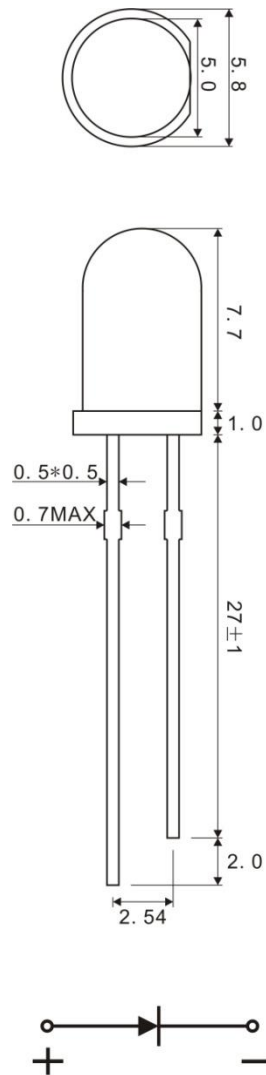


## 一、外形圖 Outline dimensions:



| 單位<br>Unit | 公差<br>Tolerance | 芯片材質<br>Die material | 膠體顏色<br>Lens color | 發光顏色<br>Emitting color |
|------------|-----------------|----------------------|--------------------|------------------------|
| mm         | ±0.2mm          | AlGaIn               | White Diffused     | Yellow                 |

## 二、光電參數 Photo electricity Parameter

(環境溫度 Ambient temperature: 25°C 相對濕度 Humidity: RH 60%)

| 項目<br>Item                 | 符號<br>Symbol   | 測試條件<br>Test condition | 最小值<br>Min | 典型值<br>Type | 最大值<br>Max | 單位<br>Unit |
|----------------------------|----------------|------------------------|------------|-------------|------------|------------|
| 反向電流<br>Reverse Current    | IR             | VR=5V                  | /          | /           | 10         | μ A        |
| 正向電壓<br>Forward Voltage    | VF             | IF=20mA                | 1.8        | /           | 2.4        | V          |
| 發光強度<br>Luminous Intensity | IV             |                        | 280        | 650         | /          | mcd        |
| 主波長<br>Dominant Wavelength | $\lambda d$    |                        | 585        | /           | 595        | nm         |
| 半光強角<br>Viewing Angle      | 2 $\theta$ 1/2 |                        | /          | 30          | /          | deg        |

備註：亮度測試公差±15%，波長測試公差±1nm，正向電壓測試公差±0.1V

Remark: The tolerance of intensity ±15%, the tolerance of wavelength ±1nm, the tolerance of forwards voltage ±0.1V. Only reference for above when testing.

## 三、極限參數 Absolute Maximum Rating

(環境溫度 Ambient temperature: 25°C 相對濕度 Humidity: RH 60%)

| 項目<br>Item                       | 符號<br>Symbol | 數值<br>Value | 單位<br>Unit | 備註<br>Remark       |
|----------------------------------|--------------|-------------|------------|--------------------|
| 正向電流<br>Forward Current          | IF           | 25          | mA         |                    |
| 峰值正向電流*<br>Peak Forward Current* | IFP          | 50          | mA         |                    |
| 功耗<br>Power Dissipation          | PD           | 75          | mW         |                    |
| 工作環境溫度<br>Operation Temperature  | Topr         | -40 to +85  | °C         |                    |
| 貯藏溫度<br>Storage Temperature      | Tstg         | -40 to +85  | °C         |                    |
| 焊接溫度<br>Soldering Temperature    | Tsol         | 260±5°C     | °C         | Less than 5 Second |

\*注：脈衝寬度≤0.1ms，佔空比≤1/10

\*Note: pulse Width≤0.1ms, Duty≤1/10

## 四、可靠性實驗項目 Reliability Test Project

| 描述<br>Description     | 項目<br>Item                            | 測試標準<br>Test criterion                              | 測試條件<br>Test condition  | 測試時間<br>Test time | 數量<br>Qty | 失效數量<br>Fail qty |
|-----------------------|---------------------------------------|---|---|-------------------|-----------|------------------|
| 壽命測試<br>Life test     | 常溫壽命測試<br>Life test(room temperature) | JIS7021:B4  | Ta=25°C±5°C, IF=20mA  | 1000Hrs           | 20        | 0                |
| 環境測試<br>Ambience test | 高溫存儲<br>High temperature store        | JIS7021:B10<br>MIL-STD-202:210A<br>MIL-STD-750:2031 | Ta=85°C±5°C   | 1000Hrs           | 20        | 0                |
|                       | 低溫存儲<br>Low temperature store         | JIS7021:B12   | Ta=-35°C±5°C  | 1000Hrs           | 20        | 0                |
|                       | 冷熱衝擊測試<br>Cold / Heat strike test     | JIS7021::B4<br>MIL-STD-202:107D<br>MIL-STD-750:1026 | 30min<br>-10°C±5°C←→100°C±5°C<br>5min 5min                      | 50Cycles          | 20        | 0                |
|                       | 冷熱循環測試<br>Cold and heat cycle test    | JIS7021:A3<br>MIL-STD-202:107D<br>MIL-STD-705:105E  | 5min 5min 5min<br>-35°C~25°C~85°C~35°C<br>30min 5min 30min 5min | 50Cycles          | 20        | 0                |

## 判斷標準 Judging Criterion

| 項目<br>Item         | 符號<br>Symbol   | 實驗條件<br>Experiment condition | 判斷標準<br>Criteria |                  |
|--------------------|----------------|------------------------------|------------------|------------------|
|                    |                |                              | Min.             | Max.             |
| Forward Voltage    | V <sub>F</sub> | I <sub>F</sub> =20mA         | ----             | Initial Datex1.1 |
| Reverse Current    | I <sub>R</sub> | V <sub>R</sub> =5V           | ----             | 30 μ A           |
| Luminous Intensity | I <sub>V</sub> | I <sub>F</sub> =20mA         | Initial Datex0.7 | ----             |

## 五、注意事項 Note

### (一) 引腳成型方法 Led bracket forming method

(1) 必需離開膠體 3 毫米才能折彎支架

The pin of led can be bent where is at least 3mm out of led colloid.

(2) 支架成型必須用夾具或由專業人員來完成。

Must use fixture to deform the led bracket.

(3) 支架成型必須在焊接前完成。

Finishing the forming of led bracket must be before soldering.

(4) 支架成型需保證引腳和間距與線路板上一致。

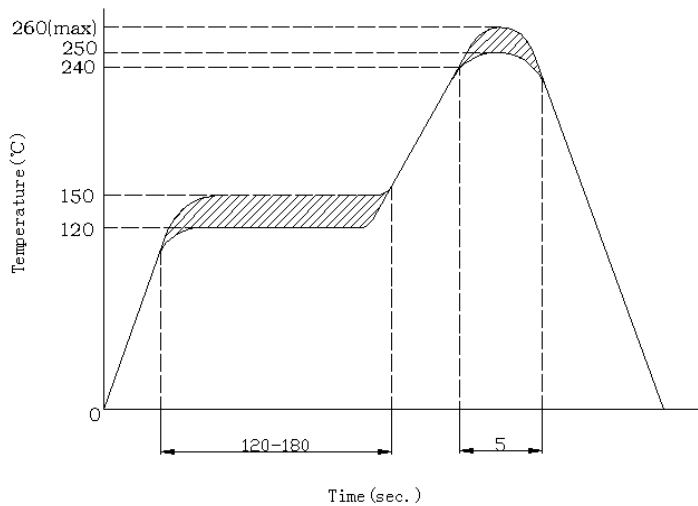
Guarantee the gap between two pin of led tallys with LED pads in PCB when forming.

### (二) 烙鐵 Manual soldering

烙鐵（最高 30W）尖端溫度不超過 260°C；焊接時間不超過 3 秒；焊接位置至少離膠體 3 毫米。

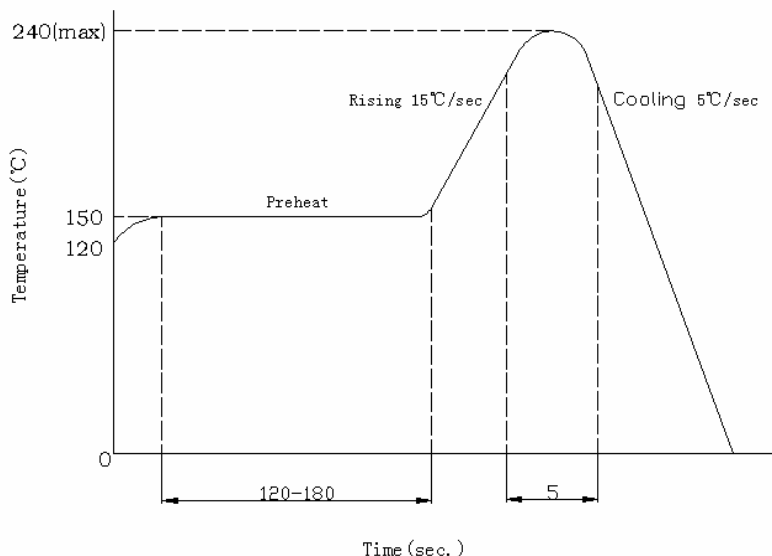
The tip temperature of soldering iron don't exceed 260°C； soldering time don't exceed 3s and soldering position must be 3mm out of led colloid.

可靠性焊接溫度（A 圖、B 圖） Soldering temperature curve chart（figure A、figure B）



A 圖

波峰焊



B 圖

回流焊

### (三) 防靜電措施 ESD countermeasure

靜電及高壓會對 LED 造成損壞，特別是晶片材質為 InGaN 的產品對靜電防護要求更加嚴格，要求在使用和檢驗產品時戴防靜電手腕帶或防靜電手套，焊接工具及設備外殼需可靠接地，焊接條件遵循此份規格書中的條件。

Static electricity and high volt can damage led, The production whose Die material is InGaN must strictly required to prevent ESD, Must put on static glove and static fillet, Soldering tool and the cover of device must connect the ground, soldering condition follows the related stating of production specification manual.

### (四) 過電流保護 Protecting countermeasure when over current

為避免由於電壓的變化引起大電流衝擊而造成產品損壞，需要加入保護電阻。

Need add the protecting resistor in circuit in order to avoid damaging led due to big current and voltage fluctuation.

### (五) LED 安裝方法 LED installation method

1) 注意各類器件外線的排列以防極性裝錯，器件不可與發熱元件靠得太近，工作條件不要超過其規定的極限。

Pay attention to the led polarity and avoid installation wrong。Led can't be close to euthermic component, work condition should tally with it's specification。

2) 務必不要在引腳間距變形的情況下安裝 LED。

Don't install the LED under the condition of the led pin deformation。

3) 當裝配 LED 進入 PCB 或裝配孔時時，LED 支架不能承受任何壓力。

The led bracket don't load any pressure when installing the led into PCB or fitting hole。

4) 在焊接溫度回到正常以前，必須避免使 LED 受到任何的震動或外力。

Must avoid any strike and force on led before the soldering temperature return to room temperature。

### (六) 存儲時間 Storage time

1) 在溫度 5°C~35°C，濕度 RH60%條件下，產品可以保存一年。超過保存期的產品需要重新檢測后方能使用。  
Led can be stored for a year under the condition: the temperature of 5°C~35°C and humidity of RH60%, These production must be re-inspected and tested before use if their storage time exceed a year。

2) 如果打開的產品在 5°C~35°C，RH60%的空氣條件下放置超過一周，則需要將產品在 65°C±5°C的環境中放置 24 小時以上，并盡量在十五天內使用。

If led is exposed in air for a week under the condition: the temperature of 5°C~35°C, humidity of RH60%, must place the led in the ambience of 65°C±5°C for 24 hours and use it in 15 days for best。

### (七) 清洗 Cleaning

當用化學物品清洗膠體時必須特別小心，因為有些化學品對膠體表面有損傷并引起褪色如三氯乙烷、丙酮等。可用乙醇擦拭、浸漬，時間在常溫下不超過 3 分鐘。

Be careful of some chemical results in the led colloid fades and damage when using chemical clean the led, such as trichloroethylene, acetone etc. can use ethanol to wash or soak led but the time don't exceed 3 minutes.

### (八) 彎腳 Kinked

當 LED 成形彎腳時，彎腳模具容易刮花 LED 腳支架鍍層，刮傷處容易生鏽，特別是空氣濕度大時。為減少生鏽寄回，建議使用鍍錫支架。

The kinked tooling scrape easily the pin of led, where the led bracket is rusting easily, especial expose it in moist air. To decrease the led bracket rust, advise using plated tin led bracket.

## 其他/Others

1. 本規格所描述的LED定義應用在普通的的電子設備範圍（例如辦公設備、通訊設備等等）。如果有更為嚴苛的信賴度要求，特別是當元件失效或故障時可能會直接危害到生命和健康時（如航天、運輸、交通、醫療器械、安全保護等等），請事先知會敝司業務人員。

The LEDs described here are intended to be used for ordinary electronic equipment (such as office equipment, communication equipment and household applications). Consult Sales in advance for the applications in which exceptional reliability is required, particularly when the failure or malfunction of the LEDs may directly jeopardize life or health.

(such as in aviation, transportation, traffic control equipment, medical and life support systems and safety devices).

2. 高亮度LED產品點亮時可能會對人眼造成傷害，應避免從正上方直視。

The light output from the high luminous intensity LEDs may cause injury to human eyes when viewed directly.

3. 出於持續改善的目的，產品外觀和參數規格可能會在沒有預先通知的情況下作改良性變化。

The appearance and specifications of the product may be modified for improvement without prior notice.