symbol	Value	Units
Viewing Angle	(Typ.)	$2\Theta_{1/2}$	120	Degree
Forward Voltage	(Typ.)	V_F	3.2	V
Thermal resistance		-	40	°C/W
Target Color coordinate	(2T01X1PX18000001) (2T01X1PX18000002)	-	X:0.384 ; Y:0.321 X:0.485 ; Y:0.352	-
JEDEC Moisture Sensitivity		-	Level 2a **Floor Life** Conditions: ≤30°C / 60% RH **Soak Requirements(Standard)** Time (hours): 120+1/-0 Conditions: 60°C / 60% RH	-

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

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Luminous Flux Characteristic

Luminous Flux Characteristics, I_F=30mA and T_J=25˚C

Color	Group	Min Luminous Flux(lm)	Max Luminous Flux(lm)	Forward Current(mA)	Order Code
Pink	07	7	8	30	2T01X1PX18000001 2T01X1PX18000002
	08	8	9		
	09	9	10		
	10	10	11		

Note:
The luminous flux performance is guaranteed within published operating conditions. Edison Opto maintains a tolerance of ±10% on flux measurements.

Voltage Bin Structure

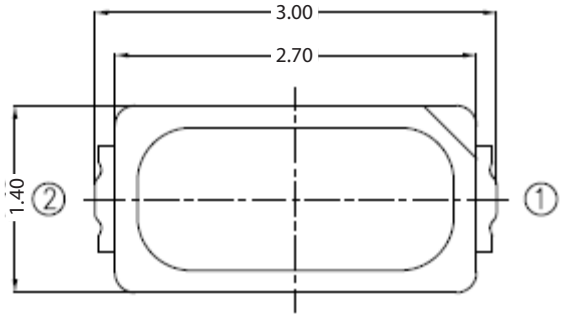
Group	Min. Voltage (V)	Max. Voltage (V)
VA1	2.8	2.9
VB1	2.9	3.0
VC1	3.0	3.1
VA2	3.1	3.2
VB2	3.2	3.3
VC2	3.3	3.4
VA3	3.4	3.5
VB3	3.5	3.6

Note:
Forward voltage measurement allowance is ± 0.06V.

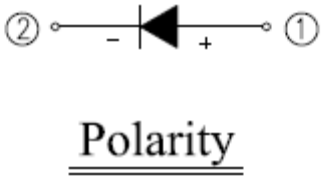
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Mechanical Dimensions

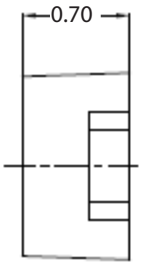
Emitter Type Dimension



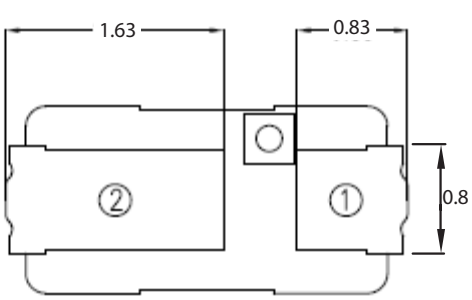
Circuit

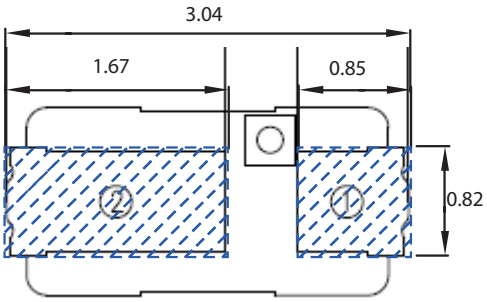






Solder Pad



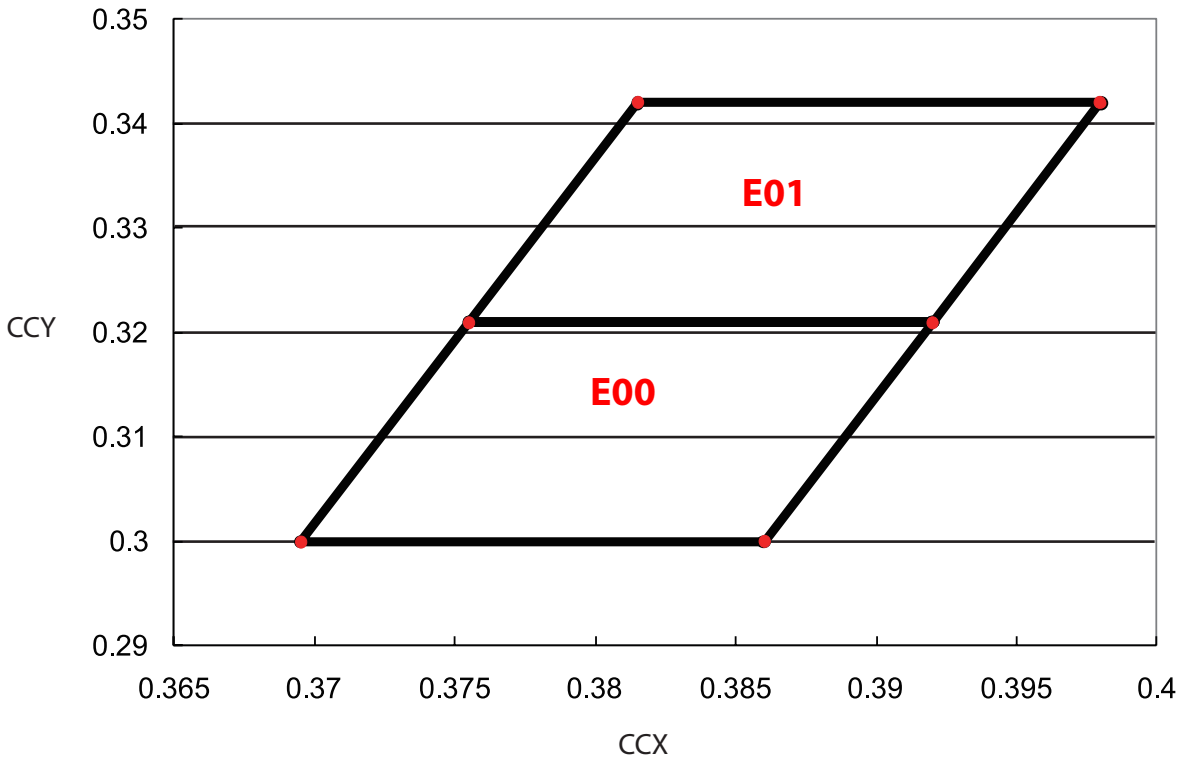


Notes:
1. All dimensions are measured in mm.
2. Tolerance : ± 0.20 mm

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Color Bins

2T01X1PX18000001



Color bin structure

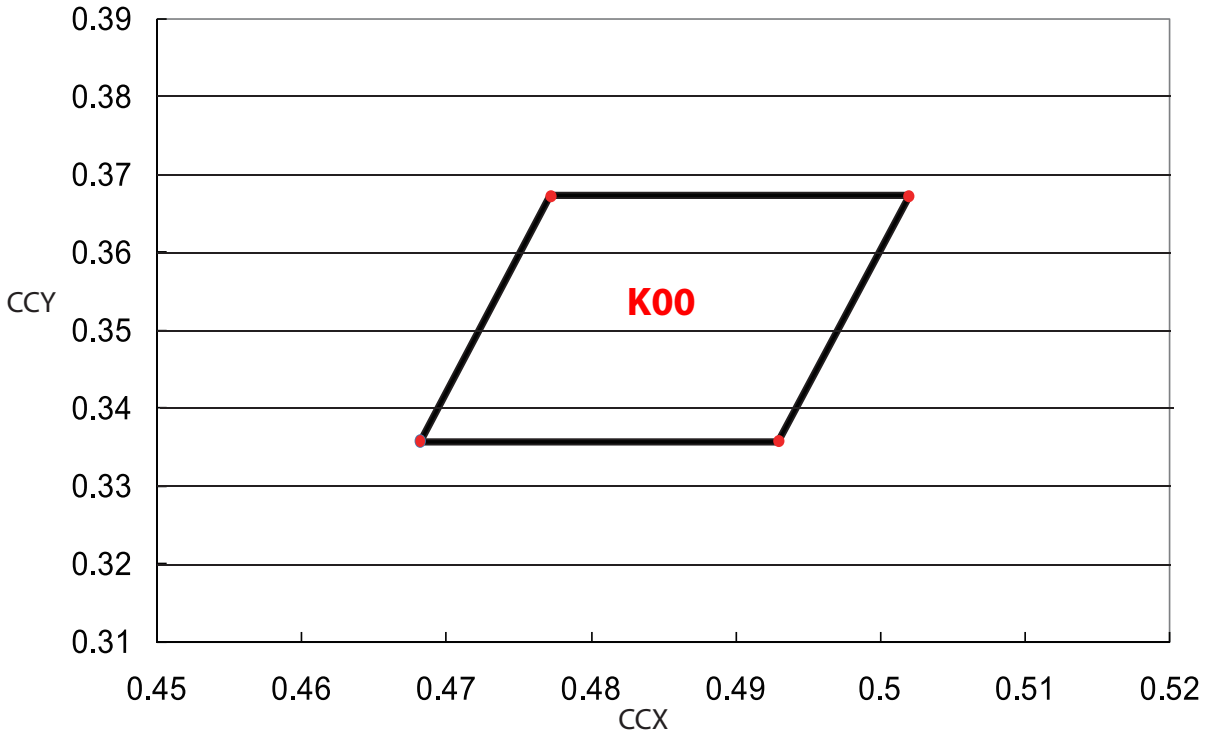
PINK Bin Coordinate

Group	CIE_X	CIE_Y
E00	0.3755	0.3210
	0.3920	0.3210
	0.3695	0.3000
	0.3860	0.3000
E01	0.3755	0.3210
	0.3815	0.3420
	0.3980	0.3420
	0.3920	0.3210

Note:
CIE_x/y tolerance: ±0.005

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2T01X1PX18000002



Color bin structure

PINK Bin Coordinate

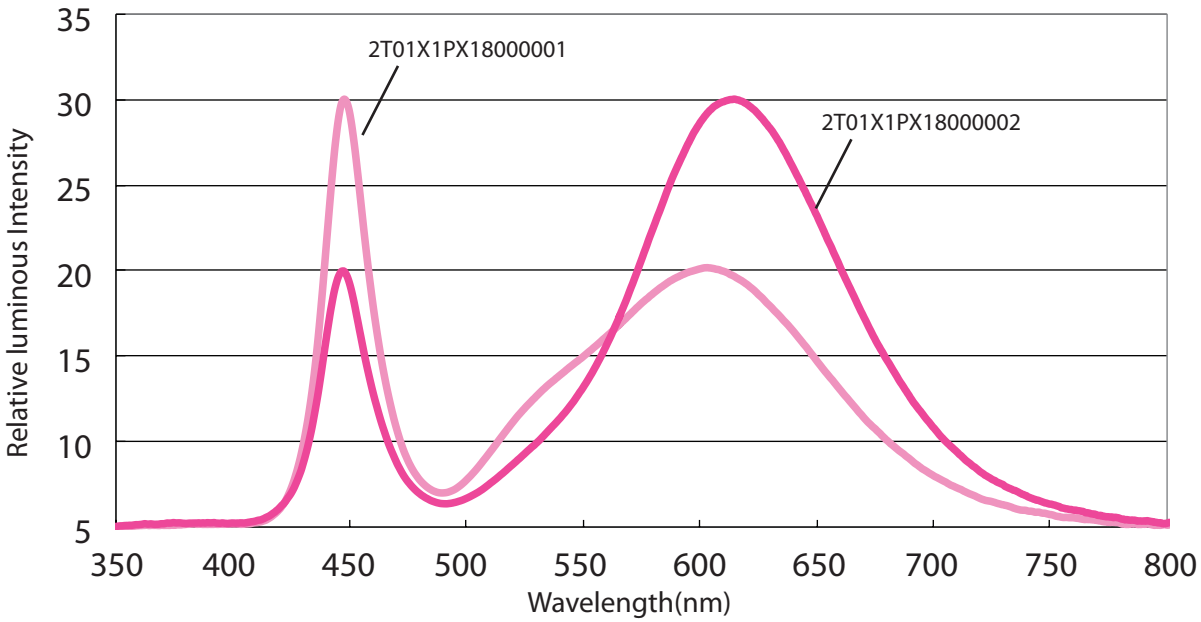
Group	CIE_X	CIE_Y
K00	0.4682	0.3357
	0.4772	0.3672
	0.5020	0.3672
	04930	0.3357

Note:
CIE_x/y tolerance: ±0.005

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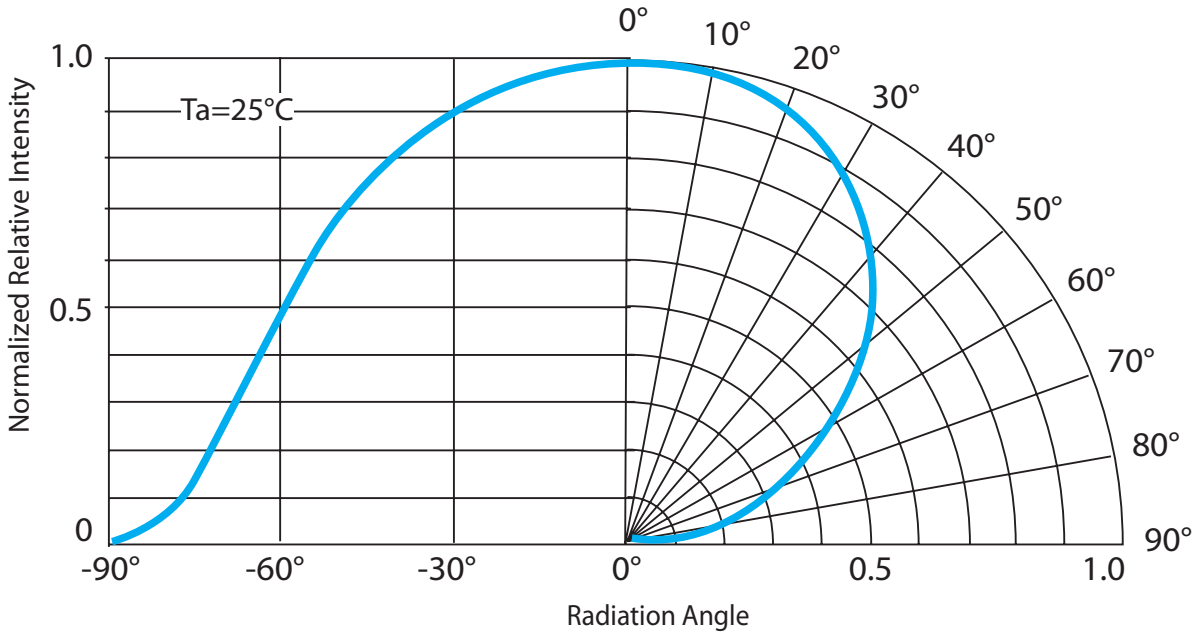
Characteristic curve

Color Spectrum



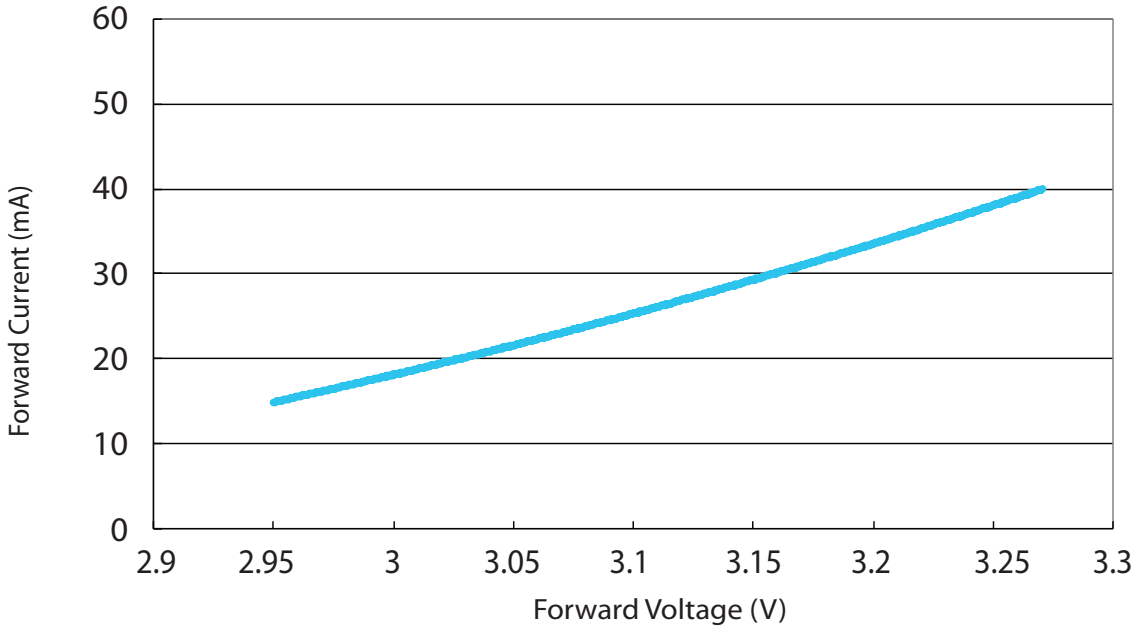
Color Spectrum at a typical CCT for PLCC 33014 0.1W PINK

Beam Pattern



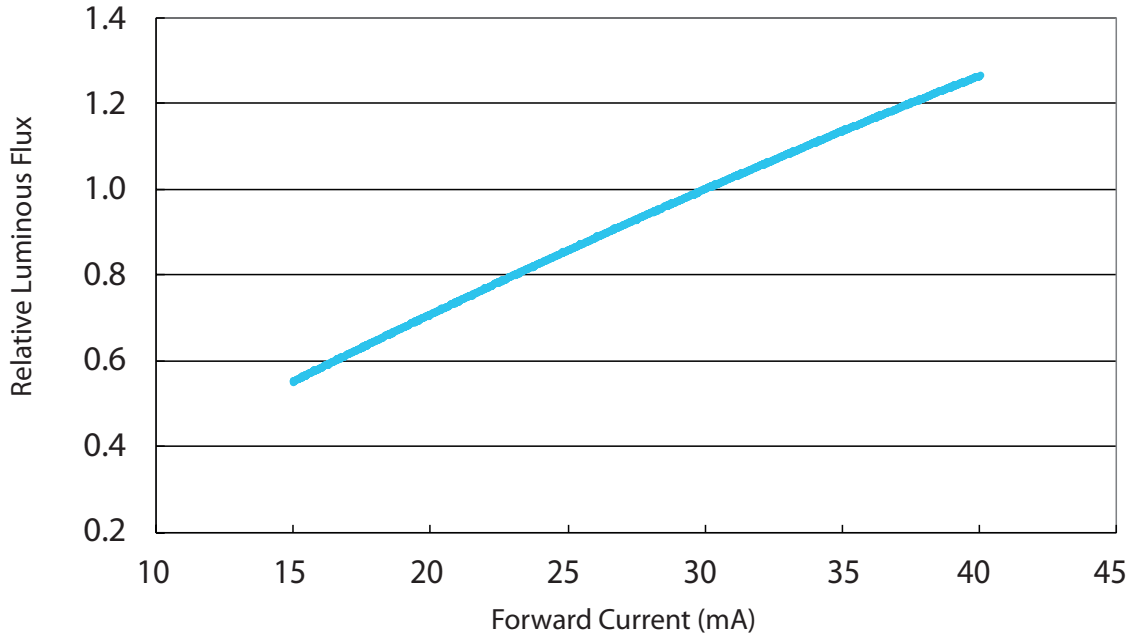
Beam pattern diagram for PLCC series

Forward Current vs. Forward Voltage



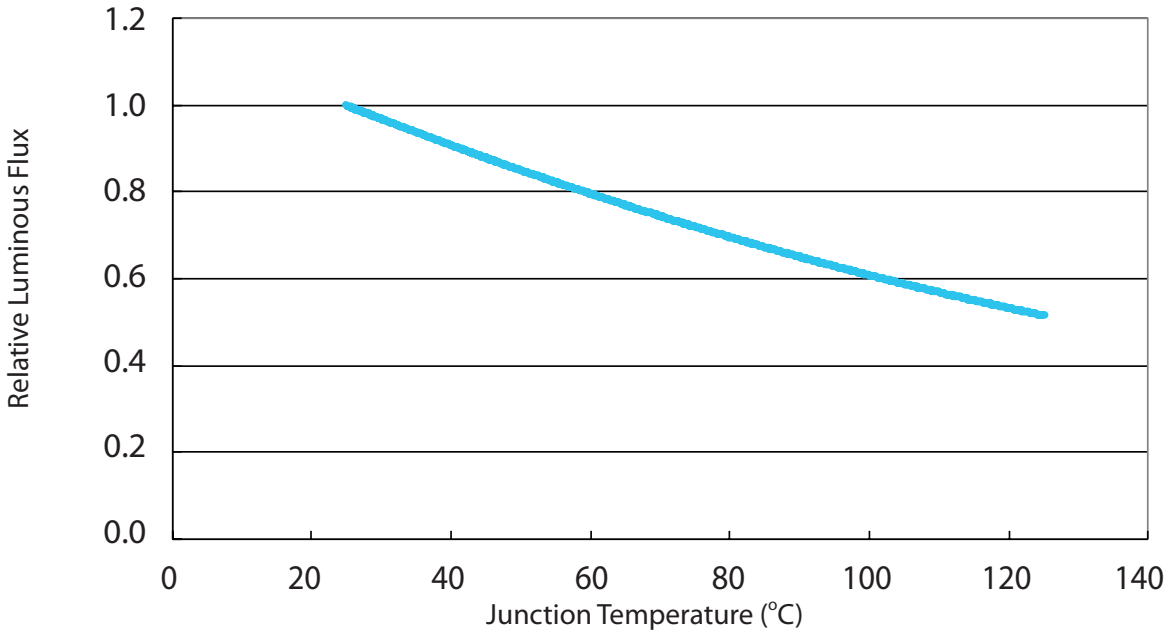
Forward Current vs. Forward Voltagefor PLCC 3014 0.1W PINK

Relative Luminous Flux vs. Forward Current



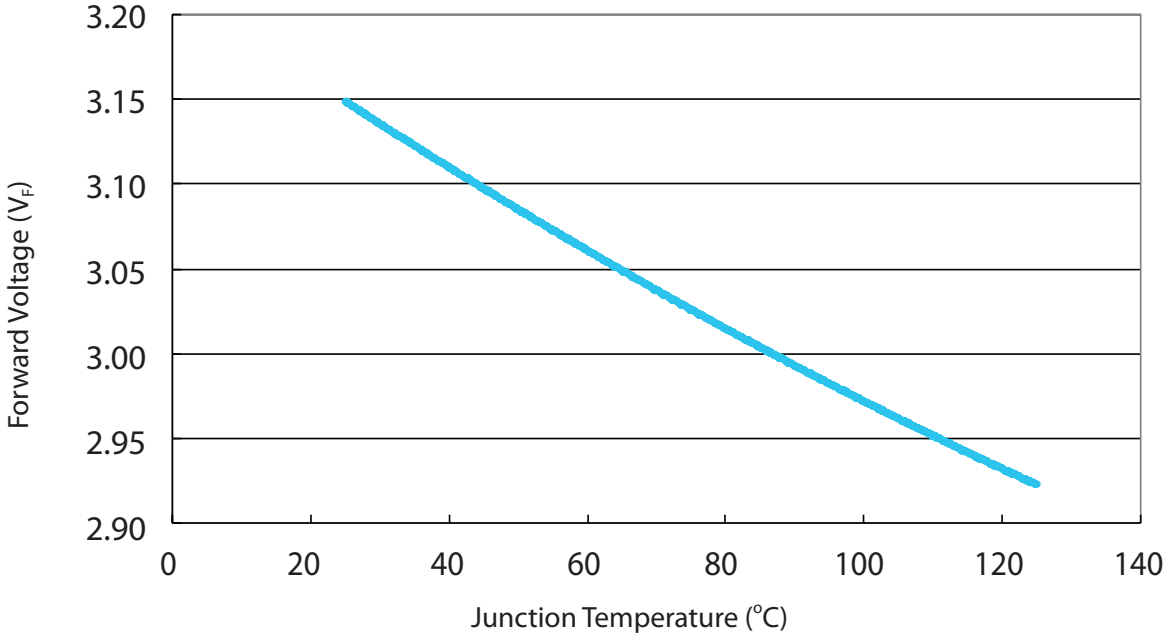
Relative Luminous Flux vs. Forward Current for PLCC 3014 0.1W PINK

Relative Luminous Flux vs. Junction Temperature



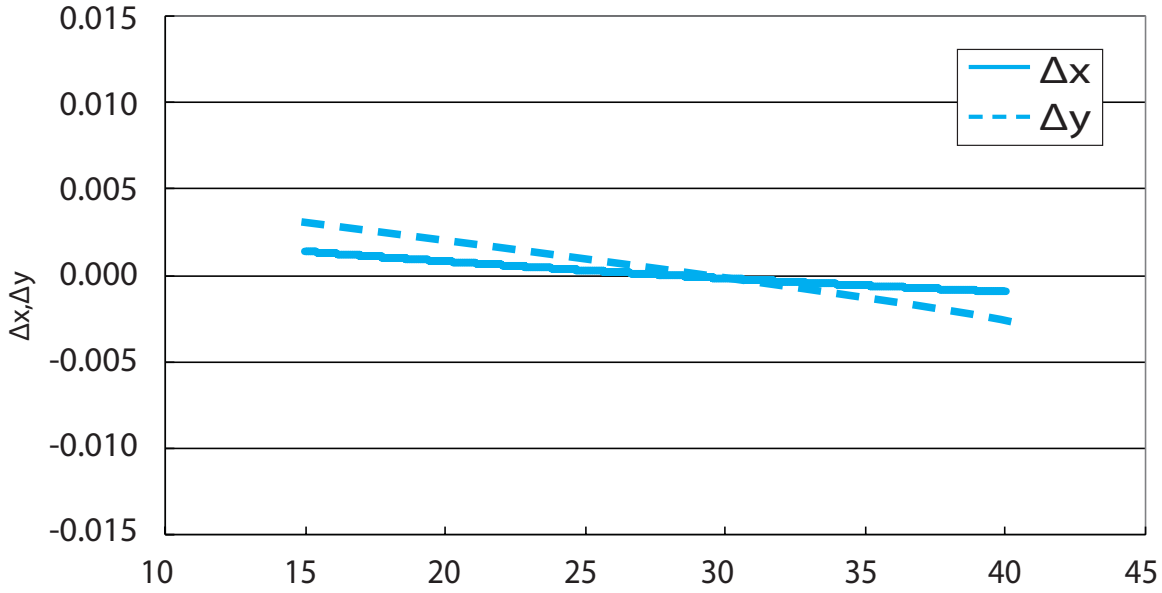
Relative Luminous Flux vs. junction temperature for PLCC 3014 0.1W PINK

Forward Voltage vs. Junction Temperature



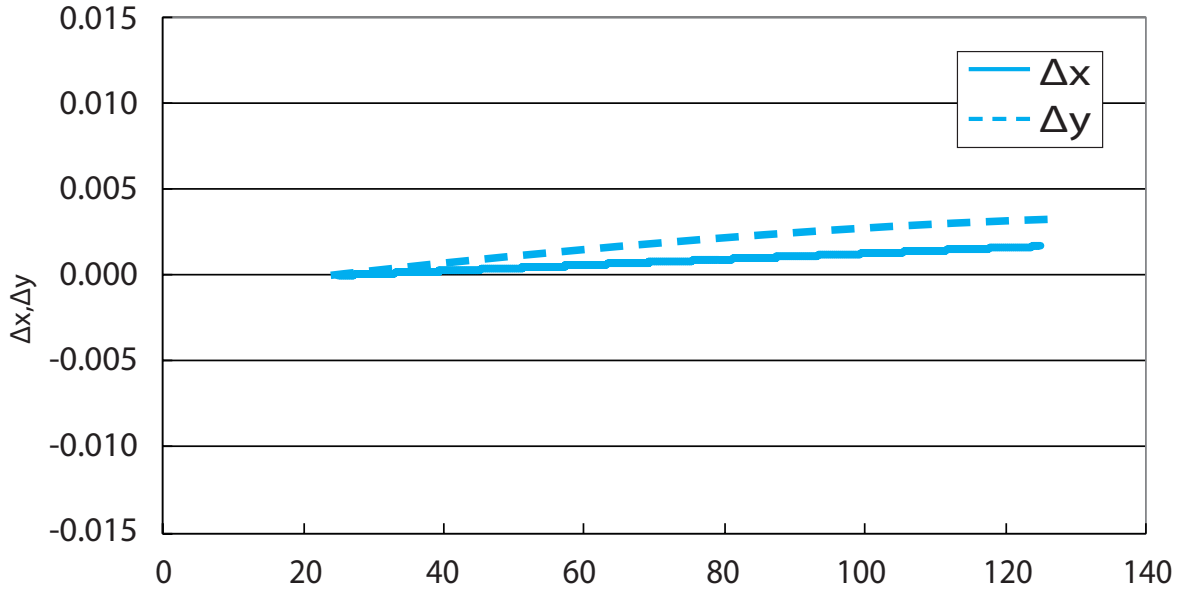
Forward voltage vs. junction temperature for PLCC 3014 0.1W PINK

Δx,Δy vs. Forward Current



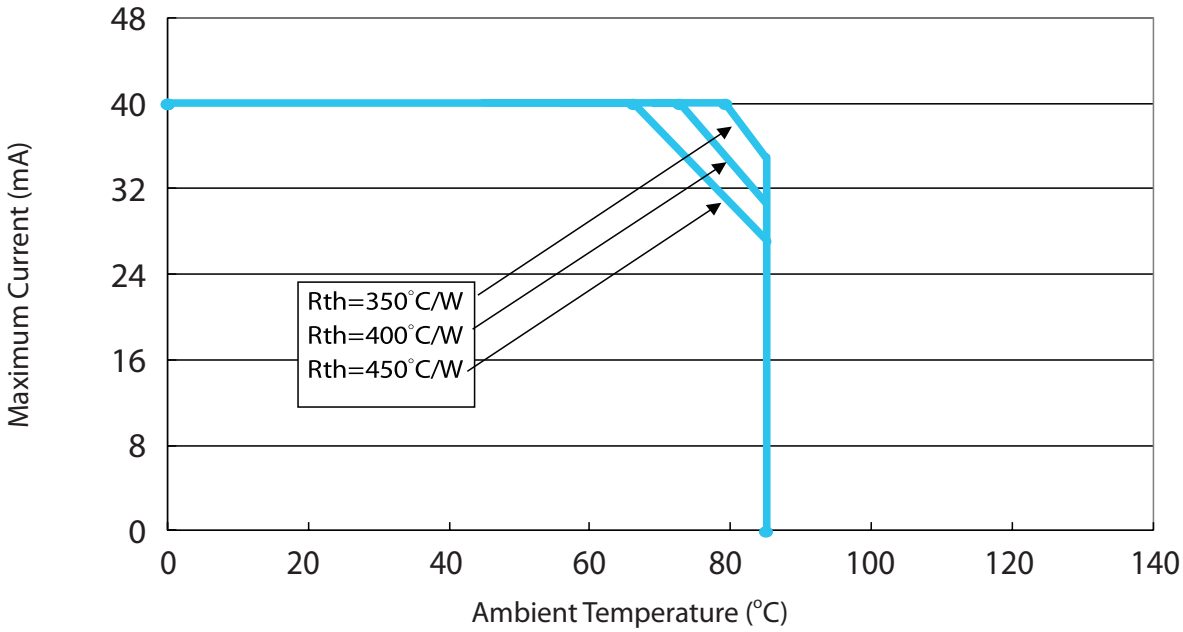
Δx,Δy vs. Forward Current for PLCC 3014 0.1W PINK

Δx,Δy vs. Junction Temperature



Δx,Δy vs. junction temperature for PLCC 3014 0.1W PINK

Maximum Current vs. Ambient Temperature

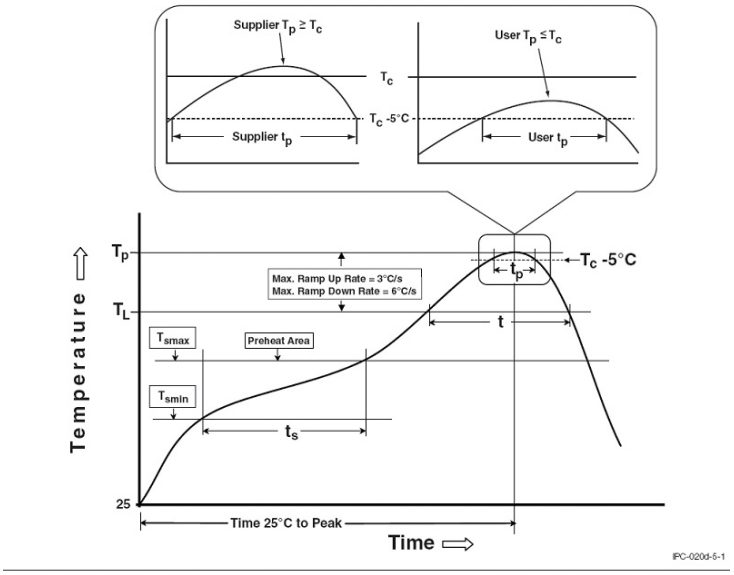


Maximum Current vs. Ambient Temperature for PLCC 3014 0.1W PINK

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Reflow Profile

The following reflow profile is from IPC/JEDEC J-STD-020D which provided here for reference.



Reflow Profiles

Classification Reflow Profiles

Profile Feature	Pb-Free Assembly
Preheat & Soak Temperature min (Tsmin) Temperature max (Tsmax) Time (Tsmin to Tsmax) (ts)	150 °C 200 °C 60-120 seconds
Average ramp-up rate (Tsmax to Tp)	3 °C/second max.
Liquidous temperature (TL) Time at liquidous (tL)	217 °C 60-150 seconds
Peak package body temperature (Tp)*	255 °C ~260 °C *
Classification temperature (Tc)	260 °C
Time (tp)** within 5 °C of the specified classification temperature (Tc)	30** seconds
Average ramp-down rate (Tp to Tsmax)	6°C/second max.
Time 25°C to peak temperature	8 minutes max.

Notes:
1. * Tolerance for peak profile temperature (Tp) is defined as a supplier minimum and a user maximum.
2. ** Tolerance for time at peak profile temperature (tp) is defined as a supplier minimum and a user maximum.

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Reliability

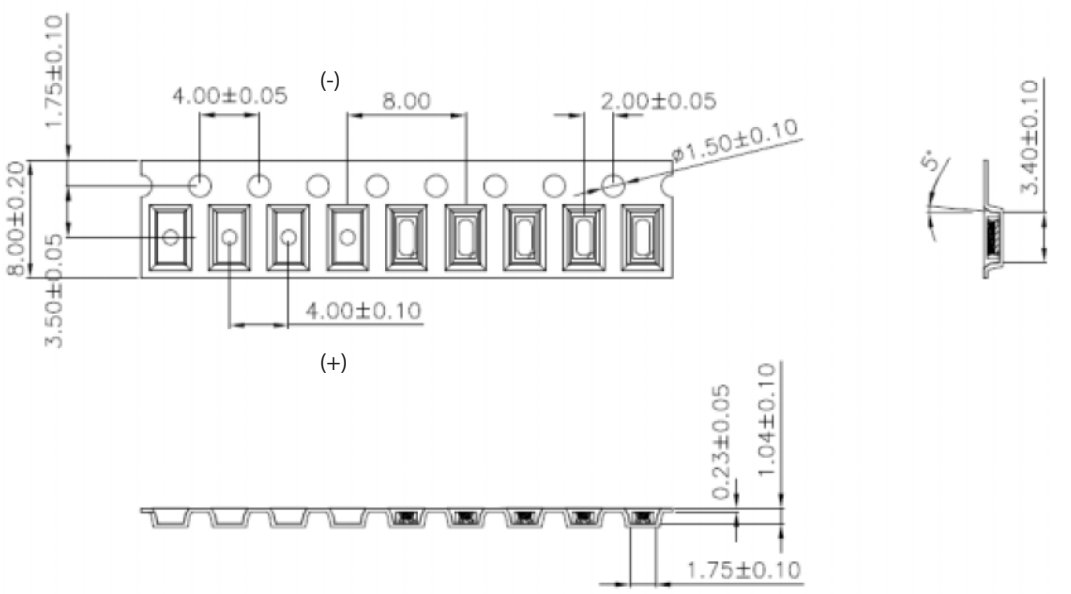
NO .	Test Item	Test Condition	Remark
1	Temperature Cycle	-40°C~100°C 30, 30, mins	100 Cycle
2	Thermal Shock	-40°C~100°C 15, 15 mins ≦10 sec	100 Cycle
3	Resistance to Soldering Heat	T_{SOL}=260°C, 30 sec	3 times
4	Moisture Resistance	25°C~65°C 90% RH 24 hrs / 1 cycle	10 Cycle
5	High-Temperature Storage	T_A=100°C	1,000 hrs
6	Humidity Heat Storage	T_A=85°C RH=85%	1,000 hrs
7	Low-Temperature Storage	T_A=-40°C	1,000 hrs
8	Operation Life test	25°C	1,000 hrs
9	High Temperature Operation Life test	85°C	1,000 hrs
10	High Humidity Heat Life Test	85°C, 85%RH	1,000 hrs
11	ON/OFF Test	30 sec ON, 30 sec OFF	1.5W times

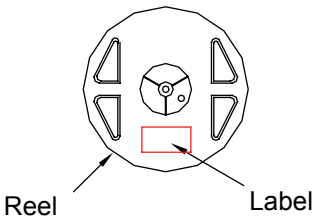
Failure Criteria

Item	Criteria for Judgment	
	Min.	Max.
Lumen Maintenance	85%	-
Δu'v'	-	0.006
Forward Voltage	-	Initial Data x 1.1
Reverse Current	-	10 μA
Resistance to Soldering Heat	No dead lamps or visual damage	

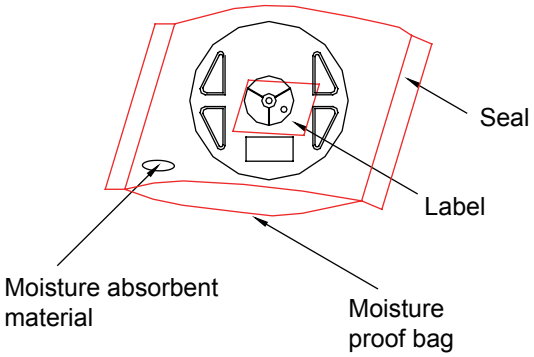
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Product Packaging Information





Taping reel dimensions



Package & Label

Item	Quantity	Total	Dimensions(mm)
Reel	4,000pcs	4,000pcs	R=178
Carton	50 reels	200,000pcs	353*254*256
Starting with 50pcs empty, and 50pcs empty at the last			

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Revision History

Versions	Description	Release Date
1	Establish order code information	2013/01/11
2	1. Add the Color BIN&Reliability 2. Add Order Code 3. Revise Emitter dimension & Characteristic curve 4. Update the name of datasheet 5. Revise Luminous flux characteristic	2014/05/19
3	1. Add JEDEC Moisture Sensitivity 2. Update Luminous flux characteristic	2014/05/23
4	Revise Reliability	2014/08/22
5	Add CIE_x/y tolerance	2015/01/09

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