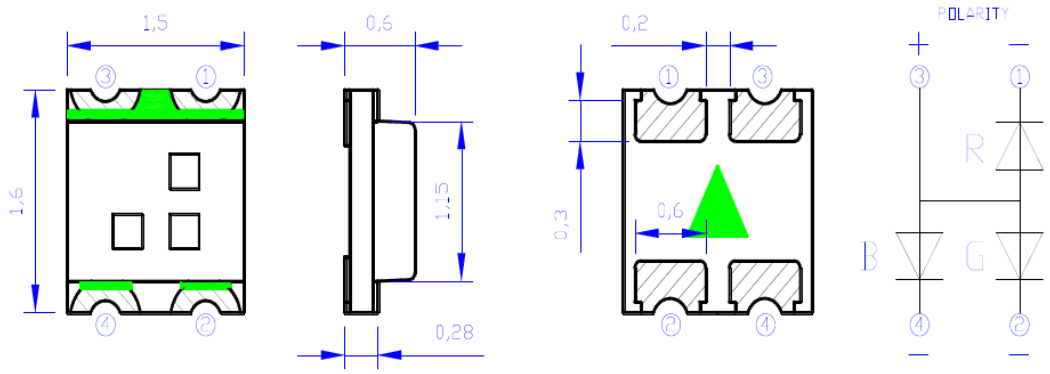
SPECIFICATION

- P/N NO：IE-1616RGB-ST-BBI-A1
- S/N NO：
- Document. NO：
- REV NO：V4.0
- Description:

- 1.6×1.6mm Chip SMD
- Colloid Color: White diffused
- Emission Color: Full Color
- Viewing Angle :120°

1. Dimensions

(Units):(mm)



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

2. Electrical / Optical characteristics

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

Item	Symbol	Absolute Maximum Rating			Unit
		Blue	Green	Red	
Forward Current	IF	20	20	20	mA
Pulse Forward Current	IFP	50	50	50	mA
Power Dissipation	PD	68	68	44	mW
Reverse Voltage	VR	9			V
LED Pad Operating Temperature	Topr	-30°C To +85°C			° C
Storage Temperature	Tstg	-40°C To +100°C° C			
Soldering Temperature	Tsld	Reflow Soldering: 260°C Hand Soldering : 300°C			for 10sec. for 3sec.

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

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

Symbol	Item	Units	Device	Min.	Typ.	Max.	Test Conditions
VF	Forward Voltage	V	Red	1.8		2.3	IF=20mA
			Green	2.6		3.2	IF=20mA
			Blue	2.6		3.2	IF=20mA
IR	Reverse Current	uA	-	-	-	5	VR=5V
Δ λ1/2 Viewing Angle	°	-	-	120	-	-	IF=20mA
Iv	Luminous Intensity	Mcd	Red		140		IF=20mA
			Green		700		IF=20mA
			Blue		160		IF=20mA
λD	Dominate Wavelength	Nm	Red	620		625	IF=20mA
			Green	516		530	IF=20mA
			Blue	460		475	IF=20mA

Tolerance of measurement of Vf is ±0.05 V.

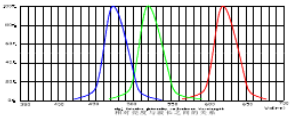
Luminous Intensity Measurement allowance is ± 10%.

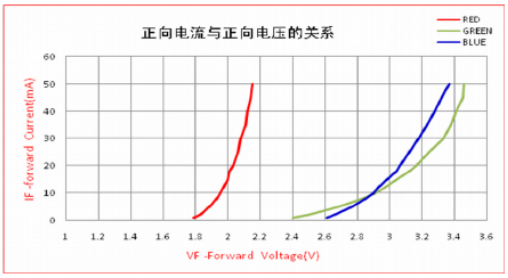
Color Coordinates Measurement allowance is ± 1nm.

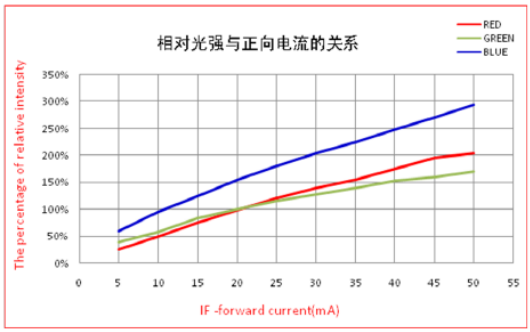
Above are the reference for minimum and maximum of luminous intensity which rank in the rate of 1:1.3 in the process of light splitting when manufacturing massively.

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.

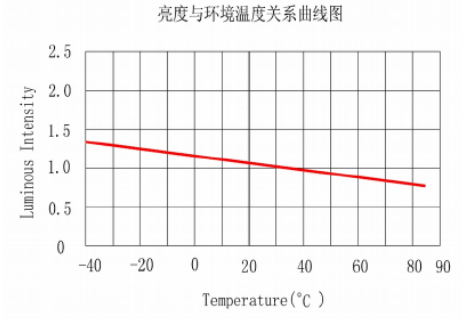
3. **Characteristic curve**

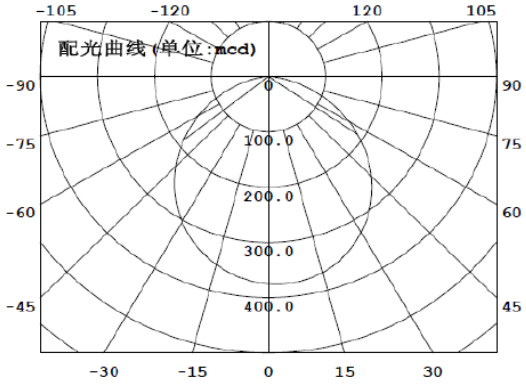




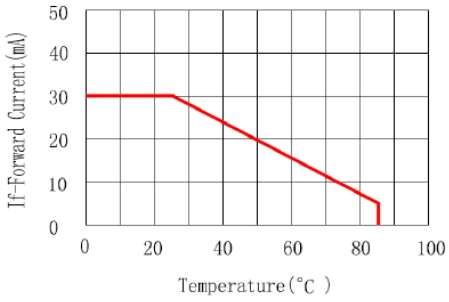


亮度与环境温度关系曲线图





正向电流与温度关系曲线图



4. **RELIABILITY**

Test Items and Results

NO.	Test Items	Reference	Test condition Laboratory number		LTPD	
1	temperature cycling test	EIAJ ED-4701 100 105	-40℃～25℃～100℃～25℃ 30min ～5min ～30min～5min	100 cycles	22	0/22
2	Thermal shock test	EIAJ ED-4701 300 307	-40℃～100℃ 15min～15min	500 cycles	22	0/22
3	High temperature storage test	EIAJ ED-4701 200 201	Ta=100℃	1000 hrs	22	0/22
4	Low temperature storage test	EIAJ ED-4701 200 202	Ta=-40℃	1000 hrs	22	0/22
5	Continuous operating test	EIAJ ED-4701 100 101	Ta=25±5℃ IF=10mA	1000 hrs	22	0/22
6	High temperature and humidity operating test	EIAJ ED-4701 100 102	Ta=85℃ RH=85% IF=10mA	1000 hrs	22	0/22
7 Solde ring resist ance test	EIAJ ED-4701 300 301	Pre treatment： 35℃ 95%RH 96 Tsol=260℃, T=10s	3times	22	0/22	
8	MSL3	IPC/JEDEC J-STD-020D.1	1.125℃/24H 2. Ta=60℃ RH=60% 52H 3. Tsol=260℃, T=10s	3times	22	0/22
Comment	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.					

5. Cautions

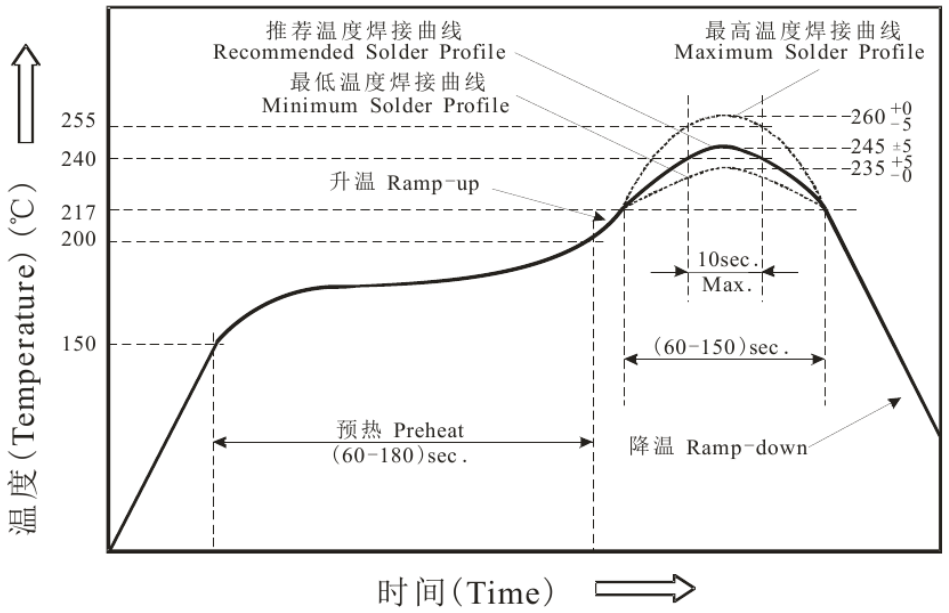
5. 1 Soldering (Including manual and reflow soldering)

5. 1. 1. Hand Soldering

Welding when the temperature of the soldering iron must be kept below 300 □, 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.

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 □, 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 ℃, 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℃ / 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

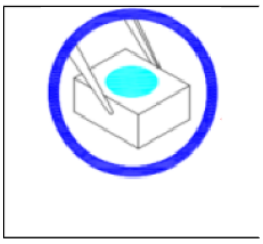
Very fragile epoxy resin encapsulation part of LED products, please do not use hard, sharp objects scratching encapsulating resin parts, use tweezers clip also should be careful when you pick up the LED.

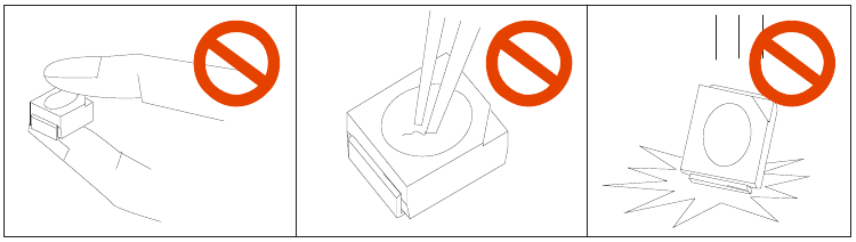
5. 4. 2

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.

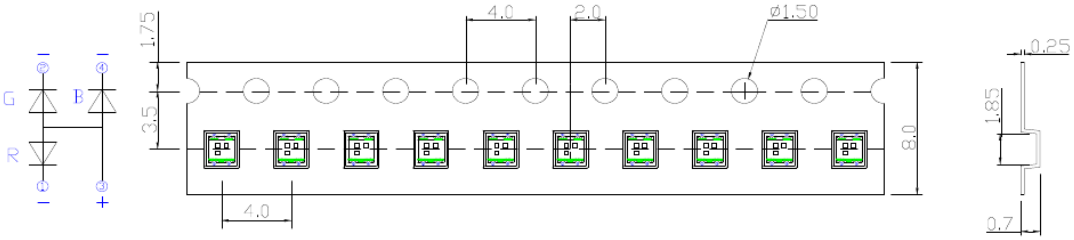




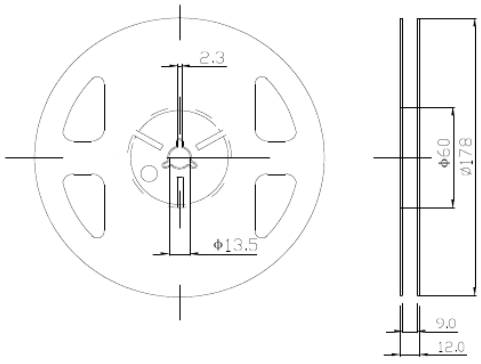
6. PACKAGING

(1) The LED are packed in cardboard boxes after taping.

(2) Taping Specifications (Units:mm)



(3) Reel Dimension



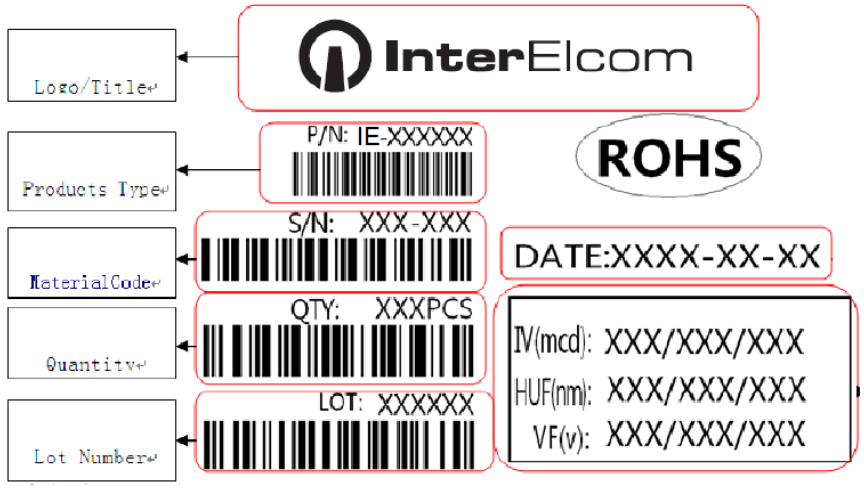
PACKAGE:4000Pcs/Reel.

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

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

(6) 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.

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.

(1) If necessary, please use leaded soldering as more as possble.

(2) High temperature cause serious heat damage to LED products, make sure the temperature of the soldering area is below 230℃.