

# Edixeon R-C Series Datasheet



## Features :

- Various colors for choice
- Low voltage operation
- Instant light
- Long operating life
- Reflow process compatible

## Table of Contents

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General Information.....	3
Absolute Maximum Ratings.....	4
Characteristics.....	4
Luminous Flux Characteristic.....	5
Mechanical Dimensions.....	6
Characteristic curve.....	7
Reflow Profile.....	12
Reliability.....	13
Product Packaging Information.....	14
Revision History.....	15
About Edison Opto.....	15

## General Information

### Introduction

Edixeon R-C Series emitters are one of the highest flux LEDs in the world by Edison Opto. Edixeon R-C Series emitters are designed to satisfy more and more Solid-State lighting High Power LED applications for brilliant world such as flash light, indoor and outdoor decoration light. Edixeon R-C Series emitters are designed by particular package for reflow process application.

Unlike most fluorescent sources, Edixeon R-C Series contains no mercury and has more energy efficient than other incandescent light source.

### Ordering Code Format

2  
X1
E  
X2
R 1  
X3
0 1  
X4
X X  
X5
X X  
X6
0 0 0  
X7
X X X  
X8

X1		X2		X3		X4		X5	
Type		Component		Series		Wattage		Color	
2	Emitter	E	Edixeon	R1	R-C Series	01	1W	CW	Cool White
								NW	Neutral White
								WW	Warm White

X6	X7	X8
Internal code	PCB Board	Serial Number
-	-	000
-	-	-

## Absolute Maximum Ratings

Parameter	Symbol	Value	Units
DC Forward Current	$I_F$	350	mA
Peak Pulsed Current; ( $t_p \leq 100\mu s$ , Duty cycle=0.25)	$I_{pulse}$	700	mA
Reverse Voltage	$V_R$	5	V
Drive Voltage	$V_D$	5	V
LED Junction Temperature	$T_J$	125	°C
Operating Temperature	-	-30 ~ +110	°C
Storage Temperature	-	-40 ~ +120	°C
ESD Sensitivity (HBM)	-	2,000	V
Soldering Temperature	-	260	°C
Manual Soldering Time at 260°C(Max.)	-	5	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. Allowable reflow cycles are 3 times for each LED.
4.  $T_p$ : Pulse width time

## Characteristics

Parameter	Symbol	Value	Units
Viewing Angle	$2\Theta_{1/2}$	135	Degree
Forward voltage (Typ.)	$V_F$	3.2	V
Thermal resistance	-	10	°C/W
$\Delta V_f / \Delta T$	$\Delta V_f / \Delta T$	-2	mV/°C
CCT	$\lambda_d$	CW: 5,000-10,000 NW: 3,800-5,000 WW: 2,670-3,800	K
CRI	-	Cool White: 70 Neutral White: 80 Warm White: 80	-
JEDEC Moisture Sensitivity	-	Level 2a <b>Floor Life</b> Conditions: $\leq 30^\circ C / 60\% RH$ <b>Soak Requirements(Standard)</b> Time (hours): 120+1/-0 Conditions: $60^\circ C / 60\% RH$	-

Notes:

1. CCT is measured with an accuracy of  $\pm 5\%$ .
2. Viewing angle is measured with an accuracy of  $\pm 5\%$ .
3. Color Rendering index CRI tolerance:  $\pm 2$ .

## Luminous Flux Characteristic

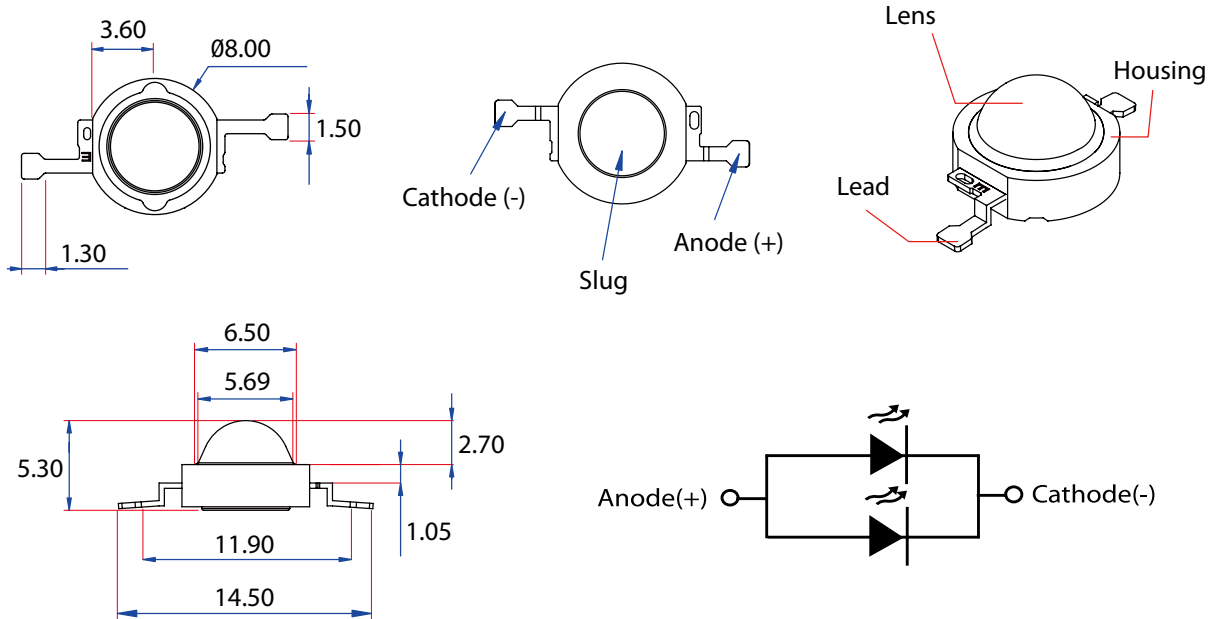
Luminous Flux Characteristics at  $I_f=350\text{mA}$ ,  $T_j=25^\circ\text{C}$

Color	Group	Min. Luminous Flux(lm)	Max. Luminous Flux(lm)	Forward Current (mA)	Order Code
Cool White	V1	110	120	350	2ER101CW02000002
	V2	120	130		
	V3	130	140		
	V4	140	150		
	V5	150	160		
	W1	160	180		
Neutral White	U3	100	110	350	2ER101NW32000003
	V1	110	120		
	V2	120	130		
	V3	130	140		
	V4	140	150		
Warm White	U2	90	100	350	2ER101WW11000001
	U3	100	110		
	V1	110	120		
	V2	120	130		
	V3	130	140		
	V4	140	150		

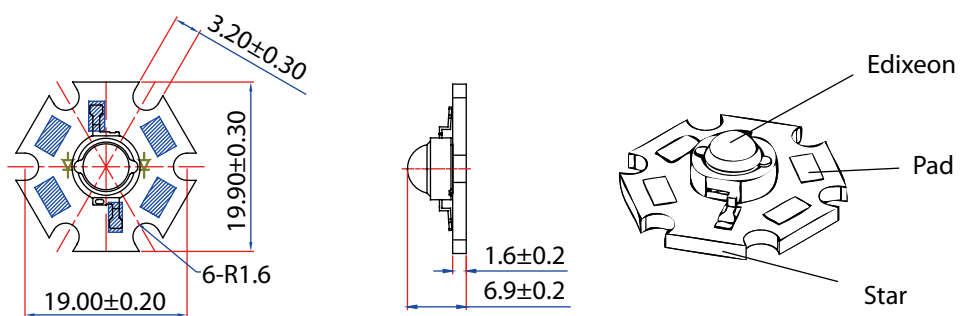
Note:  
Flux is measured with an accuracy of  $\pm 10\%$ .

## Mechanical Dimensions

### Emitter Type Dimension



### Star Type Dimensions



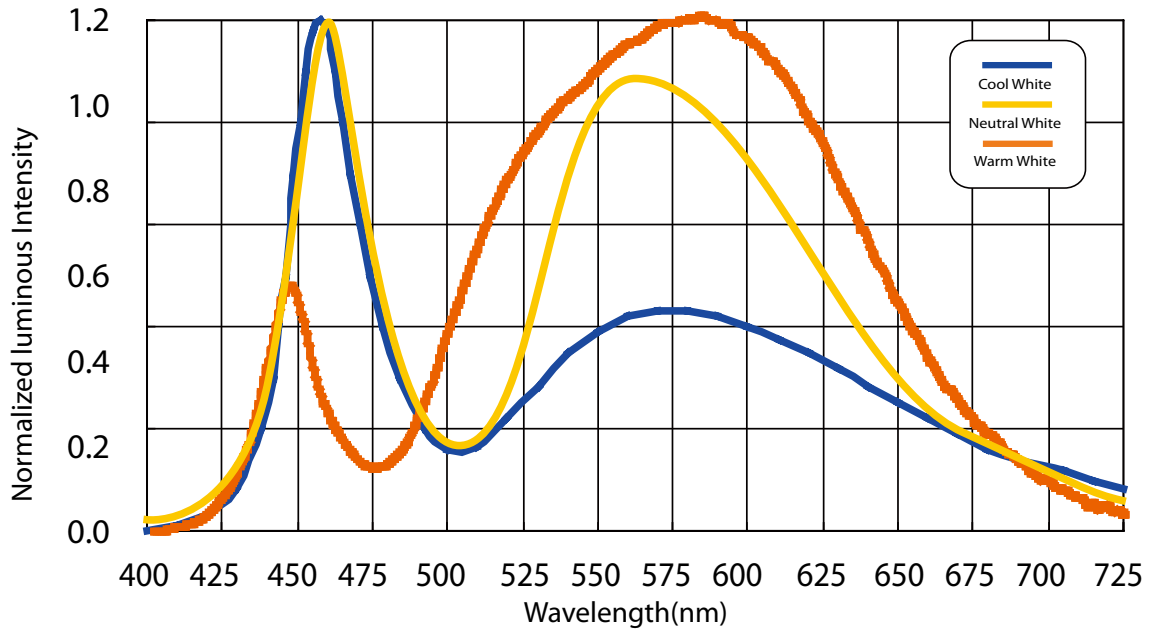
### Edixeon R-C Series dimensions and circuit

#### Notes:

1. All dimensions are in mm.
2. Lambertian and side emitting series slug has polarity as anode.
3. It is strongly recommended to apply an electrically isolated heat conducting film between the slug and contact surfaces.

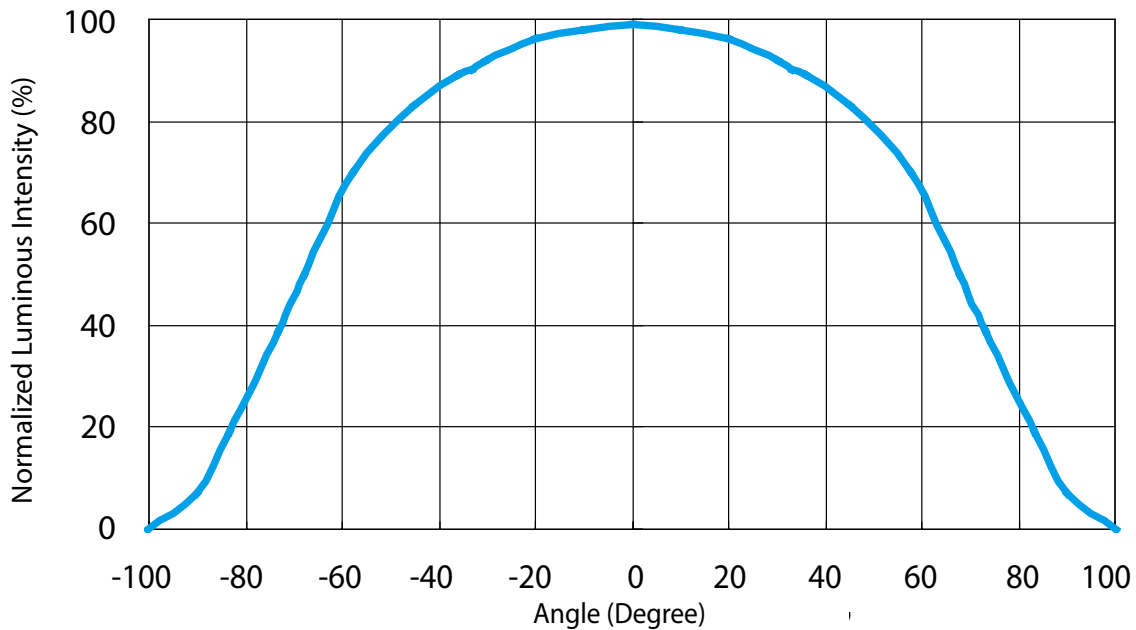
## Characteristic curve

### Color Spectrum



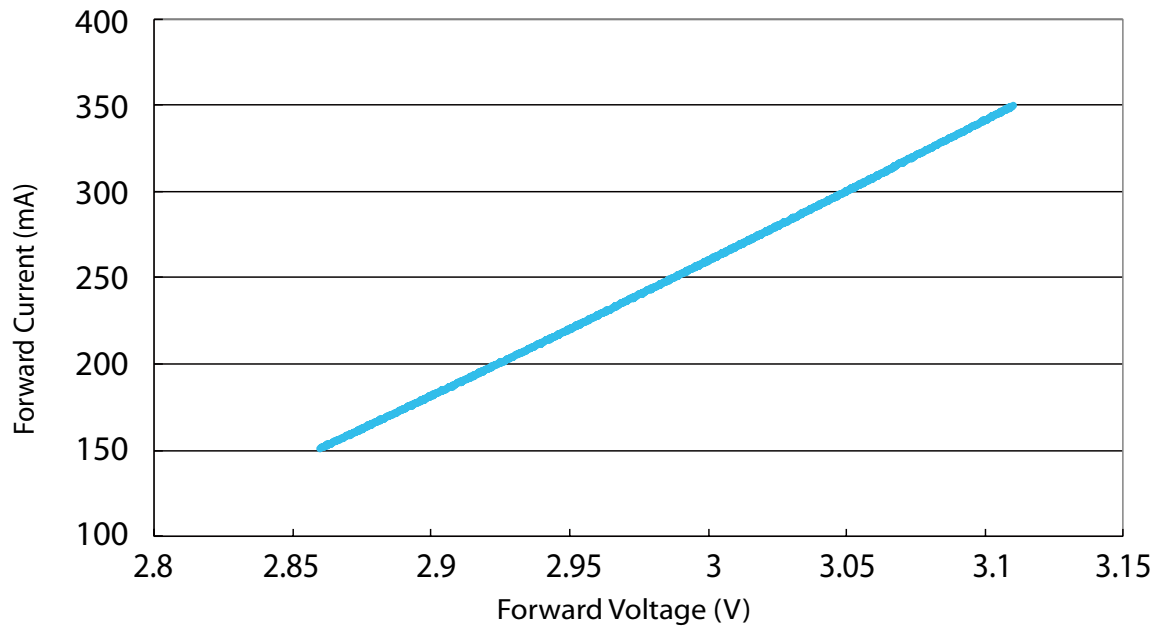
Color Spectrum at a typical CCT for Edixeon R-C White

### Radiation Angle



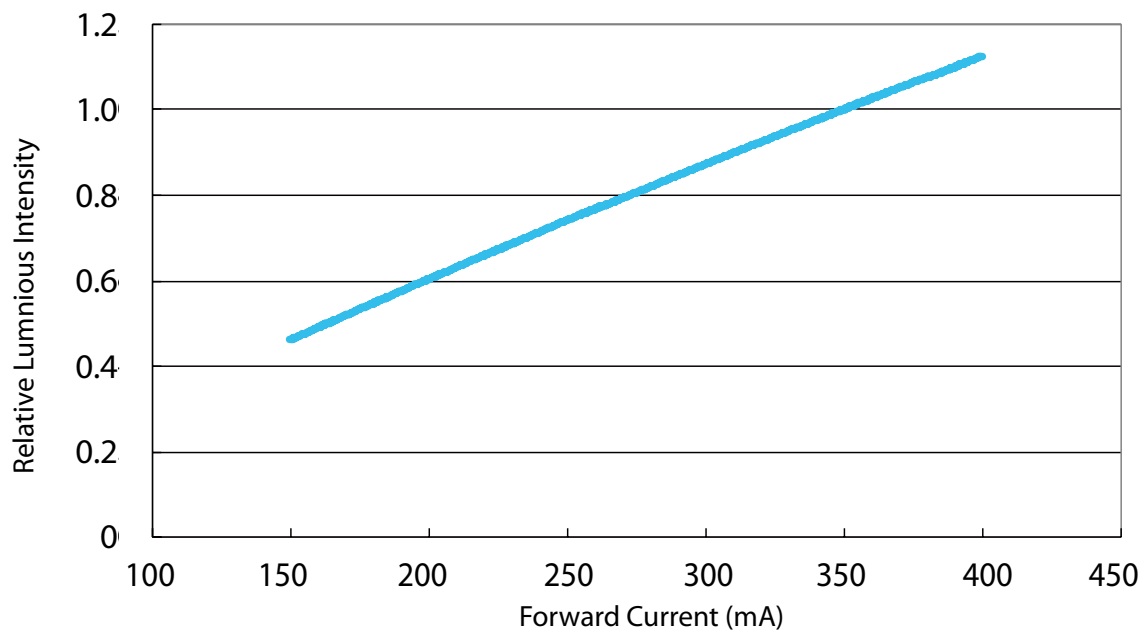
Radiation Angle for Edixeon R-C White

### Forward Current vs. Forward Voltage



Forward Current vs. Forward Voltage for Edixeon R-C White

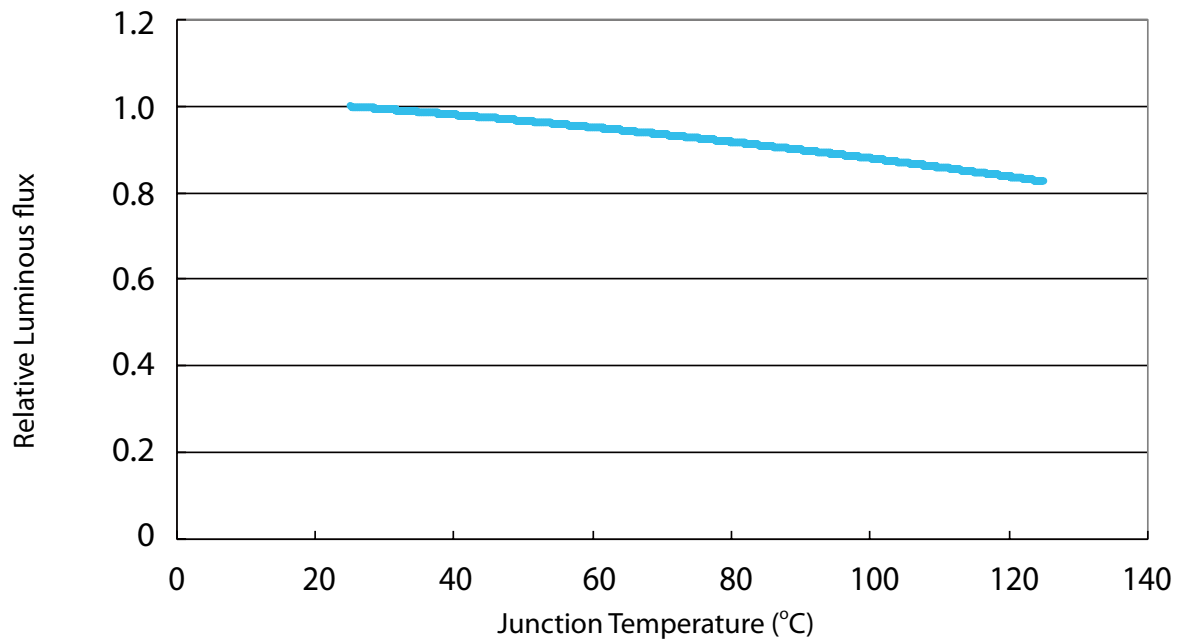
### Relative Luminous Intensity vs. Forward Current



Relative Luminous Intensity vs. Forward Current for Edixeon R-C White

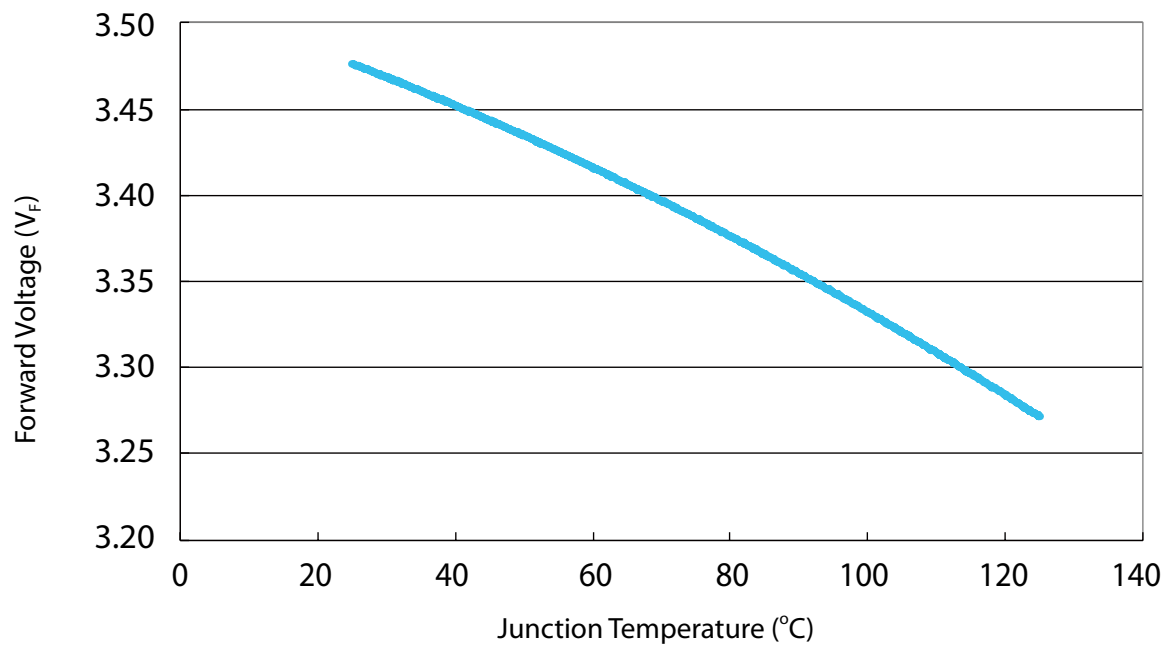


### Relative Luminous Flux vs. Junction Temperature



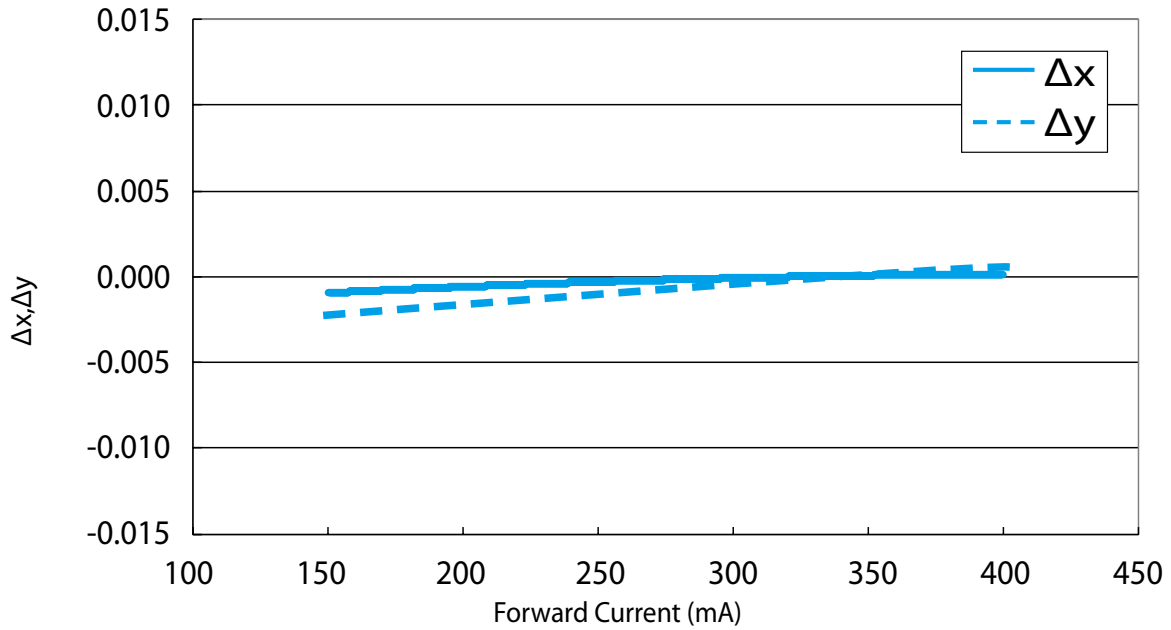
Relative Luminous flux vs. junction temperature for Edixeon R-C White

### Forward Voltage vs. Junction Temperature



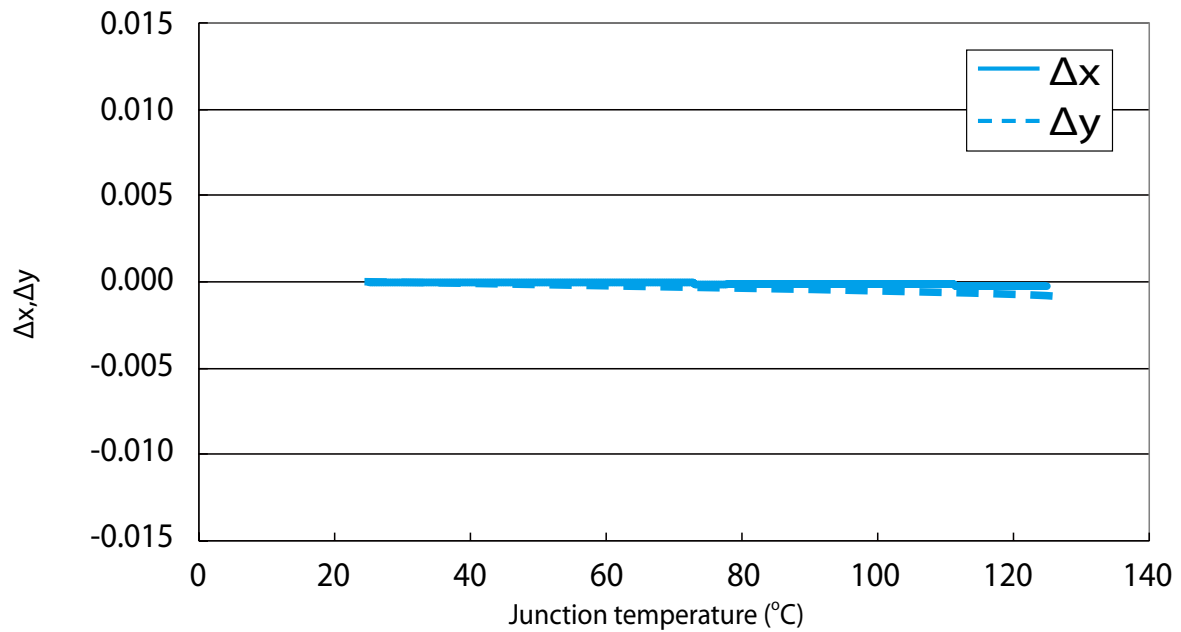
Forward voltage vs. junction temperature for Edixeon R-C White

**$\Delta x, \Delta y$  vs. Forward Current**



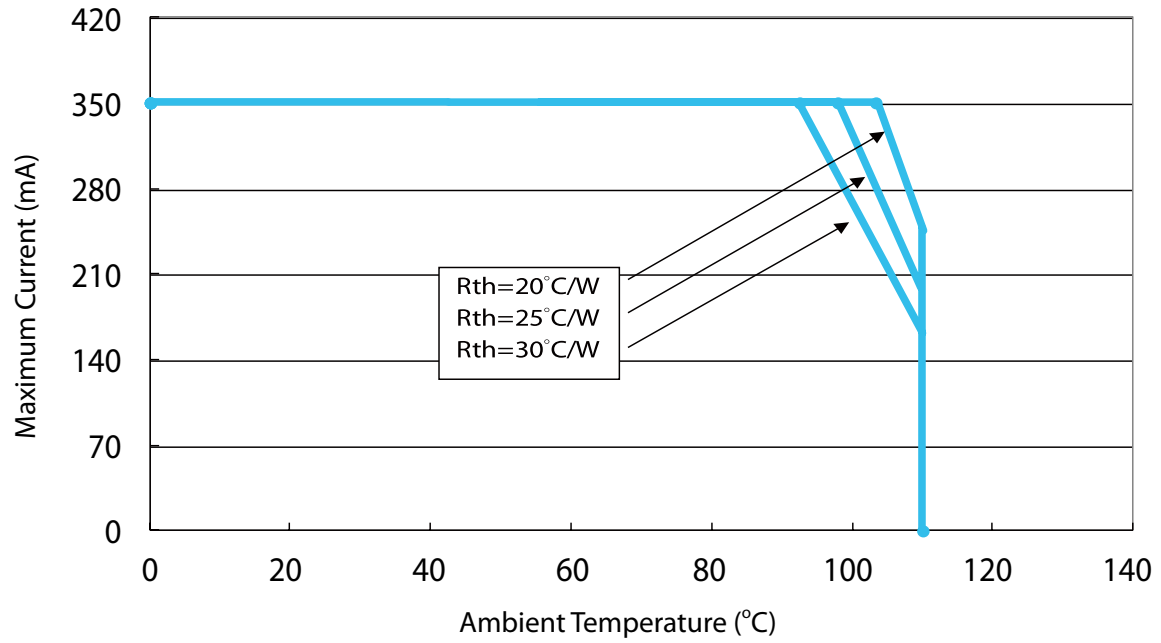
$\Delta x, \Delta y$  vs. Forward Current for Edixeon R-C White

**$\Delta x, \Delta y$  vs. Junction Temperature**



$\Delta x, \Delta y$  vs. Junction temperature for Edixeon R-C White

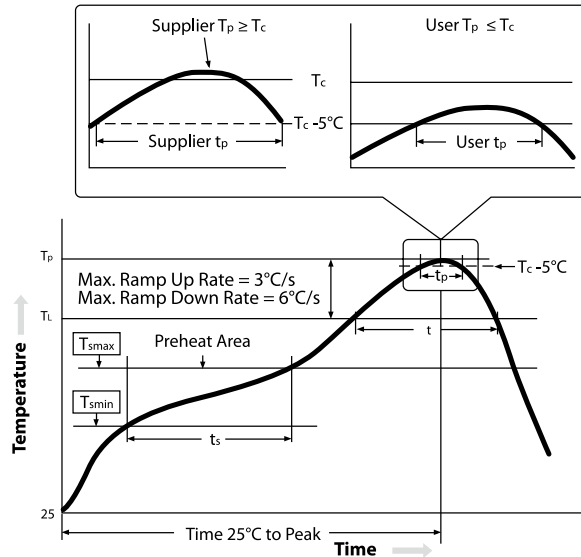
### Maximum Current vs. Ambient Temperature



Maximum Current vs. Ambient Temperature for Edixon R-C White

## Reflow Profile

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



## Classification Reflow Profiles

Profile Feature	Low-Temp, Pb-Free Assemble
Preheat/Soak	
Temperature Min (T <sub>smin</sub> )	150° C
Temperature Max (T <sub>smax</sub> )	200° C
Time (t <sub>s</sub> ) from (T <sub>smin</sub> to T <sub>smax</sub> )	60-120 seconds
Ramp-up rate (TL to T <sub>p</sub> )	3° C/ seconds max.
Liquidous temperature (TL)	217° C
Time (t <sub>L</sub> ) maintained above TL	60-150 seconds
Peak package body temperature (T <sub>p</sub> ) <sup>(1)</sup>	255° C~260° C
Classification temperature (T <sub>c</sub> )	260° C
Time (t <sub>p</sub> ) within 5° C of the specified classification temperature (T <sub>c</sub> ) <sup>(2)</sup>	30 seconds
Average ramp-down rate (T <sub>p</sub> to T <sub>smax</sub> )	6° C/second max.
Time 25° C to peak temperature	6minutes max

**Notes:**

1. Tolerance for peak profile temperature (T<sub>p</sub>) is defined as a supplier minimum and a user maximum.
2. Tolerance for time at peak profile temperature (t<sub>p</sub>) is defined as a supplier minimum and a user maximum.

## Reliability

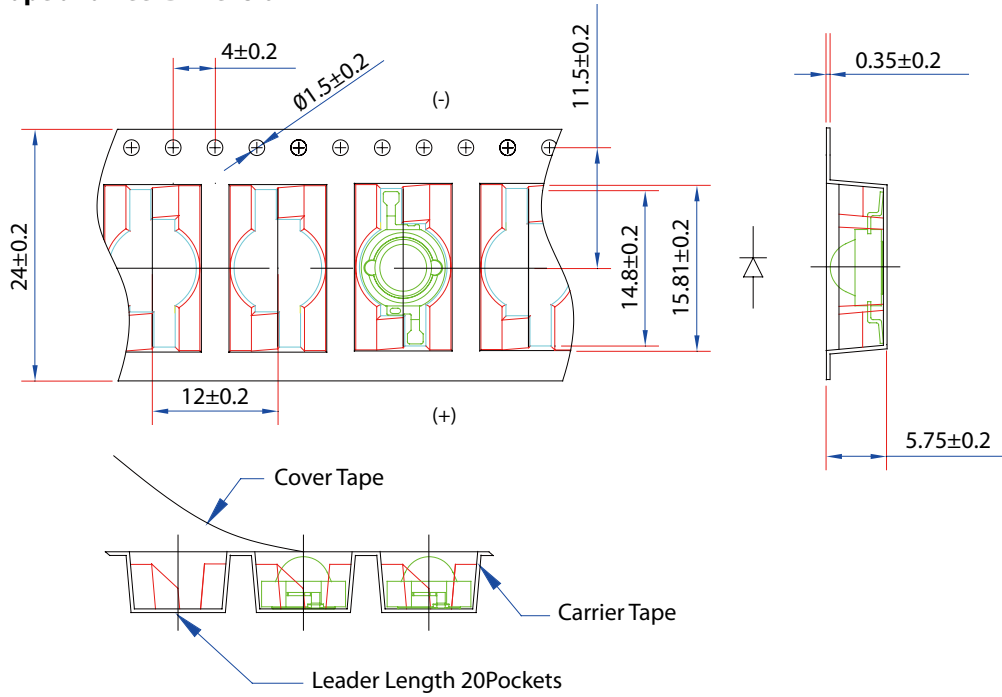
NO .	Test Item	Test Condition	Remark
1	Temperature Cycle	-40°C~100°C 30, 30, mins	100 Cycle
2	Thermal Shock	-40°C~100°C 15, 15 mins $\leq$ 10 sec	100 Cycle
3	Resistance to Soldering Heat	T <sub>SOL</sub> =260°C, 30 sec	3 times
4	Moisture Resistance	25°C~65°C 90% RH 24 hrs / 1 cycle	10 Cycle
5	High-Temperature Storage	T <sub>A</sub> =100°C	1,000 hrs
6	Humidity Heat Storage	T <sub>A</sub> =85°C RH=85%	1,000 hrs
7	Low-Temperature Storage	T <sub>A</sub> =-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	10W times

## Failure Criteria

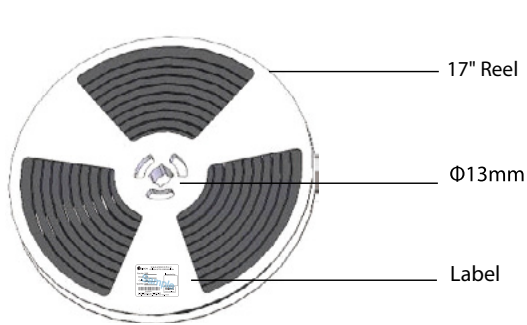
Item	Criteria for Judgment	
	Min.	Max.
Lumen Maintenance	85%	-
$\Delta u'v'$	-	0.006
Forward Voltage	-	Initial Data x 1.1
Reverse Current	-	10 $\mu$ A
Resistance to Soldering Heat	No dead lamps or visual damage	

## Product Packaging Information

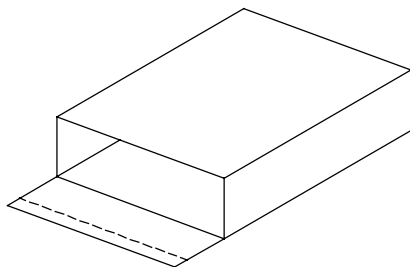
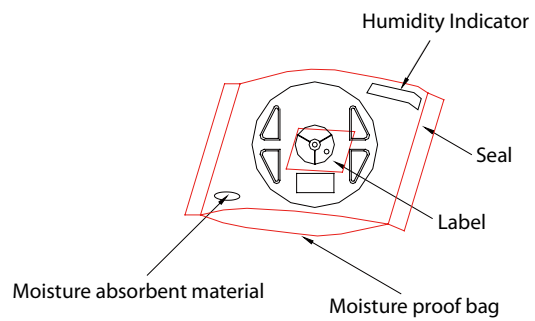
### Tape and Reel Dimension



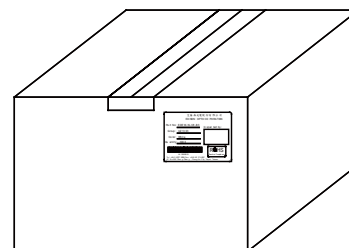
### Edixeon Emitter



1000pcs LEDs inside



2 bags in 1 box



5 boxes in 1 carton

Note : 445\*410\*415 (Tolerance :  $\pm 5\text{mm}$ )

## Revision History

Versions	Description	Release Date
1	Establish order code information	2014/05/26

## 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](http://www.edison-opto.com)

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