

# 产品规格书

## Product Specification Sheet

客户名称 (Customer Name):

产品规格 (Product Specification): 5MM 红蓝共阳透明

样品编号 (Sample number): 2021030906

## 产品描述

### Product Description

胶体形状 (Lens Shape): 5MM 圆头

胶体颜色 (Lens Color): 透明

发光颜色 (Emitting Color): 红蓝双色

半功率视角 (50% Power Viewing Angle):

有无卡位 (With/Without Stopper): 无

晶片材料 (Dice Material):

制表 / Tabulation	审核 / Verify	核准 / Approval



## 1, 产品应用 (Applications)

项目 Items	符号 Symbol	最大限度 Absolute maximum Rating	单位 Unit
顺向电流 Forward Current	$I_F$	20	mA
峰值正向电流* Peak Forward Current	$I_{FP}$	60	mA
蓝光反向电压 Green reverse voltage	$V_R$	5	V
蓝光消耗功率 Green light power consumption	$P_D$	60	mW
红光反向电压 Reverse Voltage	$V_R$	5	V
红光消耗功率 Power Dissipation	$P_D$	40	mW
工作温度 Operation Temperature	$T_{opr}$	-40 ~ +95	°C
贮存温度 Storage Temperature	$T_{stg}$	-40 ~ +100	°C
焊锡温度 Lead Soldering Temperature	$T_{sol}$	最大 260°C 5 秒以内, (自胶体底部 3mm 以下) Max.260°C for 3 sec Max. (3mm from the base of the epoxy bulb)	

## 2, 产品图纸 (Product Drawing)

	<p>说明: Notes:</p> <ol style="list-style-type: none"> <li>1. 除非有其它说明, 所有尺寸公差为<math>\pm 0.1\text{mm}</math> All tolerance is <math>\pm 0.1\text{mm}</math> if no other comments.</li> <li>2. 胶体沿支架延伸不可超过 1.5mm An epoxy meniscus may extend about 1.5mm.</li> <li>3. 多胶不超过 0.5mm Burr around bottom of epoxy may be 0.5mm max.</li> </ol>
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\*Pulse width  $\leq 0.1\text{msec}$  duty  $\leq 1/10$

### 3, 产品光电特性 (Ta = 25°C) (Typical Electrical & Optical Characteristics (Ta = 25°C))

项目 Items	符号 Symbol	条件 Condition	最小值 Min.	典型值 Typ.	最大值 Max.	单位 Unit
红光顺向电压 Forward Voltage	VF	IF = 20mA	1.8	---	2.2	V
蓝光顺向电压 Green forward voltage	VF	1F=20	3.0	---	3.4	V
反向电流 Reverse Current	IR	VR = 5V	---	---	1	μA
红光主波长 Dominant Wavelength	λD	IF = 20mA	620	---	625	nm
蓝光主波长 Green light main wavelength	λD	1F=20mA	460	---	465	nm
红光发光强度 Luminous Intensity	IV	IF = 20mA	800	---	1000	mcd
蓝光发光强度 Green luminous intensity	IV	1F=20mA	2000	---	3000	mcd
半功率角度 50% Power Angle	2□½H-H	IF = 20mA	---	---	---	deg
	2□½V-V	IF = 20mA	---	---	---	deg

#### Precautions:

- All ranks will be included per delivery, rank ratio will be determined by UVO.
- Tolerance of measurement of luminous intensity is ±15%.  
The error between the levels of the dominant wavelength is ±1 nm.
- Tolerance of measurement of dominant wavelength is ±1nm.
- Tolerance of measurement of Vf is ±0.05 V.
- Packaging methods are available for selection.
- The worker should wear the anti-static ring, glove, and the equipments need to be connected to the ground while operating if the chip material is InGan.
- Please refer to other notes by checking the packing attachment.
- UVO will not take responsibility to the results those caused by incorrect use.

## **Precautions for the use of light-emitting diodes**

#### Pin configuration

- Leave at least 3mm of space from the jam point to the bottom of the gel.
- Do not use the bottom of the colloid as a support point.
- Do not apply any pressure to the colloid as pressure will break it.
- When the LED is soldered on the circuit board, the via distance on the circuit board should be suitable for the pin distance of the LED. In this way, the gel will not be damaged due to the support

force of the pins, which will lead to the aging of the LED.

deposit

- a. The storage temperature of the LED should be below 30° and the humidity should be below 70%. The normal storage period is 3 months.
- b. If storage is required for more than 3 months, it should be stored in an environment filled with nitrogen and air desiccant, so that it can be stored for one year.
- c. Avoid constantly changing the ambient temperature of storage, especially in environments with high humidity that may produce exposure.

### 3. Static electricity

- a. Static electricity and overvoltage can damage LEDs.
- b. When touching the LED, anti-static gloves and anti-static rings should be worn. ,
- c. All machines and equipment must be well grounded.
- d. There should be measures to resist surge voltage in equipment using LEDs.
- e. Damaged LEDs will have the following characteristics, such as increased leakage current, decreased forward voltage, and low current cannot be lit. by normal standards  
( $V_F > 2.0V$  在  $I_F = 0.5mA$ )。

### 4. heat dissipation

- a. The heat dissipation design of the finished product is very important. When designing a system, consider the heat dissipation of the LEDs.
- b. Heat dissipation has a lot to do with the heat dissipation capacity of the circuit board and the placement density of LEDs, as well as the distribution of other components. It is recommended to avoid heating up too quickly and to use it at the maximum value of the parameters specified in the specification.
- c. The ambient temperature should be considered before deciding the current to use the LED.

### 5. Cleaning

- a. It is recommended to use ethanol to clean the LEDs. When other solvents are used, it should be ensured that the solvent does not dissolve the resin.
- b. Do not ultrasonically clean the LEDs. If necessary, the strength of the ultrasonic waves and other factors should be taken into account, and tests should be done to confirm that the LEDs are not damaged before cleaning.

## LED soldering conditions

- a) Attention should be paid to the welding method when welding.
- b) The welding position should not be lower than 3mm from the epoxy base.
- c) Recommended welding conditions

Immersion soldering		Manual welding	
Preheat temperature	120°C Max.	Soldering temperature	300°C Max.
Warm-up time	60 sec. Max.	Welding time	3 sec. Max.
Immersion temp.	260°C Max.	Welding position	Not less than 3mm at the epoxy base
Immersion time	60 sec. Max.		
Immersion tin position	Not less than 3mm at the epoxy base		

### Manual welding

1. When soldering manually, it is recommended to use a fixture to fix the LED to prevent the external force from being transmitted from the LED pin to the inside of the gel, otherwise it will break the lead inside the gel.
2. Make sure that the aperture of the PCB vias is suitable for the size of the LED pins. Otherwise, when inserted, an external force will squeeze the inside of the fluid through the pins, causing the leads to breakage.

### Automatic soldering of PCB board dimensions

1. The PCB will have a slight bend when soldering, which is especially noticeable in PCB boards with large sizes. After soldering, it is found that the LED has a high defect rate, and the size of the PCB board must be checked to check whether the PCB board has been bent during soldering. If this happens, the pins of the LED will bend slightly, which will break the leads inside the gel.
2. It is best to use a small circuit board to solder the LED.
3. When using large PCB soldering, it is necessary to use a special fixture to prevent the PCB board from bending during soldering.

### Welding Precautions:

1. No external force can be generated on the LED during soldering and heating, and the LED cannot be repositioned and moved after soldering.

2. After welding, the LED, epoxy should be protected from mechanical shock or vibration until the LED returns to room temperature.
3. In order to prevent the LED from dying after welding, the effect on the mechanical force of the LED should be minimized.
4. When cutting the LED feet, it is necessary to wait for the LED lamp beads to cool down to room temperature, and cutting the feet at high temperature may cause the LED to die.