

PLCC Series

3528 0.06W PINK

Datasheet



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 building.

Description :

- Best luminous and color uniformity.
- Enables halogen and CDM replacement.
- The article itself presents the actual color.

Feature and Benefits :

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

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General Information

Ordering Code Format

<u>2</u>	<u>T</u>	<u>03</u>	<u>Y6</u>	<u>PX</u>	<u>xx</u>	<u>000</u>	<u>xxx</u>
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	03	3528	Y6	0.06W	PX	Pink

X9-X10		X11-X13		X14-X16	
Internal code		PCB Board		Serial Number	
18	-	000	-	-	-

Absolute Maximum Ratings

Absolute maximum ratings ($T_a=25^{\circ}\text{C}$)

Parameter	Symbol	Value	Units
Forward Current	I_F	30	mA
Pulse Forward Current ($t_p \leq 100\mu\text{s}$, Duty cycle=0.25)	I_{pulse}	100	mA
Reverse Current	I_R	10	μA
Reverse Voltage	V_R	5	V
LED Junction Temperature	T_J	115	$^{\circ}\text{C}$
Operating Temperature	-	$-40 \sim +85$	$^{\circ}\text{C}$
Storage Temperature	-	$-40 \sim +125$	$^{\circ}\text{C}$
ESD Sensitivity (HBM)	V_B	2,000	V
Soldering Temperature	T_s	Reflow Soldering : $255 \sim 260^{\circ}\text{C}/10 \sim 30\text{sec}$ Manual Soldering : $350^{\circ}\text{C}/3\text{sec}$	

Notes:

- Proper current derating must be observed to maintain junction temperature below the maximum at all time.
- 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	3.4	V
Thermal resistance	-	40	$^{\circ}\text{C}/\text{W}$
CRI	-	80	-
Target Color coordinate (X)	-	0.384	-
(Y)	-	0.321	-
JEDEC Moisture Sensitivity	-	Level 2a Floor Life Conditions: $\leq 30^{\circ}\text{C}$ / 60% RH Soak Requirements(Standard) Time (hours): $120 \pm 1/-0$ Conditions: 60°C / 60% RH	-

Notes:

- $2\theta_{1/2}$ is the off-axis angle where the luminous intensity is half of the axial luminous intensity.
- Color Rendering index CRI tolerance: ± 2 .

Luminous Flux Characteristic

Luminous Flux Characteristics, $I_f=20\text{mA}$ and $T_j=25^\circ\text{C}$

Color	Group	Min. Luminous Flux(lm)	Max. Luminous Flux(lm)	Forward Current(mA)	Order Code
Pink	20	5.6	5.8	20	2T03Y6PX18000001
	21	5.8	6.1		
	22	6.1	6.4		
	23	6.4	6.7		
	24	6.7	7.0		
	25	7.0	7.3		
Deep Pink	26	7.3	7.5	20	2T03Y6PX18000002
	20	5.6	5.8		
	21	5.8	6.1		
	22	6.1	6.4		
	23	6.4	6.7		

Note:

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

Voltage Bin Structure

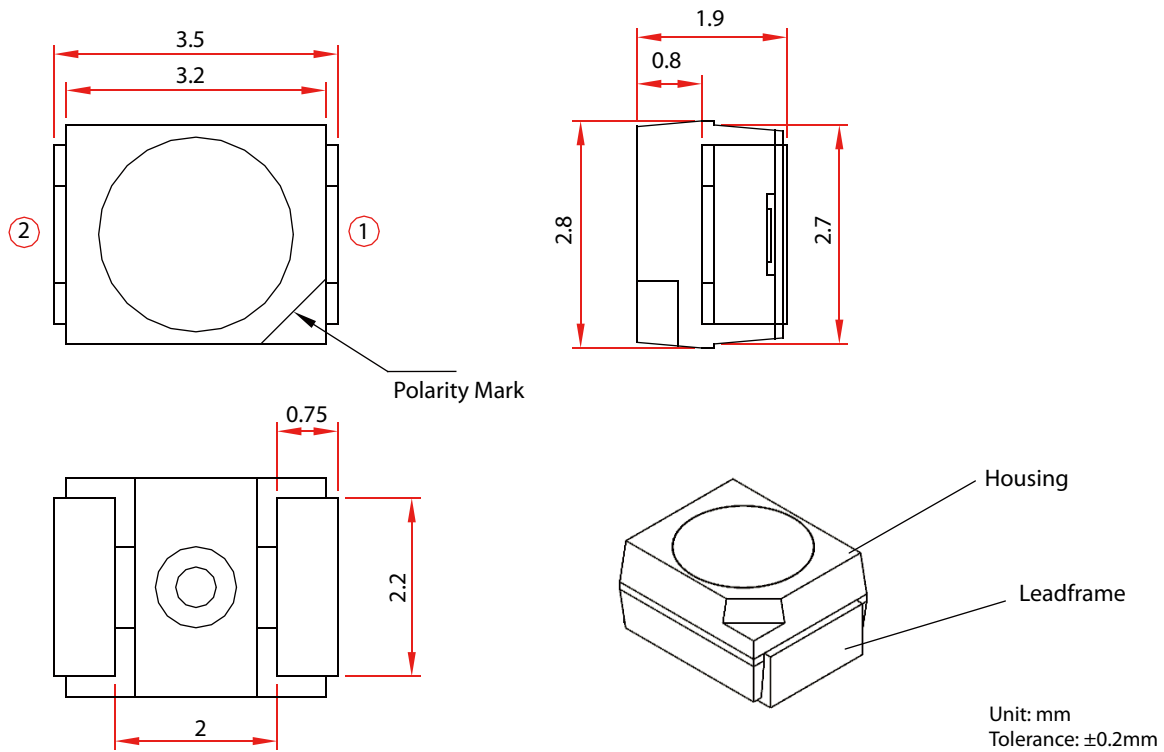
Group	Min. Voltage (V)	Max. Voltage (V)
VA1	2.8	2.9
VB1	2.9	3.0
VC1	3.0	3.1
VA2	3.1	3.2
VB2	3.2	3.3
VC2	3.3	3.4

Note:

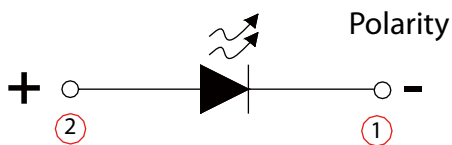
Forward voltage measurement allowance is $\pm 0.06\text{V}$.

Mechanical Dimensions

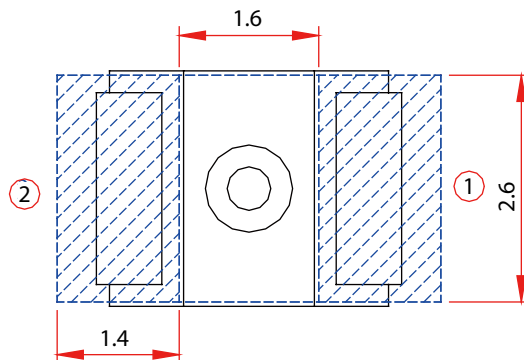
Emitter Type Dimension



Circuit



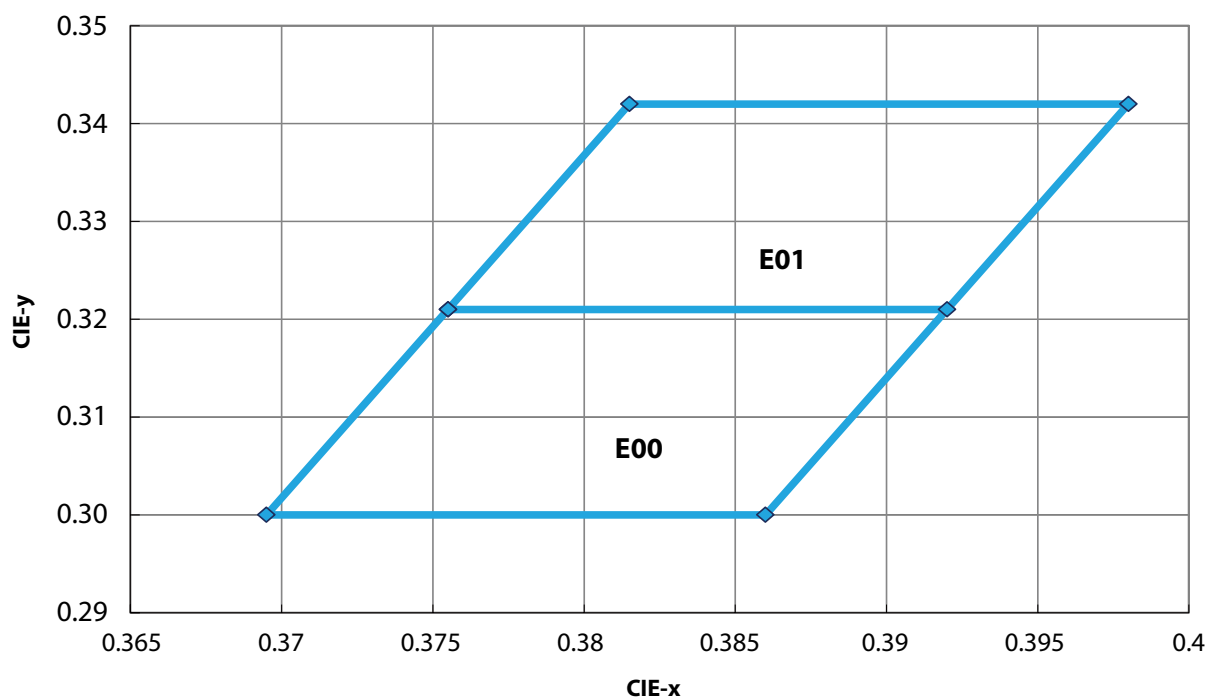
Solder Pad



Notes:

1. All dimensions are measured in mm.
2. Tolerance : $\pm 0.20\text{ mm}$

Color BIN code (Pink)



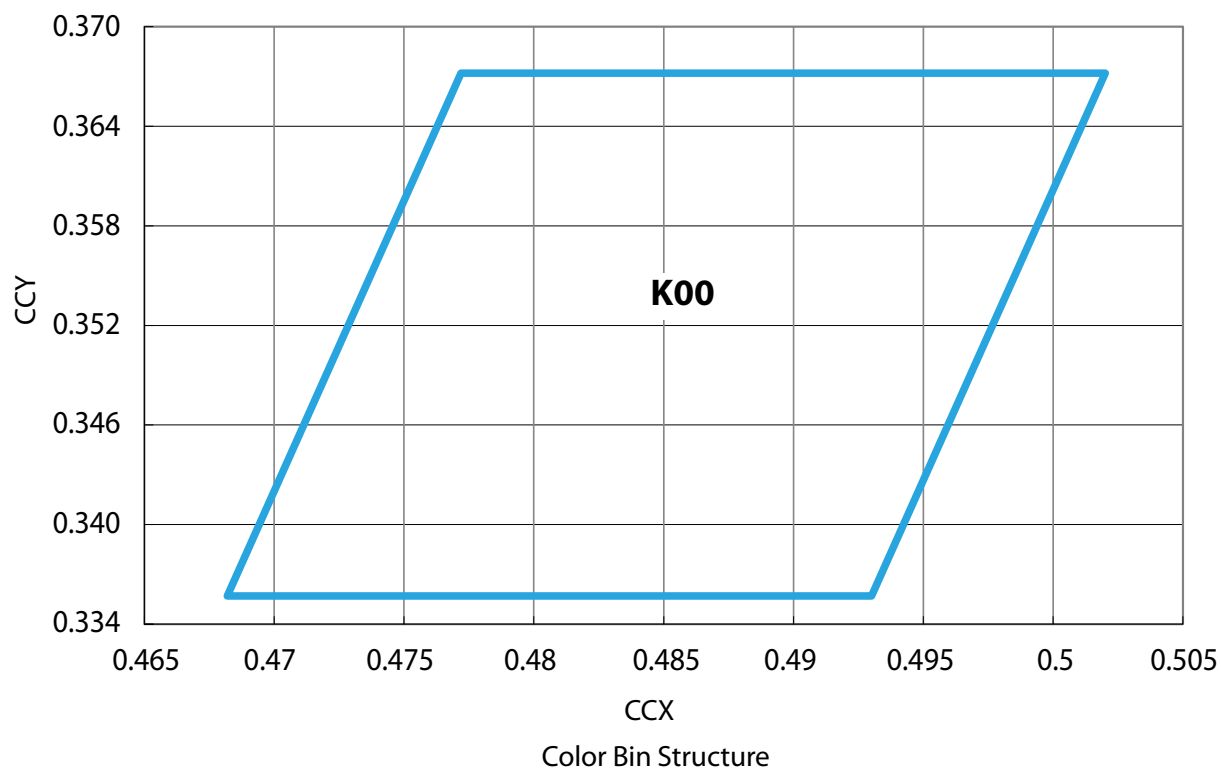
Color Bin Structure

Pink Bin Coordinate

E00		E01	
X	Y	X	Y
0.3755	0.3210	0.3755	0.321
0.3920	0.3210	0.3815	0.342
0.3695	0.3000	0.3980	0.3420
0.3860	0.3000	0.3920	0.3210

Note:
CIE_x/y tolerance: ± 0.005

Color BIN code (Deep Pink)



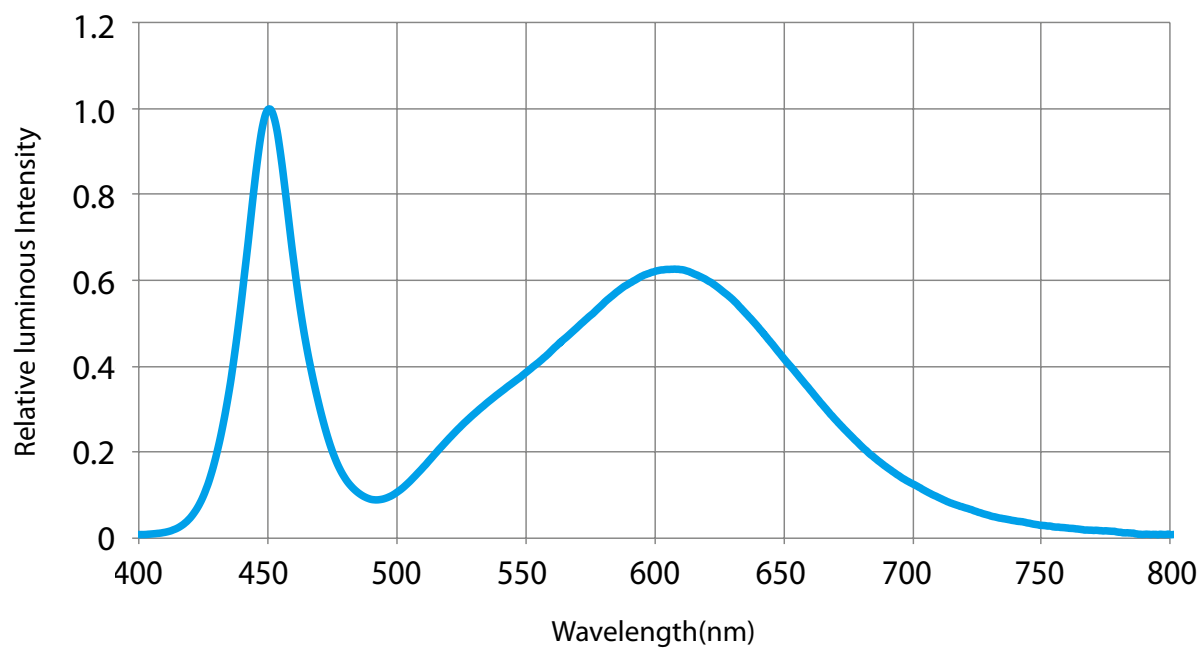
Deep Pink Bin Coordinate

K00	
X	Y
0.4682	0.3357
0.4772	0.3672
0.5020	0.3672
0.4930	0.3357

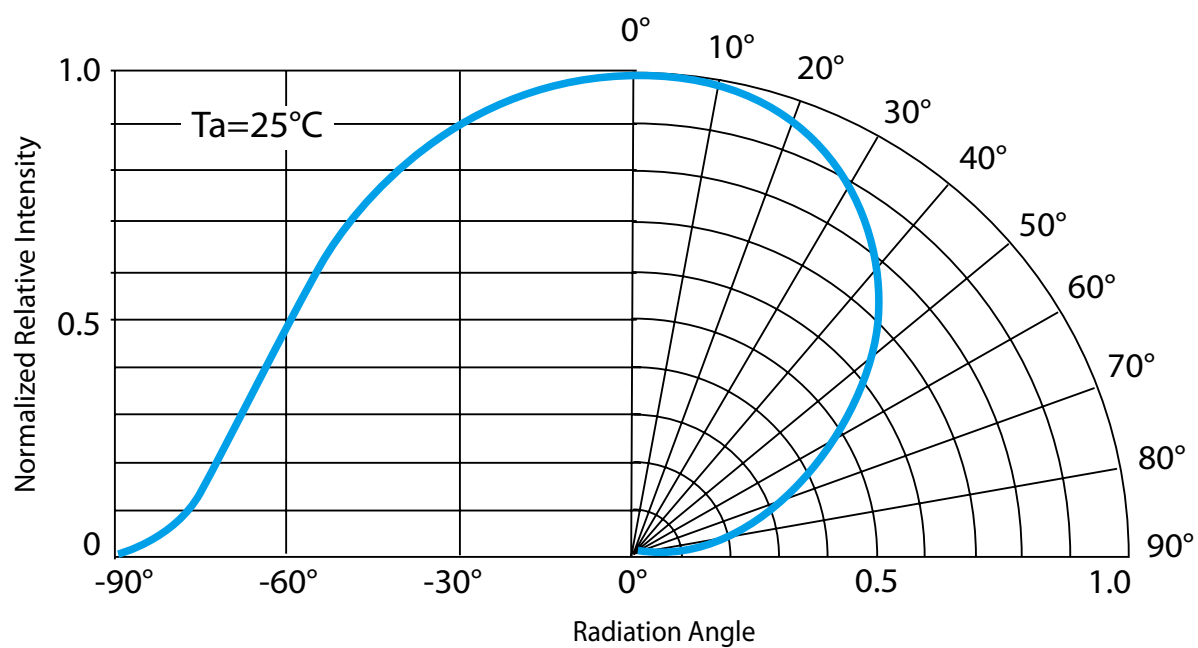
Note:
CIE_x/y tolerance: ± 0.005

Characteristic Curve

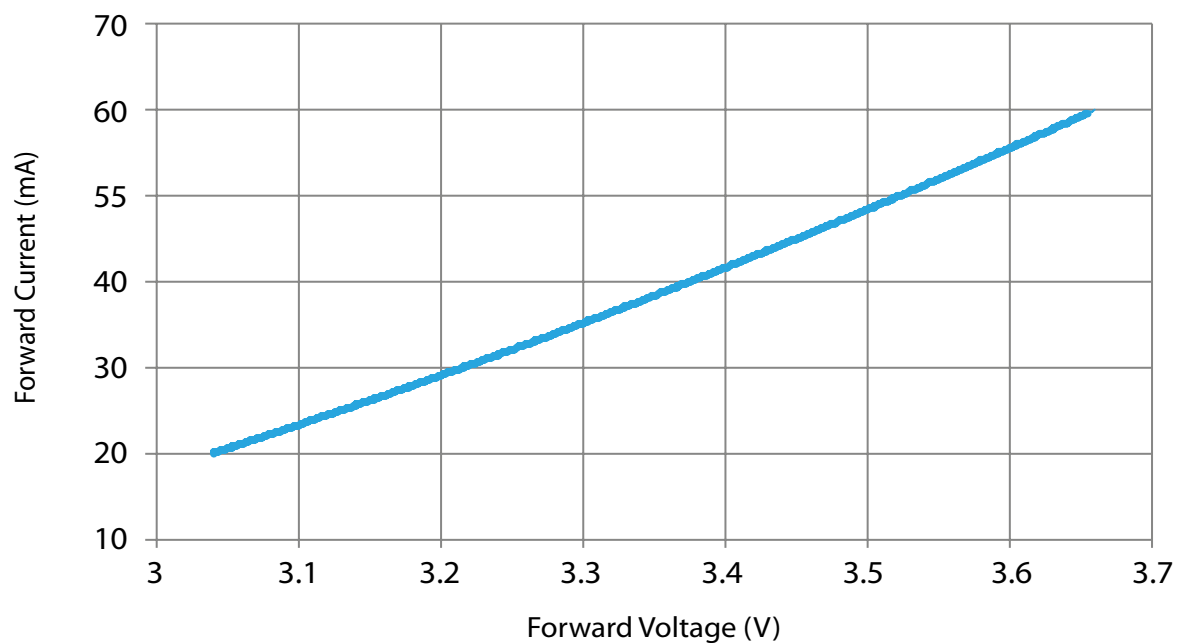
Color Spectrum



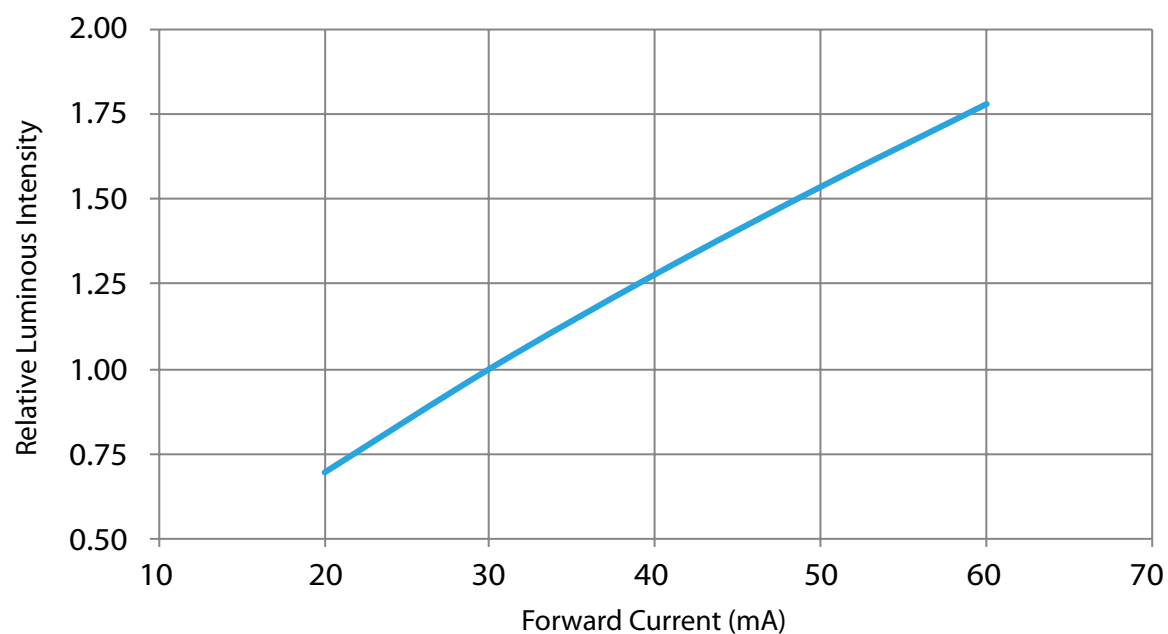
Beam Pattern



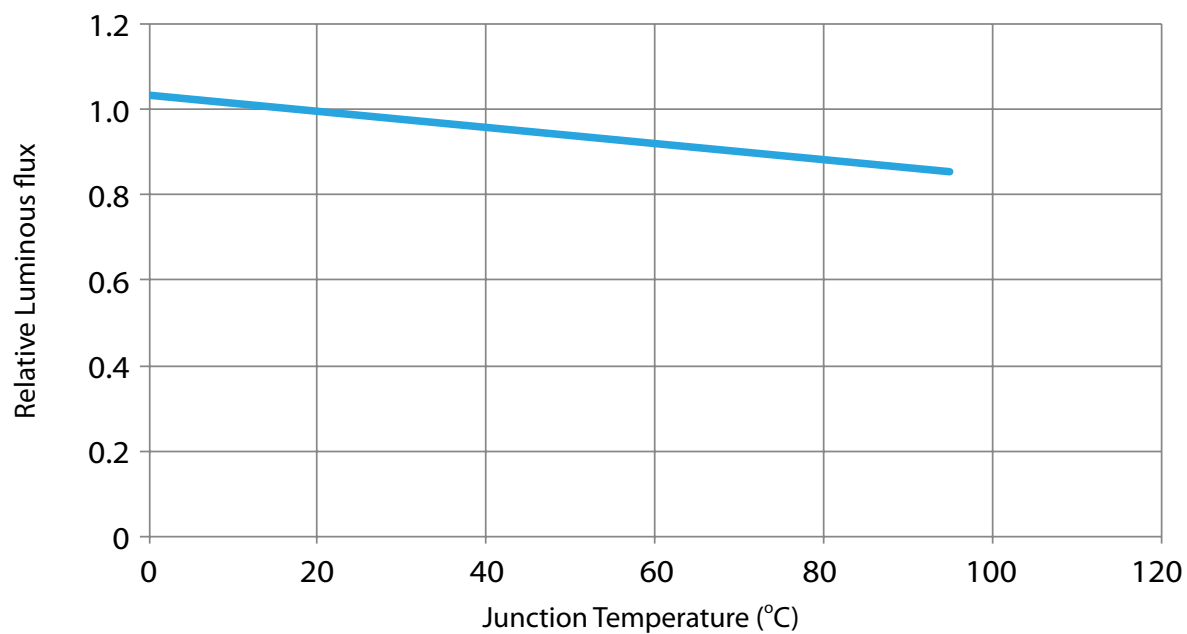
Forward Current vs. Forward Voltage



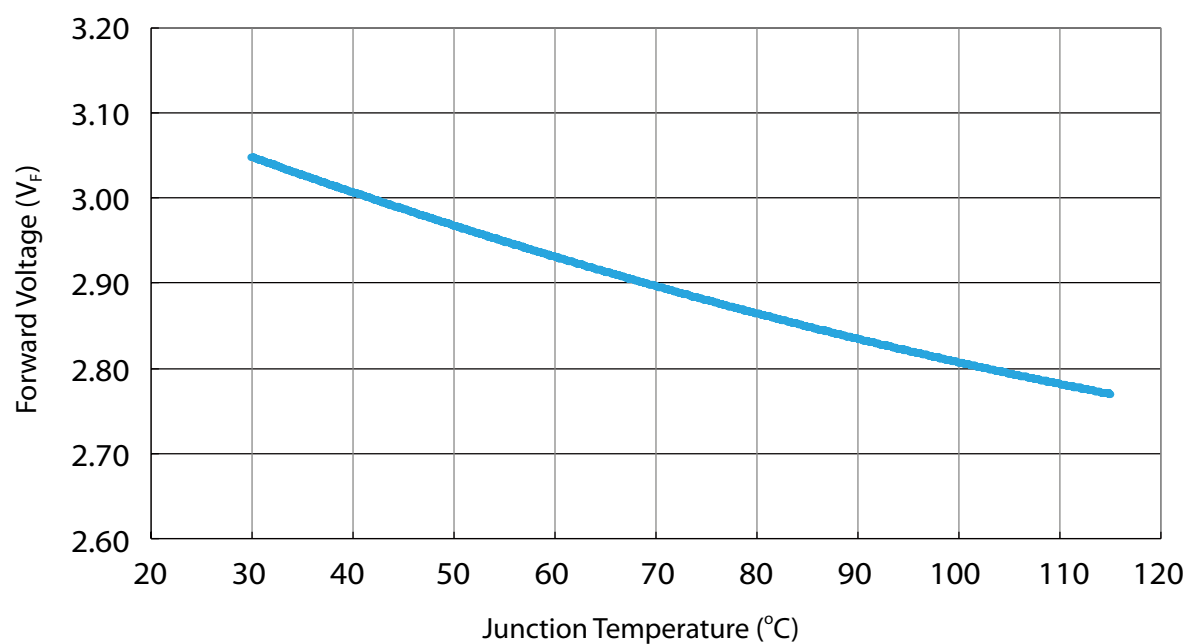
Relative Luminous Intensity vs. Forward Current



Relative Luminous Flux vs. Junction Temperature

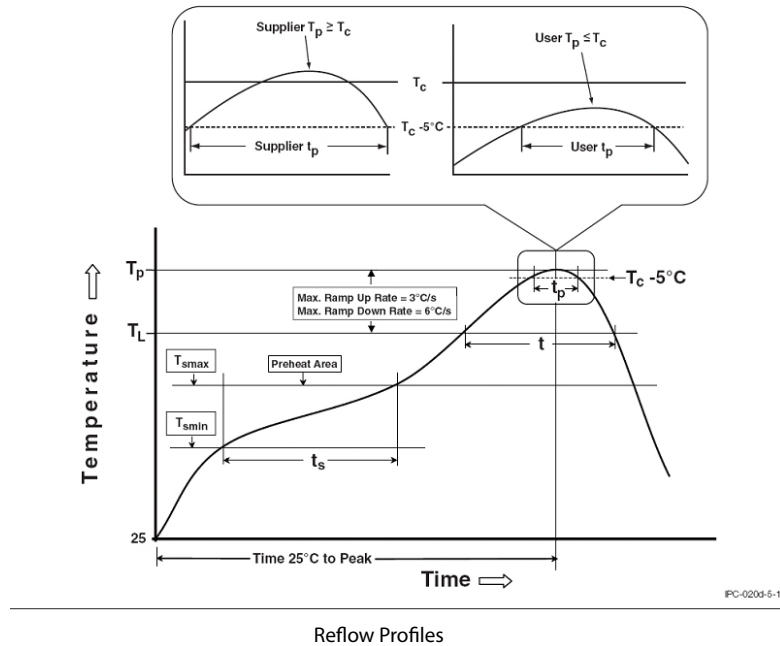


Forward Voltage vs. Junction Temperature



Reflow Profile

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



Classification Reflow Profiles

Profile Feature	Pb-Free Assembly
Preheat & Soak	150 °C
Temperature min (T _{smin})	200 °C
Temperature max (T _{smax})	60-120 seconds
Time (T _{smin} to T _{smax}) (t _s)	
Average ramp-up rate (T _{smax} to T _p)	3 °C/second max.
Liquidous temperature (T _L)	217 °C
Time at liquidous (t _L)	60-150 seconds
Peak package body temperature (T _p)*	255 °C ~260 °C *
Classification temperature (T _c)	260 °C
Time (t _p)** within 5 °C of the specified classification temperature (T _c)	30** seconds
Average ramp-down rate (T _p to T _{smax})	6°C/second max.
Time 25°C to peak temperature	8 minutes max.

Notes:

- * Tolerance for peak profile temperature (T_p) is defined as a supplier minimum and a user maximum.
- ** Tolerance for time at peak profile temperature (t_p) is defined as a supplier minimum and a user maximum.

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

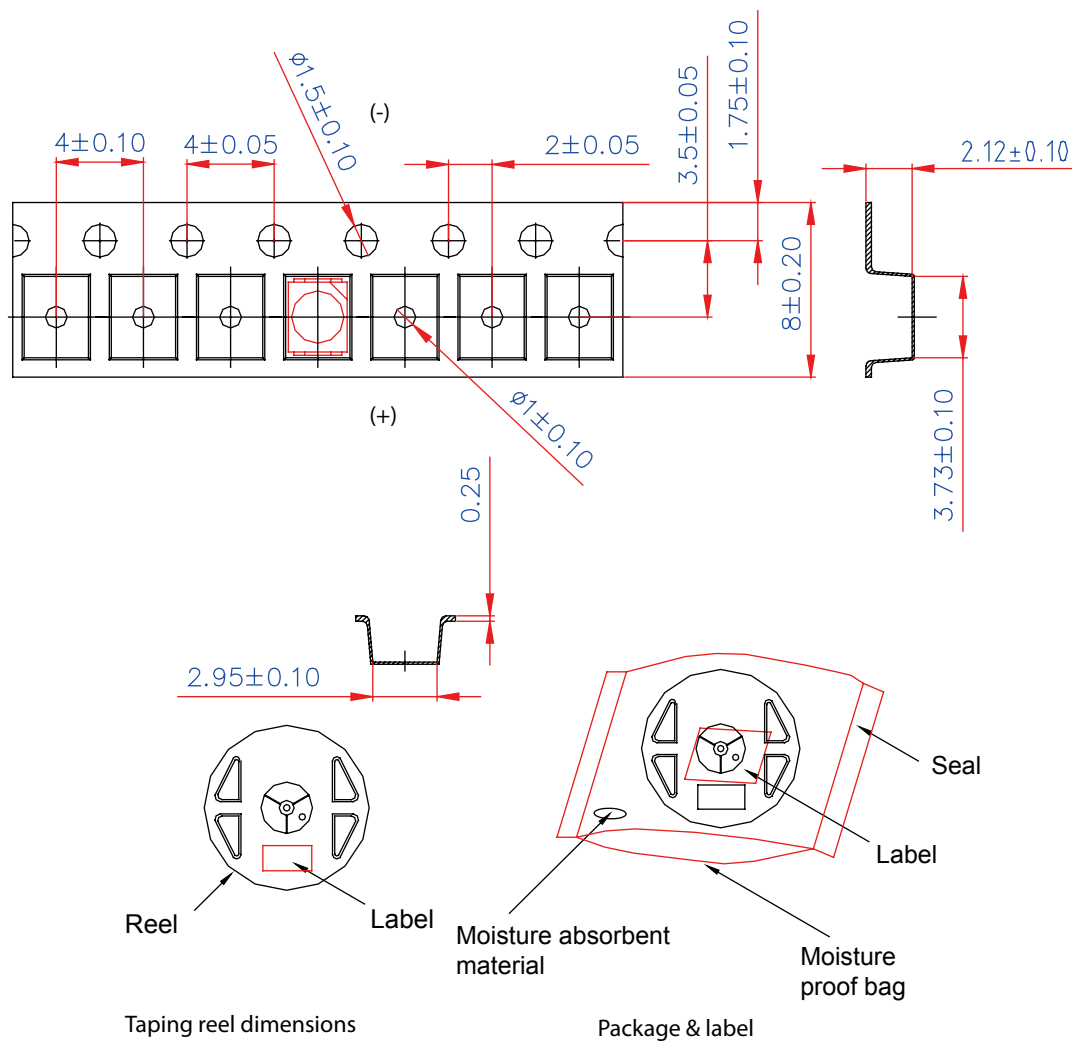
Failure Criteria

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

Cautions

LED avoids being stored and lighted in the environment containing sulfur. Some materials, such as seals, printing ink, enclosure and adhesives, may contain sulfur, avoiding the exposure in acid or halogen environment.

Product Packaging Information



Item	Quantity	Total	Dimensions(mm)
Reel	2,000pcs	2,000pcs	R=178
Box	5 Reels	10,000pcs	240*235*67
Carton	5 boxes	50,000pcs	353*254*256
Starting with 50pcs empty,and 50pcs empty at the last			

Revision History

Versions	Description	Release Date
1	Establish order code information	2016/03/15
2	1. Add Pink information 2. Update Color BIN Code	2016/08/19
3	Add the cautions of reliability	2017/06/22

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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