

Edixeon S Series IR/UV Datasheet



Features :

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

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General Information

Introduction

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

Ordering Code Format

<u>2</u>	<u>E</u>	<u>R 1</u>	<u>0 x</u>	<u>x X</u>	<u>0 0</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	R1	R1 Series	01 03	1W 3W	EX FX VX IX NX	Deep Red Cherry Red Ultraviolet IR 850 IR940
X6		X7		X8					
Internal code		PCB Board		Serial Number					
-	-	000	-	-	-	-	-		

Absolute Maximum Ratings

Parameter	Symbol	Value	Units
DC Forward Current	I_F	E / F : 350 V : 350/700 I / N : 700/1000	mA
Peak Pulsed Current; ($t_p \leq 100\mu s$, Duty cycle=0.25)	I_{pulse}	E / F : 700 V : 700/1400 I / N : 1400	mA
Reverse Voltage	V_R	I : 3 E/F/V/N : 5	V
Drive Voltage	V_D	I : 3 E/F/V/N : 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
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	$2\theta_{1/2}$	120	Degree
Forward voltage (Typ.)	V_F	E / F : 2.0 - 3.0 V : 3.0 - 4.0 / 3.2 - 5.0 I / N : 1.5 - 2.5	V
Thermal resistance	-	15	°C/W
$\Delta V_F / \Delta T$	$\Delta V_F / \Delta T$	-2	mV/°C
Wavelength	λ_p	E : 650 - 670 F : 730 - 750 I : 835 - 860 V : 390 - 410 N : 930 - 950	nm
JEDEC Moisture Sensitivity	-	Level 2a Floor Life Conditions: $\leq 30^\circ\text{C}$ / 60% RH Soak Requirements(Standard) Time (hours): 120+1/-0 Conditions: 60°C / 60% RH	-

Notes:

1. Wavelengths are stated as peak wavelength.
2. Edison maintains a tolerance of $\pm 1\text{nm}$ for dominant wavelength, $\pm 2\text{nm}$ for peak wavelength measurement.
3. Edison maintains a tolerance of 0.06V on forward voltage measurement.
4. Emission angle is measured with an accuracy of ± 10 degree.

Luminous Flux Characteristic

Luminous Flux Characteristics at T_j=25°C

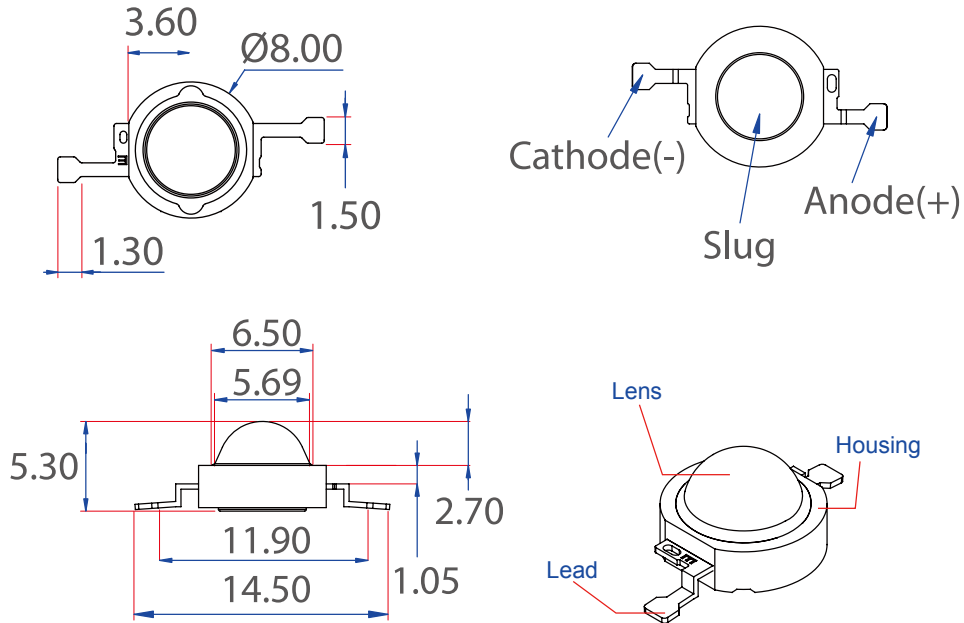
Color	Group	Min. Radiometric Power(mW)	Max. Radiometric Power(mW)	Forward Current (mA)	Order Code
Deep Red	B0	100	200	350	2ER101EX00000001
	B1	200	300		
	B2	300	400		
Cherry Red	A1	50	100	350	2ER101FX00000001
	B0	100	200		
	B1	200	300		
Ultraviolet	B1	200	300	700	2ER103VX00000001
	B2	300	400		
	B3	400	500		
	C0	500	600		
	C1	600	700		
	C2	700	800		
	C3	800	900		
	C4	900	1000		
IR 850	D0	1000	1200	700	2ER101IX00000002
	B2	300	400		
	B3	400	500		
	C0	500	600		
IR 940	C1	600	700	700	2ER101NX00000001
	B0	100	200		
	B1	200	300		

Note:

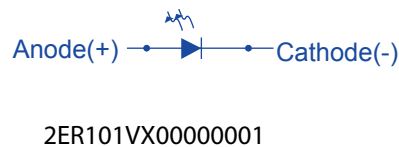
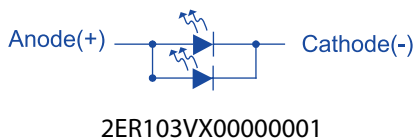
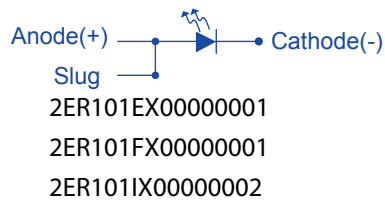
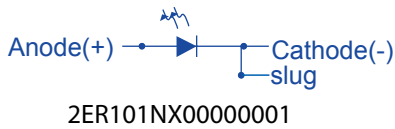
Flux is measured with an accuracy of ± 10%.

Mechanical Dimensions

Emitter Type Dimension



Star Type Dimensions



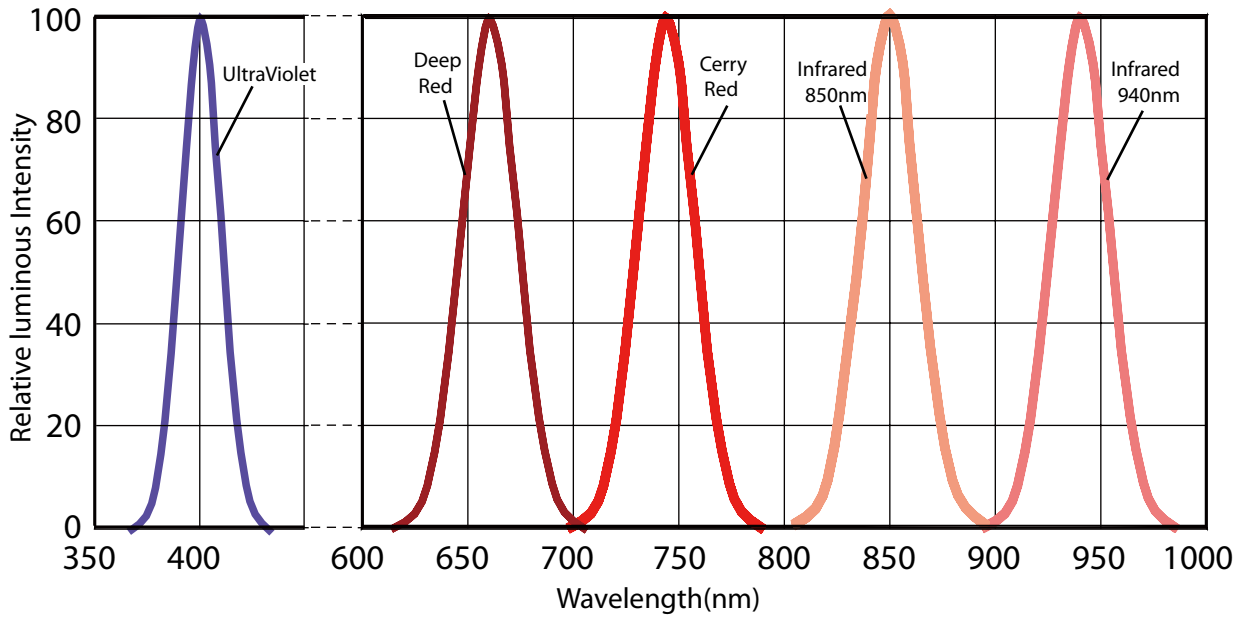
Edixeon S IR/UV Series dimensions and circuit

Notes:

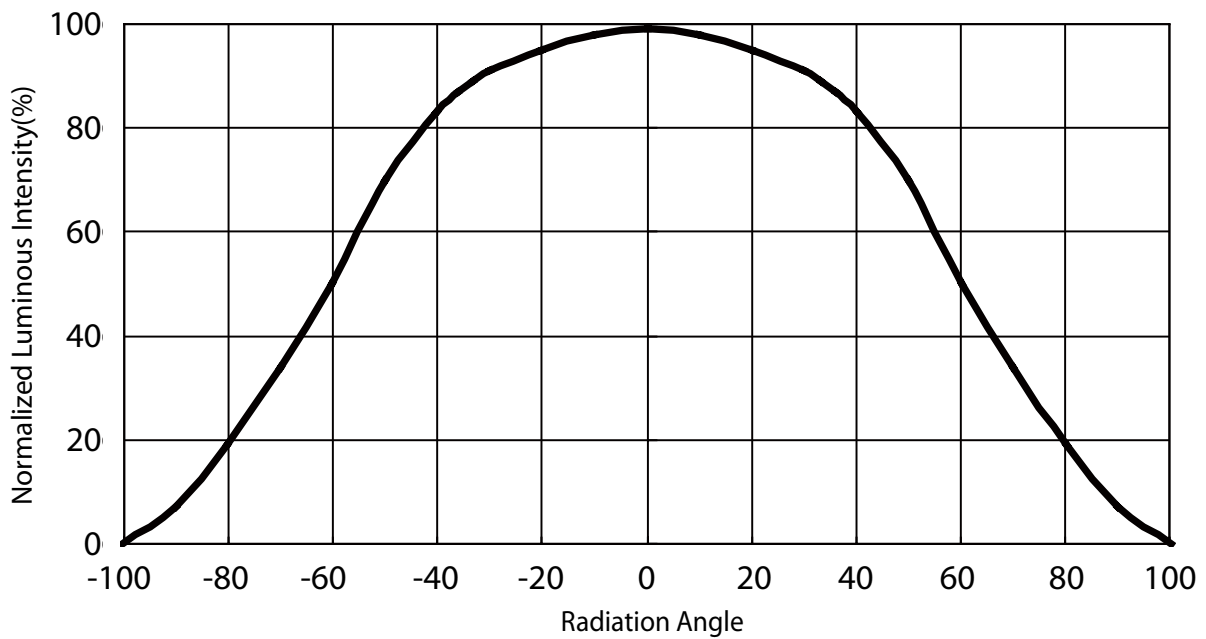
1. All dimensions are in mm.
2. Drawings are not to scale.
3. It is strongly recommended that the temperature of lead dose not exceed 55°C.
4. The slug has polarity as anode.
5. It is strongly recommended to apply on electrically isolated heat conducting film between the slug and contact surfaces.

Characteristic curve

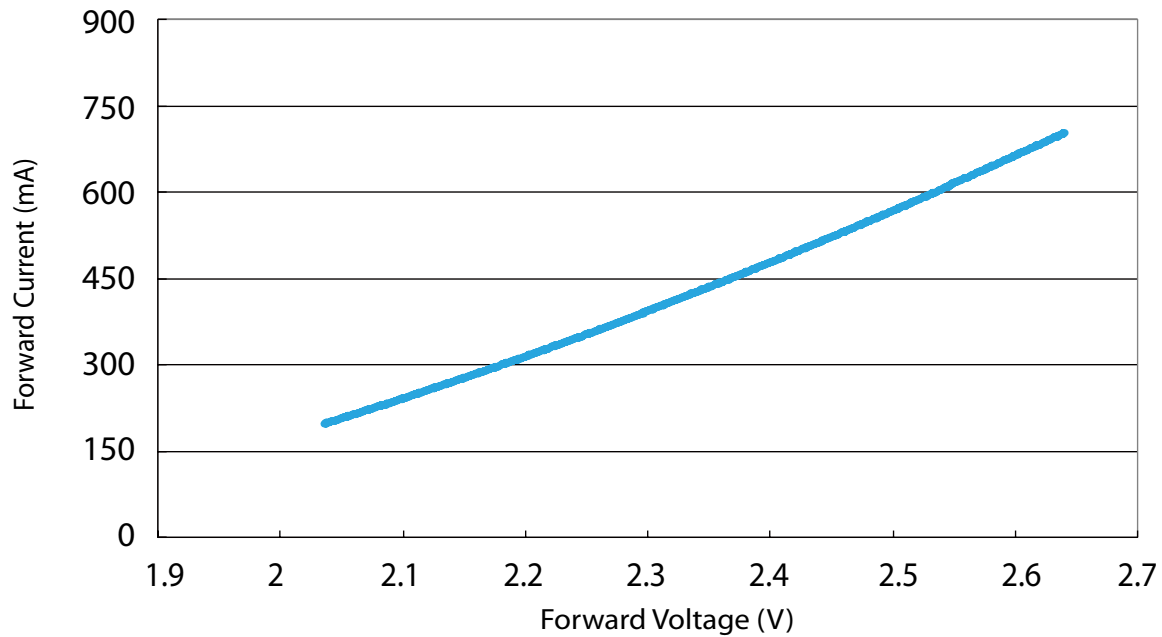
Color Spectrum



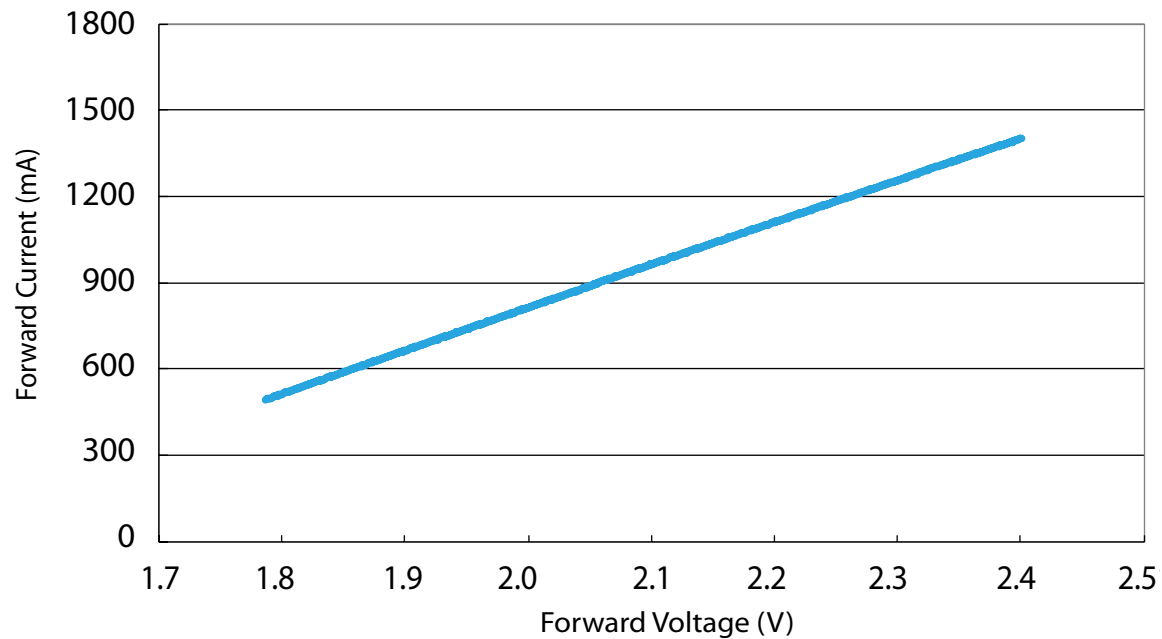
Beam Pattern



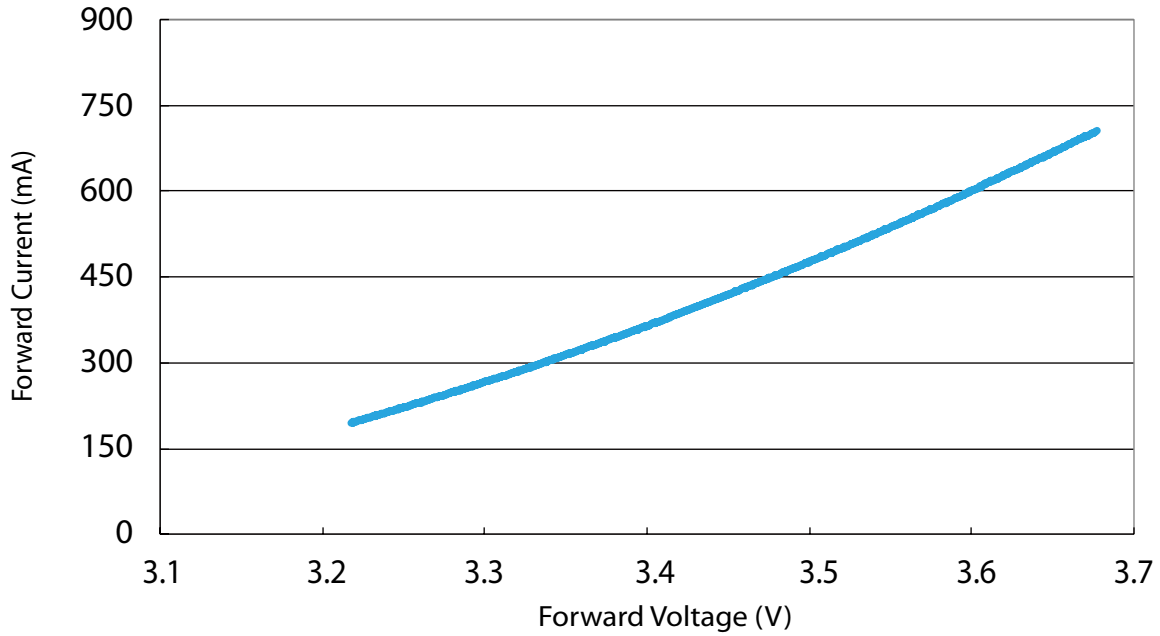
Forward Current vs. Forward Voltage (Deep Red & Cherry Red)



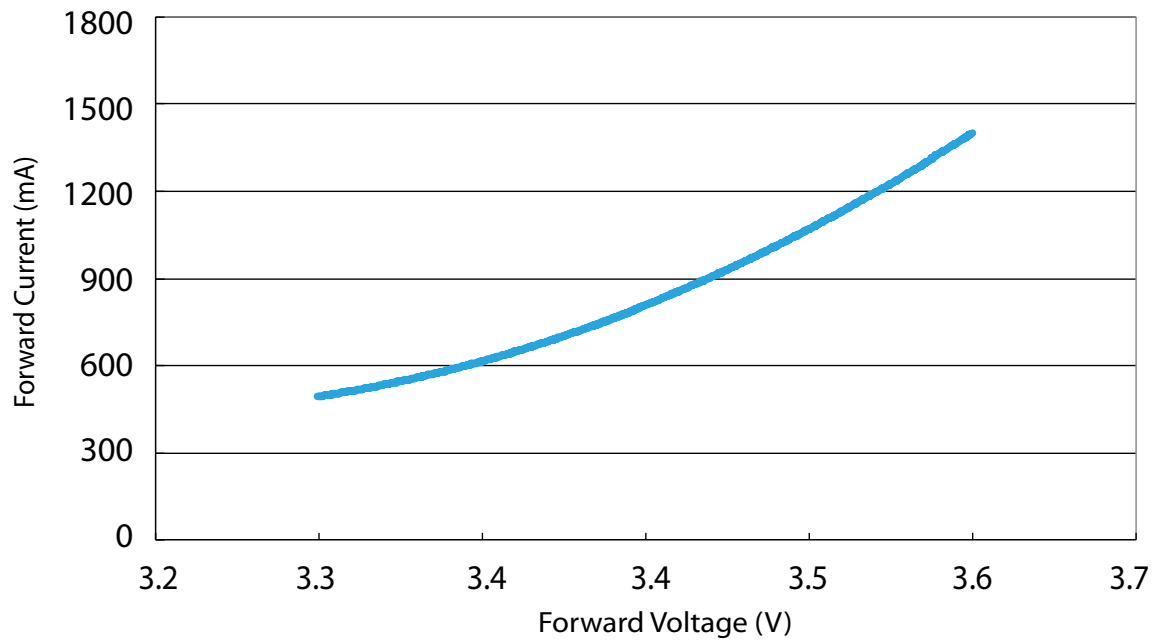
Forward Current vs. Forward Voltage (IR850 & IR940)



Forward Current vs. Forward Voltage (1W Ultraviolet)

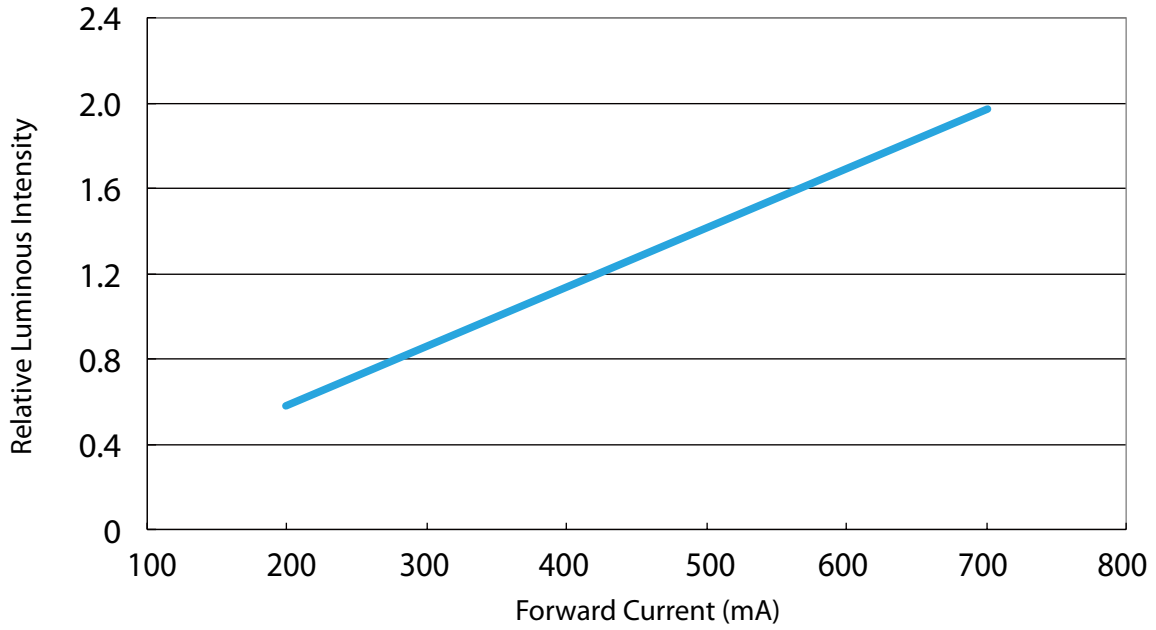


Forward Current vs. Forward Voltage (3W Ultraviolet)

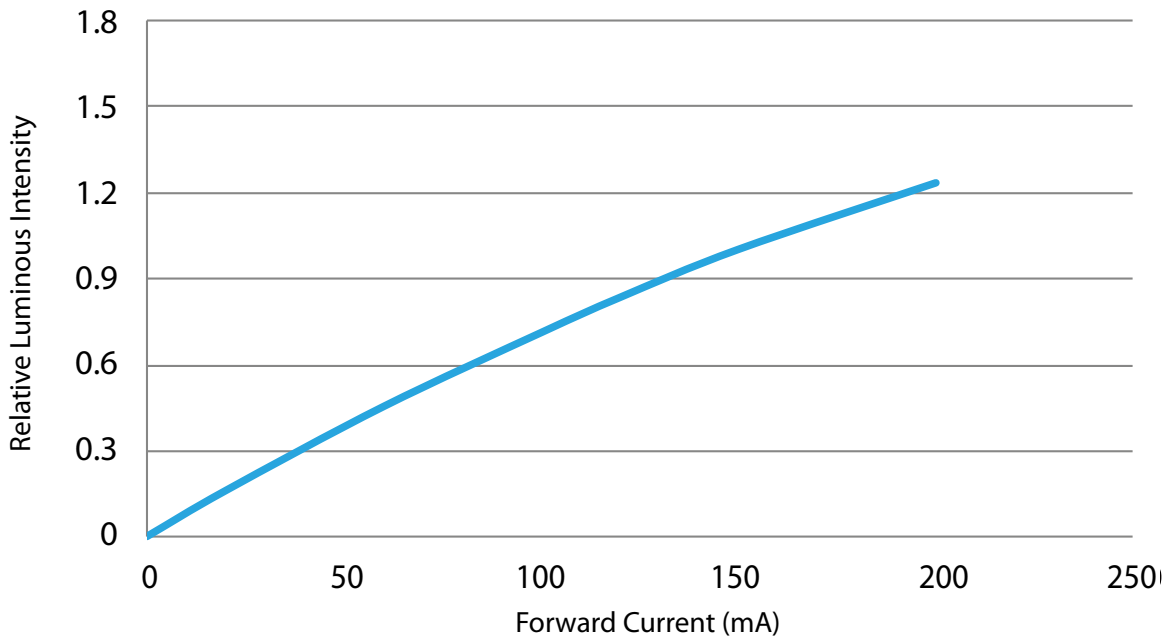




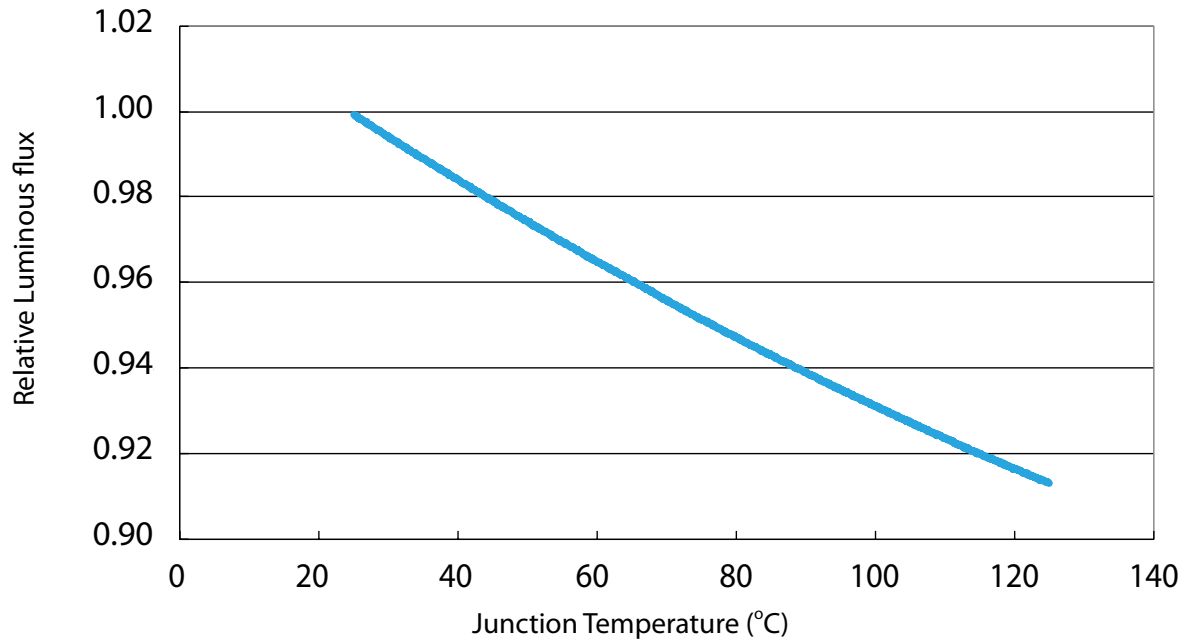
Relative luminous Intensity vs. Forward Current (Deep Red&Cherry Red&1W UVInfrared)



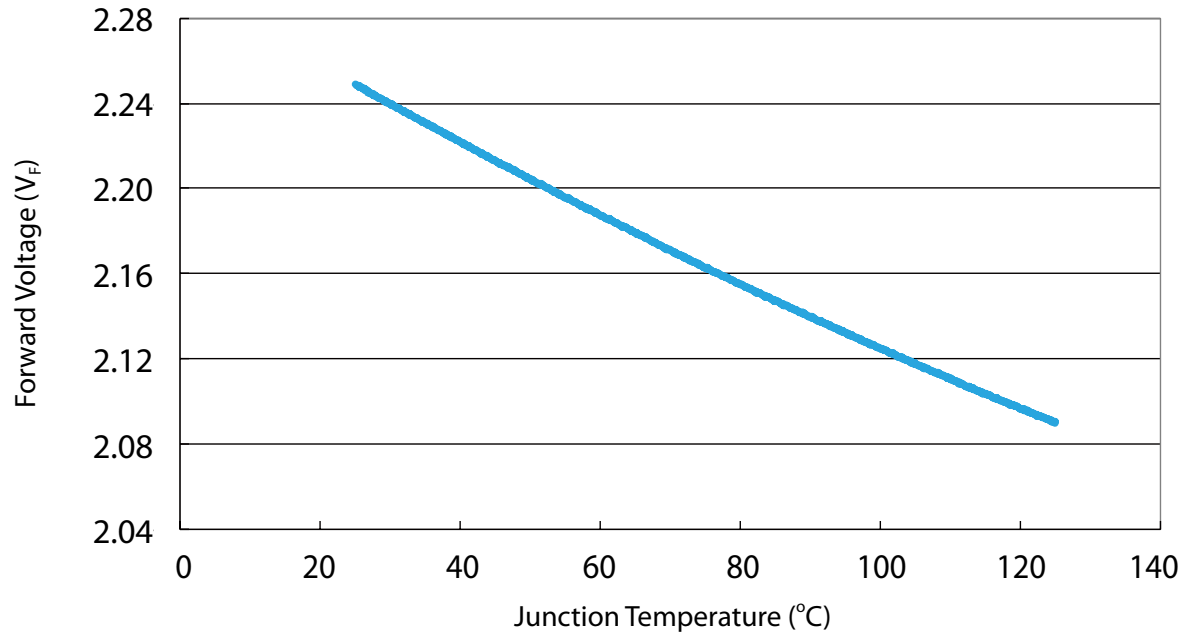
Relative luminous Intensity vs. Forward Current (IR850&IR940&3W Ultraviolet)



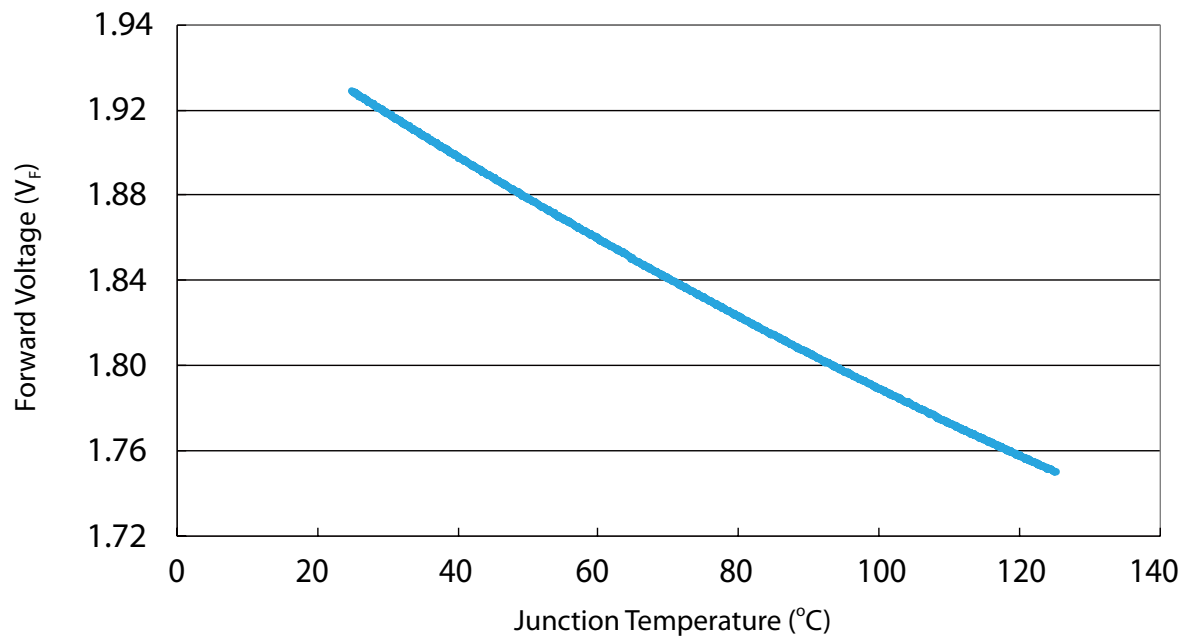
Relative Luminous Flux vs. Junction Temperature



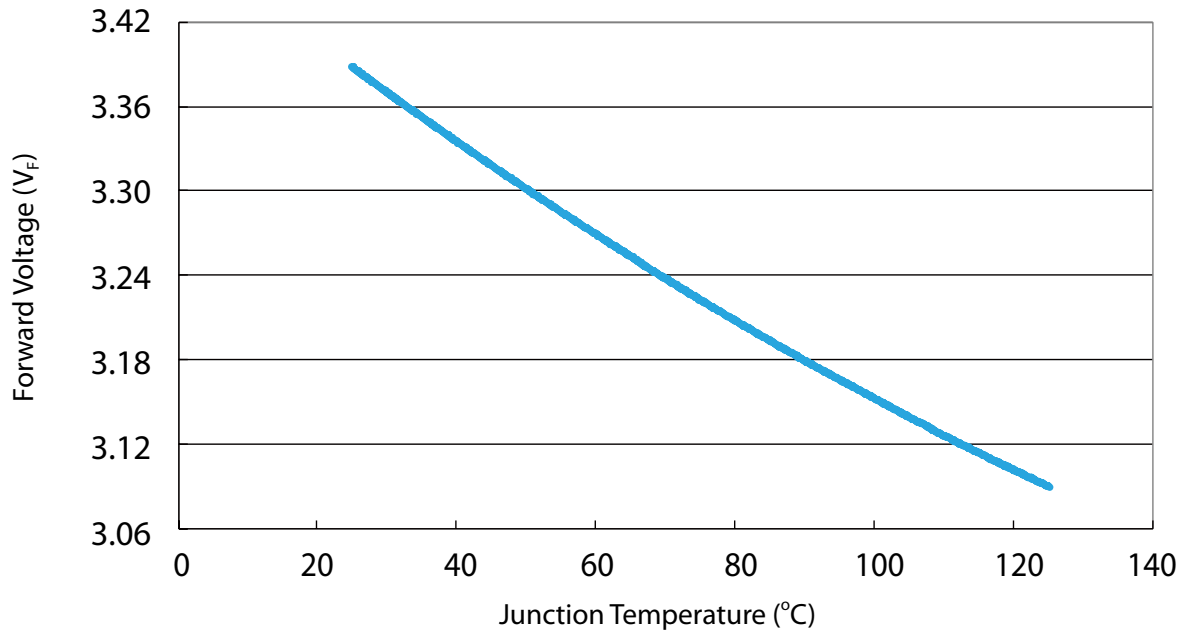
Forward Voltage vs. Junction Temperature (Deep Red & Cherry Red)



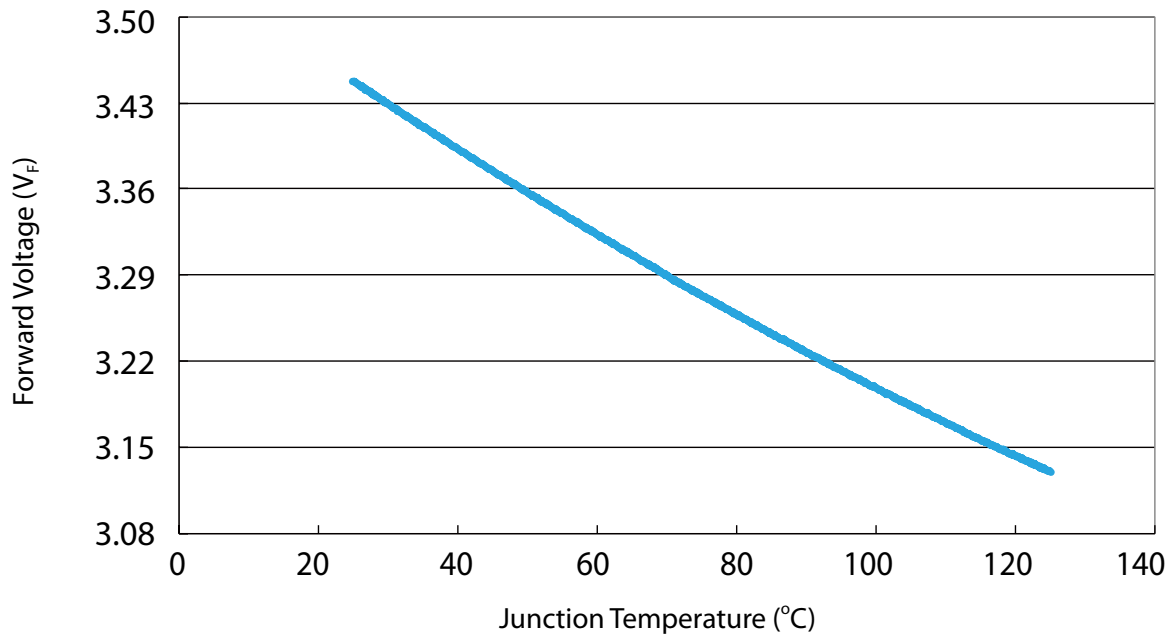
Forward Voltage vs. Junction Temperature (IR850&IR940)



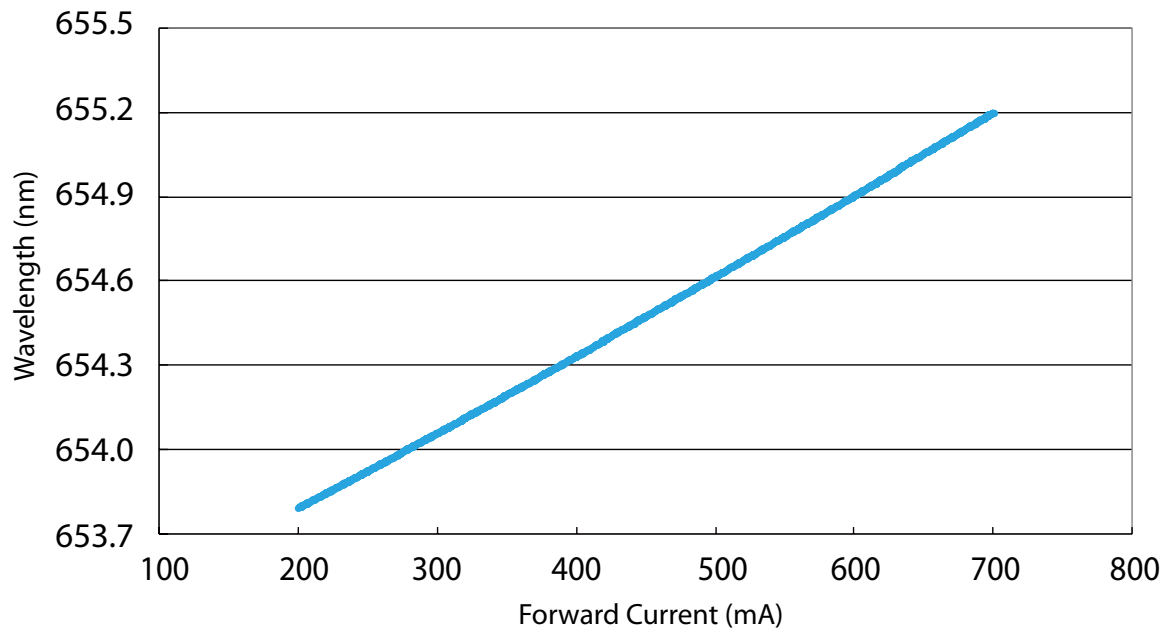
Forward Voltage vs. Junction Temperature (1W Ultraviolet)



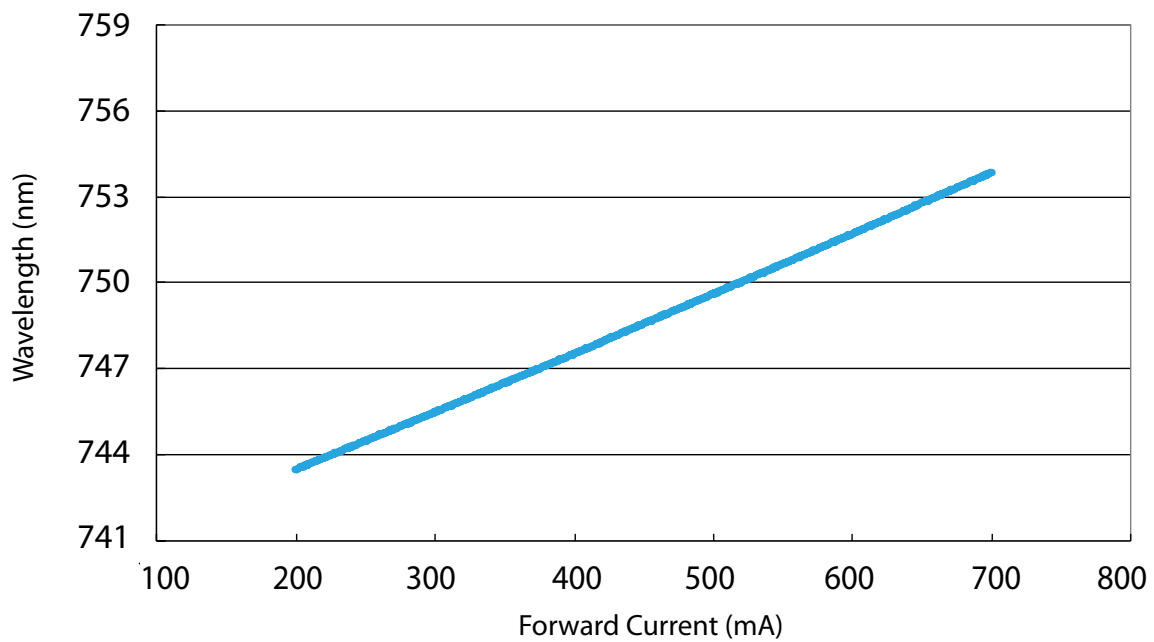
Forward Voltage vs. Junction Temperature (3W Ultraviolet)



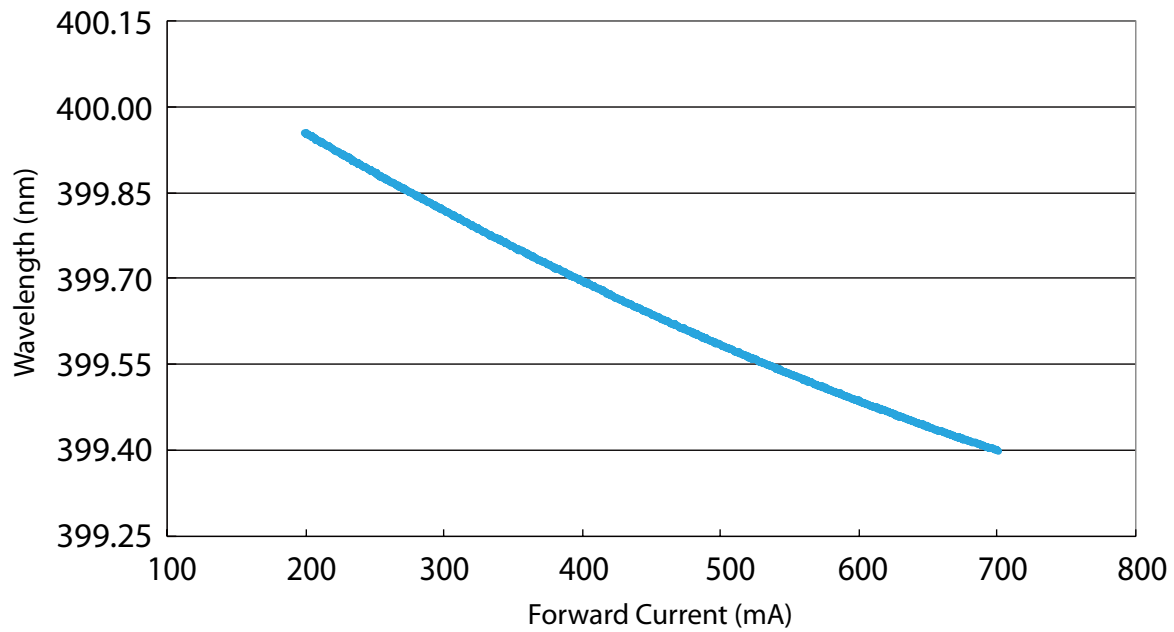
Wavelength vs. Forward Current (Deep Red)



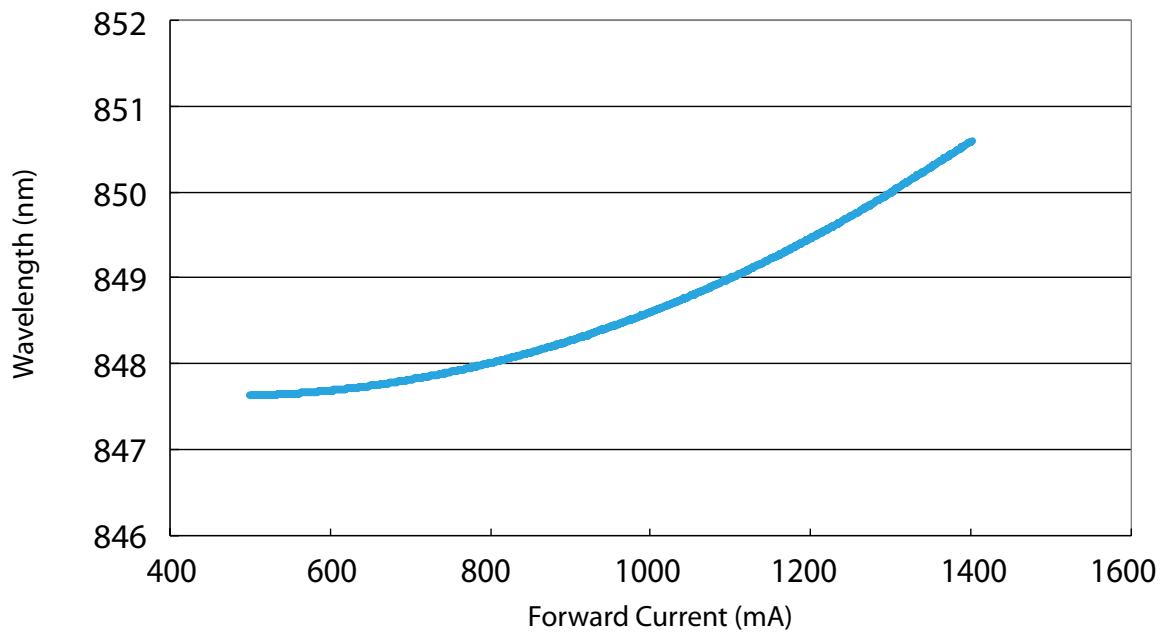
Wavelength vs. Forward Current (Cherry Red)



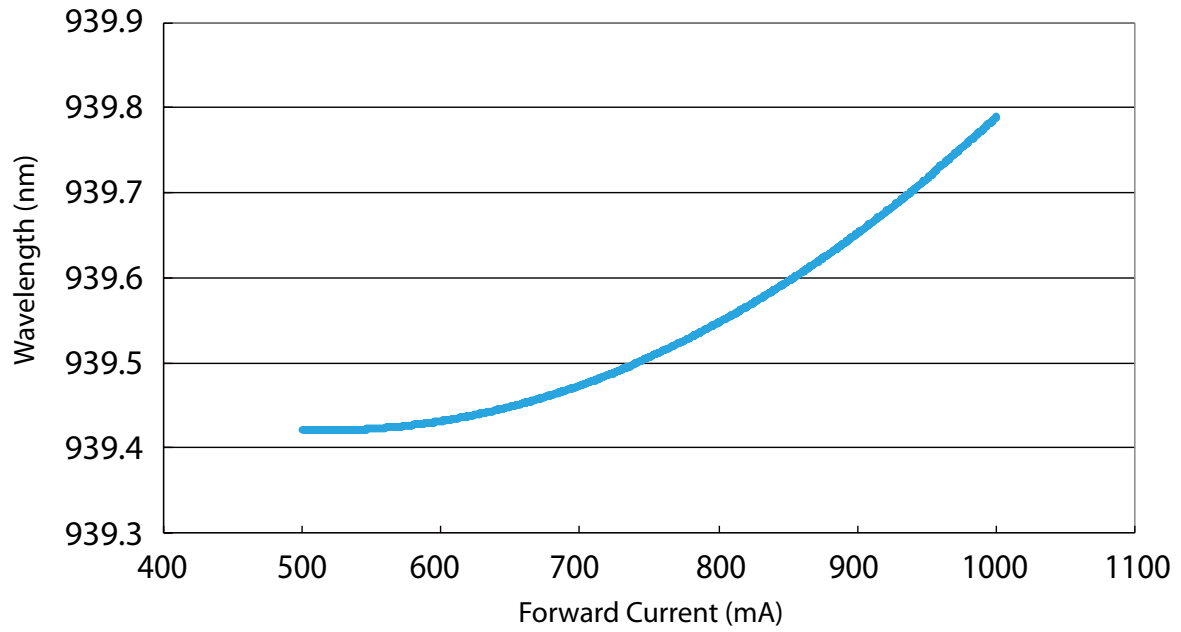
Wavelength vs. Forward Current (Ultraviolet)



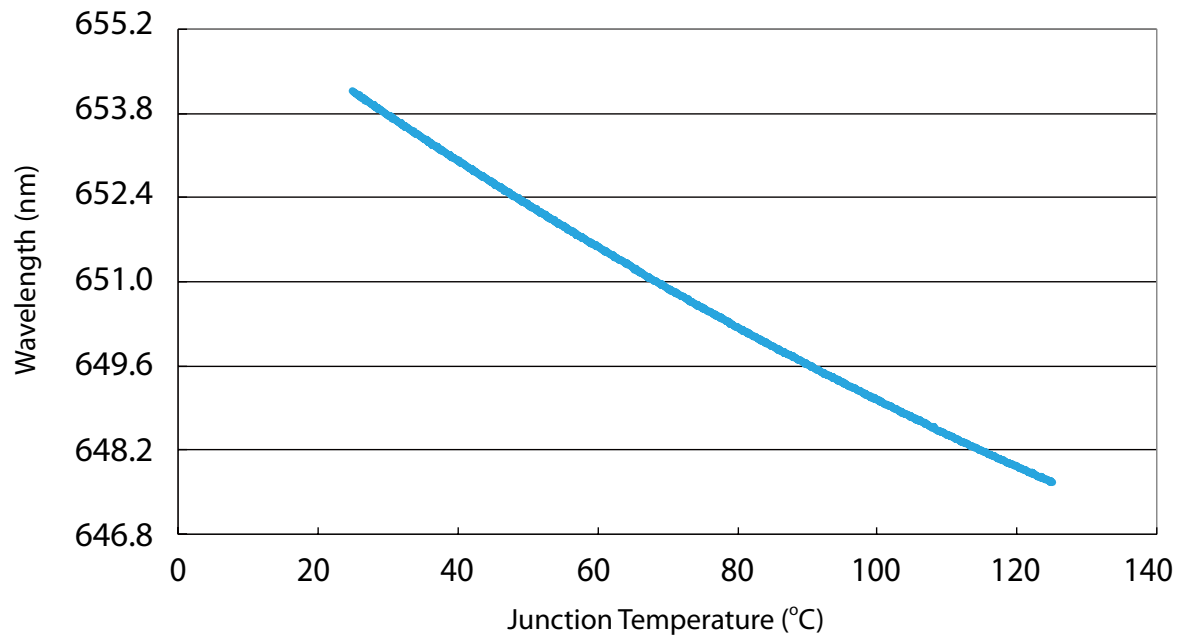
Wavelength vs. Forward Current (IR850)



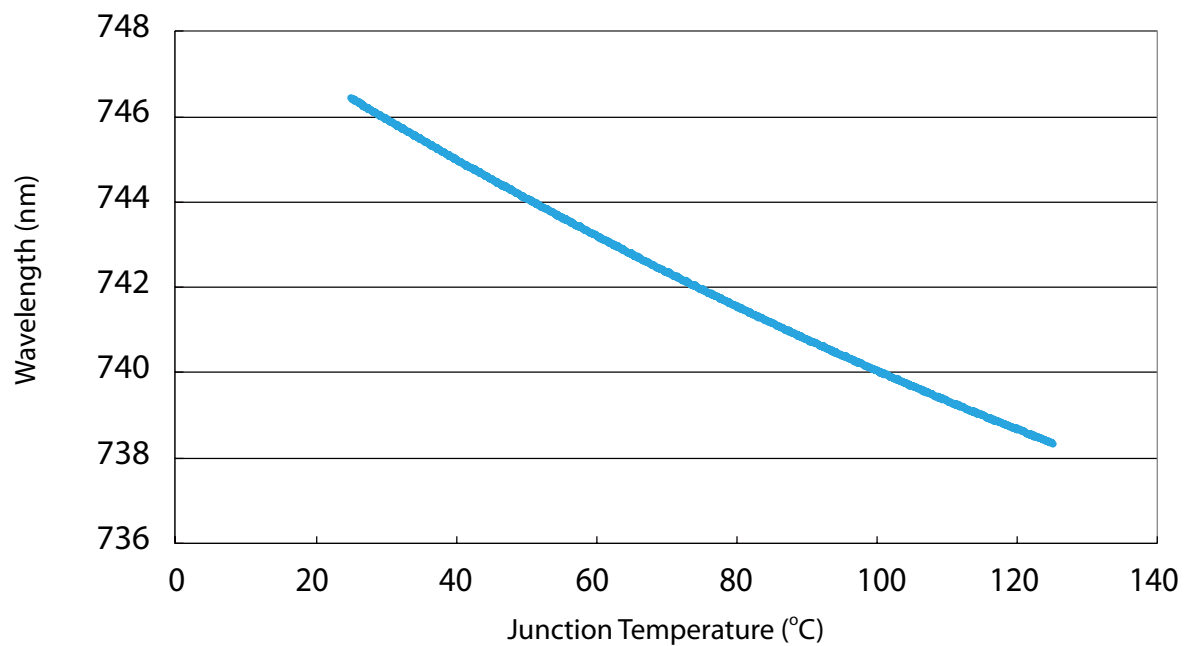
Wavelength vs. Forward Current (IR940)



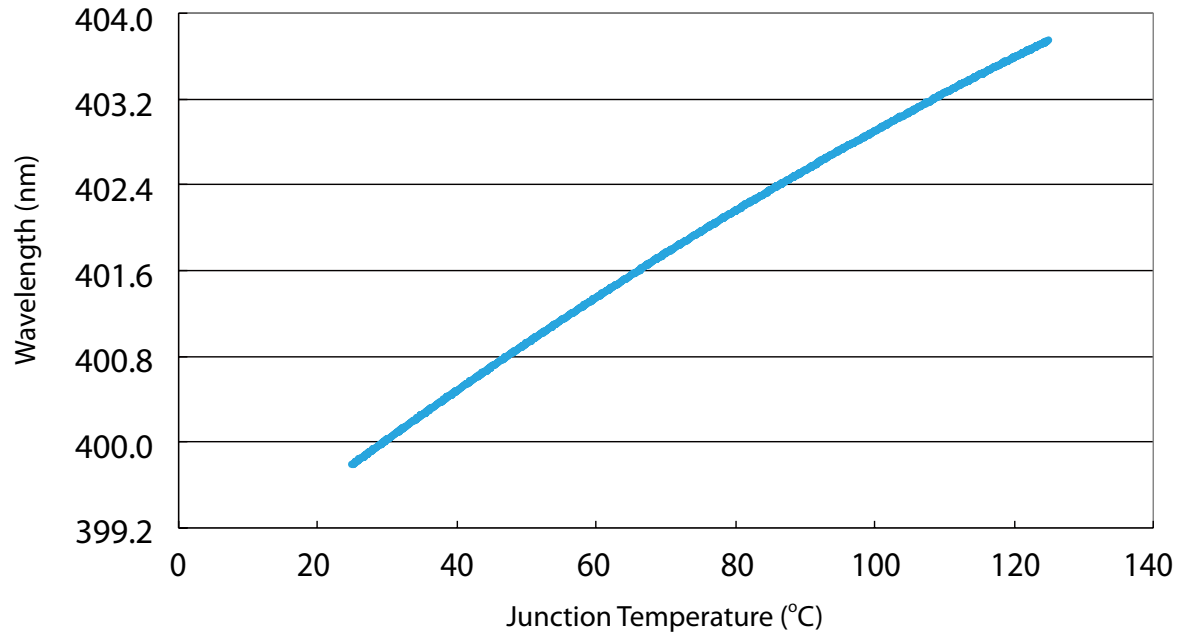
Wavelength vs. Junction Temperature (Deep Red)



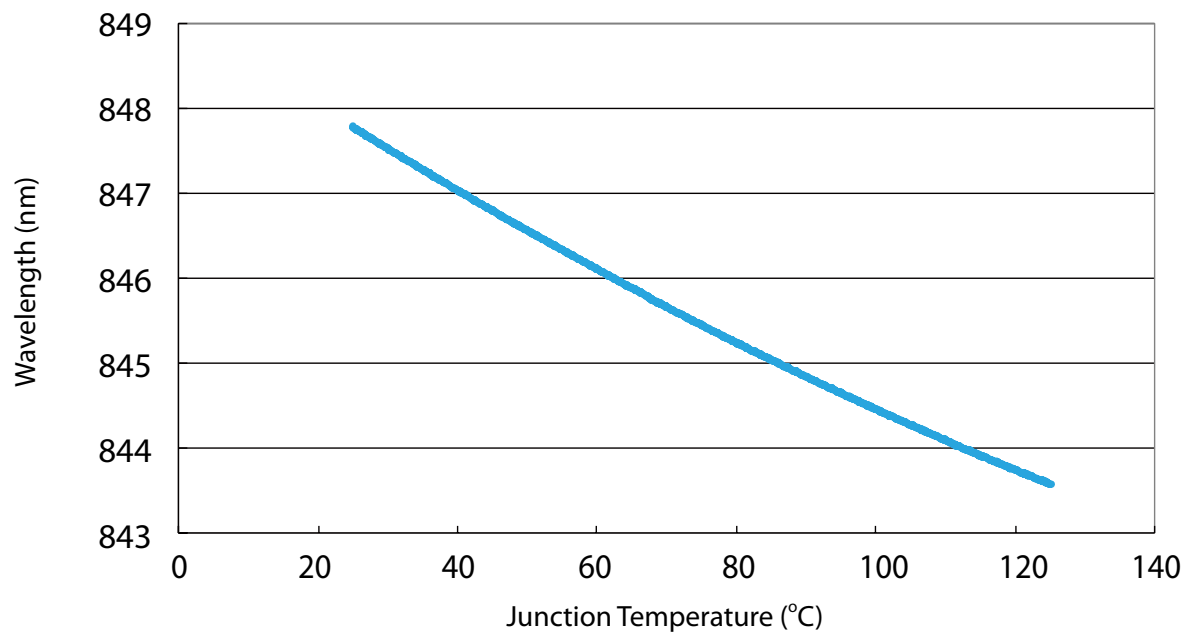
Wavelength vs. Junction Temperature (Cherry Red)



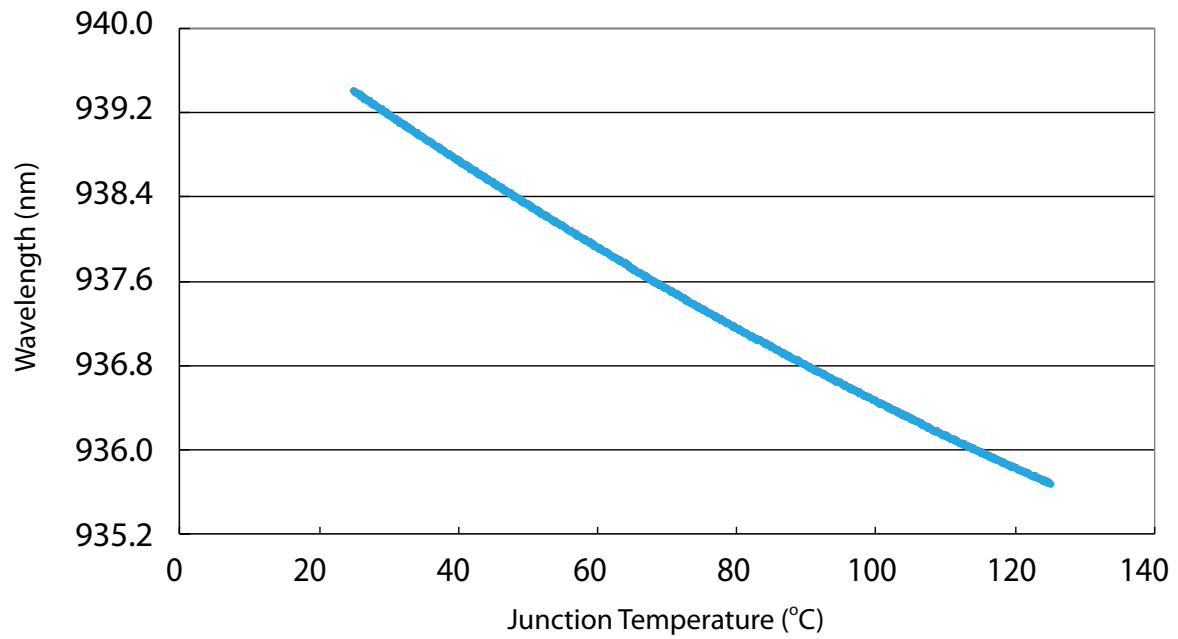
Wavelength vs. Junction Temperature (Ultraviolet)



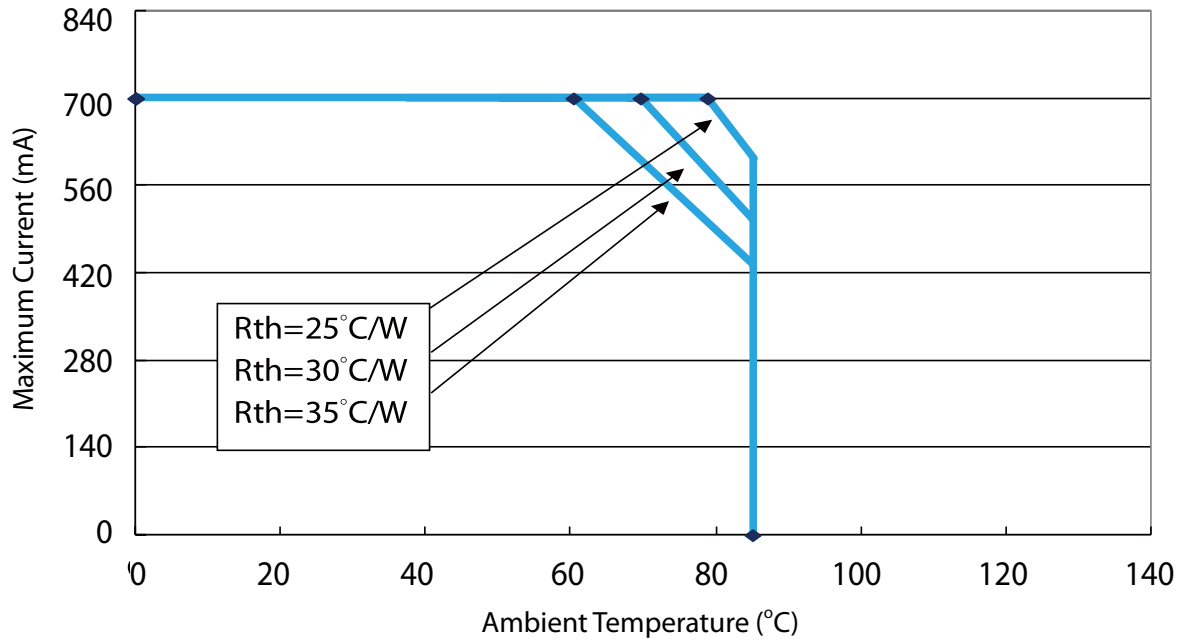
Wavelength vs. Junction Temperature (IR850)



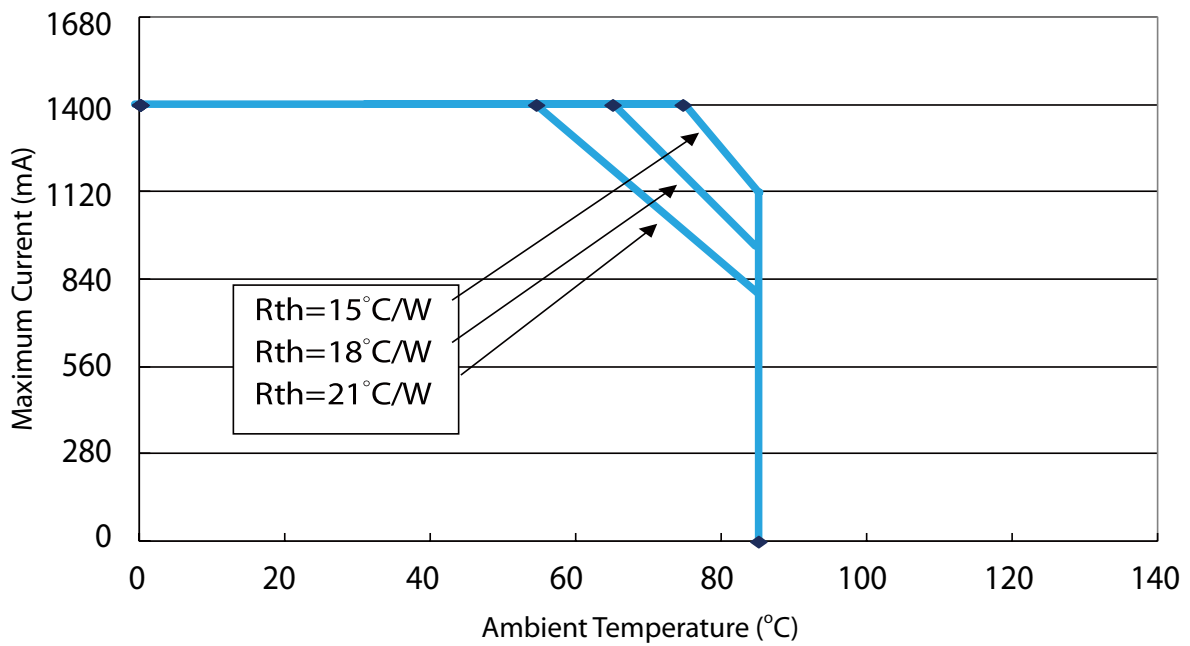
Wavelength vs. Junction Temperature (IR940)



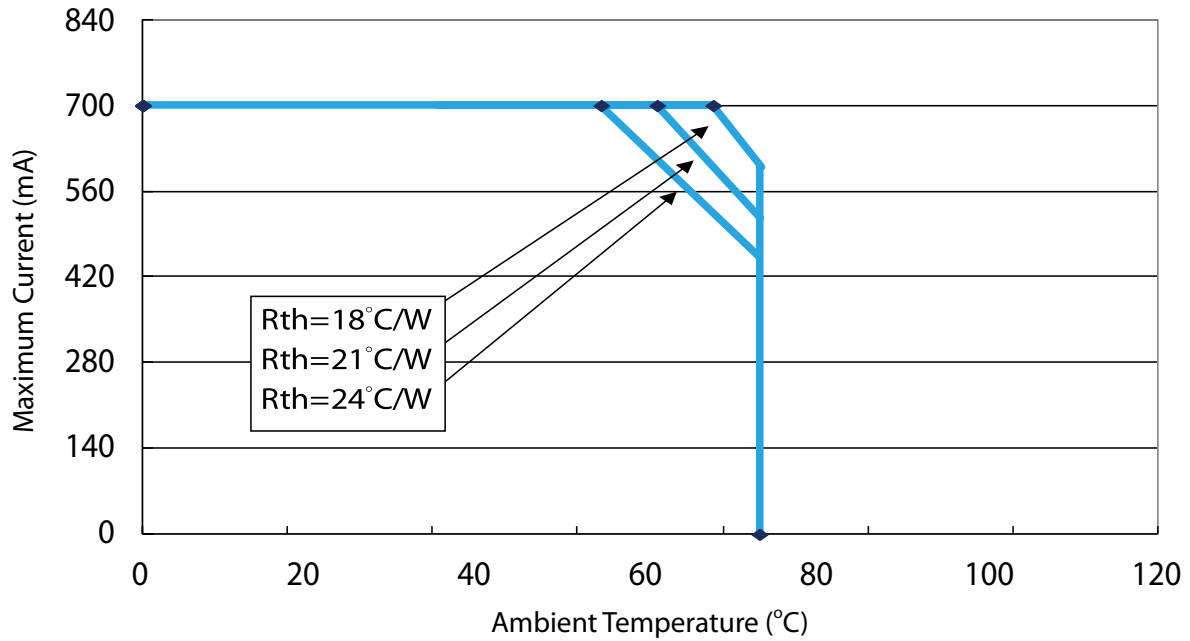
Maximum Current vs. Ambient Temperature (Deep Red & Cherry Red)



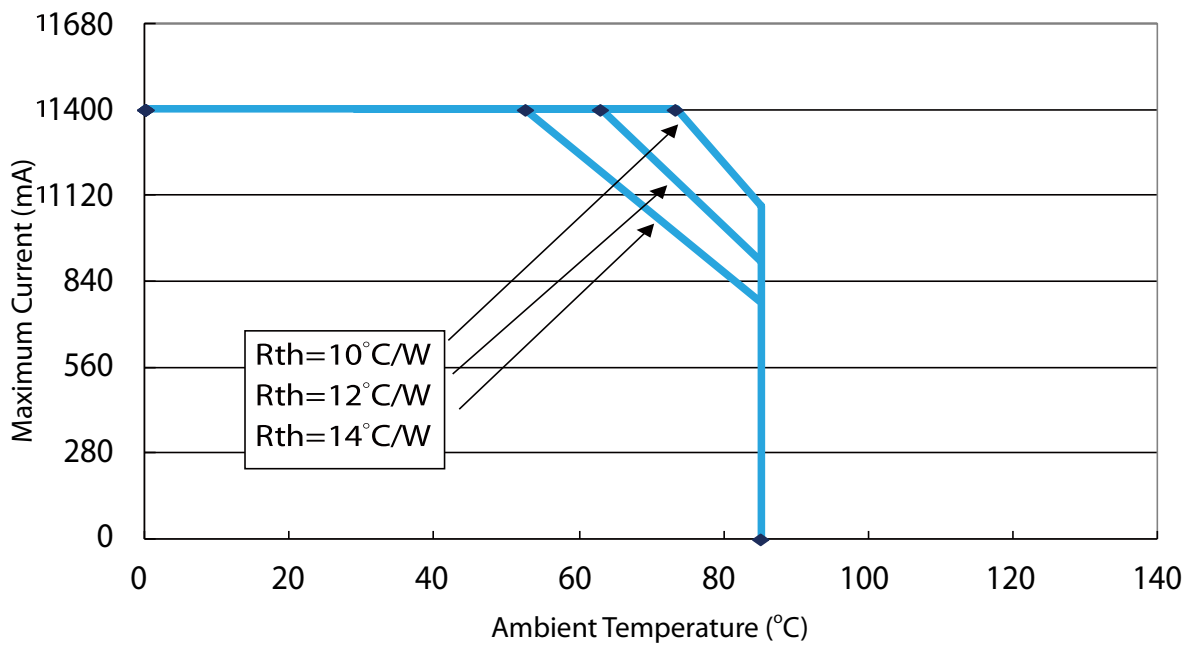
Maximum Current vs. Ambient Temperature (IR850 & IR940)



Maximum Current vs. Ambient Temperature (1W Ultraviolet)

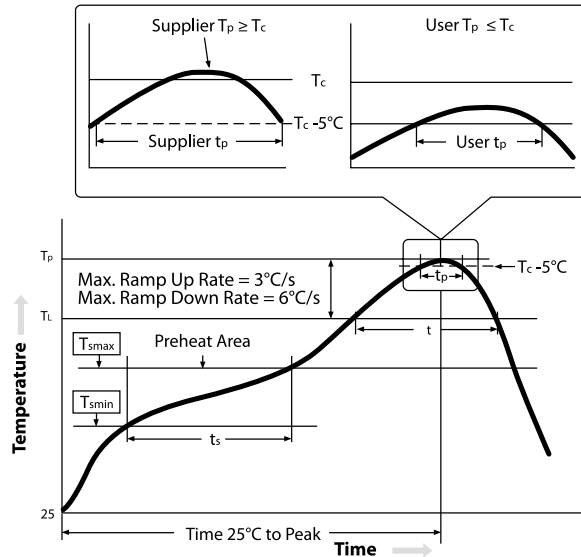


Maximum Current vs. Ambient Temperature (3W Ultraviolet)



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})	150° C
Temperature Max (T _{smax})	200° C
Time (ts) 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 (tL) maintained above TL	60-150 seconds
Peak package body temperature (T _p) ⁽¹⁾	255° C~260° C
Classification temperature (T _c)	260° C
Time (tp) 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 (Tp) is defined as a supplier minimum and a user maximum.
2. Tolerance for time at peak profile temperature (tp) 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

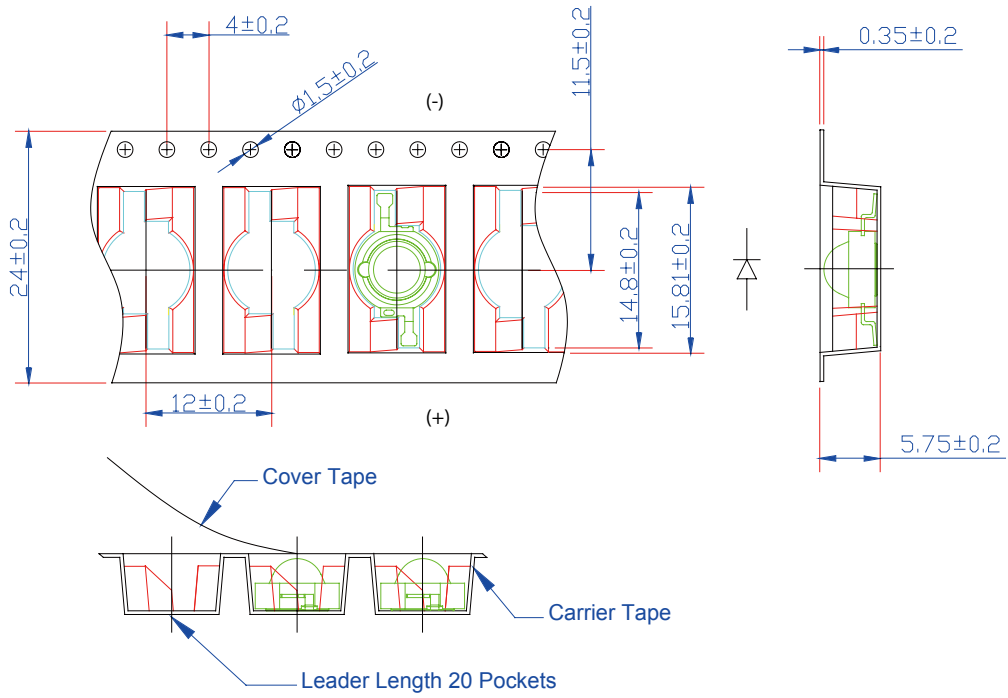
Item	Criteria for Judgment	
	Min.	Max.
Lumen Maintenance	85%	-
$\Delta u'v'$	-	0.006
Forward Voltage	-	Initial Data x 1.1
Reverse Current	-	10 μ A
Resistance to Soldering Heat	No dead lamps or visual damage	

Cautions

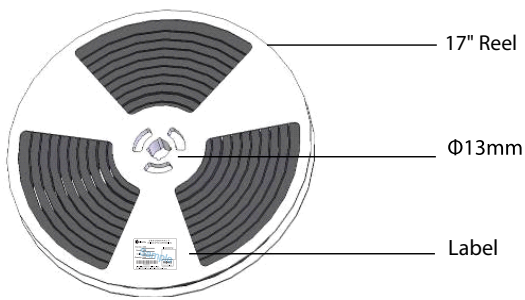
LED avoids being stored and lighted in the environment containing sulfur. Some materials, such as seals, printing ink, enclosure and adhesives, may contain sulfur, avoiding the exposure in acid or halogen environment.

Product Packaging Information

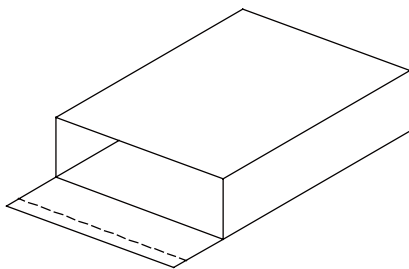
Tape and Reel Dimension



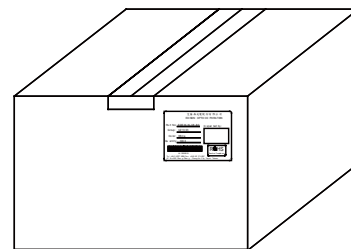
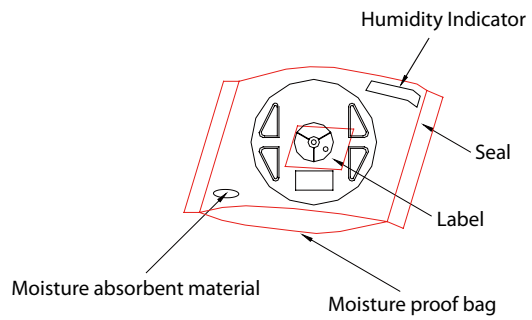
Edixeon Emitter



1000pcs LEDs inside



2 bags in 1 box



5 boxes in 1 carton

Note : 445*410*415 (Tolerance : $\pm 5\text{mm}$)

Revision History

Versions	Description	Release Date
1	Establish order code information	2012/12/20
2	1. Revise star type dimension 2. Update Luminous flux Characteristic 3. Add Reflow Profile & Reliability	2014/03/10
3	1. Revise Reliability 2. Update characteristic curve	2014/09/25
4	Update Luminous flux characteristic	2014/11/05
5	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

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