OptoSupply
Light It Up

5x5x1.1mmTops Power Pure Green &Red & Blue LED

OSTCXBSEC1E

VER.A.1

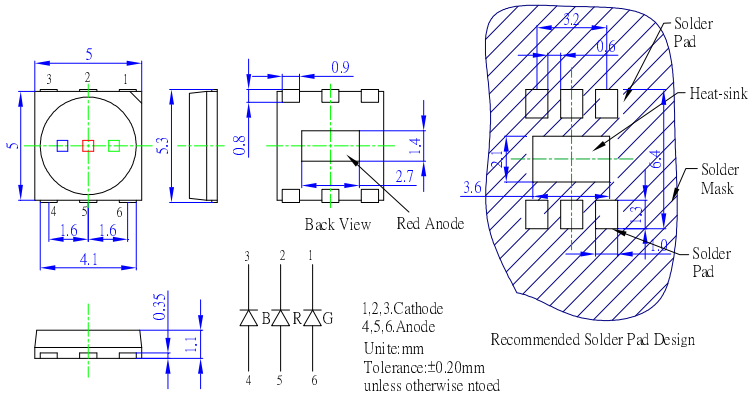
▪Features

- Highest Luminous Flux
- Super Energy Efficiency
- Long Lifetime Operation
- Superior UV Resistance
- Water Clear Type

▪Applications

- Mobile Phone Flash
- Automotive Interior/Exterior Lighting / Signal Lighting
- Architectural Lighting
- LCD TV / Monitor Backlight
- Projector Light Source / Traffic Signals / Task Lighting
- Decorative / Pathway Lighting / Household Applications

▪Outline Dimension

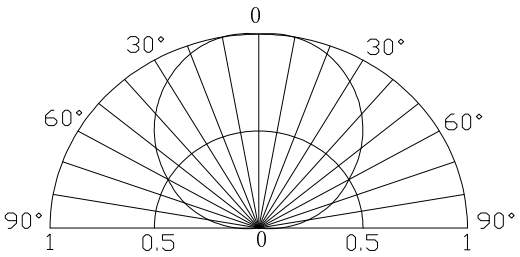


▪Absolute Maximum Rating (Ta=25℃)

Item	Symbol	Value		Unit
		Red	Green/Blue	
DC Forward Current	I_F	200	200	mA
Pulse Forward Current*	I_{FP}	250	250	mA
Reverse Voltage	V_R	5	5	V
Power Dissipation	P_D	600	800	mW
Operating Temperature	Topr	-30 ~ +85		℃
Storage Temperature	Tstg	-40 ~ +100		℃
Lead Soldering Temperature	Tsol	260℃/10sec		-

*Pulse width Max.10ms Duty ratio max 1/10

▪Directivity



▪Electrical -Optical Characteristics (Ta=25℃)

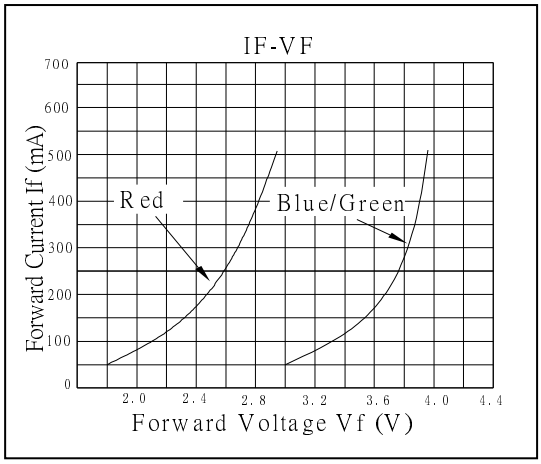
Item	Symbol	Condition	Min.	Typ.	Max.	Unit
DC Forward Voltage	V_F (R)	I_F=150mA	2.0	2.5	3.0	V
	V_F (B/G)	I_F=150mA	3.0	3.3	4.0	V
DC Reverse Current	I_R	V_R=5V	-	-	10	μA
Domi. Wavelength	λ_D(Red)	I_F=150mA	620	625	630	nm
	λ_D(Green)	I_F=150mA	520	525	535	nm
	λ_D(Blue)	I_F=150mA	460	465	475	nm
Luminous Flux	Φv (Red)	I_F=150mA	15	20	-	lm
	Φv (Green)	I_F=150mA	20	30	-	lm
	Φv (Blue)	I_F=150mA	5	10	-	lm
50% Power Angle	$2\theta_{1/2}$	I_F=150mA	-	120	-	deg

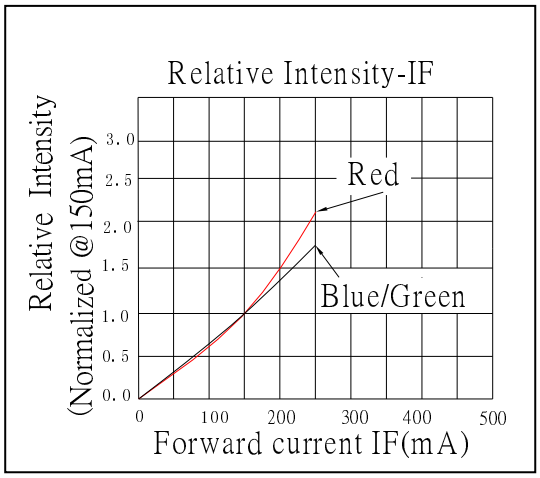
*1 Tolerance of measurements of dominant wavelength is ±1nm
*2 Tolerance of measurements of luminous intensity is ±15%
*3 Tolerance of measurements of forward voltage is ±0.1V

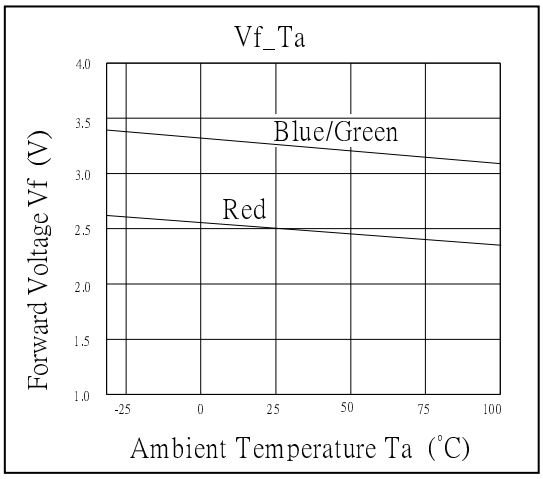
Note: Don't drive at rated current more than 5s without heat sink for Tops H Power emitter series.

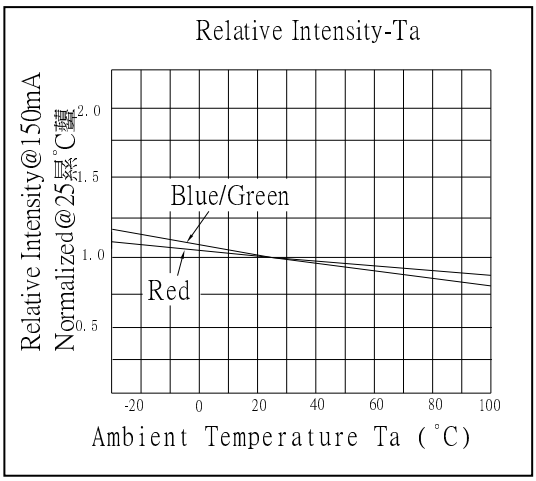
InGaN AND AlInGaP LED

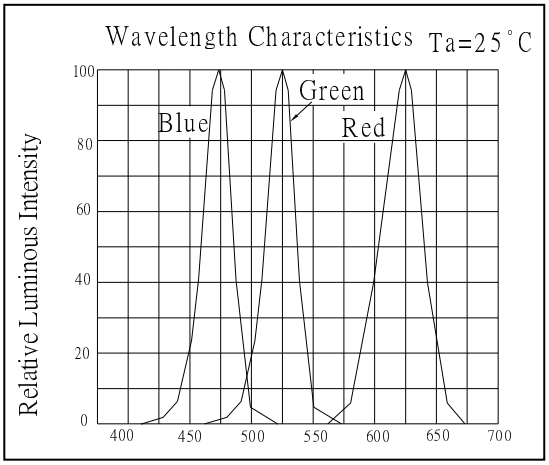
TYPICAL ELECTRICAL/OPTICAL CHARACTERISTIC CURVES

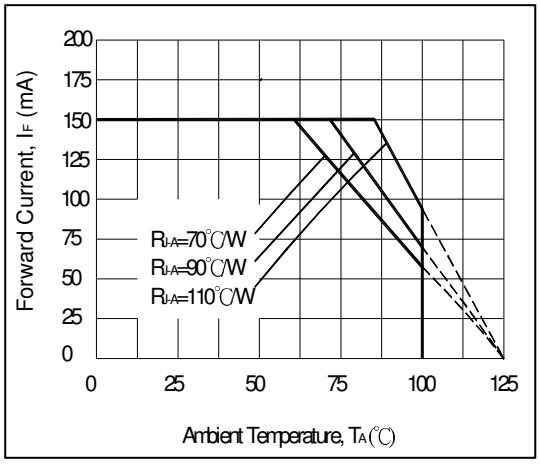












RELIABILITY TEST REPORT

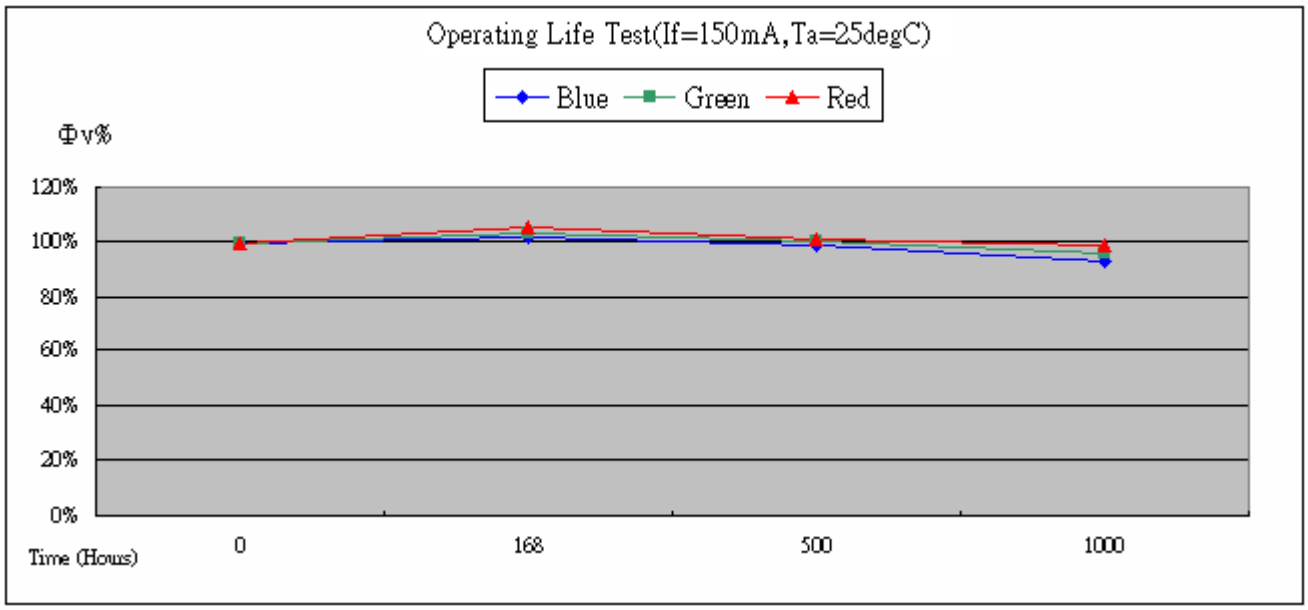
CLASSIFICATION	TEST ITEM	TEST CONDTION
ENDURANCE TEST	ROOM TEMPERATURE OPERATION LIFE	If: 150mA Ta:25±5 ℃ TEST TIME=1000HRS
	HIGH TEMPERTURE HIGH HUMIDITY STORAGE	R.H:90~95% Ta:65±5℃ TEST TIME=240HRS(+2HRS)
	HIGH TEMPERTURE STORAGE	Ta:100℃ TEST TIME=500HRS(-24HRS,+48HRS)
	LOW TEMPERTURE STORAGE	Ta:-40℃ TEST TIME=500HRS(-24HRS,+48HRS)
ENVIRONMENTAL TEST	TEMPERTURE CYCLING	-40℃~25℃~100℃~25℃ 30min 5min 30min 5min 20cycles
	RESISTANCE TO SOLDERING HEAT	Ta:260±5℃ TEST TIME=10±1sec
	SOLDERABILITY	Ta:245±5℃ TEST TIME=5±1sec

JUDGMENT CRITERIA OF FAILURE FOR THE RELIABILITY

MEASURING ITME	SYMBOL	CONDITIONS	FAILURE CRITERIA
LUMINOUS INTENSITY	IV	IF=150mA	IV<0.5*L.S.L
FORWARD VOLTAGE	VF	IF=150mA	VF>1.2*U.S.L
REVERSE CURRENT	IR	Vr=5V	IR>2*U.S.L
SOLDERABILITY	-	-	LESS THAN 95% SOLDER COVERAGE

U.S.L ： Upper Specification Limit L.S.L ： Lower Specification Limit

OPERATION LIFE TEST LUMINANCE RATE CURVE

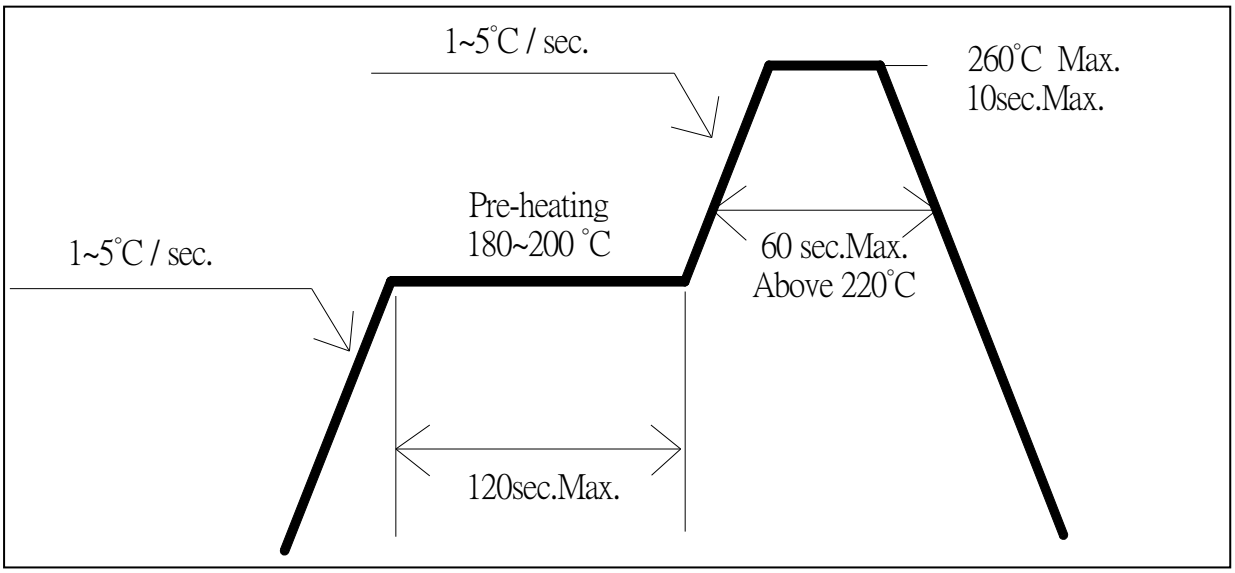


*Burn-in condition: 150mA
*Projection of Statistical Average Light Output Degradation Performance for LED Technology Extrapolated from OptoSupply QA Dept. Test Data.
*According to OptoSupply outgoing Packaged Products Specification
*MTBF:30,000hrs, 90% Confidence (A Failure is Any LED Which is Open, shorted or fails to Emit Light)
*The Projected Data is Base on The Feature of LED Itself Under Normal Operation Conditions.
*Any Improper Circuit Design or External Factors Might Cause a Different Result.

■ **Soldering Conditions**

Reflow Soldering		Hand Soldering	
Pre-Heat	180 ~ 200°C	Temperature Soldering time	350°C Max. 3 sec. Max. (one time only)
Pre-Heat Time	120 sec. Max.		
Peak temperature	260°C Max.		
Dipping Time	**10 sec. Max.**		
Condition	Refer to Temperature-profile		

• Reflow Soldering Condition(Lead-free Solder)



*Recommended soldering conditions vary according to the type of LED

*Although the recommended soldering conditions are specified in the above table, reflow, or hand soldering at the lowest possible temperature is desirable for the LEDs.

*A rapid-rate process is not recommended for cooling the LEDs down from the peak temperature.

•All SMD LED products are pb-free soldering available.

• Occasionally there is a brightness decrease caused by the influence of heat or ambient atmosphere during air reflow. It is recommended that the User use the nitrogen reflow method.

• Repairing should not be done after the LEDs have been soldered. When repairing is unavoidable a double-head soldering iron should be used. It should be confirmed beforehand whether the characteristics of the LEDs will or will not be damaged by repairing.

• Reflow soldering should not be done more than two times.

• When soldering, do not put stress on the LEDs during heating.

• After soldering, do not warp the circuit board.