

SPECIFICATION

◆ Model. P/N NO: **IE-2020RGB-ST-BBI-A1**

S/N NO:

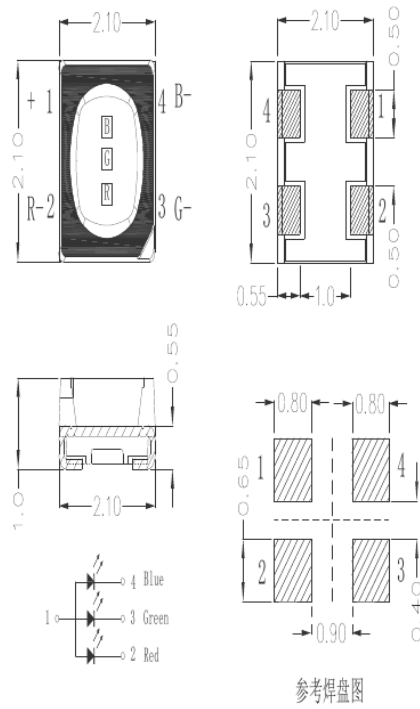
◆ REV NO: **V4.0**

◆ Description:

- 2.1×2.1mm Top SMD
- Colloid Color: White diffused
- Emission Color: Full Color
- Viewing Angle :120°

Dimensions

(Units): (mm)



All dimensions are in mm tolerance is ± 0.05 mm unless otherwise noted.

2. Electrical / Optical characteristics

(1) Absolute Maximum Ratings (TA=25±5°C)

项目 Item	符号 Symbol	最大额定值 Absolute Maximum Rating			单位 Unit
		Blue	Green	Red	
正向峰值电流 Pulse Forward Current IF 正向电流 Forward Current	IFP	50	50	50	mA
功率消耗 Power Dissipation	PD	68	68	44	mW
反向电压 Reverse Voltage	VR	9	V		
灯珠焊盘工作温度 LED Pad Operating Temperature	Topr	-30°C To +85°C			° C
for 10sec. Reflow Soldering: 260°C 贮藏温度 Storage Temperature for 3sec. Hand Soldering : 300°C	Tstg	-40°C To +100°C			° C
Tsld 焊接温度 Soldering Temperature					

IFP Conditions: 1/10 Duty Cycle, 0.1 msec Pulse Width.

(2) Initial Electrical/Optical Characteristics (TA=25±5°C).

符号 Symbol	项目 Item	单位 Units	发光颜色 Device	最小值 Min.	规格值 Typ.	最大值 Max.	测试条件 Test Conditions
VF	正向电压 Forward Voltage	V	Red	1.8		2.3	IF=10mA
			Green	2.6		3.2	IF=5mA
			Blue	2.6		3.2	IF=5mA
IR	反向电流 Reverse Current	uA	-	-	-	10	VR=9V
$\Delta \lambda 1/2$	发光角度 Viewing Angle	°	-	-	120	-	IF=10/ 5/5mA
Iv	发光强度 Luminous Intensity	Mcd	Red	60		100	IF=10mA
			Green	120		210	IF=5mA
			Blue	25		42	IF=5mA
λD	主波长 Dominate Wavelength	Nm	Red	620		625	IF=10mA
			Green	516		530	IF=5mA
			Blue	460		475	IF=5mA

Tolerance of measurement of Vf is ±0.05 V.

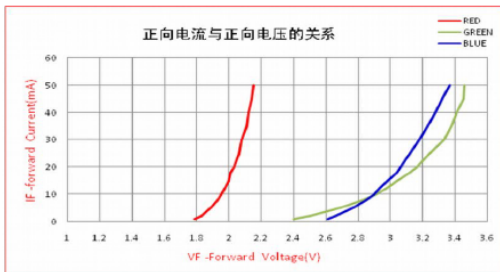
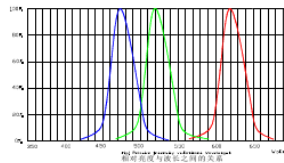
Luminous Intensity Measurement allowance is ± 10%.

Color Coordinates Measurement allowance is ± 1nm.

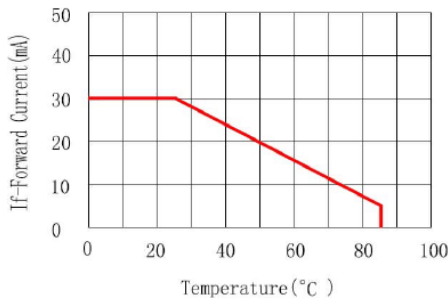
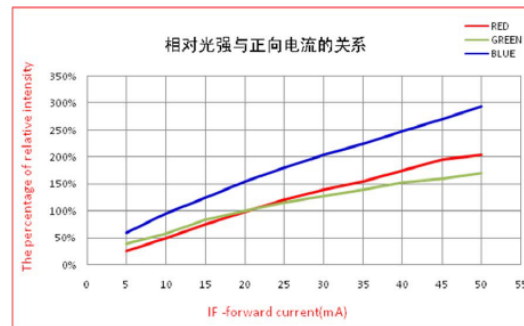
Above are the reference for minimum and maximum of luminous intensity which rank in the rate of 1:1.3 in the process of light splitting when manufacturing massively.

Above are the reference for minimum and maximum of wavelength, while it ranks as:R:5nm/G:3nm/B:3nm.when light splitting in mass manufacturing.

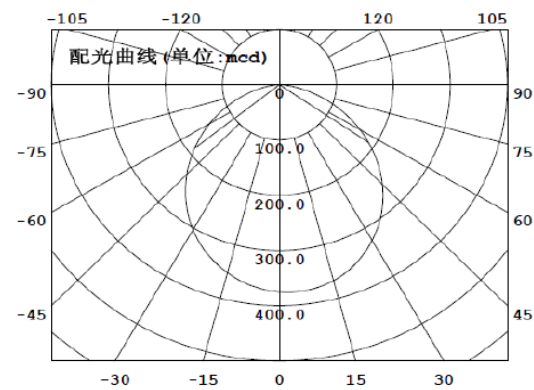
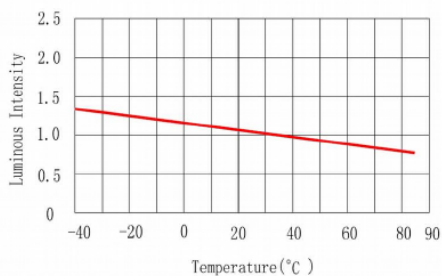
3. Characteristic curve



正向电流与温度关系曲线图



亮度与环境温度关系曲线图



4. RELIABILITY

Test Items and Results

序号 NO.	试验项目 Test Items	参考标准 Reference	试验条件 Test condition		实验数 Laboratory number	允收 水准 LTPD
1 温度 循环 保存 tempe rature cyclin g test	EIAJ ED-4701 100 105	40℃~25℃~ 100℃~25℃ 30min~5min~ 30min~5min	100 cycles	22	0/22	
2	冷热冲击保存 Thermal shock test	EIAJ ED-4701 300 307	-40℃~100℃ 15min~15min	500 cycles	22	0/22
3	高温储存 High temperature storage test	EIAJ ED-4701 200 201	Ta=100℃	1000 hrs	22	0/22
4	低温储存 Low temperature storage test	EIAJ ED-4701 200 202	Ta=-40℃	1000 hrs	22 0/22	
5	常温寿命试验 Continuous operating test	EIAJ ED-4701 100 101	Ta=25±5℃ IF=10mA	1000 hrs	22	0/22
6	高温高湿寿命试验 High temperature and humidity operating test	EIAJ ED-4701 100 102	Ta=85℃ RH=85% IF=10mA	1000 hrs	22	0/22
7	耐焊性(回流 焊) Soldering resistance test EIAJ ED-4701 300 301	Pre treatment: 35℃ 95%RH 96 小时 Tsol=260℃, T=10s	3times	22	0/22	

8	潮湿等级 3 MSL3	IPC/JEDEC J-STD-020D.1	1.除湿 125 °C/24H 2. Ta=60°C RH=60%吸湿 52H 3. Tsol=260°C, T=10s 回流焊	3times	22	0/22
备注 Comment	<p>以上试验项目如与客户试验要求存在差异的或者特殊客户特殊要求的可根据实际情况按照客户的要求进行试作, 客户未要求的按我司试验标准试作. 不同产品使用不同电流进行测试。</p> <p>All the tests such as with the customer requirements exist differences or special customer's special requirement, can according to the actual situation in accordance with the requirements of customers are trying, not required by the customer according to the standard of our test trial. Different products using different current test.</p>					

5. 注意事项 Cautions

5.1 焊接（包括手动和回流焊） Soldering (Including manual and reflow soldering)

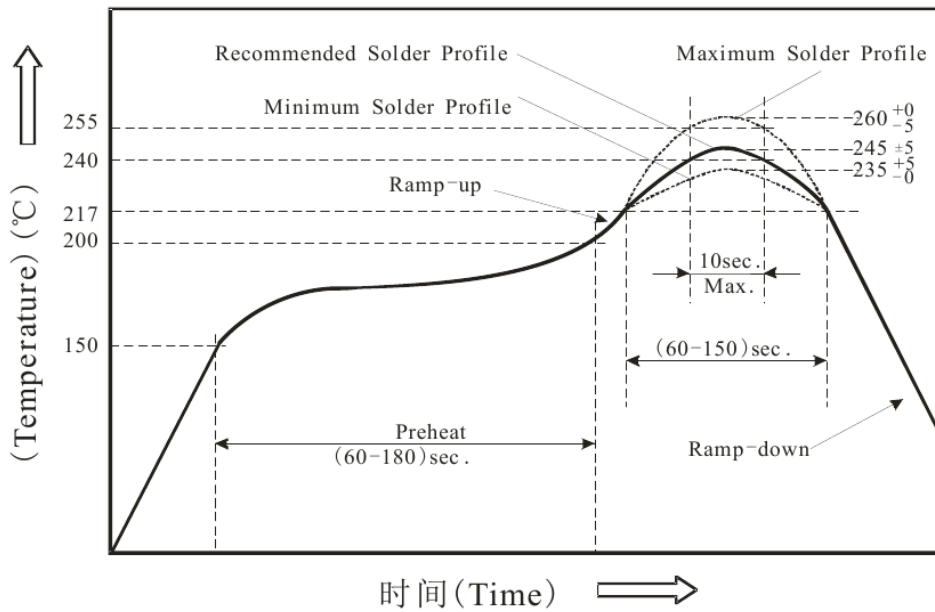
5.1.1 使用烙铁人手焊接 Hand Soldering

焊接时烙铁的温度必须保持在 300°C 以下，且每个引脚只能进行一次焊接，每次焊接的持续时间不得超过 3 秒。因 LED 尺寸较小，采用手工焊接较难管控焊接温度及加锡时间的一致性，且易破坏灯体结构，严重时可能造成 LED 失效，所以请尽量使用回流焊机台作业。

Welding when the temperature of the soldering iron must be kept below 300 °C, and each can only make a welding electrode, the duration of each welding should not more than 3 seconds. Due to the small size of leds, the use of manual welding are harder to control welding temperature and tin time consistency, and easy to destroy the light body structure, serious when can cause the LED failure, so please use reflow welding machine operation.

5.1.2 回流焊接：建议使用以下无铅回流焊接温度图进行。

Reflow soldering: it is recommended to use the following figure for lead-free reflow soldering temperature.



Note: the reflow soldering only twice, in the process of reflow soldering temperature, please don't impose any pressure on the LED. After completion of welding, after the product after cooling to room temperature, and other processing.

5.2 storage

This product use sealed moisture-proof anti-static aluminum foil bag bag with desiccant, handling should be avoided in the process of extrusion, prick bags happens, at the same time to avoid the reliability of the product be affected with damp be affected with damp cause failure problem, need to be LED products storage and moisture-proof measures before welding.

5.2.1

Kaifeng before, the LED product in temperature is not higher than 30 °C, humidity is not higher than 60% RH save time for 90 days in the environment.

5.2.2

After opening, the LED product must be stored in a temperature is not higher than 30 °C, humidity is not higher than 60% RH of the environment, and should be used up within 24 hours

5.2.3

For the LED not welding, if the packing failure, or product is not conform to the above and effective storage conditions, to be

baked 60°C / 24h.

5.3 Electrostatic protection

5.3.1

Static and transient causes product characteristics change, such as forward voltage to reduce, if severe cases may even damage the product. So for the entire process (production, testing, packaging, etc.) in direct contact with the LED workers to make measures to prevent and eliminate static electricity.

5.3.2

All related equipment and machines should be properly grounded, grounding ac resistance is less than 1.0 ohms, workbench to pad surface resistance is 10⁶-10⁹ Ω table mat.

5.3.3

In easy to produce static environment and equipment, must also be installed ion fan, operator need to use anti-static bracelet in the process of operation, anti-static MATS, anti-static overalls, work shoes, gloves, anti-static container, etc., take put material with colloid part as much as possible.

5.4 Other items

5.4.1

Very fragile epoxy resin encapsulation part of LED products, please do not use hard, sharp objects scratching encapsulating resin parts, use tweezers clip also should be careful when you pick up the LED.

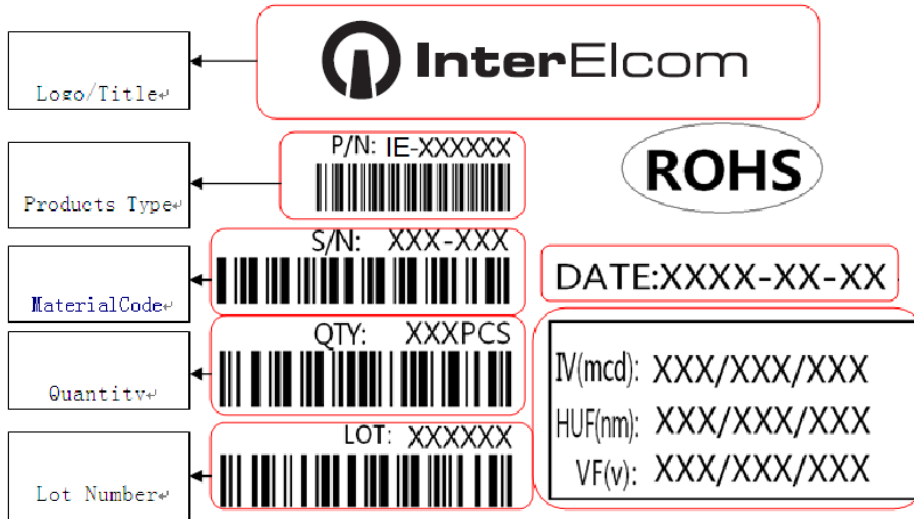
5.4.2

Please do not directly by hand take LED products: directly with the hand take LED products will not only pollution encapsulating resin surface, may also be due to factors such as electrostatic leads to a change in product performance.

5.4.3

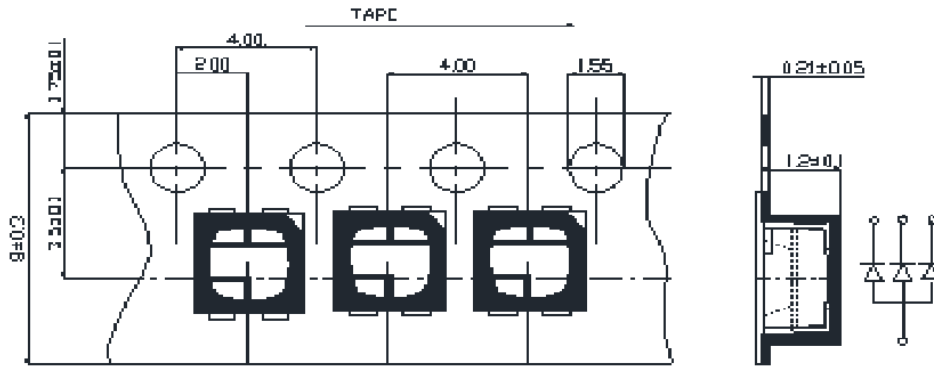
Please do not put too much pressure on LED product, especially when LED products under high temperature condition (for example) in the process of reflow soldering, excessive stress can directly affect the sealed tube core and gold thread.

Label details:

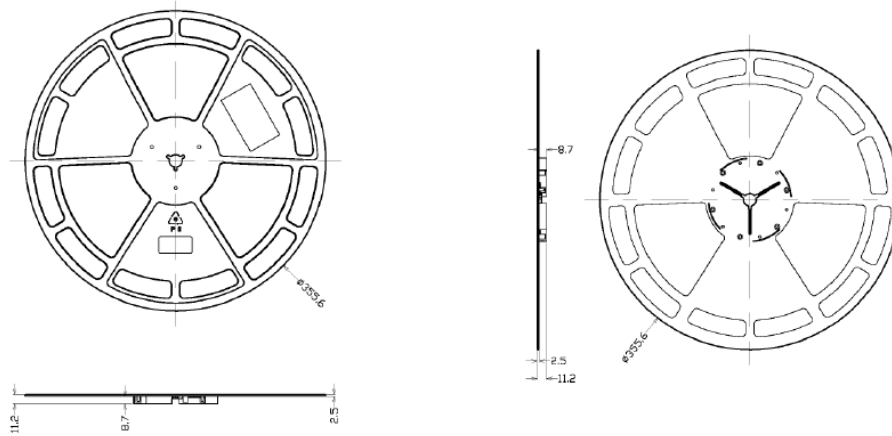


Notes of Label:

- ① Please make sure the type of our smd products, different types cannot be mixed when using.
- ② Products in different lot number cannot be used in one display panel together ,even with the same type and parameter.
- ③ Different type of products with same parameter cannot be mixed and used.



(4) 卷轴尺寸 Reel Dimension



10000 / PACKAGE: 10000Pcs/Reel.

(5)

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

(6)

Keep away from water, moisture in order to protect the LED.

(7)

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