EDISON
Lighting Design Manufacturing Service

PLCC Series

ET-3528 0.06W White 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
- Backlighting (illuminated advertising, general lighting)
- Interior Automotive 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 lighting for building.

Ordering Code Format

2	T	x x	x x	x 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	01	1W	CW	Cool White
				03	3528	X1	0.1W	NW	Neutral White
				04	5050	X2	0.2W	WW	Warm White
				05	5630	X5	0.5W	RX	Red
						Y6	0.06W	TX	True Green
								BX	Blue
								AX	Amber
								YX	Yellow
								OX	Red Orange
								M1	RGB

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

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Absolute Maximum Ratings

Parameter	Symbol	Value	Units
DC Forward Current	I_F	30	mA
Pulse Forward Current (tp≤100μs, Duty cycle=0.25)	I_{pulse}	100	mA
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	V_B	2,000	V
Soldering Temperature	T_s	Reflow Soldering : 255~260°C/10~30sec Manual Soldering : 350°C/3sec	

Absolute maximum ratings (T_a=25°C)
Notes:
1. The values are based on 1-die performance.
2.* I_{Pulse} condition: pulse width ≤0.1msec and duty ≤1/10.

Characteristics

Parameter		Symbol	Value	Units
Viewing Angle	(Typ.)	$2\Theta_{1/2}$	120	Degree
Forward voltage	(Typ.)	V_F	3.2	V
Thermal resistance		-	180	°C/W
CRI	(Typ.)	-	CW-70 NW-75 WW-80	-
CCT/Wavelength	(Cool White) (Neutral White) (Warm White)	-	5000-10000 3800-5000 2670-3800	K

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

Luminous Flux Characteristic

Luminous Flux Characteristics, I_F=20mA and T_J=25˚C

Color	Group	Min Luminous Flux(lm)	Max Luminous Flux(lm)	Typ. Luminous Intensity (mcd)	Forward Current(mA)	Order Code
Cool White	23	6.4	6.7	2,600	20	2T03Y6CW06000001
	24	6.7	7.0			
	25	7.0	7.3			
	26	7.3	7.5			
	27	7.5	7.8			
	28	7.8	8.1			
	29	8.1	8.7			
Neutral White	22	6.1	6.4	2,500	20	2T03Y6NW01000001
	23	6.4	6.7			
	24	6.7	7.0			
	25	7.0	7.3			
	26	7.3	7.5			
	27	7.5	7.8			
	28	7.8	8.1			
	29	8.1	8.7			
Warm White	19	5.3	5.6	2,100	20	2T03Y6WW01000001
	20	5.6	5.8			
	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			

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 ± 0.1V.

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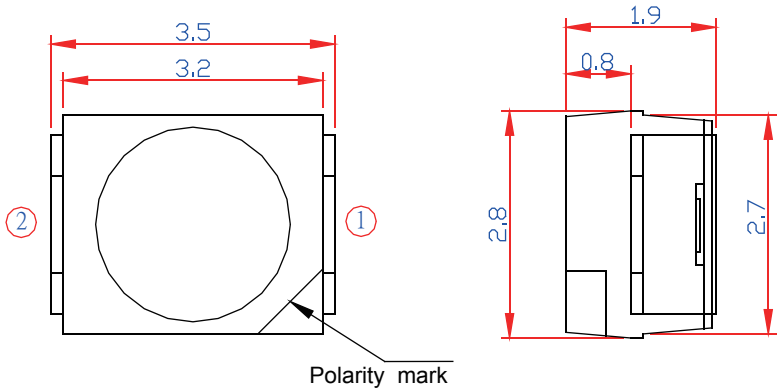
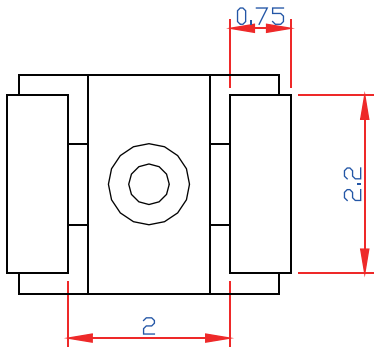
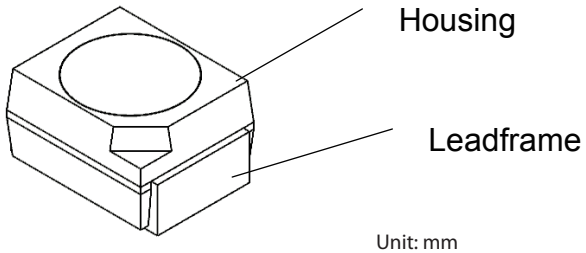
Mechanical Dimensions

Emitter Type Dimension

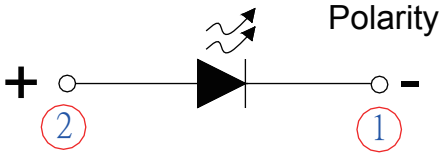




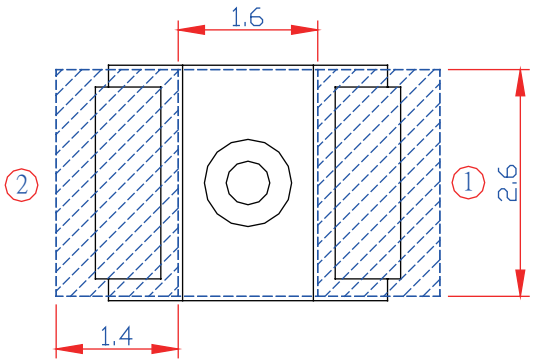


Unit: mm
Tolerance: ±0.2mm

Circuit



Solder Pad



Notes:
1. All dimensions are measured in mm.
2. Tolerance : ± 0.2 mm

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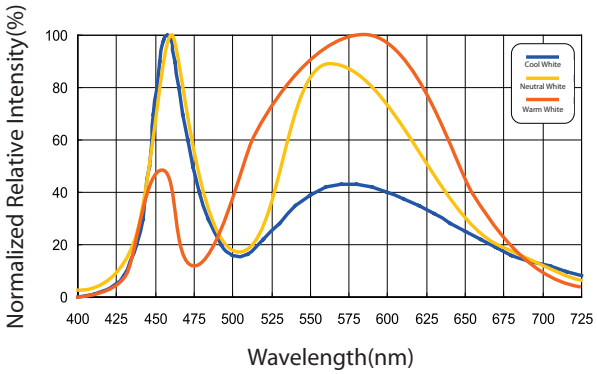
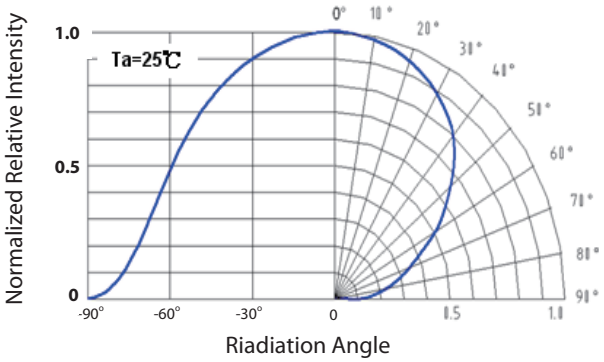
Characteristic Curves

Spectrum



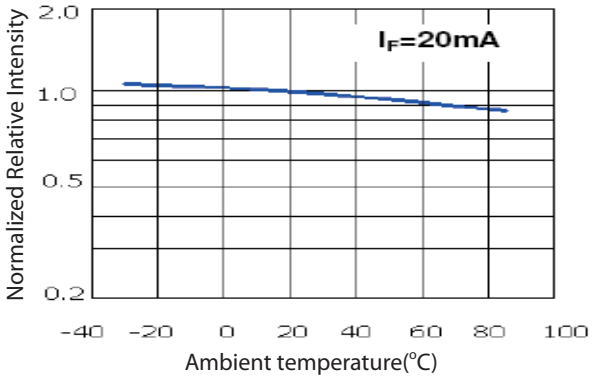
Color Spectrum at typical CCT for PLCC 3528series

Radiation Diagram



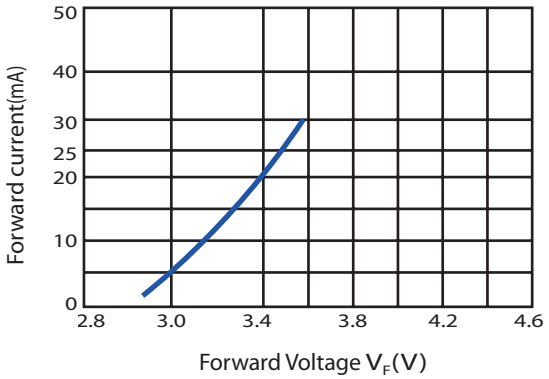
Beam pattern diagram for PLCC 3528 series

Luminous Flux vs. Temperature



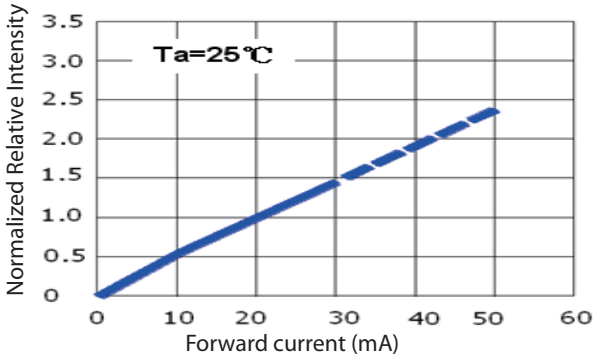
Ambient temperature vs. Relative intensity for PLCC 3528 series

Forward Voltage vs. Forward Current



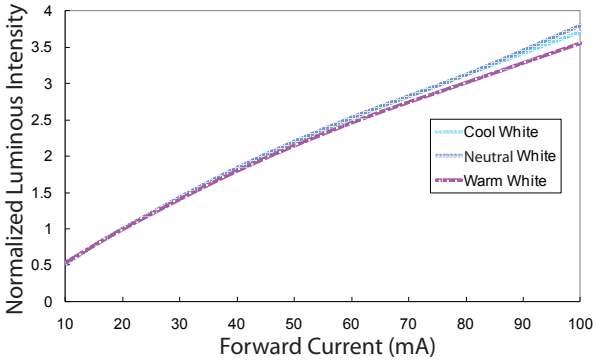
Forward current vs. forward voltage for PLCC 3528 series

Luminous Flux vs. Forward Current



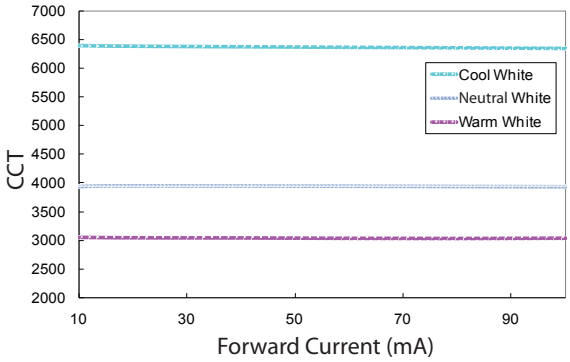
Forward current vs. relative intensity for PLCC 3528 series

Luminous Intensity vs. Forward Current



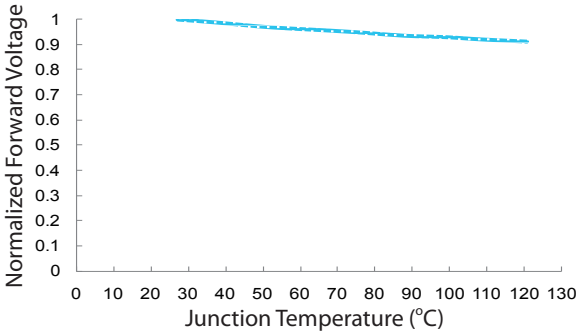
Luminous Intensity vs. Forward Current for PLCC 3528 series

CCT vs. Forward Current



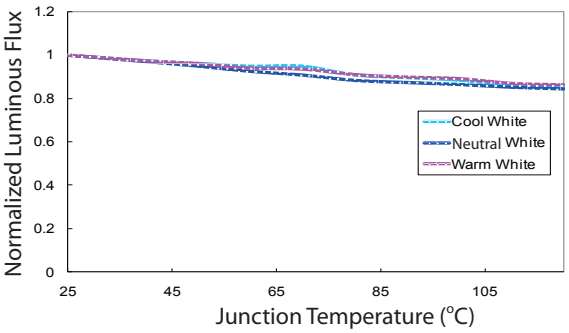
CCT vs. Forward Current for PLCC 3528 series

Forward voltage vs. Junction temperature



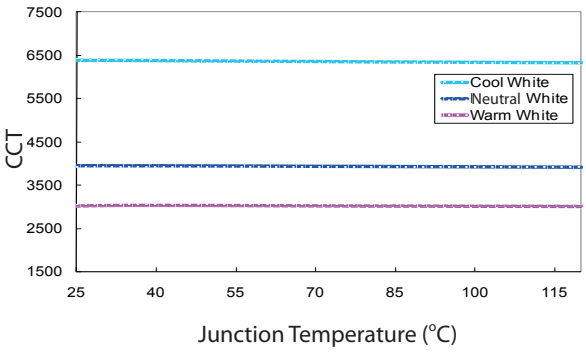
Forward voltage vs. Junction temperature for PLCC 3528 series

Luminous Flux vs. Junction temperature



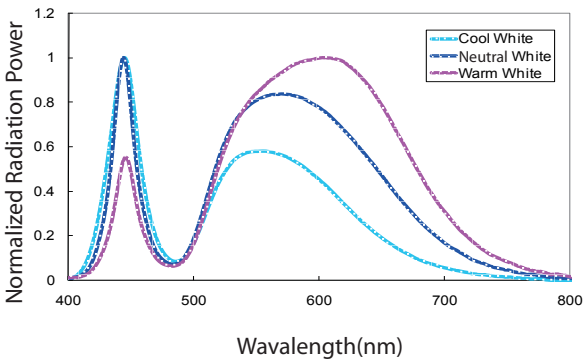
Luminous Flux vs. Junction temperature for PLCC 3528 series

CCT vs. Junction temperature



CCT vs. Junction temperature for PLCC 3528 series

Radiation Power vs. Wavelength



Radiation power vs. Wavelength for PLCC 3528 series

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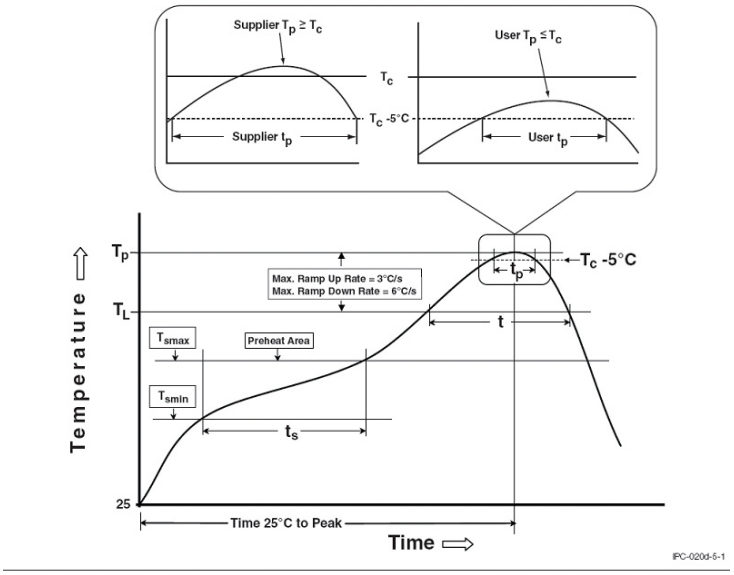
Reflow Profile

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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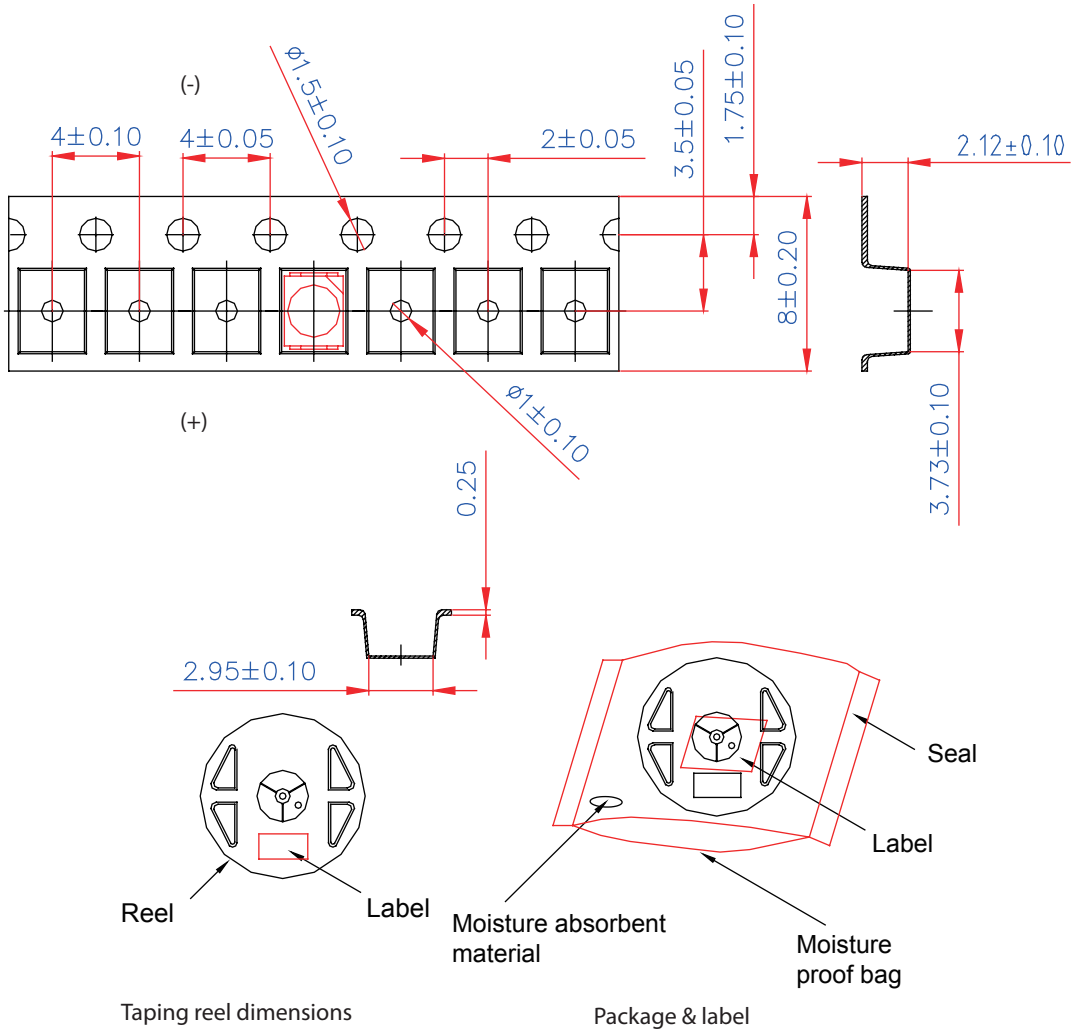
Product Packaging Information



Taping reel dimensions

Package & label

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			

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Revision History

Versions	Description	Release Date
1	Establish order code information	2012/11/28
2	Add the Characteristic Curve	2013/03/12

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

www.edison-opto.com

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