Lighting Design Manufacturing Service

Edixeon S White Series Datasheet

Features :

- Various colors
- More energy efficient than incandescent and most halogen lamps
- Low voltage operation
- Instant light
- Long operating life

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General Information

Introduction

Edixeon S series emitters are one of the highest flux LEDs in the world by Edison Opto. Edixeon S 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. Unlike most fluorescent sources, Edixeon contains no mercury and has more energy efficient than other incandescent light source.

Ordering Code Format

2	E	S 1	0 x	x W	x x	0 0 0	x x x
X1	X2	X3	X4	X5	X6	X7	X8

X1		X2		X3		X4		X5	
Type		Component		Series		Wattage		Color	
2	Emitter	E	Edixeon	S1	S1 Series	01	1W	CW	Cool White
						03	3W	NW	Neutral White
								WW	Warm White

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

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Absolute Maximum Ratings

Parameter		Symbol	Value	Units
DC Forward Current[1]	(1W) (3W)	I_F	350 700	mA
Peak Pulsed Current; (tp≤100μs, Duty cycle=0.25) [2]	(1W) (3W)	I_{pulse}	500 1000	mA
Reverse Voltage		V_R	5	V
Drive Voltage		V_D	5	V
LED Junction Temperature[3]		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. tp: Pulse width time
4. Allowable reflow cycles are 3 times for each LED.

Characteristics

Parameter		Symbol	Value	Units
Viewing Angle		$2\Theta_{1/2}$	135	Degree
Forward voltage	(Typ.)	V_F	3.4	V
Thermal resistance		-	11	°C/W
$\Delta V_F/\Delta T$		$\Delta V_F/\Delta T$	-2	mV/ ˚C
CCT		λd	CW: 5,000-10,000 NW: 3,800-5,000 WW: 2,670-3,800	K
CRI		-	CW: 70&80 NW: 80 WW: 80	-
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	-

Notes:
1. Wavelength is measured with an accuracy of ± 0.5nm.
2. CCT is measured with an accuracy of ± 5%.
3. Viewing anlge is measured with an accuracy of ± 5%.
4. Color Rendering index CRI tolerane: ± 2.

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Luminous Flux Characteristic

Luminous Flux Characteristics, T_j=25˚C.

Color	Wattage (W)	Group	Min. Luminous Flux(lm)	Max. Luminous Flux(lm)	Forward Current (mA)	Order Code
Cool White	1	U3	100	110	350	2ES101CW06000001 2ES101CW14000001
		V1	110	120		
		V2	120	130		
		V3	130	140		
		V4	140	150		
	3	W1	160	180	700	2ES103CW06000001 2ES103CW14000001
		W2	180	200		
		W3	200	220		
		X1	220	240		
Neutral White	1	U2	90	100	350	2ES101NW32000001
		U3	100	110		
		V1	110	120		
		V2	120	130		
	3	W1	160	180	700	2ES103NW32000001
		W2	180	200		
		W3	200	220		
Warm White	1	T3	80	86.5	350	2ES101WW32000001
		U1	86.5	90		
		U2	90	100		
		U3	100	110		
	3	V5	150	160	700	2ES103WW32000001
		W1	160	180		
		W2	180	200		

Notes:
1. Flux is measured with an accuracy of ± 10%.
2. All Cool White, Neutral White, Warm White emitters are built with InGaN.

Voltage Bin Structure

Group	Min. Voltage (V)	Max. Voltage (V)
V01	2.8	3.1
V02	3.1	3.4
V03	3.4	3.7
V04	3.7	4.0
V05	3.4	3.7

Note:
Forward voltage measurement allowance is ± 0.06V.

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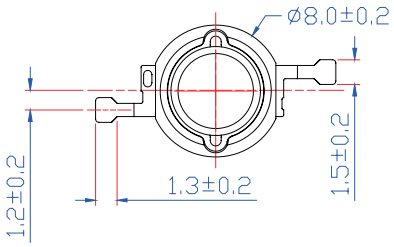
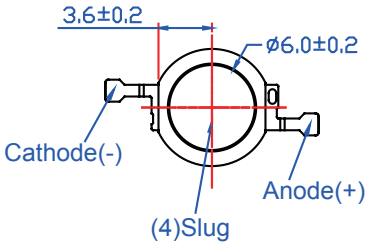
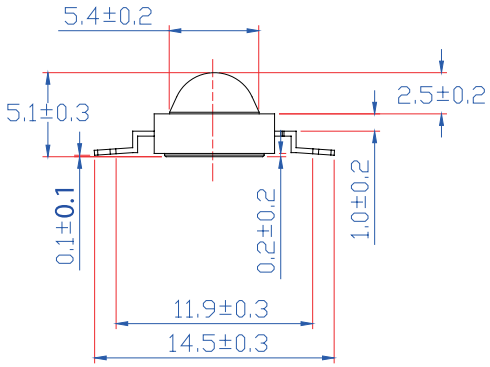
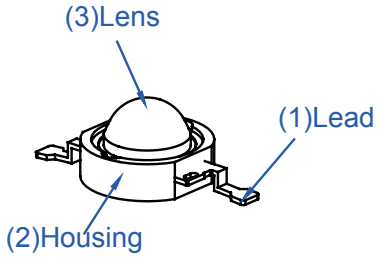
Mechanical Dimensions

Emitter Type Dimension









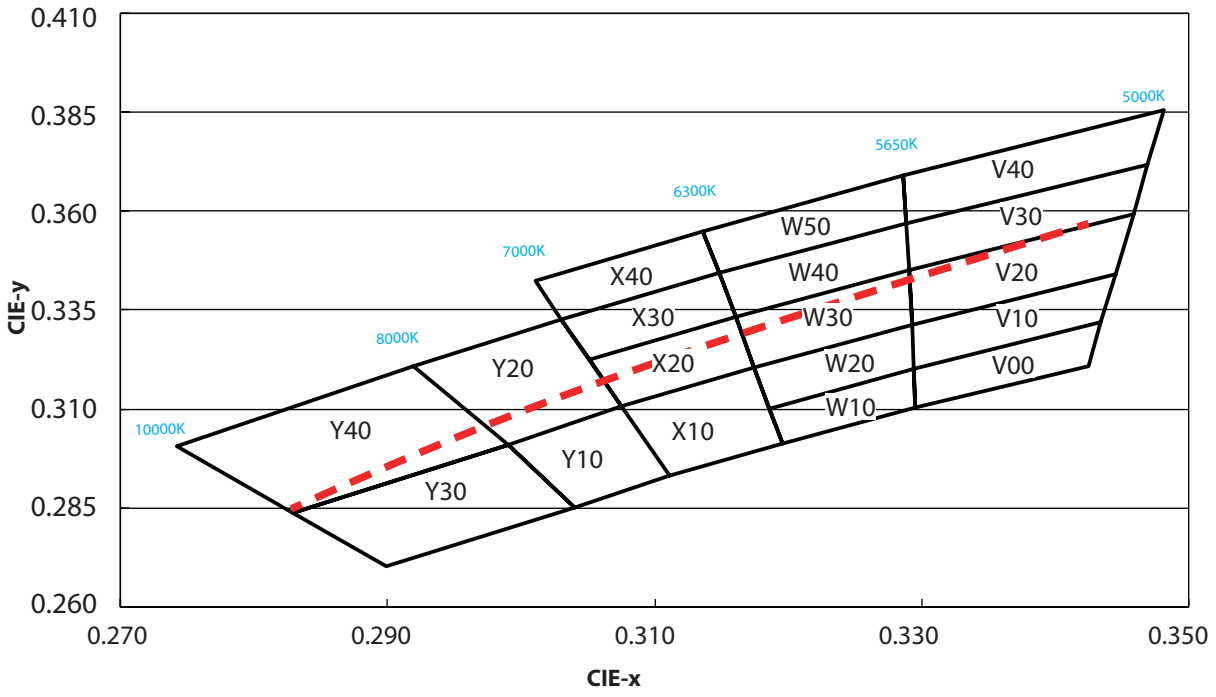
Emitter Color	Slug at the bottom of the electrode	Circuit
CW/NW/WW	No electrode	

Edixeon S series dimensions and circuits

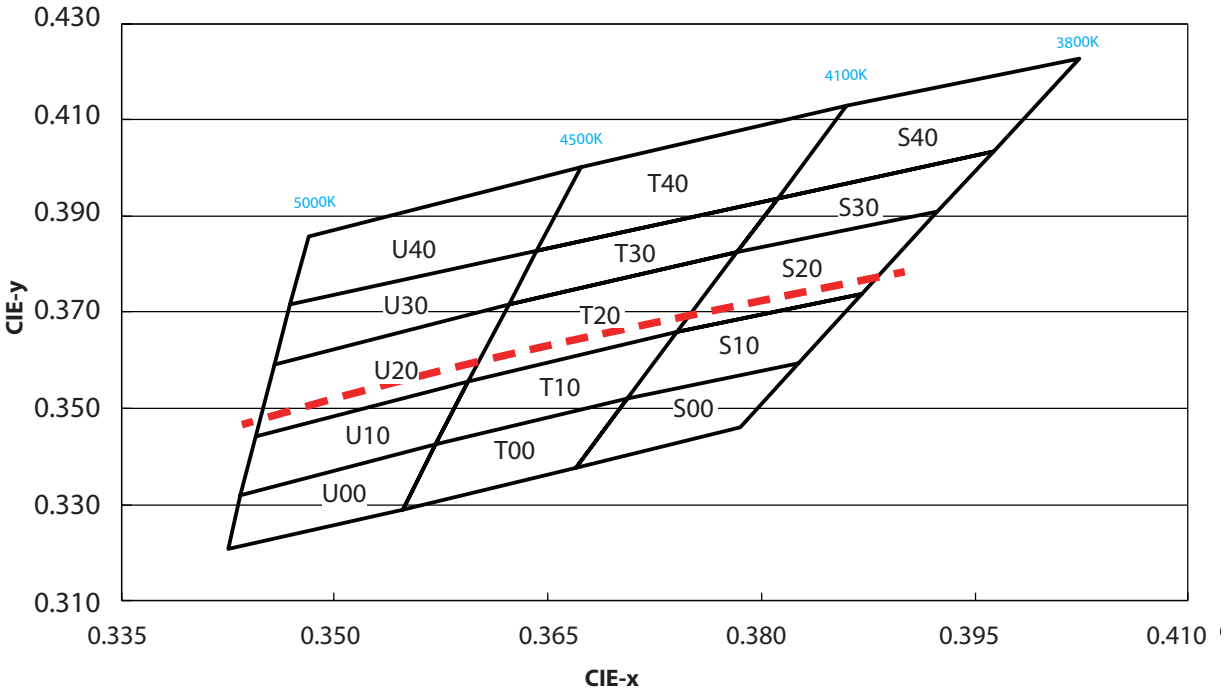
Notes:
1. All dimensions are in mm.
2. It is strongly recommended that the temperature of lead doesn't exceed 55°C.
3. It is important that the slug can't contact aluminum surface, It is strongly recommended that there should coat a uniform electrically isolated heat dissipation film on the aluminum surface.

Color BIN code

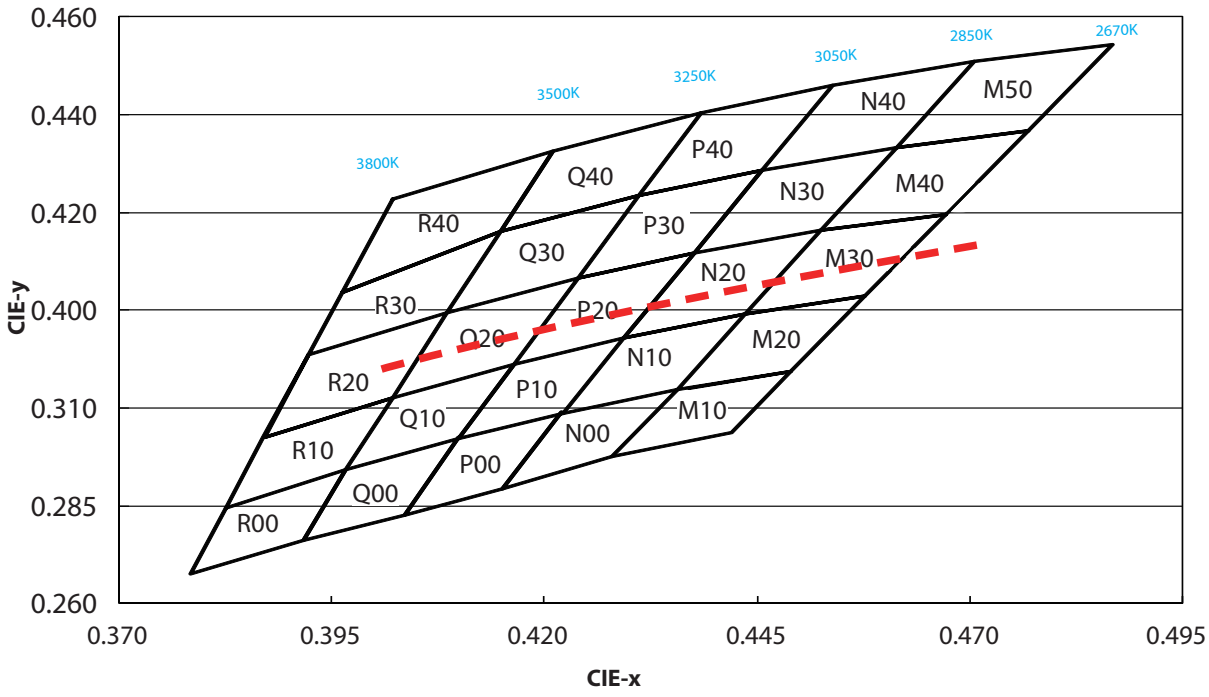
Cool White



Neutral White



Warm White



Cool White

Y10		Y20		Y30		Y40	
X	Y	X	Y	X	Y	X	Y
0.3040	0.2850	0.2990	0.3010	0.3040	0.2850	0.2920	0.3210
0.2990	0.3010	0.2920	0.3210	0.2899	0.2703	0.2742	0.3007
0.3076	0.3108	0.3031	0.3327	0.2830	0.2838	0.2830	0.2838
0.3112	0.2932	0.3076	0.3108	0.2990	0.3010	0.2990	0.3010

X10		X20		X30		X40	
X	Y	X	Y	X	Y	X	Y
0.3076	0.3108	0.3076	0.3108	0.3052	0.3224	0.3031	0.3327
0.3174	0.3204	0.3052	0.3224	0.3031	0.3327	0.3011	0.3422
0.3196	0.3013	0.3160	0.3332	0.3148	0.3444	0.3136	0.3550
0.3112	0.2932	0.3175	0.3204	0.3160	0.3332	0.3148	0.3444

W10		W20		W30		W40		W50	
X	Y	X	Y	X	Y	X	Y	X	Y
0.3294	0.3202	0.3292	0.3313	0.3290	0.3451	0.3290	0.3451	0.3148	0.3444
0.3295	0.3105	0.3294	0.3202	0.3292	0.3313	0.3160	0.3332	0.3136	0.3550
0.3196	0.3013	0.3186	0.3102	0.3175	0.3204	0.3148	0.3444	0.3286	0.3690
0.3186	0.3102	0.3175	0.3204	0.3160	0.3332	0.3288	0.3569	0.3288	0.3569

V00		V10		V20		V30		V40	
X	Y	X	Y	X	Y	X	Y	X	Y
0.3434	0.3320	0.3292	0.3313	0.3292	0.3313	0.3290	0.3451	0.3288	0.3569
0.3425	0.3208	0.3444	0.3442	0.3290	0.3451	0.3288	0.3569	0.3286	0.3690
0.3295	0.3105	0.3434	0.3320	0.3458	0.3592	0.3469	0.3717	0.3481	0.3856
0.3294	0.3200	0.3294	0.3200	0.3444	0.3442	0.3458	0.3592	0.3469	0.3717

Neutral White

U00		U10		U20		U30		U40	
X	Y	X	Y	X	Y	X	Y	X	Y
0.3571	0.3426	0.3444	0.3442	0.3622	0.3716	0.3642	0.3829	0.3642	0.3829
0.3548	0.329	0.3434	0.332	0.3594	0.3557	0.3622	0.3716	0.3673	0.4003
0.3425	0.3208	0.3571	0.3426	0.3444	0.3442	0.3458	0.3592	0.3481	0.3856
0.3434	0.332	0.3594	0.3557	0.3458	0.3592	0.3469	0.3717	0.3469	0.3717

T00		T10		T20		T30		T40	
X	Y	X	Y	X	Y	X	Y	X	Y
0.3706	0.3520	0.3594	0.3557	0.3622	0.3716	0.3642	0.3829	0.3673	0.4003
0.3670	0.3377	0.3571	0.3426	0.3783	0.3825	0.3811	0.3937	0.3860	0.4130
0.3548	0.3290	0.3706	0.3520	0.3741	0.3658	0.3783	0.3825	0.3811	0.3937
0.3571	0.3426	0.3741	0.3658	0.3594	0.3557	0.3622	0.3716	0.3642	0.3829

S00		S10		S20		S30		S40	
X	Y	X	Y	X	Y	X	Y	X	Y
0.3826	0.3595	0.3741	0.3658	0.3783	0.3825	0.3783	0.3825	0.3860	0.4130
0.3785	0.3460	0.3871	0.3739	0.3924	0.3909	0.3811	0.3937	0.4023	0.4228
0.3670	0.3377	0.3826	0.3595	0.3871	0.3739	0.3963	0.4035	0.3963	0.4035
0.3706	0.3520	0.3706	0.3520	0.3741	0.3658	0.3924	0.3909	0.3811	0.3937

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Warm White

R00		R10		R20		R30		R40	
X	Y	X	Y	X	Y	X	Y	X	Y
0.3966	0.3673	0.3871	0.3739	0.3924	0.3909	0.4086	0.3995	0.4023	0.4228
0.3917	0.3530	0.4021	0.3822	0.3871	0.3739	0.3924	0.3909	0.4209	0.4326
0.3785	0.3460	0.3966	0.3673	0.4021	0.3822	0.3963	0.4035	0.4148	0.4161
0.3826	0.3595	0.3826	0.3595	0.4086	0.3995	0.4148	0.4161	0.3963	0.4035

Q00		Q10		Q20		Q30		Q40	
X	Y	X	Y	X	Y	X	Y	X	Y
0.4100	0.3740	0.4165	0.3890	0.4086	0.3995	0.4086	0.3995	0.4385	0.4404
0.4035	0.3580	0.4100	0.3738	0.4240	0.4065	0.4148	0.4161	0.4312	0.4234
0.3917	0.3530	0.4021	0.3822	0.4165	0.3890	0.4312	0.4234	0.4148	0.4161
0.3966	0.3673	0.3966	0.3673	0.4021	0.3822	0.4240	0.4065	0.4209	0.4326

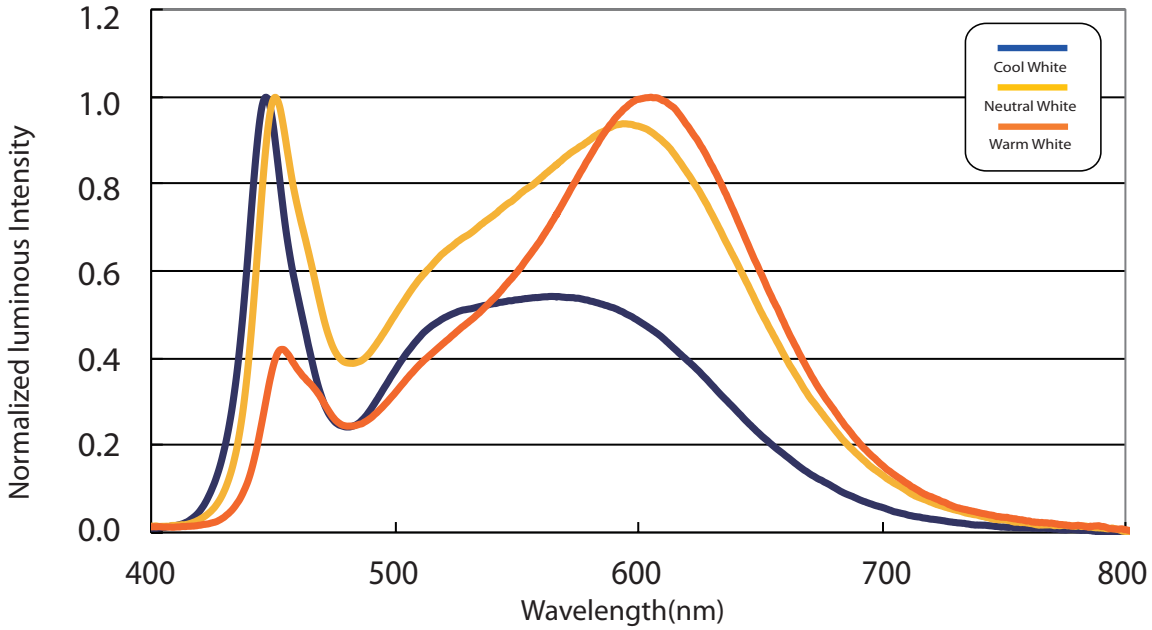
P00		P10		P20		P30		P40	
X	Y	X	Y	X	Y	X	Y	X	Y
0.4220	0.3790	0.4294	0.3943	0.4240	0.4065	0.4312	0.4234	0.4385	0.4404
0.4150	0.3635	0.4221	0.3790	0.4376	0.4116	0.4456	0.4287	0.4538	0.4460
0.4035	0.3580	0.4100	0.3738	0.4294	0.3943	0.4376	0.4116	0.4456	0.4287
0.4100	0.3740	0.4165	0.3890	0.4165	0.3890	0.4240	0.4065	0.4312	0.4234

N00		N10		N20		N30		N40	
X	Y	X	Y	X	Y	X	Y	X	Y
0.4100	0.3740	0.4165	0.3890	0.4086	0.3995	0.4086	0.3995	0.4385	0.4404
0.4035	0.3580	0.4100	0.3738	0.4240	0.4065	0.4148	0.4161	0.4312	0.4234
0.3917	0.3530	0.4021	0.3822	0.4165	0.3890	0.4312	0.4234	0.4148	0.4161
0.3966	0.3673	0.3966	0.3673	0.4021	0.3822	0.4240	0.4065	0.4209	0.4326

M00		M10		M20		M30		M40	
X	Y	X	Y	X	Y	X	Y	X	Y
0.4490	0.3875	0.4436	0.3991	0.4525	0.4162	0.4614	0.4333	0.4705	0.4508
0.4420	0.3750	0.4577	0.4029	0.4671	0.4196	0.4767	0.4366	0.4866	0.4542
0.4280	0.3700	0.4490	0.3875	0.4577	0.4029	0.4671	0.4196	0.4767	0.4366
0.4370	0.3840	0.4356	0.3837	0.4436	0.3991	0.4525	0.4162	0.4614	0.4333

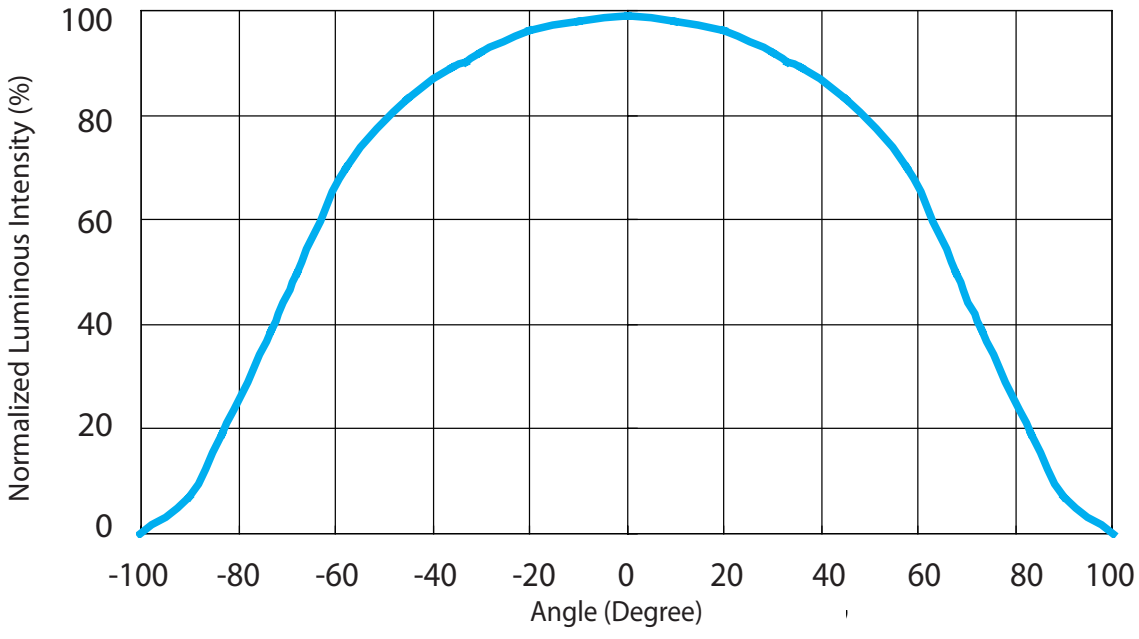
Characteristic curve

Color Spectrum



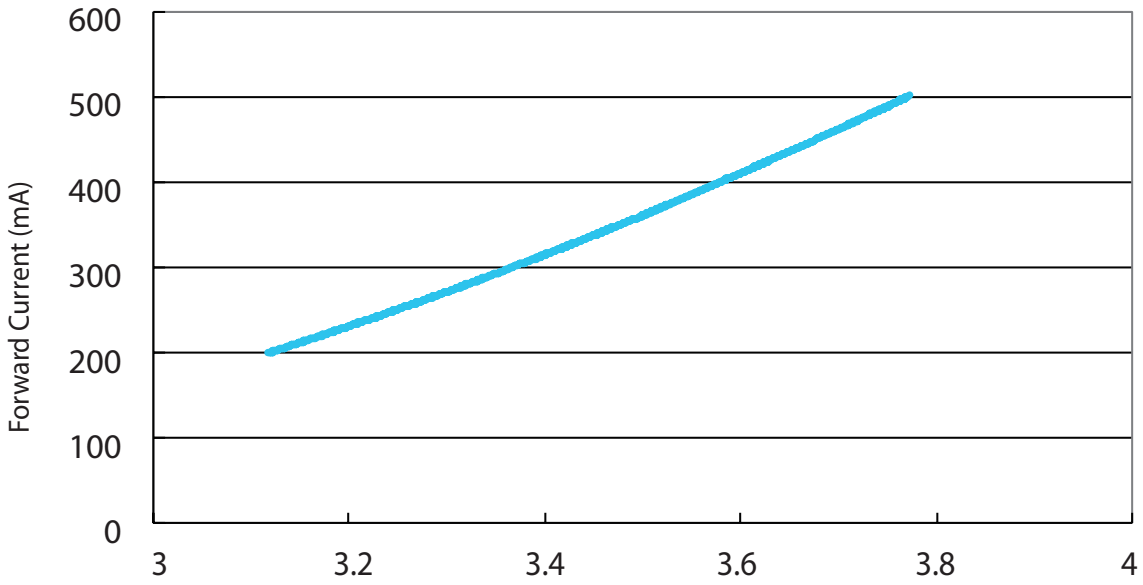
Color Spectrum at a typical CCT for Edixeon S White

Radiation Angle

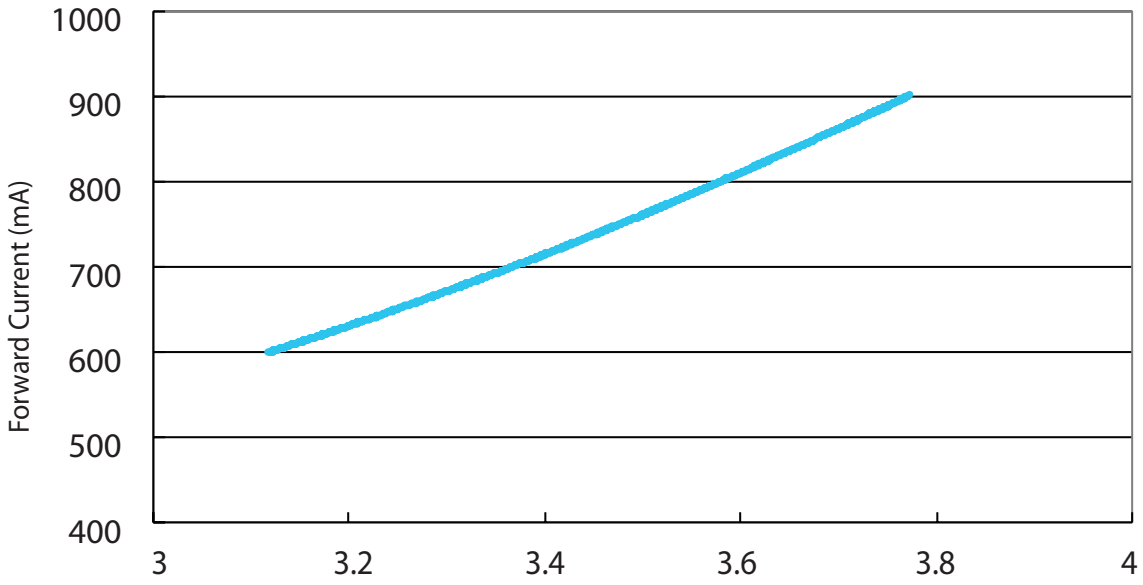


Radiation Angle for Edixeon S White

Forward Current vs. Forward Voltage

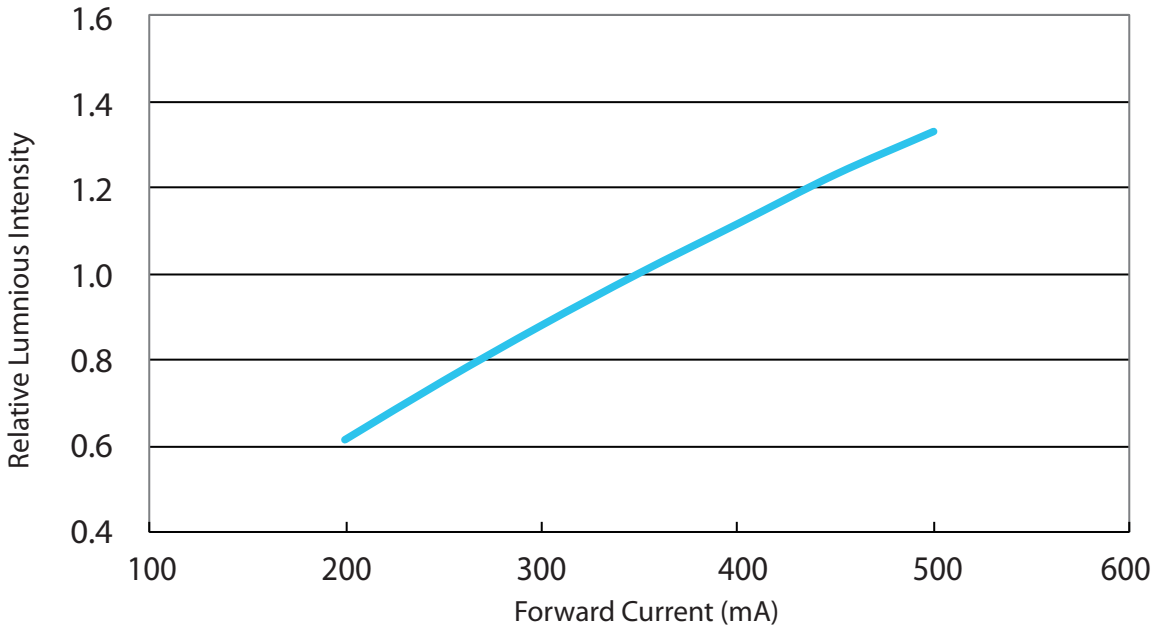


Forward Current vs. Forward Voltage for 1W White

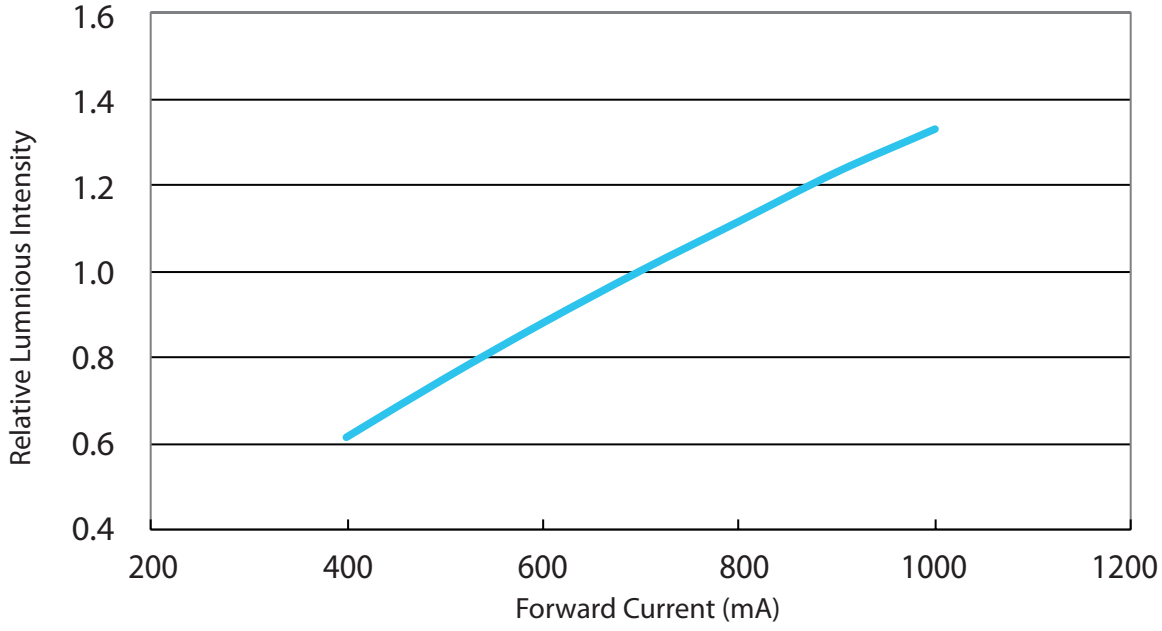


Forward Current vs. Forward Voltage for 3W White

Relative Luminous Intensity vs. Forward Current

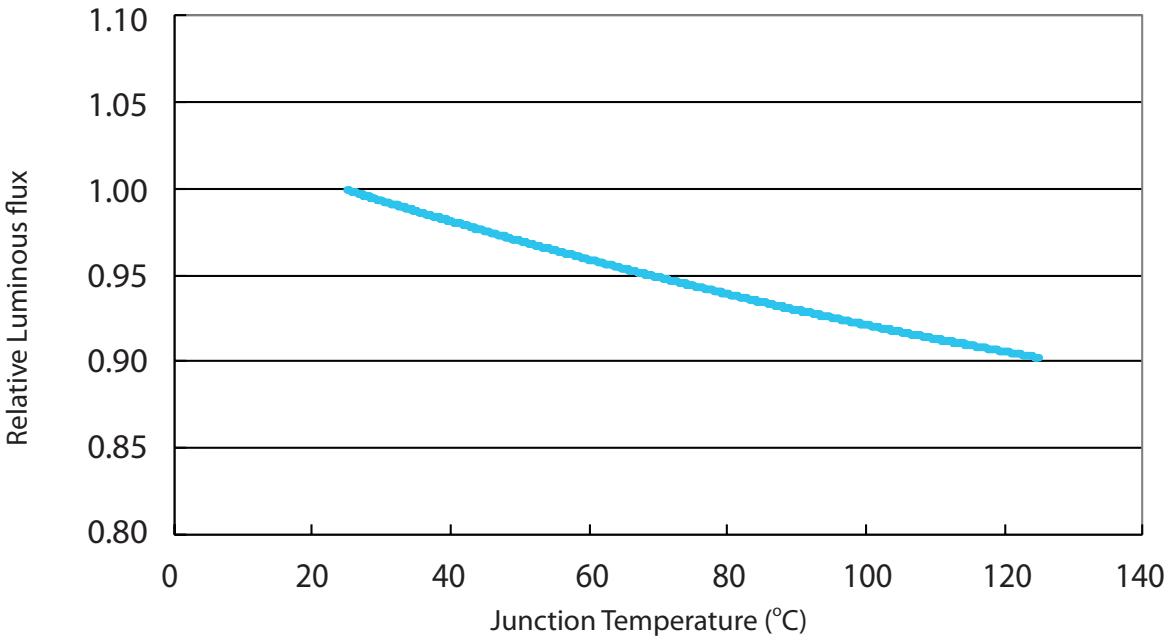


Relative Luminous Intensity vs. Forward Current for 1W White



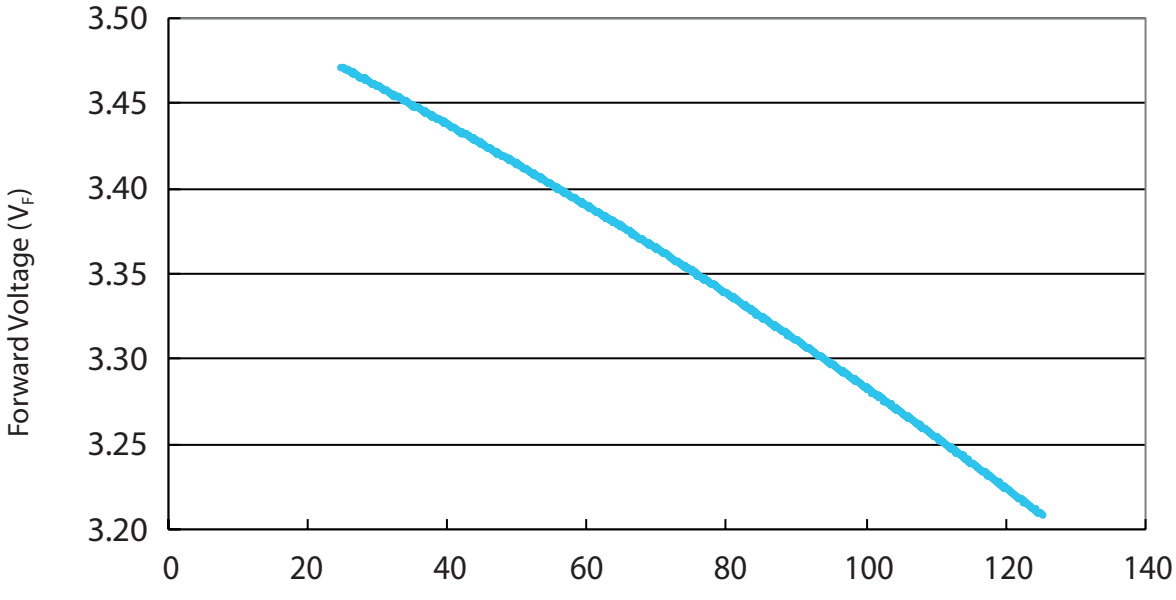
Relative Luminous Intensity vs. Forward Current for 3W White

Relative Luminous Flux vs. Junction Temperature



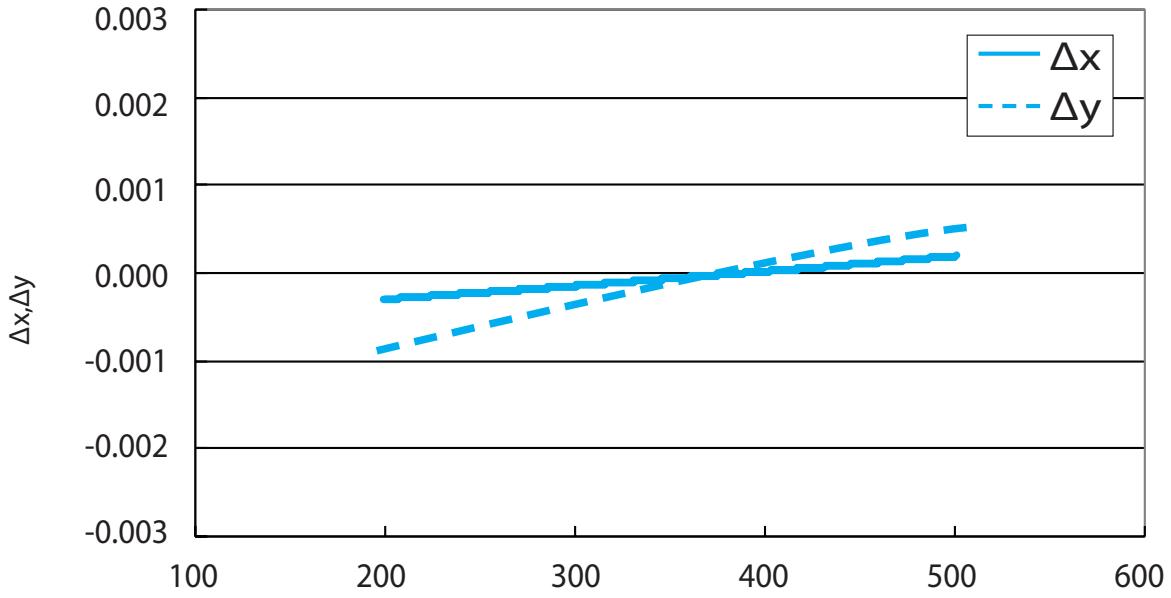
Relative Luminous flux vs. junction temperature for Edixeon S White

Forward Voltage vs. Junction Temperature

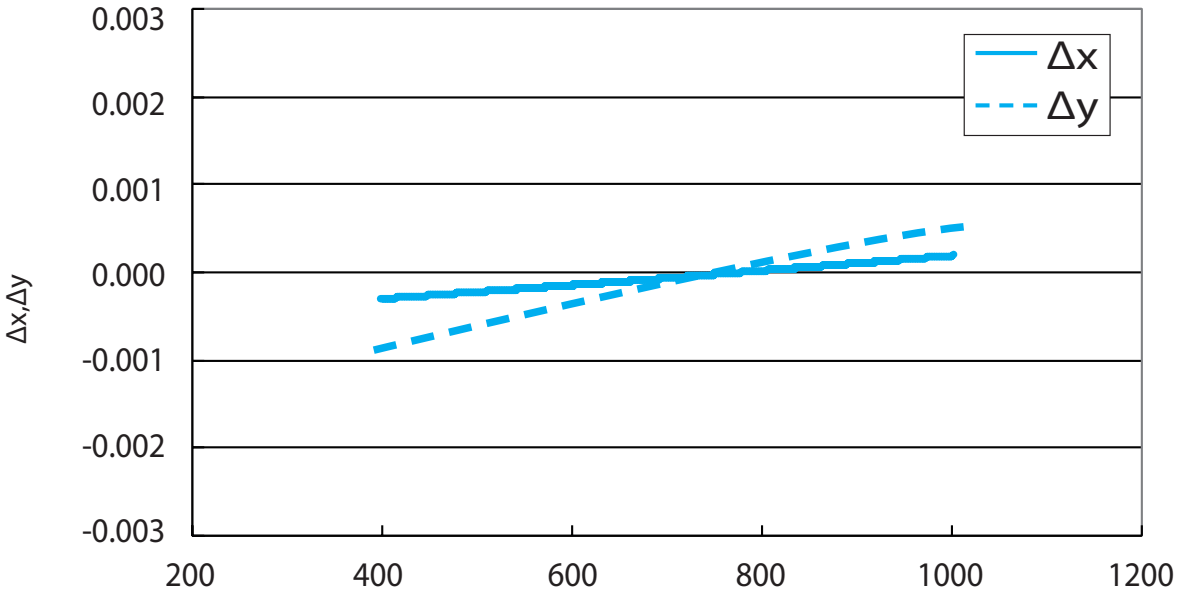


Forward voltage vs. junction temperature for Edixeon S White

Δx,Δy vs. Forward Current

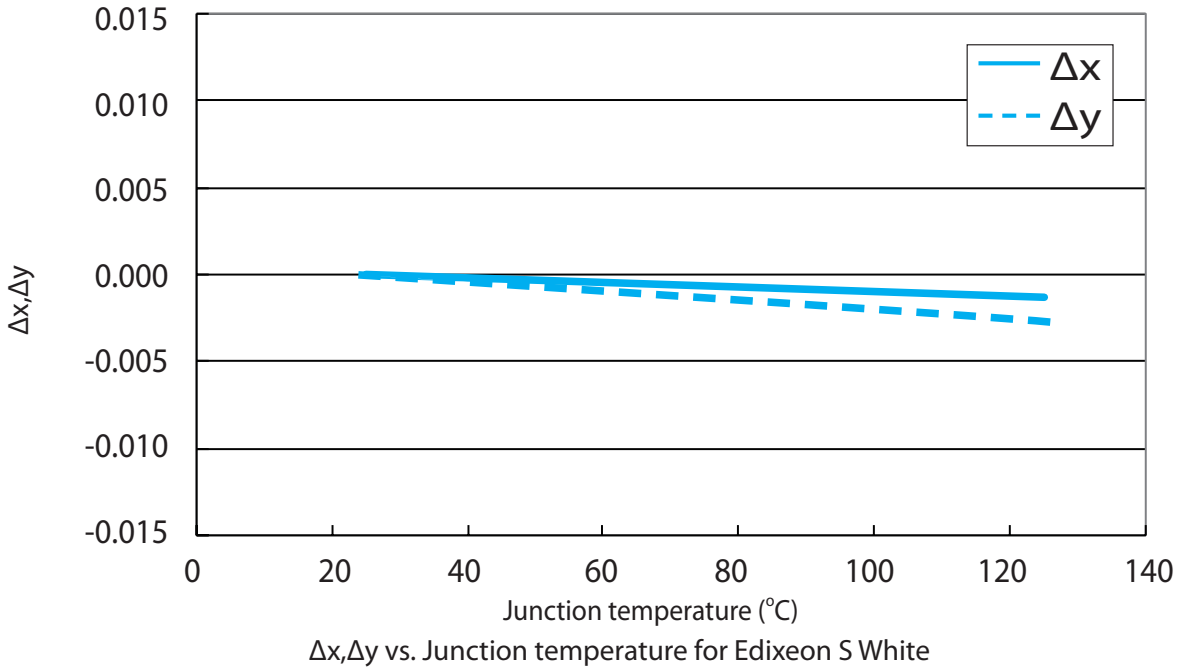


Δx,Δy vs. Forward Current for 1W White



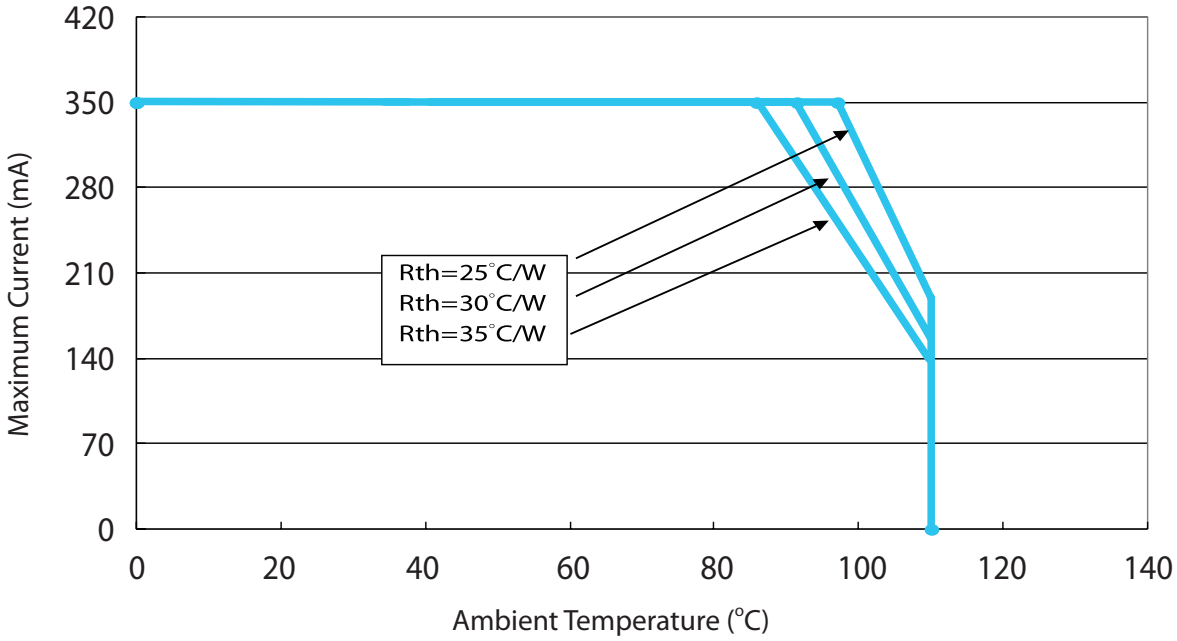
Δx,Δy vs. Forward Current for 3W White

Δx,Δy vs. Junction Temperature

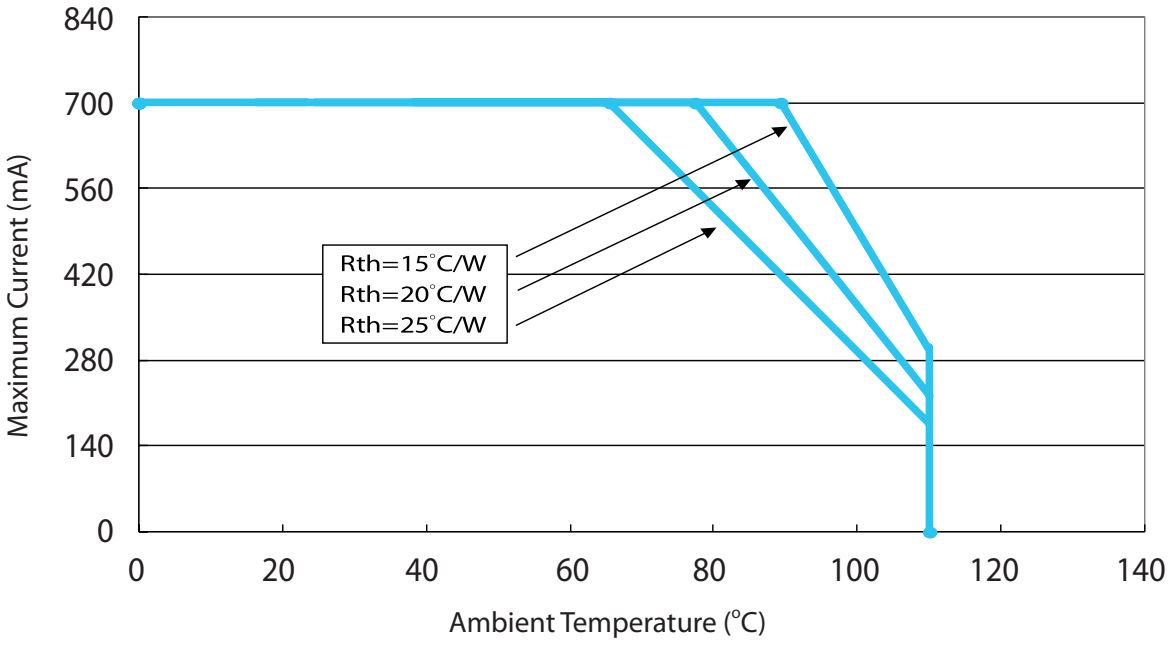


Δx,Δy vs. Junction temperature for Edixeon S White

Maximum Current vs. Ambient Temperature



Maximum Current vs. Ambient Temperature for 1W White

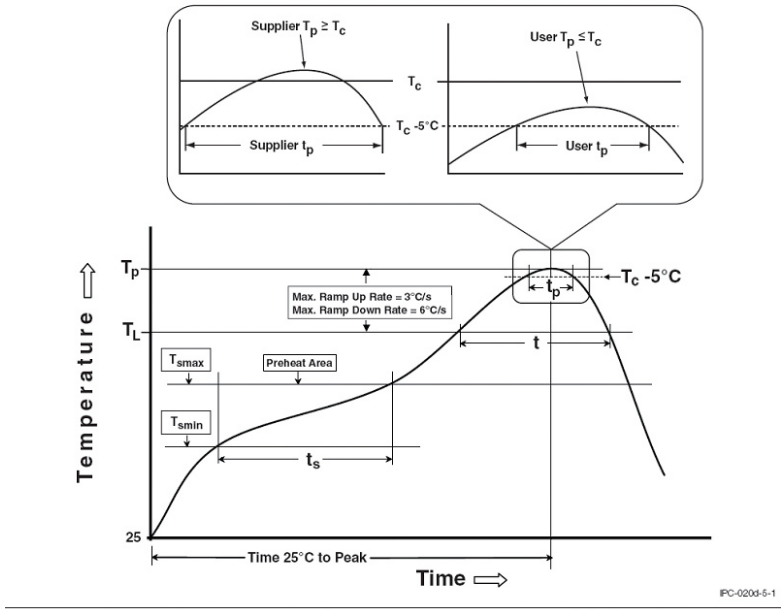


Maximum Current vs. Ambient Temperature for 3W White

Lighting Design Manufacturing Service

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.

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	10W times

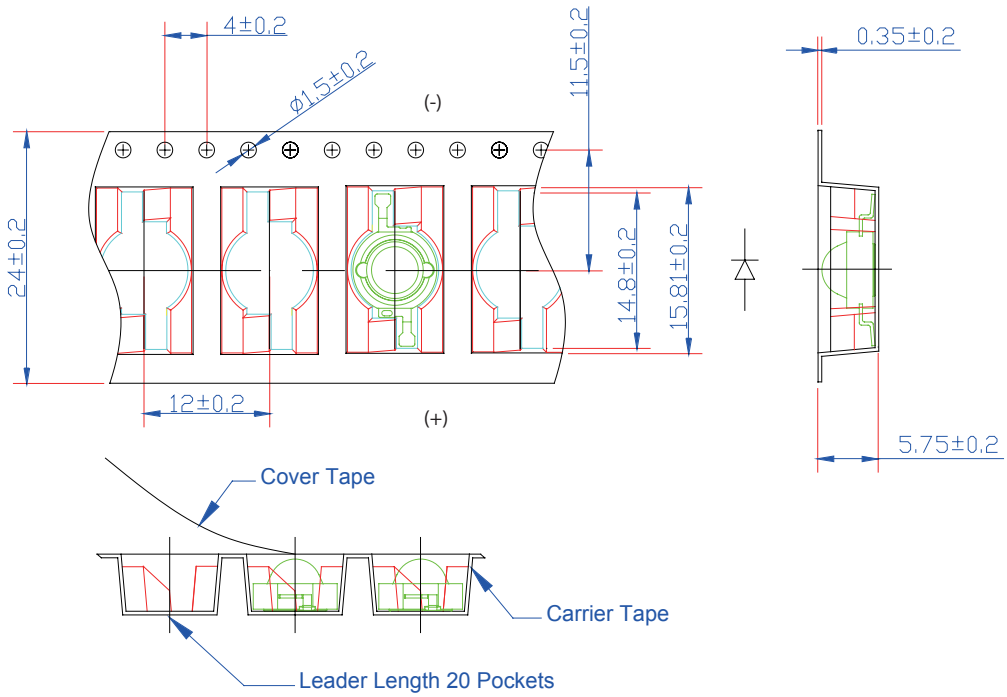
Failure Criteria

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	

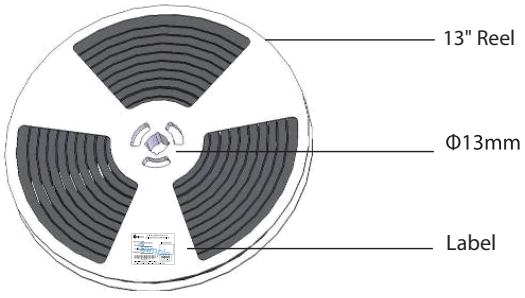
Lighting Design Manufacturing Service

Product Packaging Information

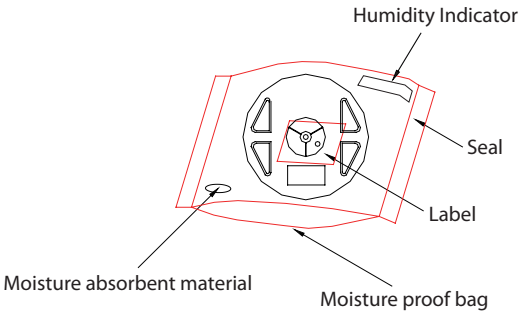
Tape and Reel Dimension

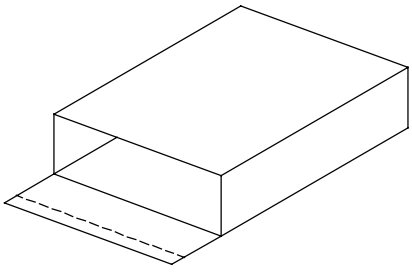


Edixeon Emitter

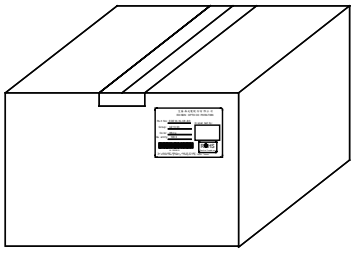


1000pcs LEDs inside





2 bags in 1 box



5 boxes in 1 carton

Note : 445*410*415 (Tolerance : ±5mm)

EDISON
Lighting Design Manufacturing Service

Revision History

Versions	Description	Release Date
1	Establish order code information	2014/05/19
2	1. Add color bin code 2. Add Voltage Bin structure	2015/01/21
3	Revise color bin code of Warm White CCT	2015/04/10

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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