Lighting Design Manufacturing Service

www.edison-opto.com

High Power LEDs

Edixeon® A 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® A series emitters are one of the highest flux LEDs in the world by Edison Opto. Edixeon® A 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® A series emitters are designed by particular package for High Power LED. 1W Edixeon® white has typical 100 lumens @350mA. Unlike most fluorescent sources, Edixeon® contains no mercury and has more energy efficient than other incandescent light source.

Product Nomenclature

The following table describes the available color, power, and lens type. For more flux and forward voltage information, please consult the Bin Group document.

Table 1. Edixeon®A series nomenclature

ED	E	X	-	1	L	A	5	-	E	1	-	A	B	16
X1	X2	X3		X4	X5	X6	X7		X8	X9		X10	X11	X12

X1 LED Item		X2 Module		X3 Emitting Color		X4 Power		X5 Lens Item	
Code	Type	Code	Type	Code	Type	Code	Type	Code	Type
ED	Edixeon®	E	Emitter	W	Cool White	1	1W	L	Lambertan(140°)
		S	Star	H	Neutral White	3	3W	S	Side Emitting(+/-80°)
				X	Warm White				
				R	Red				
				A	Amber (615nm)				
				T	True Green				
				B	Blue				

X6 Housing Item		X7~X8 Serial No.		X9 Testing Current		X10 Al PCB Type		X11 Al PCB Color		X12 PCB Thickness	
Code	Type	Code	Type	Code	Type	Code	Type	Code	Type	Code	Type
A	White	--	--	1	350mA	A	Star	W	White	10	1.0mm
				3	700mA	B	Square(25x25mm)	G	Green	16	1.6mm
						C	Square(30x30mm)	B	Black	20	2.0mm

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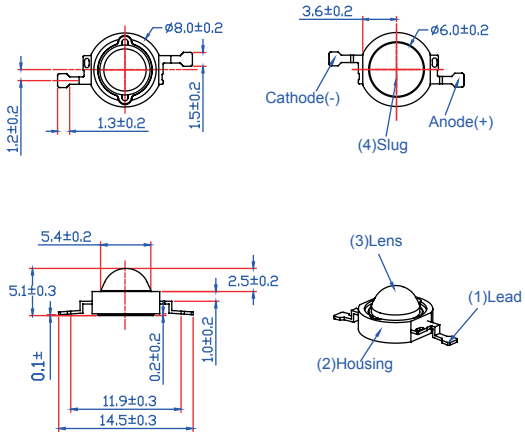
Dimensions

Lambertian, and Side Emitting Emitter Type

Lambertian



Side Emitting

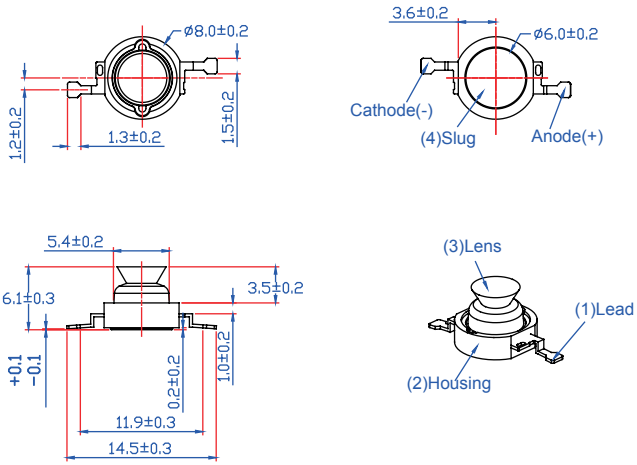
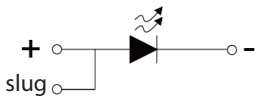


Figure 1. Edixeon® A series dimensions

Emitting Color	Slug at the bottom of the electrode	Circuit
R/A	Anode	
W/H/X/T/B/D	No electrode	

Notes:
1. All dimensions are in mm.
2. It is strongly recommended that the temperature of lead doesn't exceed 55°C.
3. Lambertian and side emitting series slug has polarity as anode.
4. 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.

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Star Dimensions

EDSx-xxxx-xx-Ax16

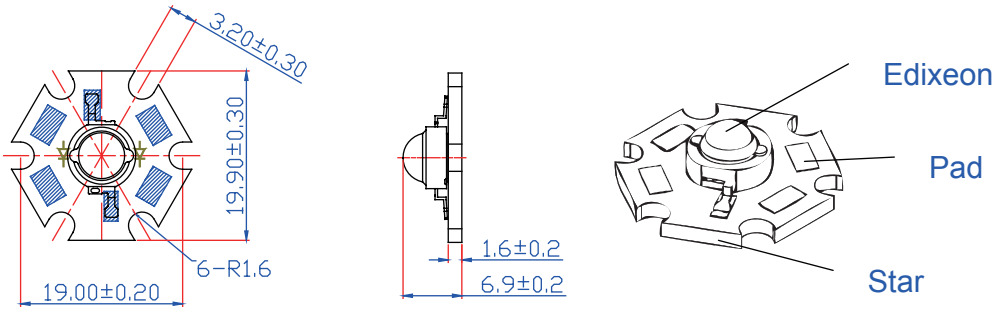

Figure 2. Edixeon® Star dimensions

Note: All dimensions are in mm.

Absolute Maximum Ratings

The following tables describe flux of Edixeon® A series under various current and different colors.

Table 2. Absolute maximum ratings for Edixeon® A series

Parameter	Rating(1W)	Rating(3W)	Unit	Symbol
DC Forward Current	350	700	mA	I_F
Peak pulse current;(tp≤100μs, Duty cycle=0.25)	700	1,000	mA	-
Reverse Voltage	5	5	V	V_R
Forward Voltage	5	5	V	V_F
LED junction Temperature (at DC Forward Current)	125	125	°C	T_J
Operating Temperature	-30 ~ +110	-30 ~ +110	°C	-
Storage Temperature	-40 ~ +120	-40 ~ +120	°C	-
ESD Sensitivity (Lambertian & Side Emitting)	2,000	1,000	V	-
ESD Sensitivity (Amber)	-	500	V	-
Manual Soldering Time at 260°C(Max.)	5	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

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Luminous Flux Characteristics

The following tables describe flux of Edixeon® A series under various current and different color.

Table 3. Luminous flux characteristics at I_F=350mA and T_J=25˚C: for 1W Edixeon® A series

Lens Item	Part Name	Color	Min Luminous Flux @350mA	
			Group	Flux(lm)
Lambertian	EDEW-1LA1-F1	Cool White	U2	90
			U3	100
	EDEW-1LA5	Cool White	U2	90
			U3	100
	EDEW-1LA5-F1	Cool White	U3	100
			V1	112.5
	EDEH-1LA1-E1	Neutral White	T2	70
			T3	80
			U1	86.5
	EDEH-1LA1-F1	Neutral White	T3	80
			U1	86.5
	EDEH-1LA5-E1	Neutral White	T2	70
			T3	80
			U1	86.5
	EDEH-1LA5-F1	Neutral White	U1	86.5
			U2	90
	EDEX-1LA1	Warm White	S2	58.8
			T1	66.5
			T2	70
	EDEX-1LA1-F1	Warm White	T1	66.5
			T2	70
	EDEX-1LA5-E1	Warm White	T1	66.5
			T2	70
	EDEX-1LA5-F1	Warm White	T2	70
			T3	80
	EDET-1LA2	True Green	S	51.2
			T	66.5
	EDER-1LA3	Red	R	39.4
			S	51.2
	EDEA-1LA3	Amber	R	39.4
			S	51.2
	EDEB-1LA5 EDEB-1LA1	Blue	N	17.9
			P	23.3
			Q	30.3

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Lens Item	Part Name	Color	Min Luminous Flux @350mA	
			Group	Flux(lm)
Side emitting	EDEW-1xAx	Cool White	T3	80
			U1	86.5

Table 4. Luminous flux characteristics at I_F=700mA and T_J=25˚C: for 3W Edixeon® A series

Lens Item	Part Name	Color	Min Luminous Flux @700mA	
			Group	Flux(lm)
Lambertian	EDEW-3LA1-1	Cool White	W1	146.2
	EDEH-3LA1-E3	Neutral White	V2	129.4
			W1	146.2
	EDEX-3LA1-E3	Warm White	U3	130.0
			V1	112.5
	EDEX-3LA1-F3	Warm White	V1	112.5
			V2	129.4
	EDER-3LA3-1	Red	U	86.5
			V	112.5
	EDEA-3LA3-1	Amber	U	86.5
			V	112.5
	EDET-3LA1-1	True Green	U	86.5
			V	112.5
	EDEB-3LA1-1	Blue	Q	30.3
			R	39.4
	EDED-3LA1-1	Dental Blue	L	10.6

Notes:
1. Flux is measured with an accuracy of ± 10%.
2. All cool white, neutral white, warm white, true green and blue emitters are built with InGaN
3. All red emitters are built with AlGaInP

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Characteristics

Optical Characteristics

Table 5. Optical characteristics at I_F=350mA and I_F=700mA; T_J=25°C for 1W / 3W Edixeon® A series

Lens Item	Part Name	Color	λd/CCT (K/nm)		Forward Current (mA)	CRI	Viewing Angle (Degree)
			Min.	Max.			
Lambertian	EDEW-1LA5	Cool White	5,000	10,000	350	68	135
	EDEW-1LA1	Cool White	5,000	10,000	350	68	135
	EDEW-1LA5-x1	Cool White	5,000	10,000	350	68	135
	EDEH-1LA5-x1	Neutral White	3,800	5,000	350	75	135
	EDEX-1LA5-x1	Warm White	2,670	3,800	350	80	135
	EDER-1LAx	Red	620	630	350	-	135
	EDEA-1LAx	Amber	585	595	350	-	135
	EDET-1LAx	True Green	515	535	350	-	150
	EDEB-1LAx	Blue	455	475	350	-	150
Side emitting	EDEW-1xA5	Cool White	5,000	10,000	350	68	135 110 80
Lambertian	EDEW-3LA1-1	Cool White	5,000	10,000	700	68	135
	EDEW-3LA5-F3	Cool White	5,000	10,000	700	68	135
	EDEW-3LA1-x3	Cool White	5,000	10,000	700	68	135
	EDEH-3LA1-x3	Neutral White	3,800	5,000	700	75	135
	EDEX-3LA1-x3	Warm White	2,670	3,800	700	80	135
	EDER-3LA3-1	Red	620	630	700	-	135
	EDEA-3LA3-1	Amber	585	595	700	-	135
	EDET-3LA1-1	True Green	515	535	700	-	150
	EDEB-3LA1-1	Blue	455	475	700	-	150
	EDED-3LA1-1	Dental Blue	450	470	700	-	150

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%

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Electrical Characteristics

Table 6. Electrical characteristics at I_F=350mA and I_F=700mA; T_J=25°C for 1W / 3W Edixeon® A series

Lens Item	Part Name	Color	V_F(V)		Forward Current (mA)
			Min.	Max.	
Lambertian	EDEW-1LA1-x1	Cool White	3.1	4.0	350
	EDEW-1LA5-x1	Cool White	3.1	4.0	350
	EDEH-1LAx-x1	Neutral White	3.1	4.0	350
	EDEX-1LAx-x1	Warm White	3.1	4.0	350
	EDER-1LA3	Red	2.0	3.0	350
	EDEA-1LA3	Amber	2.0	3.0	350
	EDET-1LA2	True Green	3.1	4.0	350
	EDEB-1LA5 EDEB-1LA1	Blue	3.1	4.0	350
Side emitting	EDEW-1xA5	Cool White	3.1	4.0	350
Lambertian	EDEW-3LA1-1	Cool White	3.4	4.3	700
	EDEW-3LA1-D3	Cool White	3.4	4.3	700
	EDEH-3LA1-x3	Neutral White	3.4	4.3	700
	EDEX-3LA1-x3	Warm White	3.4	4.3	700
	EDER-3LA3-1	Red	2.0	3.0	700
	EDEA-3LA3-1	Amber	2.0	3.0	700
	EDET-3LA1-1	True Green	3.4	4.3	700
	EDEB-3LA1-1	Blue	3.4	4.3	700
	EDED-3LA1-1	Dental Blue	3.4	4.3	700

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Temperature Coefficient

Table 7. Temperature coefficient of forward voltage & thermal resistance junction to case characteristics at T_J=25˚C for Edixeon® A series

Lens Item	Part Name	Color	$\Delta V_F/\Delta T$		$R\theta_{J-B}$	
			Typ.	Units	Typ.	Unit
Lambertian	EDEW-1LAx-x1	Cool White	-2	mV/˚C	11	˚C/W
	EDEH-1LAx-x1	Neutral White	-2	mV/˚C	11	˚C/W
	EDEX-1LAx-x1	Warm White	-2	mV/˚C	11	˚C/W
	EDER-1LA3	Red	-2	mV/˚C	11	˚C/W
	EDEA-1LA3	Amber	-2	mV/˚C	11	˚C/W
	EDET-1LA2	True Green	-2	mV/˚C	11	˚C/W
	EDEB-1LAx	Blue	-2	mV/˚C	11	˚C/W
Side Emitting	EDEW-1xA5	Cool White	-2	mV/˚C	15	˚C/W
Lambertian	EDEW-3LA1-1	Cool White	-2	mV/˚C	11	˚C/W
	EDEH-3LA1-E3	Neutral White	-2	mV/˚C	11	˚C/W
	EDEX-3LA1-x3	Warm White	-2	mV/˚C	11	˚C/W
	EDER-3LA3-1	Red	-2	mV/˚C	11	˚C/W
	EDEA-3LA3-1	Amber	-2	mV/˚C	11	˚C/W
	EDET-3LA1-1	True Green	-2	mV/˚C	11	˚C/W
	EDEB-3LA1-1	Blue	-2	mV/˚C	11	˚C/W
	EDED-3LA1-1	Dental Blue	-2	mV/˚C	11	˚C/W

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Characteristic Curve

Spectrum

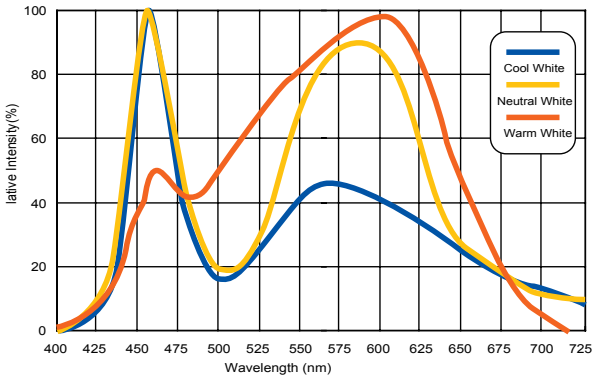

Figure 3. Cool White, neutral white and warm white color spectrum at T_J=25˚C.for Edixeon® A series

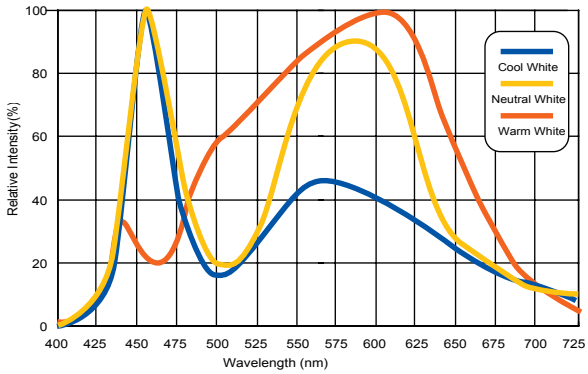

Figure 4. Color spectrum of typical CCT, standard eyes response to dotted curve line at T_J =25˚C for xLA5-Dx Edixeon® A series Cool White, Neutral White and Warm White

Radiation Diagram

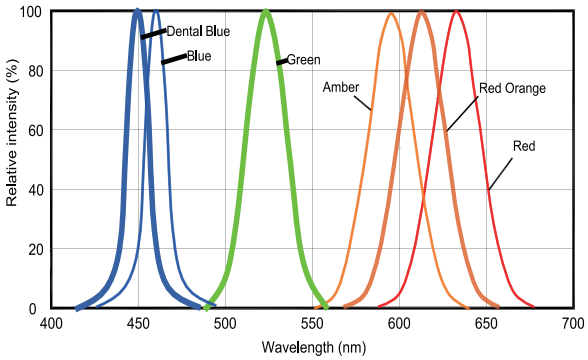

Figure 5. Red, Amber, True Green, Blue, Dental Blue color spectrum at T_J=25˚C for Edixeon® A series

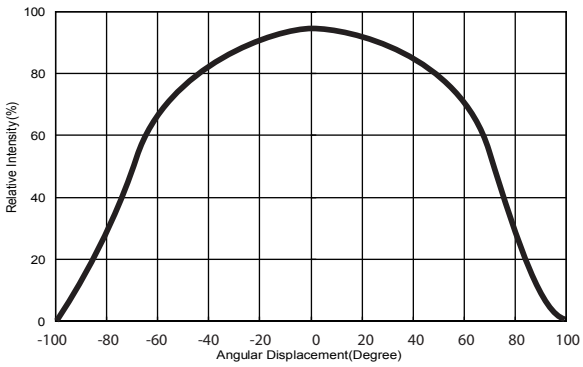

Figure 6. Lambertain at T_J =25˚C for Red and Amber

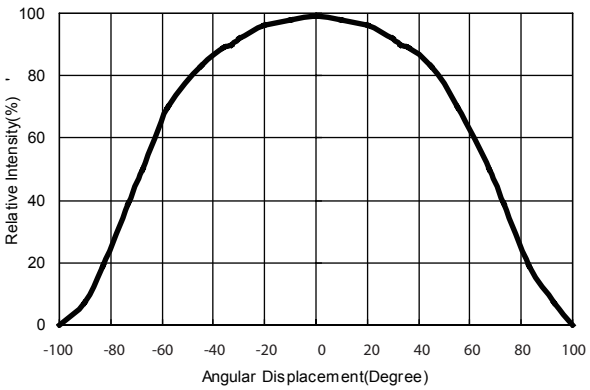

Figure 7. Lambertain at T_J =25˚C for Cool White, Neutral White, and Warm White

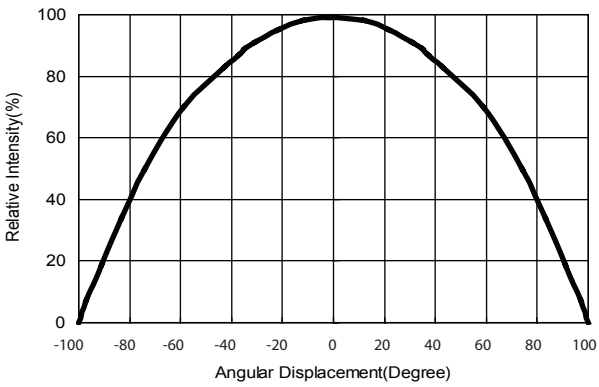

Figure 8. Lambertain at T_J =25˚C for Blue, Dental Blue and True Green

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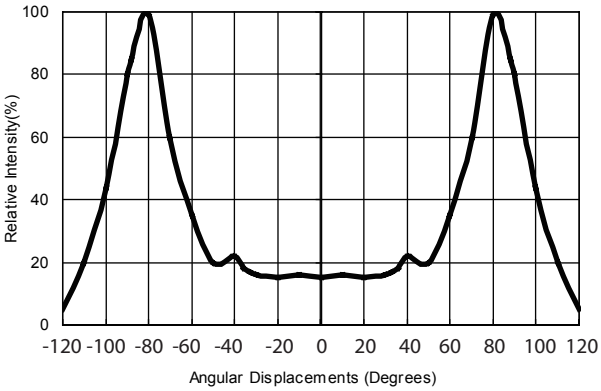

Figure 9. Side emitting at T_J =25°C for Cool White

Forward Voltage & Forward Current

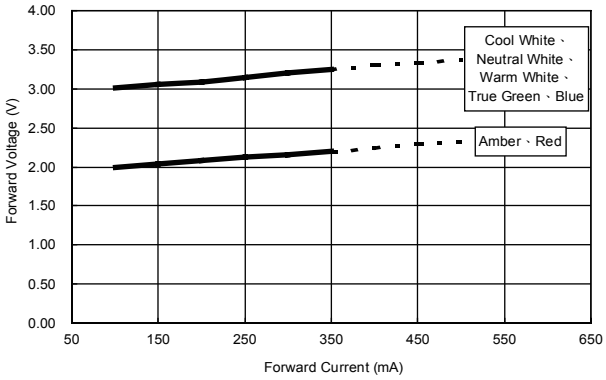

Figure 10. Forward current & forward voltage for 1W Edixeon® A series

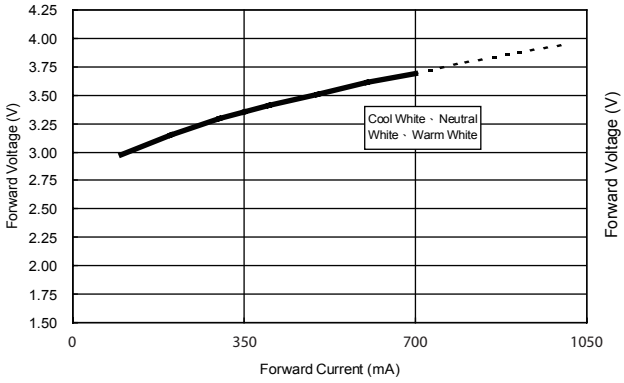

Figure 11. Forward current & forward voltage for 3W Edixeon® A series

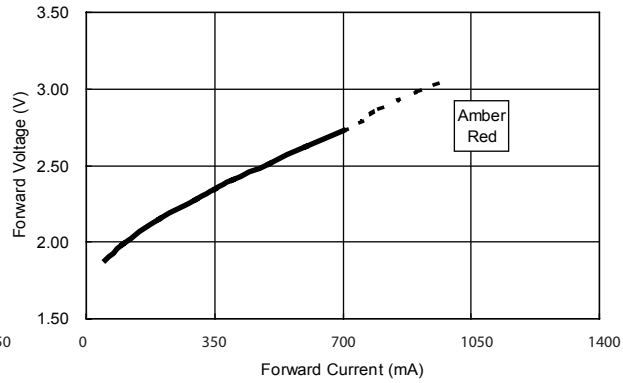

Figure 12. Forward current & forward voltage for 3W Edixeon® A series at T_J=25°C

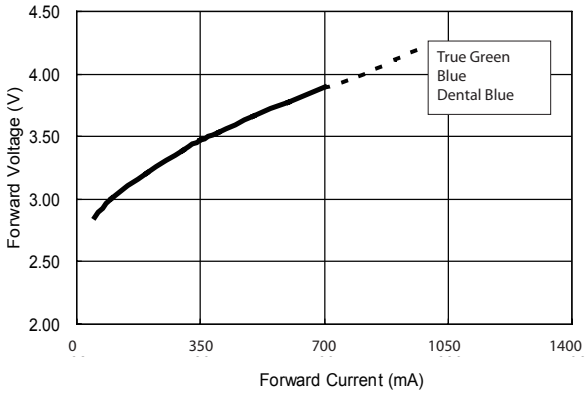

Figure 13. Forward current & forward voltage for 3W Edixeon® A series at T_J=25°C

Luminous Flux & Forward Current

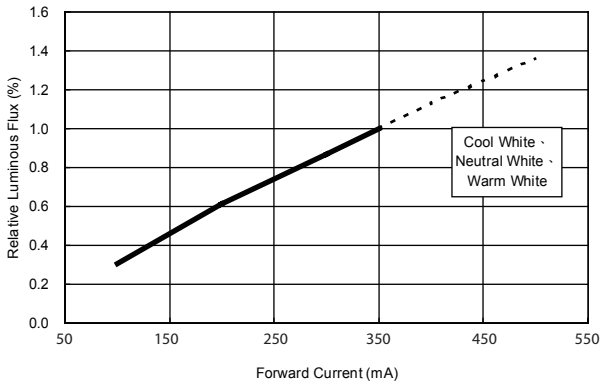

Figure 14. Forward current & relative luminous at T_J=25°C for 1W Edixeon® A series

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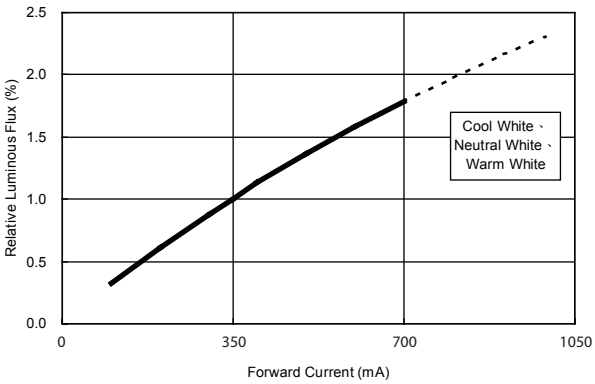

Figure 15. Forward current & relative luminous at T_J=25°C for 3W Edixeon® A series

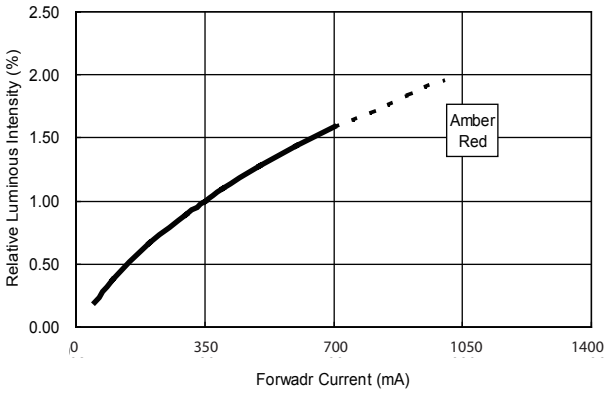

Figure 16. Forward current & relative luminous for 3W Edixeon® A series at T_J=25°C

CCT & Forward Current

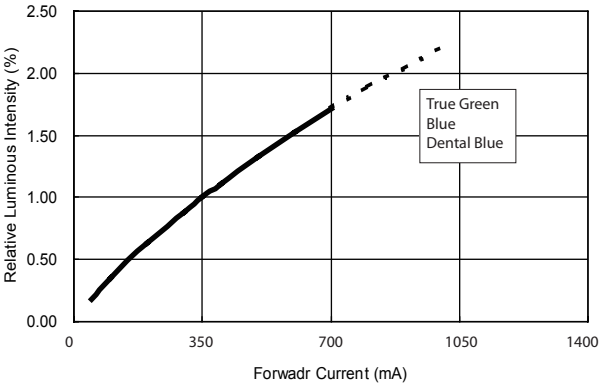

Figure 17. Forward current & relative luminous for 3W Edixeon® A series at T_J=25°C

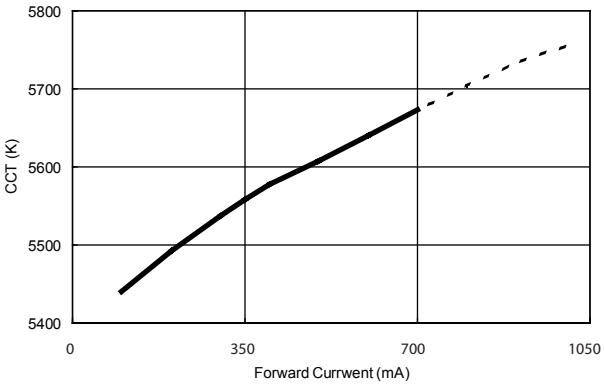

Figure 18. Forward current & CCT at T_J =25°C for Edixeon® A series Cool White

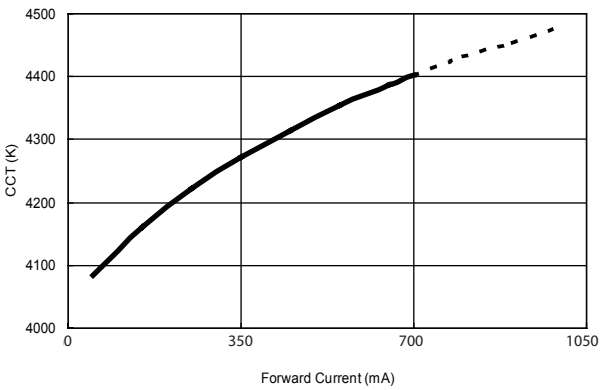

Figure19. Forward current & CCT at TJ =25oC for Edixeon® A series Neutral White

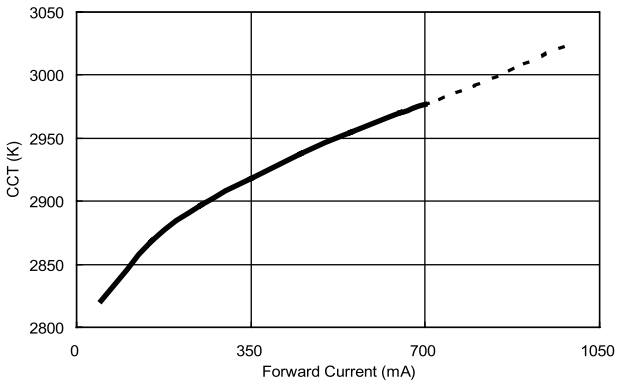

Figure 20. Forward current & CCT at T_J=25°C for Edixeon® A series Warm White

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Wavelength & Forward Current

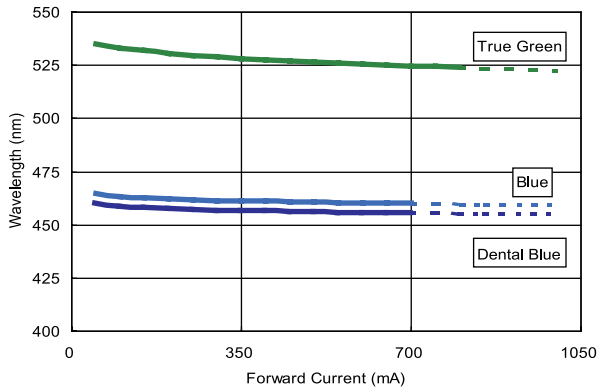

Figure 21. Forward current & wavelength at TJ=25oC for Edixeon® A series True Green, Blue and Dental Blue

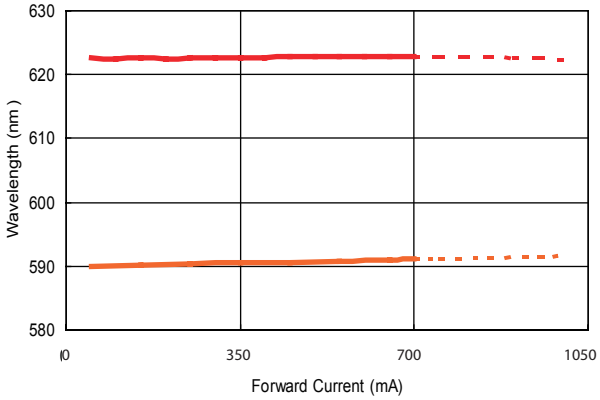

Figure 22. orward current & wavelength at TJ=25oC for Edixeon® A series Red and Amber

Junction Temperature & Output Power

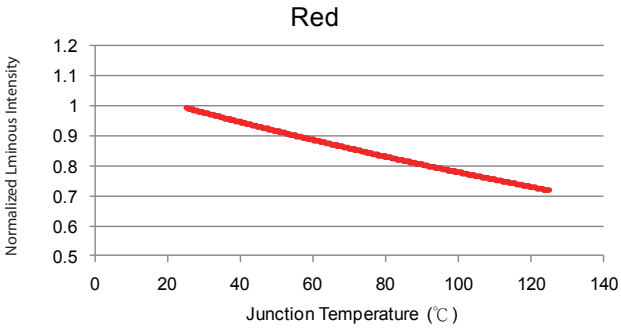

Figure 23. Normalized luminous intensity vs. Junction temperature for Edixeon® A series Red.

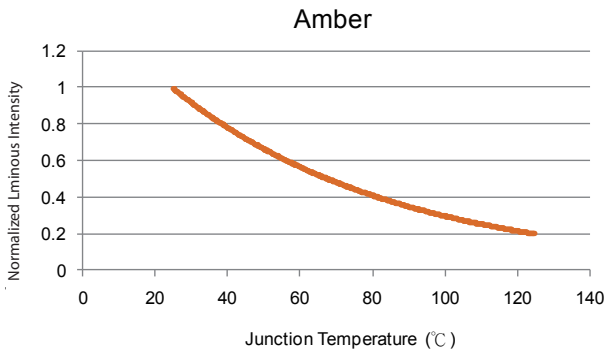

Figure 24. Normalized luminous intensity vs. Junction temperature for Edixeon® A series Amber.

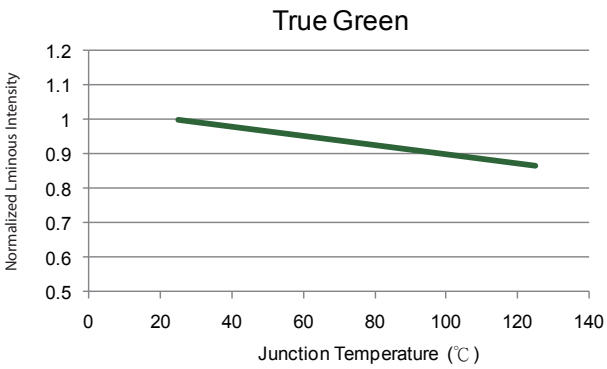

Figure 25. Normalized luminous intensity vs. Junction temperature for Edixeon® A series True Green.

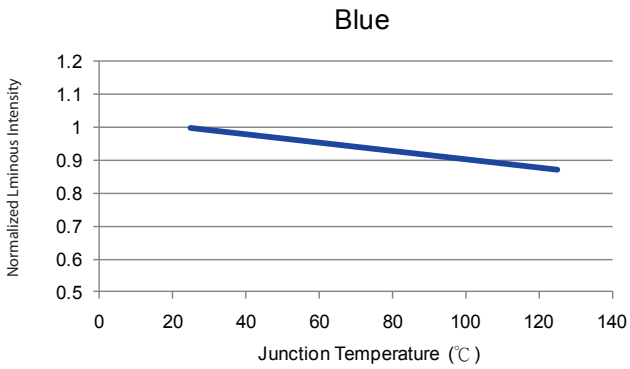

Figure26. Normalized luminous intensity vs. Junction temperature for Edixeon® A series Blue.

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Junction Temperature & Output Power

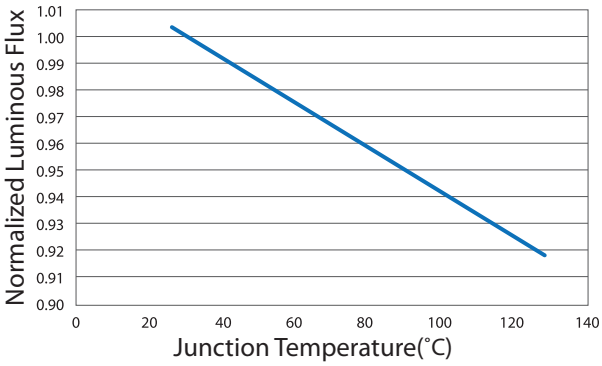

Figure 27. Relative luminous flux vs. thermal pad temperature for White series.

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Lighting Design Manufacturing Service

Revision History

Table 8. Revision history of Edixeon® A series datasheet

Version	Description	Release Date
1	1. Datasheet established	2008.01.29
2	1. Update Product Specifications	2008.10.24
3	1. Modify the brightness	2009.04.02
4	1. Add CRI-F Series	2010.02.05
5	1. Update the brightness	2010.03.02
6	1. Modify the Value	2010.03.29
7	1. Add Model	2011.02.09
8	1. Add Component	2011.04.01
9	1. Add EDEH-1LA1-F1	2011.06.16
10	1. Update the layout of datasheet 2. Update dimensions of emitter 3. Update the flux with bin group	2011.08.01
11	1. Update the Mechanical Dimensions 2. Add the data of CRI	2012.04.25
12	1. Absolute Maximum Ratings	2012.7.24
13	1. Update the Electrical Characteristics	2012.10.31

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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