



# HL-AF-5060U51GC-3-B

## Features

- Extremely wide viewing angle
- Suitable for all SMT assembly and solder process
- Available on tape and reel
- Moisture sensitivity level: Level 4
- Package: 1000pcs/reel
- RoHS compliant

## Description

The Green source color devices are made with InGaN on Substrate Light Emitting Diode



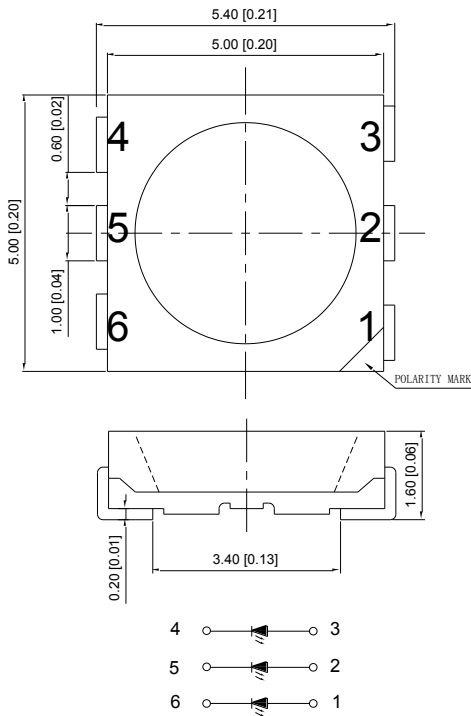
## Applications

- Optical indicator
- Indoor display
- Interior automotive lighting
- Backlight for LCD, switch and Symbol, display
- Light pipe application
- General use

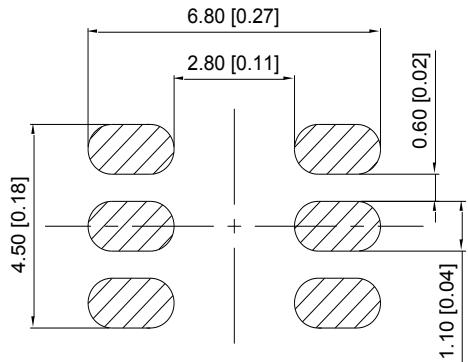


**ATTENTION**  
OBSERVE PRECAUTIONS  
FOR HANDLING  
ELECTROSTATIC  
DISCHARGE  
SENSITIVE  
DEVICES

## Package Dimensions



## Recommended Soldering Pattern



**Notes:**

1. All dimension units are millimeters.
2. All dimension tolerance is  $\pm 0.15\text{mm}$  unless otherwise noted.



## HL-AF-5060U51GC-3-B

### Selection Guide

Part No.	Dice	Lens Type	Luminous intensity(mcd) @ 20mA*3		Viewing Angle
			Min.	Max.	2θ1/2
HL-AF-5060U51GC-3-B	Green (InGaN )	Water Clear	1800	2200	120°
			2200	2600	
			2600	3000	
			3000	3500	

Note:

1. θ1/2 is the angle from optical centerline where the luminous intensity is 1/2 the optical centerline value.
2. the above luminous intensity measurement allowance tolerance ±10%.

### Electrical / Optical Characteristics at Ta=25°C

Parameter	Symbol	Min.	Typ.	Max	Units	Test Conditions
Forward Voltage	V <sub>F</sub>	2.8	--	3.4	V	I <sub>F</sub> =20mA *3
Reverse Current	I <sub>R</sub>	--	--	10	uA	V <sub>R</sub> = 5V
Dominate Wavelength	λ <sub>d</sub>	515	--	525	nm	I <sub>F</sub> =20mA *3

### Absolute Maximum Ratings at Ta=25°C

Parameter	White	Units
Power dissipation	315	mW
DC Forward Current per chip	30	mA
Peak Forward Current [1]	300	mA
Reverse Voltage	5	V
Electrostatic Discharge (HBM)	1000	V
Operating Temperature	-40 ~ +85	°C
Storage Temperature	-40 ~ +100	°C

Note:

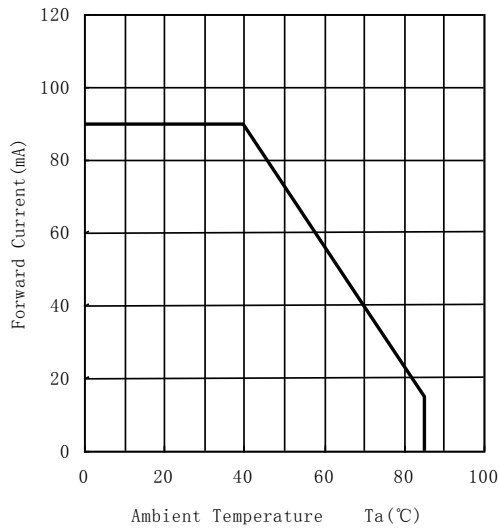
1. 1/10 Duty Cycle, 0.1ms Pulse Width.
2. The above forward voltage measurement allowance tolerance ±0.1V



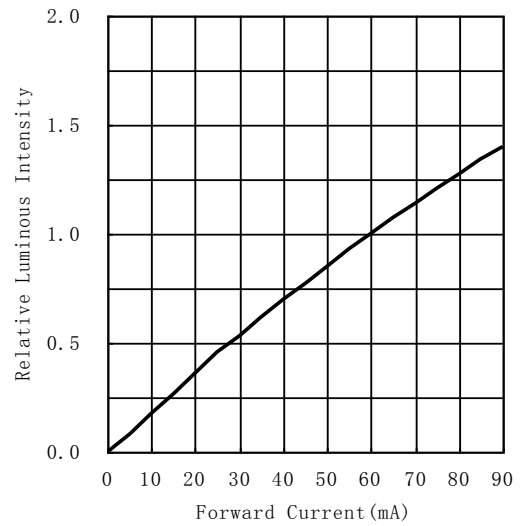
# HL-AF-5060U51GC-3-B

## Typical optical characteristics curves

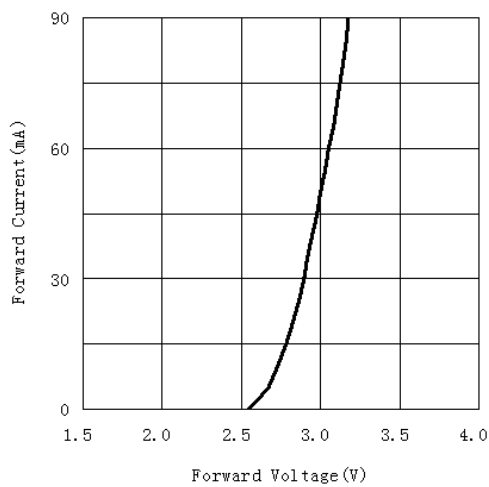
Ambient Temperature VS. Forward Current



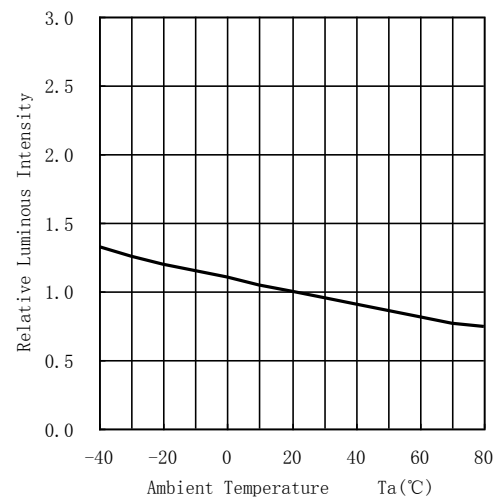
Forward Current VS. Relative Intensity



Forward Voltage VS. Forward Current



Ambient Temperature VS. Relative Intensity



Relative spectral emission

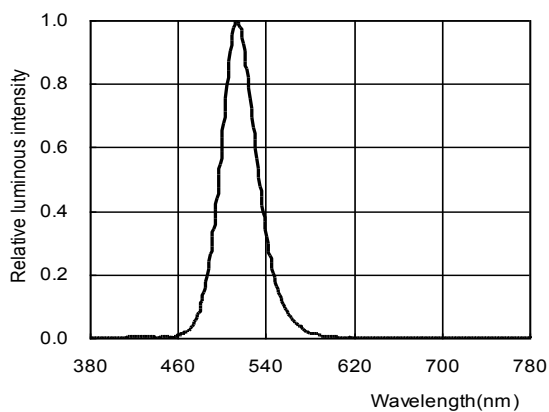
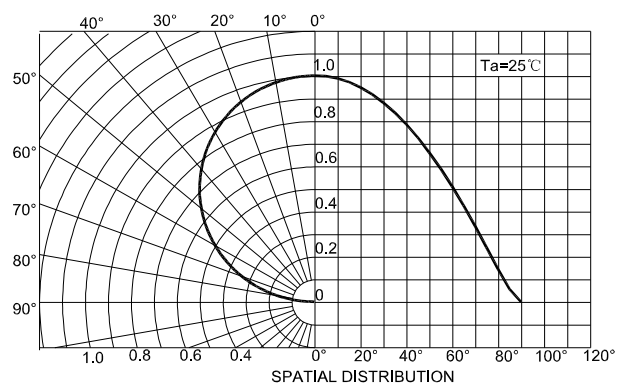


Diagram characteristics of radiation





## HL-AF-5060U51GC-3-B

### Reliability Test Items And Conditions

The reliability of products shall be satisfied with items listed below.  
Confidence level :90%  
LTPD :10%

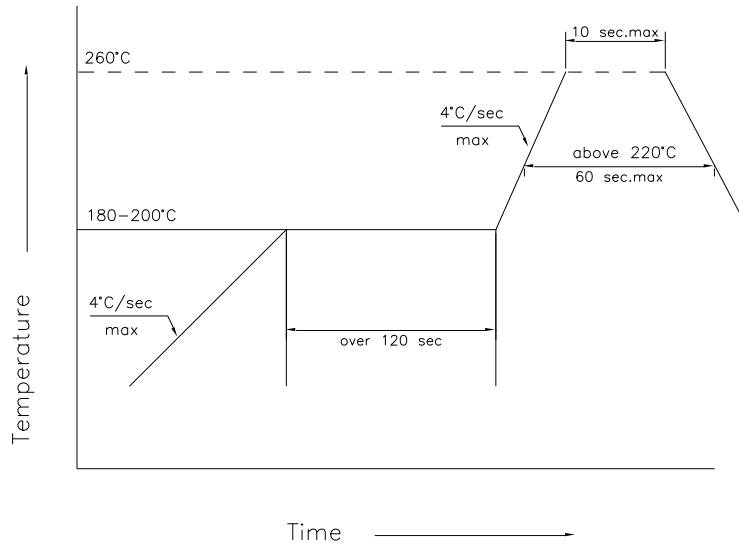
No.	Items	Ref.Standard	Test Condition	Test Hours/ Cycles	Sample Size	Ac/Re
1	Reflow	JESD22-B106	Temp:260°Cmax T=10 sec	3 times.	22Pcs.	0/1
2	Temperature Cycle	JESD22-A104	100°C±5°C 30 min. ↑↓5 min -40°C±5°C 30 min.	100 Cycles	22Pcs.	0/1
3	Thermal Shock	JESD22-A106	100°C±5°C 5 min. ↑↓ -40°C±5°C 5 min.	100 Cycles	22Pcs.	0/1
4	High Temperature Storage	JESD22-A103	Temp:100°C±5°C	1000Hrs.	22Pcs.	0/1
5	Low Temperature Storage	JESD22-A119	Temp:-40°C±5°C	1000Hrs.	22Pcs.	0/1
6	DC Operating Life	JESD22-A108	Ta=25°C±5°C IF=60mA	1000Hrs.	22Pcs.	0/1
7	High Temperature High Humidity	JESD22-A101	85°C±5°C/ 85%RH IF=15mA	1000Hrs.	22Pcs.	0/1

\*The technical information shown in the data sheets are limited to the typical characteristics and circuit examples of the referenced products. It does not constitute the warranting of industrial property nor the granting of any license.



## HL-AF-5060U51GC-3-B

### SMT Reflow Soldering Instructions



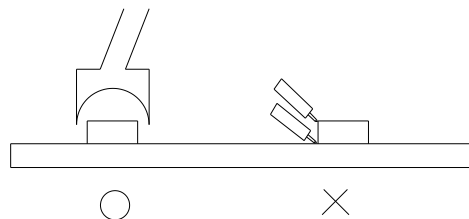
- 1.Reflow soldering should not be done more than two times
- 2.When soldering , do not put stress on the LEDs during heating

### Soldering iron

- 1.When hand soldering, the temperature of the iron must less than 300°C for 3 seconds
- 2.The hand solder should be done only one times

### Repairing

Repair should not be done after the LEDs have been soldered. When repairing is unavoidable, a double-head soldering iron should be used (as below figure). It should be confirmed beforehand whether the characteristics of LEDs will or will not be damaged by repairing.



# HL-AF-5060U51GC-3-B

## Label

IV: Luminous intensity rank  
 $\lambda$ D: Dominate Wavelength  
 VF: Forward voltage rank



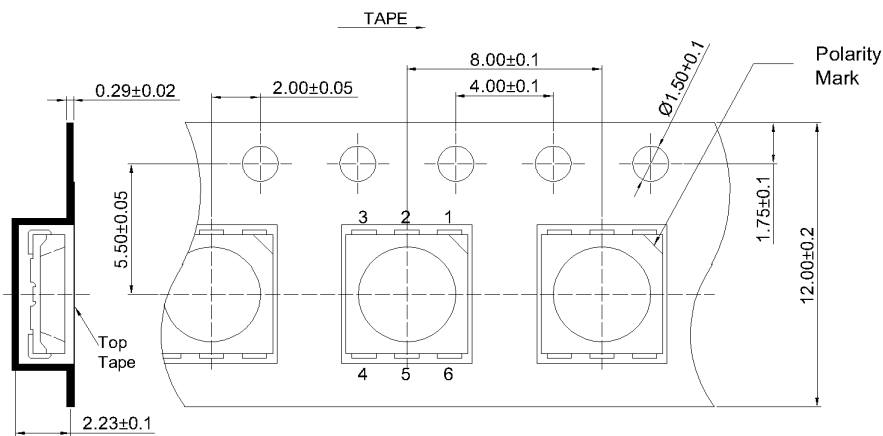
**HONGLITRONIC**  
鸿利光电

RoHS

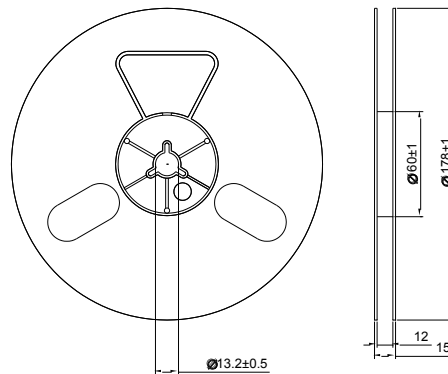
Part No: XXXXXXXXXXXXXXXXXXXXX  
 IV: VF: WD:  
 Quantity:  
 Sealing date: XXXXXXXXXXXXXXXXXXXX



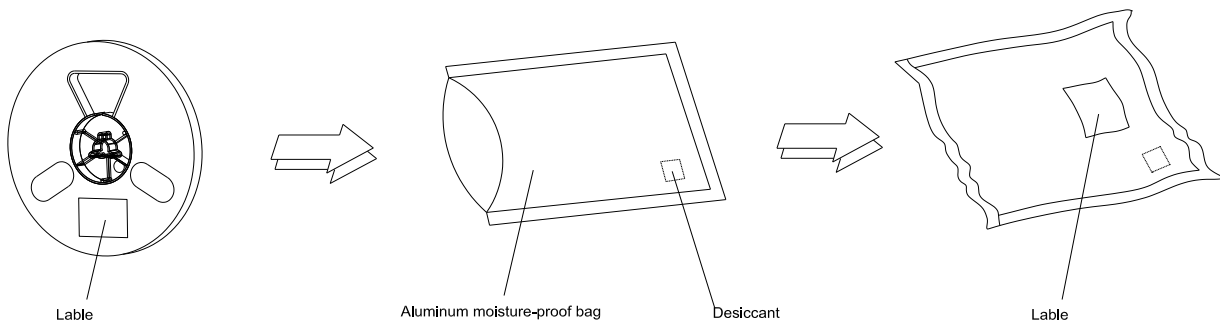
## Tape Specifications (Units : mm)



## Reel Dimensions



## Moisture Resistant Packaging



Note: The tolerances unless mentioned is  $\pm 0.1$ mm, Unit: mm