

Edixeon S1 Single Color 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 S1 series emitters are one of the highest flux LEDs in the world by Edison Opto. Edixeon S1 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 Opto contains no mercury and has more energy efficient than other incandescent light source.

Ordering Code Format

<u>2</u>	<u>E</u>	<u>S 1</u>	<u>0 x</u>	<u>x X</u>	<u>x x</u>	<u>0 0 0</u>	<u>x x x</u>
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
			03	3W
				RX
				TX
				BX
				AX
				Red
				True Green
				Blue
				Amber

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

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
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

Characteristics

Parameter	Symbol	Value	Units
Viewing Angle	(R/A) (T/B) $2\Theta_{1/2}$	135 150	Degree
Forward voltage	(Typ.) V_F	1W - R/A : 2.3 1W - T/B : 3.2 3W - R/A : 2.5 3W - T/B : 3.5	V
Thermal resistance	-	11	°C/W
$\Delta V_F / \Delta T$	$\Delta V_F / \Delta T$	-2	mV/°C
Wavelength	λ_d	R: 620-630 A: 585-595 T: 515-535 B: 455-475	nm
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 ± 1nm.
2. Viewing angle is measured with an accuracy of ± 5%.

Luminous Flux Characteristic

Luminous Flux Characteristics at $I_f=350\text{mA}$, $T_j=25^\circ\text{C}$.

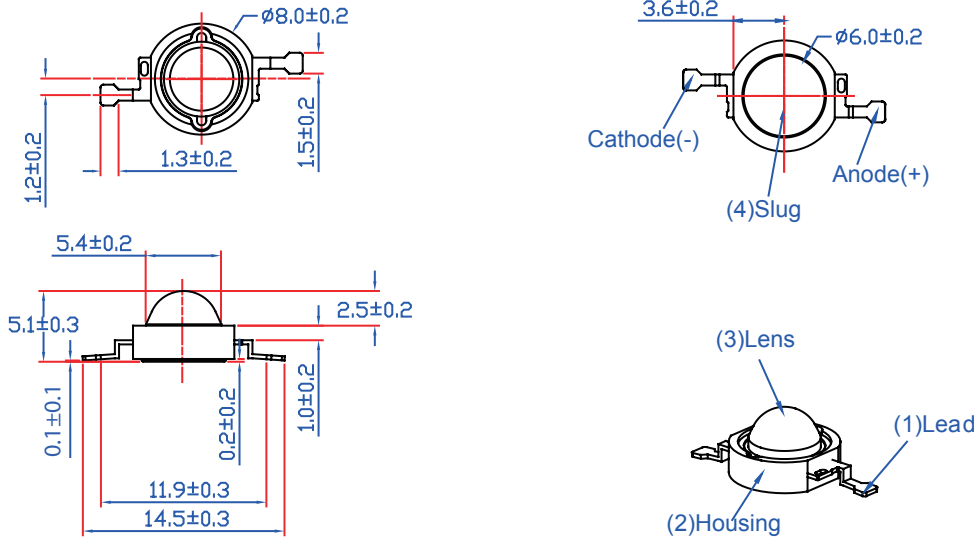
Color	Wattage (W)	Group	Min. Luminous Flux(lm)	Max. Luminous Flux(lm)	Forward Current (mA)	Order Code
Red	1	R0	39.4	51.2	350	2ES101RX00000001
		S0	51.2	66.5		
	3	U0	86.5	110	700	2ES103RX00000001
		V0	110	160		
True Green	1	T0	66.5	86.5	350	2ES101TX00000001
		U0	86.5	110		
	3	U0	86.5	110	700	2ES103TX00000001
		V0	110	160		
		W1	160	180		
Blue	1	N0	17.9	23.3	350	2ES101BX00000001
		P0	23.3	30.3		
		Q0	30.3	39.4		
	3	Q0	30.3	39.4	700	2ES103BX00000001
		R0	39.4	51.2		
		S0	51.2	66.5		
Amber	1	S0	51.2	66.5	350	2ES101AX00000001
		T0	66.5	86.5		
	3	U0	86.5	110	700	2ES103AX00000001
		V0	110	160		

Notes:

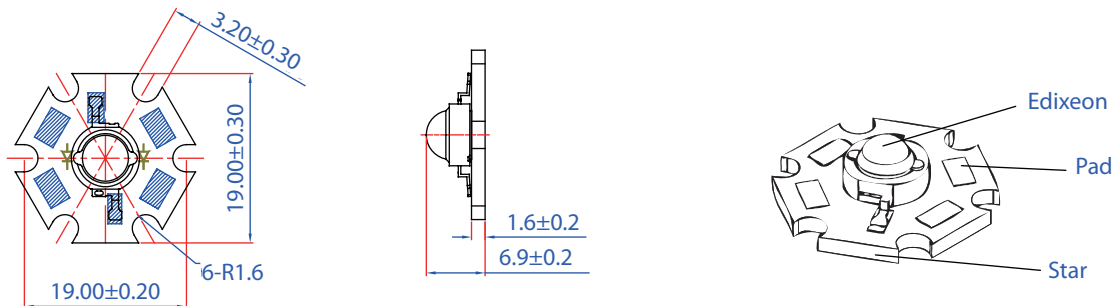
1. Flux is measured with an accuracy of $\pm 10\%$.
2. True Green and Blue emitters are built with InGaN.
3. All Red emitters are built with AlGaInP.



Mechanical Dimensions

Emitter Type Dimension



Star Dimensions



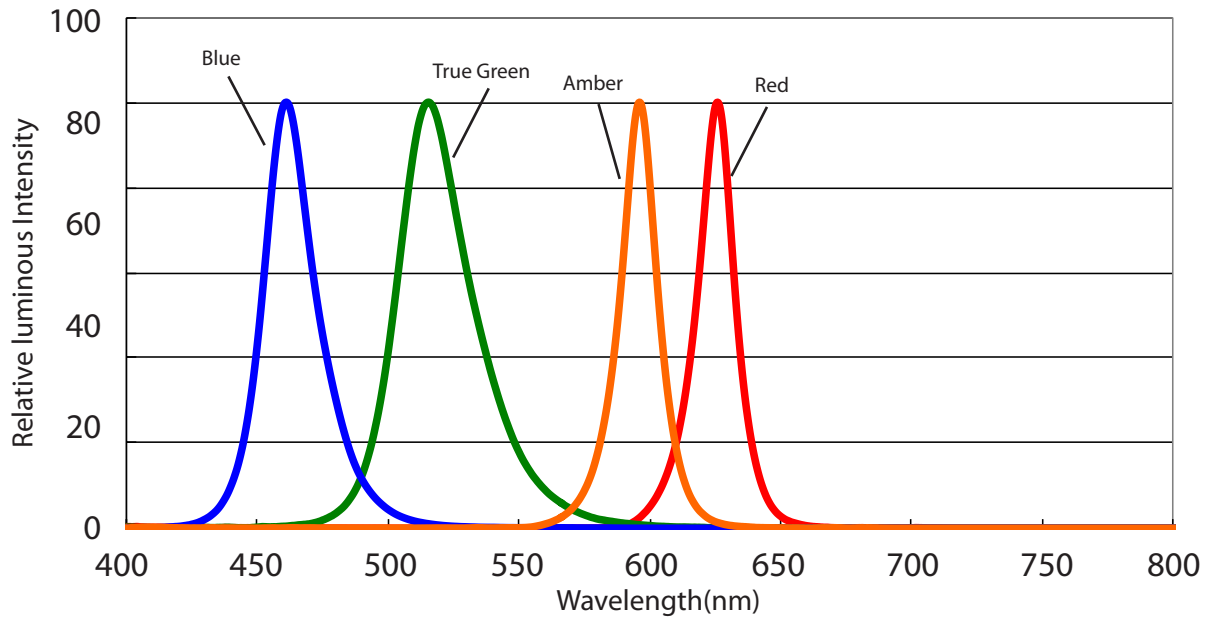
Emitter color	Slug at the bottom of the electrode	Circuit
R/A	Anode	
T/B	No electrode	

Notes:

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

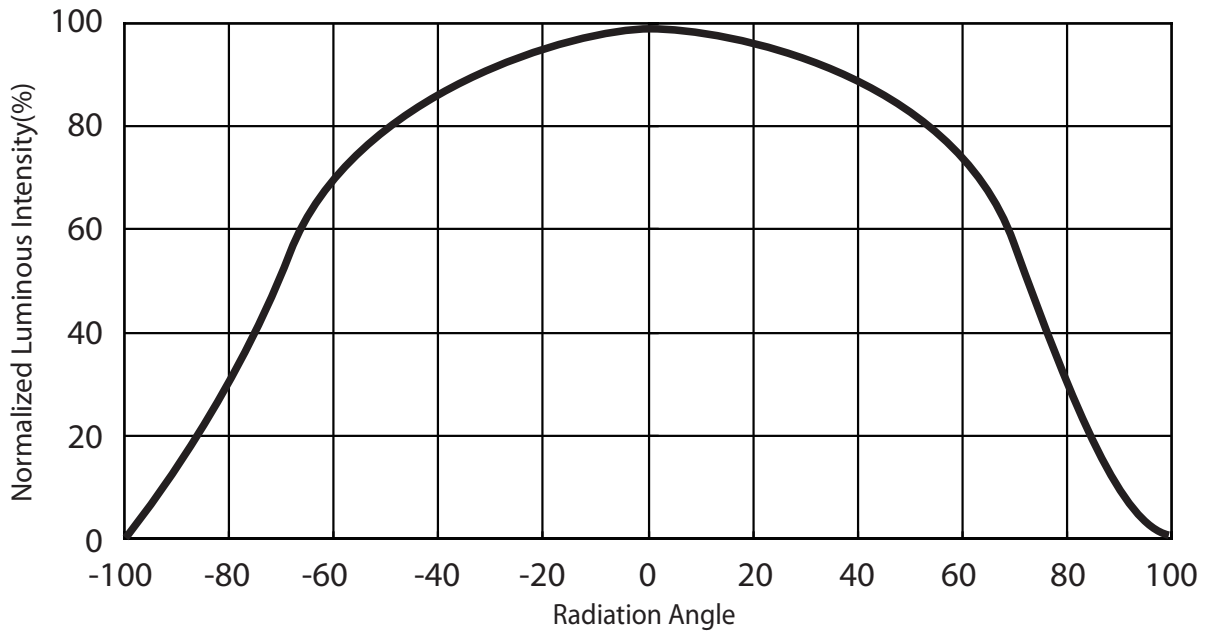
Characteristic curve

Color Spectrum

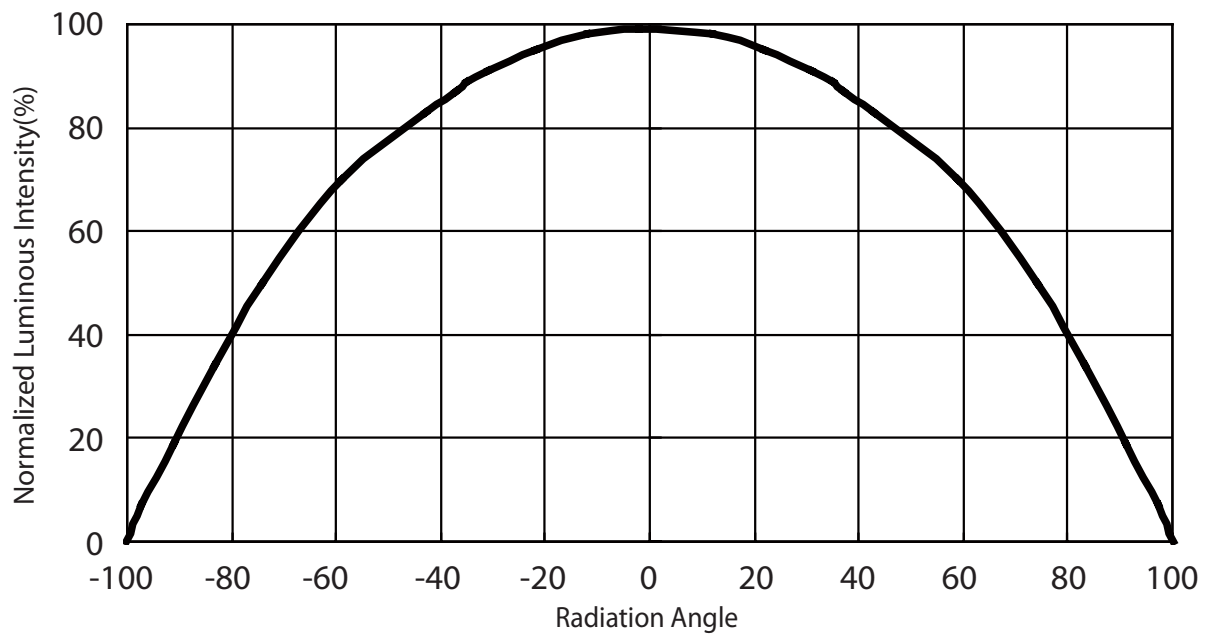


Color Spectrum at a typical CCT for Edixeon S1 Single color Series

Beam Pattern

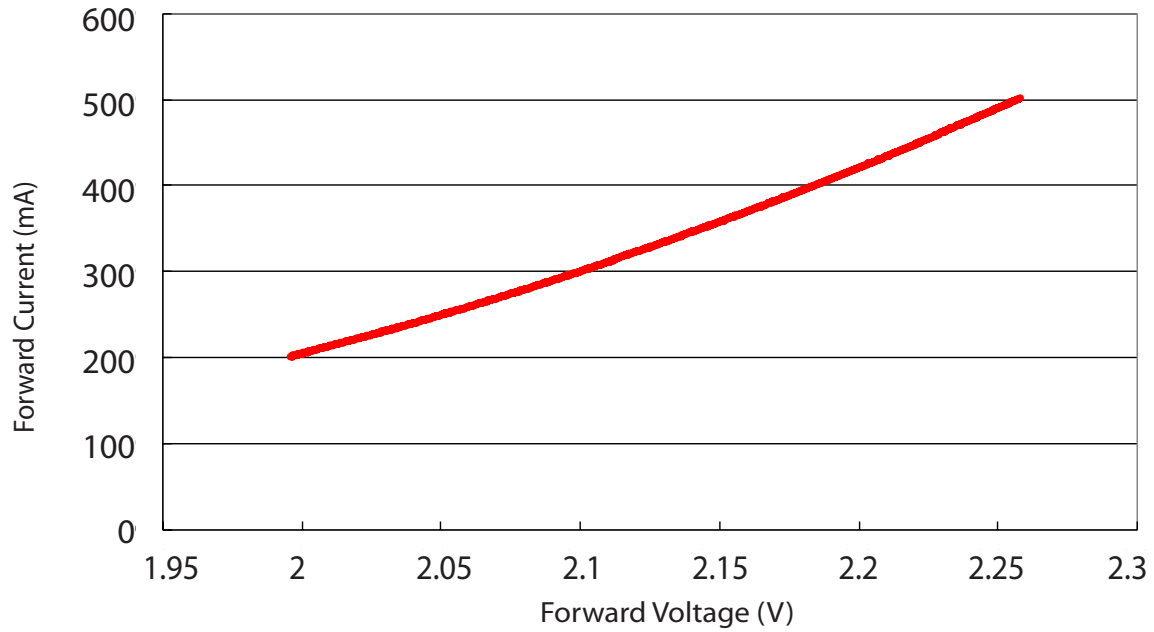


Beam pattern diagram for Red and Amber

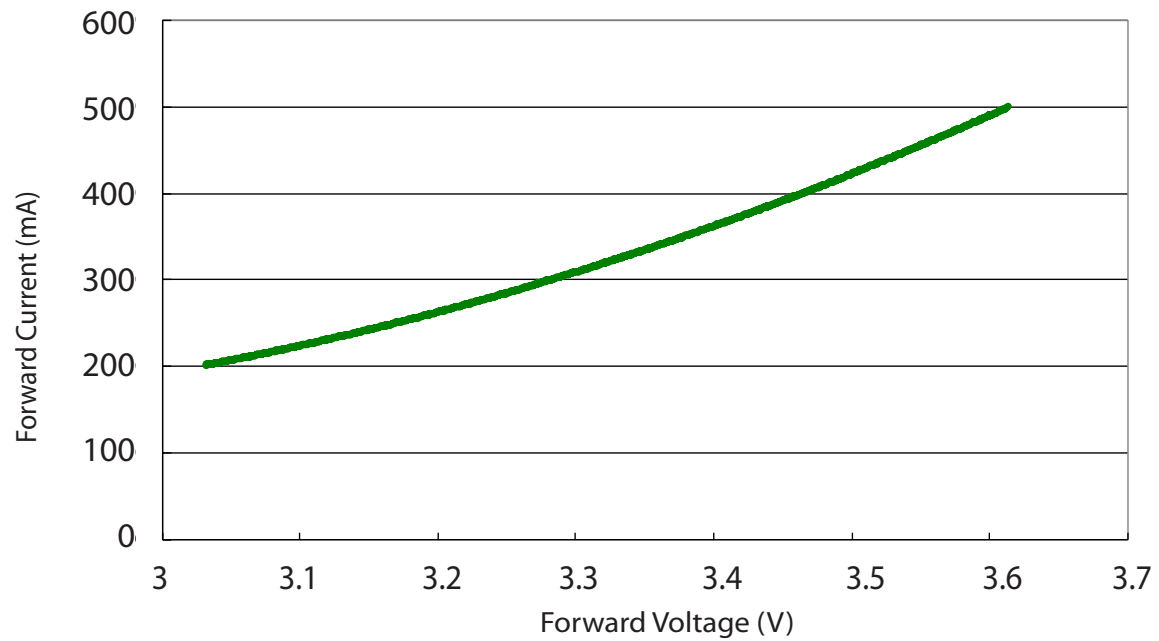


Beam pattern diagram for Blue and True green

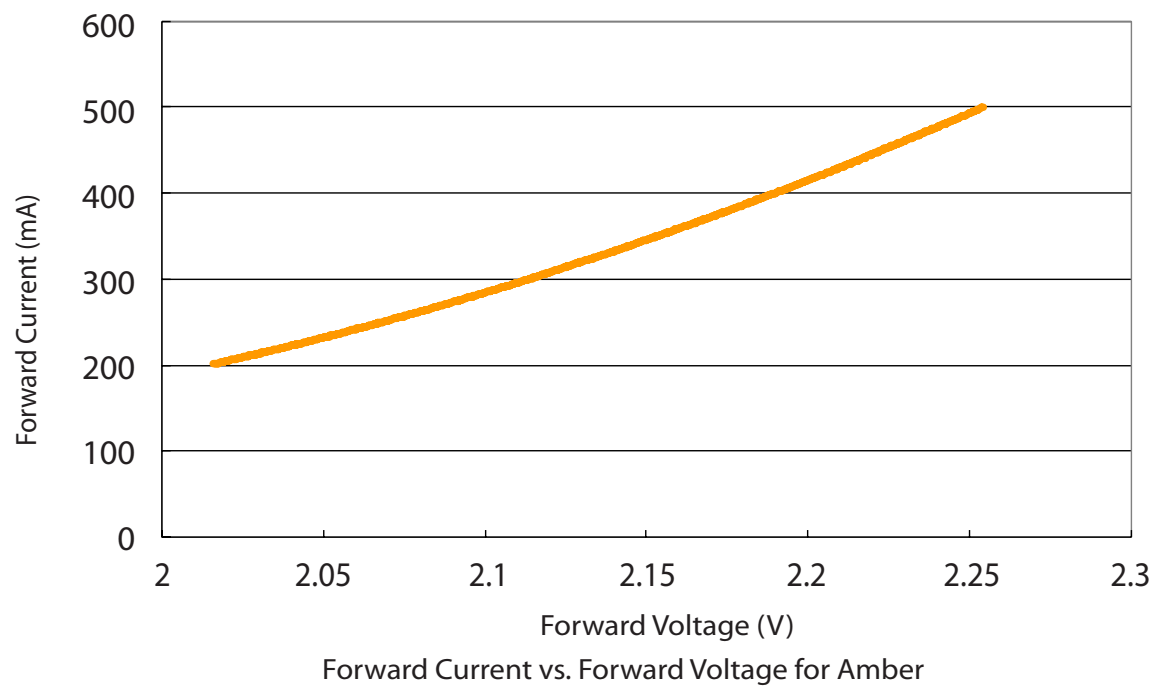
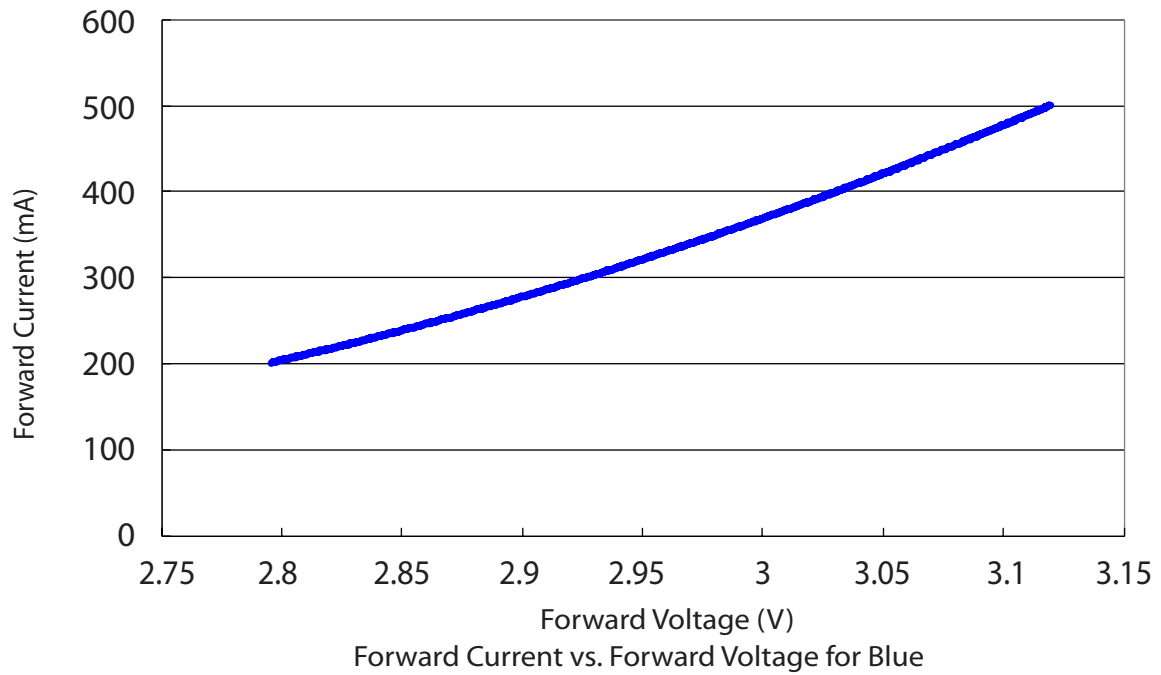
Forward Current vs. Forward Voltage



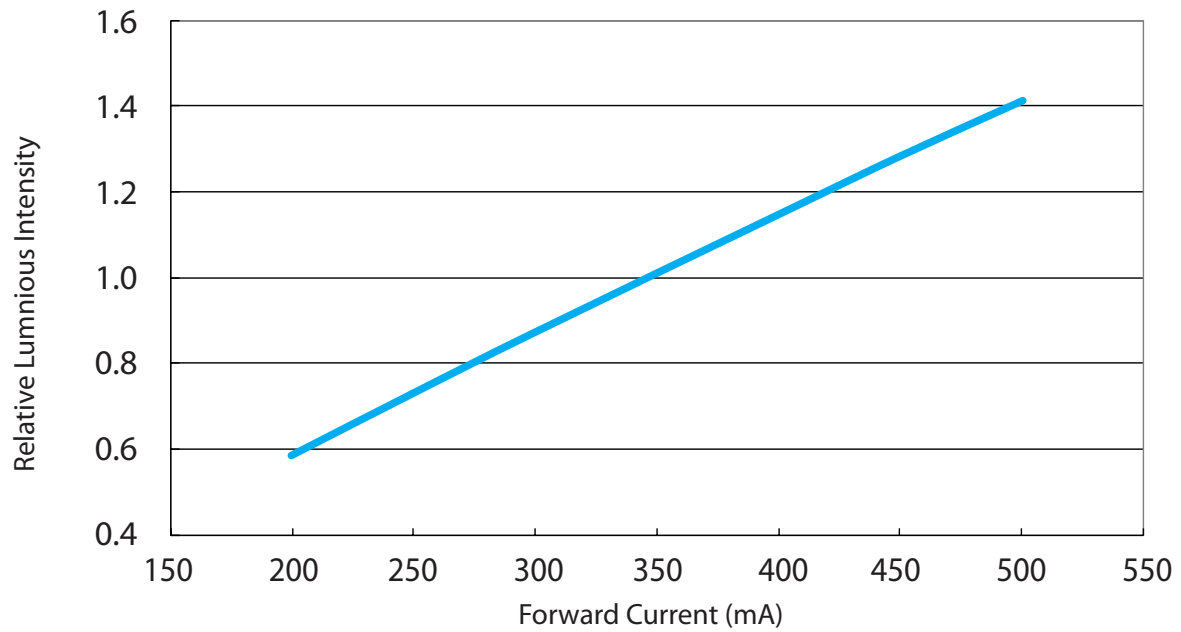
Forward Current vs. Forward Voltage for Red



Forward Current vs. Forward Voltage for True Green

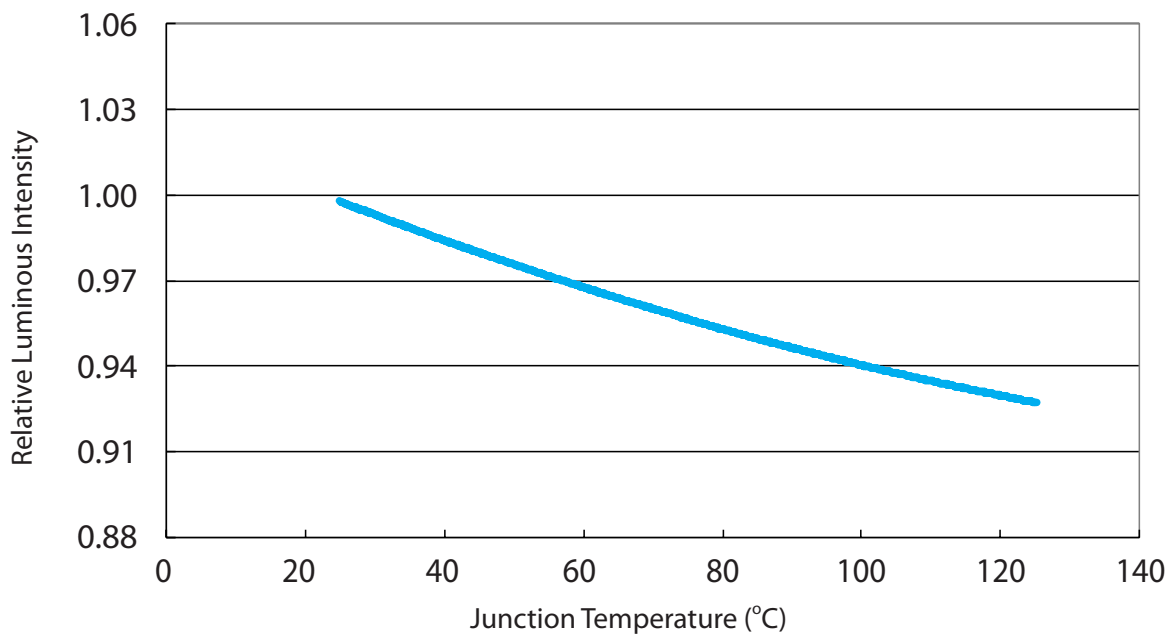


Relative Intensity vs. Forward Current



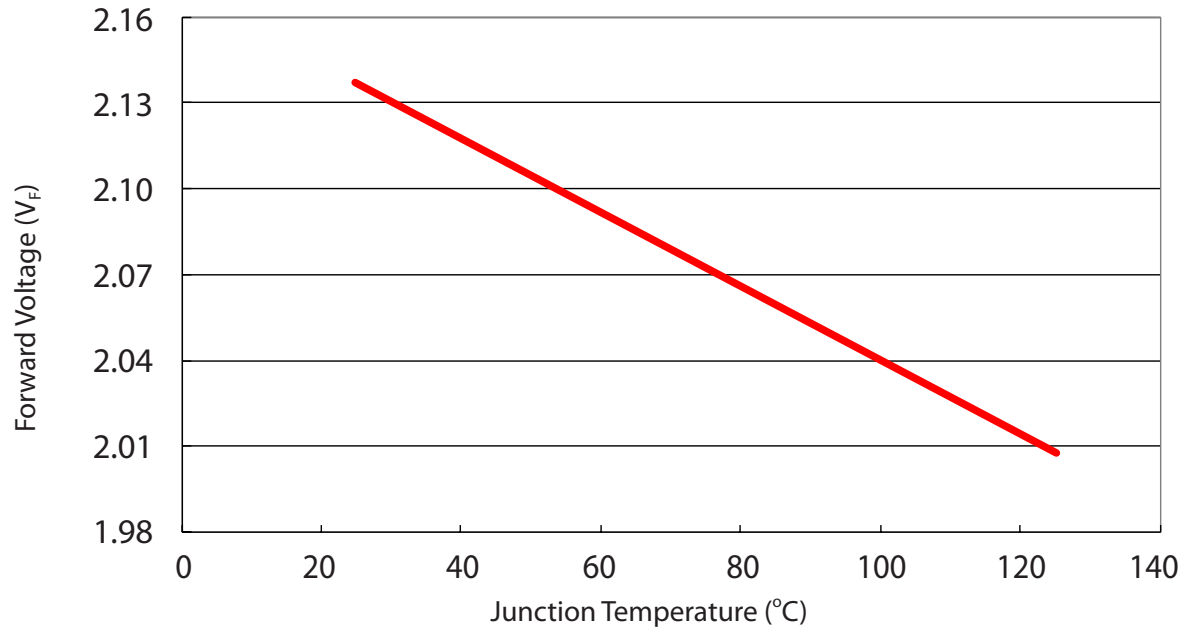
Luminous Intensity vs. Forward Current for Edixeon S1 Single color Series

Luminous Flux vs. Junction Temperature

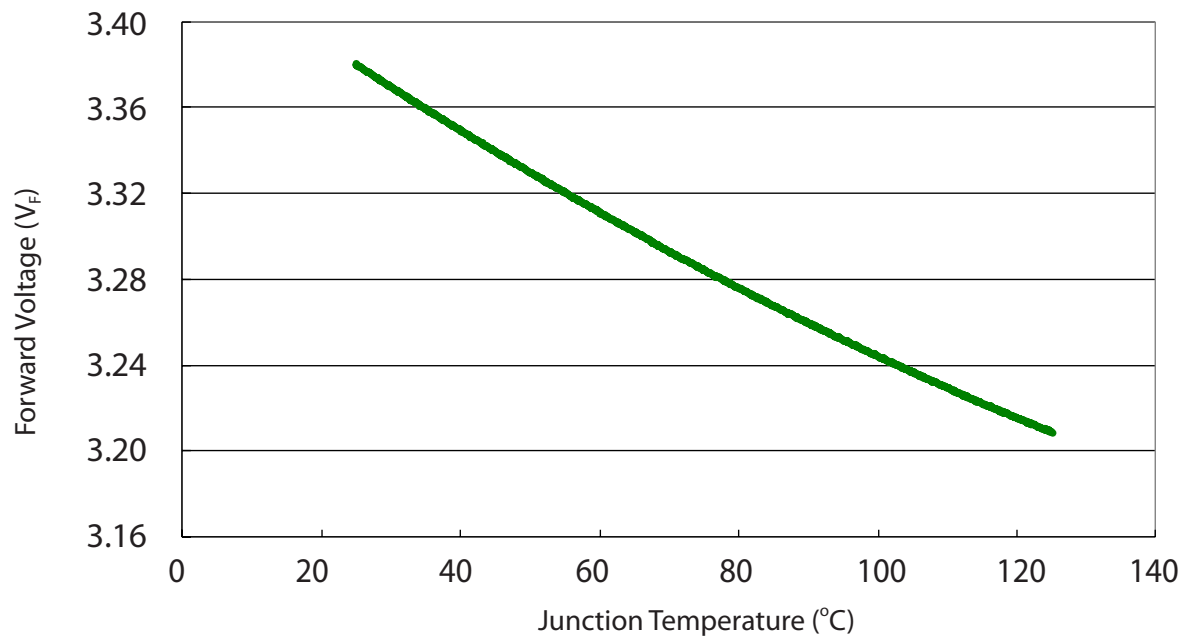


Luminous flux vs. junction temperature for Edixeon S1 Single color Series

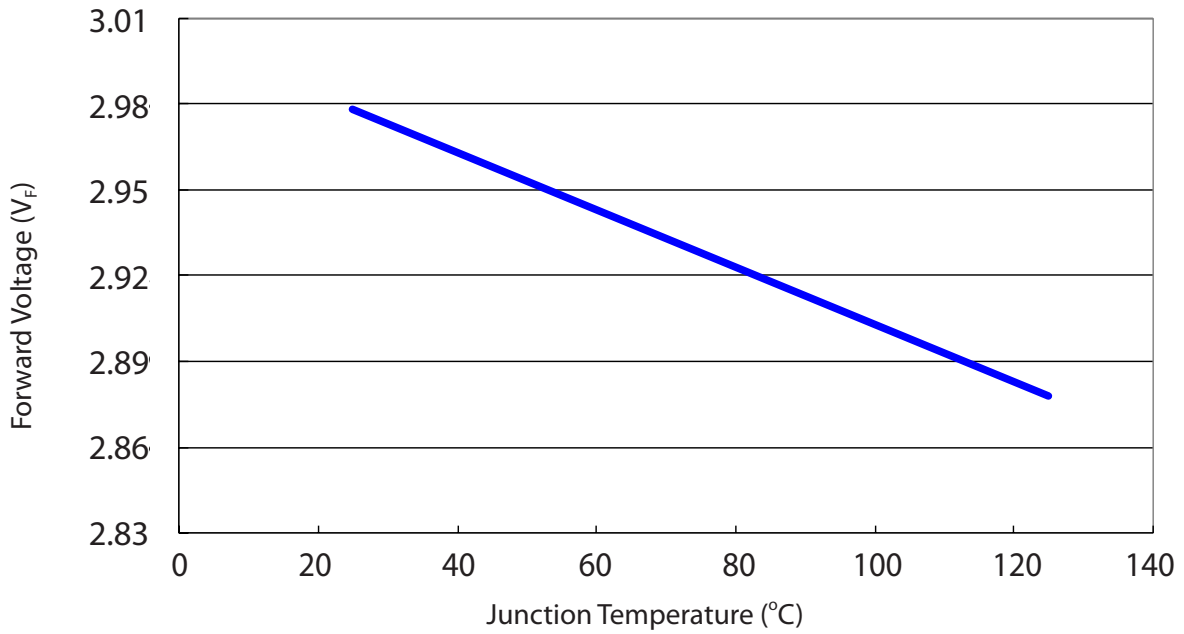
Forward Voltage vs. Junction Temperature



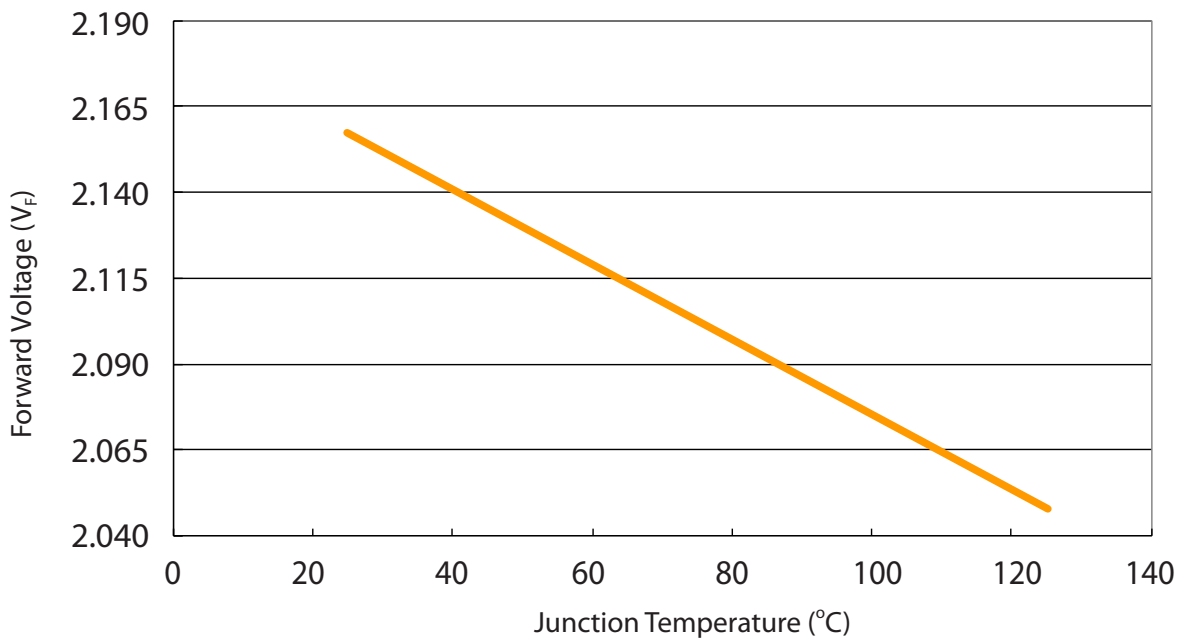
Forward voltage vs. junction temperature for Red



Forward voltage vs. junction temperature for True Green

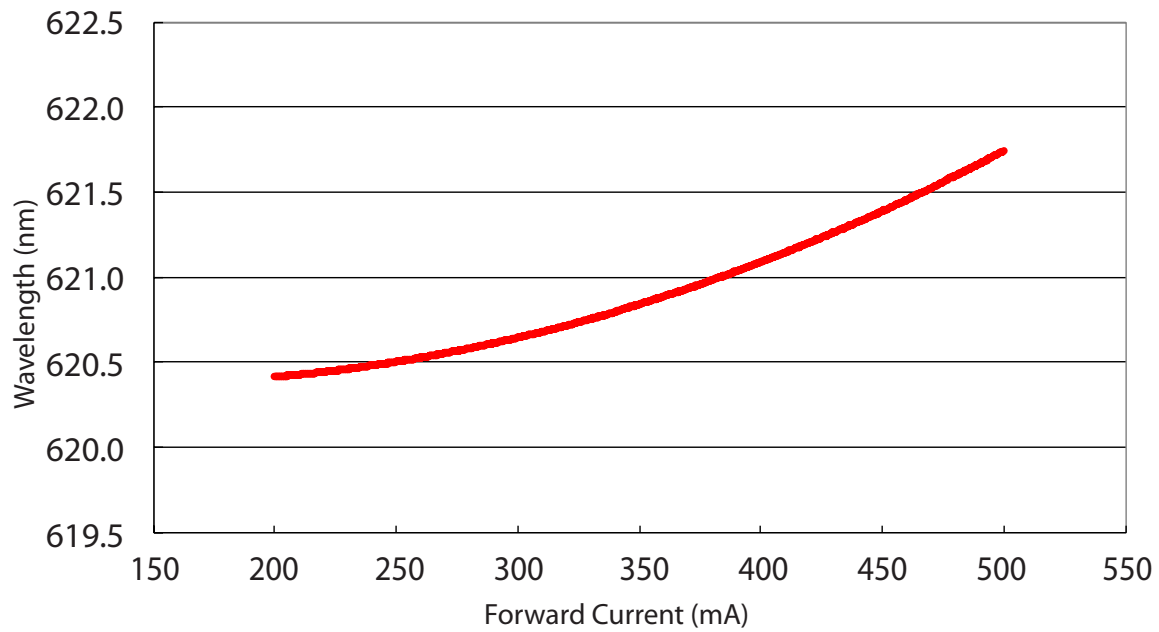


Forward voltage vs. junction temperature for Blue

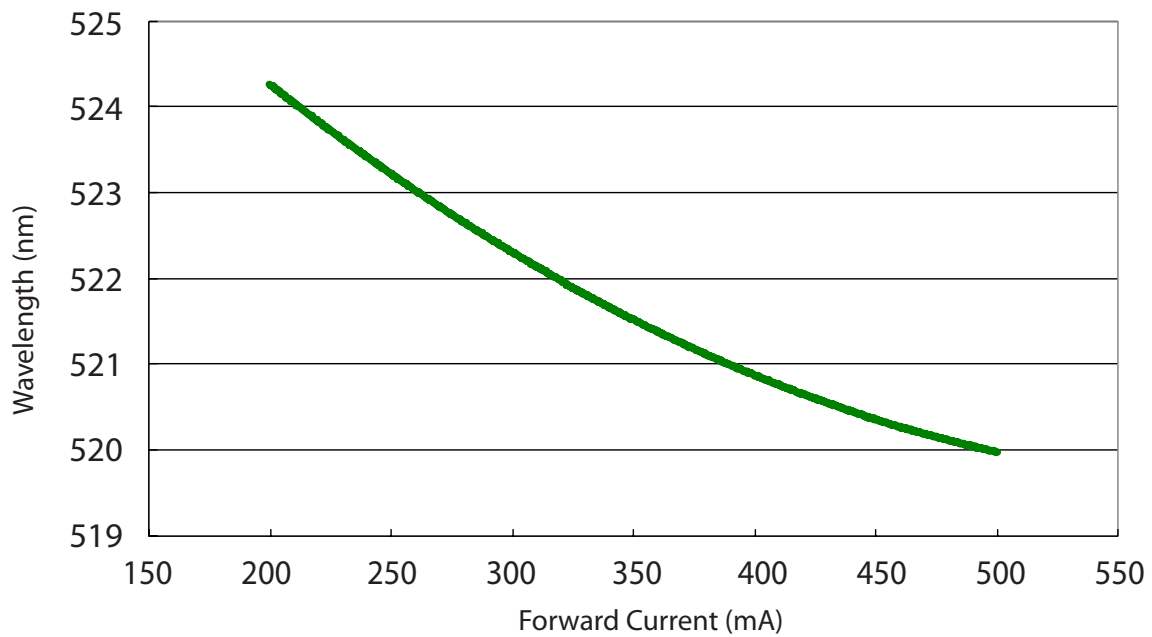


Forward voltage vs. junction temperature for Amber

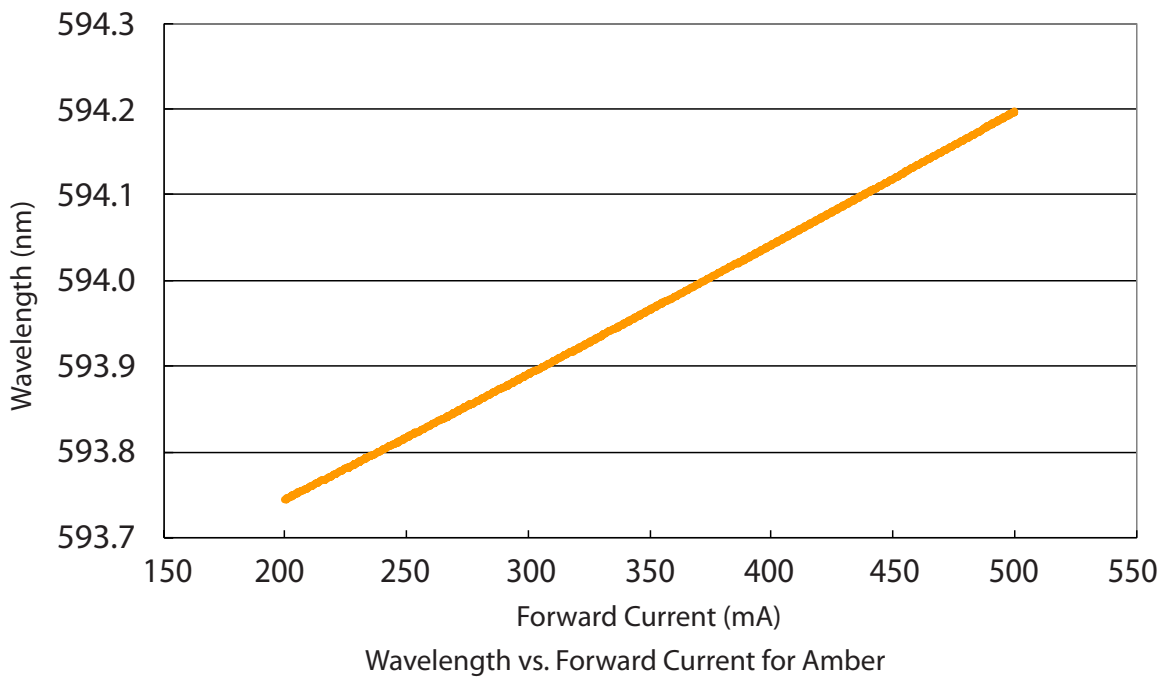
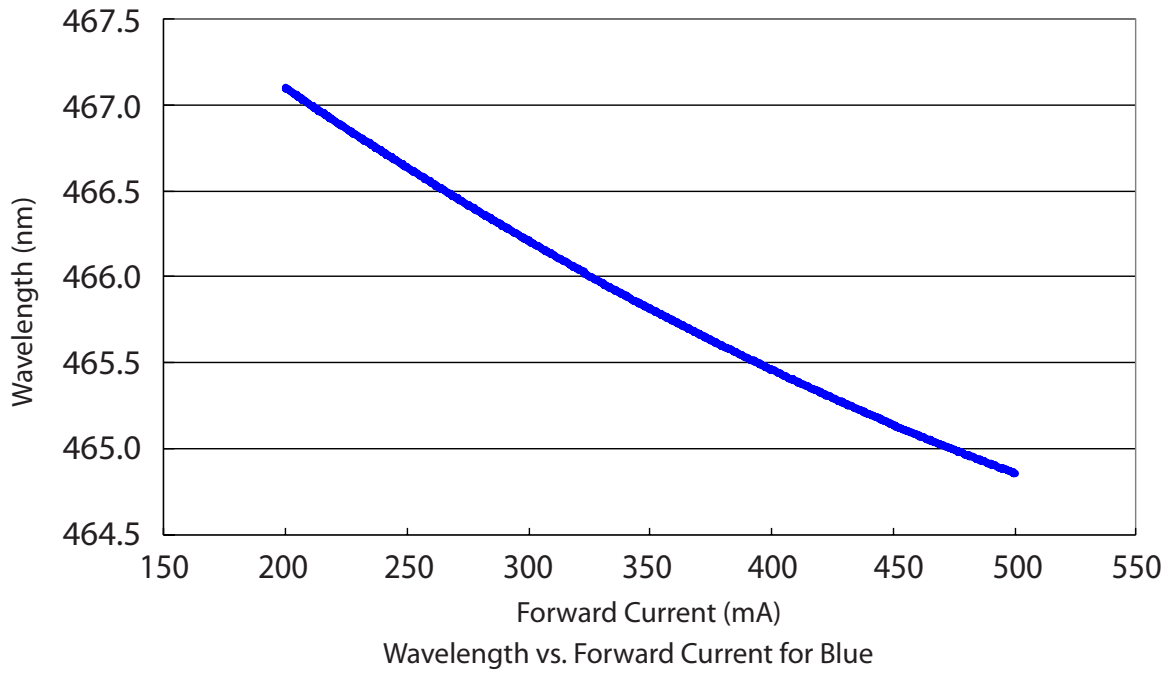
Wavelength vs. Forward Current



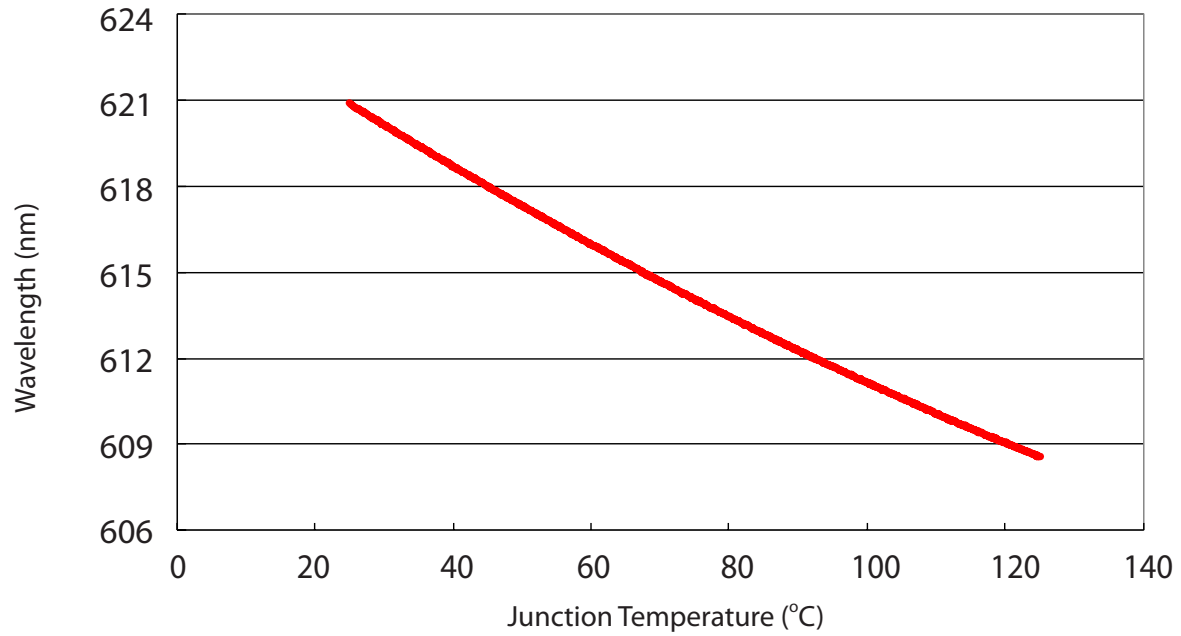
Wavelength vs. Forward Current for Red



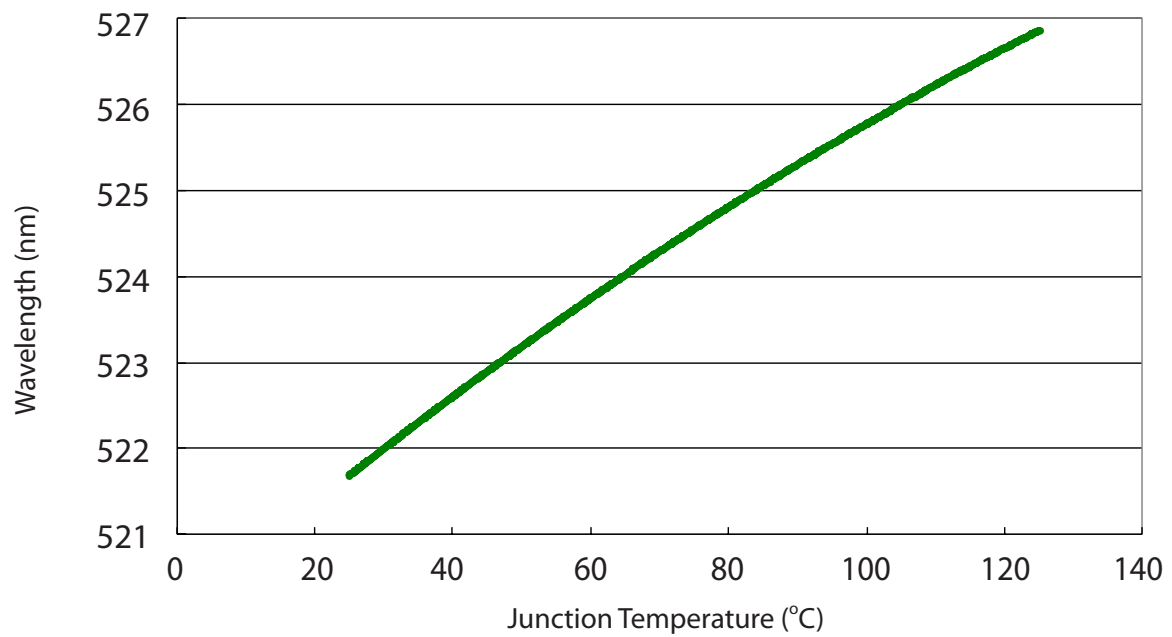
Wavelength vs. Forward Current for True Green



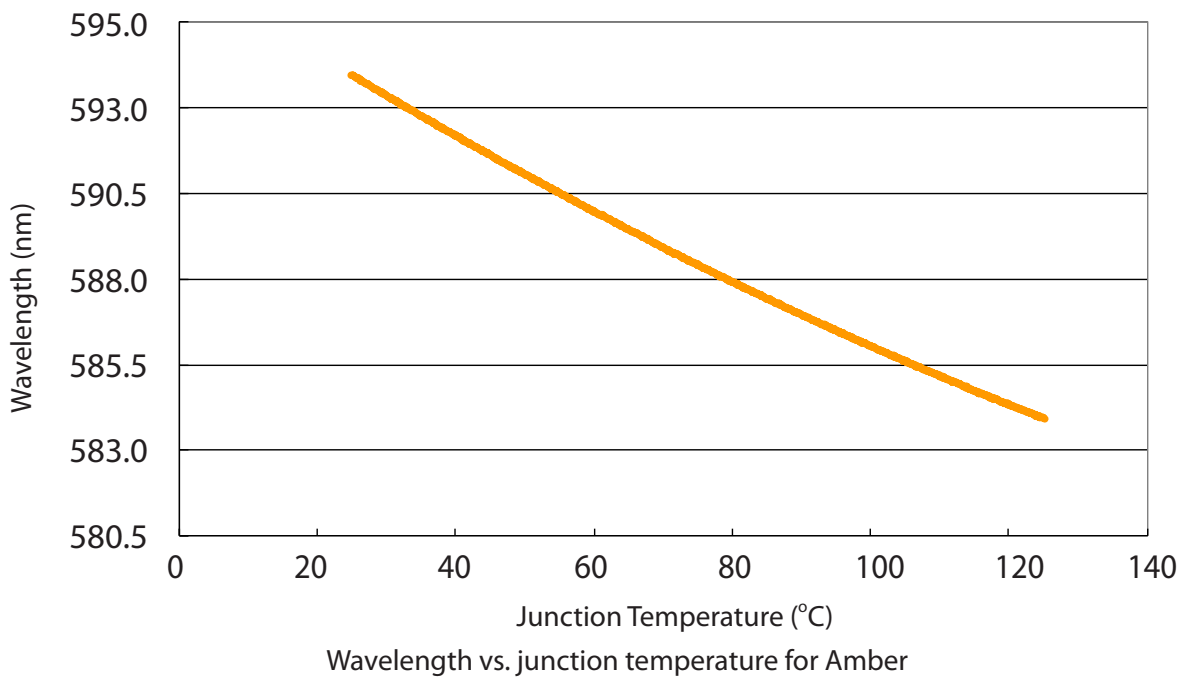
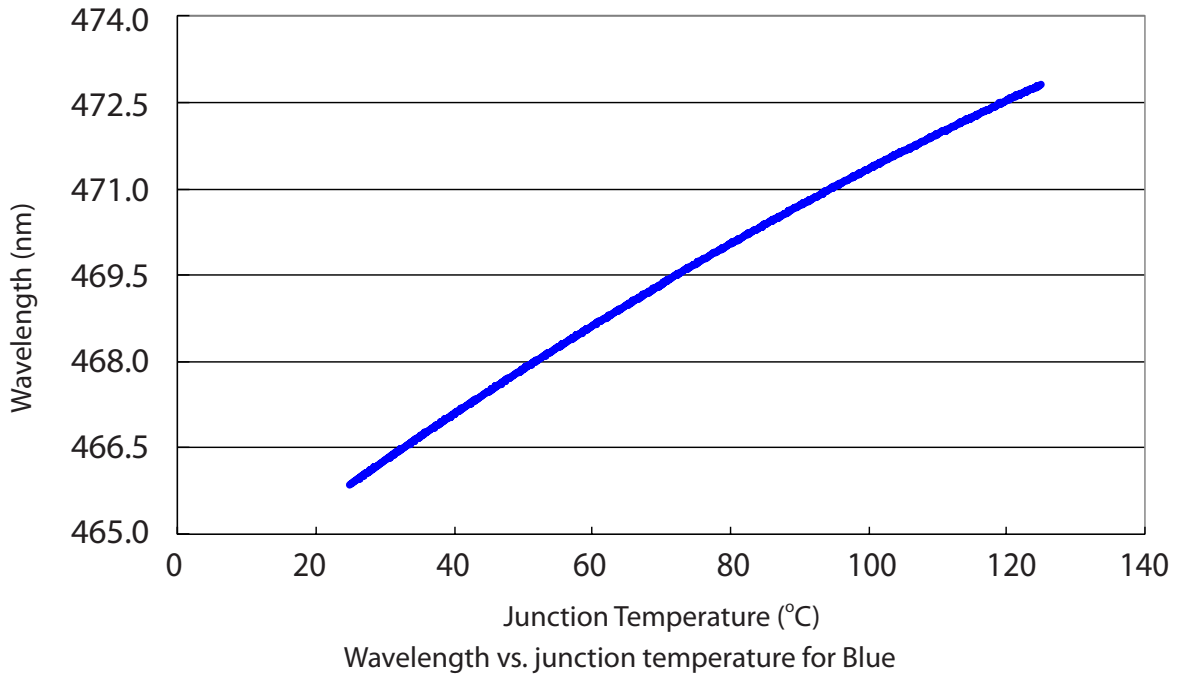
Wavelength vs. Junction Temperature



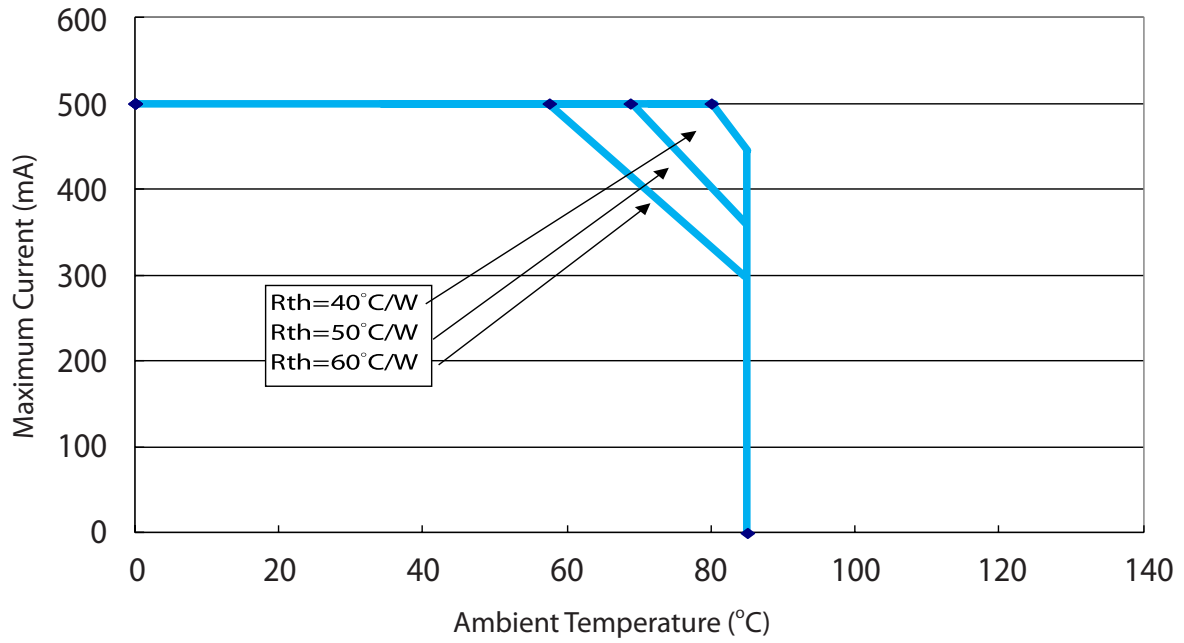
Wavelength vs. junction temperature for Red



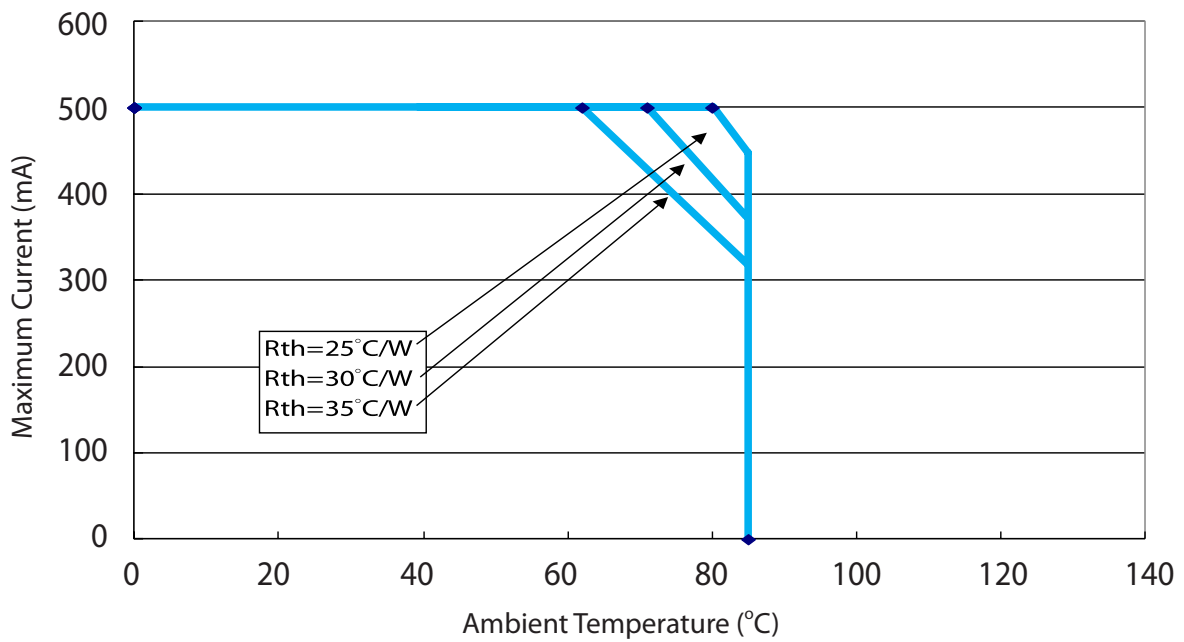
Wavelength vs. junction temperature for True Green



Maximum Current vs. Ambient Temperature



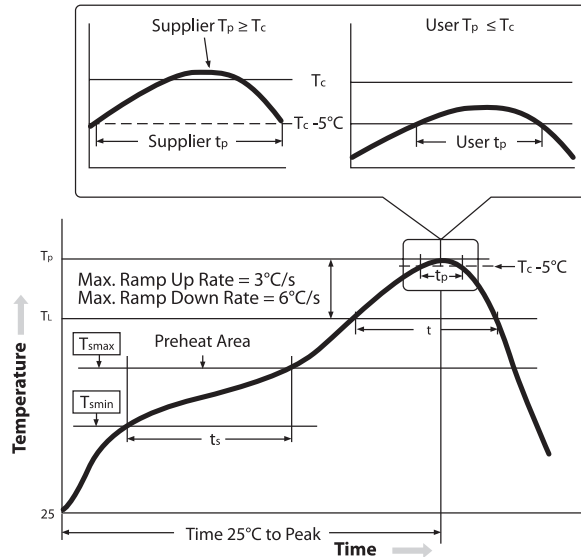
Maximum Current vs. Ambient Temperature for Red and Amber



Maximum Current vs. Ambient Temperature for Blue and True Green

Reflow Profile

The following reflow profile is from IPC/JEDEC J-STD-020D which provided here for reference.



Classification Reflow Profiles

Profile Feature	Low-Temp, Pb-Free Assembl
Preheat/Soak	
Temperature Min (T_{smin})	150° C
Temperature Max (T_{smax})	200° C
Time (t_s) from (T_{smin} to T_{smax})	60-120 seconds
Ramp-up rate (TL to T_p)	3° C/ seconds max.
Liquidous temperature (TL)	217° C
Time (t_L) maintained above TL	60-150 seconds
Peak package body temperature (T_p) ⁽¹⁾	255° C~260° C
Classification temperature (T_c)	260° C
Time (t_p) within 5° C of the specified classification temperature (T_c) ⁽²⁾	30 seconds
Average ramp-down rate (T_p to T_{smax})	6° C/second max.
Time 25° C to peak temperature	8 minutes max

Notes:

1. Tolerance for peak profile temperature (T_p) is defined as a supplier minimum and a user maximum.
2. Tolerance for time at peak profile temperature (t_p) is defined as a supplier minimum and a user maximum.

Reliability

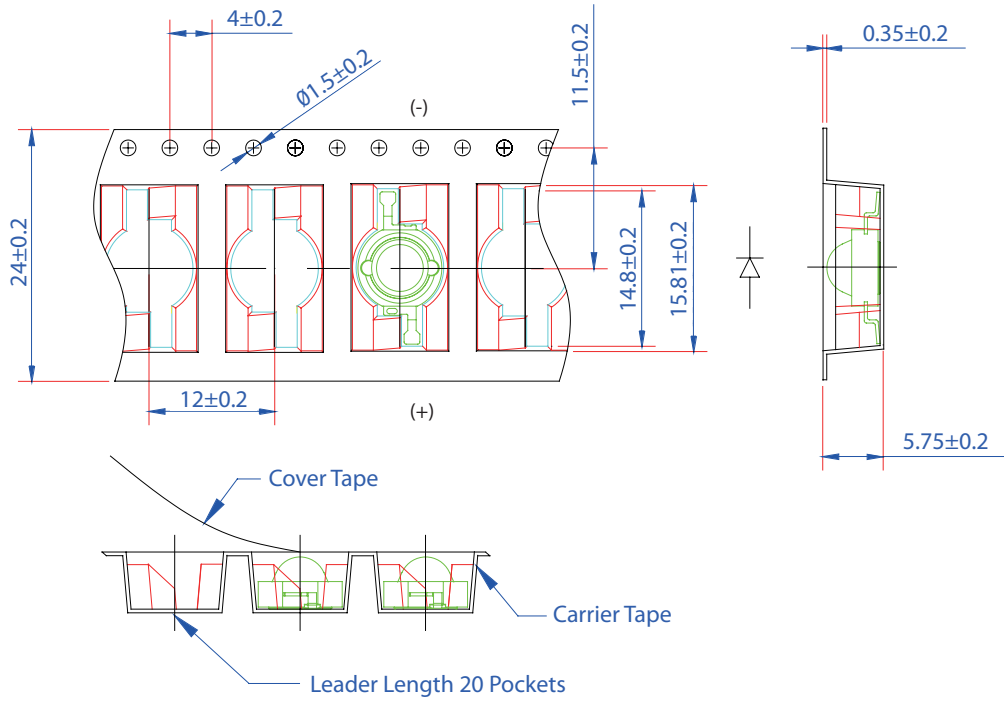
NO .	Test Item	Test Condition	Remark
1	Temperature Cycle	-40°C~100°C 30, 30, mins	100 Cycle
2	Thermal Shock	-40°C~100°C 15, 15 mins \leq 10 sec	100 Cycle
3	Resistance to Soldering Heat	T _{SOL} =260°C, 30 sec	3 times
4	Moisture Resistance	25°C~65°C 90% RH 24 hrs / 1 cycle	10 Cycle
5	High-Temperature 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	1.5W times

Failure Criteria

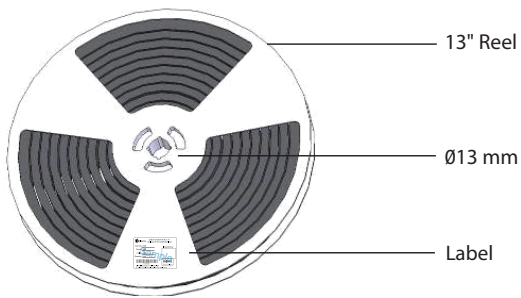
Item	Criteria for Judgment	
	Min.	Max.
Lumen Maintenance	85%	-
$\Delta u'v'$	-	0.006
Forward Voltage	-	Initial Data x 1.1
Reverse Current	-	10 μ A
Resistance to Soldering Heat	No dead lamps or visual damage	

Product Packaging Information

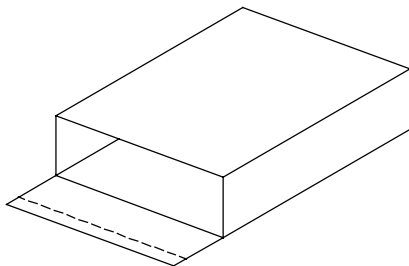
Tape and Reel Dimension



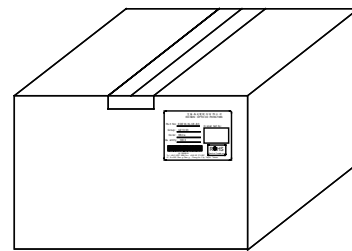
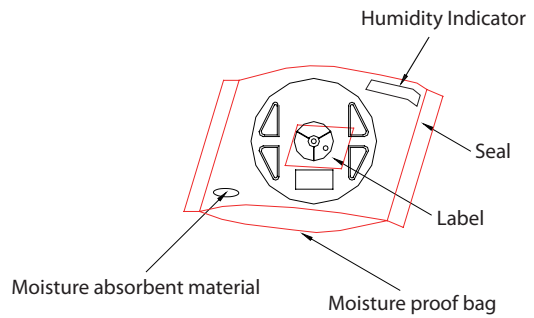
Edixeon Emitter



1000pcs LEDs inside



2 bags in 1 box



5 boxes in 1 carton

Note : 445*410*415 (Tolerance : ± 5 mm)

Revision History

Versions	Description	Release Date
1	Establish order code information	2014/04/11
2	1. Add True Green color Bin 2. Revise Reliability	2014/09/22

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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