

High Power LEDs

Edixeon[®] S Series Datasheet



Features :

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

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General Information


Introduction

Edixeon® S Series are ideal for various colors of lighting, signaling, and entertainment applications. These flux differentiated parts, like all other Edixeon® S Series, provide the best lumen maintenance, superior reliability and quality light.

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® S series nomenclature



ED		E		R		-		1		L		S		3		-		R		-		A		B		16		
X1		X2		X3				X4		X5		X6		X7				X8				X9		X10		X11		
LED Item		Module		Emitting Color				Power				Lens Item																
Code	Type	Code	Type	Code	Type	Code	Type	Code	Type	Code	Type	Code	Type	Code	Type	Code	Type	Code	Type	Code	Type	Code	Type	Code	Type	Code	Type	
ED	Edixeon®	E	Emitter	R	Red	1	1W	L	Lambertan(140°)																			
		S	Star	O	Red Orange	3	Stage Lighting (3W)																					
				A	Amber																							
				T	True Green																							
				J	Cyan																							
				B	Blue																							
				D	Dental Blue																							
				C	Royal Blue																							
X6~X8 Shape Item		X9 Al PCB Type		X10 Al PCB Color		X11 PCB Thickness																						
Code	Type	Code	Type	Code	Type	Code	Type	Code	Type	Code	Type	Code	Type	Code	Type	Code	Type	Code	Type	Code	Type	Code	Type	Code	Type	Code	Type	
--	--	A	Star	B	Black	16	1.6mm																					
		B	Square(25x25mm)			20	2.0mm																					
		C	Square(30x30mm)																									

Mechanical Dimensions

Emitter Dimensions

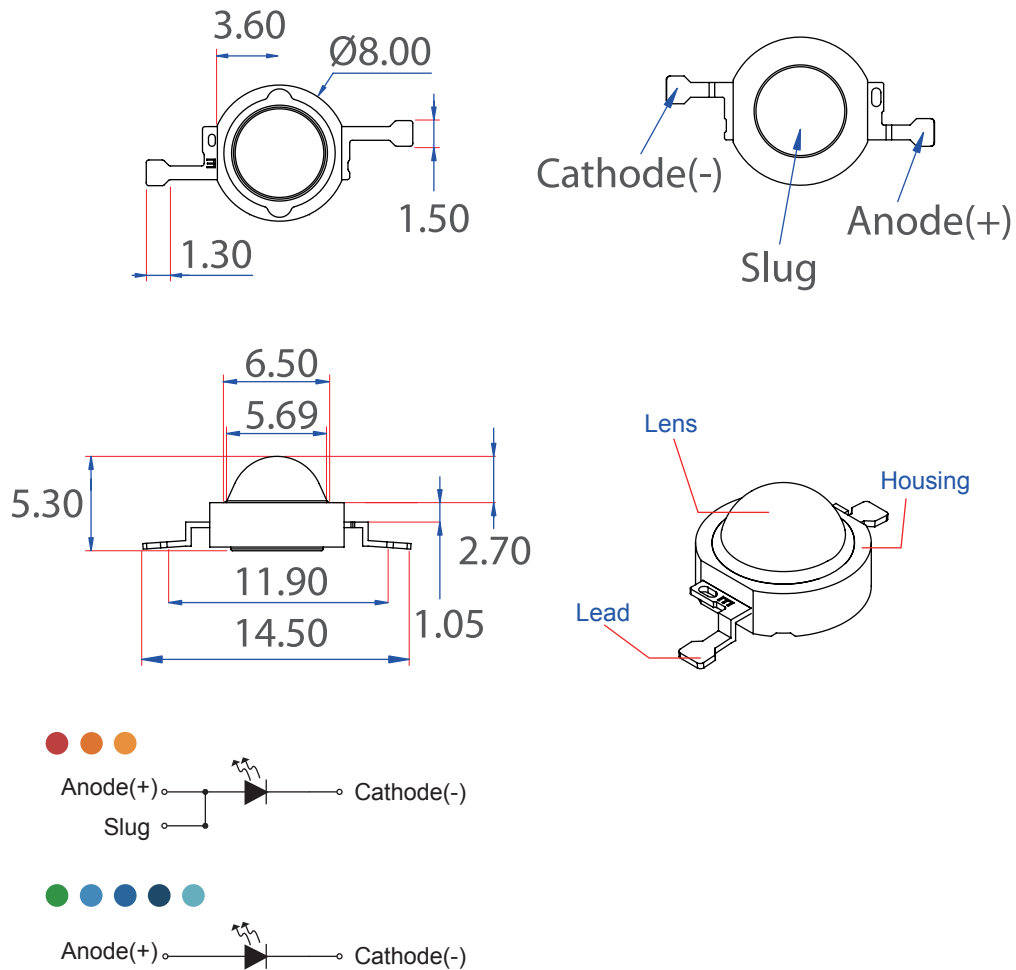


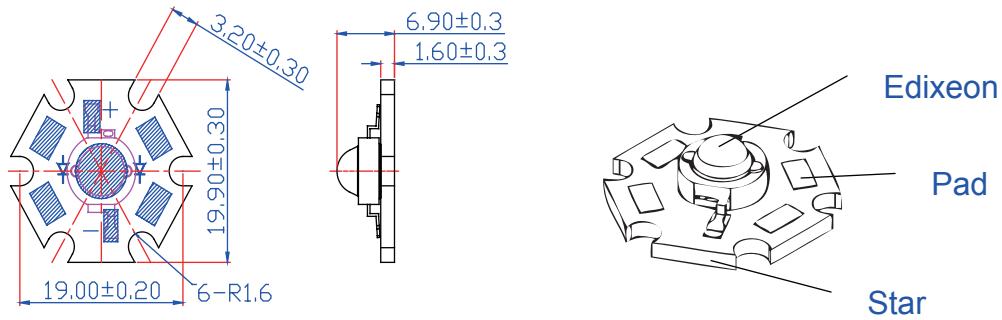
Figure 1. Edixeon® S series dimensions and circuits

Notes:

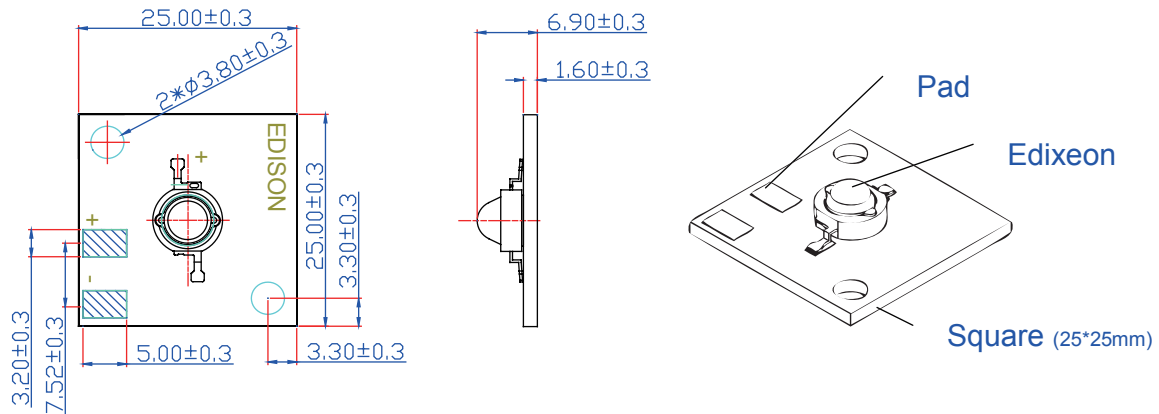
1. All dimensions are in mm.
2. Drawings are not to scale.
3. It is strongly recommended to apply an electrically isolated heat conducting film between the slug and contact surfaces.

LED Package with Star Dimensions and Polarity

EDSx-xLSx-xx-Ax16



EDSx-xLSx-xx-Bx16



EDSx-xLSx-xx-Cx16

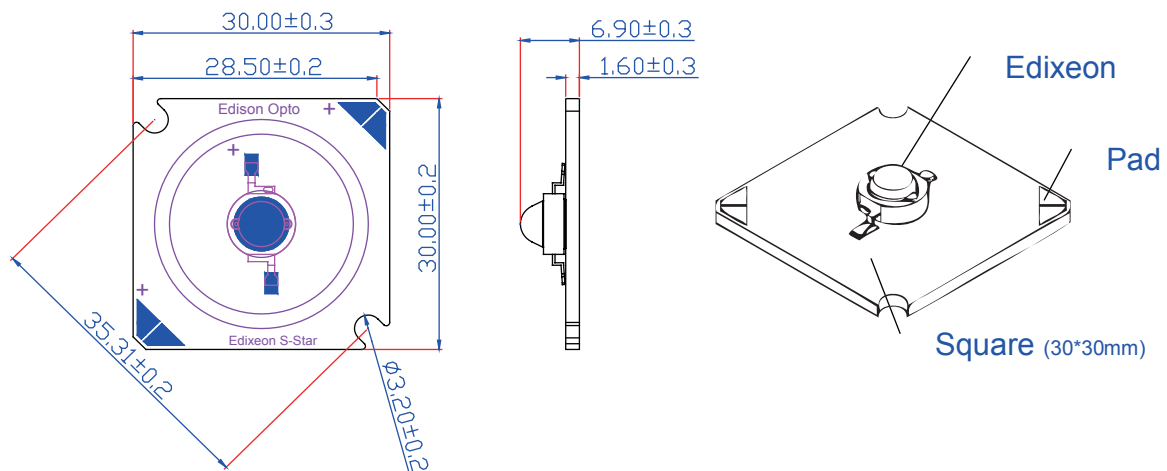


Figure 2. Edixeon® star dimensions

Note:

All dimensions are in mm.

Absolute Maximum Ratings

The following tables describe the characteristics of Edixeon® S Series under various current.

Table 2. Absolute maximum ratings for Edixeon® S series

Parameter	Rating(1W)	Rating(3W)	Unit	Symbol
DC Forward Current(1W)	350	700	mA	I_F
Peak pulse current; ($t_p \leq 100\mu s$, Duty cycle=0.25)	500	1,000	mA	-
Reverse Voltage	5	5	V	V_R
Drive Voltage	5	5	V	V_D
LED junction Temperature	125	125	°C	T_j
Operating Temperature	-30 ~ +110	-30 ~ +110	°C	-
Storage Temperature	-40 ~ +120	-40 ~ +120	°C	-
Soldering Temperature	260	260	°C	-
ESD Sensitivity (HBM)	2,000	2,000	V	V_B
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. Allowable reflow cycles are 3 times for each LED.
4. t_p : Pulse width time

Luminous Flux Characteristics

The following tables describe flux of Edixeon® S Series under various current and different color.

Table 3. Luminous flux characteristics at $T_j=25^{\circ}\text{C}$ for Edixeon® S series

Part Name	Color	Min Luminous Flux @350mA		Unit
		Group	Flux(lm or mW)	
EDER-1LS3-R	Red	R	39.4	lm
		S	51.2	
EDER-SLC3-R	Red	T	66.5	lm
		U	86.5	
		V	112.5	
EDEO-1LS3-R	Red Orange	R	39.4	lm
		S	51.2	
EDEO-SLC3-R	Red Orange	T	66.5	lm
		U	86.5	
		V	112.5	
EDET-1LS1-R	True Green	S	51.2	lm
		T	66.5	
EDET-SLC5-R	True Green	V	112.5	lm
		W	146.2	
EDEB-1LS5-R	Blue	N	17.9	lm
		P	23.3	
		Q	30.3	
EDEB-SLC5-R	Blue	Q	30.3	lm
		R	39.4	
EDEA-1LS3-R	Amber	R	39.4	lm
		S	51.2	
EDEA-SLC3-R	Amber	T	66.5	lm
		U	86.5	
		V	112.5	
EDEJ-1LS1-R	Cyan	S	51.2	lm
		T	66.5	
EDEC-1LS5-R	Royal Blue	J	256.3	mW
EDEC-SLC5-R		L	576.7	mW
EDED-1LS5-R	Dental Blue	J	256.3	mW
EDED-SLC5-R		L	576.7	mW

Note:

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

Characteristics

Optical Characteristics

Table 4. Optical characteristics at $T_j=25^{\circ}\text{C}$

Lens Item	Part Name	Color	Wavelength (nm)		Viewing Angle (Degree)
			Min.	Max.	
Lambertian	EDER-xLxx-R	Red	620	630	135
Lambertian	EDEO-xLxx-R	Red Orange	610	620	135
Lambertian	EDEA-xLxx-R	Amber	585	595	135
Lambertian	EDET-xLxx-R	True Green	515	535	150
Lambertian	EDEJ-xLxx-R	Cyan	490	510	150
Lambertian	EDEB-xLxx-R	Blue	455	475	150
Lambertian	EDEC-xLxx-R	Royal Blue	440	460	150
Lambertian	EDED-xLxx-R	Dental Blue	450	470	150

Notes:

1. Wavelength is measured with an accuracy of $\pm 0.5\text{nm}$
2. Emission is measured with an accuracy of ± 10 Degree.

Electrical Characteristics

Table 5. Electrical characteristics at $I_f=350\text{mA}$, $I_f=700\text{mA}$ and $T_j=25^{\circ}\text{C}$ for Edixeon® S series

Part Name	Color	V_f (V)	I_f (mA)	Thermal Resistance ($^{\circ}\text{C}/\text{W}$)
		Typ.		
EDER-1LS5-R	Red	2.2	350	10
EDER-3LS5-R		2.4	700	10
EDET-1LS1-R	True Green	3.4	350	10
EDET-3LC5-R		3.7	700	10
EDEB-1LS5-R	Blue	3.4	350	10
EDEB-3LS5-R		3.7	700	10
EDEO-1LS3-R	Red Orange	3.4	350	10
EDEO-3LC3-R		3.7	700	10
EDEA-1LS3-R	Amber	3.4	350	10
EDEA-3LS3-R		3.7	700	10
EDEC-1LS5-R	Royal Blue	3.4	350	10
EDEC-3LS5-R		3.7	700	10
EDED-1LS5-R	Dental Blue	3.4	350	10
EDED-3LS5-R		3.7	700	10
EDEJ-1LS1-R	Cyan	3.4	350	10

Note:

Forward voltage is measured with an accuracy of $\pm 0.1\text{V}$

Characteristic Curve

Spectrum

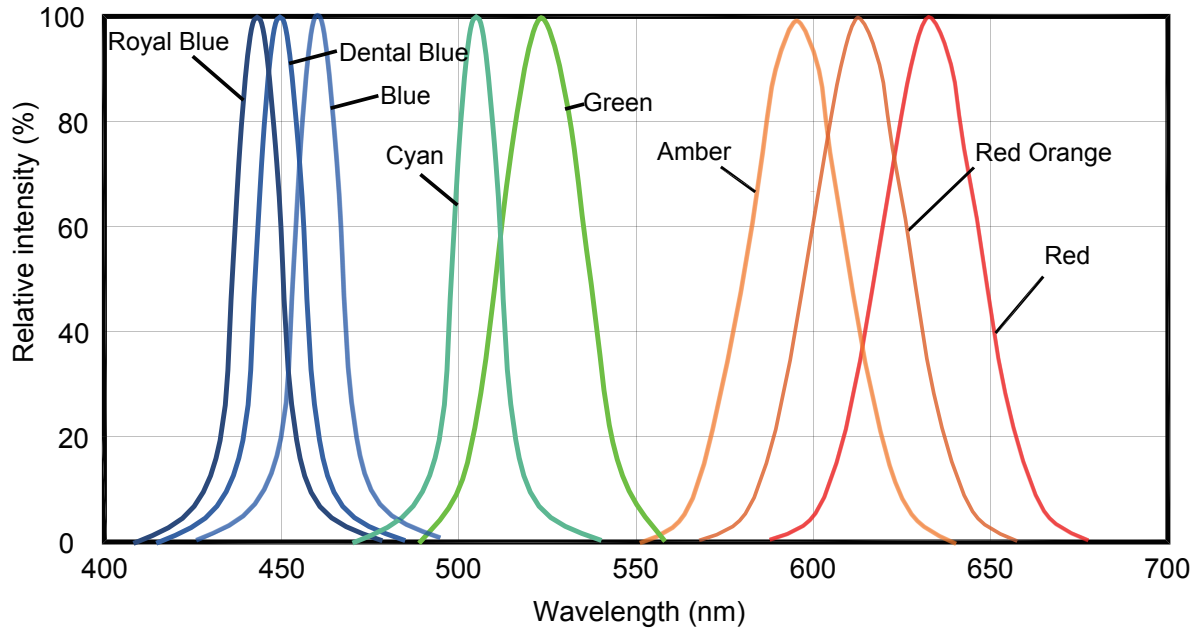


Figure 4. Color spectrum at $T_j=25^{\circ}\text{C}$

Radiation Diagram

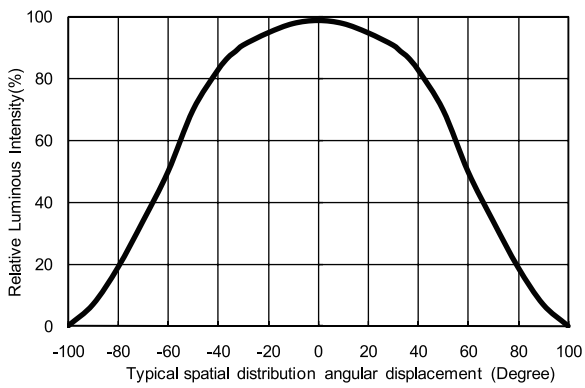


Figure 5. Typical Spatial distribution for Red, Amber and Red Orange

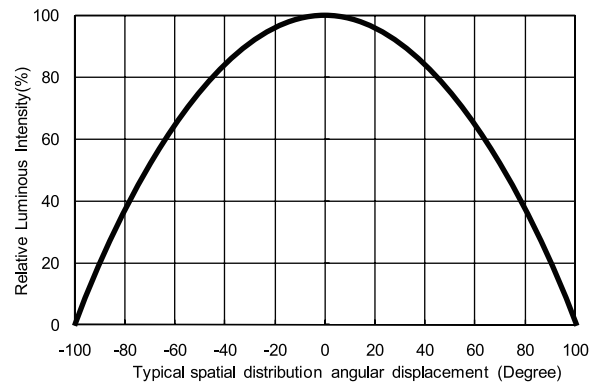


Figure 6. Typical Spatial distribution for Blue and True Green, Cyan, Dental Blue, Royal Blue

Forward Voltage & Forward Current

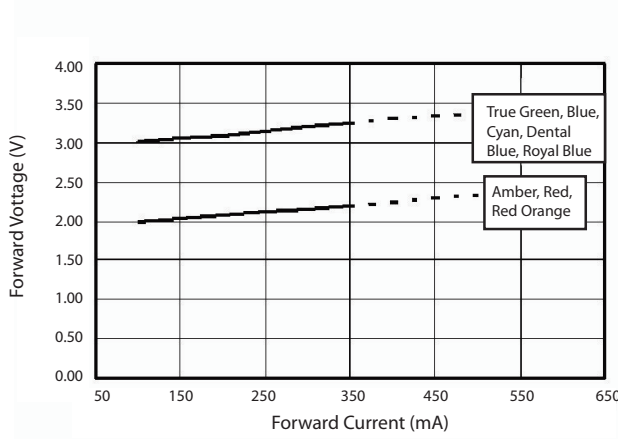


Figure 7. Forward Current & Forward Voltage for 1W Edixeon® S series

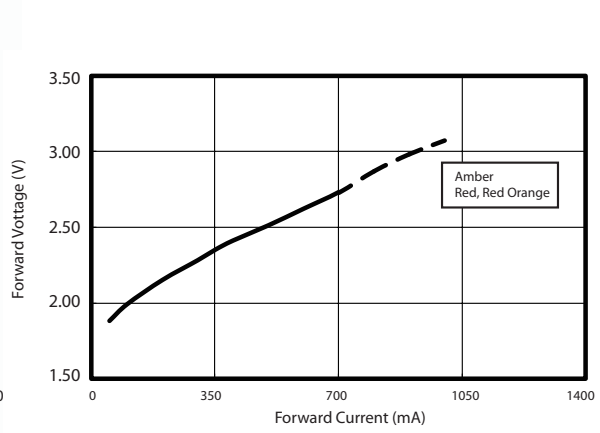


Figure 8. Forward Current & Forward Voltage for 3W Edixeon® S series at $T_j=25^\circ\text{C}$

Luminous Flux & Forward Current

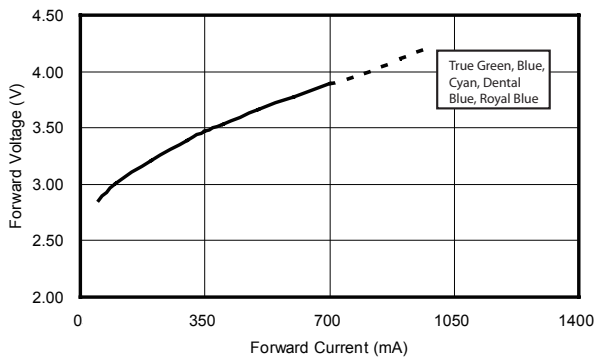


Figure 9. Forward Current & Forward Voltage for 3W Edixeon® S series at $T_j=25^\circ\text{C}$

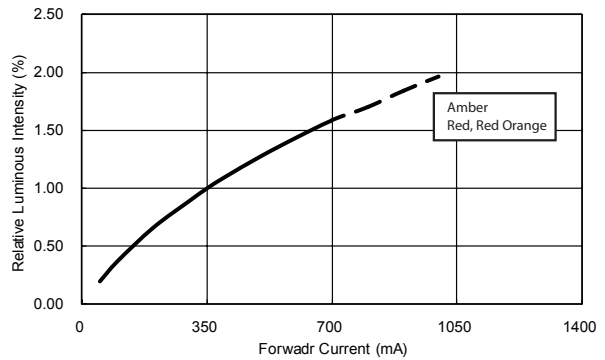


Figure 10. Forward Current & Relative Luminous for 3W Edixeon® S series at $T_j=25^\circ\text{C}$

Wavelength & Forward Current

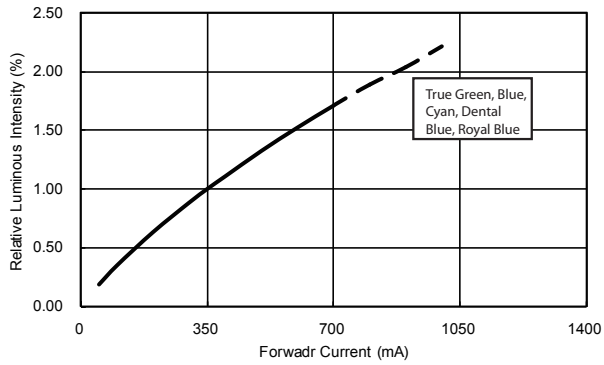


Figure 11. Forward Current & Relative Luminous for 3W Edixeon® S series at $T_j=25^\circ\text{C}$

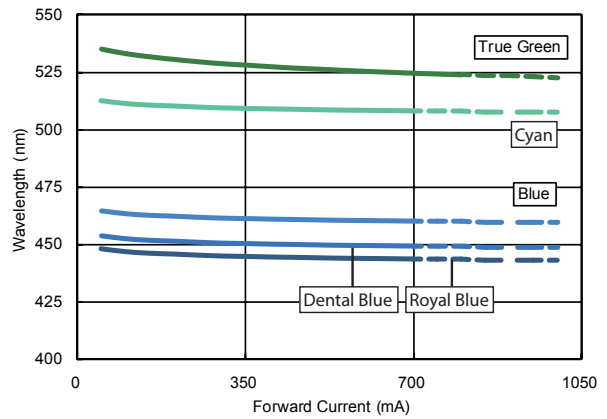


Figure 12. Forward Current & Wavelength at $T_j=25^\circ\text{C}$ for Edixeon® S series True Green and Blue

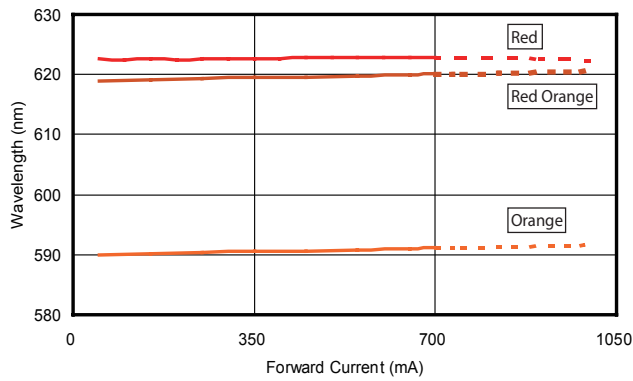


Figure 13. Forward Current & Wavelength at $T_j=25^\circ\text{C}$ for Edixeon® S series Red and Amber

Revision History

Table 6. Revision history of Edixeon® S series datasheet

Version	Description	Release Date
9	<ol style="list-style-type: none"> 1. Update the layout of datasheet 2. Update dimensions of emitter 3. Update the flux with bin group 	2011.08.11
10	<ol style="list-style-type: none"> 1. Update the Optical 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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