



Lighting Design Manufacturing Service

www.edison-opto.com

High Power LEDs

IR/UV Edixeon[®] S Series Datasheet



Features :

- Low voltage operation
- Instant light
- Long operating life
- Reflow process compatible.



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General Information

Introduction

IR/UV Edixeon® emitters are one of the highest power LEDs in the world by Edison Opto. IR/UV Edixeon® emitters are designed to satisfy more and more Solid-State lighting High Power LED applications for CCTV, plant lights.

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 - EF - 1LS3 - R - AB 16

X1 X2 X3 X4 X5 X6 X7 X8 X9 X10 X11

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	V	Ultra Violet	1	1W	L	Lambertan (140°)
		S	Star	E	Deep Red	S	3W		
				F	Cherry Red				
				I	IR 850nm				
				N	IR 940nm				

X6-X8 Serial No.		X9 AI PCB Color		X10 AI PCB Color		X11 Shape Item	
Code	Type	Code	Type	Code	Type	Code	Type
-	-	A	Star	B	Black	10	1.0mm
		B	Square (25x25mm)			16	1.6mm
		C	Square (30x30mm)			20	2.0mm

Mechanical Dimensions

Emitter Dimensions

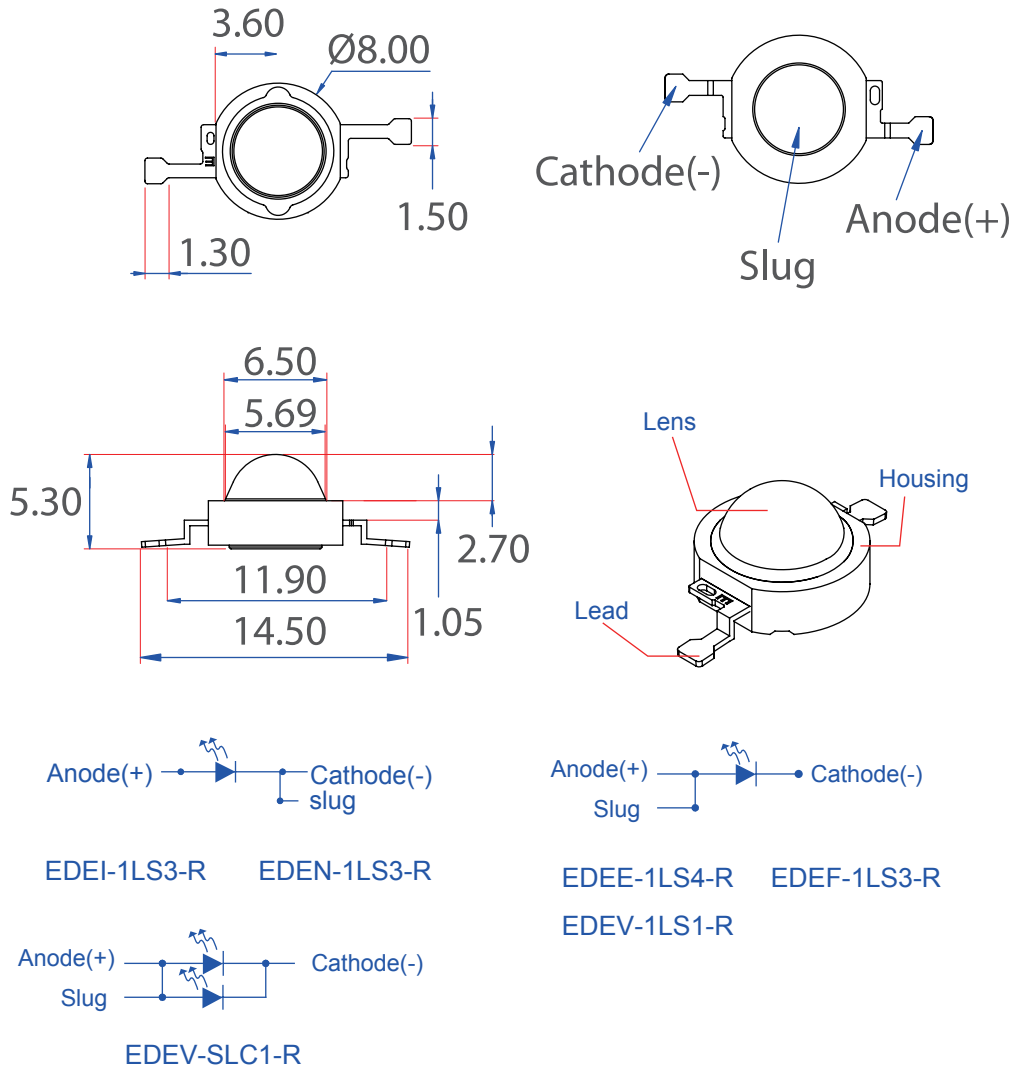


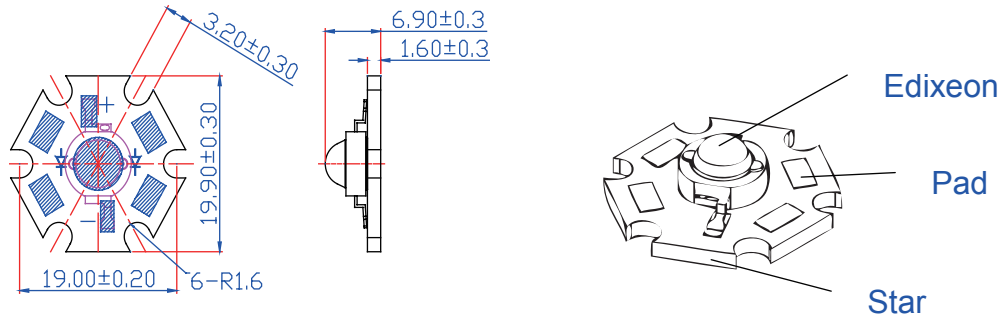
Figure 1. IR/UV Edixeon® S series dimensions

Notes:

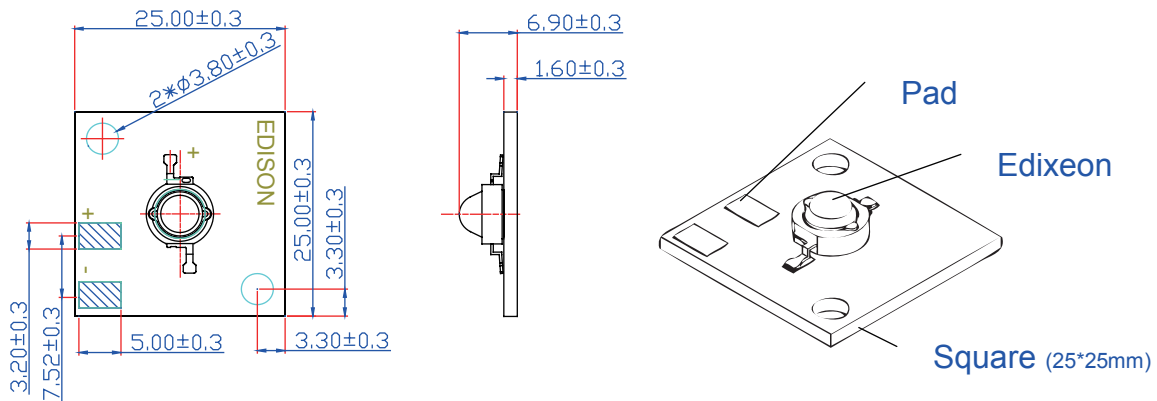
1. All dimensions are in mm.
2. Drawings are not to scale.
3. It is strongly recommended that the temperature of lead dose not exceed 55°C.
4. The slug has polarity as anode.
5. It is strongly recommended to apply on electrically isolated heat conducting film between the slug and contact surfaces.

LED Package with Star Dimensions and Polarity

EDSx-xxxx-x-Ax16



EDSx-xxxx-x-Bx16



EDSx-xxxx-x-Cx16

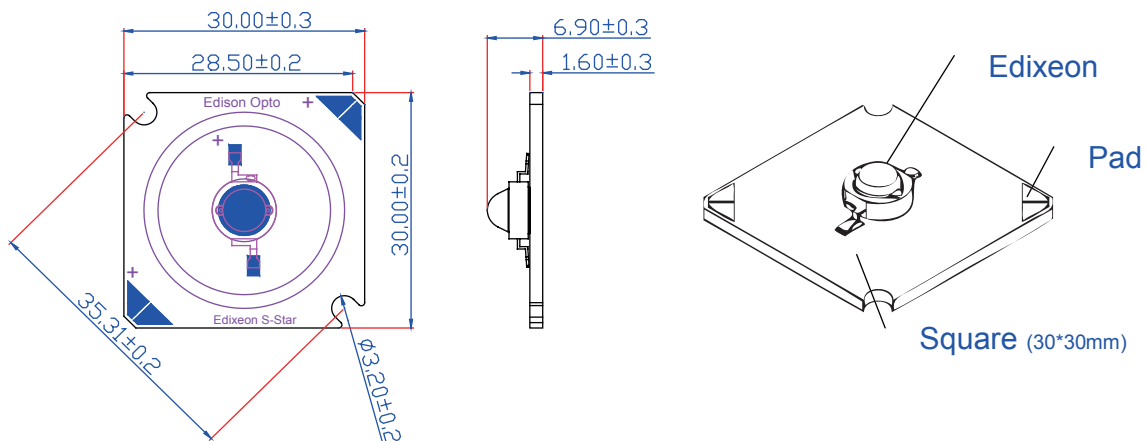


Figure 2. Edixeon® Star dimensions

Notes:

1. All dimensions are in mm.
2. It is strongly recommended that the temperature of lead does not exceed 55°C.



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Absolute Maximum Ratings

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 2. Absolute maximum ratings for IR/UV Edixeon® S series

Parameter	EDEE & EDEF	EDEI & EDEN	Unit	Symbol
DC Forward Current(1W)	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	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	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. tp: Pulse width time

Luminous Flux Characteristics

The following tables describe flux of IR/UV Edixeon® S series under various current and different color.

Table 3. Radiometric power characteristics at $I_f=350\text{mA}$, $I_f=700\text{mA}$ and $T_j=25^\circ\text{C}$

Lens Item	Part Name	Color	Forward Current (mA)	Radiometric power		Unit
				Group	Min.	
Lambertian	EDEE-1LS4-R	Deep Red	350	G	113.9	mW
				H	170.9	
				J	256.3	
	EDEF-1LS3-R	Cherry Red	350	F	75.9	mW
				G	113.9	
				H	170.9	
	EDEV-1LS1-R	Ultraviolet	350	J	256.3	mW
				K	384.4	
	EDEI-1LS3-R	IR 850	700	J	256.3	mW
				K	384.4	
	EDEN-1LS3-R	IR 940	700	G	113.9	mW
				H	170.9	
EDEV-SLC1-R	Ultraviolet	700	K	384.4	mW	
			L	576.7		

Note:

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

Characteristics

Optical Characteristics

Table 4. Optical characteristics at $I_F=350\text{mA}$, $I_F=700\text{mA}$ and $T_J=25^\circ\text{C}$

Lens Item	Part Name	Color	V_F (V)		Forward Current (mA)	Viewing Angle
			Min.	Max.		
Lambertian	EDEE-1LS4-R	Deep Red	2.0	3.0	350	120
	EDEF-1LS3-R	Cherry Red	2.0	3.0	350	120
	EDEV-1LS1-R	Ultraviolet	2.8	4.0	350	150
	EDEI-1LS3-R	IR 850	1.5	2.5	700	120
	EDEN-1LS3-R	IR 940	1.5	2.5	700	120
	EDEV-SLC1-R	Ultraviolet	3.2	5.0	700	150

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

Electrical Characteristics

Table 15. Peak wavelength Characteristics at $T_J=25^\circ\text{C}$ for IR/UV Edixeon® S series

Lens Item	Part Name	Color	λ_p		Forward Current (mA)	Thermal Resistance ($^\circ\text{C}/\text{W}$)
			Min.	Max.		
Lambertian	EDEE-1LS4-R	Deep Red	650	670	350	15
	EDEF-1LS3-R	Cherry Red	730	750	350	15
	EDEI-1LS3-R	IR 850	835	860	700	15
	EDEN-1LS3-R	IR 940	930	950	700	15
	EDEV-1LS1-R	Ultraviolet			350	
	EDEV-SLC1-R		390	410	700	15

Notes:
Wavelength is measured with an accuracy of $\pm 0.5\text{nm}$

Thermal Resistance

Table 3. Thermal Resistance for IR/UV Edixeon® S series

Lens Item	Part Name	Color	$\Delta V_F/\Delta T$		$R_{\theta_{J-B}}$	
			Typ.	Units	Typ.	Unit
Lambertian	EDEx-xLxx-R	--	-2	mV/ $^\circ\text{C}$	15	$^\circ\text{C}/\text{W}$

Characteristic Curve

Spectrum

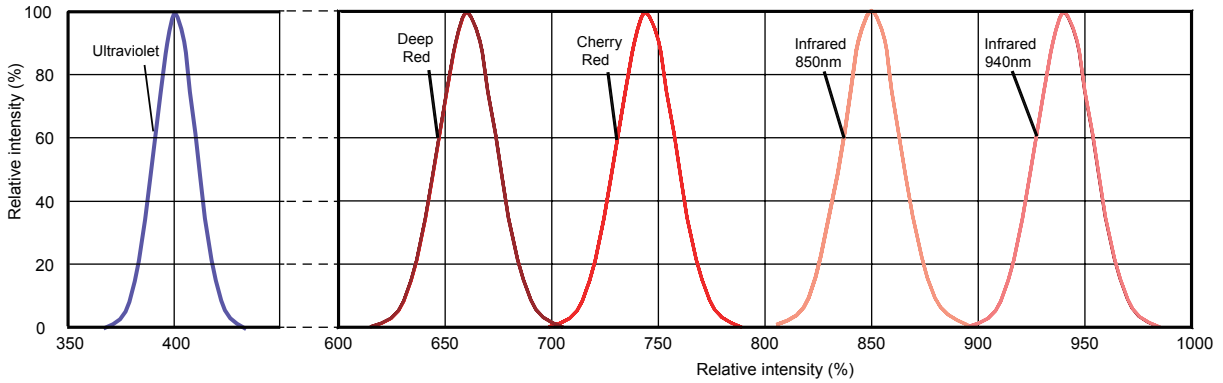


Figure 3. Color spectrum at $T_j = 25^\circ\text{C}$. for IR/UV Edixeon® S series

Radiation Diagram

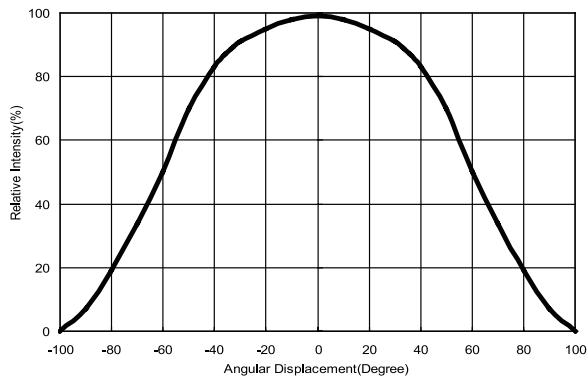


Figure 4. Lambertian at $T_j = 25^\circ\text{C}$ for IR/UV Edixeon® S series

Forward Voltage & Forward Current

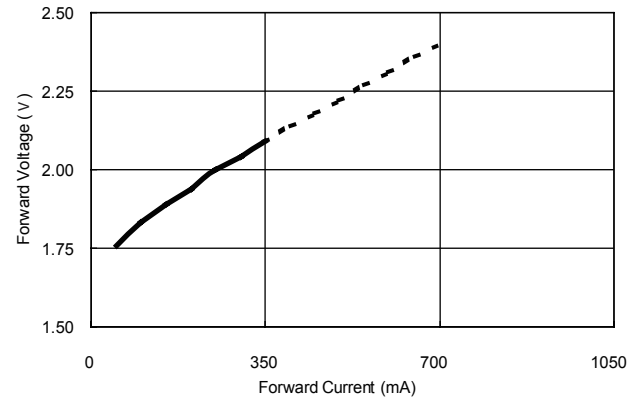


Figure 7. Forward Current & Forward Voltage for EDE-1LS4-R, EDEF-1LS3-R

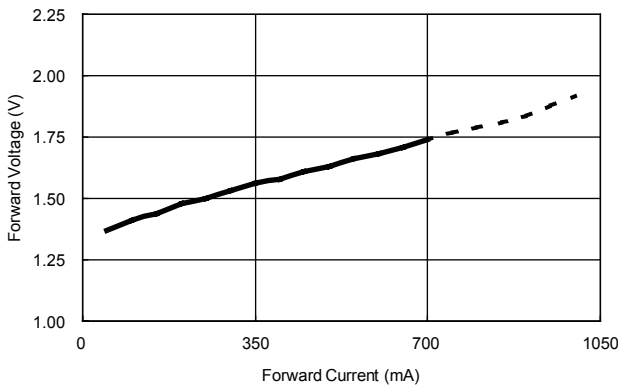


Figure 8. Forward Current & Forward Voltage for EDEI-1LS3-R, EDEN-1LS3-R

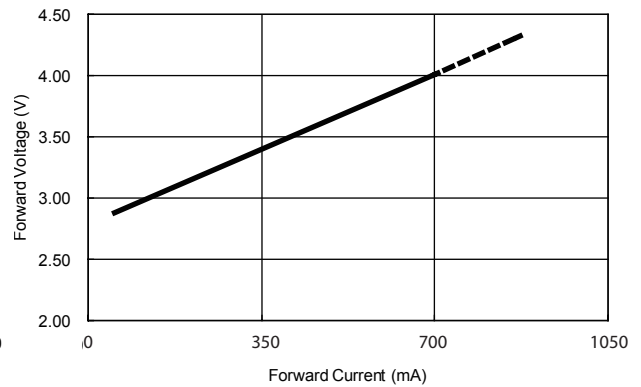


Figure 9. Forward Current & Forward Voltage for EDEV-1LS1, EDEV-SLC1-R

Radiometric power & Forward Current

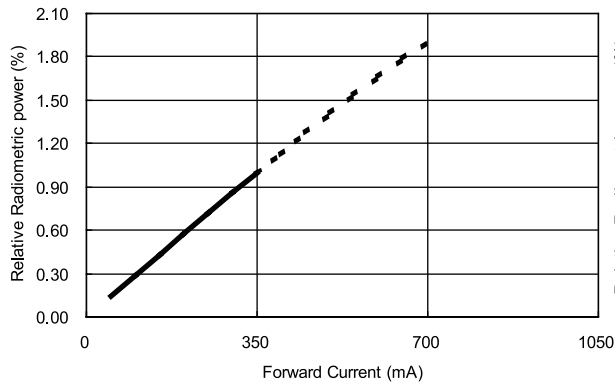


Figure 11. Forward Current & Relative Radiometric Power for at $T_j=25^\circ\text{C}$ for EDEE-1LS4-R, EDEF-1LS3-R

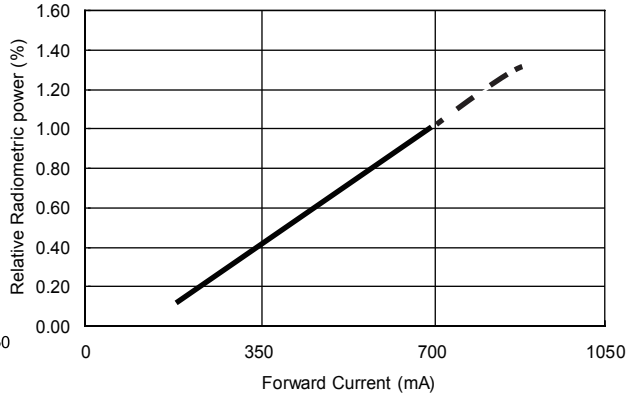


Figure 12. Forward Current & Relative Radiometric Power for at $T_j=25^\circ\text{C}$ for EDEI-1LS3-R, EDEN-1LS3-R

Wavelength & Forward Current

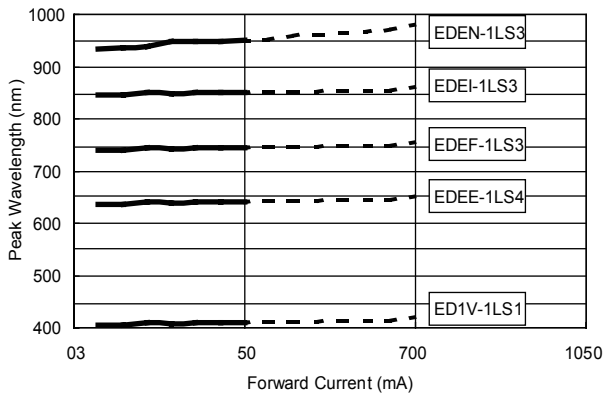


Figure 13. Forward Current & Wavelength at $T_j=25^\circ\text{C}$ for EDEN-1LS3-R, EDEI-1LS3-R, EDEF-1LS3-R, EDEE-1LS4-R, ED1V-1LS1-R

Power & Junction Temperature

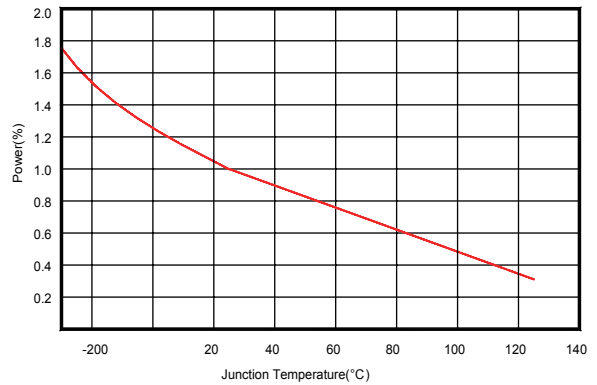


Figure 14. Junction temperature & power rate for all IR/UV Edixeon® S series.



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Revision History

Table 4. Revision history of IR UV Edixeon S series datasheet

Version	Description	Release Date
5	1. Update Datasheet's layout	2011.08.09

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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