



# 广州市东裕光电科技有限公司

Guangzhou Tonyu Optoelectronic Technology Co., Ltd

## 样品承认书

Sample Approve Sheet

客户名称 (Customer name) : \_\_\_\_\_

组件名称 (Production name) : Photo Transistor

型号 (Model) : DY-PT333-3B

编号 (Part number) : 18122903

日期 (Date) : 2018-12-29

客户确认 Customer confirmation	审核 Checked by	编制 Prepared by
	汪建新	陈少龙

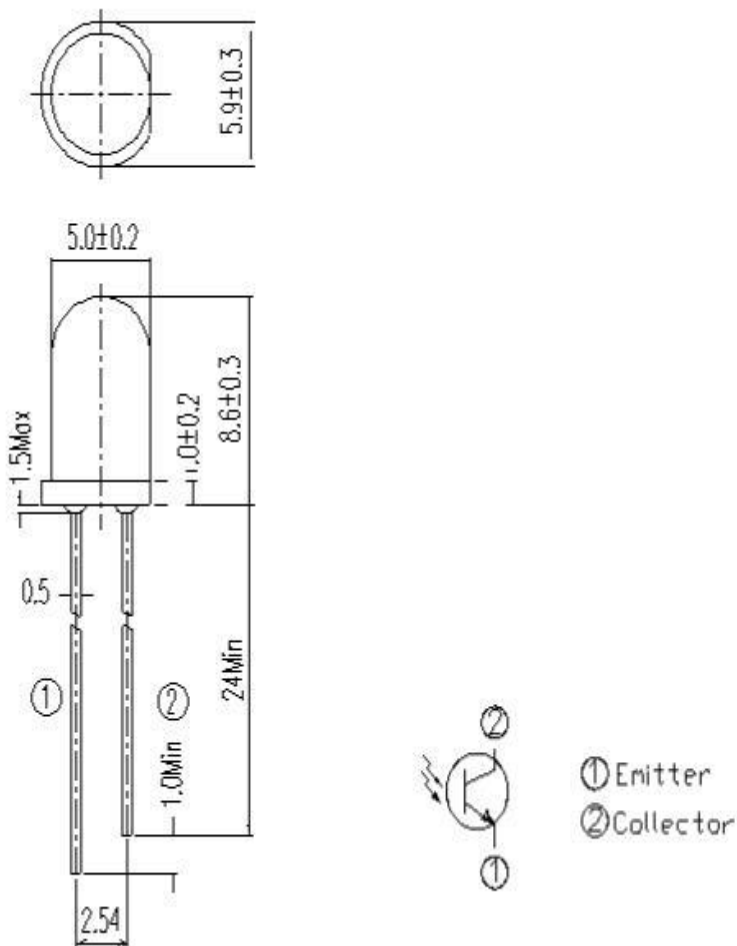
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一、外形圖 Outline dimensions :



- Notes: 1. All dimensions are in mm, tolerance is  $\pm 0.25$  unless otherwise noted.  
 2. An epoxy meniscus may extend about 1.5mm down the leads.  
 3. Burr around bottom of epoxy may be 0.5mm Max..

單位 Unit	公差 Tolerance	芯片材料 Die material	發光顏色 Emission color	膠體顏色 Lens color
mm	$\pm 0.25$ mm	Silicon	—	Black

※備註：承認書之編號和型號可用于查詢，客戶如有需要，請提供相應的編號和型號。  
 Remark : P/N & Model in samples approval sheet can be used to inquire , please provide corresponding P/N& model if customer need .

型 號 Model :	DY-PT333-3B	頁 碼 Page : 2/7
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## 二、光電參數 Photoelectricity Parameter

(環境溫度 Ambient temperature : 25°C 濕度 humidity : RH60%)

項目 Item	符號 Symbol	測試條件 Test condition	最小值 Min.	典型值 Type	最大值 Max..	單位 Unit.
集-射極崩潰電壓 Collector-Emitter Breakdown Voltage	BV <sub>ceo</sub>	I <sub>c</sub> =100uA E <sub>e</sub> =0mW/c m <sup>2</sup>	30	-	-	V
射-集極崩潰電壓 Emitter-Collector Breakdown Voltage	BV <sub>eco</sub>	I <sub>E</sub> =100uA E <sub>e</sub> =0mW/c m <sup>2</sup>	5	-	-	
集-射極飽和電壓 Collector-Emitter Saturation Voltage	V <sub>ce(sat)</sub>	I <sub>c</sub> =2mA E <sub>e</sub> =1mW/c m <sup>2</sup>	-	-	0.4	
上升時間 Rise Time	t <sub>r</sub>	V <sub>EC</sub> =5V I <sub>c</sub> =1mA R <sub>L</sub> =1000Ω	-	15	-	uS
下降時間 Fall Time	t <sub>f</sub>		-	15	-	
集極暗電流 Collector Dark Current	I <sub>CEO</sub>	E <sub>e</sub> =1mW/c m <sup>2</sup> V <sub>CE</sub> =20V	-	-	100	nA
集極光電流 On State Collector Current	I <sub>c(on)</sub>	E <sub>e</sub> =1mW/ c m <sup>2</sup> V <sub>CE</sub> =5V	1.77	-	7.07	mA
光譜帶寬 Rang of spectral Band width	λ <sub>0.5</sub>	---	760	-	1100	nm
峰值波長 Peak wavelength	λ <sub>p</sub>	---	-	940	-	nm

### Rankings(等級)

等級代碼	符號	最小值	最大值	單位	測試條件
J	I <sub>C</sub> (ON)	1.77	3.61	mA	V <sub>CE</sub> =5V E <sub>e</sub> =1mW/cm <sup>2</sup>
K		2.67	5.07		
L		4.18	7.07		

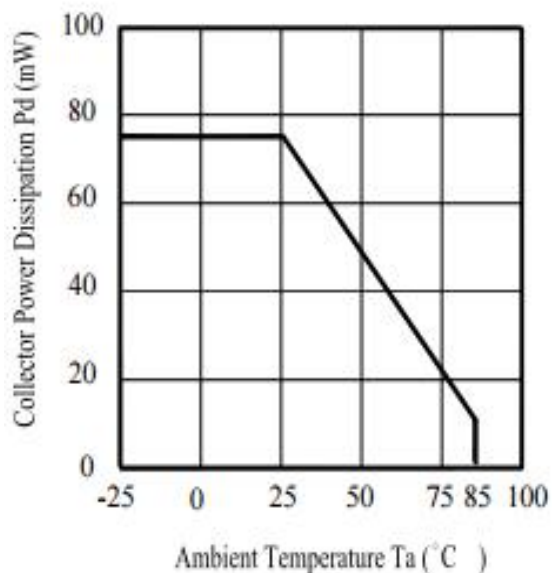
### 輻射強度容差±20%

\*正向電壓的測量不確定度: ±0.1 v \*發光強度的測量的不確定度: ±10%

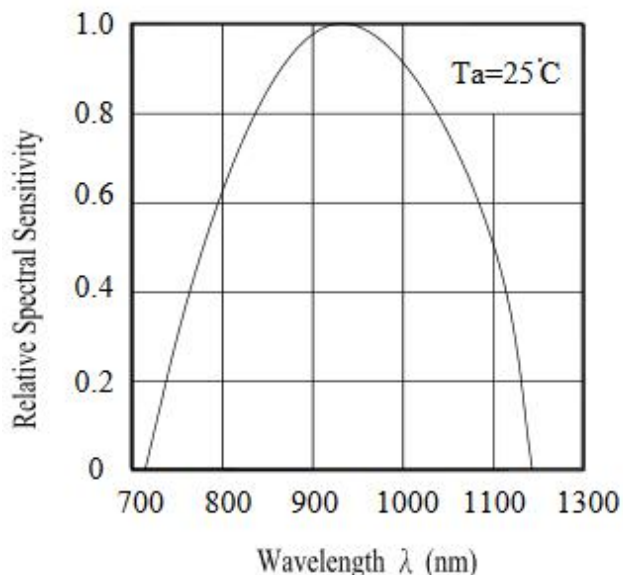
\*主波長的測量不確定度±1.0nm

三、 典型光電特性曲線圖 Typical Electro-Optical Characteristics Curves

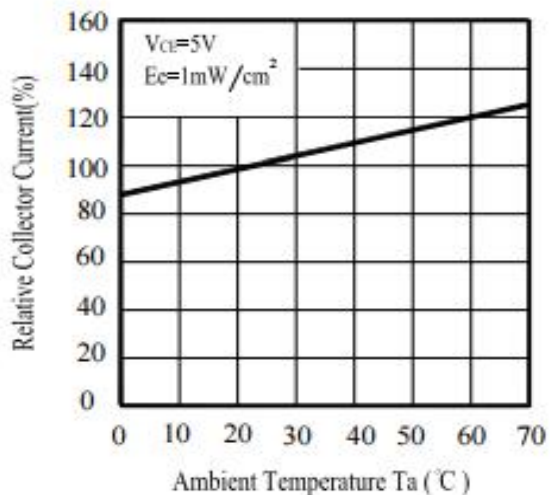
集电极功率耗散与环境温度



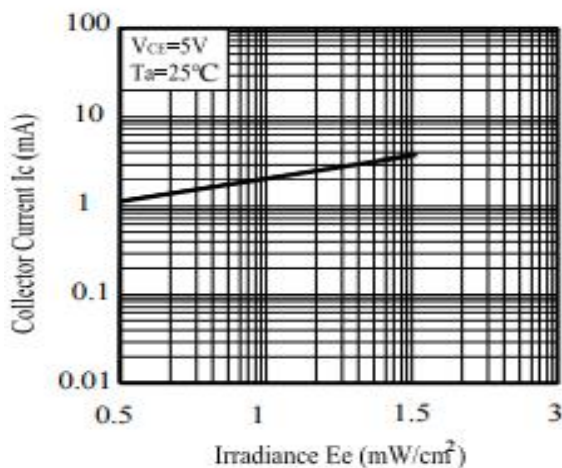
光谱灵敏度



集电极电流与环境温度

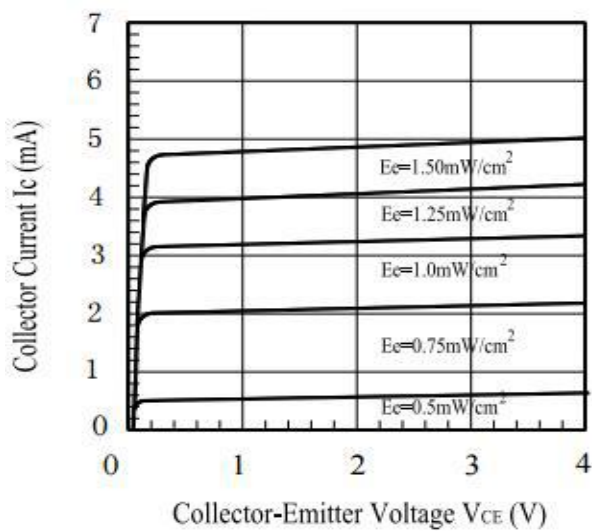
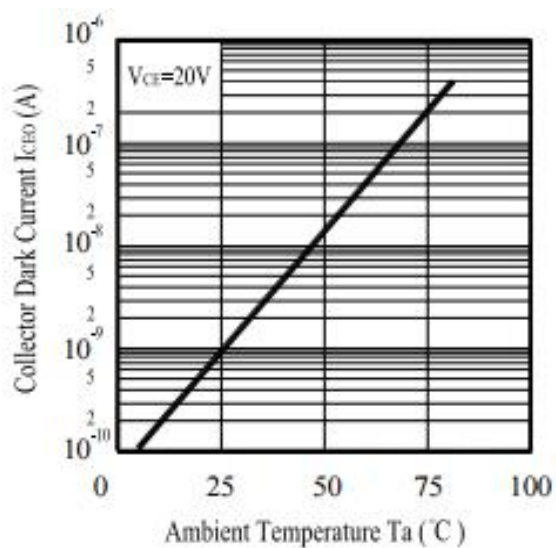


集电极电流与辐照度



集电极功率耗散与环境温度

集电极电流与集电极-发射极电压



## 四、極限參數 Absolute Maximum Rating

(環境溫度 Ambient temperature : 25°C 濕度 humidity : RH60%)

項目 Item	符號 Symbo	數值 Value	單位 Unit	備註 Remark
集电极发射器电压 Collector-Emitter Voltage	V <sub>CEO</sub>	30	V	---
发射器收集器电压 Emitter-Collector Voltage	V <sub>ECO</sub>	5	V	---
集电极电流 Collector Current	I <sub>c</sub>	20	mA	---
耗散功率 Power Dissipation	P <sub>d</sub>	75	mW	---
工作環境溫度 Operation temperature	T <sub>amb</sub>	-25 至+80	°C	---
貯藏溫度 Storage temperature	T <sub>stg</sub>	-35 至+85	°C	---
焊接溫度 Soldering temperature	T <sub>sol</sub>	260	°C	波峰焊,離環氧體 3mm 處 ≤3S Wave soldering, 3mm out of physical body, ≤3S

**Notes:\*1:Soldering time ≤ 3 Seconds**

## 五、可靠性实验项目 Reliability Test Project

描述 Description	項目 Item	測試標準 Test criterion	測試條件 Test condition	測試時間 Test time	數量 Qty.	失效數量 Fail Qty.
寿命测试 Life test	常温寿命测试 Life test(room temperature)	JIS7021:B4	Ta=25°C±5°C , IF=20mA	1000Hrs	22	0
环境测试 Ambience test	高温存储 High temperature store	JIS7021:B10 MIL-STD-202:210A MIL-STD-750:2031	Ta=85°C±5°C	1000Hrs	22	0
	低温存储 Low temperature store	JIS7021:B12	Ta= -35°C±5°C	1000Hrs	22	0
	高温高湿测试 High temperature/ humidity test	JIS7021:B11 MIL-STD-202:103D	Ta=85°C±5°C RH=85%	1000Hrs	22	0
	冷热冲击测试 Cold / Heat strike test	JIS7021::B4 MIL-STD-202:107D MIL-STD-750:1026	30min -10°C±5°C ↔ 100°C±5°C 5min 5min	50Cycles	22	0
	冷热循环测试 Cold and heat cycle test	JIS7021:A3 MIL-STD-202:107D MIL-STD-705:105E	5min 5min 5min -35°C~25°C~85°C~35°C 30min 5min 30min 5min	50Cycles	22	0

## 六、注意事項 Note

### (一) 引腳成形方法 LED bracket forming method

(1) 必需離膠體 2 毫米才能折彎支架。

The pin of LED can be bent where is at least 2mm out of LED colloid.

(2) 支架成形必須用夾具或由專業人員來完成。

Must use fixture to deform the LED bracket.

(3) 支架成形必須在焊接前完成。

Finishing the forming of LED bracket must be before soldering.

(4) 支架成形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) 烙鐵焊接 Manual soldering

烙鐵（最高 30W）尖端溫度不超過 300℃；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 300℃；soldering time don't exceed 3s and soldering position must be 3mm out of led colloid。

### (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，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，產品可保存一年。超過保存期的產品需重新檢測後方能使用。

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，並儘量在十五天內使用。

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

當用化學用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並引起褪色如三氯乙烯、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 chloroethylene, 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，刮傷處容易生銹，特別是空氣濕度大時。為減少生銹機會，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.