



承 认 书

SPECIFICATION FOR APPROVAL



This is a preliminary specification intended for design purposes and subject to change without prior notice.

Commodity:

- ❖ Outline (L×W×H) :3.2mm×1.0mm×1.5mm
- ❖ Forward current: $2\text{mA} \leq I_F \leq 25\text{mA}$
- ❖ Typical viewing angle 50% I_v : 120°
- ❖ RoHS/HF and REACH-compliant
- ❖ Lens color: White Diffused
- ❖ Good thermal dissipation & optical uniformity
- ❖ Qualified according to JEDEC moisturevity Level 3

➤ PLEASE PAY ATTENTION TO THE MOISTURE-ABSORBING PROBLEM, AND REFER TO THE OPERATING INSTRUCTIONS FOR THE DETAILS

客户名称/型号 Customer Name/ No		
产品型号 Model No	H3210BVGB01C17	
样品编号 Sample No		
客户确认 Check By	客户核准并签章 Authorized By	客户产品要求范围 Application Range

❖ 承认盖章后请寄回承认书一份。自客户下单 1 个月以内未签回且无任何反馈，视为默认承认

Please return a document after admitted. After the order, it is regarded as the default if the customer has not signed back and not any feedback within 1 month.

Approved By: 陆水树

Checked By: _____

Prepared By: 陈敏琪



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Specification version update resume

Version	Update content	Update time	Remarks
V1	正式发行	2021-2-20	陈敏琪
V2	更新绿标	2021-4-19	陈敏琪



❖ Product Code Method

$$\frac{H}{1} - \frac{3210}{2} - \frac{B}{3} - \frac{VGB0}{4} - \frac{1}{5} - \frac{C}{6} - \frac{17}{7}$$

1、The Company Initials	2、Lead Frame	3、Light Code	4、Dice Wavelength & Luminous Rank
H: Hongbright	3210 (L×W) : 3.2mm×1.0mm	B: Side light	VGB0: Red/Green/Blue

5、Lap Polarity	6、Zener Code	7、Material Flow Code
1: common anode	C: Without Zener	Material Flow Code

❖ Maximum Rating (Ta=25℃)

Characteristics	Symbol	Rating	Unit
DC Forward Current	I _F	25	mA
Pulse Forward Current*1	I _{FP}	90	mA
Reverse Voltage	V _R	5	V
ESD	ESD _{HBM}	2	KV
Operating Temperature Range	T _{OP}	-40~+80	℃
Storage Temperature Range	T _{STG}	-40~+80	℃
Soldering Temperature*2	T _{SD}	260	℃

Notes :

- ❖ *1: Duty 1/10, pulse width 0.1ms
- ❖ *2: The maximum of soldering time is 10 seconds in T_{SD}
- ❖ There is no maximum or typical voltage parameter
- ❖ For other ambient, limited setting of current will be depended on de-rating curves



❖ Typical Product Characteristics

Characteristics	Symbol		Value			Unit	Test condition
			Min.	Typ.	Max.		
Forward Voltage	V_F	R	1.6	...	2.2	V	$I_f=5mA$
		G	2.5	...	3.1		
		B	2.6	...	3.2		
Luminous Intensity	I_v	R	50	...	150	mcd	$I_f=5mA$
		G	150	...	400		
		B	20	...	80		
Dominant Wavelength	λ_d	R	617	...	629	nm	$I_f=5mA$
		G	520	...	535		
		B	464	...	476		
Reverse Current	I_R		...	...	10	μA	$V_R=5V$
View Angle	201/2		...	120	...	deg	$I_f=5mA$

Notes:

- ❖ Measurement Errors: Forward Voltage: $\pm 0.1V$, Luminous Intensity: $\pm 10\%$ mcd, Wavelength(x,y) $\pm 1nm/\pm 0.01$
- ❖ Electrical-Optical Characteristics ($T_a=25^\circ C$)



❖ Range of Bins

1). Forward Voltage Bins

V _F (V)			
Bin code		Min	Max
R	DZ	1.6	1.8
	EZ	1.8	2.0
	FZ	2.0	2.2
G	JZ	2.5	2.7
	KZ	2.7	2.9
	LZ	2.9	3.1
B	JZ	2.6	2.8
	KZ	2.8	3.0
	LZ	3.0	3.2

2). Intensity Bins

I _v (mcd)			
Bin code		Min	Max
R	07	50	70
	08	70	100
	09	100	150
G	11	150	200
	12	200	250
	13	250	320
	14	320	400
B	05	20	30
	06	30	50
	07	50	80

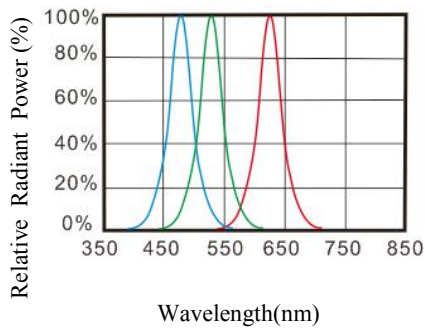
3). Dominant Wavelength

λ _d (nm)			
Bin code		Min	Max
R	RA	617	620
	RB	620	623
	RC	623	626
	RD	626	629
G	GF	520	525
	GG	525	530
	GH	530	535
B	BU	464	467
	BV	467	470
	BW	470	473
	BX	473	476

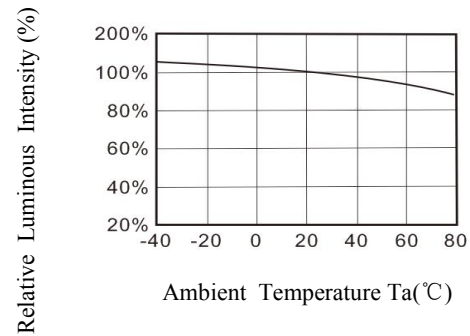


❖ Electronic-optical Characteristics

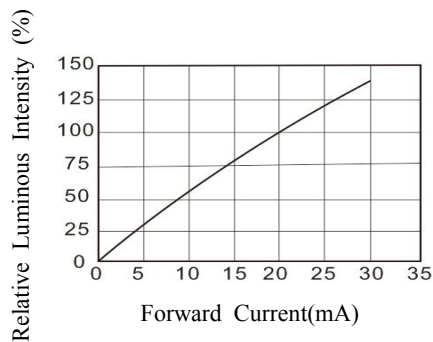
1). Relative Spectral Distribution



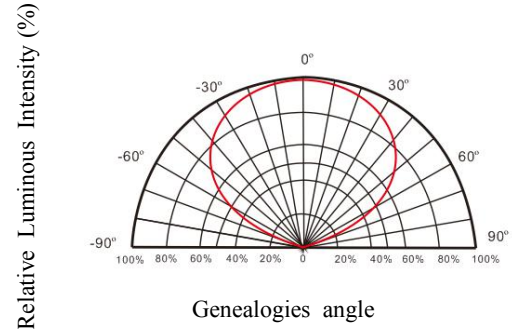
2). Relative Luminous Intensity .Ambient Temperature



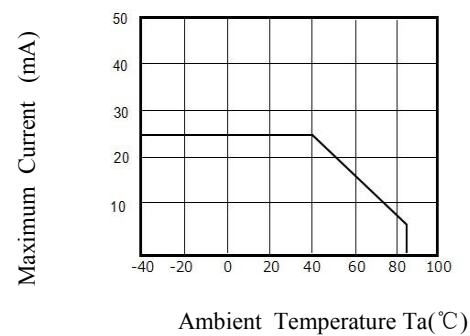
3). Relative Luminous Intensity .Current



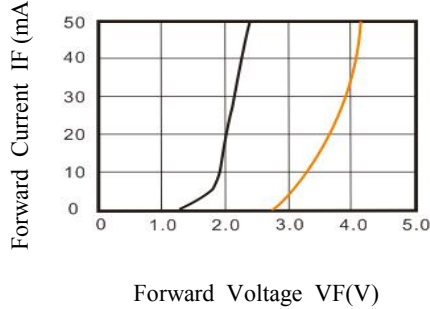
4). Typical Spatial Distribution



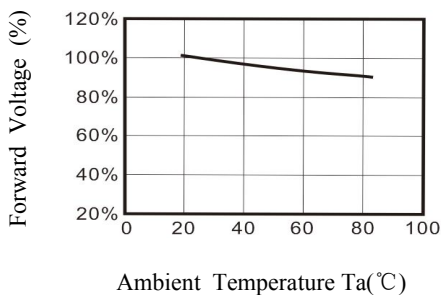
6). Thermal Design



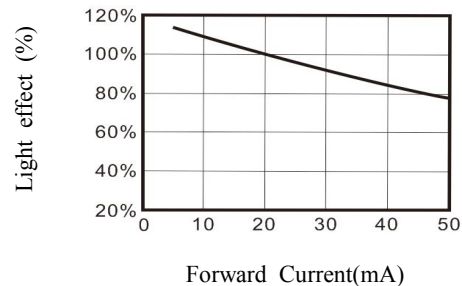
5). Electrical Characteristics



7). Forward Voltage Temperature

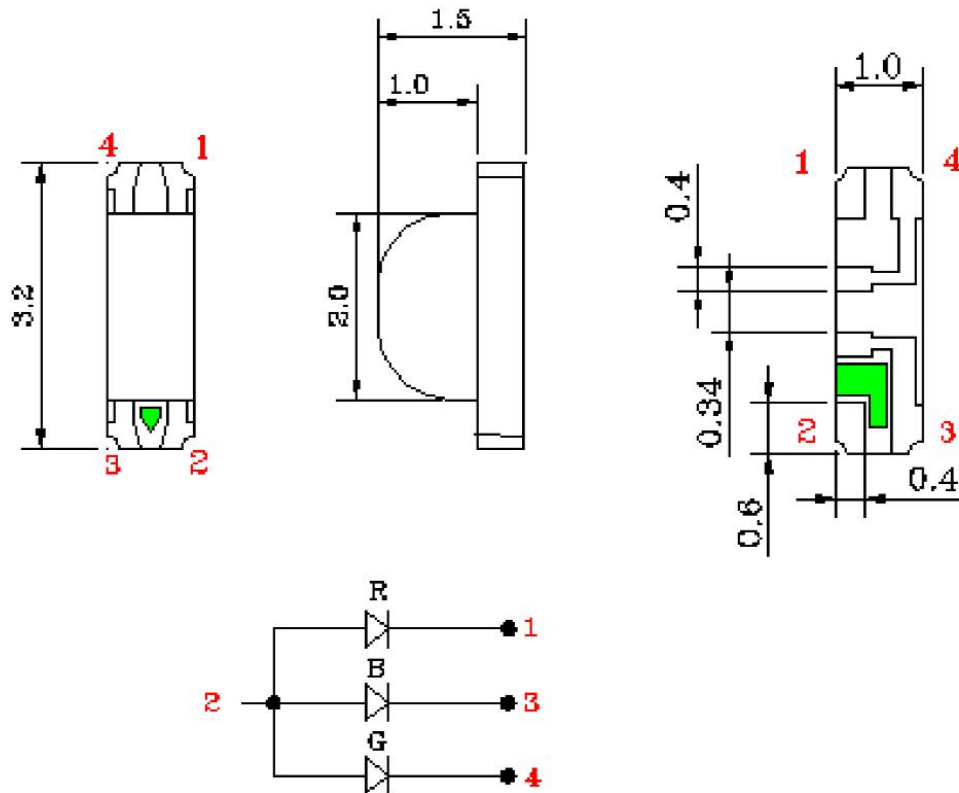


8).Light effect VS Current

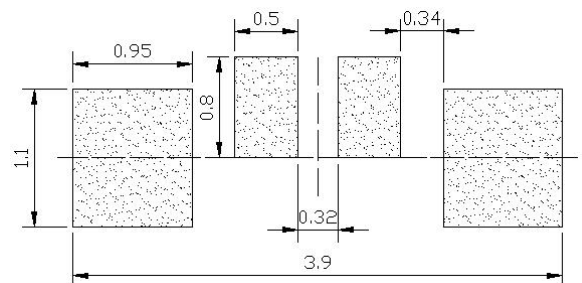




❖ Dimensions



RECOMMEND PADLAYOUT

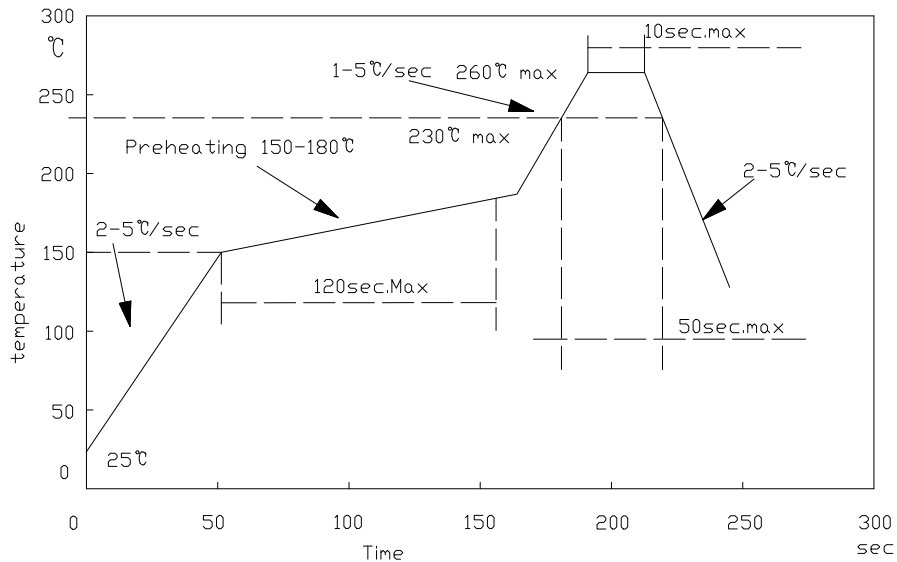


- ❖ All dimensions are in millimeters
- ❖ Tolerance is ± 0.25 (.010) mm unless otherwise noted.

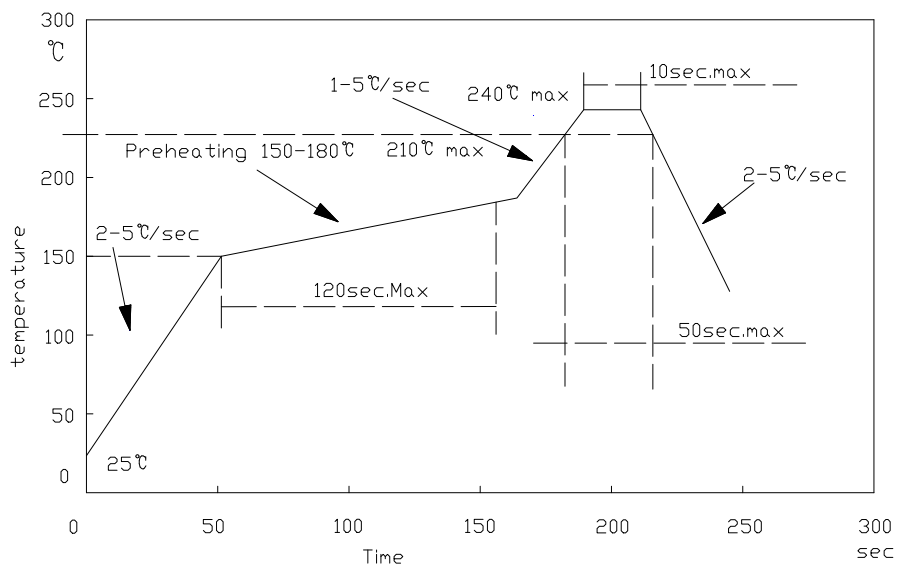


❖ Reflow Profile

1. IR reflow soldering Profile for Lead Free solder



2. IR reflow soldering Profile for Lead solder



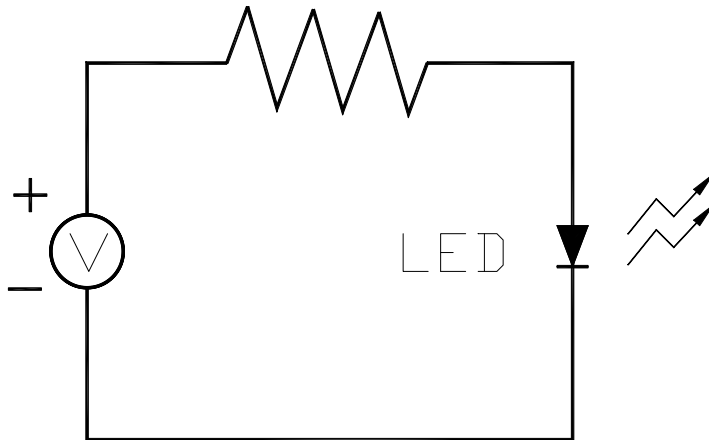
Notes:

- ❖ We recommend the reflow temperature 240°C(±5°C).the maximum soldering temperature should be limited to 260°C
- ❖ Don't cause stress to the silicone resin while it is exposed to high temperature;
- ❖ Number of reflow process shall be less than 3 times.



❖ Test Circuit and Handling Precautions

• Test circuit



• Handling precautions

1. Over-current-proof

Customer must apply resistors for protection, otherwise slight voltage shift will cause big current change (Burn out will happen).

2. Storage

2.1 It is recommended to store the products in the following conditions:

- a. Humidity: 60% R.H. Max.
- b. Temperature : 5°C~30°C(41°F~86°F)

2.2 Shelf life in sealed bag: 12month at <5°C~30°C and ≅ 60% R.H. .

2.3 The products more than 6 months must be baked before used. The Conditions of baking as follows:

- a. 70±3°C x(24hrs) and <5%RH, taped reel type
- b. 150±3°Cx(3hrs), bulk type

2.4 It is recommended that the unfinished products should be stored in sealed antistatic bags after baked.

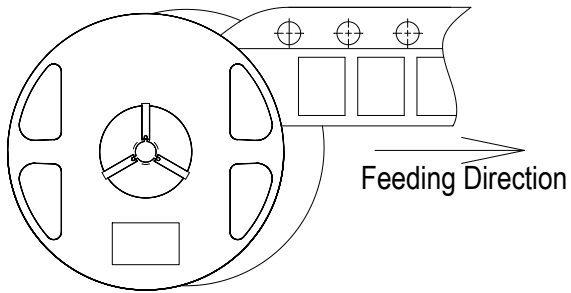
3. Use environment

Please refer to the IPC/JEDEC J-STD-033 rules of moisture sensitivity levels.

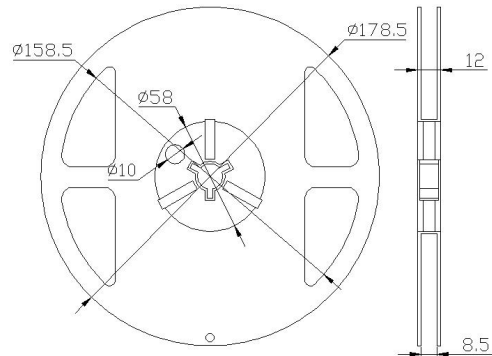
Moisture proof level	Workshop life after packaging and unpacking	
	Time	condition
LEVEL1	Unlimited	≤30°C /85%RH
LEVEL2	1 year	≤30°C /60%RH
LEVEL 2a	4 weeks	≤30°C /60%RH
LEVEL 3	168 hours	≤30°C /60%RH
LEVEL 4	72 hours	≤30°C /60%RH
LEVEL 5	48 hours	≤30°C /60%RH
LEVEL 5a	24 hours	≤30°C /60%RH
LEVEL 6	Out of the box	≤30°C /60%RH

◆ Packing

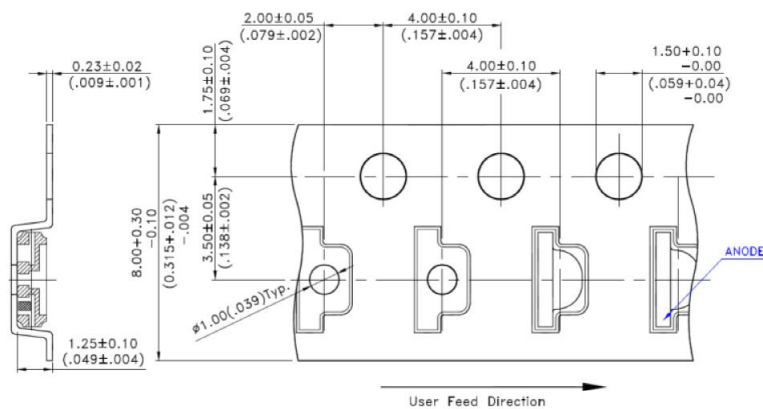
• **Feeding Direction (Unit: mm)**



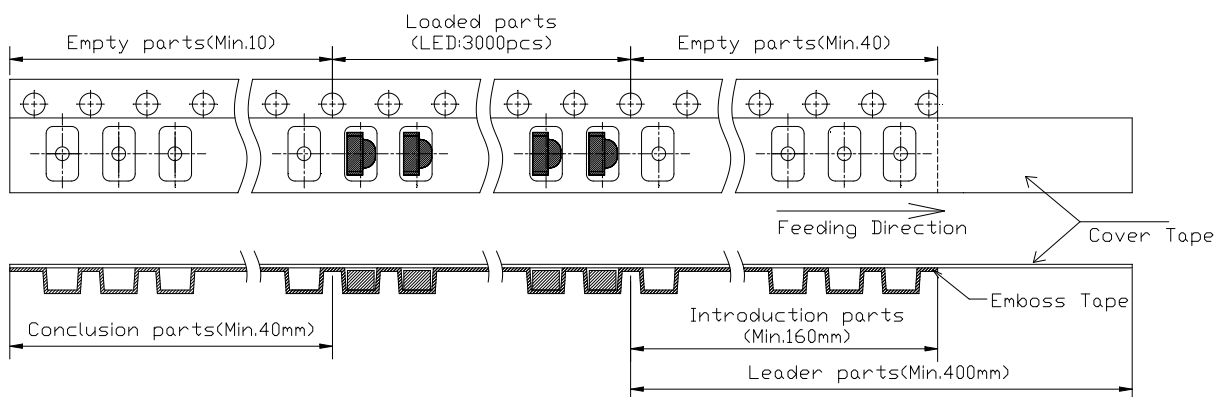
• **Dimensions of Reel (Unit: mm)**



- **Dimensions of Tape (Unit: mm)**



•Arrangement of Tap



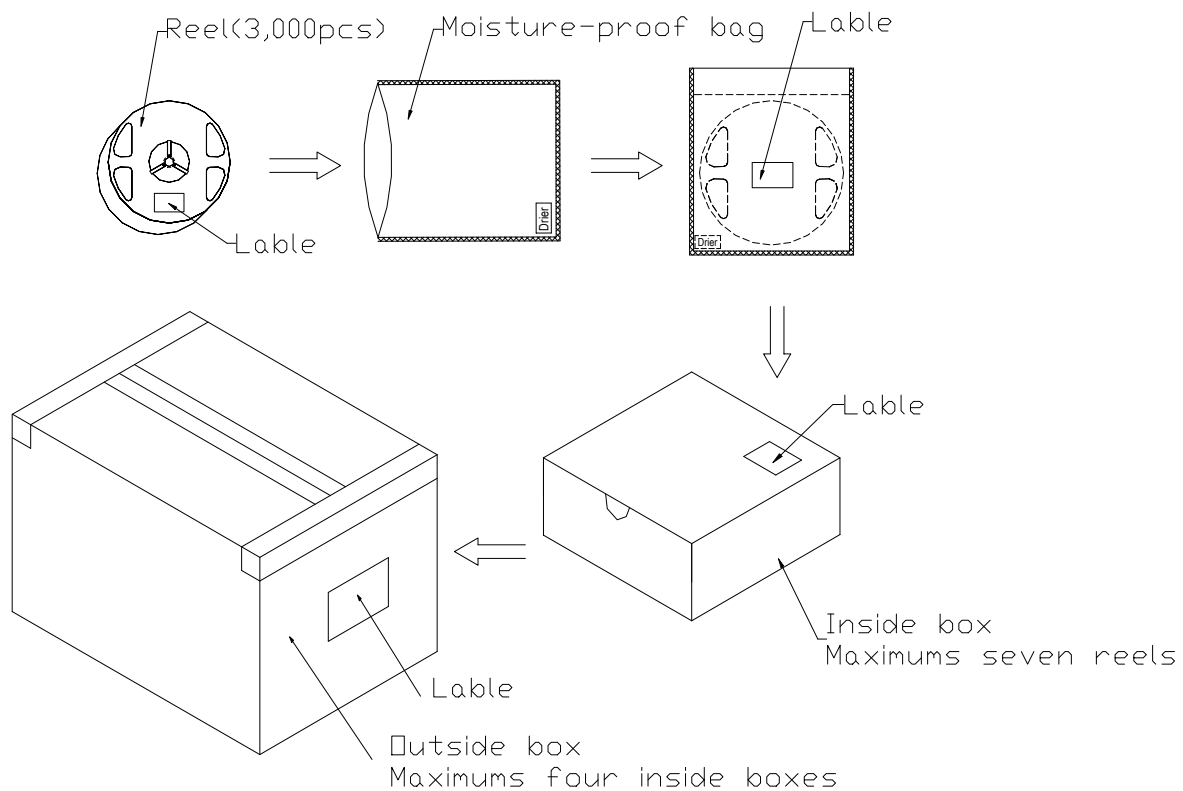
• **NOTES:**

- ❖ Empty component pockets are sealed with top cover tape
- ❖ The max loss number of SMD is 2pcs
- ❖ The cathode is oriented towards the tape sprocket hole in accordance with ANSI/EIA RS-481 specifications
- ❖ 3,000 pcs per reel



❖ Packing

•Packaging Specifications



Notes :

Reeled product (max3,000) is packed in a sealed moisture-proof bag. Sixteen bags are packed in an inner box (size: about 270 X 230 X 260 mm) and tow inner boxes are in an outer box (size: about 562 X 248 X 280mm). On the label of moisture-poof bag, there should be the information of Part No., Lot No. and quantity number; also the total quantity number should be on inspection request form on outer box.



❖ Precautions

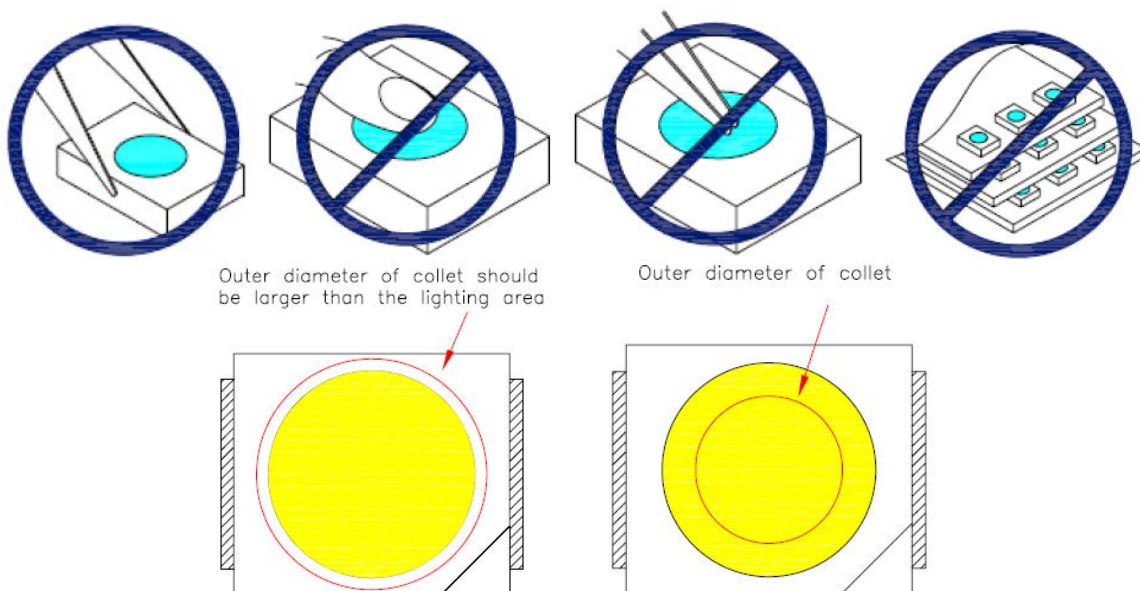
• Abnormal situation caused by improper setting of collet

To choose the right collet is the key issue in improving the product's quality. LED is different from other electronic components, which is not only about electrical output but also for optical output. This characteristic made LED more fragile in the process of SMT. If the collet's lowering down height is not well set, it will bring damage to the gold wire at the time of collet's picking up and loading which will cause the LED fail to light up, light up now and then or other quality problems

• How to choose the collet

During SMT, please choose the collet that has larger outer diameter than the lighting area of lens, in case that improper position of collet will damage the gold wire inside the LED. Different collets fit for different products, please refer to the following pictures cross out

Outer diameter of collet should be larger than the lighting area



• Other points for attention

- A. No pressure should be exerted to the epoxy shell of the SMD under high temperature.
- B. Do not scratch or wipe the lens since the lens and gold wire inside are rather fragile and cross out easy to break.
- C. LED should be used as soon as possible when being taken out of the original package, and should be stored in anti-moisture and anti-ESD package.

• This usage and handling instruction is only for your reference



❖ Test Items and Results of Reliability

Type	Test Item	Test Conditions	Duration/ Cycle	Number of Damaged	Reference
Environmental Sequence	Thermal Shock	-20℃ 15min ↑↓5sec 80℃ 15min	100 cycle	0/22	EIAJED-4701 200 203
	High Temperature Storage	T _a =85℃	1000 hrs	0/22	EIAJED-4701 200 201
	Humidity Heat Storage	T _a =85℃ RH=90%	1000 hrs	0/22	EIAJED-4701 100 103
	Low Temperature Storage	T _a =-30℃	1000 hrs	0/22	EIAJED-4701 200 202
Operation Sequence	Life Test	T _a =25℃ I _F =20mA	1000 hrs	0/22	EIAJED-4701 100 103
	High Temperature Life Test	T _a =85℃ I _F =5mA	1000 hrs	0/22	EIAJED-4701 200 201
	Low Temperature Life Test	T _a =-20℃ I _F =20mA	1000 hrs	0/22	EIAJED-4701 200 202

*Criteria for Judging				
Item	Symbol	Condition	Criteria for Judgment of Pass	
			Min	Max
Forward Voltage	V _F	I _F =20mA	~	USL* ¹ ×1.1
Reverse Current	I _R	V _R = 5V	~	10μA
Luminous Intensity	I _v	I _F =20mA	LSL* ² ×0.7	~

Note:USL*¹: Upper Specification LevelLSL*²: Lower Specification Level