HONGLITRONIC
鸿利光电

RoHS

Specification

Client Name: _____

Client P/N: _____

Factory P/N: HL-AF-5060H271BU46FU79GC-S1-T1

Sending Date: _____

Client approval			Hong li approval		
Approval	Audit	Confirmation	Approval	Audit	Confirmation
			殷小平		王佩
☐ Qualified ☐ Unqualified			DATE:		

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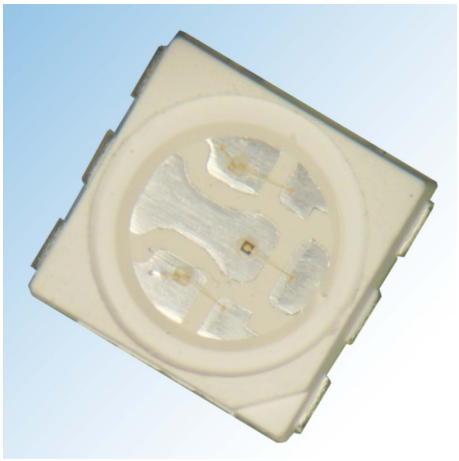
鸿利光电

HL-AF-5060H271BU46FU79GC-S1-T1



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

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

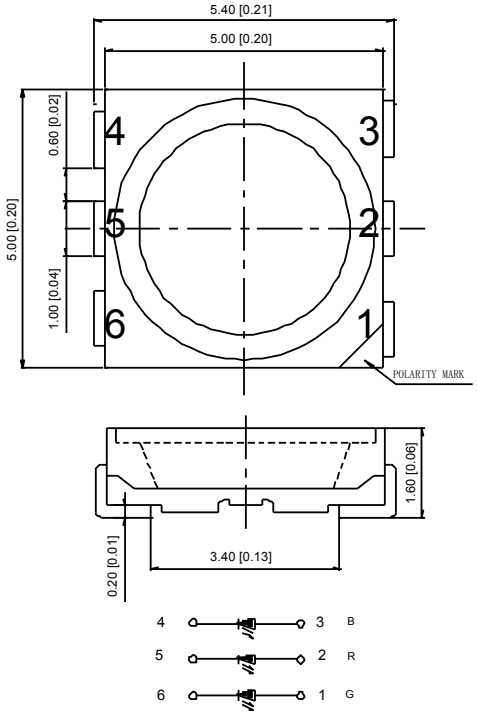
The Red source color devices are made with AlGaInP on Substrate Light Emitting Diode

ATTENTION
OBSERVE PRECAUTIONS
FOR HANDLING
ELECTROSTATIC
DISCHARGE
SENSITIVE
DEVICES

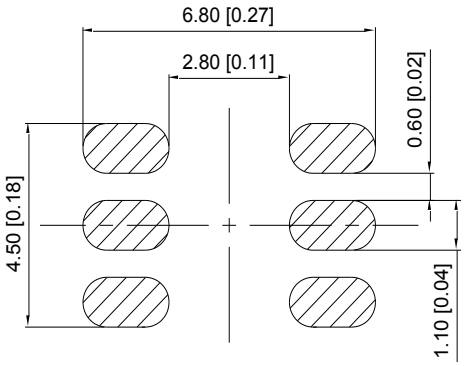
Applications

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

Package Dimensions



Recommended Soldering Pattern



Notes:

1. All dimension units are millimeters.

2.All dimension tolerance is ±0.15mm unless otherwise

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Selection Guide

Part No.	Dice	Lens Type	Luminous intensity(mcd) @ 20mA		Viewing Angle
			Min.	Typ.	2θ1/2
HL-AF-5060H271BU46FU79GC-S1-T1	Red(AlGaInP)	Water Clear	276	400	120°
	Blue(InGaN)	Water Clear	150	200	
	Green(InGaN)	Water Clear	600	800	

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	Red			Green			Blue			Units	Test Conditions
		Min.	Typ.	Max	Min.	Typ.	Max	Min.	Typ.	Max		
Forward Voltage	V_F	1.8	- -	2.4	2.8	- -	3.4	2.8	- -	3.4	V	I_F=20mA
Reverse Current	I_R	- -	- -	10	- -	- -	10	- -	- -	10	uA	V_R = 5V
Dominate Wavelength	λd	620	- -	630	515	- -	525	464	- -	474	nm	I_F=20mA

Absolute Maximum Ratings at Ta=25°C

Parameter	Symbol	Value (Red)	Value (Green)	Value (Blue)	Units
Power dissipation	Pd	75	105	105	mW
DC Forward Current	I_F	30	30	30	mA
Peak Forward Current [1]	I_{FP}	140	100	100	mA
Reverse Voltage	V_R	5	5	5	V
Electrostatic Discharge (HBM)	ESD	2000	1000	1000	V
Operating Temperature	Topr	-40 ~ +85			°C
Storage Temperature	Tstg	-40 ~ +100			°C

Note:
1.1/10 Duty Cycle, 0.1ms Pulse Width.
2.The above forward voltage measurement allowance tolerance ±0.1V

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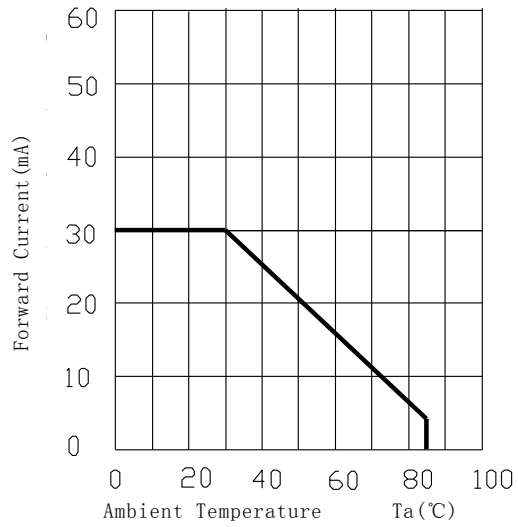
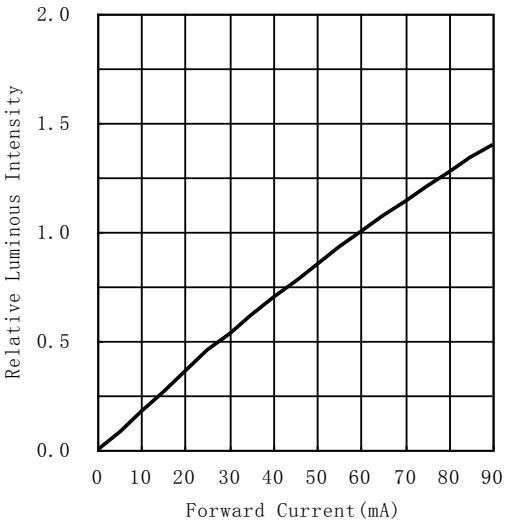
Typical optical characteristics curves

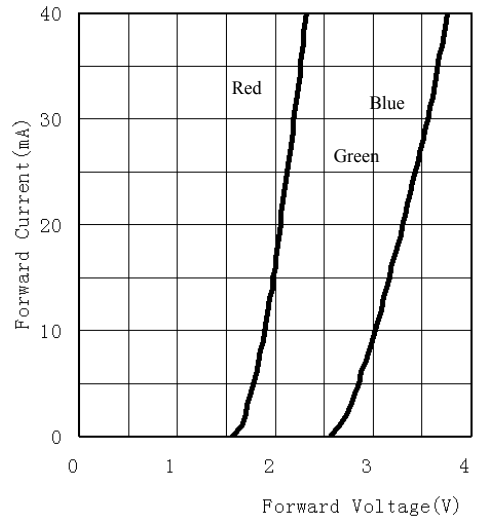
Ambient Temperature VS. Forward Current



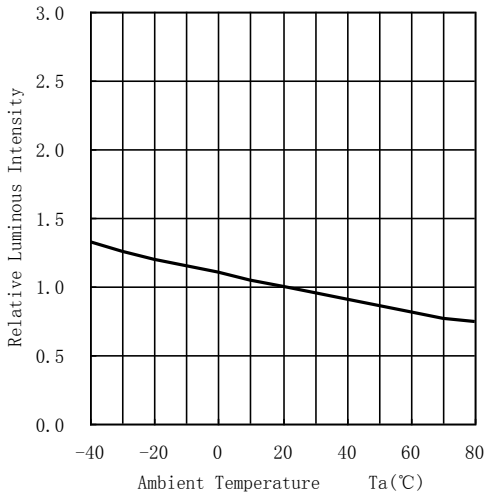
Forward Current VS. Relative Intensity



Forward Voltage VS. Forward Current



Ambient Temperature VS. Relative Intensity



Relative spectral emission

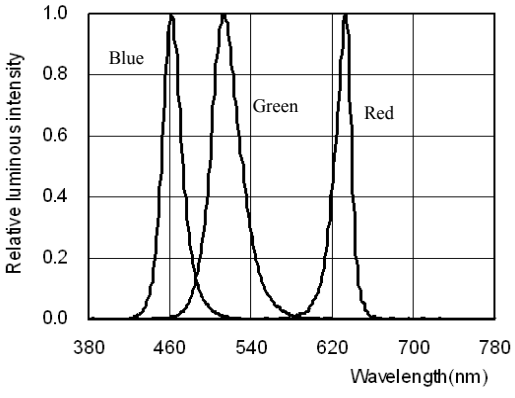
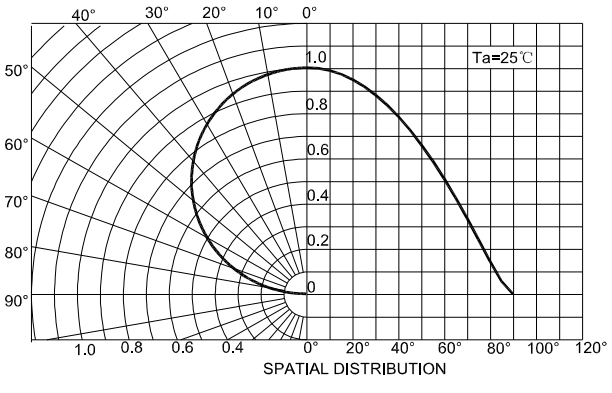


Diagram characteristics of radiation



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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℃max T=10 sec	3 times.	22Pcs.	0/1
2	Temperature Cycle	JESD22-A104	100℃±5℃ 30 min. ↑↓5 min -40℃±5℃ 30 min.	100 Cycles	22Pcs.	0/1
3	Thermal Shock	JESD22-A106	100℃±5℃ 5 min. ↑↓ -40℃±5℃ 5 min.	100 Cycles	22Pcs.	0/1
4	High Temperature Storage	JESD22-A103	Temp:100℃±5℃	1000Hrs.	22Pcs.	0/1
5	Low Temperature Storage	JESD22-A119	Temp:-40℃±5℃	1000Hrs.	22Pcs.	0/1
6	DC Operating Life	JESD22-A108	Ta=25℃±5℃ IF=20mA*3	1000Hrs.	22Pcs.	0/1
7	High Temperature High Humidity	JESD22-A101	85℃±5℃/ 85%RH IF=5mA*3	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.

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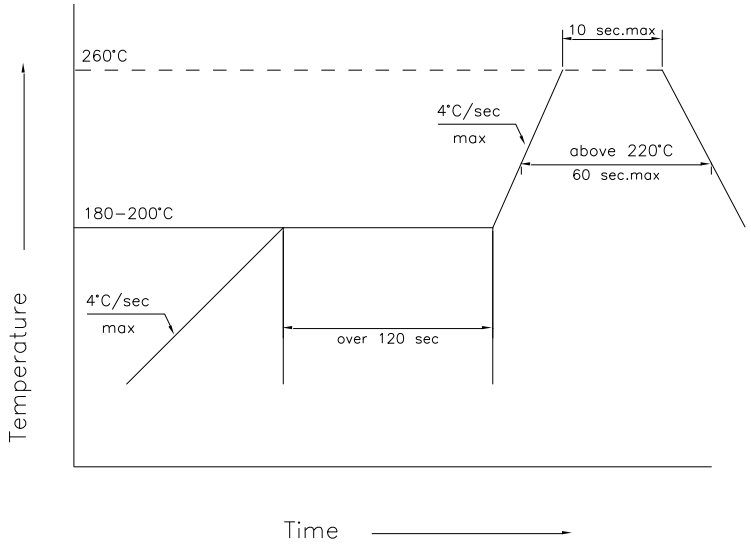
SMT Reflow Soldering Instructions



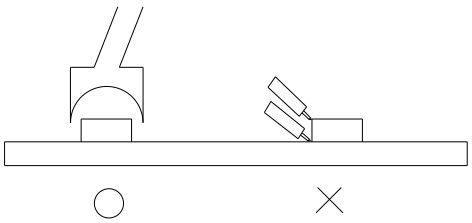
1.Reflow soldering should not be done more than two times
2.When soldering , do not put stress on the LEDs during heating

Soldering iron

1.When hand soldering, the temperature of the iron must less than 300℃ 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.



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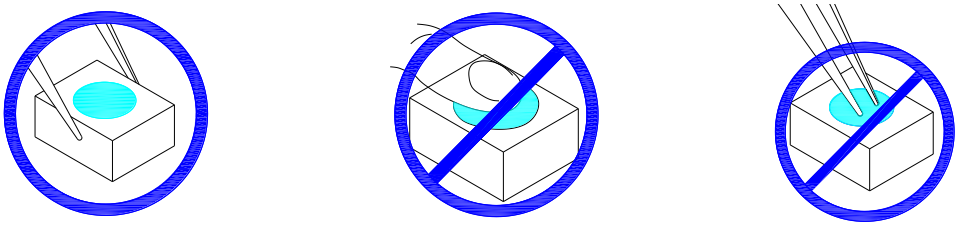
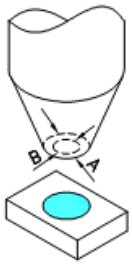
Handling Precautions

Compare to epoxy encapsulant that is hard and brittle, silicone is softer and flexible. Although its characteristic significantly reduces thermal stress, it is more susceptible to damage by external mechanical force . As a result, Special handling precautions need to be observed during assemble using silicone encapsulated LED products, Failure to comply might leads to damage and premature failure of the LED.

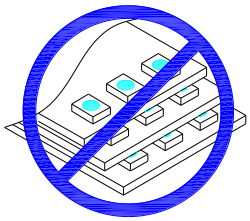
1.Handle the component along the side surface by using forceps or appropriate tools; do not directly touch or Handle the silicone lens surface, it may damage the internal circuitry.



2.The outer diameter of the SMD pickup nozzle should not exceed the size of the LED to prevent air leaks. The inner diameter of the nozzle should be as large as possible. A pliable material is suggested for the nozzle tip to avoid scratching or damaging the LED surface during pickup. The dimensions of the component must be accurately programmed in the pick-and-place machine to insure precise pickup and avoid damage during production.



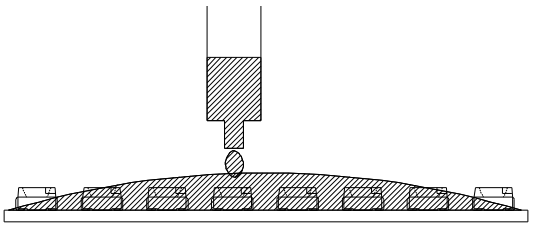
3.Do not stack together assembled PCBs containing LEDs. Impact may scratch the silicone lens or damage the internal circuitry



4.Not available in the situation of acidity for PH

5.LED operating environment and sulfur element composition cannot be over 100PPM in the LED mating

6.When we need to use external glue for LED application products, please make sure that the external glue matches the LED packaging glue. Additionally ,as most of LED packaging glue is silica gel, and it has strong Oxygen permeability as well as strong moisture permeability; in order to prevent external material from getting into the inside of LED, which may cause the malfunction of LED, the single content of Bromine element is required to be less than 900PPM,the single content of Chlorine element is required to be less than 900PPM, the total content of Bromine element and Chlorine element in the external glue of the application products is required to be less than 1500PPM



7.Other points for attention, please refer to our LED user manual.

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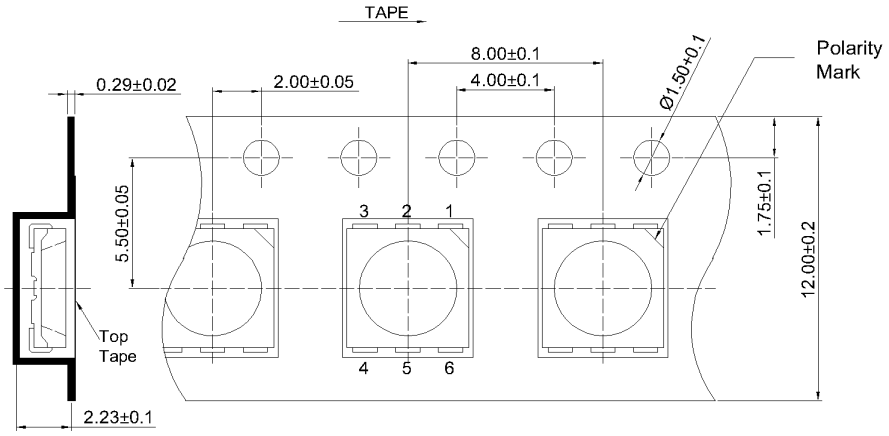
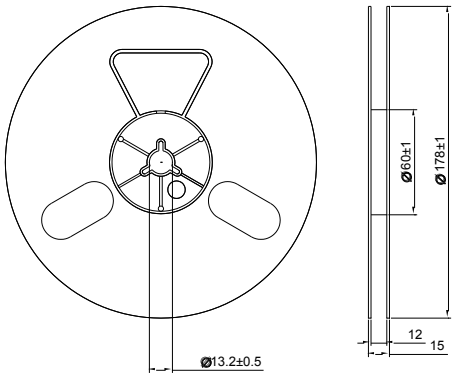
Label

IV: Luminous intensity rank
λD: Dominate Wavelength
VF: Forward voltage rank

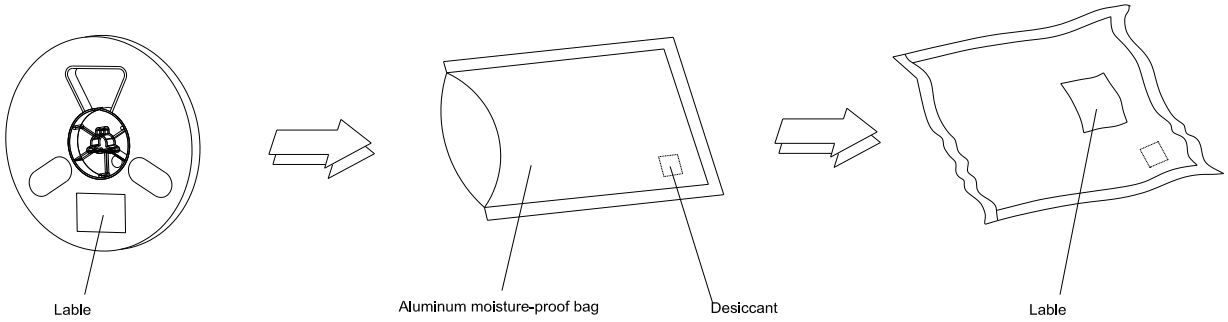
Tape Specifications (Units : mm)



Reel Dimensions



Moisture Resistant Packaging



Note: The tolerances unless mentioned is ±0.1mm , Unit: mm