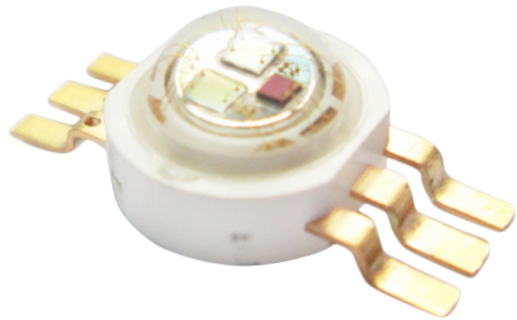


Edixeon[®] RGB R Series Datasheet



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

Table of Contents

General Information.....	3
Absolute Maximum Ratings	4
Characteristics	4
Luminous Flux Characteristic.....	5
Voltage Bin Structure (Blue, Green)	5
Voltage Bin Structure (Red).....	5
Mechanical Dimensions.....	6
Characteristic curve.....	7
Reflow Profile	22
Reliability.....	23
Product Packaging Information.....	24
Revision History	25
About Edison Opto	25

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.

Ordering Code Format

2
X1
E
X2
R 1
X3
0 3
X4
M 1
X5
0 0
X6
0 0 0
X7
X X X
X8

X1		X2		X3		X4		X5	
Type		Component		Series		Wattage		Color	
2	Emitter	E	Edixeon	R1	R1 Series	03	3W	M1	RTB

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

Absolute Maximum Ratings

Parameter	Symbol	Value	Units
DC Forward Current	I_F	350	mA
Peak Pulsed Current; ($t_p \leq 100\mu s$, Duty cycle=0.25)	I_{pulse}	700	mA
LED Junction Temperature	T_J	120	°C
Operating Temperature	-	-30 ~ +110	°C
Storage Temperature	-	-40 ~ +120	°C
ESD Sensitivity (HBM)	-	2,000	V
Soldering Temperature	-	260	°C
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. Allowable reflow cycles are 3 times for each LED.
4. t_p : Pulse width time

Characteristics

Parameter	Symbol	Value	Units
Viewing Angle	(Typ.) $2\theta^{1/2}$	135	Degree
Thermal resistance	-	R : 16 T : 13 B : 11	°C/W
$\Delta V_f / \Delta T$	$\Delta V_f / \Delta T$	-2	mV/°C
Wavelength	λ_d	R : 620-630 T : 515-535 B : 450-475	nm
JEDEC Moisture Sensitivity	-	Level 2a Floor Life Conditions: $\leq 30^\circ C$ / 60% RH Soak Requirements(Standard) Time (hours): 120+1/-0 Conditions: $60^\circ C$ / 60% RH	-

Notes:

1. Wavelengths are stated as peak wavelength.
2. Edison maintains a tolerance of ± 1 nm for dominant wavelength, ± 2 nm for peak wavelength measurement.

Luminous Flux Characteristic

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

Color	Group	Min. Luminous Flux(lm)	Max. Luminous Flux(lm)	Order Code
Red	R0	39.4	51.2	2ER103M100000003
	S0	51.2	66.5	
	T0	66.5	86.5	
True Green	T0	66.5	86.5	
	U0	86.5	110.0	
Blue	L0	10.6	13.8	
	M0	13.8	17.9	
	N0	17.9	23.3	

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 (Blue, Green)

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

Note:

Forward voltage measurement allowance is $\pm 0.06\text{V}$.

Voltage Bin Structure (Red)

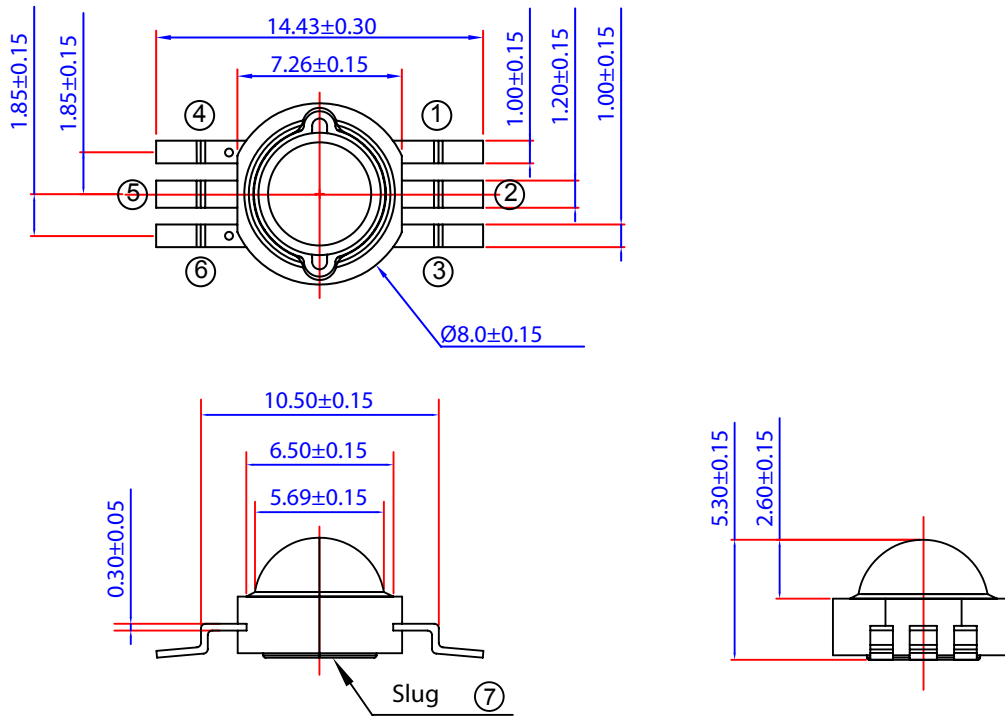
Group	Min. Voltage (V)	Max. Voltage (V)
U04	1.9	2.2
U05	2.2	2.5

Note:

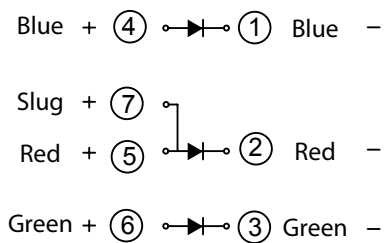
Forward voltage measurement allowance is $\pm 0.06\text{V}$.

Mechanical Dimensions

Emitter Type Dimension



Circuit

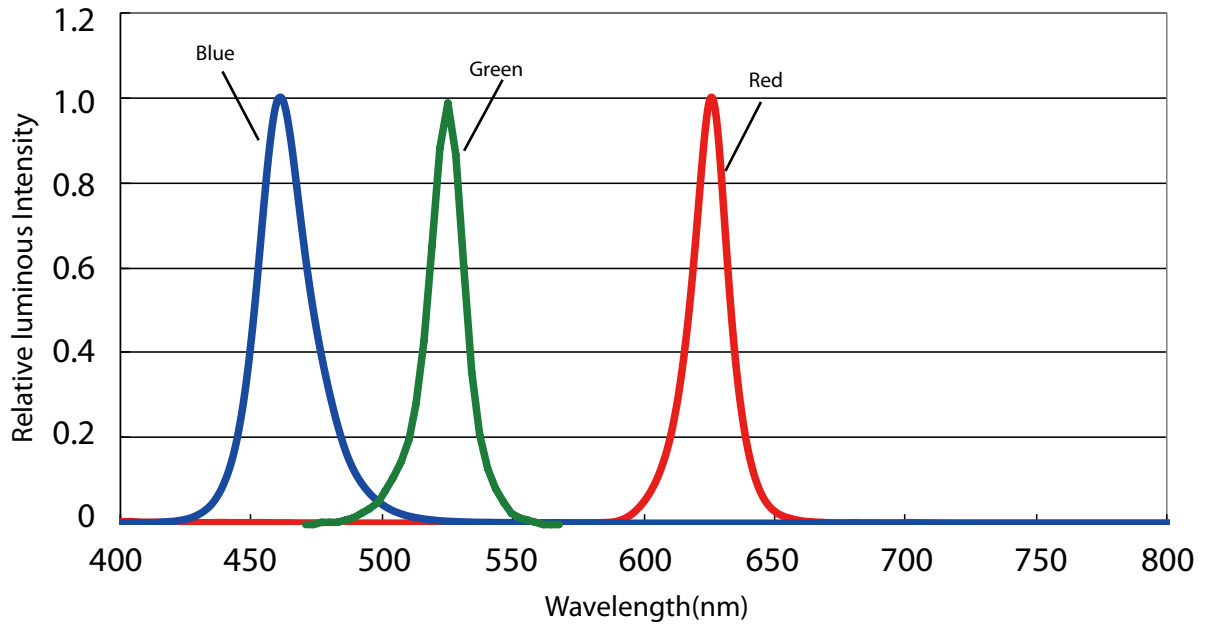


Notes:

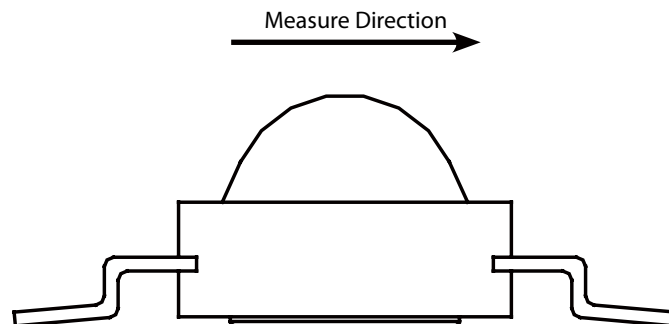
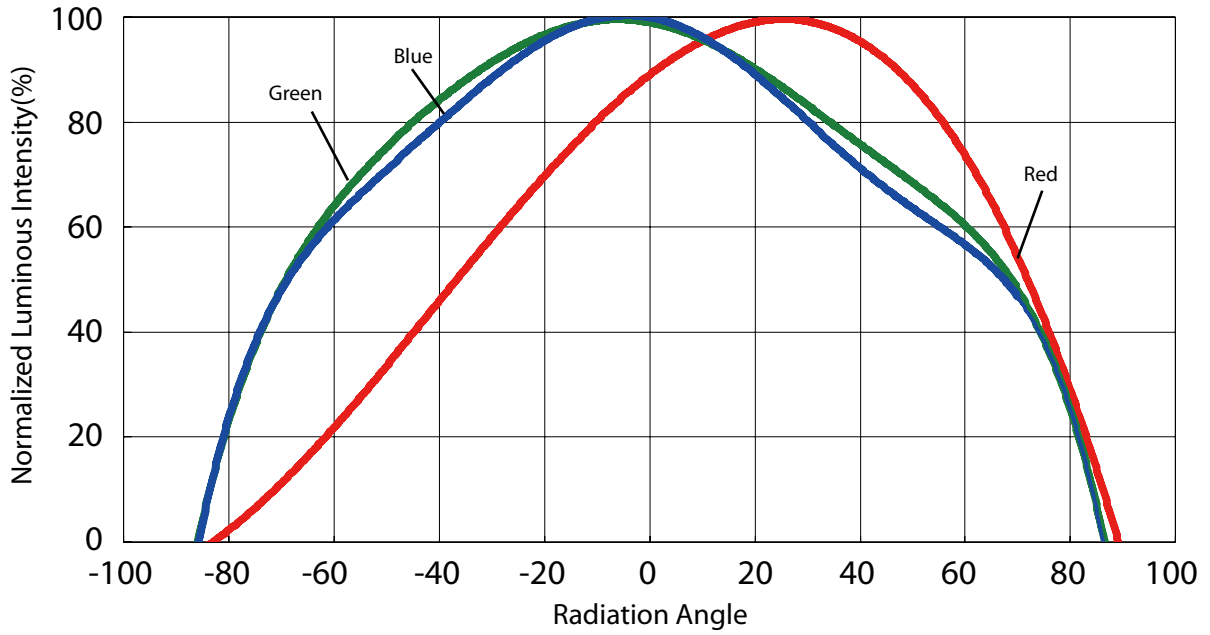
1. All dimensions are in mm.
2. Lambertian series slug has polarity as anode.
3. It is important that the slug can't contact aluminum surface. It is strongly recommended that there should coat a uniform electrically isolated heat dissipation film on the aluminum surface.

Characteristic curve

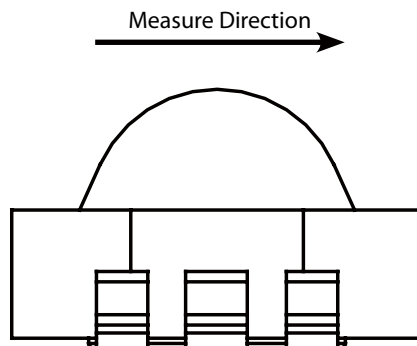
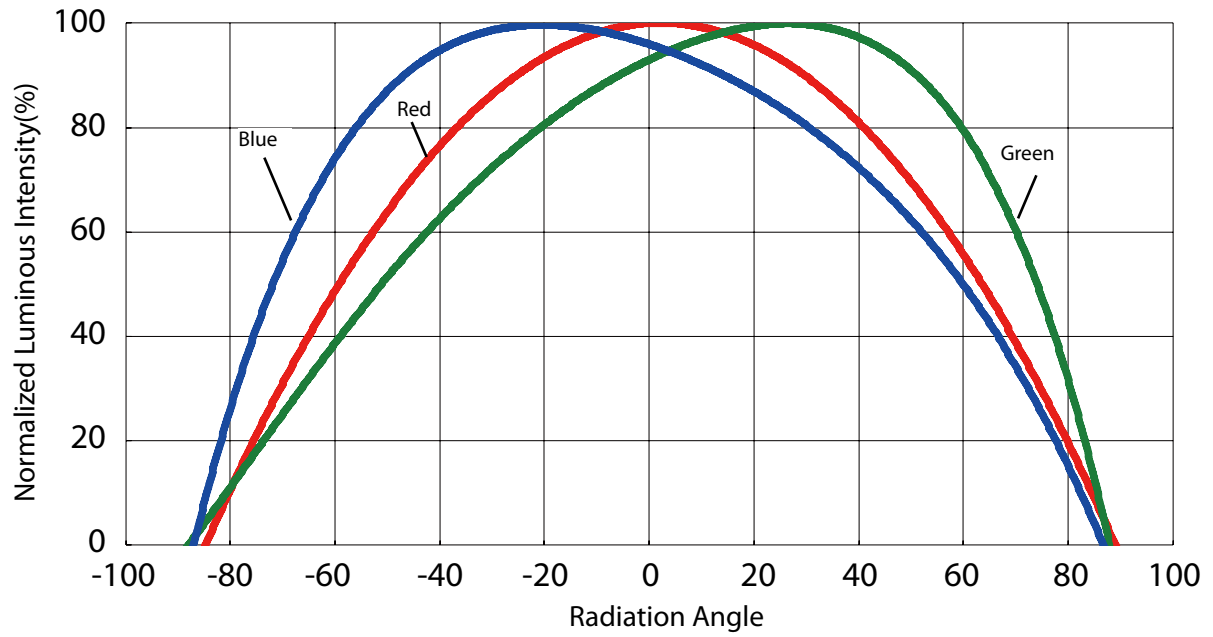
Color Spectrum



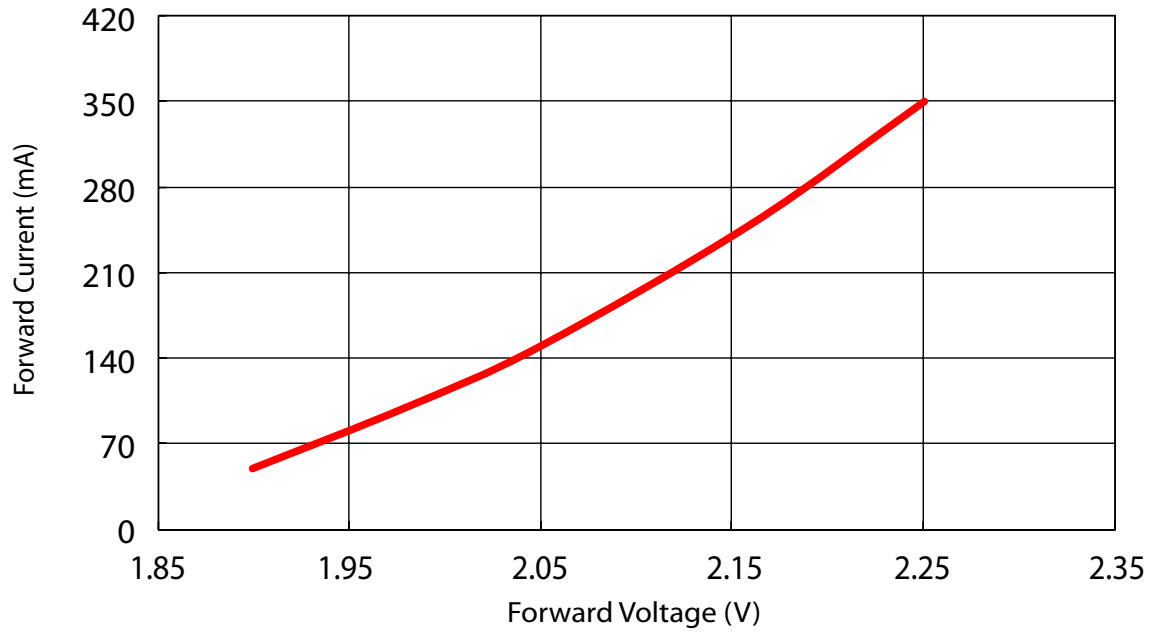
Beam Pattern



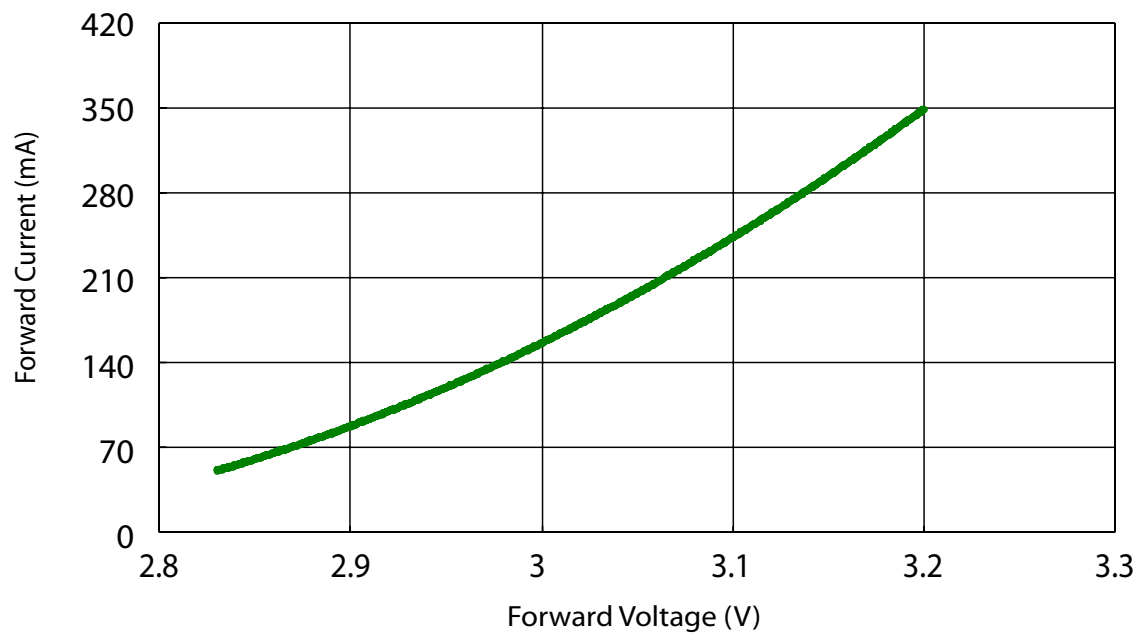
Beam Pattern



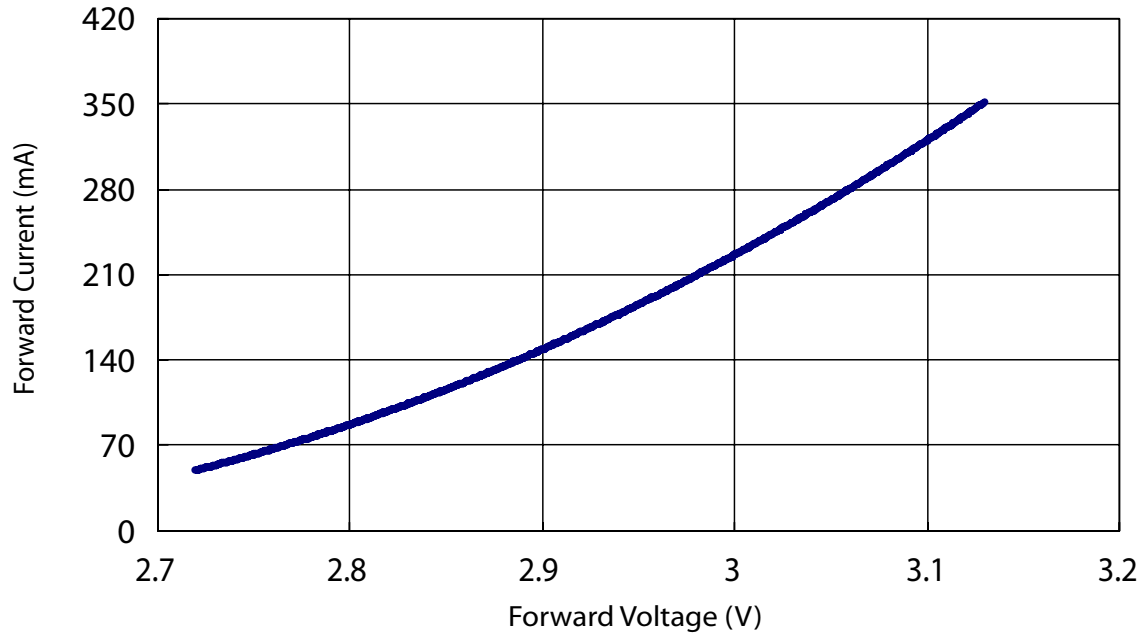
Forward Current vs. Forward Voltage (Red)



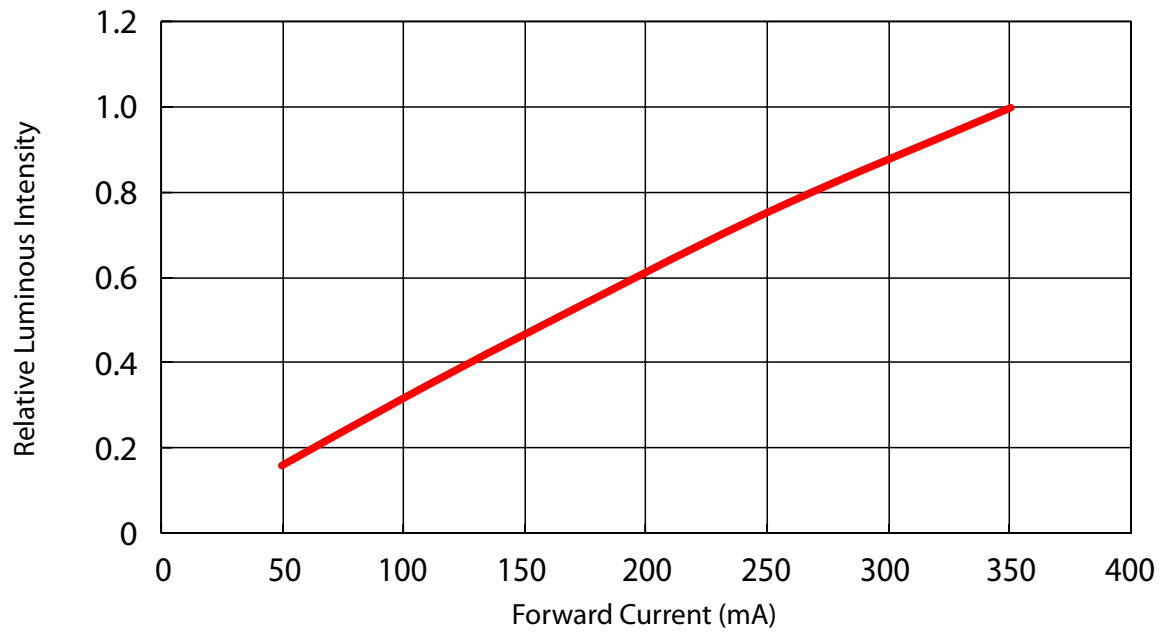
Forward Current vs. Forward Voltage (Green)



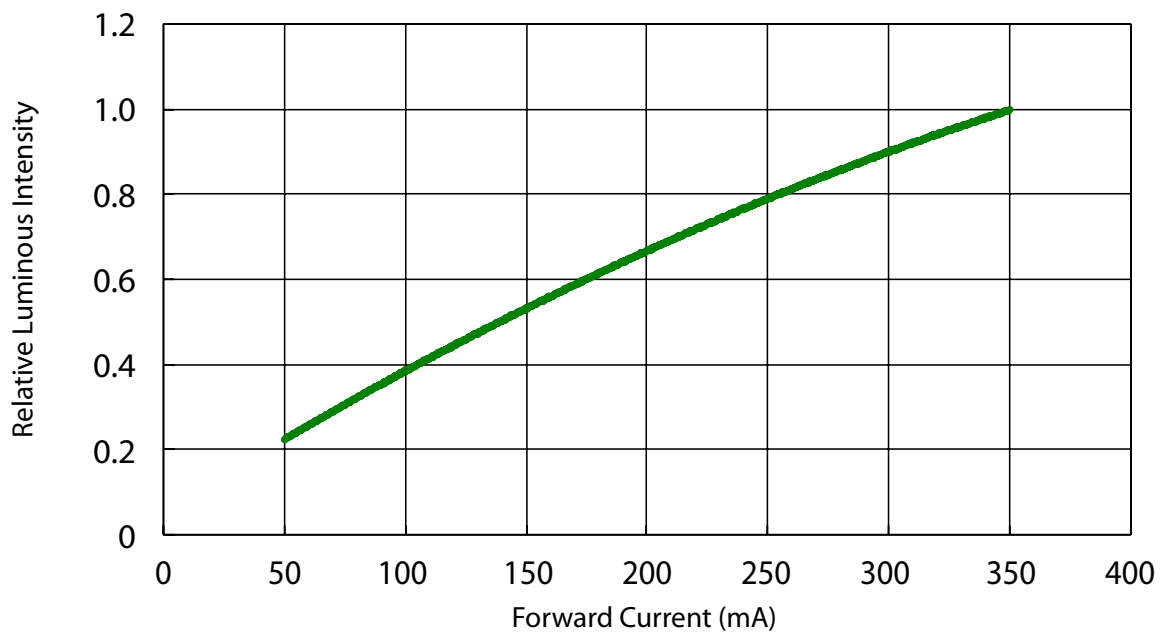
Forward Current vs. Forward Voltage (Blue)



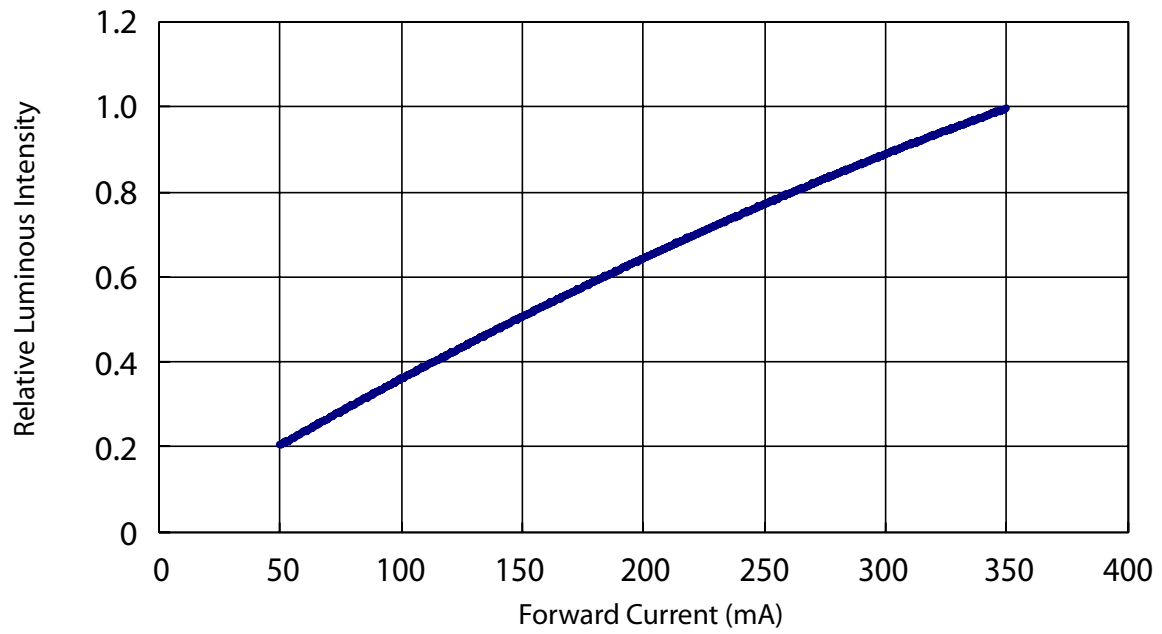
Relative luminous Intensity vs. Forward Current (Red)



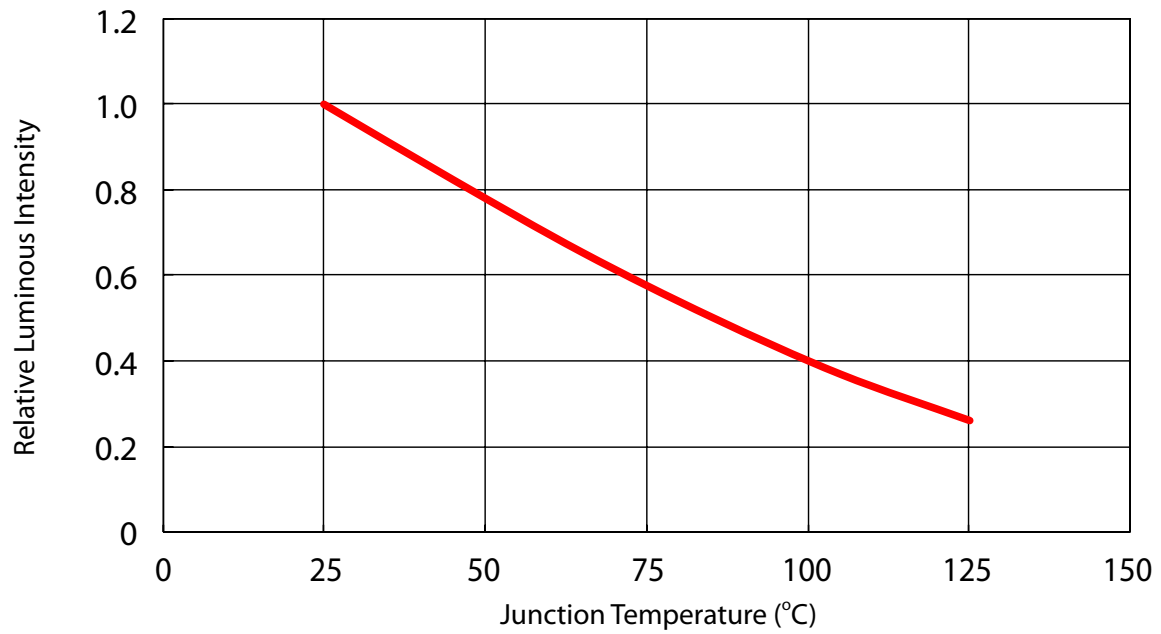
Relative luminous Intensity vs. Forward Current (Green)



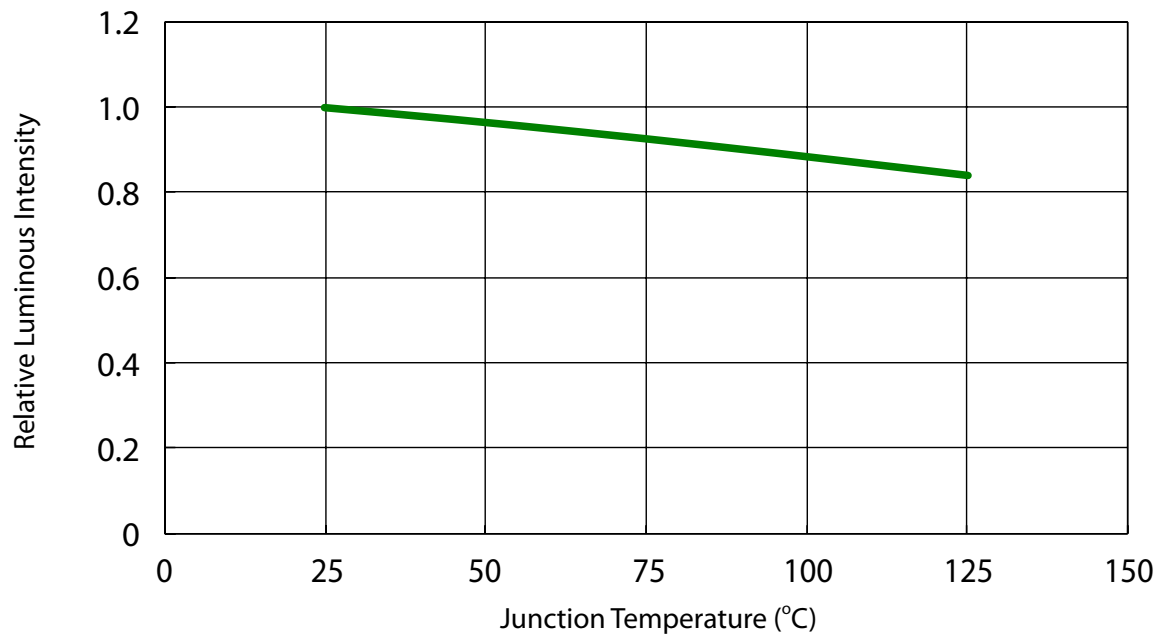
Relative luminous Intensity vs. Forward Current (Blue)



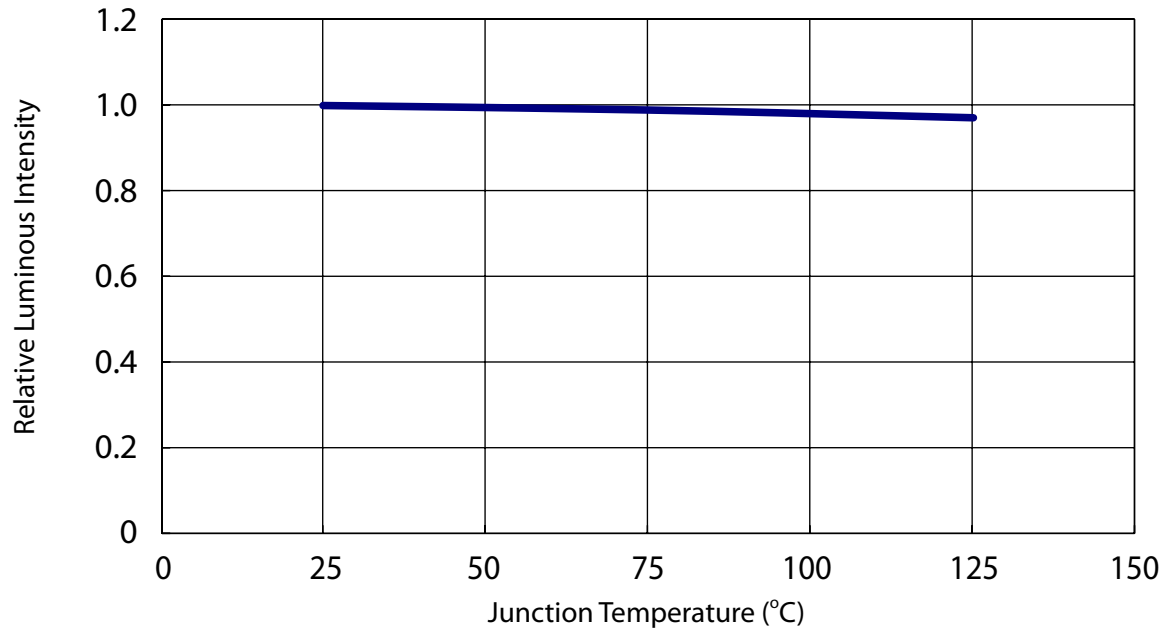
Relative Luminous Intensity vs. Junction Temperature (Red)



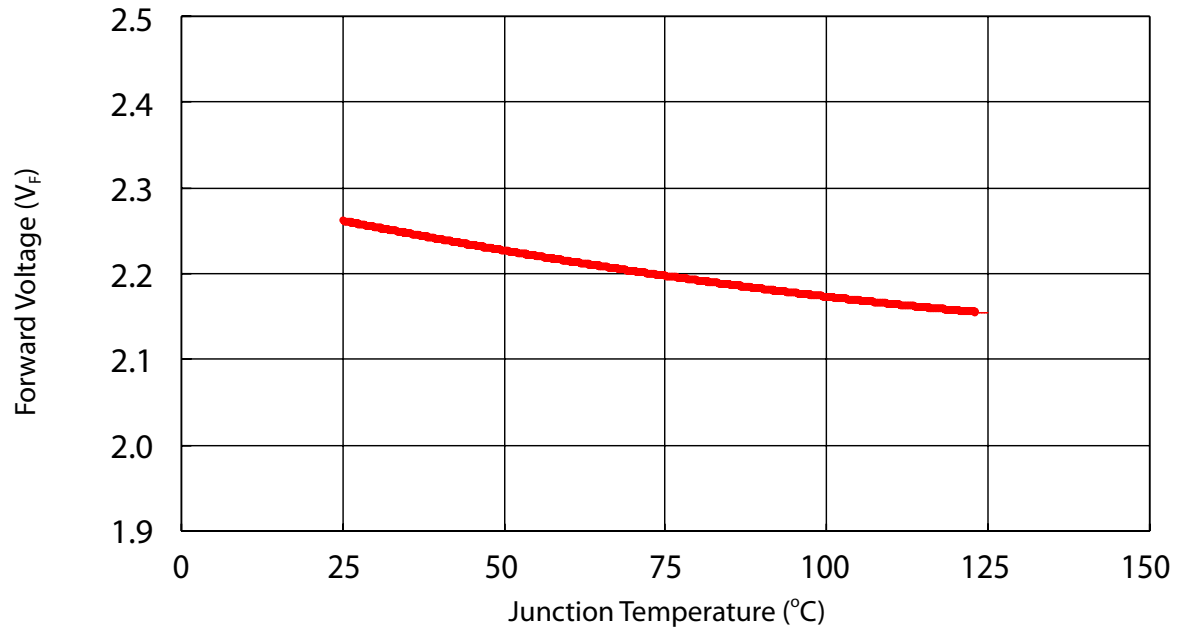
Relative luminous Intensity vs. Junction Temperature (Green)



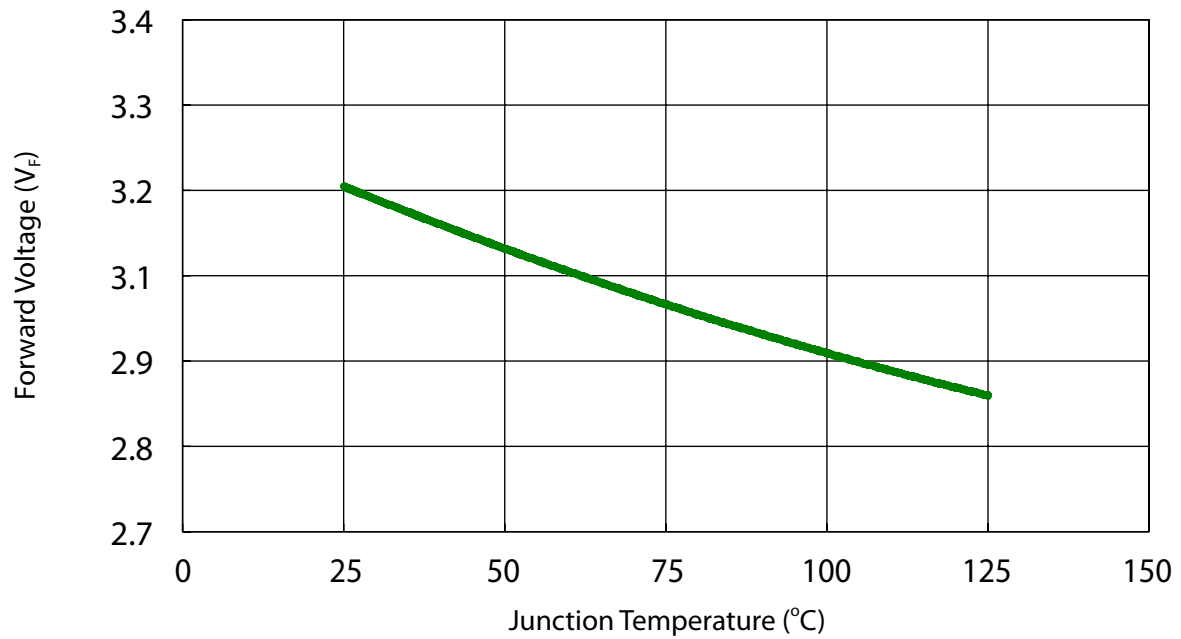
Relative Luminous Intensity vs. Junction Temperature (Blue)



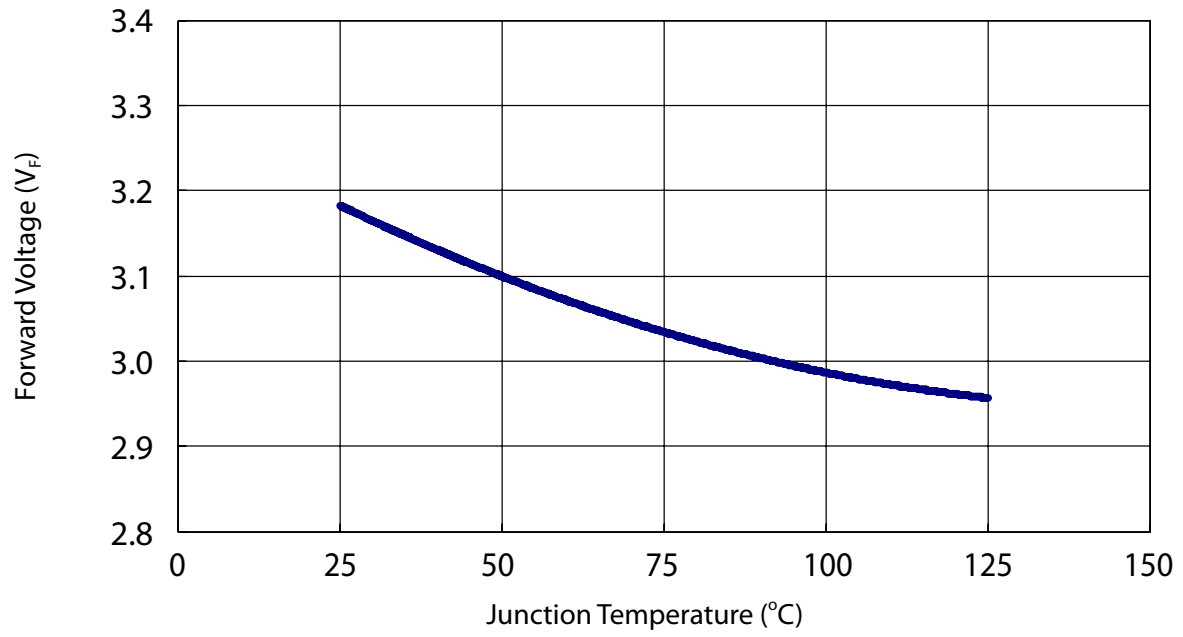
Forward Voltage vs. Junction Temperature (Red)



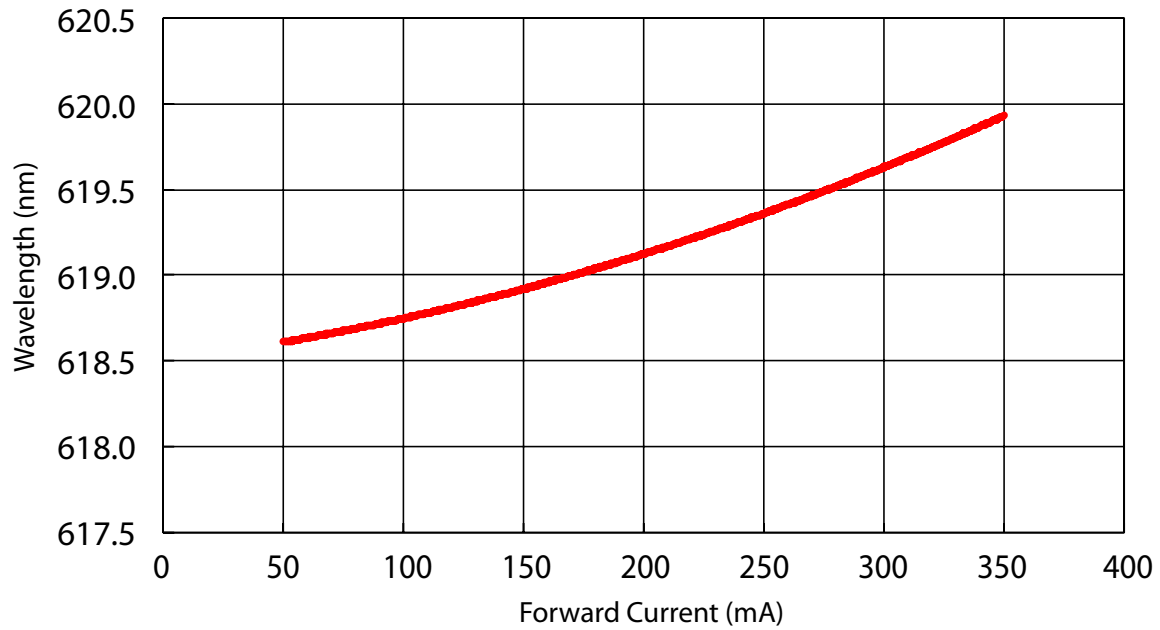
Forward Voltage vs. Junction Temperature (Green)



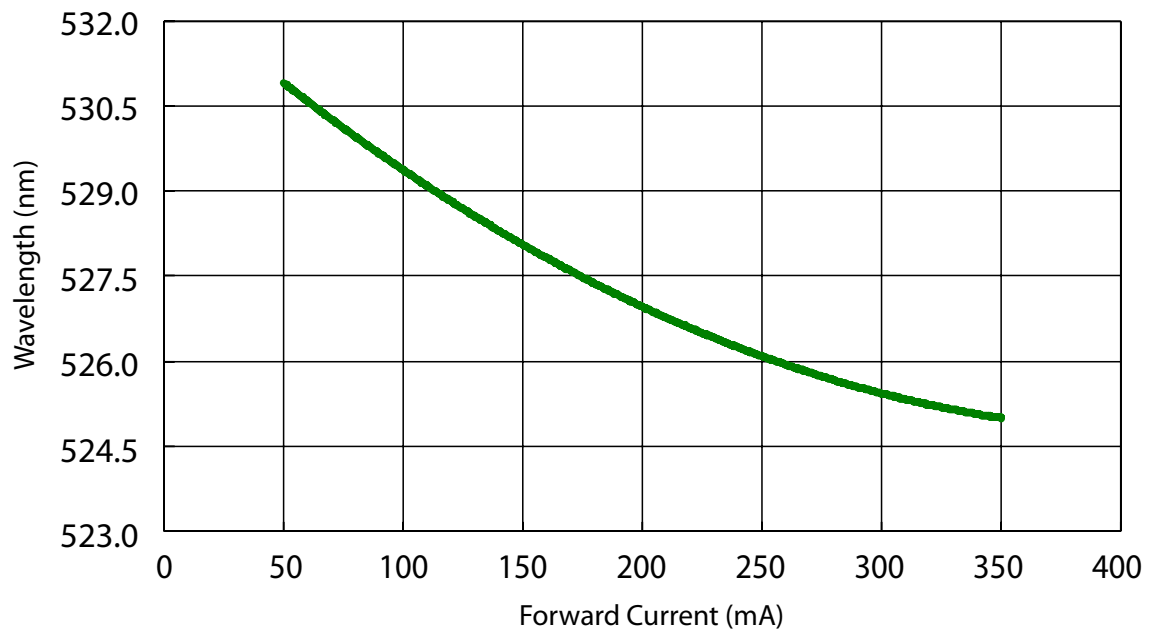
Forward Voltage vs. Junction Temperature (Blue)



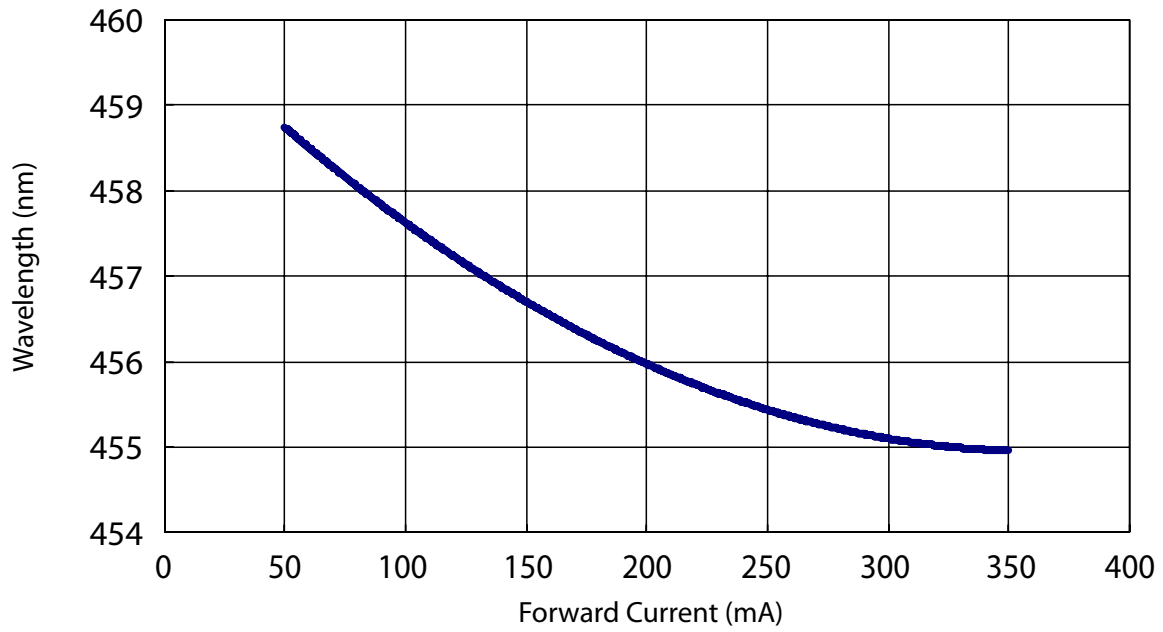
Wavelength vs. Forward Current (Red)



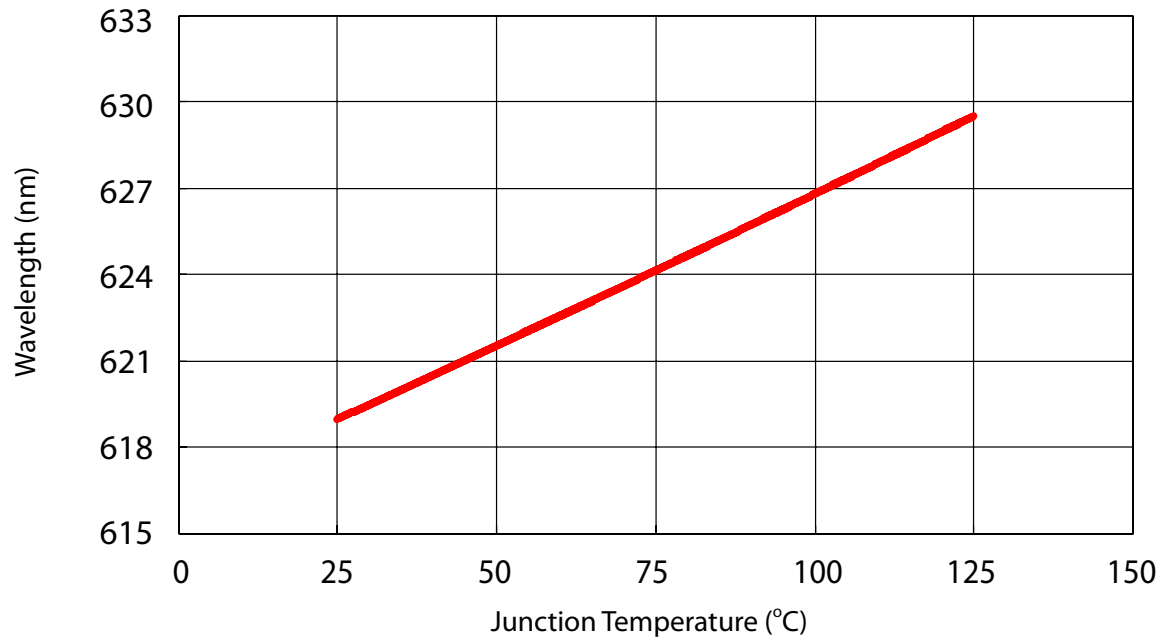
Wavelength vs. Forward Current (Green)



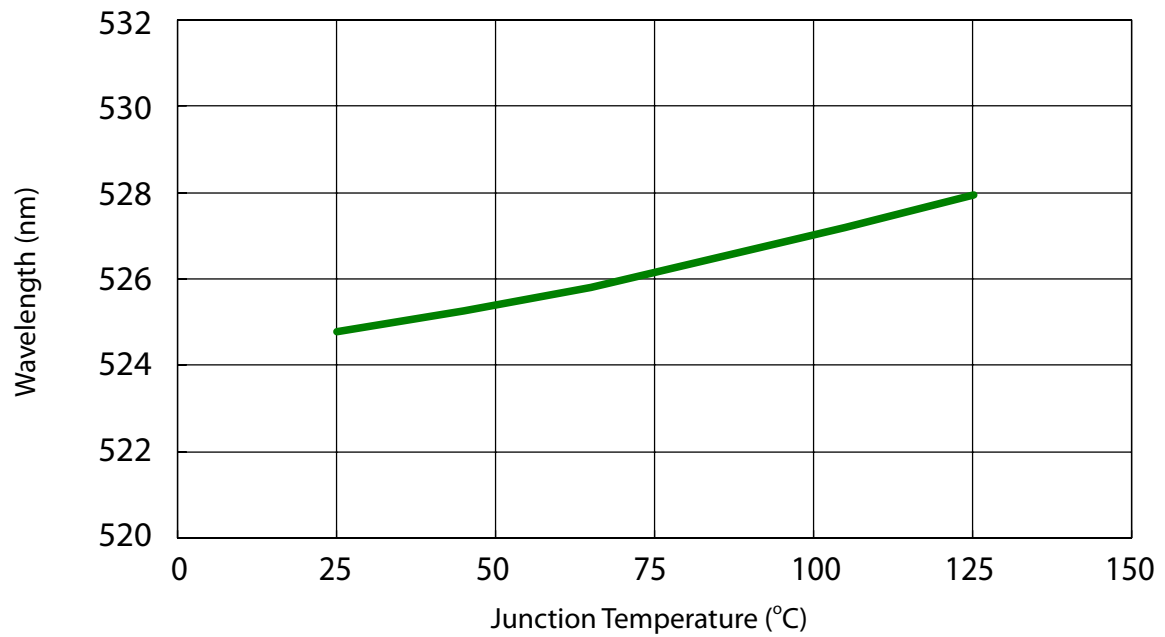
Wavelength vs. Forward Current (Blue)



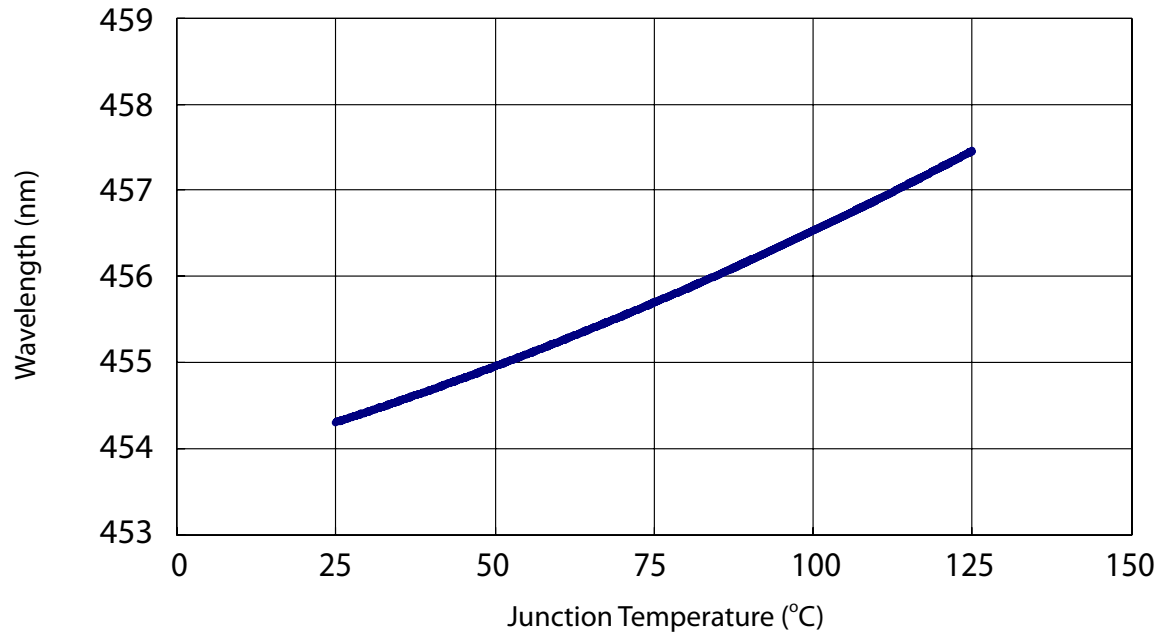
Wavelength vs. Junction Temperature (Red)



Wavelength vs. Junction Temperature (Green)

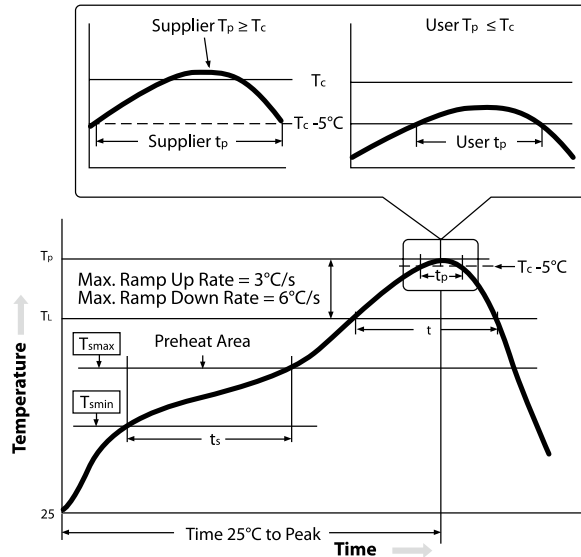


Wavelength vs. Junction Temperature (Blue)



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 (T _L to T _p)	3° C/ seconds max.
Liquidous temperature (T _L)	217° C
Time (t _L) maintained above T _L	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	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

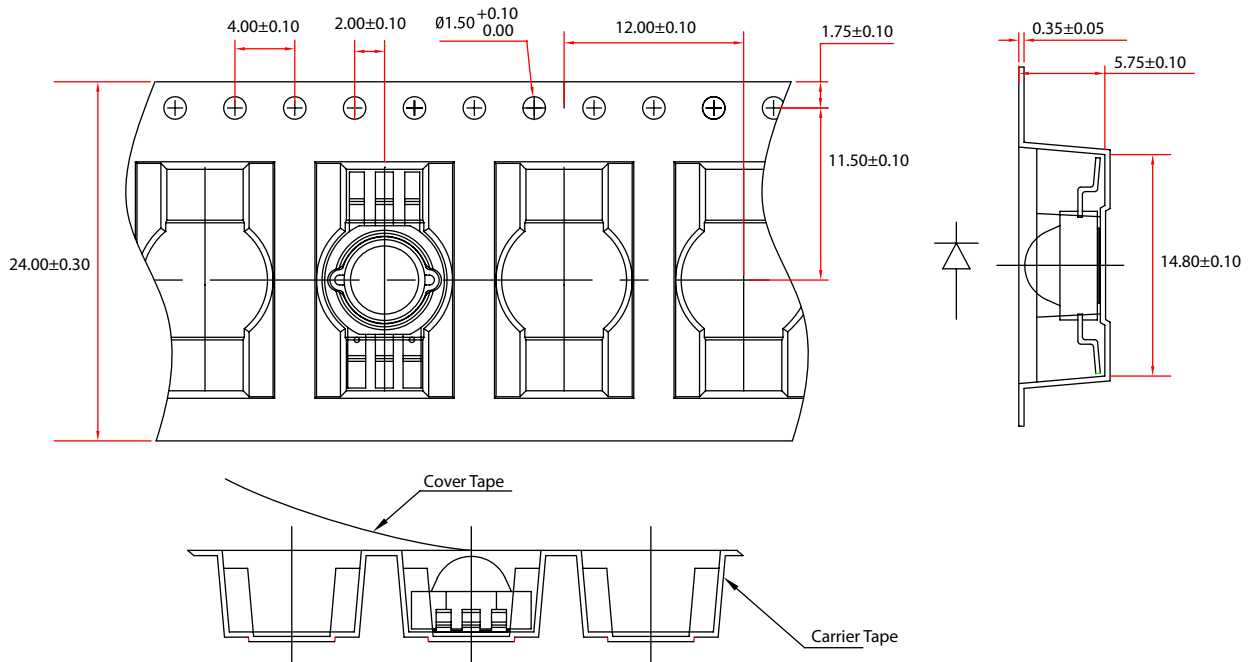
Item	Criteria for Judgment	
	Min.	Max.
Lumen Maintenance	85%	-
$\Delta u'v'$	-	0.006
Forward Voltage	-	Initial Data x 1.1
Reverse Current	-	10 μ A
Resistance to Soldering Heat	No dead lamps or visual damage	

Cautions

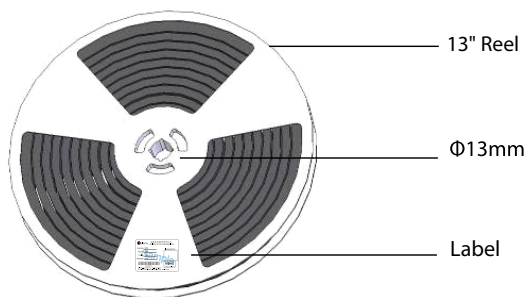
LED avoids being stored and lighted in the environment containing sulfur. Some materials, such as seals, printing ink, enclosure and adhesives, may contain sulfur, avoiding the exposure in acid or halogen environment.

Product Packaging Information

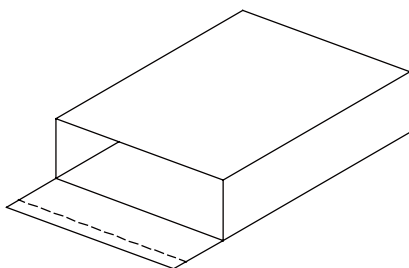
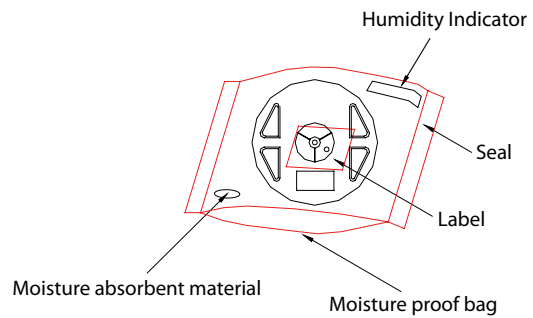
Tape and Reel Dimension



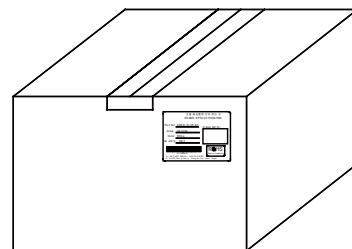
Edixeon Emitter



1000pcs LEDs inside



2 bags in 1 box



5 boxes in 1 carton

Note : 445*410*415 (Tolerance : ±5mm)

Revision History

Versions	Description	Release Date
1	Establish order code information	2015/07/11
2	Add the cautions of reliability	2017/05/26

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

Copyright©2017 Edison Opto. All rights reserved. No part of publication may be reproduced or transmitted in any form or by any means, electronic or mechanical, including photo copy, recording or any other information storage and retrieval system, without prior permission in writing from the publisher. The information in this publication are subject to change without notice.

www.edison-opto.com

For general assistance please contact:
service@edison-opto.com.tw

For technical assistance please contact:
LED.Detective@edison-opto.com.tw