

Edixeon A5 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 A5 series emitters are one of the highest flux LEDs in the world by Edison Opto. Edixeon A5 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 (Emitter)

2		E		A 1		0 x		x x		0 0 0		x x x	
X1		X2		X3		X4		X5		X6		X7	
X1		X2		X3		X4		X5		X6		X7	
Type		Component		Series		Wattage		Color		X6		X7	
2	Emitter	E	Edixeon	A1	A1 Series	01	1W	CW	Cool White	X6		X7	
						03	3W	NW	Neutral White	X6		X7	
								WW	Warm White	X6		X7	
								RX	Red	X6		X7	
								TX	True Green	X6		X7	
								BX	Blue	X6		X7	
								AX	Amber	X6		X7	
								DX	Dentle Blue	X6		X7	
X6		X7		X8		X6		X7		X6		X7	
Internal code		PCB Board		Serial Number		Internal code		PCB Board		Serial Number		Internal code	
-		-		000		-		-		-		-	

Ordering Code Format (Emitter on Star)

5		E		A 1		0 3		x W		S		0 0 1		x x x	
X1		X2		X3		X4		X5		X6		X7		X8	
X1		X2		X3		X4		X5		X6		X7		X8	
Type		Component		Series		Wattage		Color		X6		X7		X8	
5	Module	E	Edixeon	A1	A1 Series	01	1W	CW	Cool White	X6		X7		X8	
								NW	Neutral White	X6		X7		X8	
								WW	Warm White	X6		X7		X8	
								RX	Red	X6		X7		X8	
								TX	True Green	X6		X7		X8	
								BX	Blue	X6		X7		X8	
								AX	Amber	X6		X7		X8	
								DX	Dentle Blue	X6		X7		X8	
X6		X7		X8		X6		X7		X6		X7		X8	
PCB Board		Emitter Number		Serial Number		PCB Board		Emitter Number		Serial Number		PCB Board		Emitter Number	
-		-		000		-		-		-		-		-	

Absolute Maximum Ratings

Parameter	Symbol	Value	Units
DC Forward Current	(1W) (3W) I_F	350 700	mA
Peak Pulsed Current; (tp≤100μs, Duty cycle=0.25)	(1W) (3W) I_{pulse}	500 1000	mA
Reverse Voltage	V_R	5	V
Drive Voltage	V_D	5	V
LED Junction Temperature	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	(White Series/R/A) (T/B) $2\Theta_{1/2}$	135 150	Degree
Thermal resistance	-	11	°C/W
$\Delta V_f/\Delta T$	$\Delta V_f/\Delta T$	-2	mV/°C
CCT / Wavelength	λ_d	CW : 5000-10000 NW : 3800-5000 WW : 2670-3800 R: 620-630 A: 585-595 T: 515-535 B: 455-475 D: 450-470	K/nm
CRI	(Typ.)	-	-
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. CIE_x/y tolerance: ±0.005
3. Viewing angle is measured with an accuracy of ± 5%.
4. Color rendering index CRI tolerance: ± 2.

Luminous Flux Characteristic

Luminous Flux Characteristics at $T_j=25^{\circ}\text{C}$

Color	Wattage (W)	Group	Min. Luminous Flux(lm)	Max. Luminous Flux(lm)	Forward Current (mA)	Order Code
Cool White	1	U3	100	110	350	2EA101CW06000002 (non star) 5EA101CWS0010002 (on star)
		V1	110	120		
		V2	120	130		
		V3	130	140		
		V4	140	150		
Neutral White	1	U1	86.5	90	350	2EA101NW05000002 (non star) 5EA101NWS0010001 (on star)
		U2	90	100		
		U3	100	110		
		V1	110	120		
		V2	120	130		
Warm White	1	T1	66.5	70	350	2EA101WW05000002 (non star) 5EA101WWS0010001 (on star)
		T2	70	80		
		T3	80	86.5		
		U1	86.5	90		
		U2	90	100		
		U3	100	110		
		V1	110	120		
		V2	120	130		
		T3	80	86.5		
		U1	86.5	90		
	U2	90	100			
	U3	100	110			
	V1	110	120			
	V2	120	130			
	3	3	W1	160	180	700
		W2	180	200		

Notes:

- Flux is measured with an accuracy of $\pm 10\%$.
- All cool white, neutral white, and warm white emitters are built with InGaN.

Color	Wattage (W)	Group	Min. Radiometric Power (mW)	Max. Radiometric Power (mW)	Forward Current (mA)	Order Code
Red	1	R0	39.4	51.2	350	2EA101RX00000001 (non star)
		S0	51.2	66.5		5EA101RXS0010001 (on star)
	3	U0	86.5	110	700	2EA103RX00000002
		V1	110	120		
		V2	120	130		
True Green	1	T0	66.5	86.5	350	2EA101TX00000001 (non star)
		U0	86.5	110		5EA101TXS0010001 (on star)
		V3	130	140		
	3	V4	140	150	700	2EA103TX00000001
		V5	150	160		
		W1	160	180		
		W2	180	200		
		W3	200	220		
Blue	1	N0	17.9	23.3	350	2EA101BX00000001
		P0	23.3	30.3		2EA101BX00000002 (non star)
		Q0	30.3	39.4		5EA101BXS0010001 (on star)
	3	Q0	30.3	39.4	700	2EA103BX00000001 (non star)
		R0	39.4	51.2		
		S0	51.2	66.5		
		T0	66.5	86.5		
Amber	1	S0	51.2	66.5	350	2EA101AX00000001 (non star)
		T0	66.5	86.5		5EA101AXS0010001 (on star)
		U0	86.5	110		
Dental Blue	3	C1	600	700	700	2EA103DX00000001
		C2	700	800		
		C3	800	900		

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.

Voltage Bin Structure (White series, True Green, Blue, Dentle Blue)

Group	Min. Voltage (V)	Max. Voltage (V)
V01	2.8	3.1
V02	3.1	3.4
V03	3.4	3.7
V04	3.7	4.0

Note:
Forward voltage measurement allowance is $\pm 0.06V$.

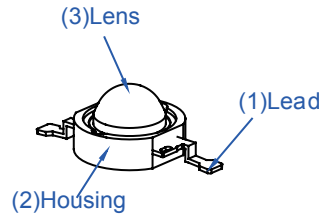
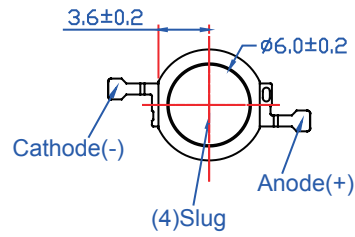
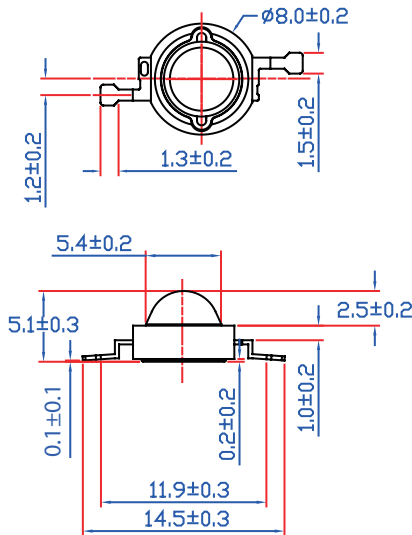
Voltage Bin Structure (Red, Amber)

Group	Min. Voltage (V)	Max. Voltage (V)
U00	0.7	1.0
U01	1.0	1.3
U02	1.3	1.6
U03	1.6	1.9
U04	1.9	2.2
U05	2.2	2.5
V00	2.5	2.8
V01	2.8	3.1

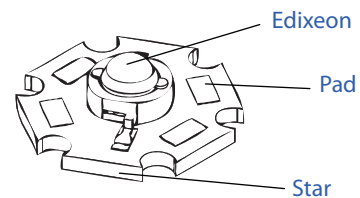
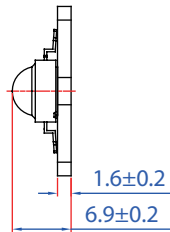
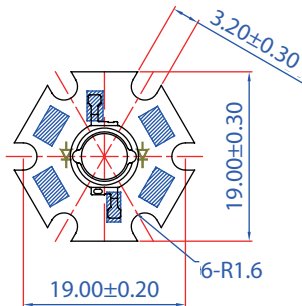
Note:
Forward voltage measurement allowance is $\pm 0.06V$.

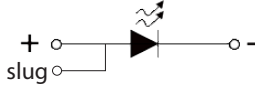

Mechanical Dimensions

Emitter Type Dimension



Star Dimensions



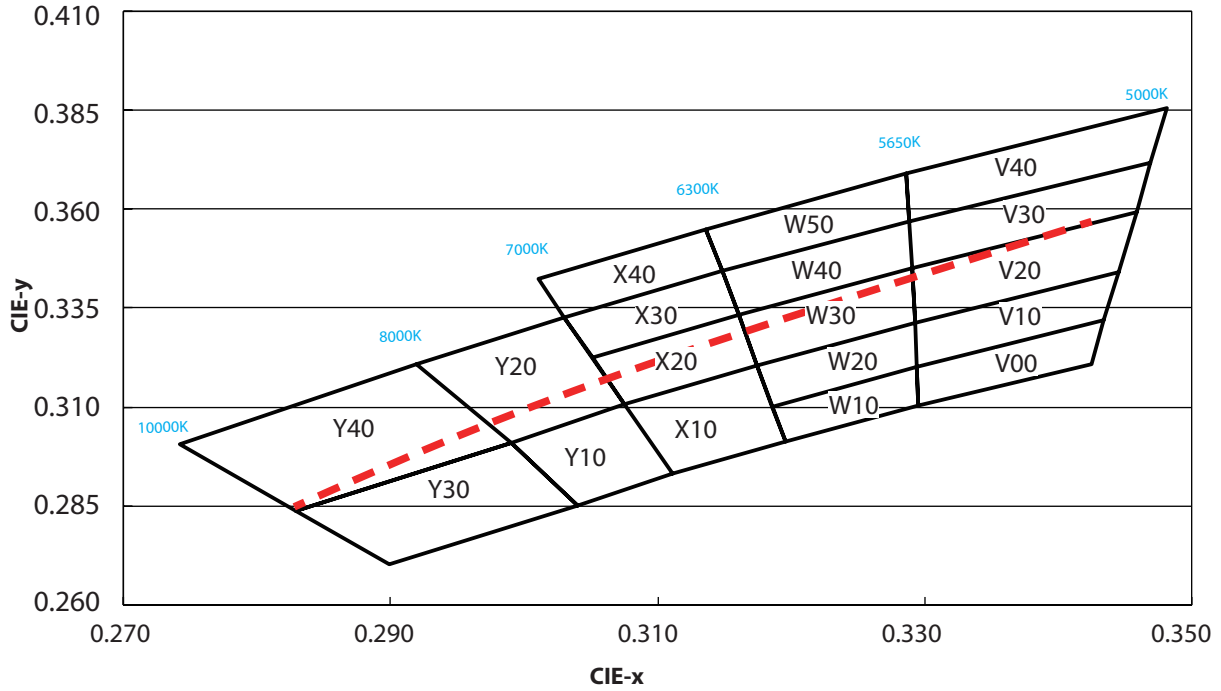
Emitting Color	Slug at the bottom of the electrode	Circuit
R/A	Anode	
W/H/X/T/B/D	No electrode	

Notes:

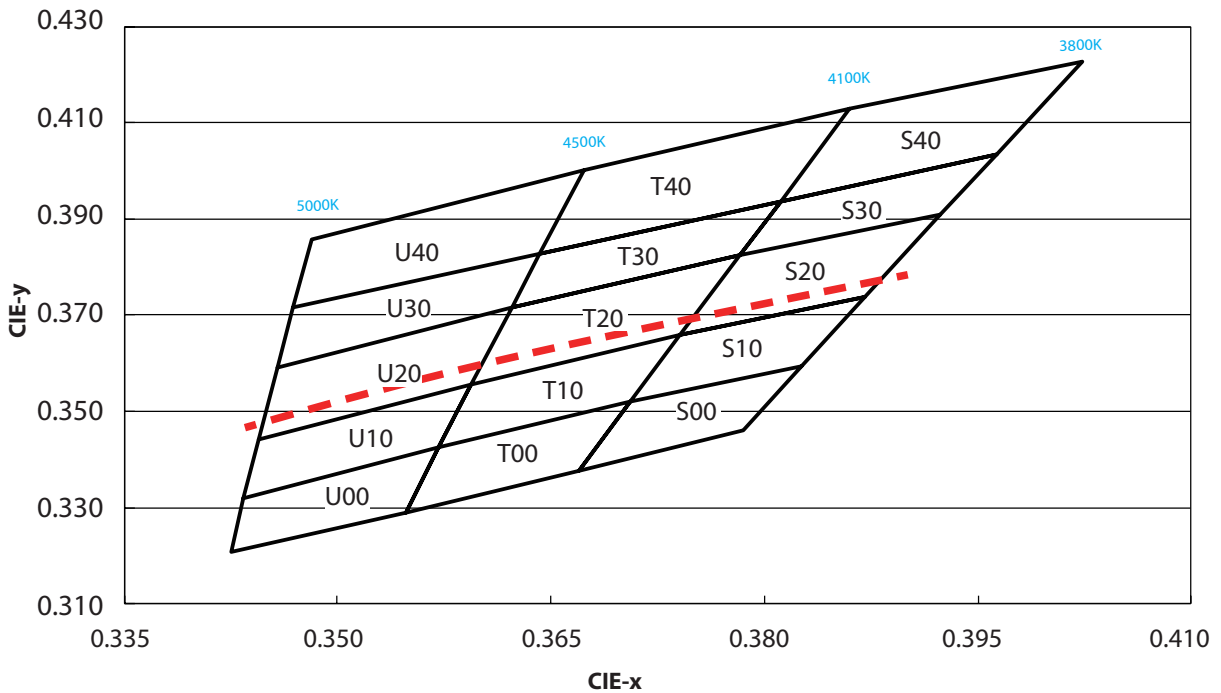
1. All dimensions are in mm.
2. It is strongly recommended that the temperature of lead doesn't exceed 55°C.
3. Lambertian and side emitting series slug has polarity as anode.
4. It is important that the slug can't contact aluminum surface, It is strongly recommended that there should coat a uniform electrically isolated heat dissipation film on the aluminum surface.

Color BIN code

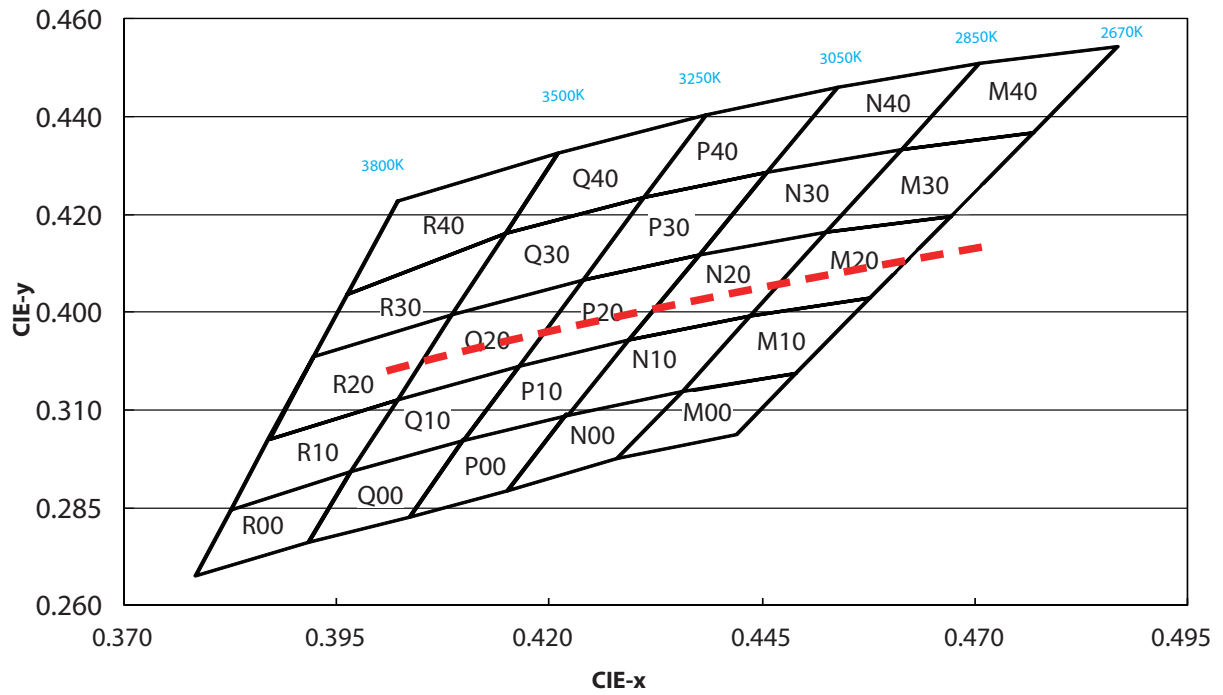
Cool White



Neutral White



Warm White



Cool White

Y10		Y20		Y30		Y40	
X	Y	X	Y	X	Y	X	Y
0.3040	0.2850	0.2990	0.3010	0.3040	0.2850	0.2920	0.3210
0.2990	0.3010	0.2920	0.3210	0.2899	0.2703	0.2742	0.3007
0.3076	0.3108	0.3031	0.3327	0.2830	0.2838	0.2830	0.2838
0.3112	0.2932	0.3076	0.3108	0.2990	0.3010	0.2990	0.3010

X10		X20		X30		X40	
X	Y	X	Y	X	Y	X	Y
0.3076	0.3108	0.3076	0.3108	0.3052	0.3224	0.3031	0.3327
0.3174	0.3204	0.3052	0.3224	0.3031	0.3327	0.3011	0.3422
0.3196	0.3013	0.3160	0.3332	0.3148	0.3444	0.3136	0.3550
0.3112	0.2932	0.3175	0.3204	0.3160	0.3332	0.3148	0.3444

W10		W20		W30		W40		W50	
X	Y	X	Y	X	Y	X	Y	X	Y
0.3294	0.3202	0.3292	0.3313	0.3290	0.3451	0.3290	0.3451	0.3148	0.3444
0.3295	0.3105	0.3294	0.3202	0.3292	0.3313	0.3160	0.3332	0.3136	0.3550
0.3196	0.3013	0.3186	0.3102	0.3175	0.3204	0.3148	0.3444	0.3286	0.3690
0.3186	0.3102	0.3175	0.3204	0.3160	0.3332	0.3288	0.3569	0.3288	0.3569

V00		V10		V20		V30		V40	
X	Y	X	Y	X	Y	X	Y	X	Y
0.3434	0.3320	0.3292	0.3313	0.3292	0.3313	0.3290	0.3451	0.3288	0.3569
0.3425	0.3208	0.3444	0.3442	0.3290	0.3451	0.3288	0.3569	0.3286	0.3690
0.3295	0.3105	0.3434	0.3320	0.3458	0.3592	0.3469	0.3717	0.3481	0.3856
0.3294	0.3200	0.3294	0.3200	0.3444	0.3442	0.3458	0.3592	0.3469	0.3717

Neutral White

U00		U10		U20		U30		U40	
X	Y	X	Y	X	Y	X	Y	X	Y
0.3571	0.3426	0.3444	0.3442	0.3622	0.3716	0.3642	0.3829	0.3642	0.3829
0.3548	0.329	0.3434	0.332	0.3594	0.3557	0.3622	0.3716	0.3673	0.4003
0.3425	0.3208	0.3571	0.3426	0.3444	0.3442	0.3458	0.3592	0.3481	0.3856
0.3434	0.332	0.3594	0.3557	0.3458	0.3592	0.3469	0.3717	0.3469	0.3717

T00		T10		T20		T30		T40	
X	Y	X	Y	X	Y	X	Y	X	Y
0.3706	0.3520	0.3594	0.3557	0.3622	0.3716	0.3642	0.3829	0.3673	0.4003
0.3670	0.3377	0.3571	0.3426	0.3783	0.3825	0.3811	0.3937	0.3860	0.4130
0.3548	0.3290	0.3706	0.3520	0.3741	0.3658	0.3783	0.3825	0.3811	0.3937
0.3571	0.3426	0.3741	0.3658	0.3594	0.3557	0.3622	0.3716	0.3642	0.3829

S00		S10		S20		S30		S40	
X	Y	X	Y	X	Y	X	Y	X	Y
0.3826	0.3595	0.3741	0.3658	0.3783	0.3825	0.3783	0.3825	0.3860	0.4130
0.3785	0.3460	0.3871	0.3739	0.3924	0.3909	0.3811	0.3937	0.4023	0.4228
0.3670	0.3377	0.3826	0.3595	0.3871	0.3739	0.3963	0.4035	0.3963	0.4035
0.3706	0.3520	0.3706	0.3520	0.3741	0.3658	0.3924	0.3909	0.3811	0.3937

Warm White

R00		R10		R20		R30		R40	
X	Y	X	Y	X	Y	X	Y	X	Y
0.3966	0.3673	0.3871	0.3739	0.3924	0.3909	0.4086	0.3995	0.4023	0.4228
0.3917	0.3530	0.4021	0.3822	0.3871	0.3739	0.3924	0.3909	0.4209	0.4326
0.3785	0.3460	0.3966	0.3673	0.4021	0.3822	0.3963	0.4035	0.4148	0.4161
0.3826	0.3595	0.3826	0.3595	0.4086	0.3995	0.4148	0.4161	0.3963	0.4035

Q00		Q10		Q20		Q30		Q40	
X	Y	X	Y	X	Y	X	Y	X	Y
0.4100	0.3740	0.4165	0.3890	0.4086	0.3995	0.4086	0.3995	0.4385	0.4404
0.4035	0.3580	0.4100	0.3738	0.4240	0.4065	0.4148	0.4161	0.4312	0.4234
0.3917	0.3530	0.4021	0.3822	0.4165	0.3890	0.4312	0.4234	0.4148	0.4161
0.3966	0.3673	0.3966	0.3673	0.4021	0.3822	0.4240	0.4065	0.4209	0.4326

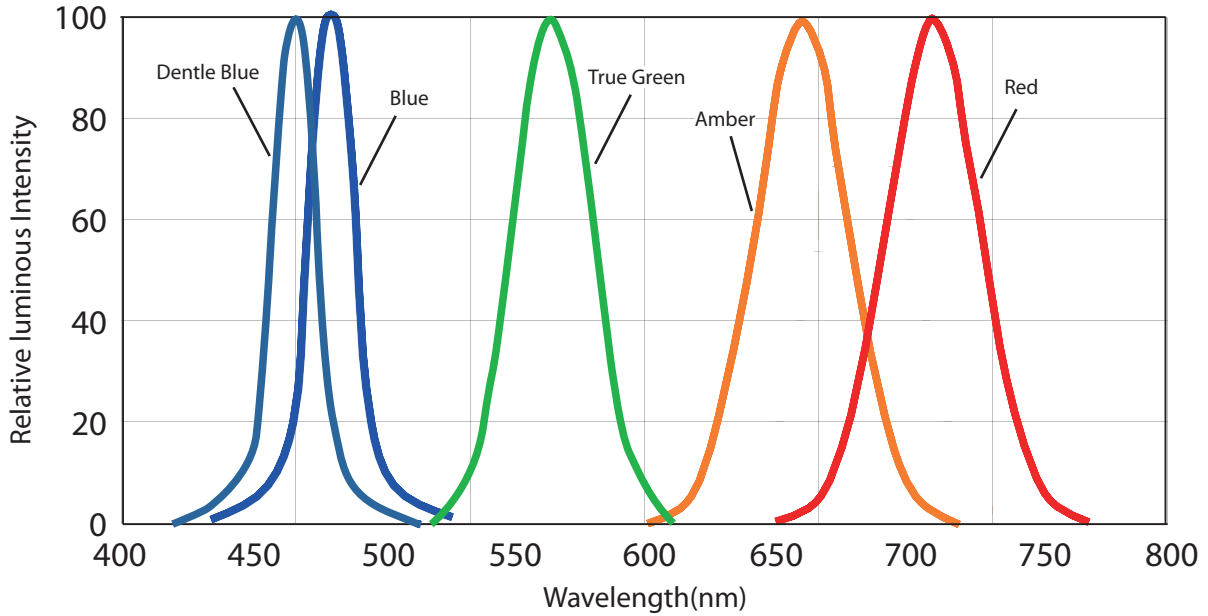
P00		P10		P20		P30		P40	
X	Y	X	Y	X	Y	X	Y	X	Y
0.4220	0.3790	0.4294	0.3943	0.4240	0.4065	0.4312	0.4234	0.4385	0.4404
0.4150	0.3635	0.4221	0.3790	0.4376	0.4116	0.4456	0.4287	0.4538	0.4460
0.4035	0.3580	0.4100	0.3738	0.4294	0.3943	0.4376	0.4116	0.4456	0.4287
0.4100	0.3740	0.4165	0.3890	0.4165	0.3890	0.4240	0.4065	0.4312	0.4234

N00		N10		N20		N30		N40	
X	Y	X	Y	X	Y	X	Y	X	Y
0.4100	0.3740	0.4165	0.3890	0.4086	0.3995	0.4086	0.3995	0.4385	0.4404
0.4035	0.3580	0.4100	0.3738	0.4240	0.4065	0.4148	0.4161	0.4312	0.4234
0.3917	0.3530	0.4021	0.3822	0.4165	0.3890	0.4312	0.4234	0.4148	0.4161
0.3966	0.3673	0.3966	0.3673	0.4021	0.3822	0.4240	0.4065	0.4209	0.4326

M00		M10		M20		M30		M40	
X	Y	X	Y	X	Y	X	Y	X	Y
0.4490	0.3875	0.4436	0.3991	0.4525	0.4162	0.4614	0.4333	0.4705	0.4508
0.4420	0.3750	0.4577	0.4029	0.4671	0.4196	0.4767	0.4366	0.4866	0.4542
0.4280	0.3700	0.4490	0.3875	0.4577	0.4029	0.4671	0.4196	0.4767	0.4366
0.4370	0.3840	0.4356	0.3837	0.4436	0.3991	0.4525	0.4162	0.4614	0.4333

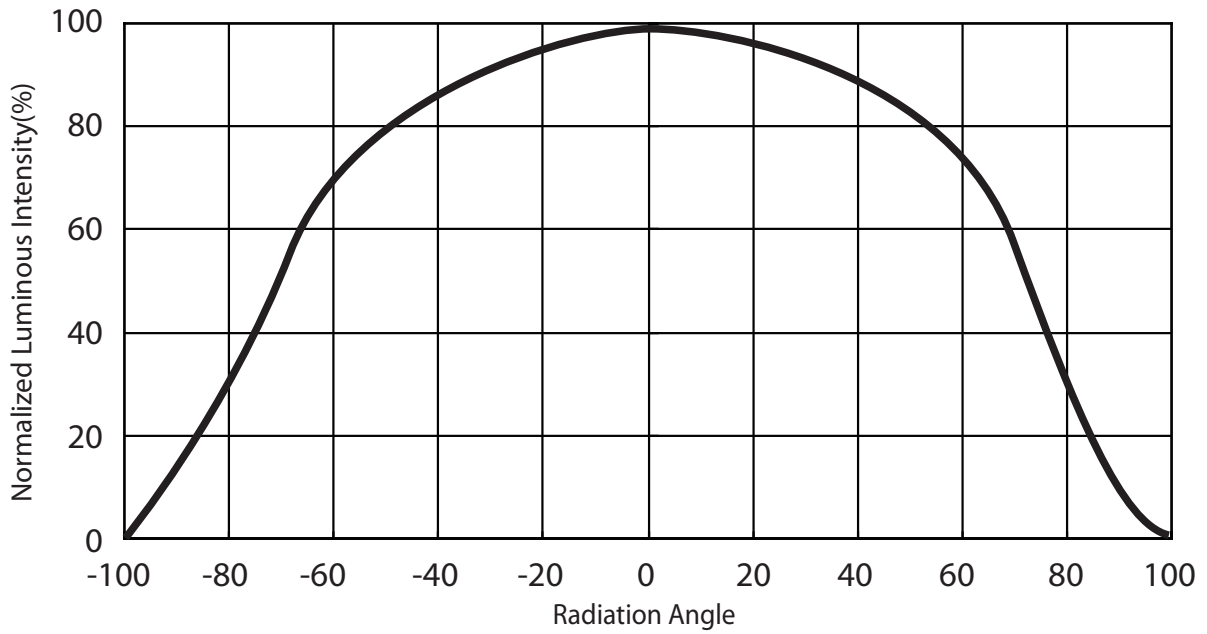
Characteristic curve (Single color)

Color Spectrum

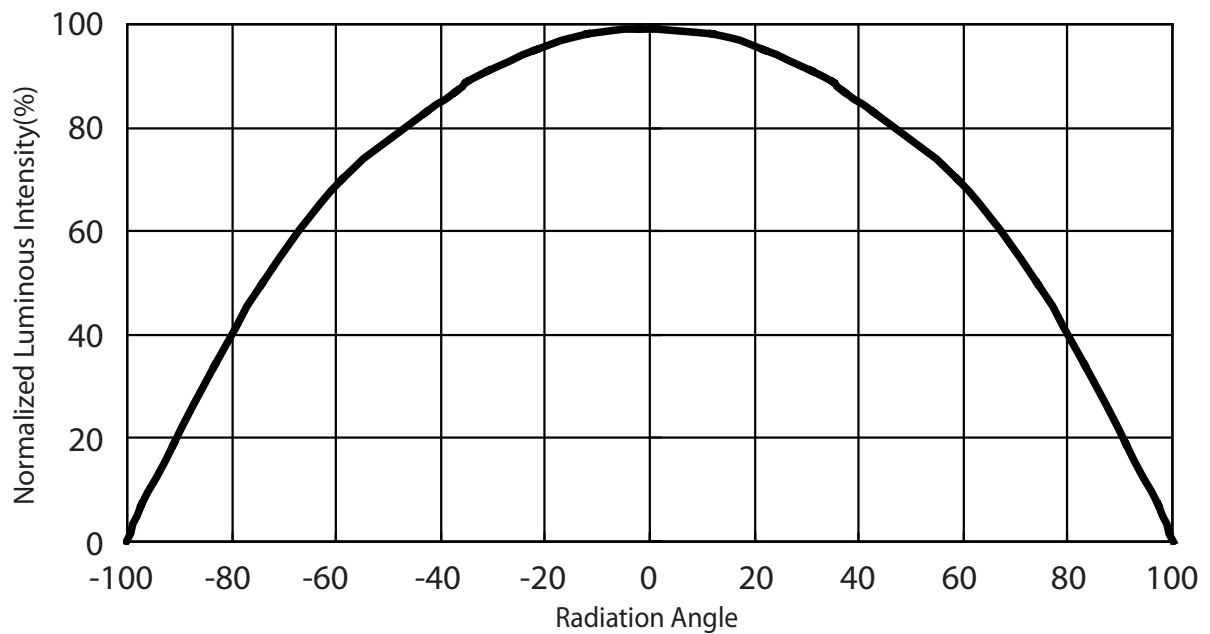


Color Spectrum at a typical CCT for Edixeon A5 Series Single color

Beam Pattern

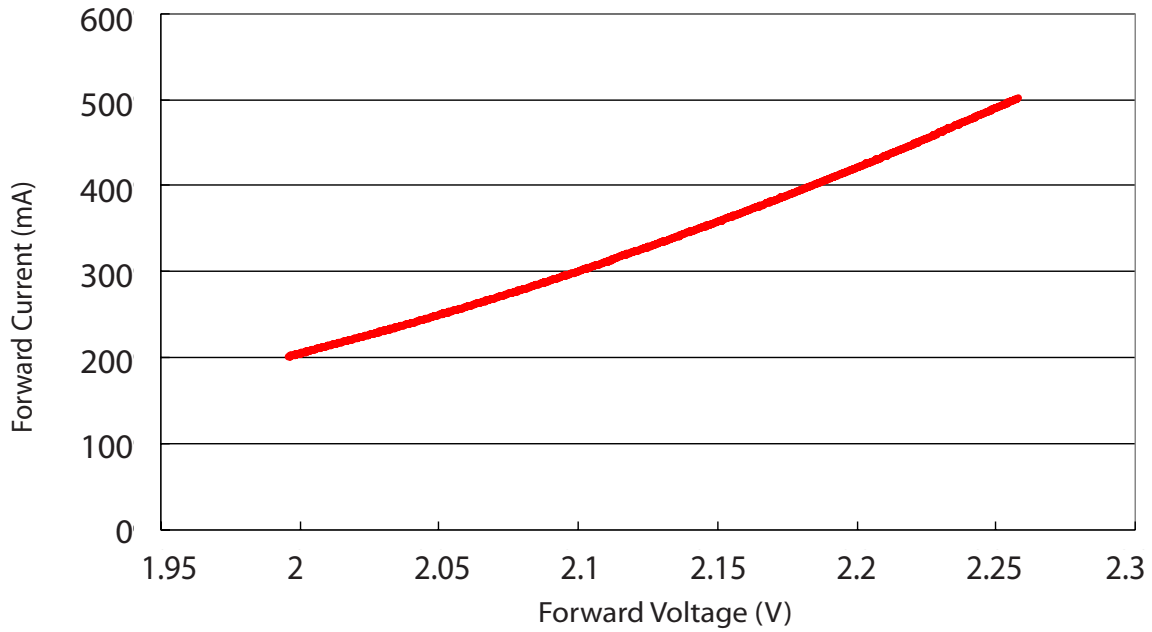


Beam pattern diagram for Red and Amber

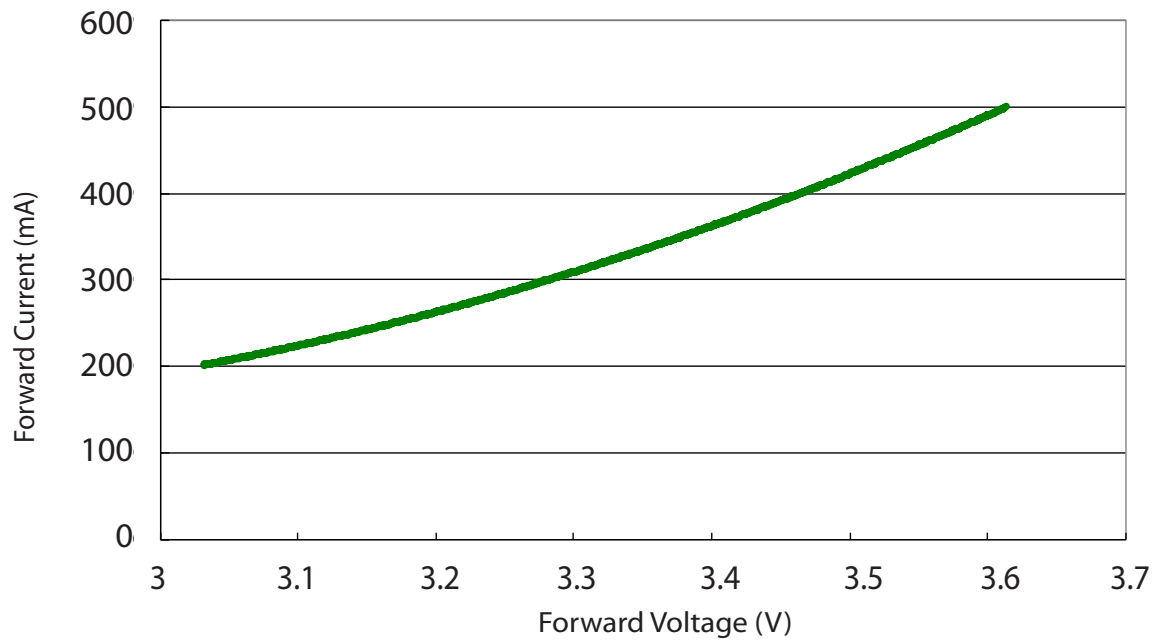


Beam pattern diagram for Blue and True green

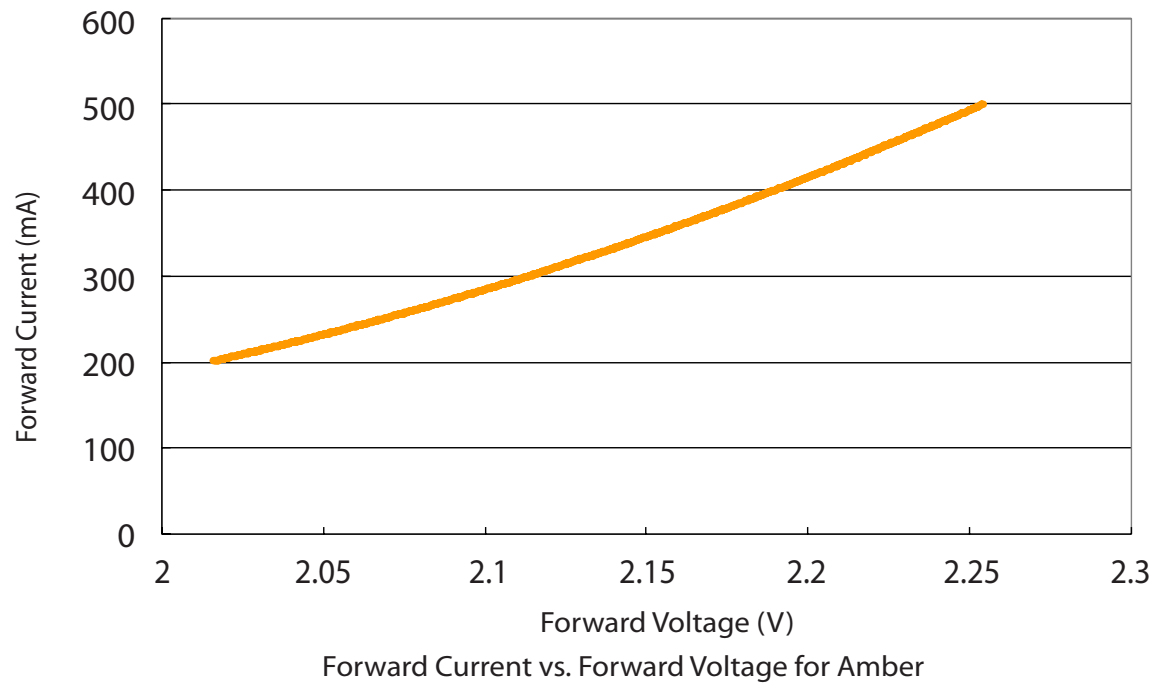
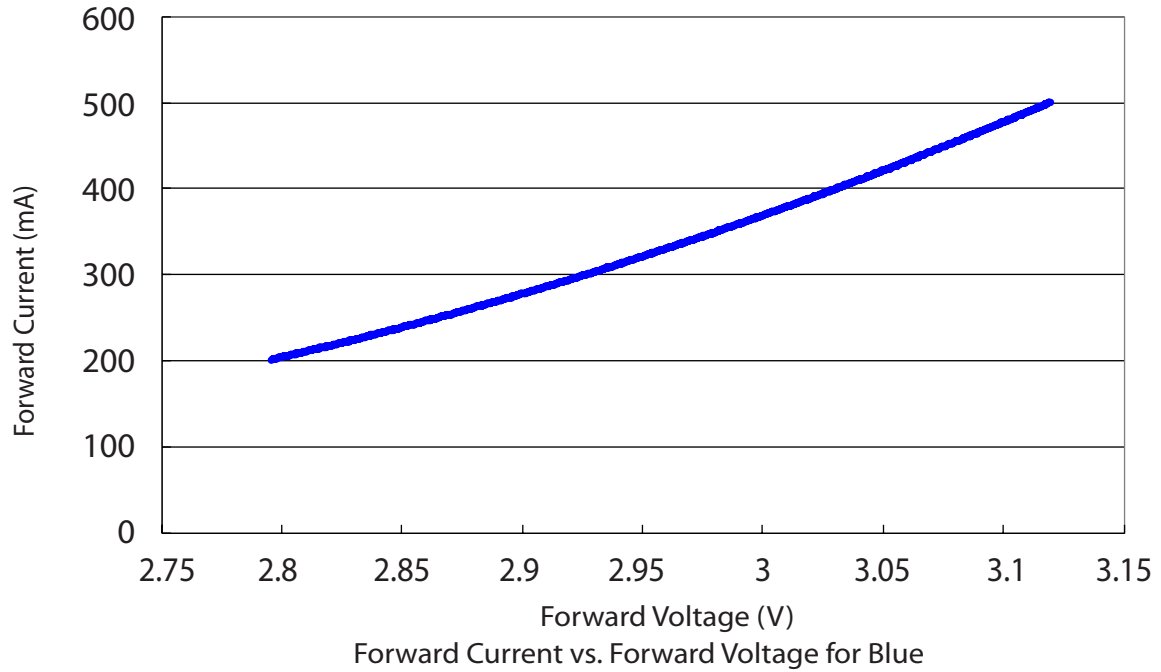
Forward Current vs. Forward Voltage



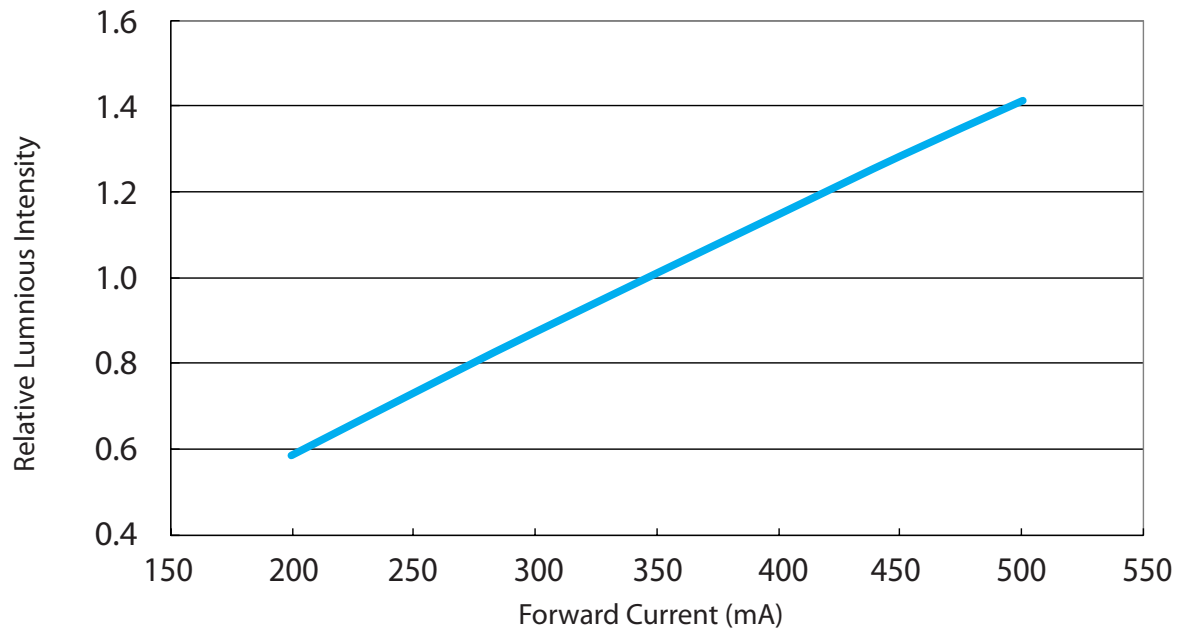
Forward Current vs. Forward Voltage for Red



Forward Current vs. Forward Voltage for True Green

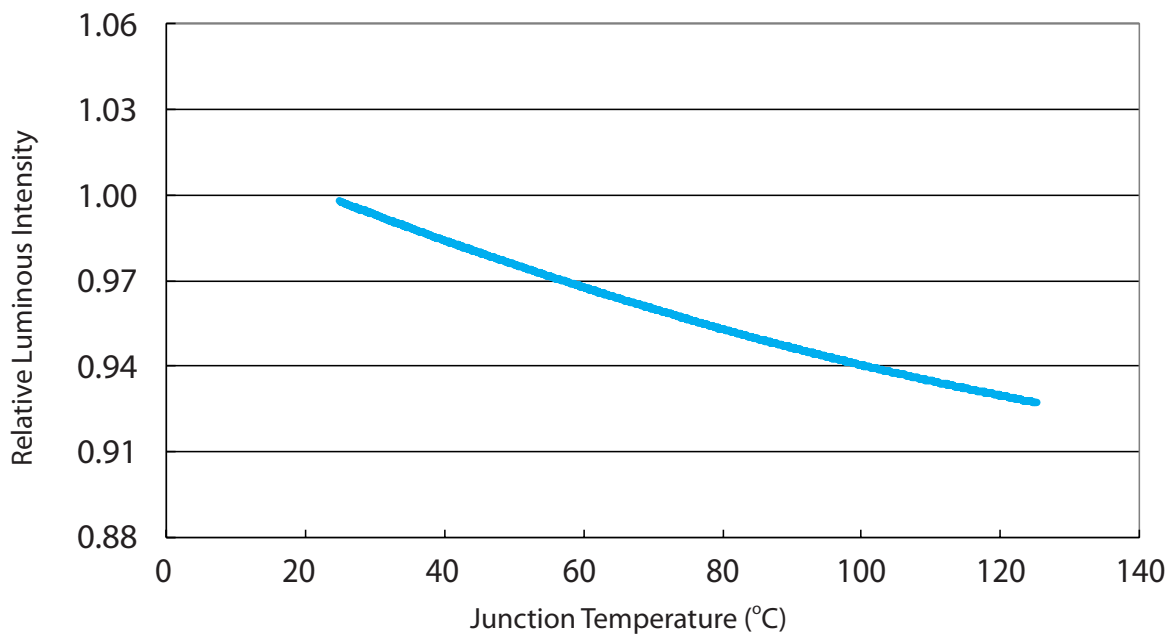


Relative Luminous Intensity vs. Forward Current



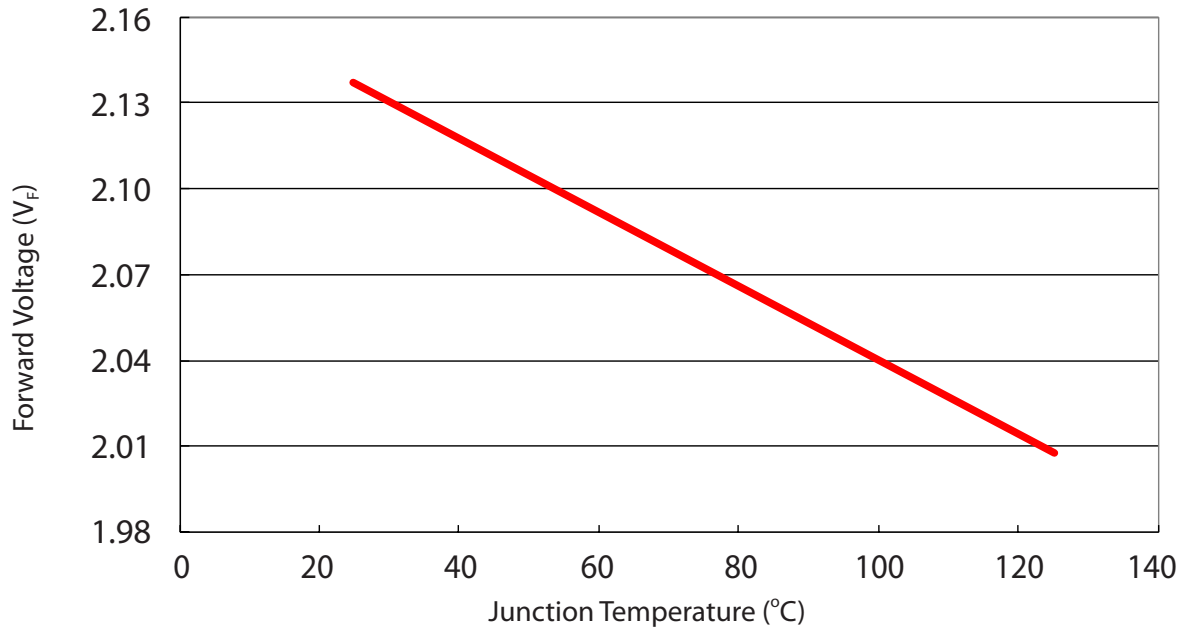
Relative Luminous Intensity vs. Forward Current for Edixeon A5 Series Single color

Relative Luminous Flux vs. Junction Temperature

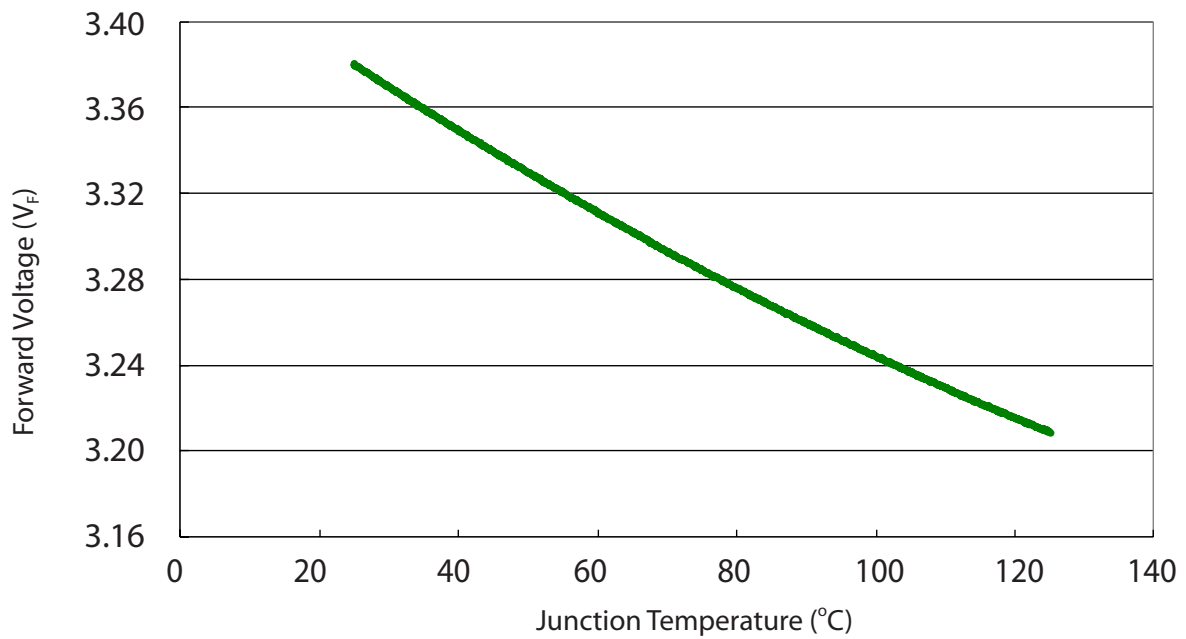


Relative Luminous flux vs. junction temperature for Edixeon A5 Series Single color

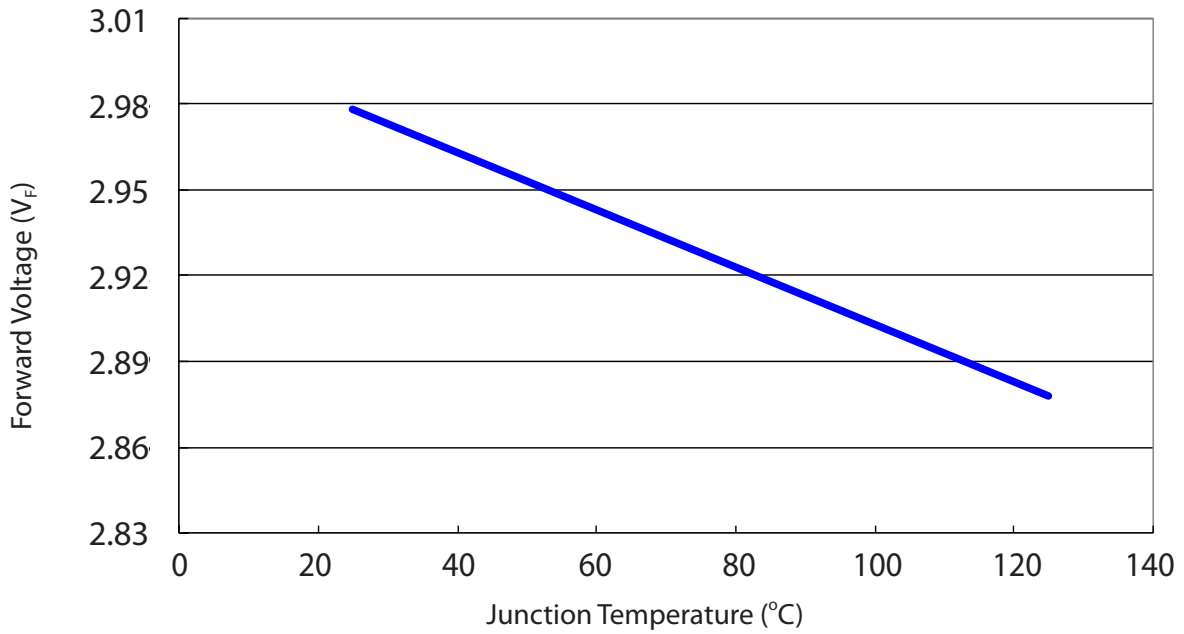
Forward Voltage vs. Junction Temperature



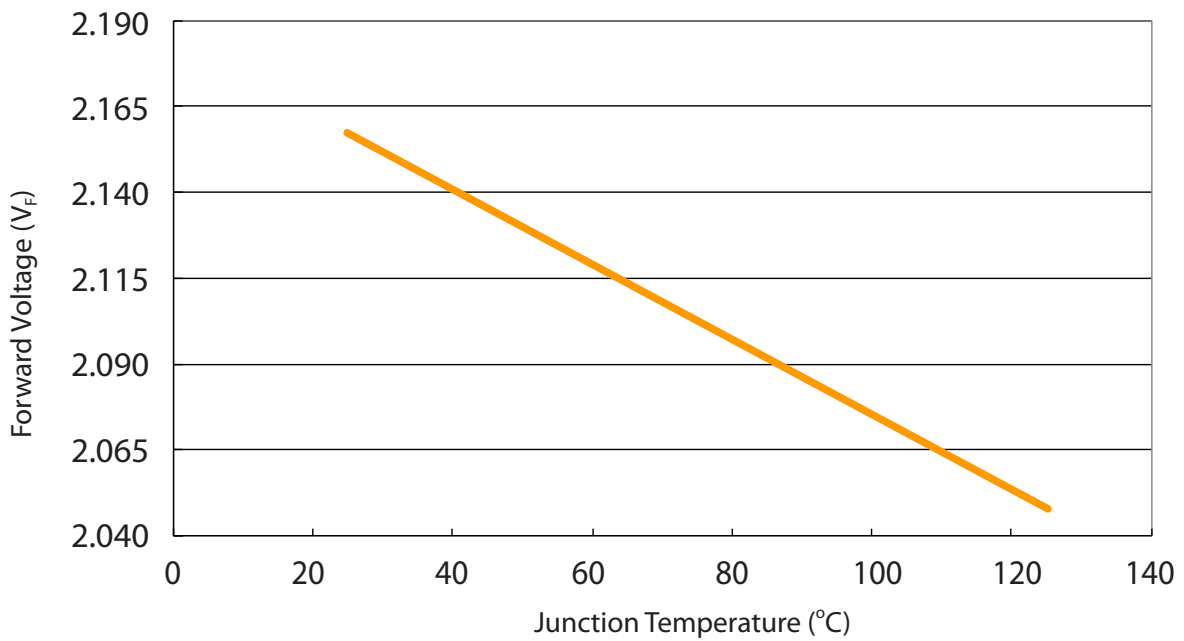
Forward voltage vs. junction temperature for Red



Forward voltage vs. junction temperature for True Green

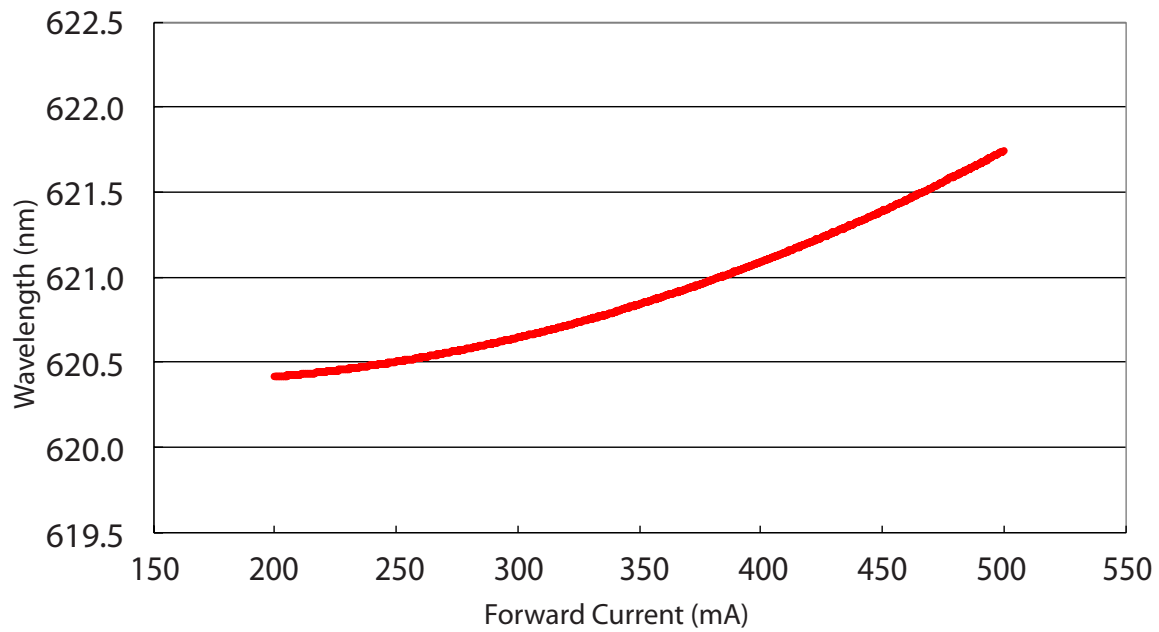


Forward voltage vs. junction temperature for Blue

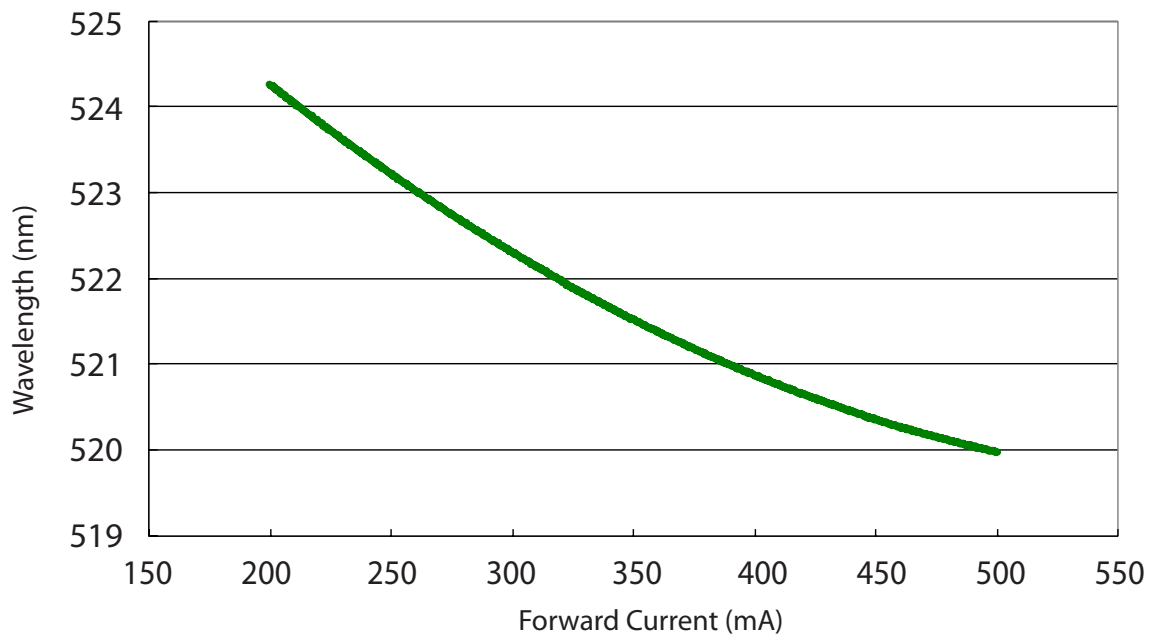


Forward voltage vs. junction temperature for Amber

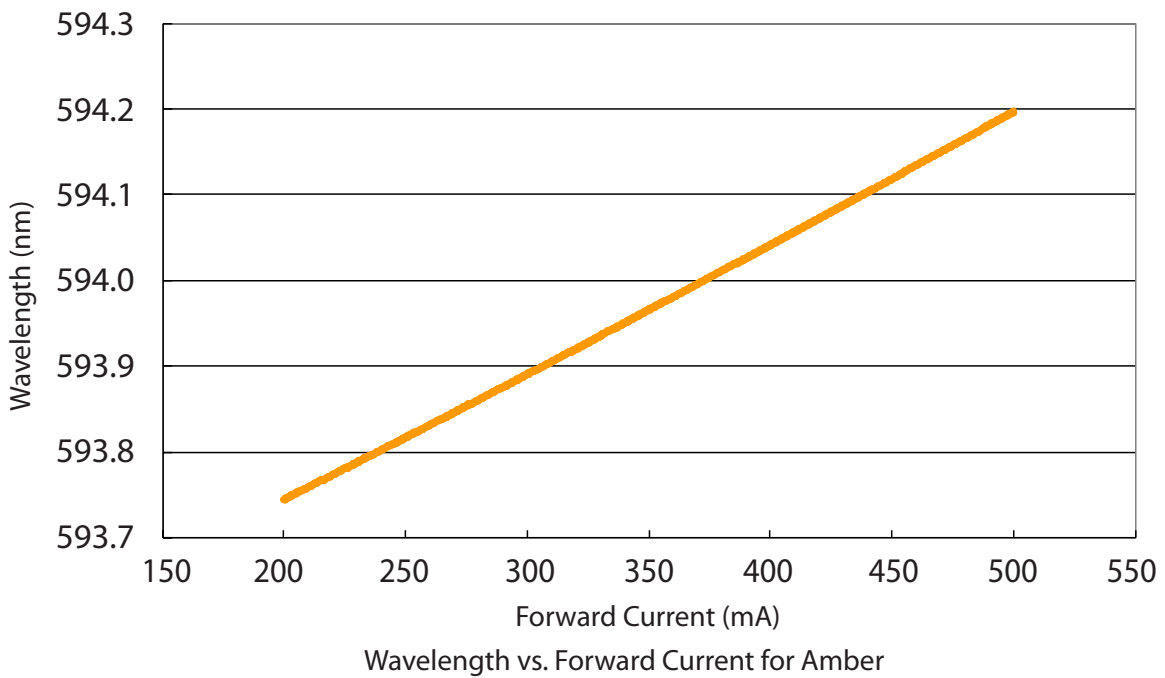
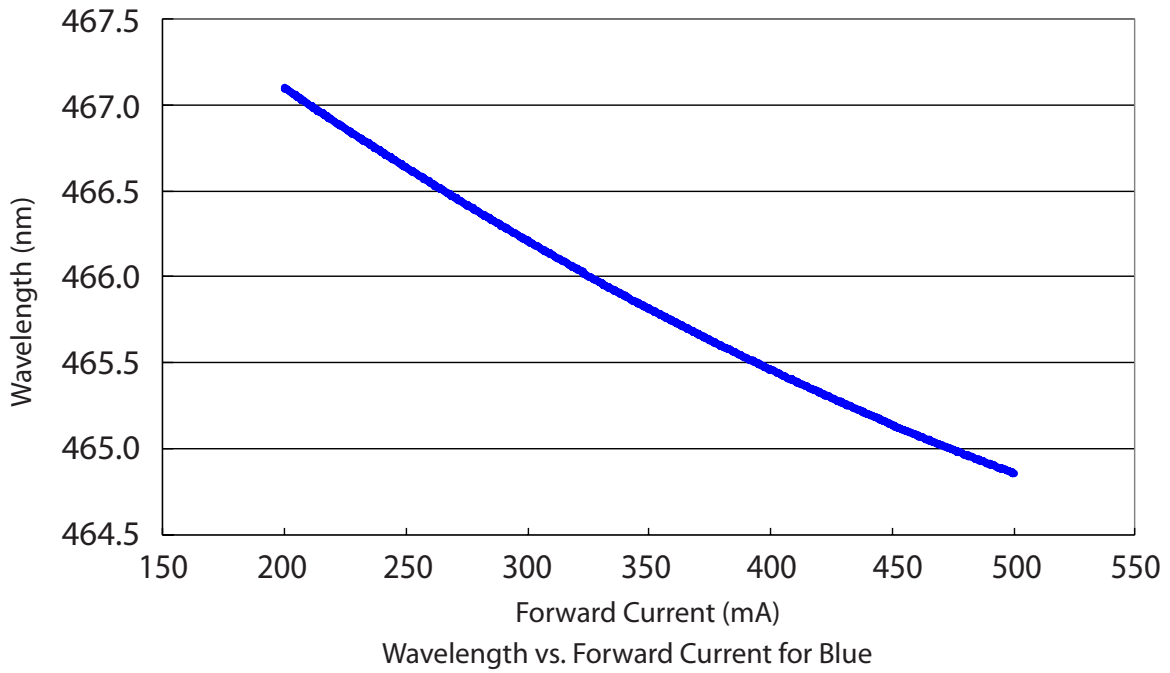
Wavelength vs. Forward Current



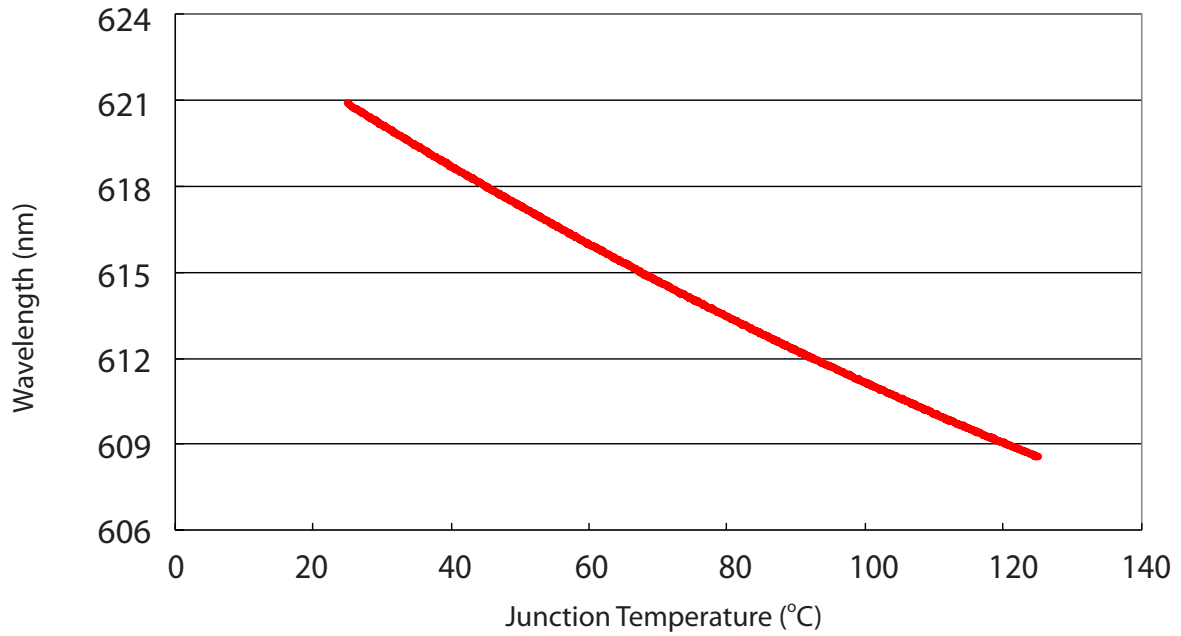
Wavelength vs. Forward Current for Red



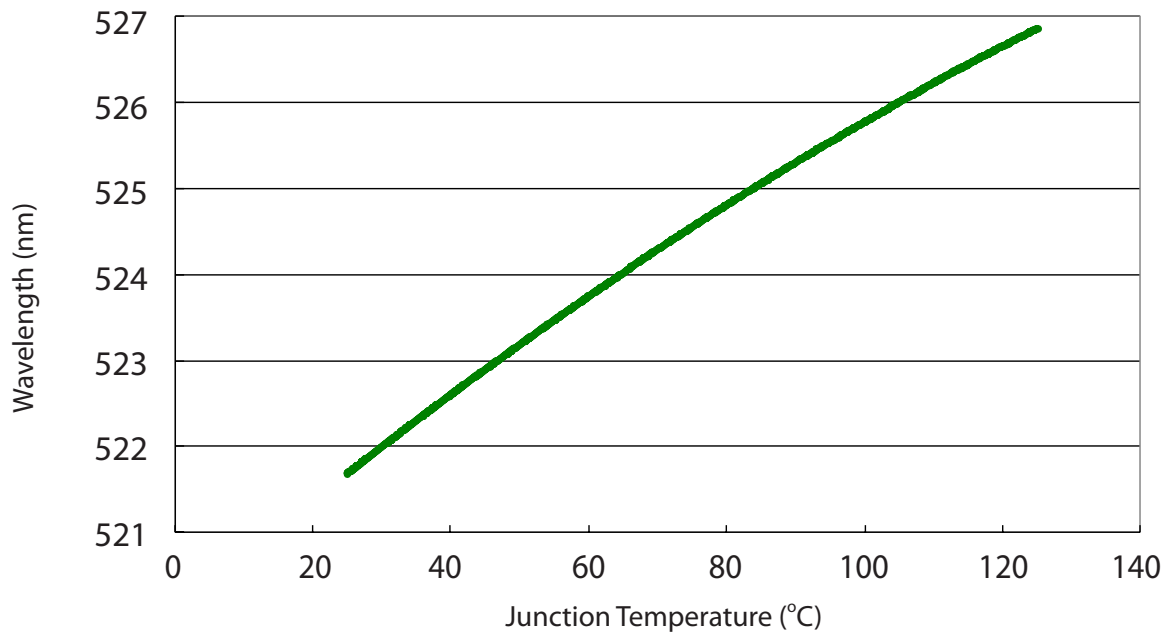
Wavelength vs. Forward Current for True Green



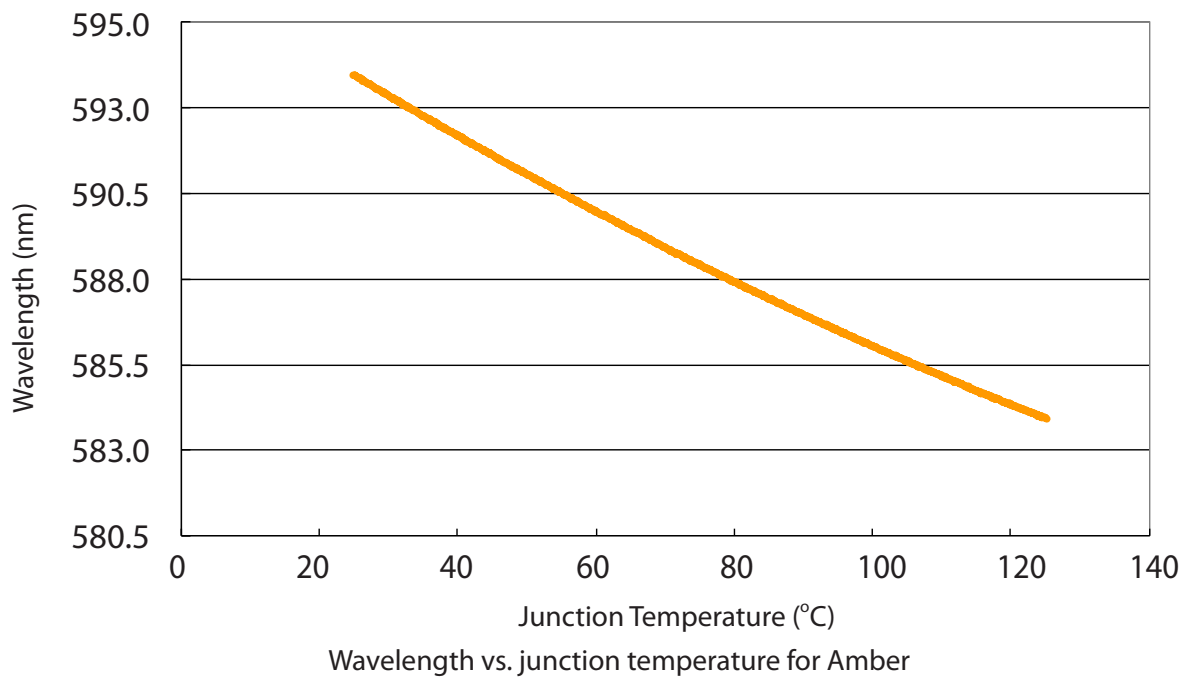
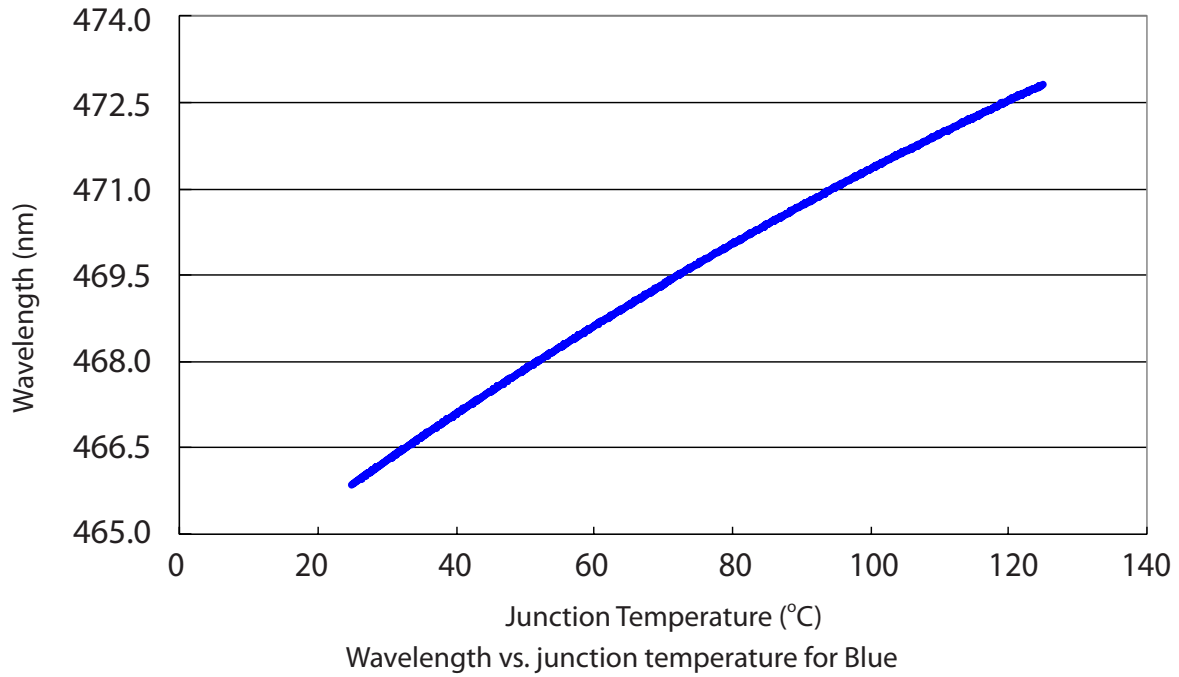
Wavelength vs. Junction Temperature



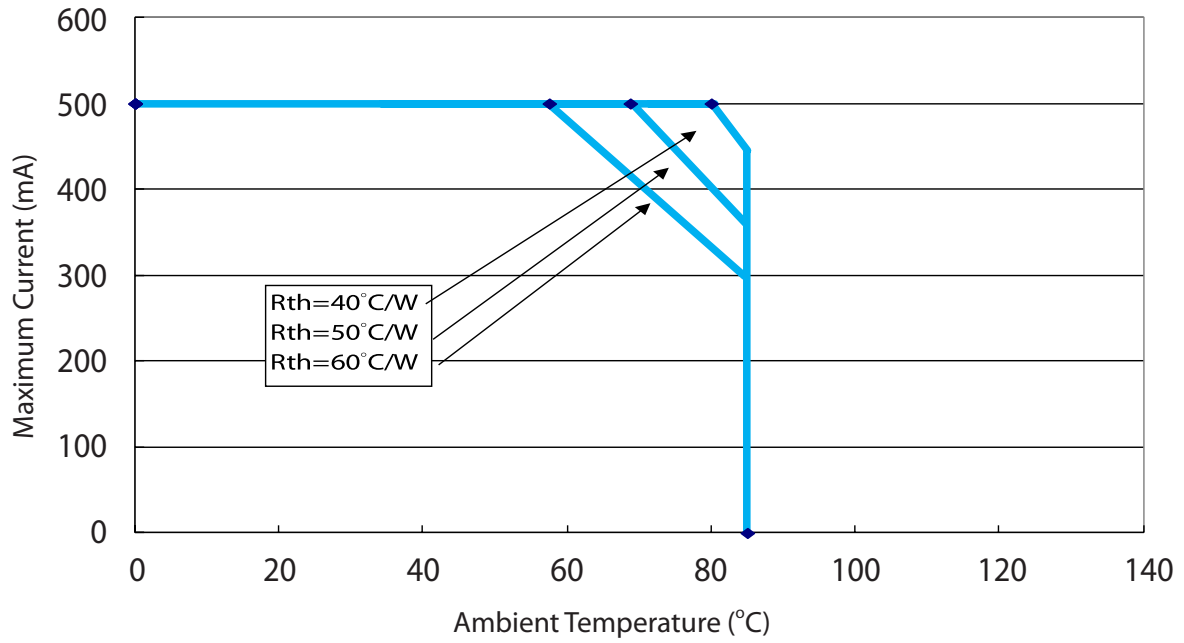
Wavelength vs. junction temperature for Red



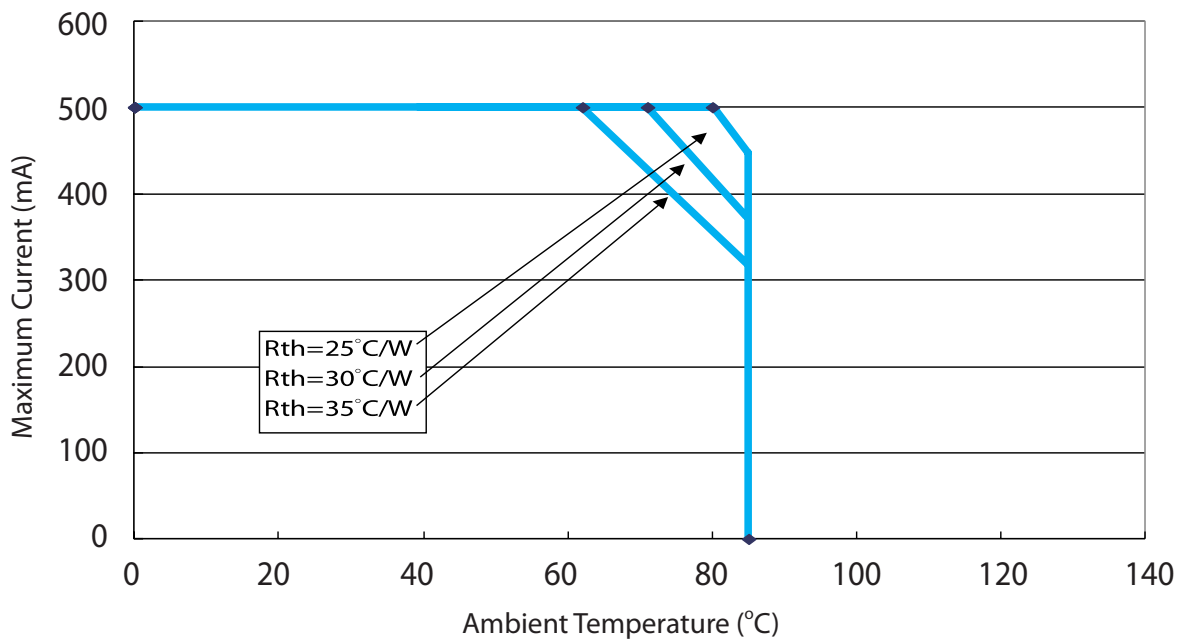
Wavelength vs. junction temperature for True Green



Maximum Current vs. Ambient Temperature



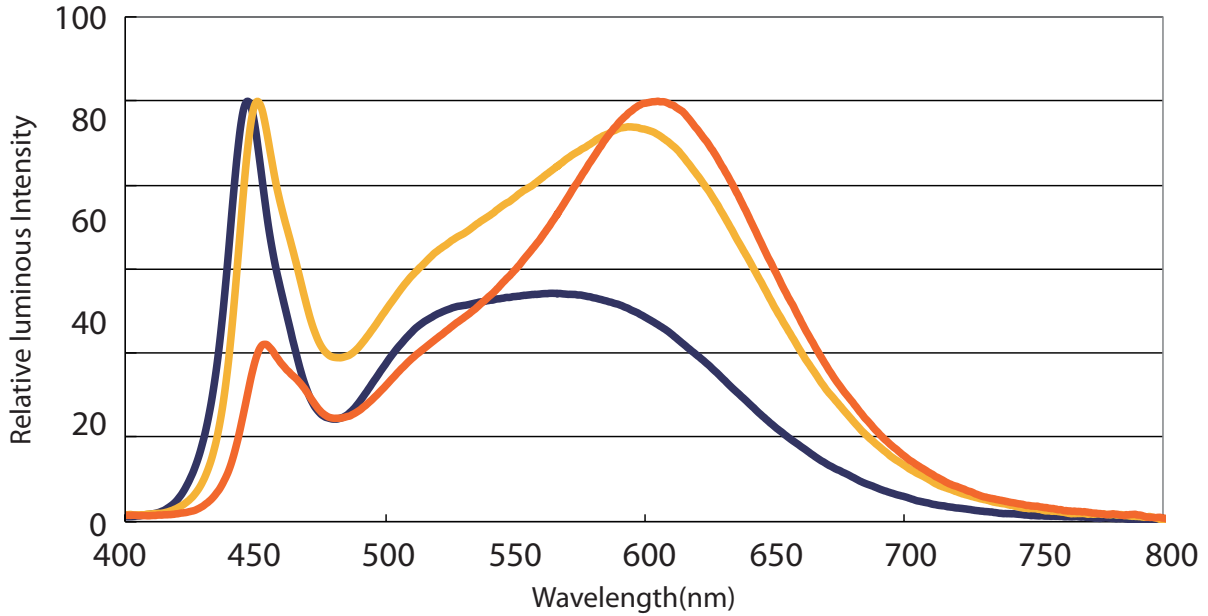
Maximum Current vs. Ambient Temperature for Red and Amber



Maximum Current vs. Ambient Temperature for Blue and True Green

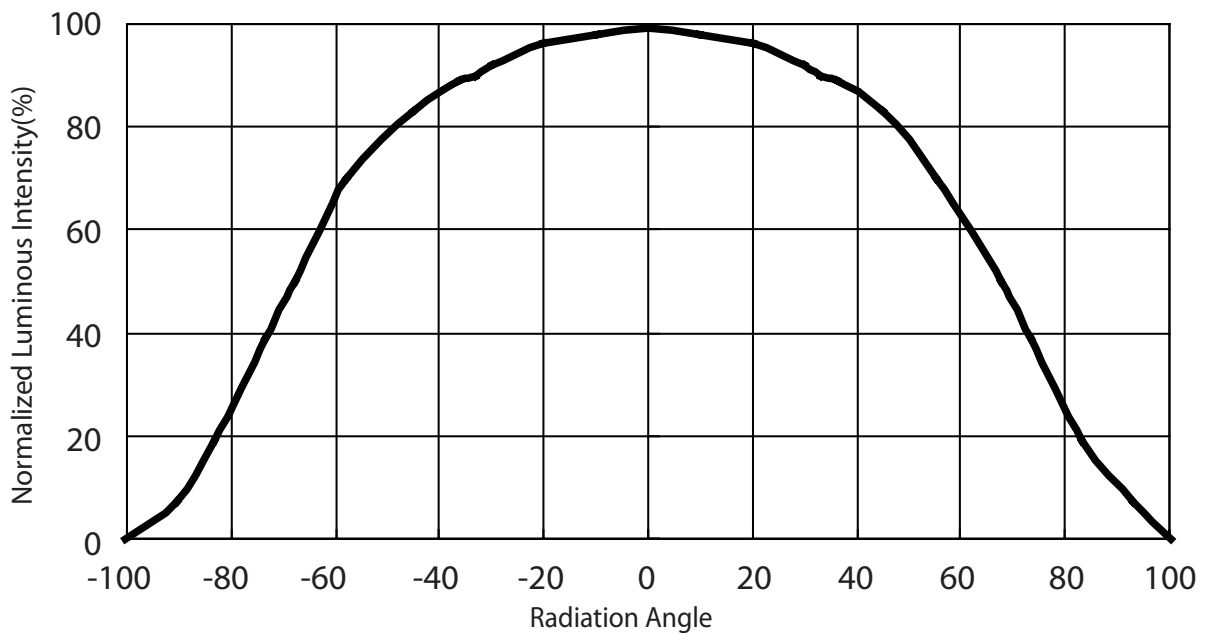
Characteristic curve (White)

Color Spectrum



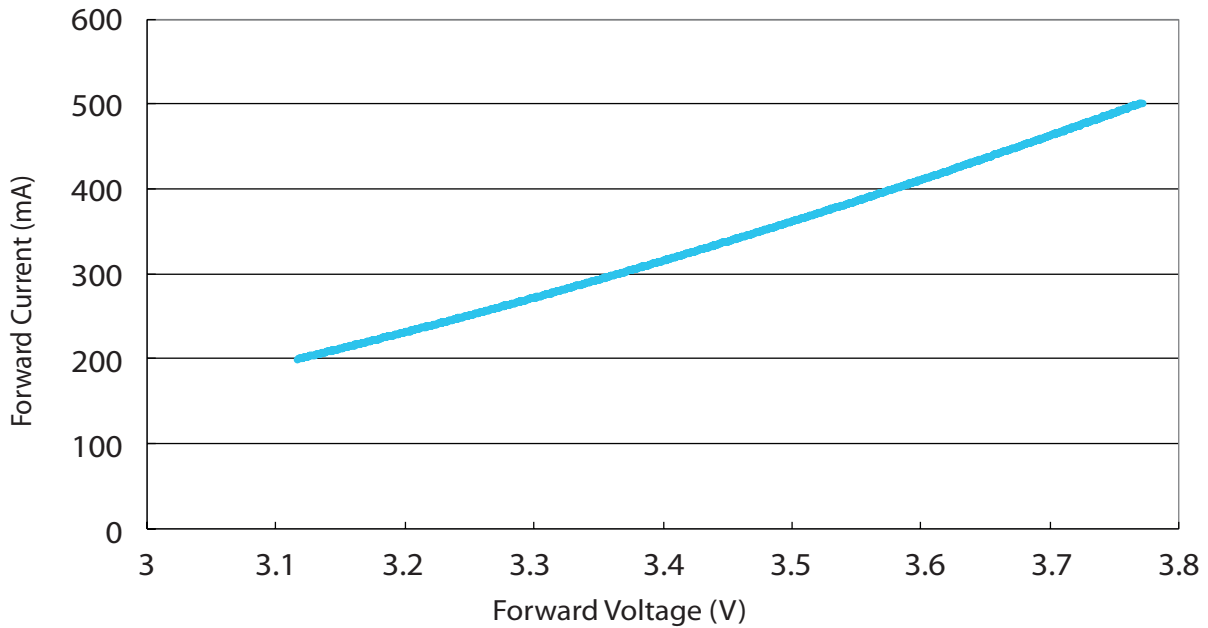
Color Spectrum at a typical CCT for Edixeon A5 Series White

Beam Pattern



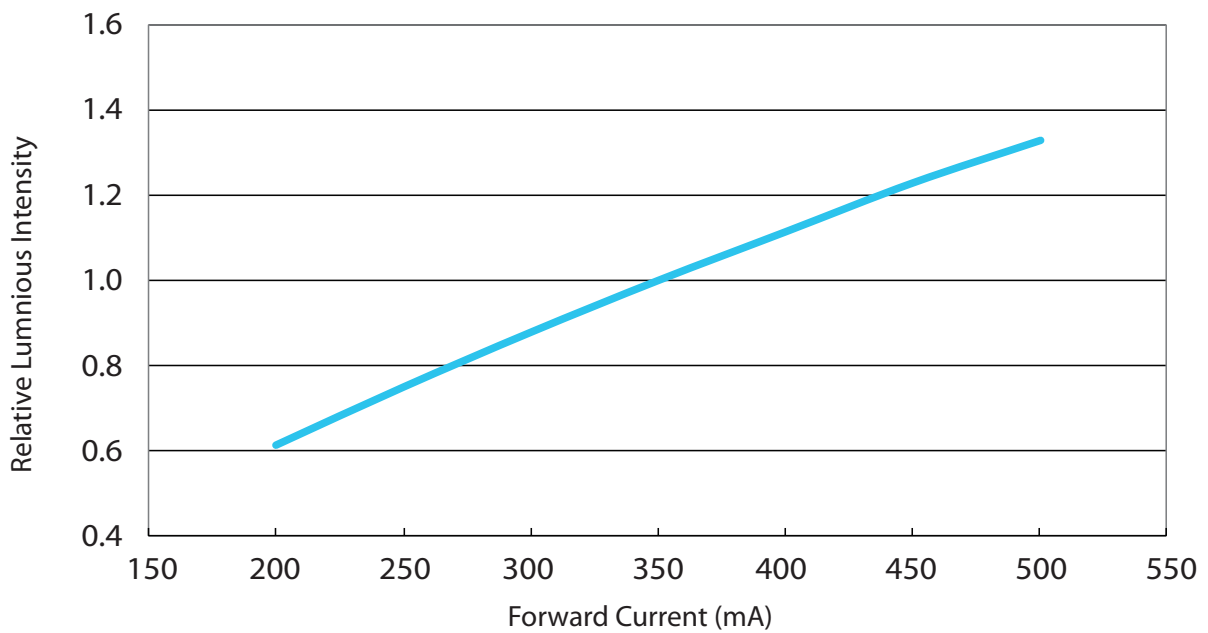
Beam pattern diagram for Edixeon A5 Series White

Forward Current vs. Forward Voltage



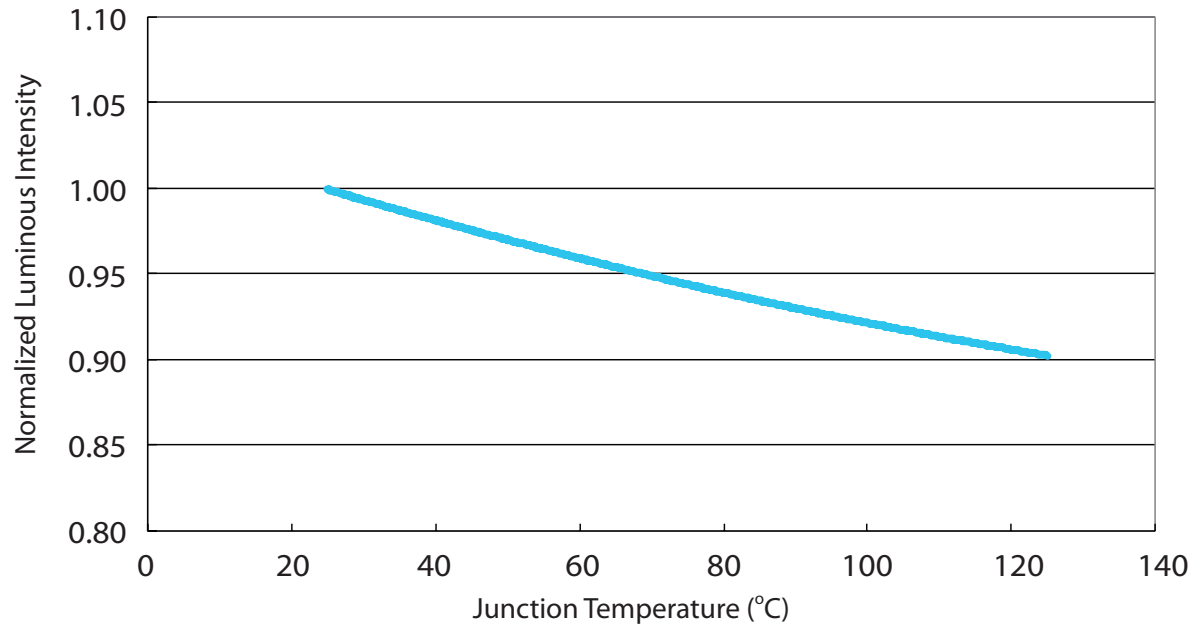
Forward Current vs. Forward Voltage for Edixeon A5 Series White

Relative Luminous Intensity vs. Forward Current



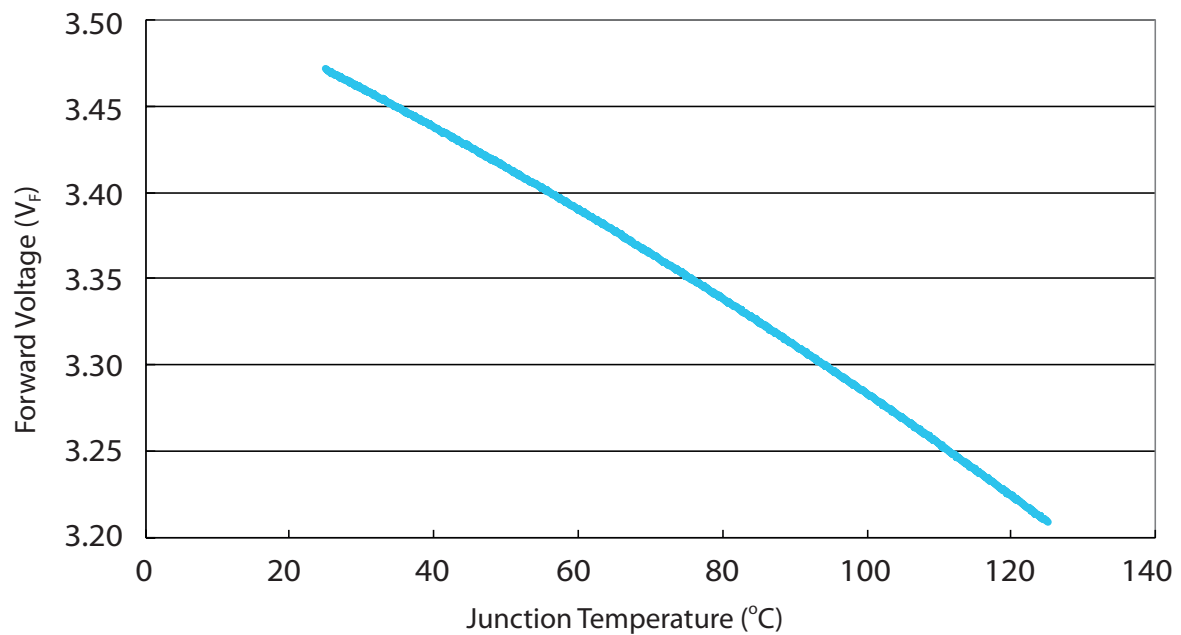
Relative Luminous Intensity vs. Forward Current for Edixeon A5 Series White

Relative Luminous Flux vs. Junction Temperature



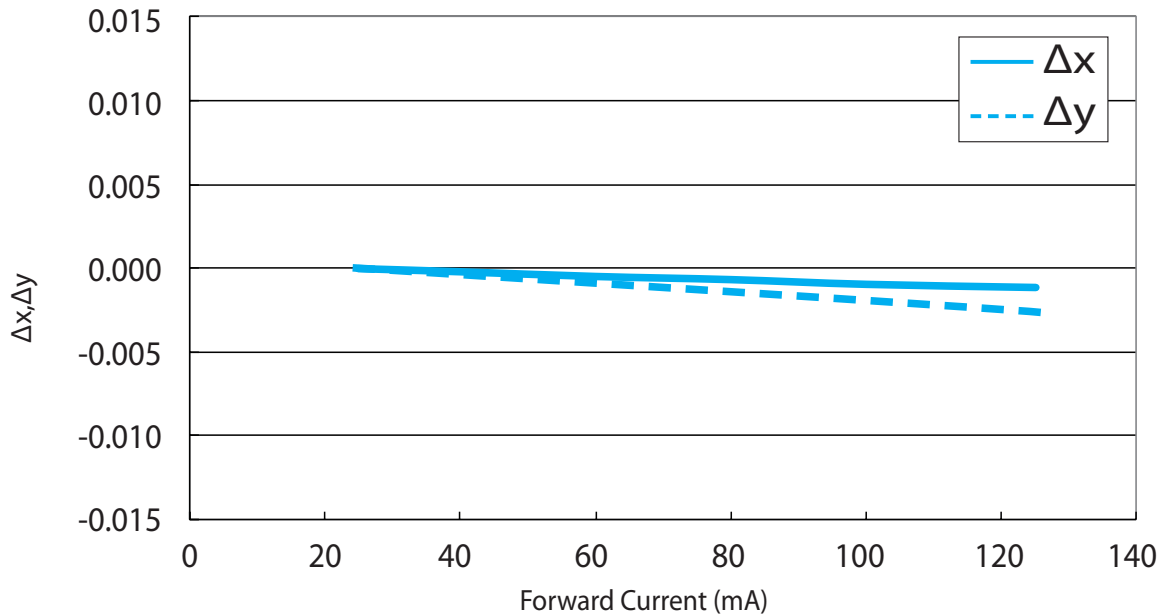
Relative Luminous flux vs. junction temperature for Edixeon A5 Series White

Forward Voltage vs. Junction Temperature



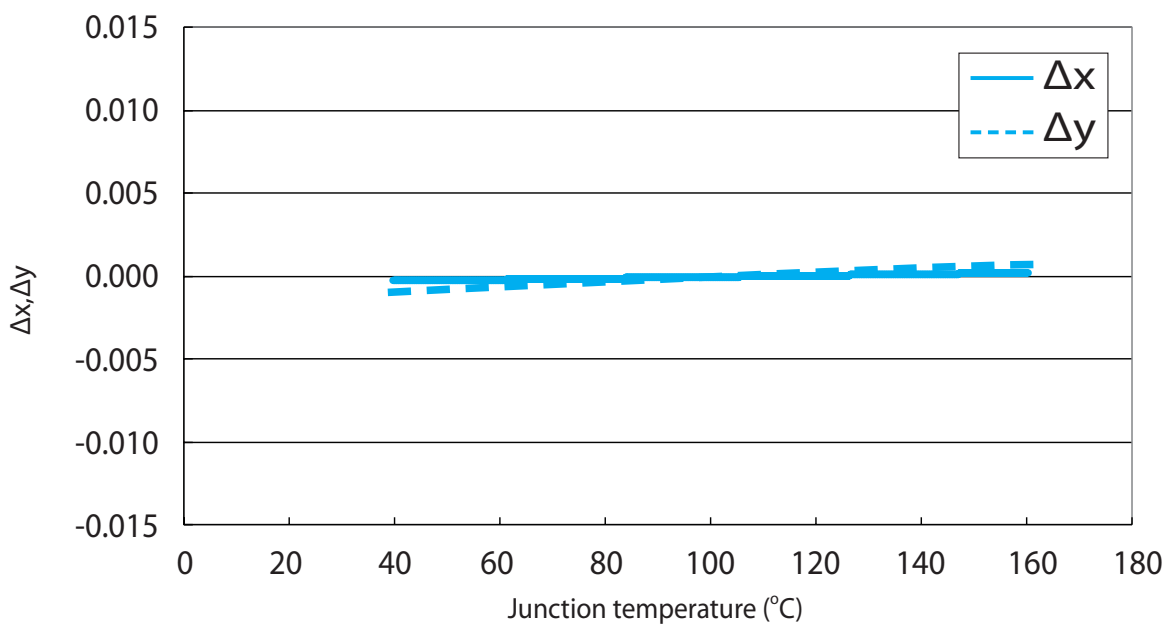
Forward voltage vs. junction temperature for Edixeon A5 Series White

$\Delta x, \Delta y$ vs. Forward Current



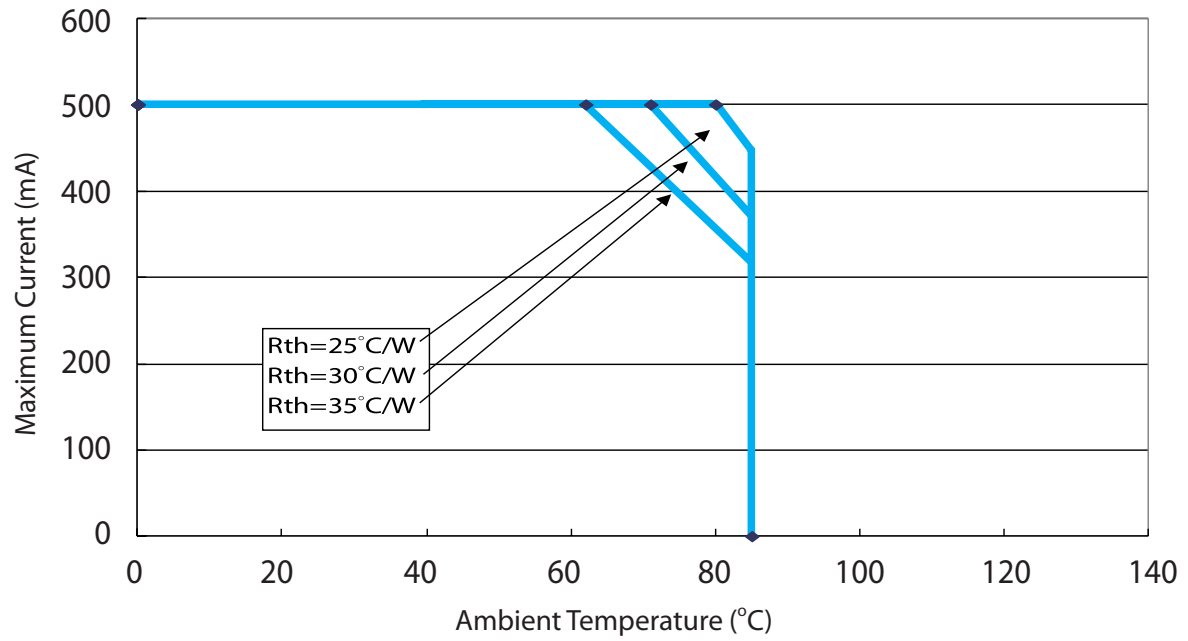
$\Delta x, \Delta y$ vs. Forward Current for Edixeon A5 Series White

$\Delta x, \Delta y$ vs. Junction Temperature



$\Delta x, \Delta y$ vs. Junction temperature for Edixeon A5 Series White

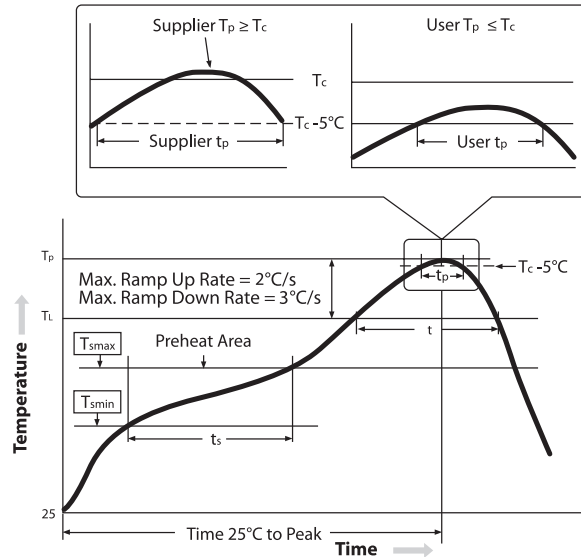
Maximum Current vs. Ambient Temperature



Maximum Current vs. Ambient Temperature for Edixeon A5 Series White

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 Assemble
Preheat/Soak	
Temperature Min (T_{smin})	80°C
Temperature Max (T_{smax})	110°C
Time (t_s) from (T_{smin} to T_{smax})	60-120 seconds
Ramp-up rate (T_L to T_p)	$2^\circ\text{C/seconds max.}$
Liquidous temperature (T_L)	138°C
Time (t_L) maintained above T_L	20-50 seconds
Peak package body temperature (T_p) ⁽¹⁾	$155^\circ\text{C} \sim 160^\circ\text{C}$
Classification temperature (T_c)	160°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})	$3^\circ\text{C/second max.}$
Time 25°C to peak temperature	6minutes 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

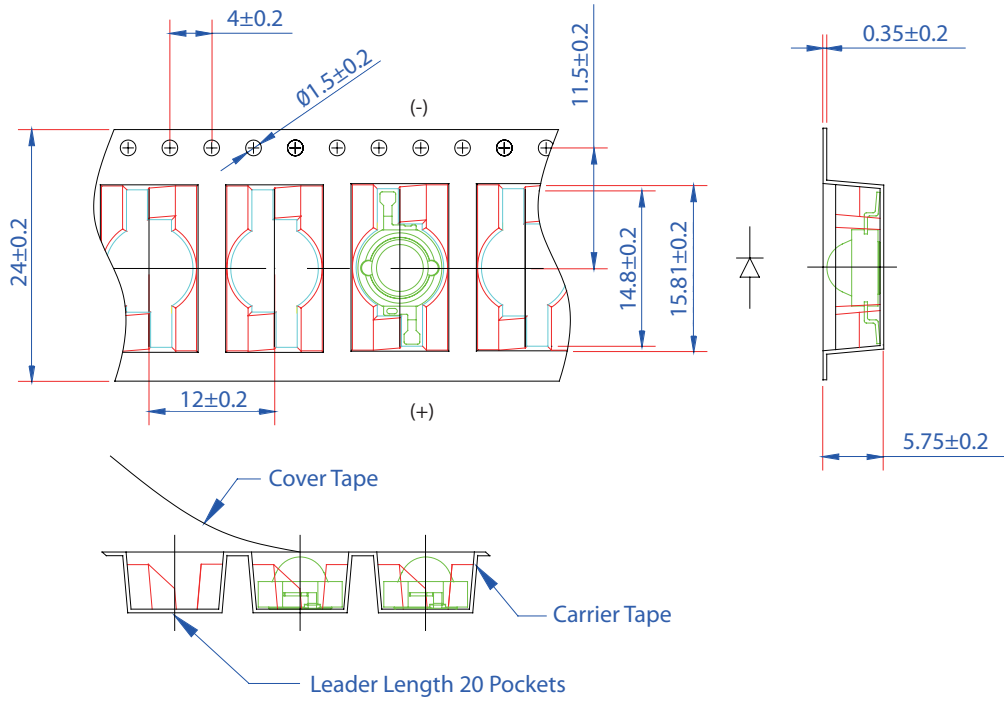
NO .	Test Item	Test Condition	Remark
1	Temperature Cycle	-40°C~100°C 30, 30, mins	100 Cycle
2	Thermal Shock	-40°C~100°C 15, 15 mins \leq 10 sec	100 Cycle
3	Resistance to Soldering Heat	T _{SOL} =260°C, 30 sec	3 times
4	Moisture Resistance	25°C~65°C 90% RH 24 hrs / 1 cycle	10 Cycle
5	High-Temperature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

Failure Criteria

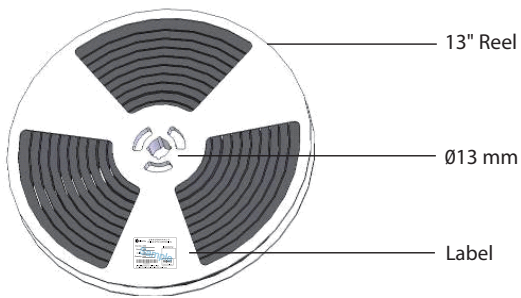
Item	Criteria for Judgment	
	Min.	Max.
Lumen Maintenance	85%	-
$\Delta u'v'$	-	0.006
Forward Voltage	-	Initial Data x 1.1
Reverse Current	-	10 μ A
Resistance to Soldering Heat	No dead lamps or visual damage	

Product Packaging Information

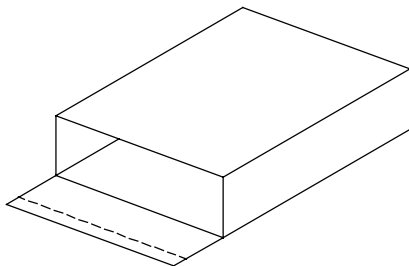
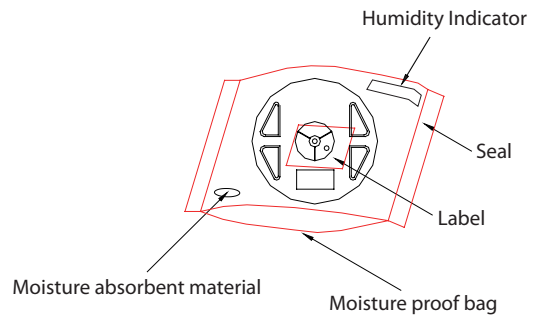
Tape and Reel Dimension



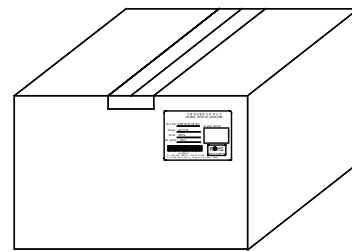
Edixeon Emitter



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	2014/02/07
2	1. Update the Characteristic curve 2. Add Reflow profile & Star dimension 3. Update the value of forward current (Amber)	2013/09/10
3	Revise photo of front page	2013/10/21
4	1. Update Luminous Flux Characteristic 2. Revise all the Characteristic curve 3. Add On star Information	2014/11/24
5	1. Add Color bin code 2. Add CW on-star order code 3. Add Voltage Bin structure	2015/02/09
6	1. Revise luminous flux characteristic 2. Update voltage bin structure 3. Add 1W Warm White order code	2015/04/29
7	Revise Reflow profile	2015/06/12

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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