



## Data Sheet

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Customer: \_\_\_\_\_  
Part No: CL-SP2106UHR-02  
Sample No: \_\_\_\_\_  
Description: \_\_\_\_\_  
Item No: \_\_\_\_\_

Customer			
Check	Inspection	Approval	Date

**ATTENTION**  
注 意

**ESD protected area**  
静电防护区域

Observe precautions for handling electrostatic discharge sensitive devices  
接触静电放电敏感元件时请采取适当的预防措施

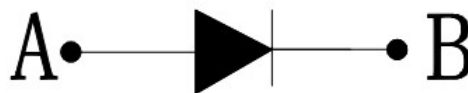
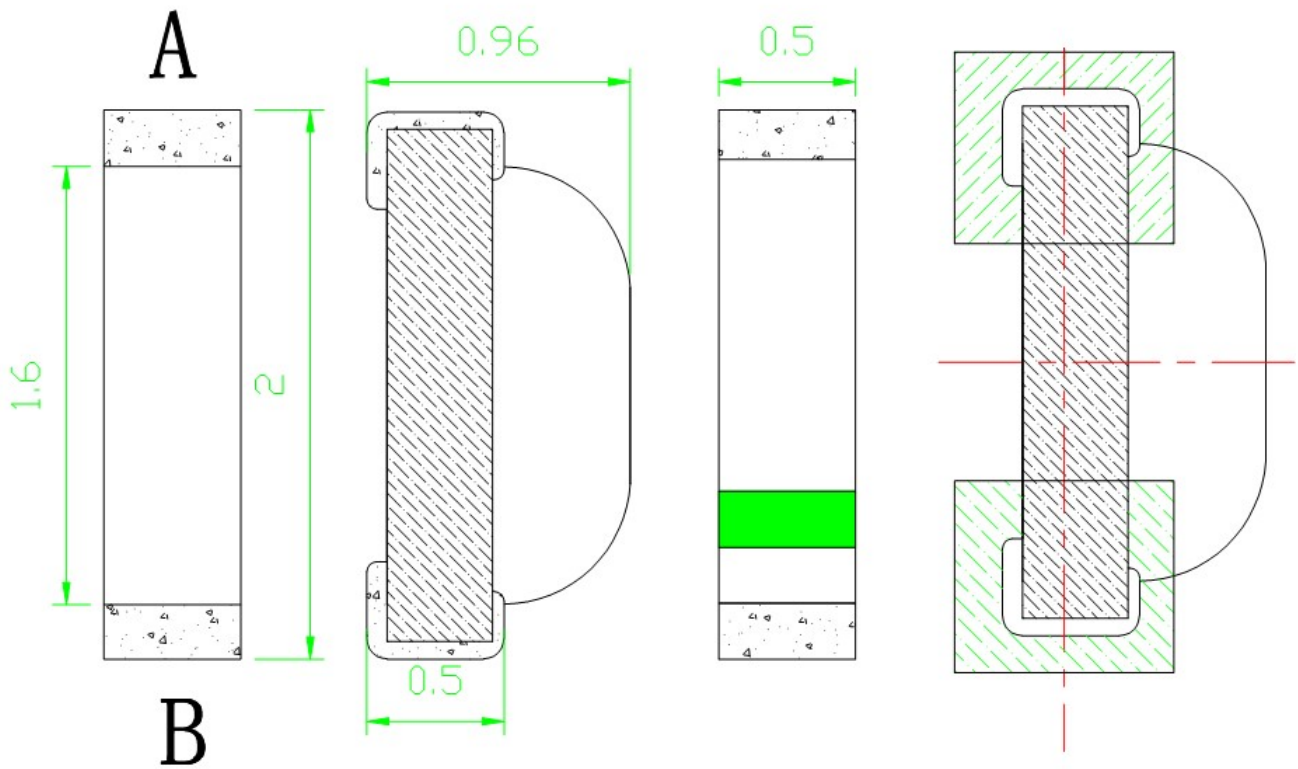
**Features**

- \_2.0mmX0.5mm SMT LED, 0.96 mm THICKNESS.
- \_LOW POWER CONSUMPTION.
- \_WIDE VIEWING ANGLE.
- \_IDEAL FOR BACKLIGHT AND INDICATOR.
- \_VARIOUS COLORS AND LENS TYPES AVAILABLE.
- \_PACKAGE: 4000PCS / REEL.
- \_RoHS COMPLIANT.

**Description**

The Hyper Red source color devices are made with DH InGaAlP on GaAs substrate Light Emitting Diode

**Package Dimensions**



**Notes:**

1. All dimensions are in millimeters (inches).
2. Tolerance is  $\pm 0.1(0.004")$  unless otherwise noted.
3. Specifications are subject to change without notice.

**Selection Guide**

Part No.	Dice	Lens Type	Iv (mcd) @ 20mA		Viewing Angle
			Min.	Typ.	2 θ 1/2
<b>SP2106UHR-02</b>	<b>RED</b>	<b>WATER CLEAR</b>	<b>70</b>	<b>150</b>	<b>120</b>

**Note:**

1. θ1/2 is the angle from optical centerline where the luminous intensity is 1/2 the optical centerline value.

**Electrical / Optical Characteristics at TA=25°C**

Symbol	Parameter	Device	Typ.	Max.	Units	Test Conditions
λ <sub>peak</sub>	Peak Wavelength	RED	617	625	nm	IF=20mA
λ <sub>D</sub>	Dominant Wavelength	RED			nm	IF=20mA
Δλ <sub>1/2</sub>	Spectral Line Half-width	RED	25		nm	IF=20mA
C	Capacitance	RED	105		pF	VF=0V;f=1MHz
VF	Forward Voltage	RED	1.9	2.2	V	IF=20mA
IR	Reverse Current	RED		2	uA	VR = 7V

**Remarks:**

If special sorting is required (e.g. binning based on forward voltage, luminous intensity, or wavelength), the typical accuracy of the sorting process is as follows:

1. Wavelength: +/-1nm
2. Luminous Intensity: +/-15%
3. Forward Voltage: +/-0.1V

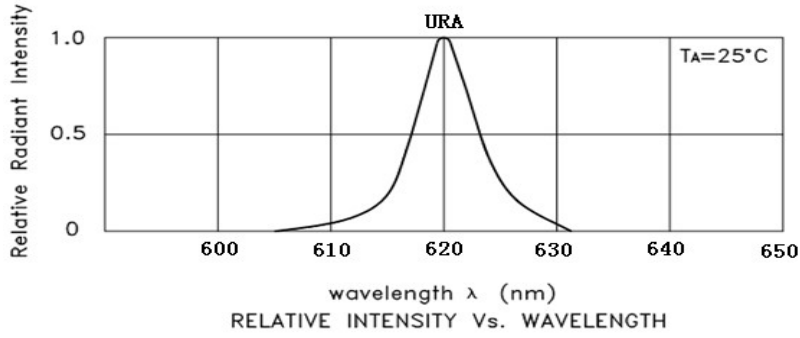
Note: Accuracy may depend on the sorting parameters

**Absolute Maximum Ratings at TA=25°C**

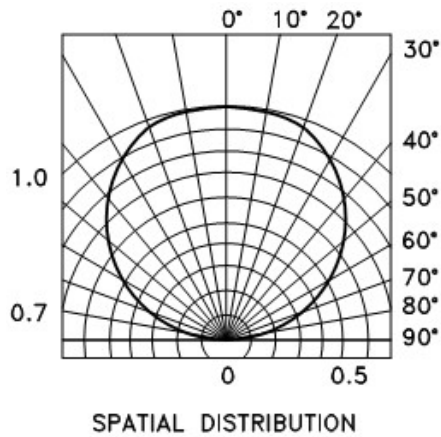
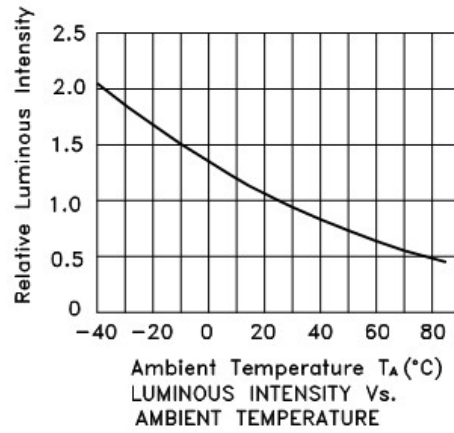
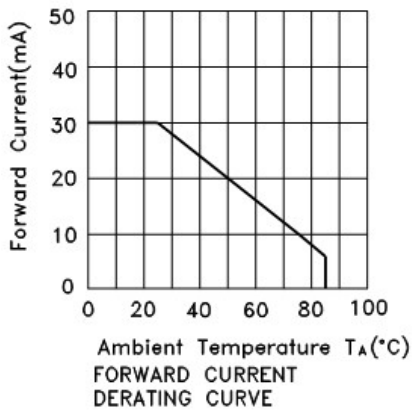
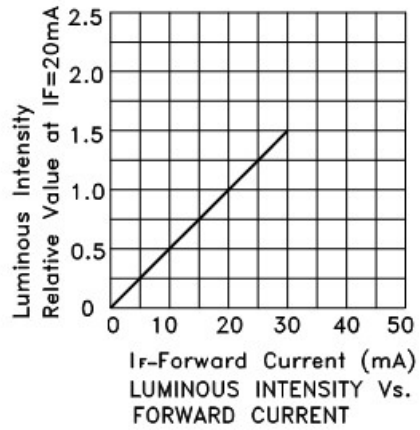
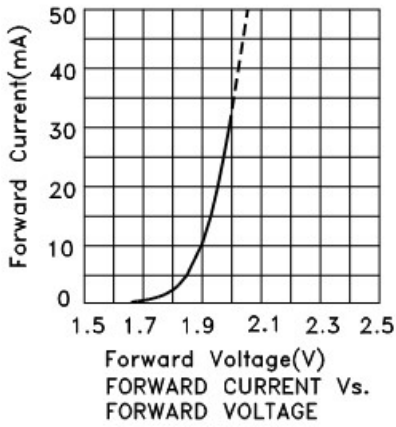
Parameter	RED	Units
Power dissipation	75	mW
DC Forward Current	30	mA
Peak Forward Current [1]	80	mA
Reverse Voltage	5	V
Operating/Storage Temperature	-40°C To +85°C	

**Note:**

1. 1/10 Duty Cycle, 0.1ms Pulse Width.



RED



## RELIABILITY

### Test Items and Results

NO	TEST ITEM	Guideline	TEST CONDITION	Duration	Qty	Ac/Re
1	Temperature cycle	JEITA ED-4701	-40°C ~ 25°C ~ 100°C ~ 25°C 30 min 5 min 30 min 5 min	Loop 100 rounds	50	0/50
2	Thermal shock	MIL-STD-202G	-40°C ~ 100°C 15 min 15 min	Loop 500 rounds	50	0/50
3	High temperature storage	JEITA ED-4701 200 201	Ta=100°C	1000 hours	50	0/50
4	Low temperature storage	JEITA ED-4701 200 201	Ta=-40°C	1000 hours	50	0/50
5	Normal temperature life test		Ta=25±5°C IF=20mA	1000 hours	50	0/50
6	High temperature and high humidity life test		Ta=60°C RH=85% IF=20mA	1000 hours	50	0/50
7	Solderability (reflow soldering)	JEITA ED-4701 300 303	Tsol=235°C±5°C, 5 sec Use flux	Weld once, 5 seconds	10	0/10
8	Solder resistance (reflow soldering)	JEITA ED-4701 300 301	Tsol=260°C, 10 sec Preprocessing : 35°C 95%RH 96 hours	Weld twice, 10 seconds each time	10	0/10
Prepare	If the above test items are different from the customer's test requirements or have special customer requirements, they can be trial-produced according to the actual situation and in accordance with the customer's requirements. If the customer does not require them, they can be trial-produced according to our company's test standards. Different products use different currents for testing.					

## 5. Cautions

### (1) Soldering Conditions

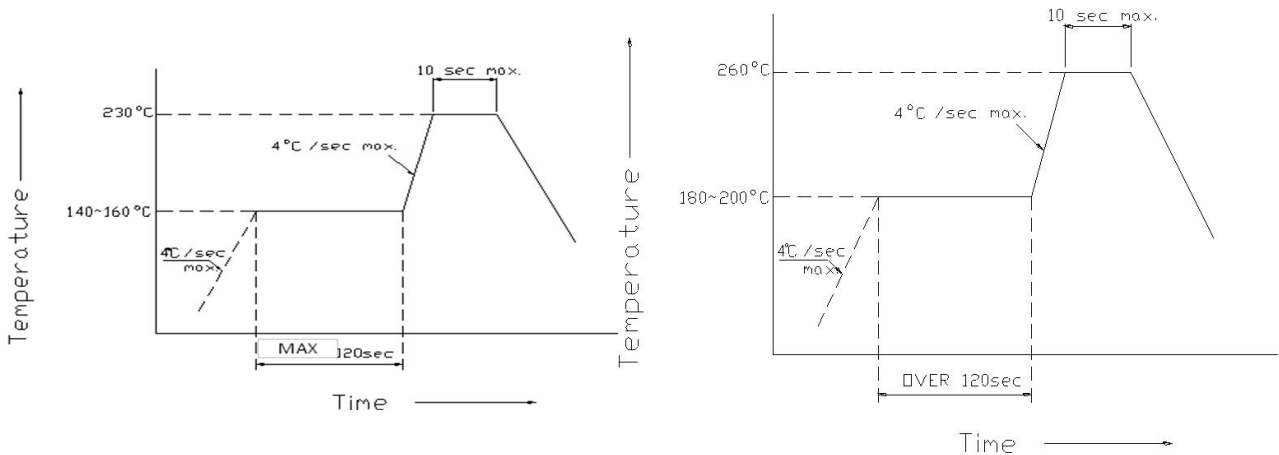
Number of reflow process shall be less than 2 times and cooling process to normal temperature is required between first and Second soldering process.

(Recommended soldering conditions)

回流焊接 Reflow Soldering		手工焊接	
预热温度 Pre-heat	有铅 Lead Solder	无铅 Lead-free Solder	温度 Temperature
预热时间 Pre-heat time	140 ~ 160° C 120 sec. Max.	180 ~ 200° C 120 sec. Max.	焊接时间 Soldering time
峰值温度 Peak temperature	230° C Max. 10 sec. Max.	260° C Max. 10 sec. Max.	350° C Max. 3 sec. Max. (one time only)
焊接时间 Soldering time	参考下图	参考下图	
条件 Condition			

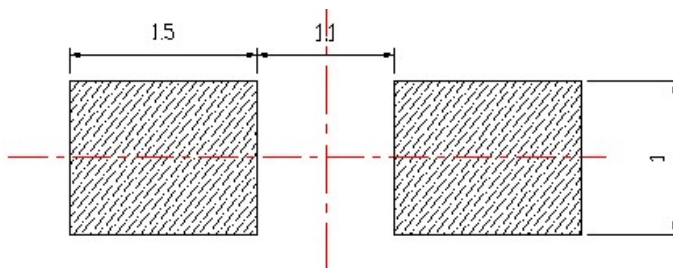
有铅回焊 (Lead Solder)

无铅回焊 (Lead-Free Solder)



### Recommended Soldering Pattern

(Units : mm)



### (2) Static Electricity

It is recommended that a wrist band or an anti-electrostatic glove be used when handling the LEDs.

All devices, equipment and machinery must be properly grounded.

2.0V Damaged LEDs will show some unusual characteristics such as the forward voltage becomes lower, or the LEDs do not light at the low current. Criteria : ( $V_F > 2.0V$  at  $I_F=0.5mA$ )

### (3) Moisture Proof Package

It is recommended that moisture proof package be used .

### (4)

Cautions:

#### 4.1.

Please check if there is air leak before opening the package, if so, please return the goods back to take drying process for later using.

#### 4.2

Products can be used within 15days after packaging, after that, they must be:

##### 4.2.1

Soldered within 24 hrs

##### 4.2.2

Used in the condition:  $30^{\circ}C$  within and 60%RH below

##### 4.2.3

Stored in 30%RH for moisture below.

#### 4.3.

Products cannot be used for and over 15days after being packaged unless opening the package and take drying our process in  $85^{\circ}C/6H$ .

#### 4.4. .

Products not be used for or over 60days after being packaged please return back to take drying out and packaging process for forward using.

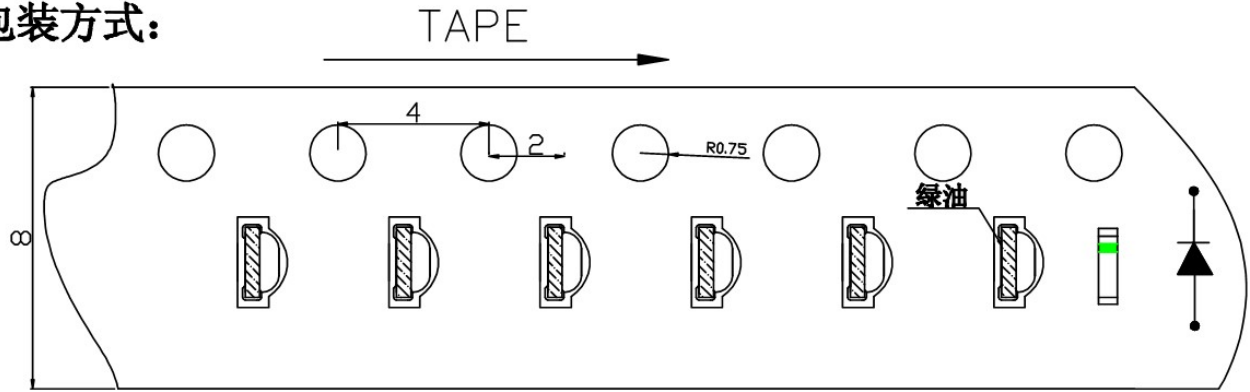
#### 4.5.

Products not be used after opening the package need to be dried out for  $85^{\circ}C/6H$

**PACKAGING**

The LEDs are packed in cardboard boxes after taping.

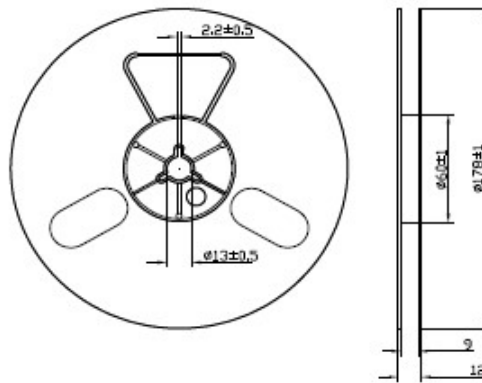
**包装方式:**



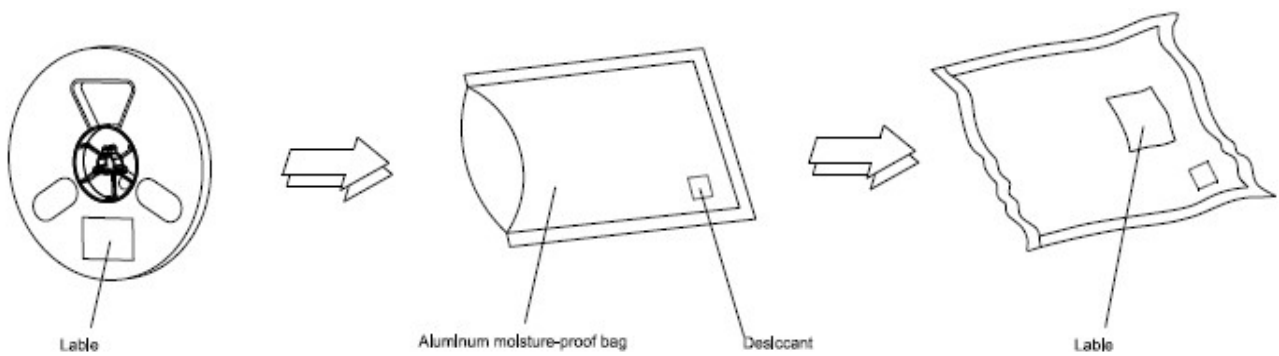
0802

Package: 4000PCS/reel

**Reel Dimensions**



**Moisture Resistant Packaging**



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