


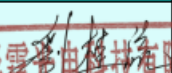
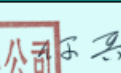
# Specification

## 规格书

**P1-2835-AYP7-24C-57-TB-B1-R80 series**

2835(PPA) - 0.5W R80 系列

Customer Name (客户名称): 中千智享电器科技有限公司

Customer Approval 客户核准	Customer Check 审核	Approval 核准	Check 审核	Author 制作
				
<input type="checkbox"/> Qualified(接受)	<input type="checkbox"/> Disqualified(不接受)	Data(日期): 2020-09-23		

佛山市彩霆光电科技有限公司  
工程专用章

Adr: 281Baian South Road, Jun' an Town, Shunde District, Foshan City.

地址: 佛山市顺德区均安镇百安南路 281 号

Tel/电话: (0757)25575111 (0757)25513666

Fax/传真: (0757)29263099

注:

1. 此规格书的最终解释权归彩霆光电科技有限公司
2. 此规格书以中英文方式书写, 若有冲突以中文版本为准文本
3. 此规格书的有效期限为两年, 自盖章或签字之日起计算, 期满时双方可以续签协议, 但应采取书面形式



## Table of Content

## 目录

Index 索引	
·	Product Introduction (产品介绍)
·	Product Selection Guide (产品选择指南)
	Color characteristics (颜色特性)
	luminance grading (亮度分级)
	Voltage grading (电压分级)
	Electrical/Optical Characteristics (电性/光学特性)
·	Performance Characteristics (性能特点)
	Soldering Temperature vs. Forward Current (焊盘温度与正向电流特性曲线)
	Forward Current VS. Relative Luminous Intensity (电流与相对亮度的曲线关系)
	Forward Voltage VS. Forward Current (正向电压与正向电流特性曲线)
	Curves of beam angle and relative brightness (光束角度和相对亮度曲线)
·	Test Items and Conditions (可靠性测试及条件)
·	CIE Chromaticity Diagram (色度图详细信息)
	Bin Range of Chromaticity Coordinate (Bin 区分类及色坐标范围)
·	Packaging (包装)
·	Precaution for Use (使用注意事项)
	Storage (存放方式)
	Precautions after Opening the Packaging (打开包装后的注意事项)
	Notes for reflow process (回流焊工艺注意事项)
	Handling precautions (处理防备措施)



## Product Introduction

### 产品介绍

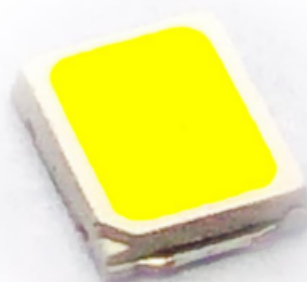
The white LED is composed of a blue LED chip (( In. Ga) N) and a color conversion layer of YAG: Ce3 + phosphorus dispersed in silicone.

白光 LED 是由蓝光 LED 芯片 (( In, Ga) N) 和颜色转换层 (YAG:Ce3+荧光粉等, 分散在硅树脂中) 两部分组成的。

### Features and Advantages

#### 特征及优点

- Package Size : 2.8X3.5X0.7 mm  
灯珠尺寸 ( allowable error: 公差 ±0.1mm)
- Suitable for all SMT assembly and soldering process  
适用于所有 SMT 组装和焊接工艺
- Extremely wide viewing angle  
发光可视角度极宽
- High standard color quality, CRI min. 80  
高标准的颜色质量, 显指最小值 80
- Great reliability of the products, achieved by the robust package design and carefully selected component materials.  
坚固的包装设计和对零部件材料的精心选择, 让这些产品具有很高的可靠性
- RoHS compliant  
RoHS 认证



### Key Applications

#### 主要应用

- Interior Lighting  
室内照明
- General Lighting  
一般照明
- Decorative Lighting  
装饰照明
- Optical Signs  
光学指示
- Portable lighting  
便携式照明
- Office lighting  
办公照明



## Product Selection Guide

### 产品选择指南

**Table 1. Color characteristics** (颜色特性)

Part Number (产品型号)	Customer P/N (客户料号)	Color Lump (色区)	Color Lump CIE center (CIE坐标)
<b>P1-2835-AYP7-24C-57 -TB-B1-R80</b>	TDZ00011	<b>7200K</b>	<b>0.3040,0.3110</b>
	TDZ00012	<b>4200K</b>	<b>0.3720,0.3700</b>
	TDZ00013	<b>2900K</b>	<b>0.4395,0.3980</b>

**Table 2. luminous grading** (亮度分级)

Part Number (产品型号)	RANK (分级)	Luminous Min. (最小光通量) lm	Luminous Max. (最大光通量) lm
<b>P1-2835-AYP7-24C-57 -TB-B1-R80</b>	<b>IV<sub>1</sub></b>	<b>50</b>	<b>55</b>

**Table 3. Voltage grading** (电压分级)

Part Number (产品型号)	RANK (分级)	Voltage Min. (最小电压)	Voltage Max. (最大电压)V
<b>P1-2835-AYP7-24C-57 -TB-B1-R80</b>	<b>VF<sub>1</sub></b>	<b>3.1</b>	<b>3.2</b>
	<b>VF<sub>2</sub></b>	<b>3.2</b>	<b>3.3</b>
	<b>VF<sub>3</sub></b>	<b>3.3</b>	<b>3.4</b>

**Annotation** (注释):

1.  $I_f = \text{Test Cond}$  (测试条件): 150mA,  $T_a = 25^\circ\text{C}$



**Table 4. Electrical/Optical Characteristics (电性/光学特性)**

Parameter (参数)	Symbol (符号)	Values			Units (单位)
		Min.	Typ.	Max.	
Rated Forward Current 额定正向电流	$I_f$	-	-	150	mA
Peak Forward Current 峰值正向电流	$I_{fp}$	-	-	170	mA
Forward Voltage 正向电压	$V_f$	3.1	-	3.4	V
Reverse Current 反向电压	$V_R$	VF= -5v @Ir < 1 uA			-
Color Rendering Index 显色指数	Ra	80	-	-	-
Viewing Angle, FWHM 50% 半强角	$2\theta_{1/2}$		120		Deg
Saturated red 红色饱和度	R9	-			-
Power Dissipation 功耗	$P_d$	-	-	500	mW
Junction Temperature 结温	$T_j$	-	-	115	°C
Soldering Temperature 焊盘温度	$T_{opr}$	0	-	+75	°C
Storage Temperature 储存温度	$T_{stg}$	-40	-	+100	°C
Thermal resistance 热阻	$R\theta_{J-S}$	-	20	-	°C/W
ESD Sensitivity(HBM) 静电	-	1000	-	-	V
Soldering Temperature 焊接温度	$T_{stg}$	Reflow soldering (260°C for 10seconds) 回流焊 (260°C持续 10 秒) Hand soldering (300°C for 3 seconds) 手工焊接 (300°C持续 3 秒)			°C

**Annotation (注释):**

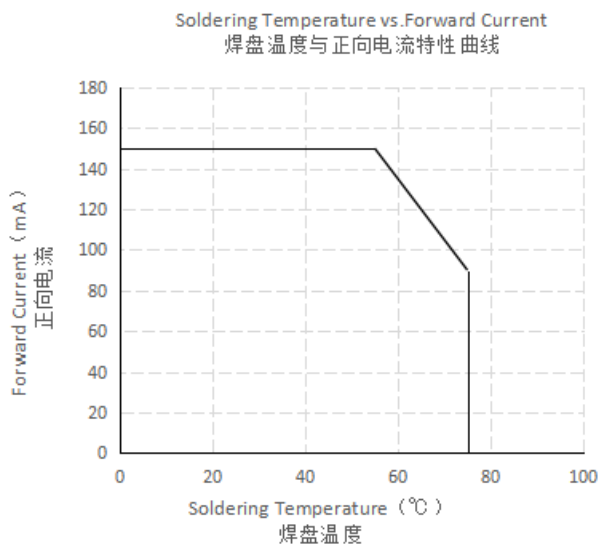
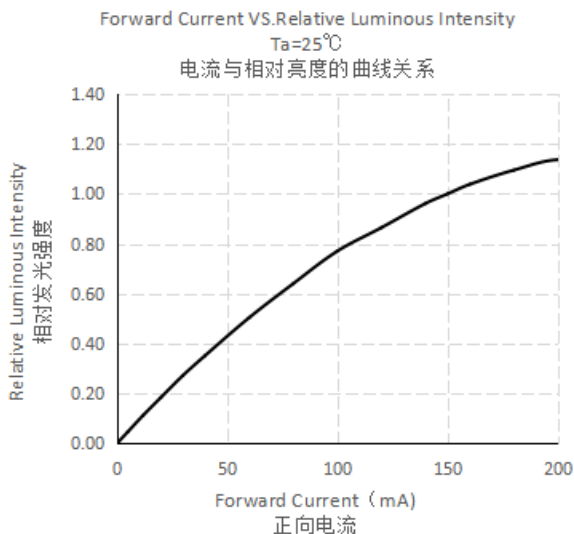
1. Test Cond (测试条件):  $I_f = 150\text{mA}$ ,  $T_a = 25^\circ\text{C}$
2. Tolerance (公差):  $V_f \pm 0.1\text{V}$ ,  $I_V \pm 10\%$ ,  $R_a \pm 2$ , color coordinate (颜色坐标)  $\pm 0.003$
3. Max Rating Condition 1000 hours without functional failure, not life assurance.

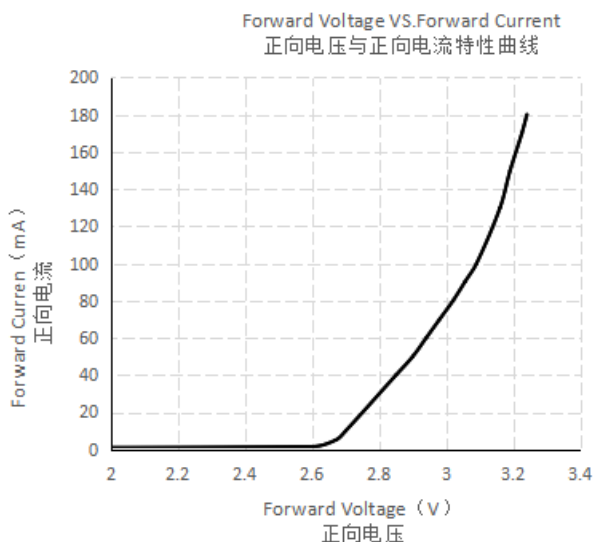
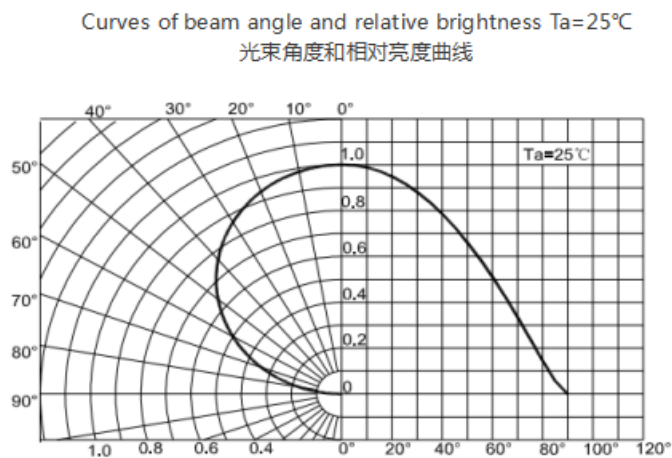
最大额定条件为元件测试 1000 小时未出现功能故障, 并非寿命保证。



## Performance Characteristics

### 性能特点

**Fig 1. Soldering Temperature vs. Forward Current**

**Fig 2. Forward Current VS. Relative Luminous Intensity Ta=25°C**


**Fig 3. Forward Voltage VS. Forward Current**

**Fig4. Curves of beam angle and relative brightness Ta=25°C**

**Annotation (注释):**

- $I_F = \text{Test Cond}$  (测试条件): 150mA,  $T_a = 25^\circ\text{C}$



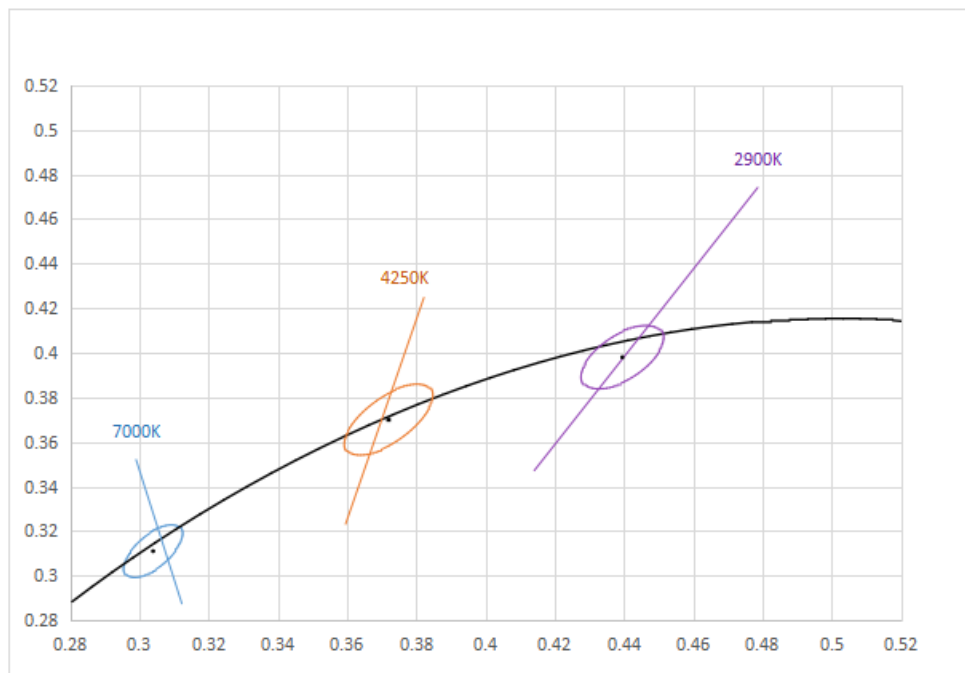
## Test Items and Conditions

### 可靠性测试及条件

Test Items (项目)	Ref. Standard (参考标准)	Test Condition (测试条件)	Time (时间)	Judgment basis (判定依据)	Test Units (测试数量)
Emperature Cycling (温度循环)	JESD22-A104	120°C±5°C 30 min. ↑↓10s min -40°C±5°C 30min.	100 Cycles	IV > 70 % VF < 110% Ir < 5 uA	22 PCS
High Temperature Storage (高温保存)	JESD22-A103	100°C±5°C	1000Hrs.	IV > 70 % VF < 110% Ir < 5 uA	22 PCS
Low Temperature Storage (低温保存)	JESD22-A108	-40 °C±5°C	1000Hrs.	IV > 70 % VF < 110% Ir < 5uA	22 PCS
STEADY-STATE TEMPERATURE- HUMIDITY BIAS LIFE TEST (恒温恒湿通电测试)	JESD22-A101	85°C±5°C/85%RH IF=150mA	1000Hrs	IV > 70 % VF < 110% Ir < 5 uA	22 PCS
Life Test (常温通电)	JESD22-A108	Ta=25°C±5°C IF=150mA	1000Hrs	IV > 70 % VF < 110% Ir < 5 uA	22 PCS
ESD	---	HBM 1~2KVper	---	≥ 1KV (Ir < 5 uA @ VF = -5v)	22 PCS

## CIE Chromaticity Diagram

色度图详细信息



### Bin Range of Chromaticity Coordinate (Bin 区分类及色坐标范围)

CCT	Bin Code	Target Center Point		Major Axis	Short Axis	SDCM	Ellipse Rotation Angle. $\theta$
		Cx	Cy	a	b		
7226k	7200K	0.3040	0.3110	0.00223	0.00095	6	58.23°
4188k	4200K	0.3720	0.3700	0.00313	0.00134	6	54.00°
2904k	2900K	0.4395	0.3980	0.00278	0.00136	6	53.10°

### Annotation (注释):

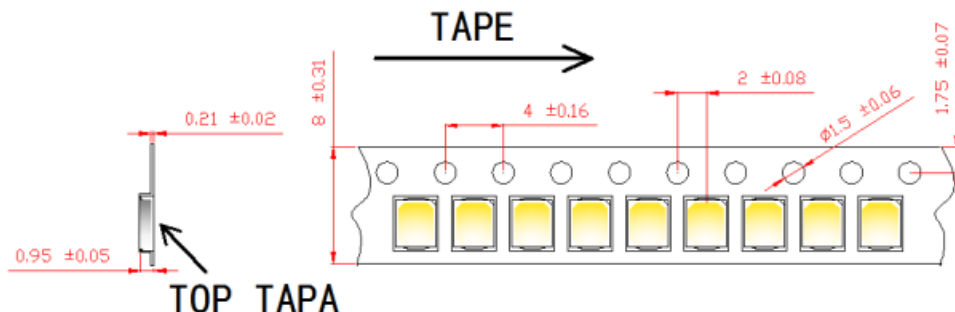
1.  $I_f$  = Test Cond (测试条件): 150mA,  $T_s = 25^\circ\text{C}$



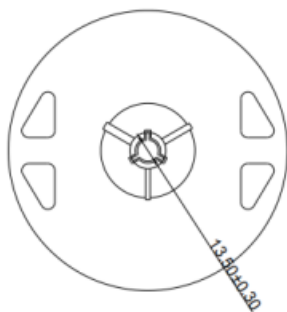
## Packaging

包装

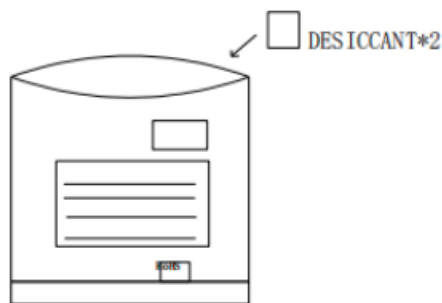
**Tape Specifications** Units:mm (载带规格 单位:mm)



**Reel Dimensions** Units:mm (卷轴尺寸 单位:mm)



**Moisture Resistant Packaging** (防潮包装)



### Annotation

(注释)

1. Maximum allowable number of missing lamps: two  
最大允许缺失 LEDs 的数量: 2 个
2. The cathode is oriented towards the tape sprocket hole in accordance with ANSI/EIA RS-481 specifications.  
根据 ANSI/EIA RS-481 的规格, 产品的负极指向卷带的导孔
3. Package for 2835, 18k pcs/roll  
2835 包装, 18k/卷



## Precaution for Use

### 使用注意事项

Thank you very much for using our LED products ! Silicone differs from the materials conventionally used for the manufacturing of LEDs. The below precautions must be taken during the handling of such devices.

非常感谢您使用本公司的 LED 产品！硅胶封装不同于通常用于制造 LED 的材料。因此在使用此类产品时必须采取以下预防措施。

Pay attention to the followings:

注意以下事项：

#### 1. Storage (存放方式)

To prevent moisture penetration, we recommend the storage in a dry box with a desiccant.

为了避免水分渗入，我们建议将其存放在带有干燥剂的干燥箱（防潮柜）中。

The recommended storage conditions: temperature from 5°C to 30°C, with the maximum humidity of RH50%.

建议储存条件：温度为 5°C 至 30°C，最大湿度为 RH50%。

#### 2. Precautions after Opening the Packaging (打开包装后的注意事项)

Pay attention to the followings:

注意以下几点：

##### 2.1 Recommended conditions after opening the package

打开包装后的推荐条件

- Sealing (密封)

- Temperature: 5~40°C Humidity: less than RH30% (温度：5~40°C 湿度：RH30%以下)

2.2 If the package has been opened for more than 4 week or the color of the desiccant has changed, components should be dried for 10-12hrs at 60±5°C before use.

如果包装打开超过 4 周或干燥剂颜色发生变化，使用前应使用 60±5°C 10-12 小时对元件进行除湿。



### 3. Notes for reflow process(回流焊工艺注意事项)

Pay attention to the followings:

注意以下几点：

- 3.1 After soldering, do not apply mechanical force or excessive vibration during the cooling process until normal temperature is reached.  
焊接后，冷却过程中不要向元件施加外力或过度振动，直至元件恢复正常温度。
- 3.2 Components should not be mounted on warped (non coplanar) portion of PCB.  
元件不应安装在电路板的翘曲（或非共面）部分。
- 3.3 Components should not be exposed for long periods of time.  
元件不可以长时间暴露。
- 3.4 Components should not be exposed to sulphur-containing environments.  
元件不应暴露在含硫环境中。
- 3.5 This device should not be exposed to any type of fluids such as water, oil, organic solvent and etc.  
When cleaning is required, IPA(Isopropyl Alcohol) should be used.  
该装置不应暴露在任何类型的液体中，如水、油、有机溶剂等。当需要清洗时，应使用 IPA（LSO 丙醇）。
- 3.6 When the LEDs are in operation, the maximum current should be determined after measuring the soldering temperature.  
当 LED 工作时，应在测量焊盘温度后确定最大电流。
- 3.7 Long time exposure to sunlight or occasional exposure to UV will cause lens discoloration.  
长时间暴露在阳光下或偶尔暴露在紫外线下会导致变色。
- 3.8 The driving circuit must be designed to allow forward voltage only when it is turned ON.  
If the reverse voltage is applied to LED, migration can be induced, resulting in LED damage.  
驱动电路必须设计为仅在接通时允许正向电压。  
如果对 LED 施加反向电压，可能会导致（PN 结）击穿，导致 LED 损坏。
- 3.9 Do not stack PCBs assembled with LEDs. Impact may induce the scratches on the silicone lens or damage of the internal circuitry.  
请勿将包含 LED 组装好的线路板堆叠在一起。撞击可能会导致硅胶、透镜划伤或元件内部电路损坏。



#### 4. Handling precautions(处理防备措施)

4.1 To ensure the quality of our LEDs, we encapsulate them with silica gels. During processing, mechanical stress on the surface should be minimized as much as possible. Sharp objects should not be used to pierce the sealing compound.

为了确保我们的 LED 的质量，我们使用硅胶进行封装。在加工过程中，应尽量减小表面的机械应力，不得用尖锐的物体刺穿密封胶。

4.2 In general, LEDs should only be handled from the side. By the way, this rule also applies to LEDs without silicone sealant, since their surface can be also scratched.

一般情况下，LED 只能从侧面操作，这也适用于没有硅酮密封胶的 LED，因为表面会被刮伤。

4.3 When populating boards in SMT process, there are basically no restrictions of the shape of the pick and place nozzle, except for the consideration that the mechanical pressure on the surface of the resin should be prohibited. Recommend to use a pick and place nozzle which is larger than the LEDs reflector area.

在 SMT 生产中填充电路板时，除了必须考虑硅胶表面的机械压力应被禁止外，基本上没有限制。

建议选择大于 LED 反射区的挑放喷嘴。

4.4 The increased sensitivity to dust requires special care during processing. In the production environment where a minimal level of dust particles size and amounts cannot be guaranteed, a suitable cleaning process must be applied to the surface after the soldering of components.

Suggest using isopropyl alcohol for the cleaning. For other solvents to be used, they must meet the requirements that these solvents do not dissolve the package or resin.

产品对灰尘敏感性比较高，需要在加工过程中特别小心。在生产环境中，无法保证灰尘和灰尘颗粒的最低水平，必须在部件焊接后对表面进行适当的处理。

建议使用异丙醇清洗。对于要使用其他溶剂，必须满足这些溶剂不会溶解包装或硅胶的要求。

4.5 When there is a need to use external glue for LED products, please do not mold this product into another resin (epoxy, urethane, etc) and do not expose this. product to acid or any material containing sulfur in a confined space.

当我们需要为 LED 应用产品使用外胶时，请不要将本产品塑造成另一种树脂（环氧树脂、聚氨酯等），也不要再在密封空间内使用含酸或硫的物质来处理本产品。

