

TONYU

东裕光大

光电产品应用专家

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-ITR9707

编 号 (Part number) : _____

日 期 (Date) : _____

| 客户确认 Customer confirmation | 审核 Checked by | 编制 Prepared by |
|-------------------------------|------------------|-------------------|
| | | |

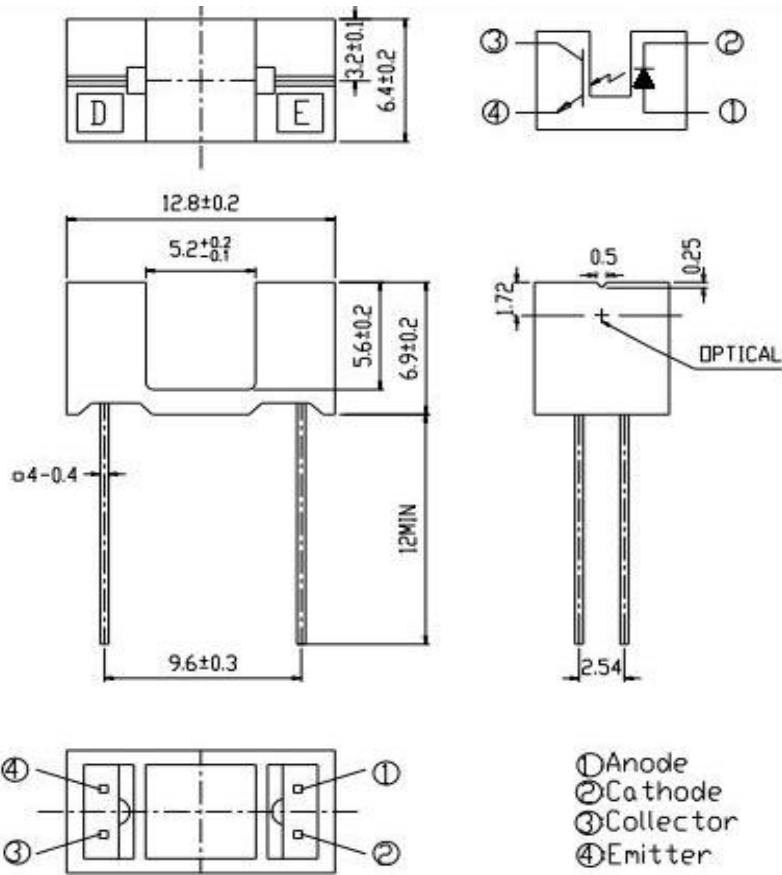
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一、外形图 Outline dimensions :



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

| 单位 Unit | 公差 Tolerance | 芯片材料 Die material | 发光颜色 Emission color | 胶体颜色 Lens color |
|------------|-----------------|----------------------|------------------------|--------------------|
| mm | ± 0.25 mm | GaALAs | — | Water Clear |
| mm | ± 0.25 mm | Silicon | — | Water Clear |

※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 .

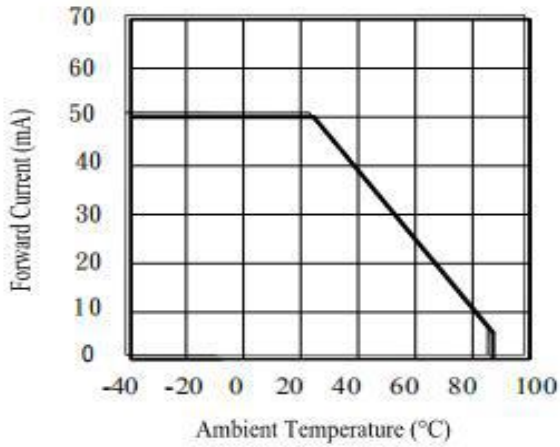
二、光电参数 Photoelectricity Parameter

(环境温度 Ambient temperature : 25°C 湿度 humidity : RH60%)

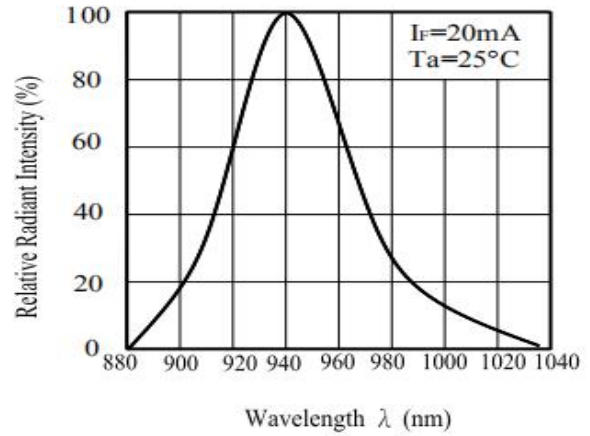
| Parameter | | Symbol | Min. | Typ | Max | Unit | Conditions |
|-----------------------------------------|---------------------------------------|-------------|------|-----|-----|------|---------------------------------|
| 输入 Input | 正向电压 Forward Voltage | VF | --- | 1.2 | 1.5 | V | IF=20mA |
| | 反向电流 Reverse Current | IR | --- | --- | 10 | uA | VR=5V |
| | 峰值波长 Peak Wavelength | λP | --- | 940 | --- | nm | IF=20mA |
| 输出 Output | 暗电流 Dark Current | Iceo | --- | --- | 100 | nA | Vce=20V, Ee=0 mW/cm2 |
| | C-E 饱和电压 C-E Saturation Voltage | Vce(sat) | --- | --- | 0.4 | V | Ic=2mA , Ee=1 mW/cm2 |
| 传输特性 Transfer Characte ristics | 收集电流 Collect Current | Ic(ON) | 0.5 | --- | --- | mA | Vce=5V IF=20mA |
| | 上升时间 Rise time | tr | --- | 15 | --- | usec | Vce=5V Ic=1mA RL=1K Ω |
| | 下降时间 Fall time | tf | --- | 15 | --- | usec | |

三、典型光电特性曲线图 Typical Electro-Optical Characteristics Curves

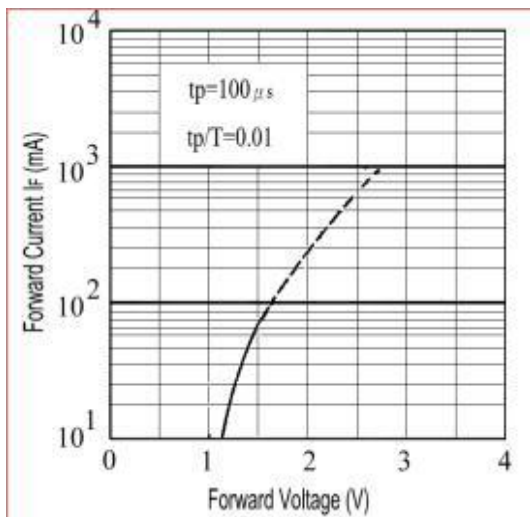
集电极功率耗散与环境温度 (IR)



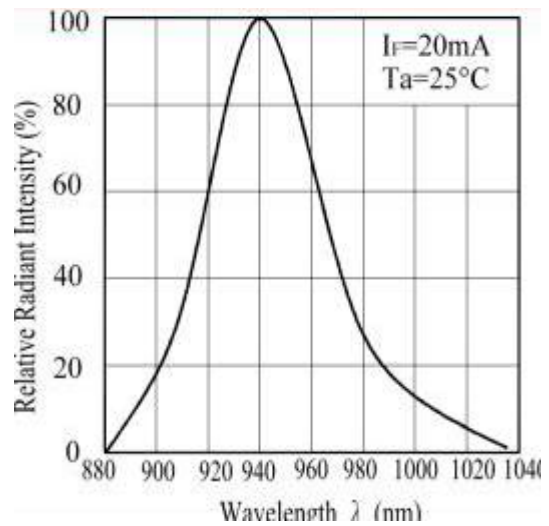
光谱灵敏度 (IR)



正向电流和正向电压 (IR)



光谱灵敏度 (PT)



| | | |
|-------------|------------|----------------|
| 型 号 Model : | DY-ITR9707 | 页 码 Page : 4/6 |
|-------------|------------|----------------|

四、极限参数 Absolute Maximum Rating

(环境温度 Ambient temperature : 25°C 湿度 humidity : RH60%)

| 项 目 Item | 符号 Symbol | 数值 Value | 单位 Unit | 备注 Remark |
|---------------------------------------|--------------|-------------|------------|---------------------------------------------------------------------|
| 正向电流 Forward Current | IF | 50 | mA | --- |
| 反向耐压 Reverse Voltage | VRP | 5 | V | --- |
| 输入耗散功率 Power Dissipation | Pd | 75 | mW | --- |
| 集电极电流 Collector Current | Ic | 20 | mA | --- |
| 集电极发射极电压 Collector-Emitter Voltage | B Vceo | 30 | V | --- |
| 发射极集电极电压 Emitter-Collector Voltage | B Veco | 5 | V | --- |
| 输出耗散功率 Collector Power | Pd | 75 | mW | --- |
| 工作环境温度 Operation temperature | Tapr | -25 至+85 | °C | --- |
| 贮藏温度 Storage temperature | Tstg | -40 至+85 | °C | --- |
| 焊接温度 Soldering temperature | Tsol | 260 | °C | 波峰焊,离环氧体 3mm 处 ≤3S Wave soldering, 3mm out of physical body, ≤3S |

五、可靠性实验项目 Reliability Test Project

| 描述 Description | 项目 Item | 测试标准 Test criterion | 测试条件 Test condition | 测试时间 Test time | 数量 Qty. | 失效数量 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，刮傷處容易生鏽，特別是空氣濕度大時。為減少生鏽機會，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.

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