EDISON
Lighting Design Manufacturing Service

PLCC Series

ET-5050 0.2W RTB 3in1 Datasheet

Features :

- High Luminous Intensity
- Based on Blue/Green : InGaN, 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

Typical Applications :

- Signal and Symbol Luminaire
- Indoor and Outdoor 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 signboard.

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	(R) (T/B)	I_F	35 30	mA
Pulse Forward Current (tp≤100μs, Duty cycle=0.25)		I_{pulse}	80 100	mA
Reverse Voltage		V_R	5	V
LED Junction Temperature		T_J	115	°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_{FP} 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	(R) (T/B)	V_F	2.4 3.4	V
CCT/Wavelength	(Red) (True Green) (Blue)	-	620-630 520-535 465-475	nm

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 Intensity Characteristics, I_F=20mA and T_J=25°C

Color	Group	Min Luminous Intensity (mcd)	Max Luminous Intensity (mcd)	Forward Current (mA)	Order Code
Red	B0	400	500	20	2T04X2M100000001
	B1	500	600		
	B2	600	700		
	C0	700	850		
True Green	C3	1000	1150	20	
	C4	1150	1300		
	C5	1300	1450		
	C6	1450	1600		
	C7	1600	1750		
		1750	1900		
Blue	A5	250	300	20	
	A6	300	350		
	A7	350	400		
	B0	400	500		

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

Wavelength & Voltage Bin Structure

Color	Group	Min Wavelength (nm)	Max Wavelength (nm)	Min Voltage (V)	Max Voltage (V)
Red	A	620	630	1.6	1.9
	B			1.9	2.2
	C			2.2	2.5
	D			2.5	2.8
True Green	E	520	525	2.8	3.1
	F			3.1	3.4
	G			3.4	3.7
	H			3.7	4.0
	I	525	530	2.8	3.1
	J			3.1	3.4
	K			3.4	3.7
	L			3.7	4.0
	M	530	535	2.8	3.1
	N			3.1	3.4
	O			3.4	3.7
	P			3.7	4.0
Blue	I	465	470	2.8	3.1
	J			3.1	3.4
	K			3.4	3.7
	L			3.7	4.0
	M	470	475	2.8	3.1
	N			3.1	3.4
	O			3.4	3.7
	P			3.7	4.0

Note:
Forward voltage measurement allowance is ± 0.1V.

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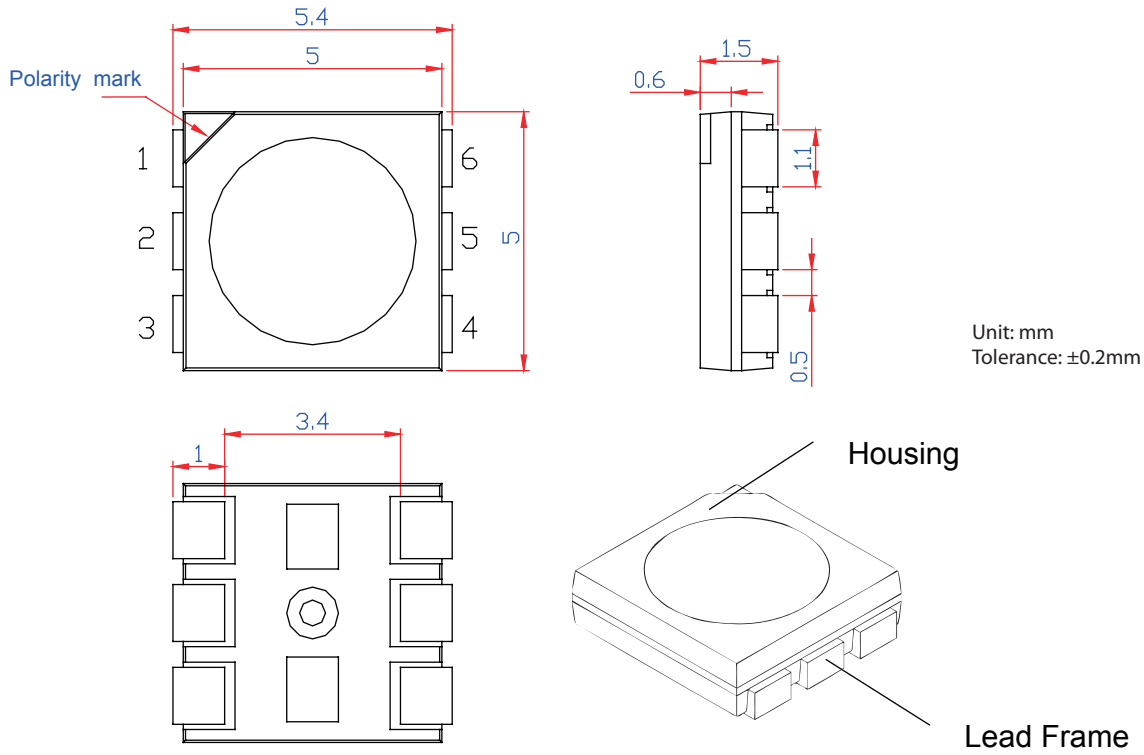
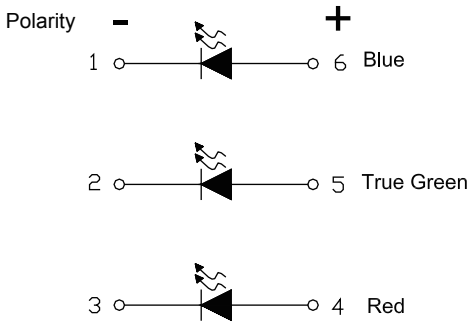
Mechanical Dimensions

Emitter Type Dimension

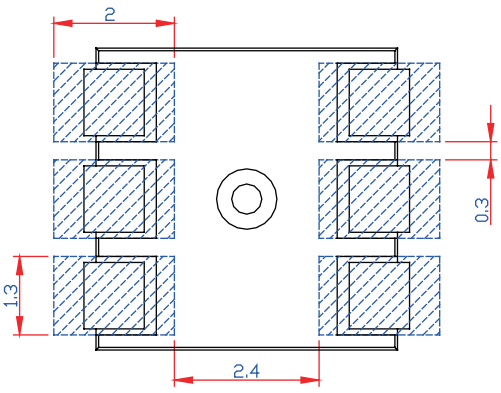


Unit: mm
Tolerance: ±0.2mm

Circuit



Solder Pad



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

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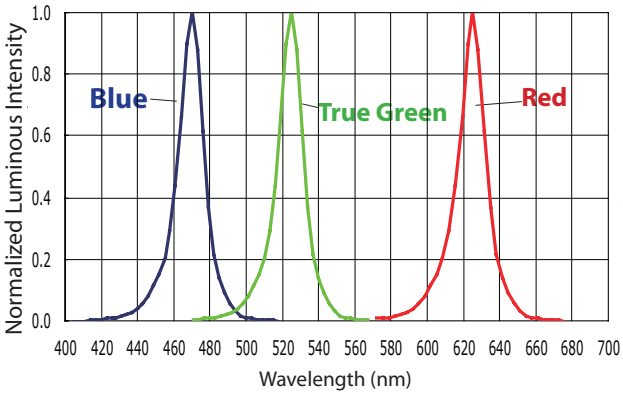
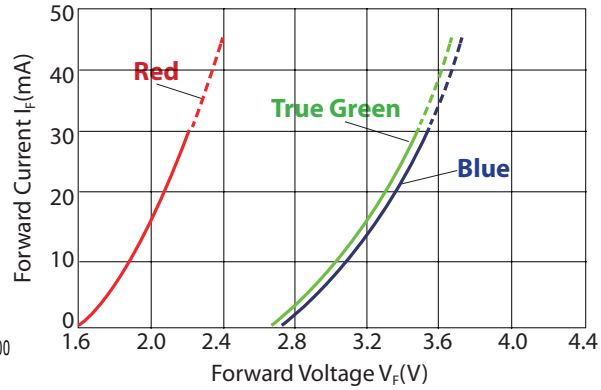
Characteristic Curve

Color Spectrum



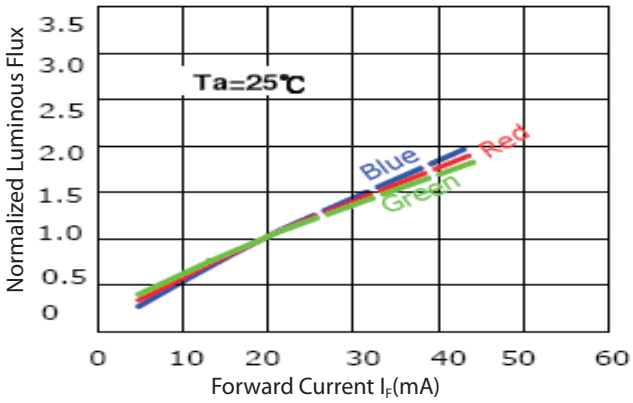
Color Spectrum for PLCC 5050 series

Forward Voltage & Forward Current



Forward current & forward voltage for PLCC 5050 series

Luminous Flux & Forward Current



Forward current & luminous flux at T_a=25°C for PLCC 5050 series

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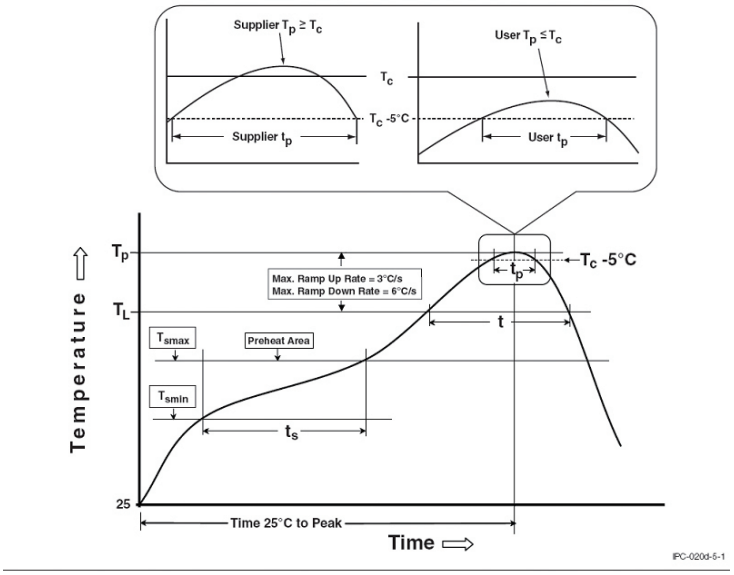
Reflow Profile

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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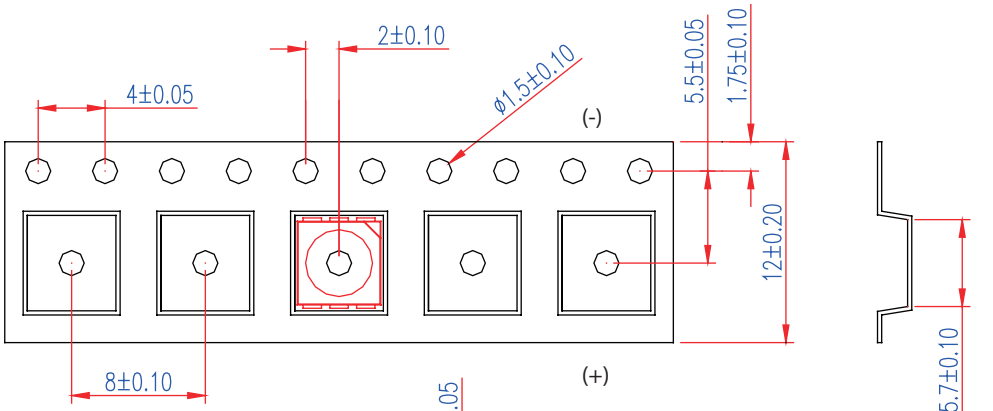
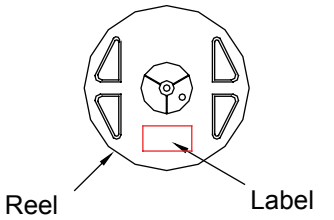
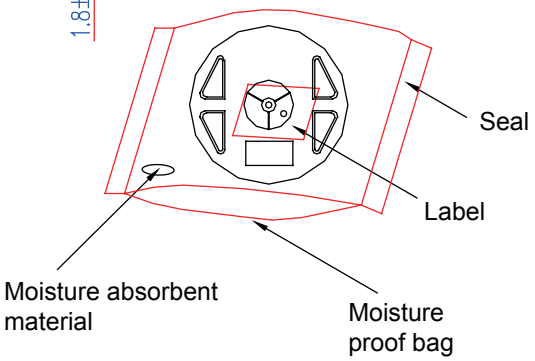
Product Packaging Information





Taping reel dimensions



Package & label

Item	Quantity	Total	Dimensions(mm)
Reel	1,000pcs	1,000pcs	R=178
Box	5 Reels	5,000pcs	240*235*67
Carton	10 boxes	50,000pcs	500*260*355
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	2012/11/26

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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