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# SPECIFICATION

Model. P/N NO: IE-3528RGB-ST-BFI-A1

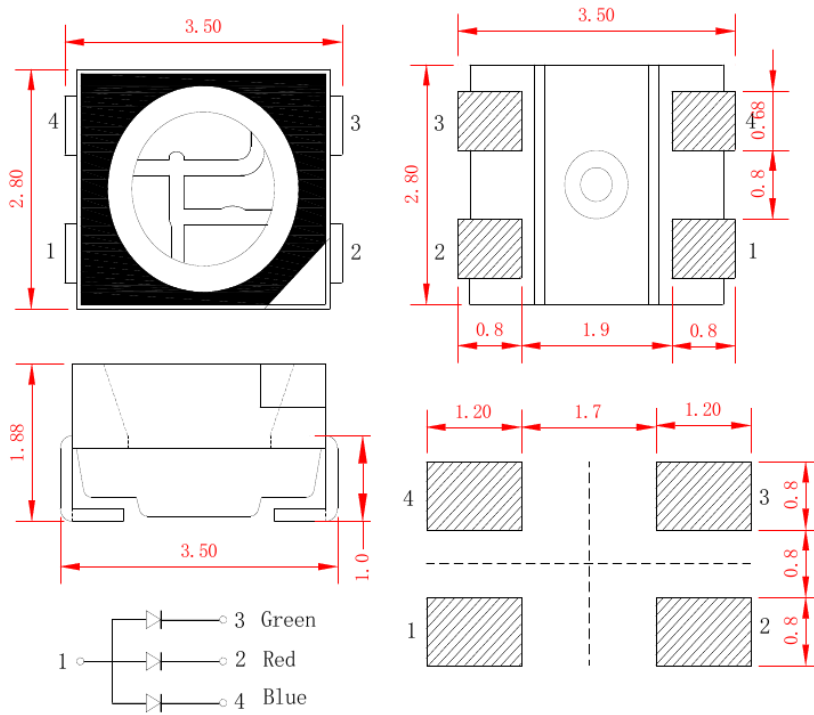
REV NO: V3.0

## Description:

- 3.5×2.8mm Top SMD
- Colloid Color: Water Transparent
- Emission Color: Full Color
- Viewing Angle :120°

# 1. Dimensions

(Units): (mm)



All dimensions area in mm tolerance is  $\pm 0.1$ mm unless otherwise noted.

## 2. Electrical / Optical characteristics

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

Item	符号 Symbol	最大额定值 Absolute Maximum Rating			单位 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
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 : 350°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=10mA
			Blue	2.6		3.2	IF=5mA
IR	Reverse Current	uA	-		10	VR=9V	
$\Delta \lambda 1/2$	Viewing Angle	°	-		120		IF=20/10/5mA
Iv	Luminous Intensity	mcd	Red	150		300	IF=20mA
			Green	350		550	IF=10mA
			Blue	50		85	IF=5mA
$\lambda D$	Dominate Wavelength	nm	Red	615		625	IF=20mA
			Green	515		535	IF=10mA
			Blue	460		475	IF=5mA

Tolerance of measurement of Vf is  $\pm 0.05$  V..

Luminous Intensity Measurement allowance is  $\pm 10\%$ .

Color Coordinates Measurement allowance is  $\pm 1$ nm.

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

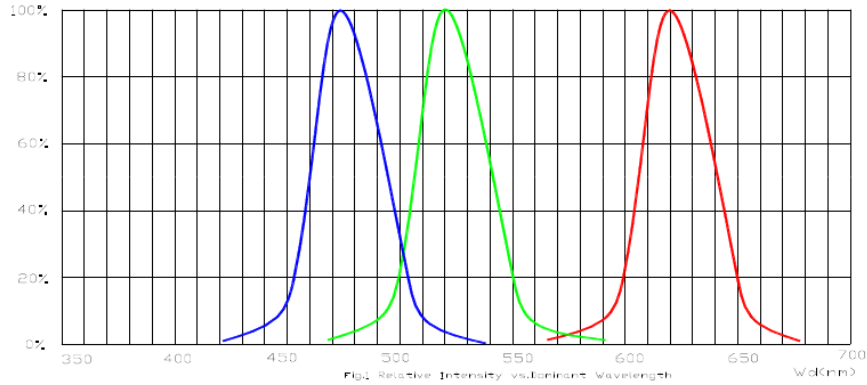
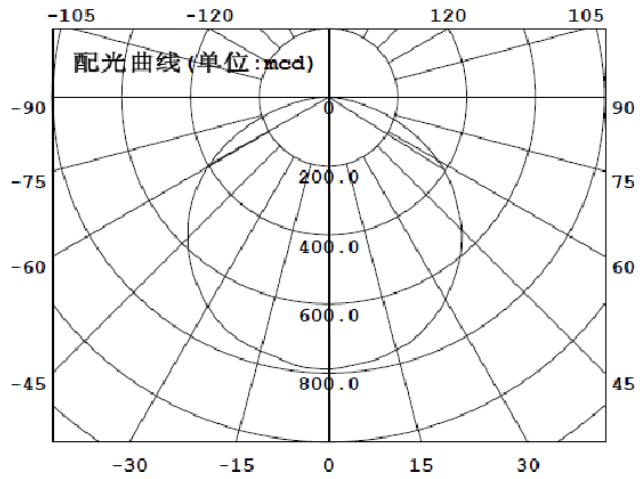
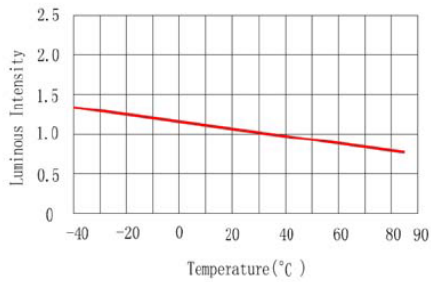
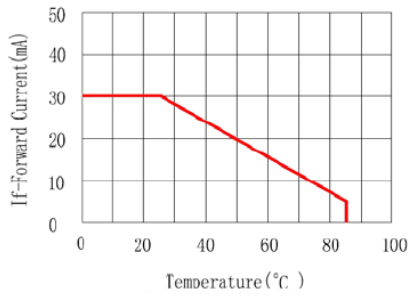
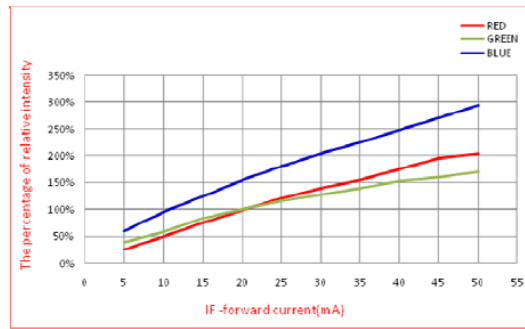
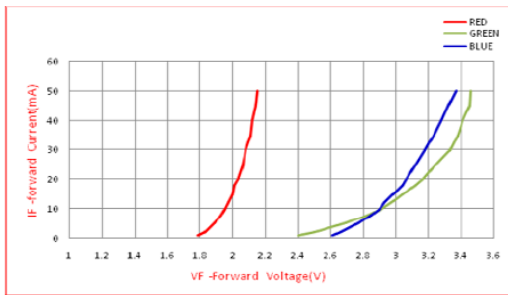


Fig.4 Relative Intensity vs. Wavelength



#### 4. RELIABILITY

##### (1) Test Items and Results

序号	试验项目	参考标准	试验条件	持续时间	取样数	接收水准（不合格数量/抽样总数）
1	温度循环	EIAJ ED-4701 100 105	-40℃~25℃~100℃~ 25℃ 30分钟 5分钟 30分钟 5分钟	循环 100 回合	22	0/22
2	冷热冲击	EIAJ ED-4701 300 307	-40℃~100℃ 15分钟 15分钟	循环 500 回合	22	0/22
3	高温储存	EIAJ ED-4701 200 201	T <sub>a</sub> =100℃	1000 小时	22	0/22
4	低温储存	EIAJ ED-4701 200 202	T <sub>a</sub> =-40℃	1000 小时	22	0/22
5	常温寿命 试验	EIAJ ED-4701 100 101	T <sub>a</sub> =25±5℃ I <sub>F</sub> =20mA	1000 小时	22	0/22
6	高温高湿 寿命试验	EIAJ ED-4701 100 102	T <sub>a</sub> =85℃ RH=85% I <sub>F</sub> =20mA	1000 小时	22	0/22
7	可焊性 (回流 焊)	EIAJ ED-4701 300 303	T <sub>so1</sub> =245℃±5℃, 5 秒 使用助焊剂	焊接一次, 5 秒	22	0/22
8	耐焊性 (回流焊)	EIAJ ED-4701 300 301	T <sub>so1</sub> =260℃, 10 秒 预处理: 35℃ 95%RH 96 小时	焊接三次, 每 次 10 秒	22	0/22

## 5. Cautions

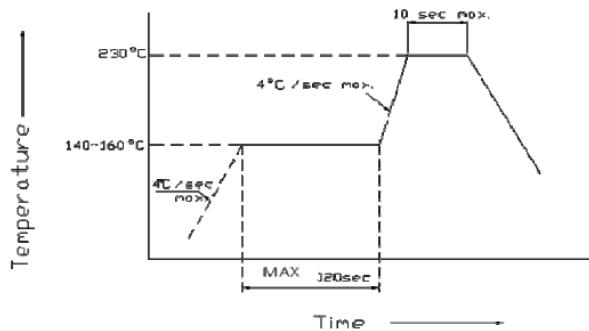
### (1) Soldering Conditions

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

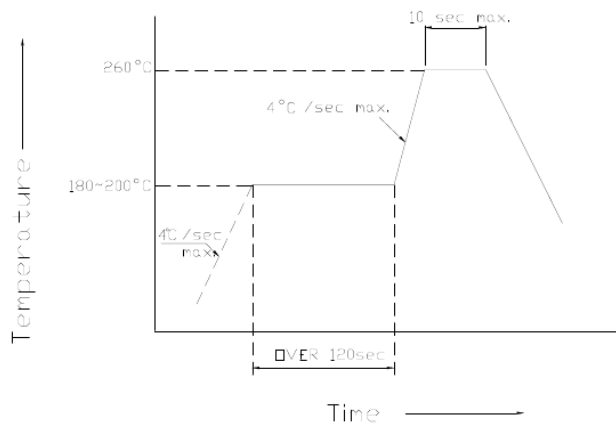
(Recommended soldering conditions)

Reflow Soldering			Temperature Soldering time	350° C Max. 3 sec. Max. (one time only)
Condition	Lead Solder	Lead-free Solder		
	Pre-heat	140 ~ 160° C	180 ~ 200° C	
Pre-heat time	120 sec. Max.	120 sec. Max.		
Peak temperature	230° C Max.	260° C Max.		
Soldering time	10 sec. Max.	10 sec. Max.		

(Lead Solder)



(Lead-Free Solder)



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(2) Static Electricity

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

All devices, equipment and machinery must be properly grounded.

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 : (VF > 2.0V at IF=0.5mA)

(3) Moisture Proof Package

It is recommended that moisture proof package be used .

(4) Cautions:

4.1.

Please check if there is air leak before opening the package, if so, please return the goods back to take drying process for later using.

4.2

Products can be used within 15days after packaging, after that, they must be:

4.2.1

Soldered within 24 hrs

4.2.2

Used in the condition: 30°C within and 60%RH below

4.2.3

Stored in 30%RH for moisture below.

4.3.

Products cannot be used for and over 15days after being packaged unless opening the package and take drying our process in 85°C/6H.

4.4.

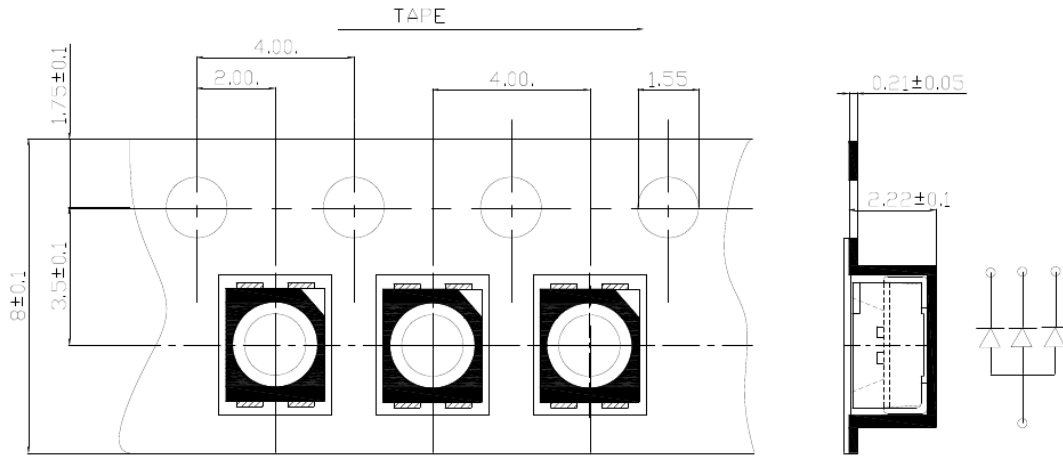
Products not be used for or over 60days after being packaged please return back to take drying out and packaging process for forward using.

4.5.

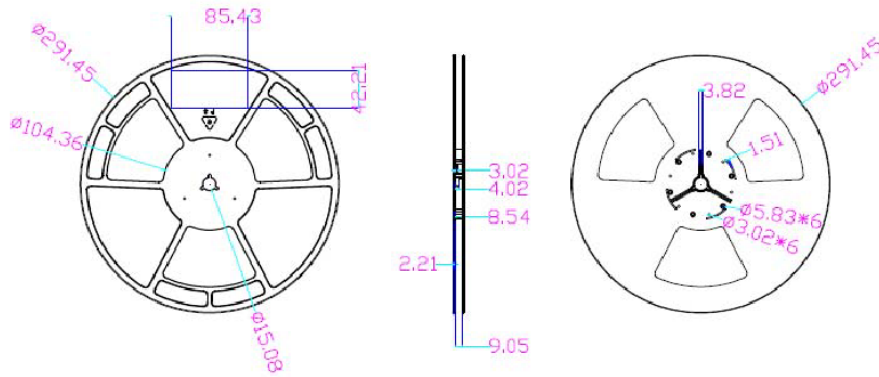
Products not be used after opening the package need to be dried out for 85°C/6H

## 6. PACKAGING

- (1) The LEDs are packed in cardboard boxes after taping.
- (2) Taping Specifications (Units:mm)



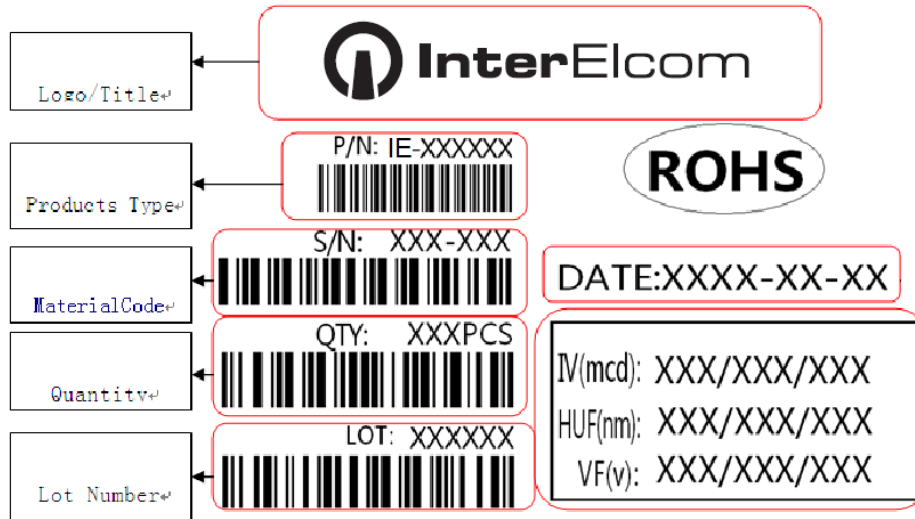
- (3) Reel Dimension



PACKAGE: 6000Pcs/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 LEDs.
- (6) 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.

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 possible.

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