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# 产品规格书

## SPECIFICATION

产品型号 Model. NO: **KT-3528**-Red/Yellow/Green/Blue  
红色/黄色/绿色/蓝色

文件编号 Document NO:

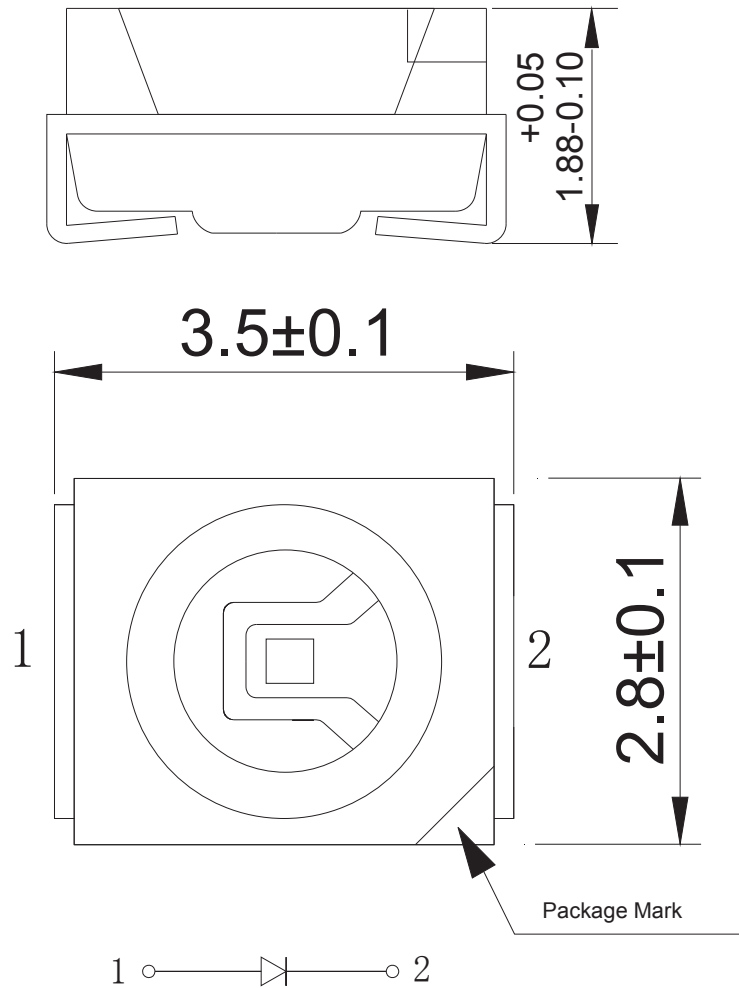
版 次 REV NO :

描述 Description:

- 3.5×2.8mm 贴片发光二极管 3.5×2.8mm Top SMD
- 胶体颜色 Colloid Color: 无色透明 **Water Transparent**
- 发光颜色 Emission Color: 红色/黄色/绿色/蓝色
- 半功率角度 Viewing Angle :120°

## 1. 外形尺寸 Dimensions

单位(Units):毫米(mm)



### 注意:

所有尺寸单位为 mm ， 如无特殊说明误差范围为  $\pm 0.05\text{mm}$

All dimensions area in mm tolerance is  $\pm 0.05\text{mm}$  unless otherwise noted.

## 2. 光电特性 Electrical / Optical characteristics

Parameter 参数	Color 颜色	Symbol 符号	Test Condition	Values数值			Unit 单位
				Min	Typ	Max	
Forward Voltage 正向电压	Red	VF	IF = 20mA	—	2.2	2.6	V
	Green			—	3.2	3.6	
	Blue			—	3.2	3.6	
	Yellow			—	2.2	2.6	
Reverse Current 反向电流	Red	IR	VR = 5V	—	—	30	μA
	Green			—	—	30	
	Blue			—	—	30	
	Yellow			—	—	30	
Dominate Wavelength 主波长	Red	λd	IF = 20mA	—	624	—	nm
	Green			—	525	—	
	Blue			—	470	—	
	Yellow			—	586	—	
Peak Wavelength 峰值波长	Red	λp	IF = 20mA	—	—	—	nm
	Green			—	—	—	
	Blue			—	—	—	
	Yellow			—	—	—	
Spectral Line half-width 半波长宽度	Red	Δλ	IF = 20mA	—	20	—	nm
	Green			—	30	—	
	Blue			—	30	—	
	Yellow			—	20	—	
Luminous Intensity 发光强度	Red	IV	IF = 20mA	145	300	—	mcd
	Green			550	780	—	
	Blue			145	220	—	
	Yellow			120	200	—	
Viewing Angle 发光指向角	Red	2θ1/2	IF = 20mA	—	120	—	Deg.
	Green			—		—	
	Blue			—		—	
	Yellow			—		—	

### 3. 光电特性曲线: Typical electrical/optical characteristic curves

Fig.1 正向电流 Vs. 正向电压

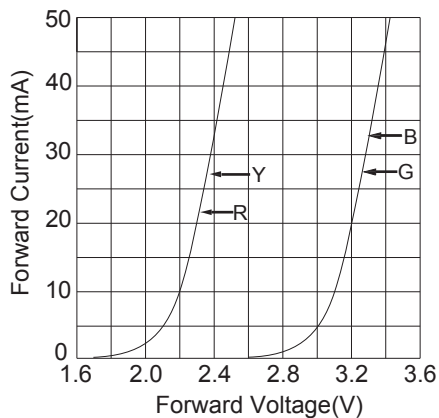


Fig.2 相对亮度 Vs. 正向电流

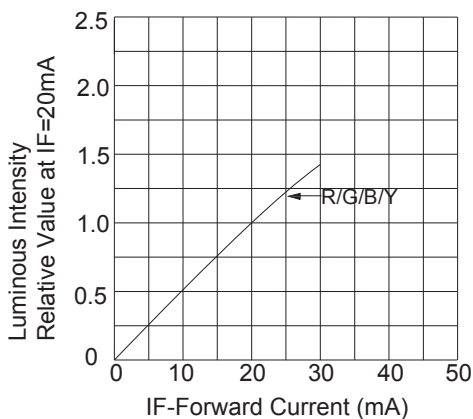


Fig.3 正向电流 Vs. 环境温度

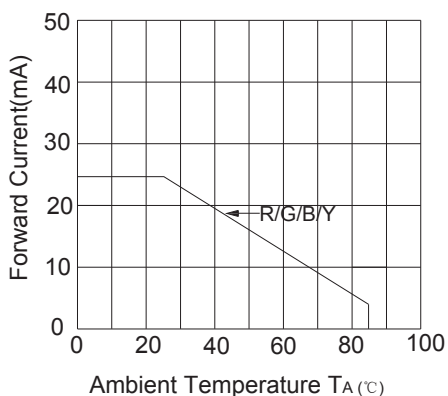


Fig.4 相对亮度 Vs. 环境温度

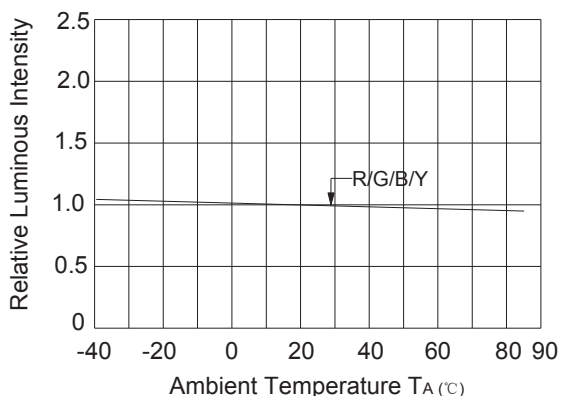
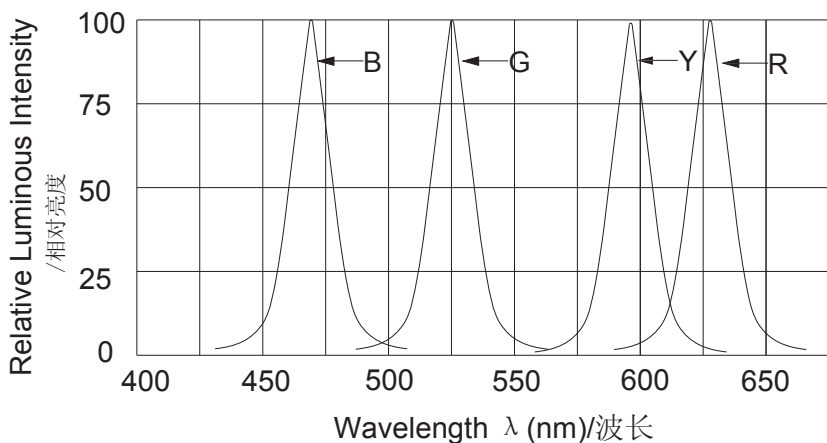
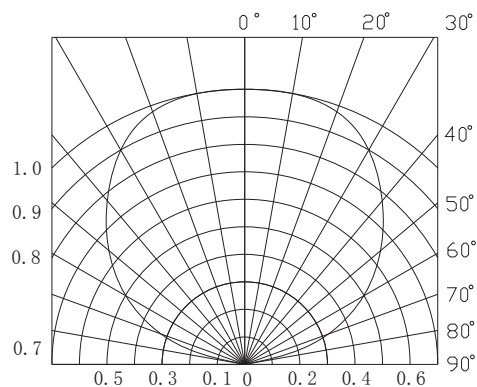


Fig.5 相对亮度 Vs. 波长



SPATIAL DISTRIBUTION



## 4.可靠性 RELIABILITY

### (1)测试项目及结果 Test Items and Results

序号 Items	试验项目 Test Item	试验条件 Standard Test Method	试验设备 Equipment	型号 Type	试验能力 Experiment capacity	参考标准 Reference
1	温度循环 Temperature Cycle	-40℃~25℃~100℃~25℃ 30分钟 5分钟 30分钟 5分钟 30 mins 5 mins 30 mins 5 mins	恒温箱 thermostat	/	温度: -50℃-150℃ Temperature: -50℃-150℃	JEITA ED-4701 100 105
2	冷热冲击 Thermal Shock	-40℃~100℃ 15分钟 15分钟 15mins 15 mins	恒温箱 thermostat	/	温度: -50℃-150℃ Temperature: -50℃-150℃	MIL-STD-202G
3	高温储存 High Temperature Storage	Ta=100℃	恒温箱 thermostat	/	温度: -50℃-150℃ Temperature: -50℃-150℃	JEITA ED-4701 200 201
4	低温储存 Low Temperature Storage	Ta=-40℃	恒温箱 thermostat	/	温度: -50℃-150℃ Temperature: -50℃-150℃	JEITA ED-4701 200 202
5	常温寿命试验 Steady State Operating Life	Ta=25℃	老化架 Aging rack	/	/	
6	高温高湿寿命试验 Steady State Operating Life of High Humidity & Temperature	Ta=60℃ RH=90% IF=20mA(R,G,Y)/15mA(W,B)	高温试验箱 high-temperature test chamber	/	/	
			空气加湿器 air humidifier	/	/	
			空气湿度表 air hygrometer	/	/	
7	可焊性(回流焊) Solderability (Reflow Soldering)	Tsol=235℃±5℃, 使用助焊剂 With soldering flux	回流焊焊机 Reflow Soldering Machine	/	/	JEITA ED-4701 300 303
8	耐焊性(回流焊) Resistance to Soldering Heat(Reflow Soldering)	Tsol=260℃,10秒	回流焊焊机 Reflow Soldering Machine	/	/	JEITA ED-4701300 301

## 5. 注意事项 Cautions

### (1) 焊接条件 Soldering Conditions

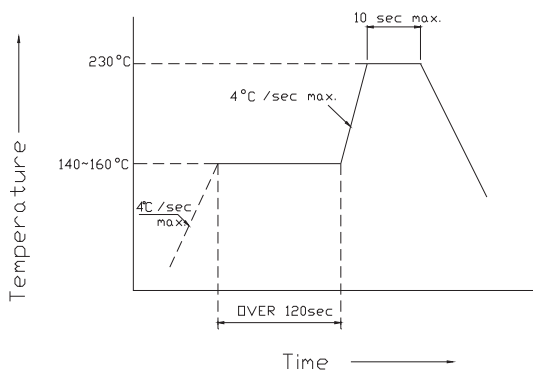
本产品最多只可回焊两次,且在首次回焊后须冷却至室温之后方可进行第二次回焊.

Number of reflow process shall be less than 2 times and cooling process to normal temperature is required between first and Second soldering process.

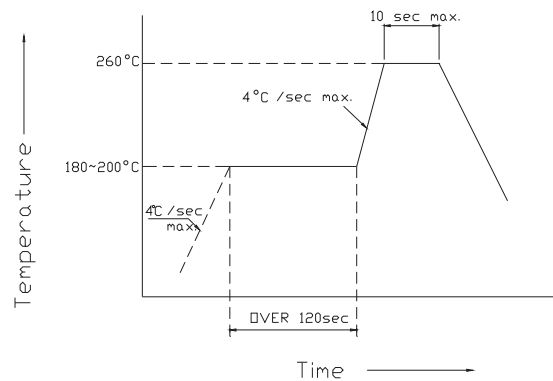
推荐焊接条件(Recommended soldering conditions)

回流焊接 Reflow Soldering			手工焊接 Hand Soldering	
预热温度Pre-heat	有铅Lead Solder	无铅 Lead-free Solder	温度Temperature	350°C Max.
预热时间Pre-heat time	140 ~ 160°C	180 ~ 200°C	焊接时间Soldering time	3 sec. Max.
峰值温度Soldering time	120 sec. Max.	120 sec. Max.		(one time only)
焊接时间Peak temperature	230°C Max.	260°C Max.		
条件Condition	10 sec. Max.	10 sec. Max.		
	参考下图	参考下图		

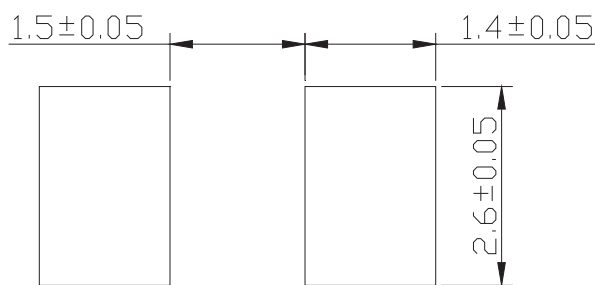
有铅回焊 (Lead Solder)



无铅回焊 (Lead-Free Solder)



推荐焊盘式样(Recommended Soldering Pattern) 单位:毫米(Units:mm)



### (2) 静电 Static Electricity

触摸 LED 时,推荐使用防静电手腕带或防静电手套.

It is recommended that a wrist band or an anti-electrostatic glove be used when handling the LEDs.

所有装置、设备、机器均应接地.

All devices, equipment and machinery must be properly grounded.

静电损坏的 LED 会显示出异常特征:正向电压变低或在低电流时死灯.标准:  $I_F=0.5\text{mA}$  时,  $V_F > 2.0\text{V}$

Damaged LEDs will show some unusual characteristics such as the forward voltage becomes lower, or the LEDs do not light at the low current. Criteria : ( $V_F > 2.0\text{V}$  at  $I_F=0.5\text{mA}$ )

(3)防潮包装 Moisture Proof Package

使用防潮包装

It is recommended that moisture proof package be used .

(4)储藏 Storage

打开包装袋之前,LED 在温度为 30°C 或更低湿度 70%RH 以下,可保存一年.

Before opening the package ,The LEDs should be kept at 30°C or less and 70%RH or less. The LEDs should be used within a year.

(5) 打开包装之后,应在 24hrs 内焊接完毕.

After opening the package, The LEDs should be soldered within 24 hours (1days) after opening the package. If unused LEDs remain, they should be stored in moisture proof packages, such as sealed containers with packages of moisture absorbent material (silica gel).

下列情况发生时, 须要在焊接前重新烘烤 75 ± 5°C,12 小时以上。

- A. 当包装袋破损漏气
- B. 打开包装后在 24hrs 内未焊接完毕
- C. LED 超过存储时间。

If the moisture absorbent material (silica gel) has faded away or the LEDs have exceeded the storage time, baking treatment should be performed using the following conditions Baking treatment : more than 12 hours at 75 ± 5°C.

(6)包装标签如下:

**KT-3528W-L** → 产品型号

**VF: 2.9-3.2v Bin: 4**  
**IV: 3000-4000mcd**  
**CCT: 6000±200K**  
**Φ: 7-8 LM** → 产品参数

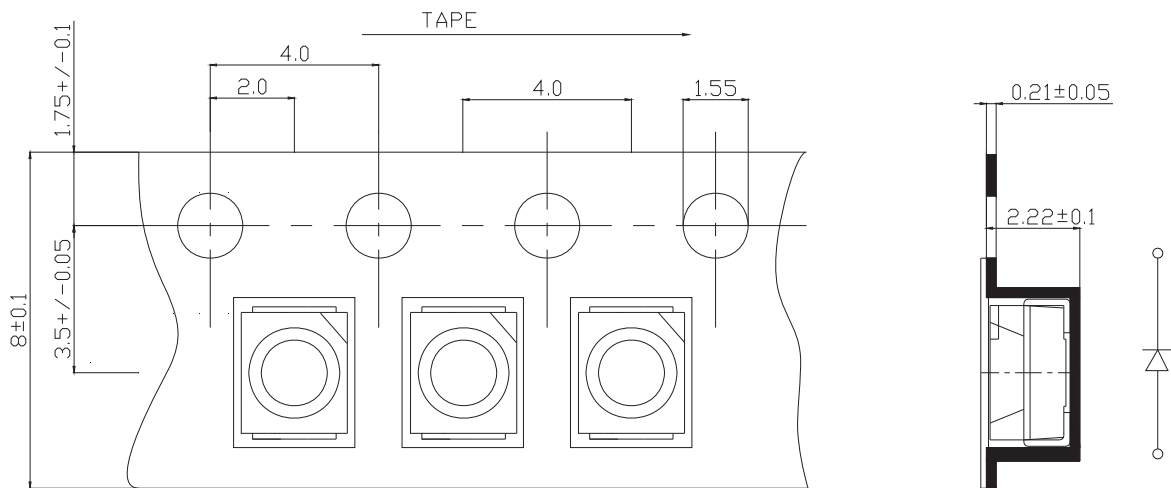
**QTY: 300K** → 包装数量

Barcode → 生产批次  
 \*201200400442\*

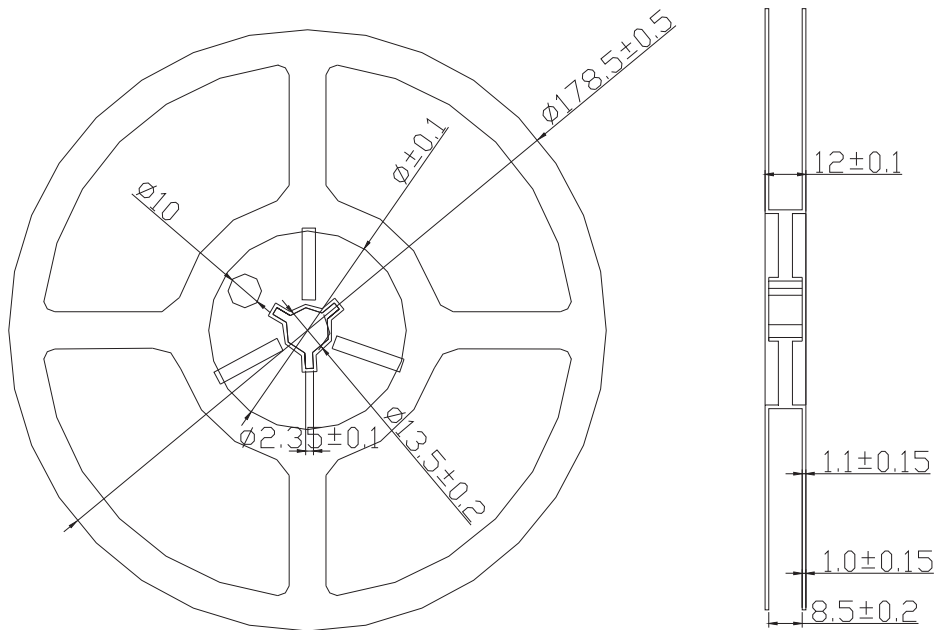
## 6. 包装 PACKAGING

(1)LEDs 在装带之后纸箱包装. The LEDs are packed in cardboard boxes after taping.

(2)装带规格 Taping Specifications (单位:毫米 Units:mm)



(3)卷轴尺寸 Reel Dimension



每卷数量 2000 个/卷 PACKAGE: 2000Pcs/Reel

(4) 最小包装标签注明以下:产品名称.批号.光电范围.数量.

The label on the minimum packing unit shows ; Part Number, Lot Number, Ranking, Quantity.

(5)请注意防水防潮 Keep away from water, moisture in order to protect the LEDs.

(6) 须采取适当防护措施,以防包装箱跌落或受到强力撞击造成对产品的损伤.

The LEDs may be damaged if the boxes are dropped or receive a strong impact against them. so precautions must be taken to prevent any damage.