

# Specifications for Approval

Customer Part No.:

JOINHANDS Part No.: JH-CRYGK06GTS0BH

Part Name: 1615 红黄绿三色 LED

Spec Issue Date: 2021-03-02

Revision No.: A0

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To Customer:

1. Accessory: ☐Samples ☐ Samples Data

2. Customer's Proposal : ☐Agree ☐Disagree

Reason : \_\_\_\_\_

Draw by :	Checked by :	Approved by :
曹帆	卢伟昌	钟志鸿
Customer Approve		



广东晶瀚光电科技有限公司

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## Features

1.6mm X 1.5mm SMD LED, 0.6mm thickness

Low power consumption

Wide view angle

Package: 4000pcs/reel

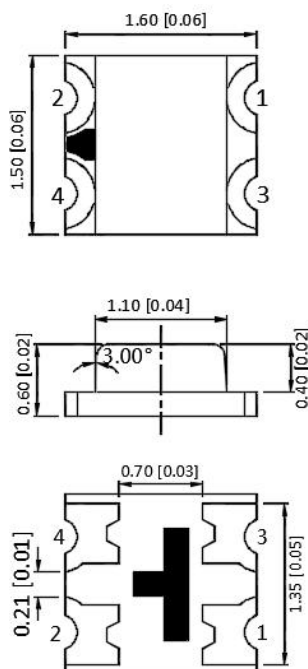
RoHS Compliant

## Applications

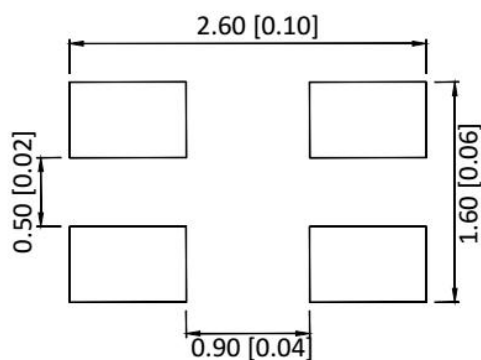
Ideal for back light and indicator

Various colors and lens types available

## Package outlines



## Recommend Pad Layout



Part No.	Emitted color	Dice	Lens color
JH-CRYGK06GTS0BH	Red	AlGaInP	Water transparent
	Green	InGaN/GaN	
	Yellow	AlGaInP	

## Notes:

1. All dimensions are in millimeters (inches);
2. Tolerances are  $\pm 0.1\text{mm}$  (0.004inch) unless otherwise noted.

## Absolute Maximum Ratings (Ta=25℃)

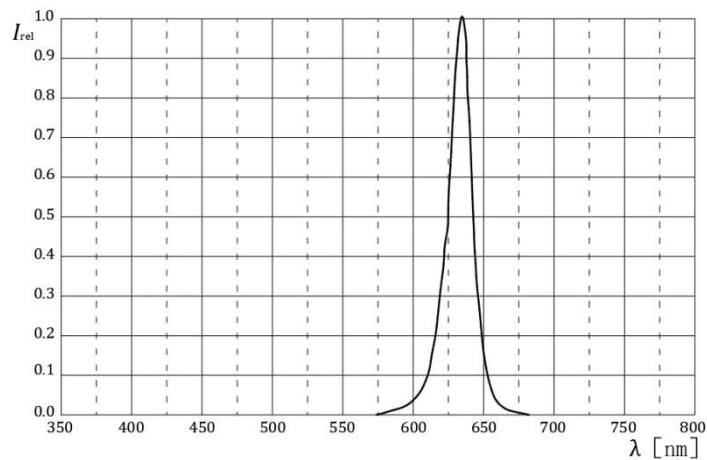
Parameter	Symbol	Value			Unit
		R	G	Y	
Forward current	If	30			mA
Reverse voltage	Vr	5			V
Power dissipation	Pd	72	111	72	mW
Operating temperature	Top	-40 ~+85			℃
ESD(Human-body mode)	--	4	2	4	KV
Storage temperature	Tstg	-40 ~+85			℃
Peak pulsing current (1/8 duty f=1kHz)	Ifp	125			mA

## Electro-Optical Characteristics (Ta=25℃)

Parameter	Test Condition	Symbol	Value			Unit
			Min	Typ	Max	
Wavelength at peak emission	If=20mA	R	--	635	--	nm
		λp G	--	520	--	
		Y	--	590	--	
Spectral half bandwidth	If=20mA	R	--	20	--	nm
		Δλ G	--	35	--	
		Y	--	20	--	
Dominant wavelength	If=20mA	R	620	--	630	nm
		λd G	520	--	530	
		Y	585	--	595	
Forward voltage	If=20mA	R	1.8	--	2.4	V
		Vf G	2.8	--	3.7	
		Y	1.8	--	2.4	
Luminous intensity	If=20mA	R	320	--	800	mcd
		IV G	400	--	1000	
		Y	250	--	630	
Viewing angle at 50% Iv	If=10mA	2θ1/2	--	120	--	Deg
Reverse current	Vr=5V	Ir	--	--	10	μA

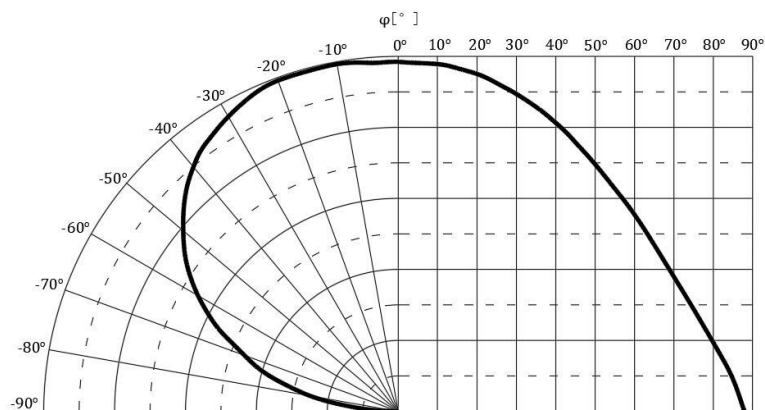
### Relative Spectral Emission (Red)

IF=20mA, Ta=25°C



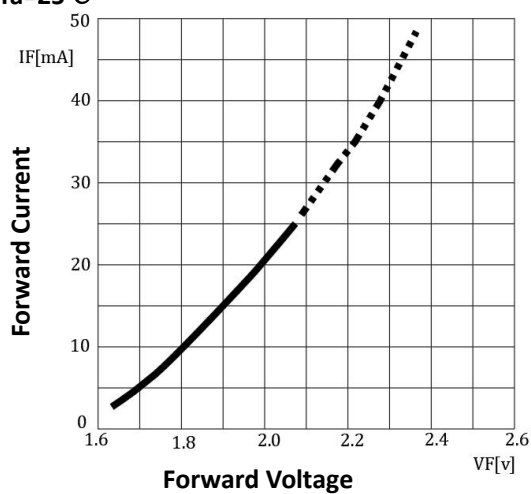
### Radiation Characteristics

IF=10mA, Ta=25°C

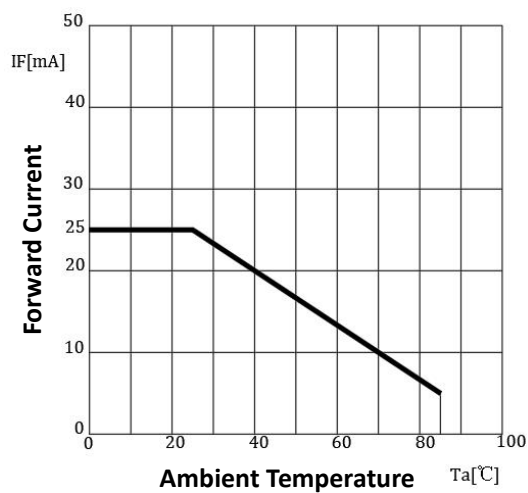


### Forward Current vs Forward Voltage

Ta=25°C

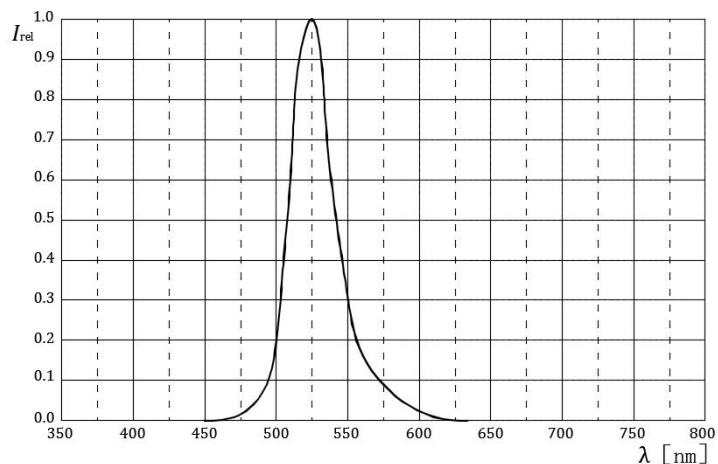


### Forward Current Derating Curve



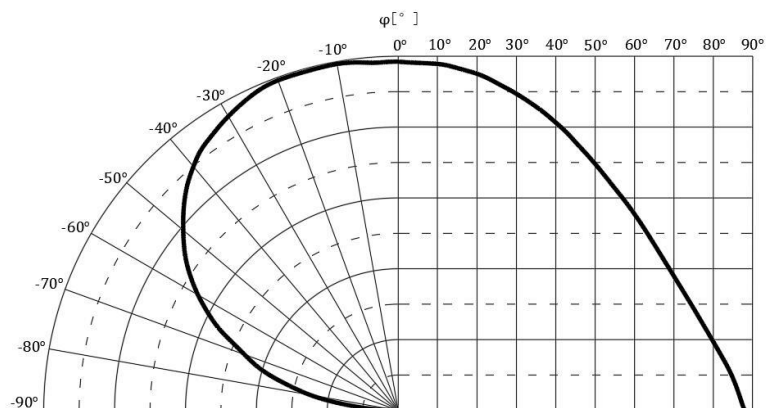
**Relative Spectral Emission (Green)**

IF=20mA, Ta=25℃



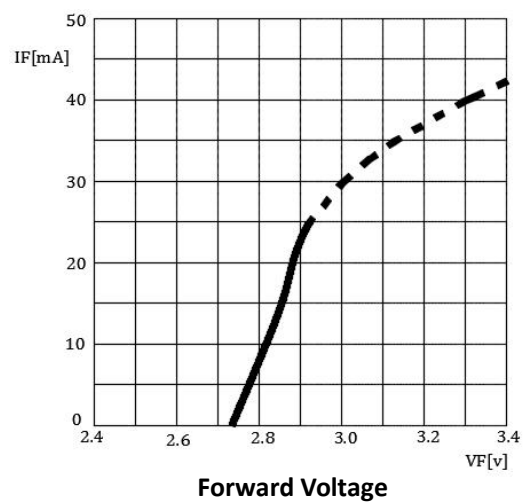
**Radiation Characteristics**

IF=10mA, Ta=25℃

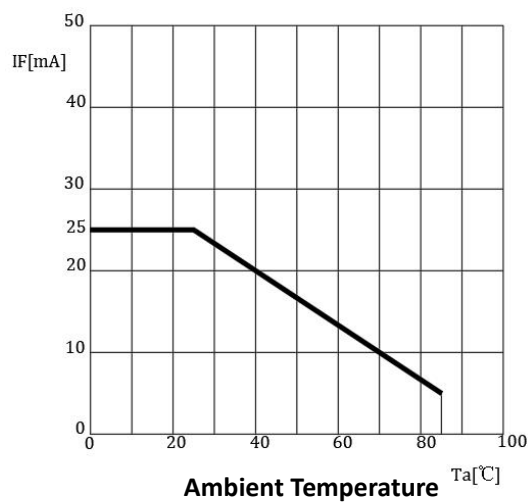


**Forward Current vs Forward Voltage**

Ta=25℃

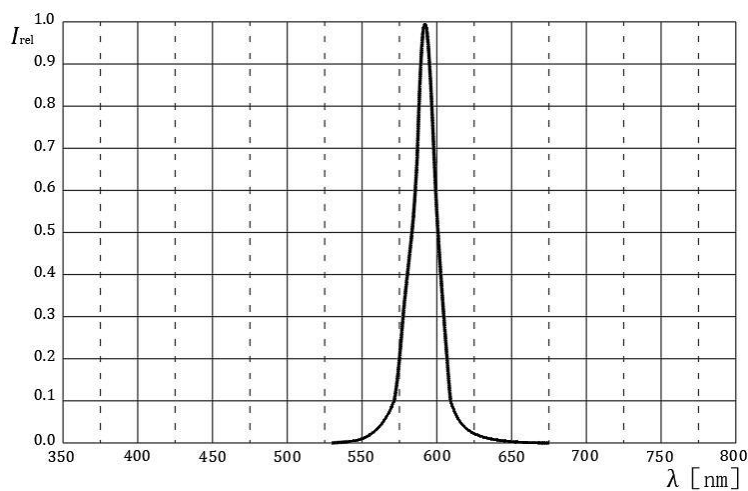


**Forward Current Derating Curve**



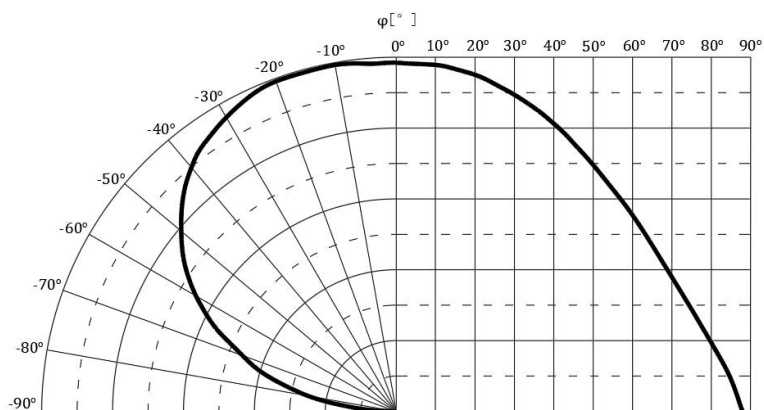
**Relative Spectral Emission (Yellow)**

IF=20mA, Ta=25℃



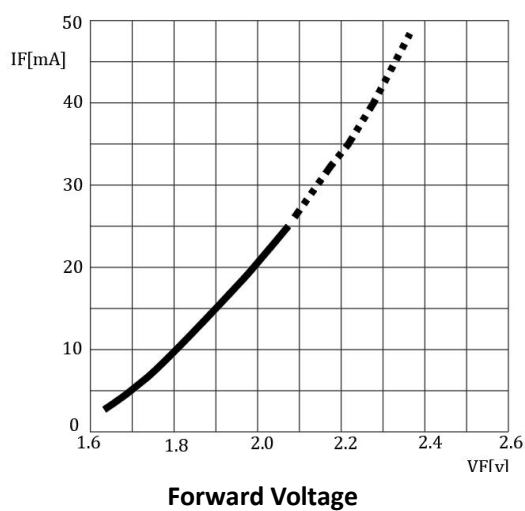
**Radiation Characteristics**

IF=10mA, Ta=25℃

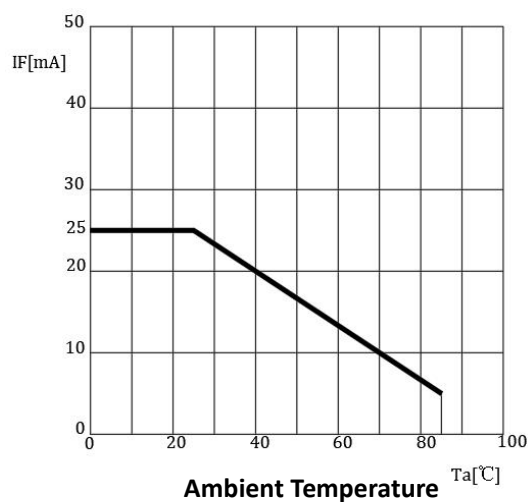


**Forward Current vs Forward Voltage**

Ta=25℃

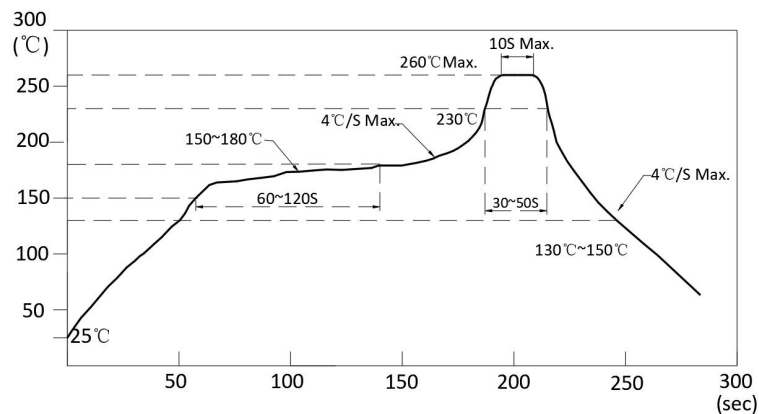


**Forward Current Derating Curve**



## Reflow Profile

### ■ Reflow Temp/Time



### Notes:

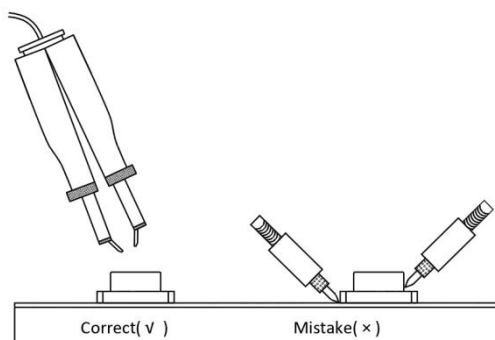
1. We recommend the reflow temperature 245°C ( $\pm 5^\circ\text{C}$ ). The maximum soldering temperature should be limited to 260°C.
2. Don't cause stress to the epoxy resin while it is exposed to high temperature.
3. Number of reflow process shall be 2 times or less.

### ■ Soldering iron

Basic spec is  $\leq 5\text{sec}$  when  $320^\circ\text{C}$  ( $\pm 20^\circ\text{C}$ ). If temperature is higher, time should be shorter ( $+10^\circ\text{C} \rightarrow -1\text{sec}$ ). Power dissipation of iron should be smaller than 20W, and temperatures should be controllable. Surface temperature of the device should be under  $350^\circ\text{C}$ .

### ■ Rework

1. Customer must finish rework within 5 sec under  $340^\circ\text{C}$ .
2. The head of iron cannot touch copper foil
3. Twin-head type is preferred.

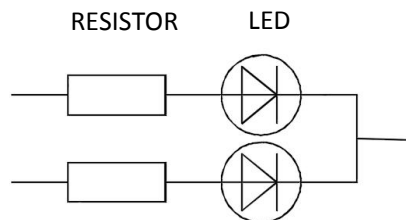


- Avoid rubbing or scraping the resin by any object, during high temperature, for example reflow solder etc.

## Handling precautions

### 1. Drive Method

A LED is a current-operated device. In order to ensure intensity uniformity on multiple LEDs connected in parallel in an application, it is recommended that a current limiting resistor be incorporated in the drive circuit, in series with each LED as shown in Circuit below.



### 2. Storage

2.1 Do not open moisture proof bag before the products are ready to use.

2.2 Before opening the package: The LEDs should be kept at 30°C or less and 60% RH or less.

2.3 After the package is opened, the products should be used within a week or they should be keeping to store at  $\leq 20$  R.H. with zip-lock sealed.

### 3. Baking

It is recommended to baking before soldering when the pack is unsealed after 72hrs. The Conditions are as followings:

3.1 60 $\pm$ 3°C x (12~24hrs) and <5%RH, taped reel type

3.2 100 $\pm$ 3°C x (45min~1hr), bulk type

3.3 130 $\pm$ 3°C x (15~30min), bulk type



## Test Items and Results of Reliability

Test Item	Test Conditions	Standard Test Method	Note	Number of Test
Reflow Soldering	Ta=260±5℃,Time=10±2S	JB/T 10845-2008	3times	0/22
Salt Atmosphere	Ta=35±3℃,PH=6.5~7.2	GB/T 2423.17-2008	24hrs	0/22
Temperature Cycling	-40±5℃ 30±1min ↑→(25℃/5±1min)↓ 100±5℃ 30±1min	GB/T 2423.22-2012	100cycles	0/22
Thermal Shock	Ta=-40±5℃~100±5℃, 15±1min dwell	GB/T 2423.22-2012	100cycles	0/22
High Humidity High Temp. Cycling	Ta=30±5℃~65±5℃, 90±5%RH,24hrs/1cycle	GB/T 2423.4-2008	10cycles	0/22
High Humidity High Temp. Storage Life	Ta=85±5℃,ψ(%)=85±5%RH	GB/T 2423.3-2006	1000hrs	0/22
High Temperature Storage Life	Ta=100±5℃,non-operating	GB/T 2423.2-2008	1000hrs	0/22
Low Temperature Storage Life	Ta=-40±5℃,non-operating	GB/T 2423.1-2008	1000hrs	0/22
Life Test	Ta=26±5℃,@20mA, ψ(%)=25%RH~55%RH	--	1000hrs	0/22
High Humidity High Temp. Operating Life	Ta=85±5℃,@20mA, ψ(%)=85%RH	GB/T 2423.3-2006	500hrs	0/22
Low Temperature Operating Life	Ta=-20±5℃,@20mA	GB/T 2423.1-2008	1000hrs	0/22

**Forward Voltage Rank Combination (IF=20mA)**

Rank		Min.	Max.	Unit
Red	□	1.8	2.4	V
Green	f	2.8	3.1	
	g	3.1	3.4	
	h	3.4	3.7	
Yellow	□	1.8	2.4	

**Luminous Intensity Rank Combination (IF=20mA)**

Rank		Min.	Max.	Unit
Red	O	320	400	mcd
	P	400	500	
	Q	500	630	
Green	Q	500	630	
	R	630	800	
	S	800	1000	
Yellow	N	250	320	
	O	320	400	
	P	400	500	
	Q	500	630	

## Dominant wavelength Rank Combination (IF=20mA)

Rank		Min.	Max.	Unit
Red	t	620	625	nm
	u	625	630	
Green	U	520	522.5	
	V	522.5	525	
	W	525	527.5	
	X	527.5	530	
Yellow	m	585	590	
	n	590	595	

## Group Name on Label ( Example DATA: □Pt fQV fPm 20 )

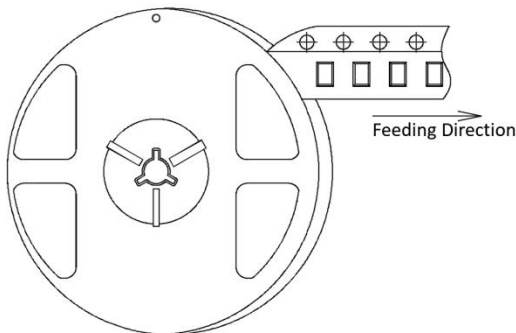
DATA:□Pt fQV fPm 20	Vf(V)	Iv (mcd)	λd (nm)	Test Condition
Red □→P→t→20	1.8~2.4	400~500	620~625	IF=20mA
Green f→Q→V→20	2.8~3.1	500~630	522.5~525	
Yellow f→P→m→20	2.8~3.1	400~500	585~590	

## Notes:

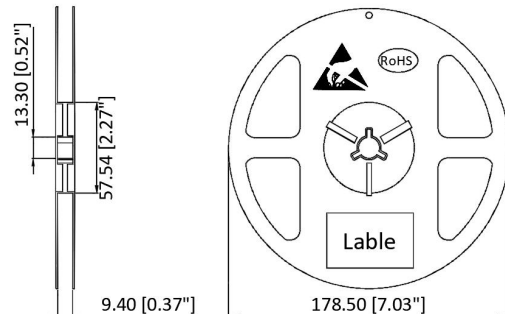
1. The tolerance of luminous intensity (Iv )is  $\pm 15\%$  .
2. The tolerance of dominant wavelength is  $\pm 1\text{nm}$ .
3. This specification is preliminary.
4. This specification is a standard specification of our factory, can make in accordance with customer's special requirement.

**1615 Series SMD Chip LED Lamps Packaging Specifications**

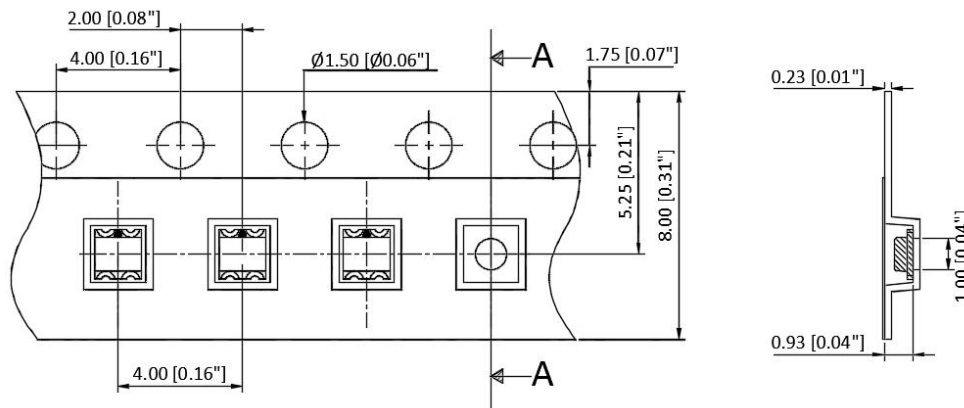
● **Feeding Direction**



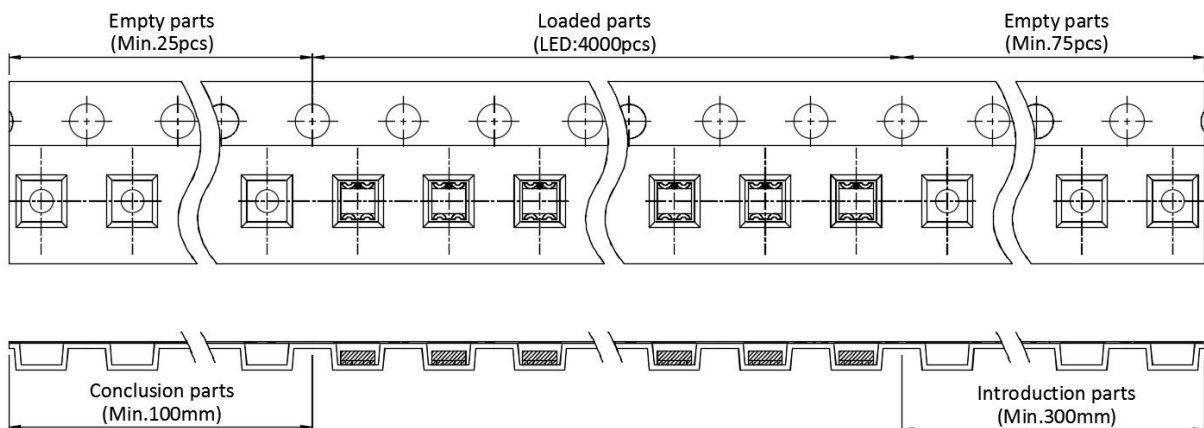
● **Dimensions of Reel (Unit: mm)**



● **Dimensions of Tape (Unit: mm)**



● **Arrangement of Tape**



**Notes:**

1. Empty component pockets are sealed with top cover tape;
2. The maximum number of missing lamps is two;
3. The cathode is oriented towards the tape sprocket hole in accordance with ANSI/EIA RS-481 specifications.
4. 4,000pcs/Reel.

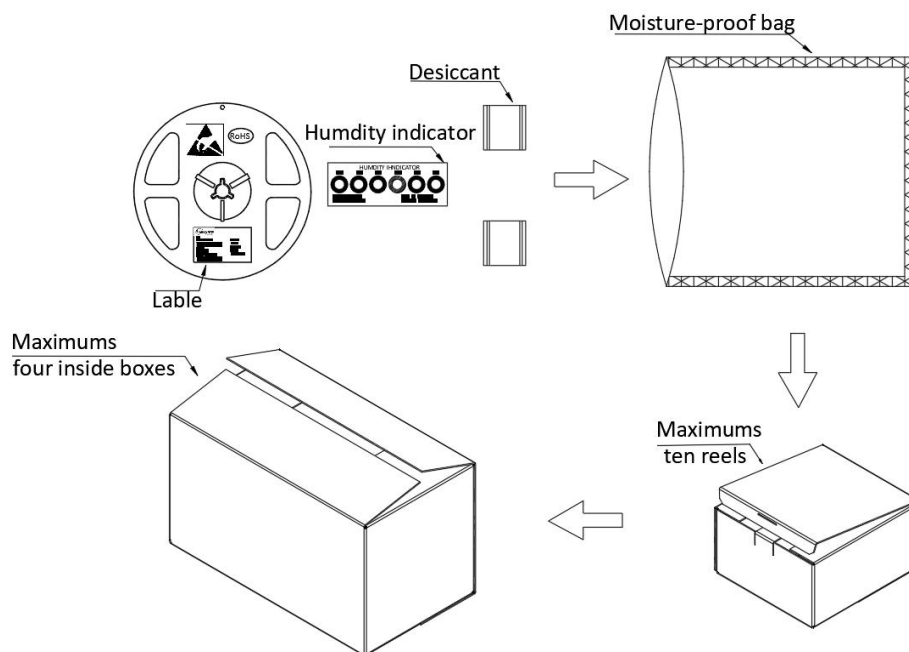
## 1615 Series SMD Chip LED Lamps Packaging Specifications

### ● Label Explanation



CPN:Customer's Product Number  
P/N:Product Number  
QTY:Packing Quantity  
LOT NO:Lot Number  
VF:Forward Voltage Rank  
IV:Luminous Intensity Rank  
WLD:Dom. Wavelength Rank  
BIN:BIN Code  
DATE: Date Of Dispatch

### ● Transportation Packing



#### Notes:

Reeled products (numbers of products are 4,000pcs) packed in a seal off moisture-proof bag along with two desiccant one by one, ten moisture-proof bag of maximums packed in an inside box (about size: 240x 220x 120mm) and four inside boxes of maximums are put in the outside box (about size: 460mm x 246mm x 250mm) Together with buffer material, and it is packed. The number of the loading steps of outside box (cardboard box) has it to three steps.