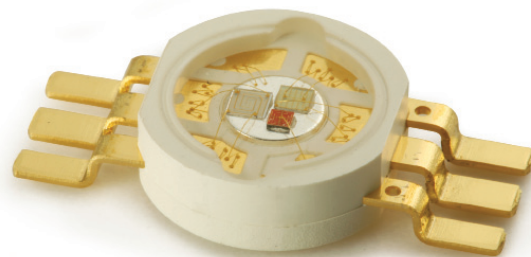


High Power LEDs

Edixeon[®] RGB Series Datasheet

Edixeon[®] RGB emitters are one of the highest flux LEDs in the world by Edison Opto. It is designed to satisfy applications of Solid-State lighting. It is designed to have three chips in one package. It has various colors for choice and can be independently controlled. More importantly, it can pass reflow process.

**Features :**

- Three chips (colors) in one package
- Independent control of each color
- More energy efficient than incandescent and most halogen lamps
- Low voltage operation
- Instant light
- Long operating life
- IR reflow process compatible



Lighting Design Manufacturing Service

Table of Contents

General Information	3
Introduction	3
Product Nomenclature	3
Mechanical Dimensions.....	4
LED Package with Star Dimensions and Polarity	6
Absolute Maximum Ratings	9
Luminous Flux Characteristics.....	11
Characteristics	12
Forward Voltage Characteristic	12
Dominant Wavelength Characteristic.....	12
Characteristic Curve	14
Spectrum	14
Radiation Diagram	14
Forward Current & Ambient Temperature.....	15
Wavelength & Forward Current.....	15
Luminous Flux & Forward Current	15
Relative Intensity & Junction Temperature	15
Revision History	16
About Edison Opto	16



Lighting Design Manufacturing Service

General Information

Introduction

Edixeon® RGB emitters are one of the highest flux LEDs in the world by Edison Opto. It is designed to satisfy applications of Solid-State lighting. It is designed to have three chips in one package. It has various colors for choice and can be independently controlled. More importantly, it can pass reflow process.

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® RGB series nomenclature

ED
E
RTB
-
1
G
A
1
-
R
-
A
B
16

X1 LED Item		X2 Module		X3 Emitting Color		X4 Power		X5 Dimension	
Code	Type	Code	Type	Code	Type	Code	Type	Code	Type
EF	Edixeon® Federal	E	Emitter	RTB	RGB 3 chips	1	1W	L	Lambertian (140°)
		S	Star					G	Low Slug with Lambertian
								E	Low Slug with Flat Lens

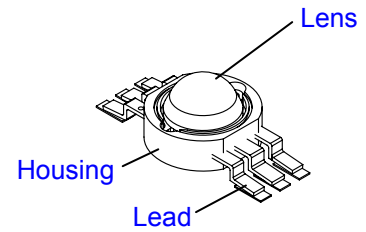
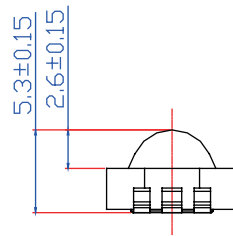
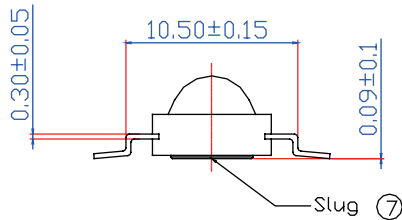
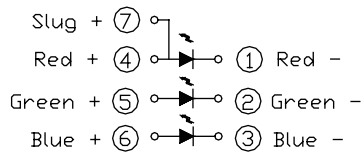
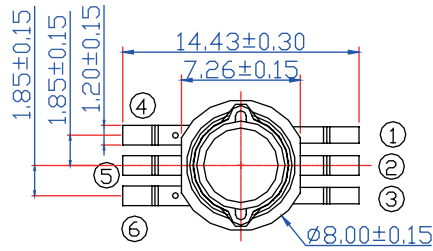
X6 Housing Item		X7 ~ X8 Serial Number		X9 Shape Item		X10 Serial Number		X11 Thickness	
Code	Type	Code	Type	Code	Type	Code	Type	Code	Type
A	White -1	-	-	A	Star	W	White	10	1.0mm
C	Black - 2			B	Square(25x25mm)	G	Green	16	1.6mm
				C	Square(25x25mm)	B	Black	20	2.0mm

Environmental Compliance

Edixeon® RGB series are compliant to the Restriction of Hazardous Substances Directive or RoHS. The restricted materials including lead, mercury cadmium hexavalent chromium, polybrominated biphenyls (PBB) and polybrominated diphenyl ether (PBDE) are not used in Edixeon® RGB series to provide an environmentally friendly product to the customers.

Mechanical Dimensions

EDERTB-1LC6



EDERTB-1GA1 / EDERTB-1LA1 / EDERTB-3GA1

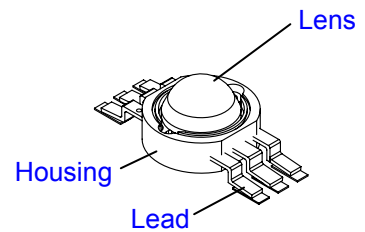
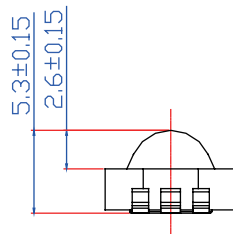
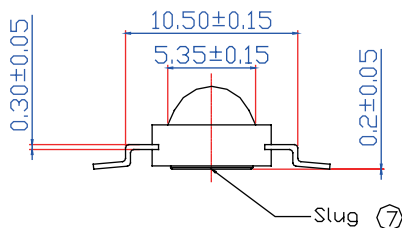
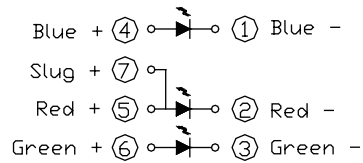
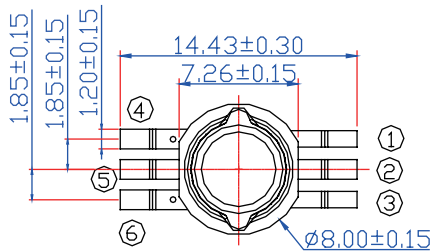
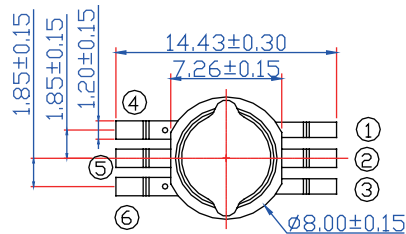


Figure 1. Edixeon® RGB series dimensions

EDERTB-1EA1



Blue + ④ —|> ① Blue -
 Slug + ⑦ —|>
 Red + ⑤ —|> ② Red -
 Green + ⑥ —|> ③ Green -

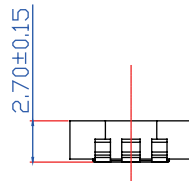
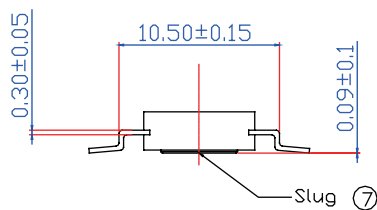
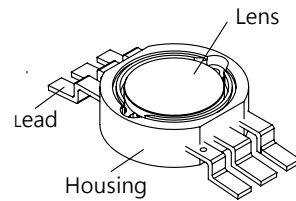
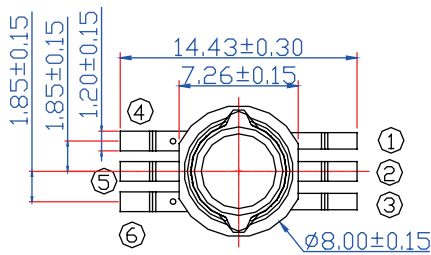


Figure 2. Edixeon® RGB series dimensions

EDERTB-1LA1-R



Blue + ④ —|> ① Blue -
 Slug + ⑦ —|>
 Red + ⑤ —|> ② Red -
 Green + ⑥ —|> ③ Green -

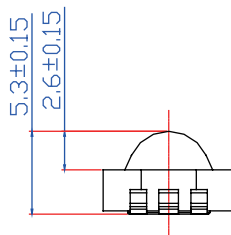
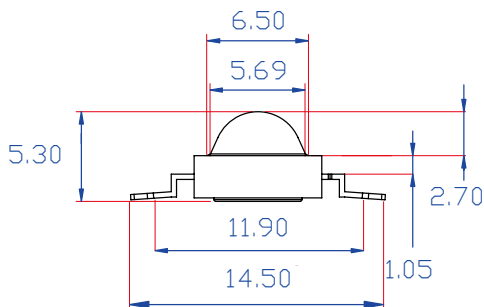
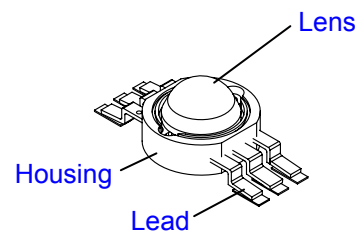


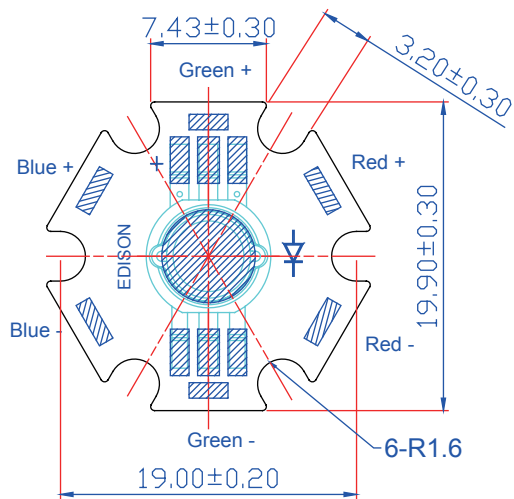
Figure 3. Edixeon® RGB series dimensions

Notes:

1. All dimensions are in mm.
2. Lambertian and side emitting series slug has polarity as anode.
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.

LED Package with Star Dimensions and Polarity

EDSRTB-1LC6-AB16



**EDERTB-1GA1-AB16, EDERTB-1LA1-AB16
EDERTB-1LA1-R-AB16, EDERTB-1EA1-AB16**

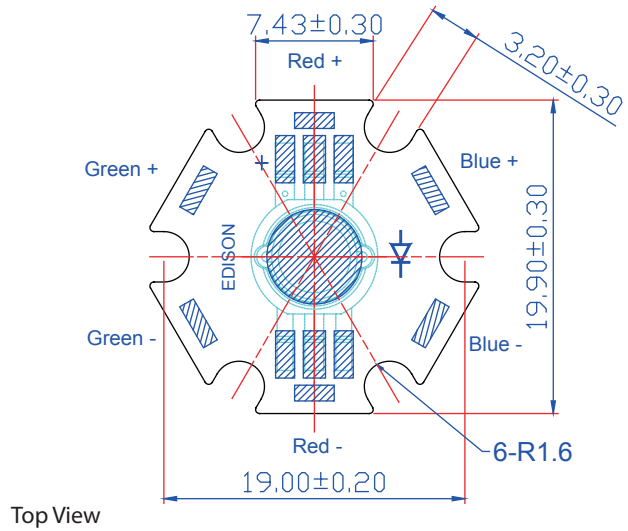
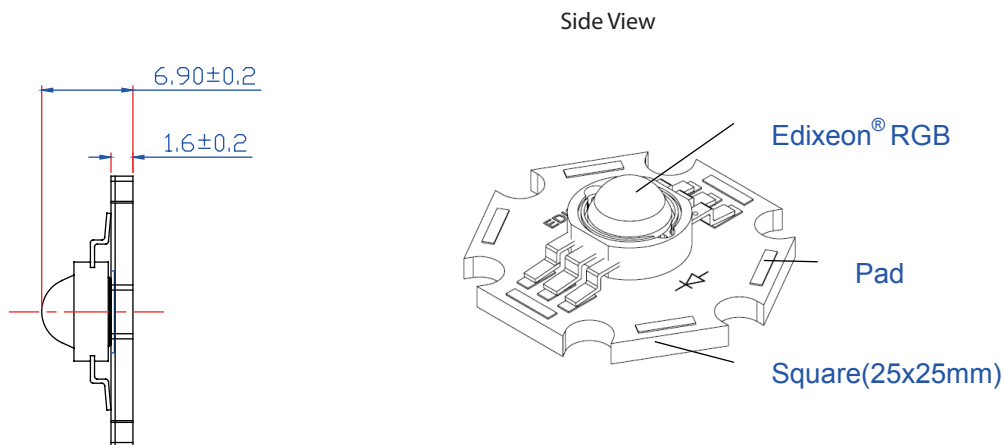


Figure 4. Edixeon® RGB series dimensions - Top View

**EDSRTB-1LC6-AB16 / EDERTB-1GA1-AB16 / EDERTB-1LA1-AB16 / EDERTB-1LA1-R-AB16 /
EDERTB-3GA1 / EDERTB-1LA1-R**



EDERTB-1EA1-AB16

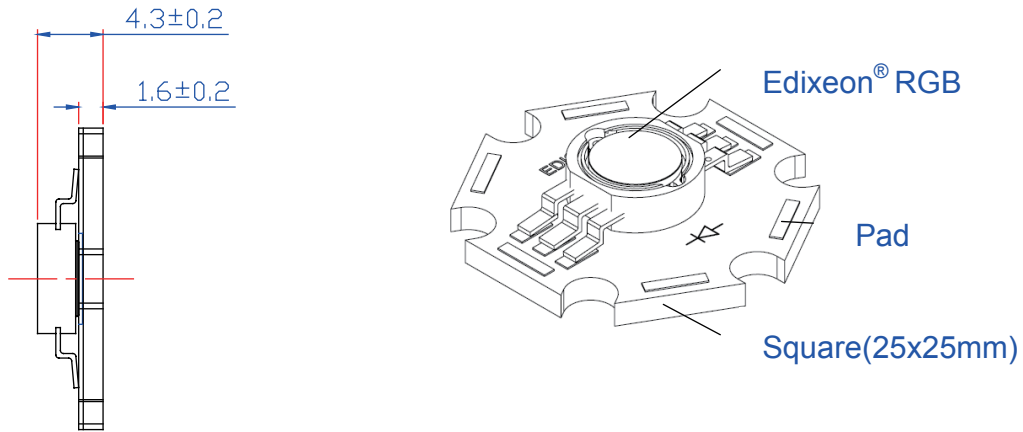


Figure 5. Edixeon® RGB series star dimensions - Side View

EDSRTB-1xxx-BB16 -R

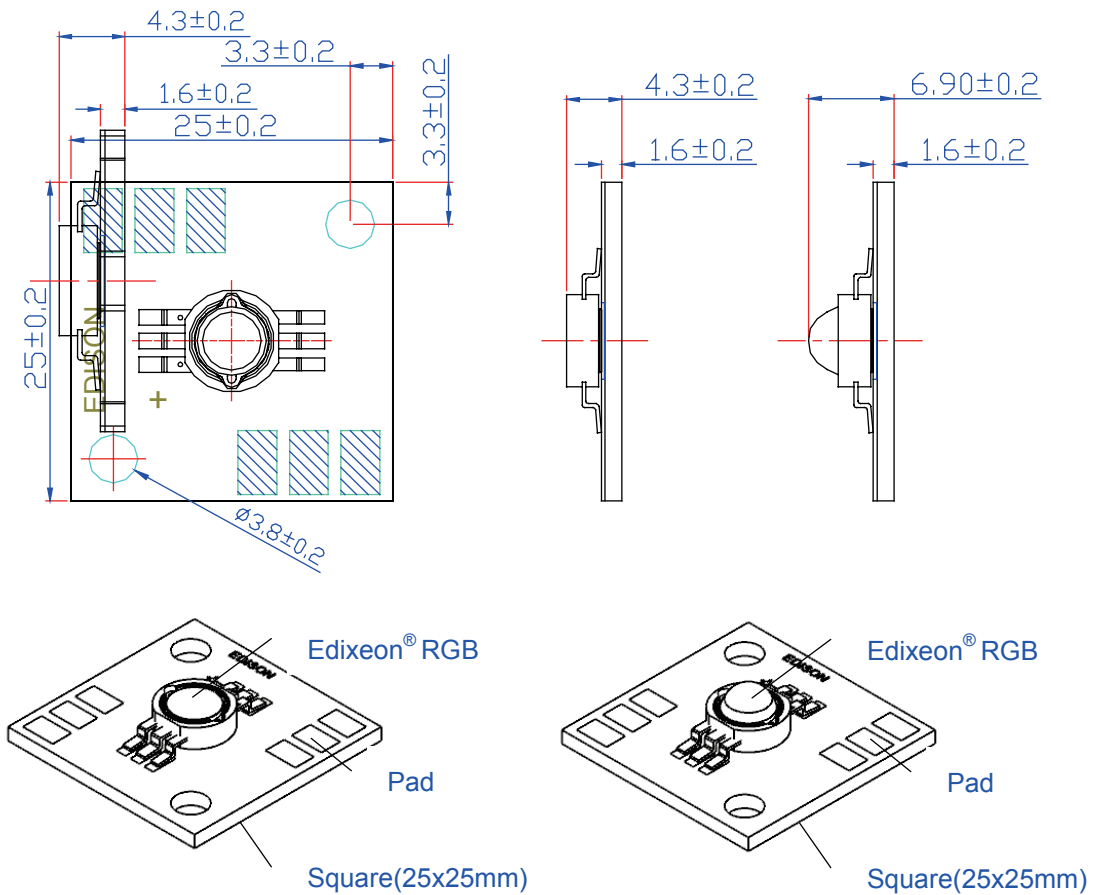


Figure 6. Edixeon® RGB series star square dimensions

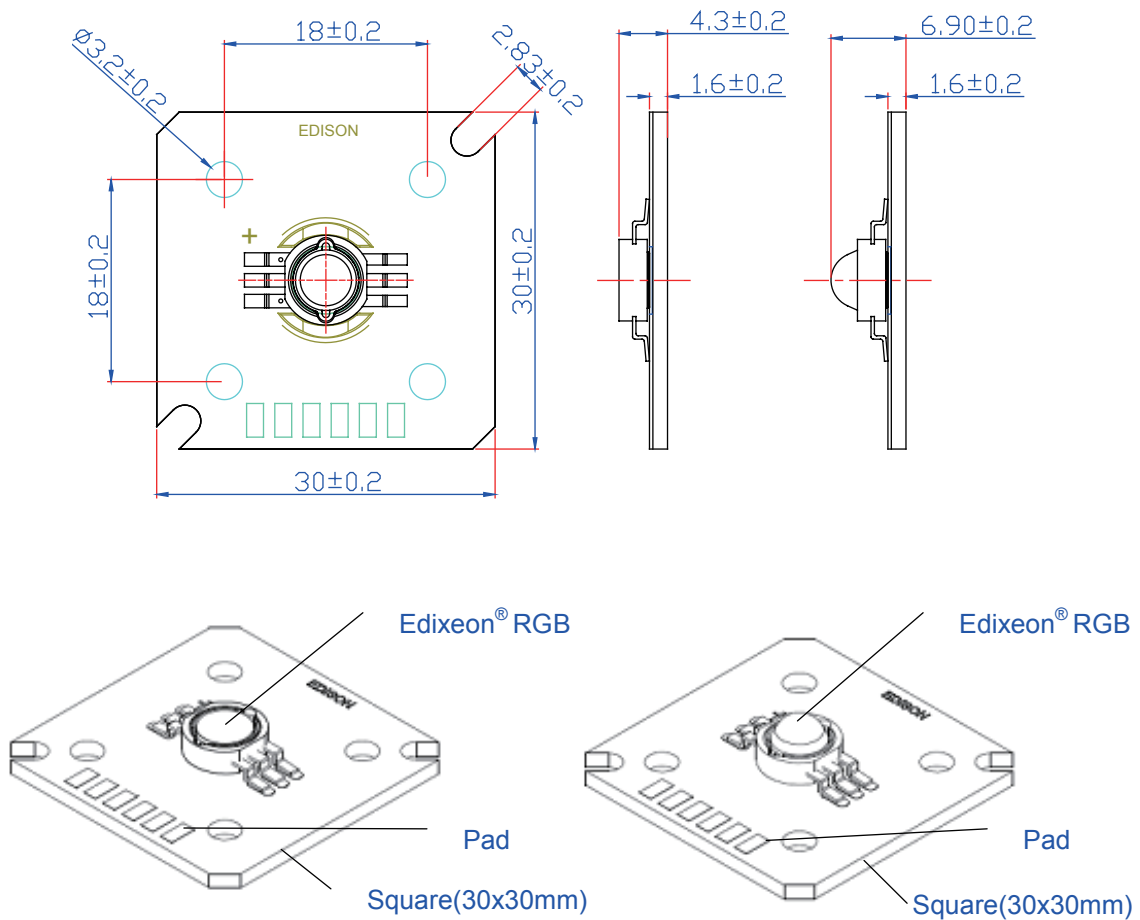


Figure 7. Edixeon® RGB series star square dimensions

Notes:

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

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 Edixeon® RGB series

Parameter	Rating(1W)	Rating(3W) For 3GA1	Unit	Symbol
DC Forward Current(1W)	350	350	mA	I_F
Peak pulse current;(tp≤100μs, Duty cycle=0.25)	500	700	mA	
Reverse Voltage	3	3	V	V_R
Forward Voltage	5	5	V	V_F
LED junction Temperature	120	120	°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. tp: Pulse width time



Lighting Design Manufacturing Service

The following tables describe thermal resistance of Edixeon® RC series under various current and different color.

Table 3. Temperature coefficient of forward voltage & thermal resistance junction to case characteristics at =25°C for Edixeon® RGB series

Lens Item	Color	$\Delta V_f / \Delta T$		$R\theta_{J-B}$	
		Typ.	Units	Typ.	Unit
EDERTB-1LC6 EDERTB-1LA1	Red		mV/°C	16	°C/W
EDERTB-1LA1-R EDERTB-3GA1	True Green	-2	mV/°C	15	°C/W
EDERTB-3LA1-R	Blue		mV/°C	15	°C/W
EDERTB-1GA1	Red	-2	mV/°C	16	°C/W
	True Green		mV/°C	13	°C/W
	Blue		mV/°C	11	°C/W
EDERTB-1EA1	Red	-2	mV/°C	16	°C/W
	True Green		mV/°C	13	°C/W
	Blue		mV/°C	11	°C/W

Luminous Flux Characteristic

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

Table 4. Luminous flux characteristic at $I_f=350\text{mA}$, 700mA pulse for EDERTB-3GA1 and $T_j=25^\circ\text{C}$: for Edixeon® RGB series

Part Name	Color	Flux			Unit
		Min.	Typ.	Max.	
EDERTB-1LC6	Red	--	35	--	lm
	True Green	--	52	--	lm
	Blue	--	14	--	lm
EDERTB-1GA1	Red	--	38	--	lm
	True Green	--	65	--	lm
	Blue	--	17	--	lm
EDERTB-1LA1	Red	--	42	--	lm
	True Green	--	70	--	lm
	Blue	--	12	--	lm
EDERTB-1LA1-R	Red	--	45	--	lm
	True Green	--	80	--	lm
	Blue	--	15	--	lm
EDERTB-1EA1	Red	--	30	--	lm
	True Green	--	45	--	lm
	Blue	--	12	--	lm
EDERTB-3GA1	Red	--	80	--	lm
	True Green	--	120	--	lm
	Blue	--	28	--	lm

Notes:

1. Flux is measured with an accuracy of $\pm 10\%$.
2. All true green and blue emitters are built with InGaN
3. All red emitters are built with AlGaInP

Characteristic

Forward Voltage Characteristic

The following table describes forward voltage of Edixeon® RGB series under various current.

Table 5. Forward voltage characteristic at $I_f=350\text{mA}$, 700mA pulse for EDERTB-3GA1 and $T_j=25^\circ\text{C}$ for Edixeon® RGB series

Part Name	Color	V_F			Unit
		Min.	Typ.	Max.	
EDERTB-1LC6	Red	--	2.2	--	V
	True Green	--	3.4	--	V
	Blue	--	3.4	--	V
EDERTB-1GA1	Red	--	2.2	--	V
	True Green	--	3.4	--	V
	Blue	--	3.4	--	V
EDERTB-1LA1 EDERTB-1LA1-R	Red	--	2.2	--	V
	True Green	--	3.4	--	V
	Blue	--	3.4	--	V
EDERTB-1EA1	Red	--	2.2	--	V
	True Green	--	3.4	--	V
	Blue	--	3.4	--	V
EDERTB-3GA1	Red	--	2.6	--	V
	True Green	--	3.8	--	V
	Blue	--	3.8	--	V

Notes:

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

Dominant Wavelength Characteristic

Table 6. Dominant Wavelength Characteristic at $T_j=25^\circ\text{C}$ for Edixeon® RGB series

Part Name	Color	$\lambda_d/\lambda_p[1]/\text{CCT}$		Unit
		Min.	Max.	
EDERTB-xxxx-R	Red	620	630	nm
	True Green	515	535	nm
	Blue	450	475	nm

Notes:

Wavelength is measured with an accuracy of $\pm 1.0\text{ nm}$

Characteristic Curve

Spectrum

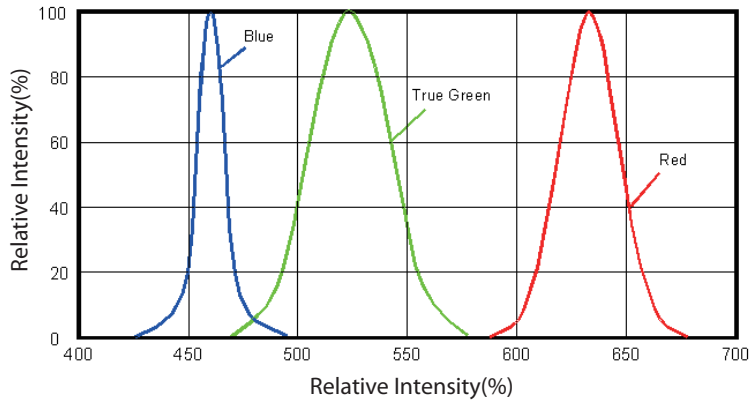


Figure 8. Color spectrum at $T_j = 25^\circ\text{C}$. for Edixeon® RGB series

Radiation Diagram

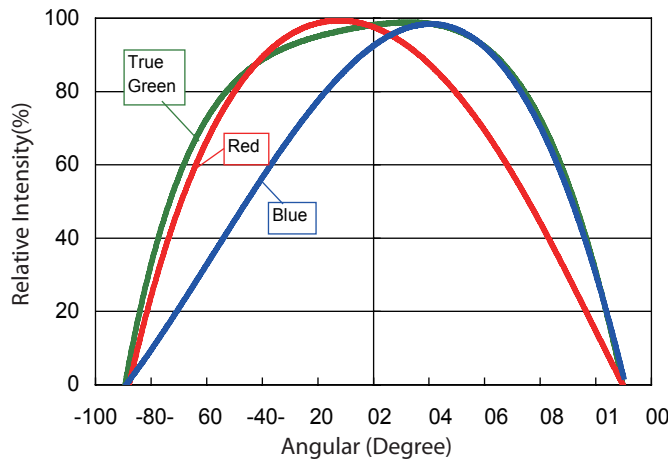
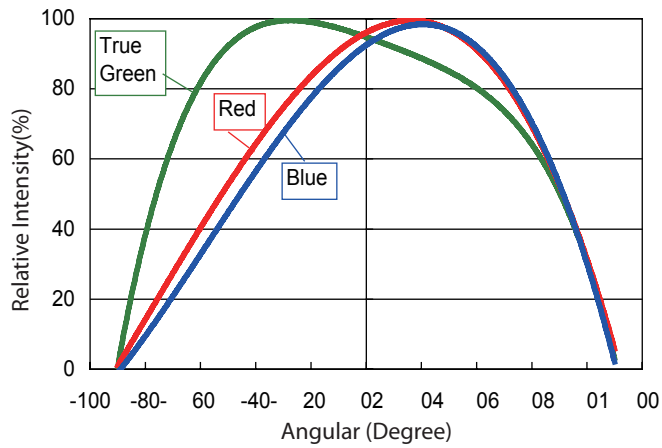


Figure 9. Lambertian angle at $T_j = 25^\circ\text{C}$ for 1LC6°C1GA1, 1LA1 and 1LA1-R Edixeon® RGB series

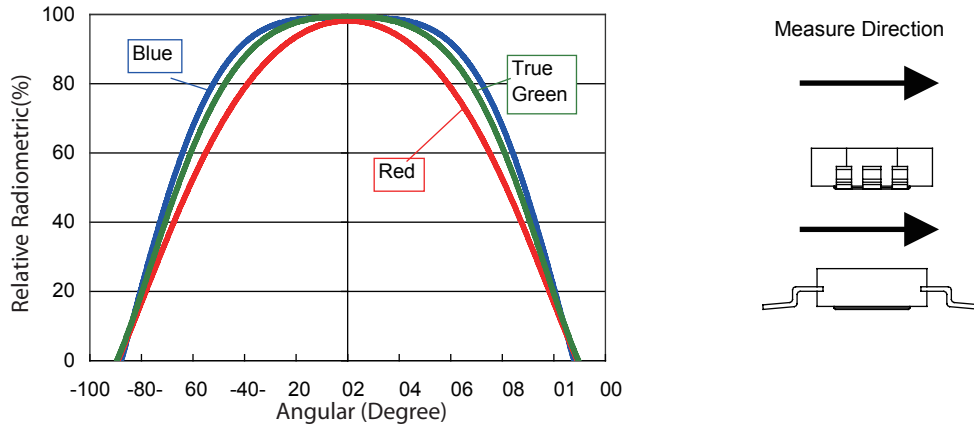


Figure 10. Lambertian angle at $T_j=25^\circ\text{C}$ for 1EA1 Edixeon® RGB series.

Forward Current & Ambient Temperature

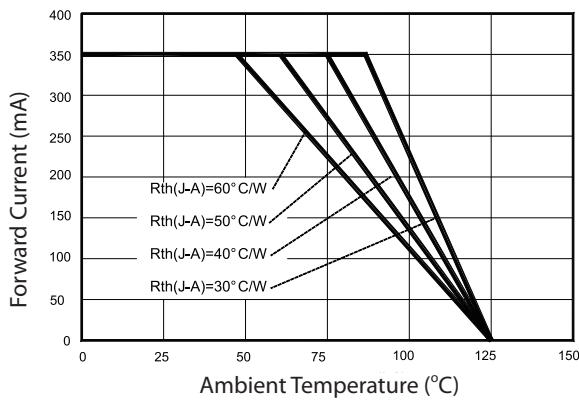


Figure 11. Operating current & ambient temperature for Edixeon® RGB series

Wavelength & Forward Current

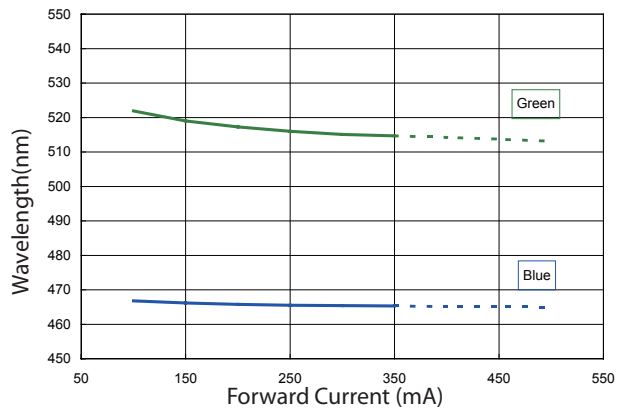


Figure 12. Wavelength & forward current for True Green and Blue color Edixeon® RGB series

Luminous Flux & Forward Current

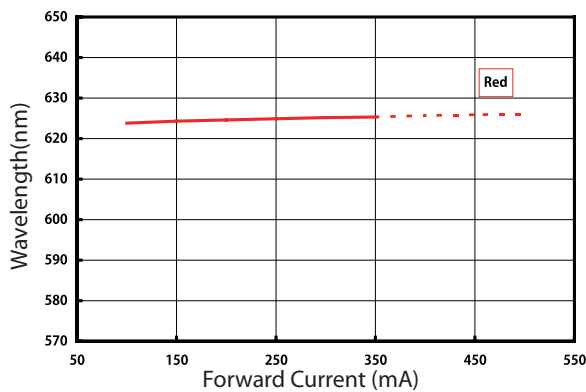


Figure 13. Wavelength & forward current for Red color Edixeon® RGB series

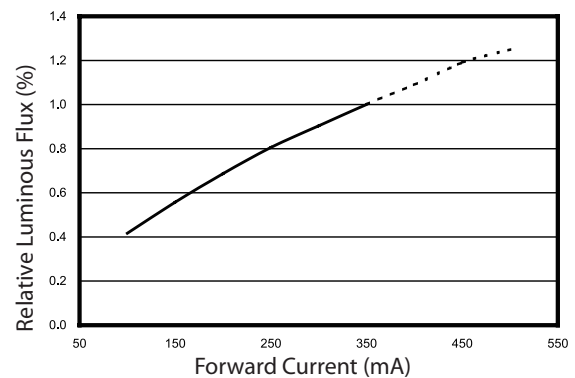


Figure 14. Forward current & relative luminous at $T_j=25^\circ\text{C}$ for Edixeon® RGB series

Relative Intensity & Junction Temperature

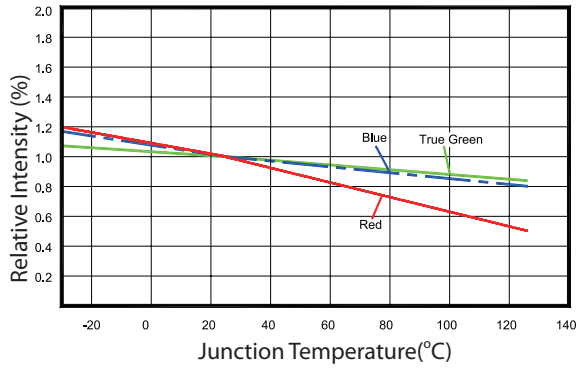


Figure 15. Junction temperature & power rate for Edixeon® RGB series

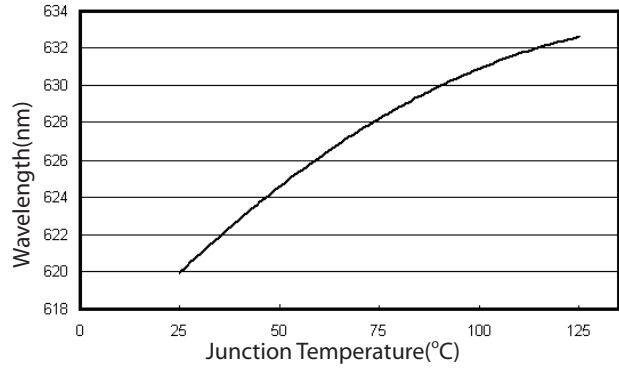


Figure 16. Wavelength characteristic for Edixeon® RGB Red chip

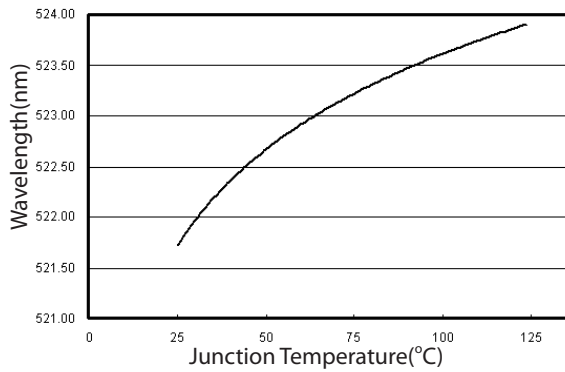


Figure 17. Wavelength characteristic for Edixeon® RGB Green chip

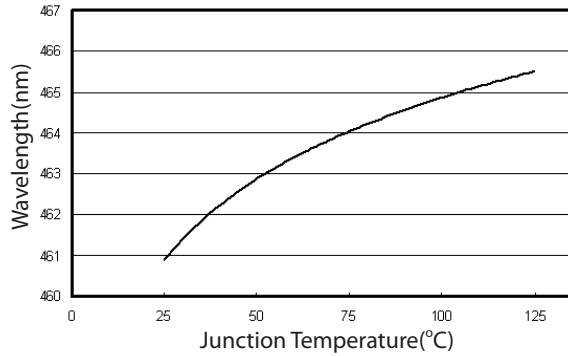


Figure 18. Wavelength characteristic for Edixeon® RGB Blue chip



Lighting Design Manufacturing Service

Revision History

Table 8. Revision history of Edixeon RGB series datasheet

Version	Description	Release Date
8	1.Update dimension on p.4 2.Update Luminous flux on p.11	2012/01/12

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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