

# Specifications for Approval

Customer Part No.:

JOINHANDS Part No.: JH-CL68D11GTP001

Part Name: 3216 黄绿光 LED

Spec Issue Date:2019-01-08

Revision No.: A0

=====

To Customer:

1. Accessory:    ☐Samples ☐ Samples Data
2. Customer's Proposal : ☐Agree ☐Disagree

Reason :

|                  |              |               |
|------------------|--------------|---------------|
| Draw by :        | Checked by : | Approved by : |
| 李飞               | 卢伟昌          | 钟志鸿           |
| Customer Approve |              |               |
|                  |              |               |



广东晶瀚光电科技有限公司

GUANGDONG JOINHANDS Optoelectronics Technology Co.,Ltd

地址:东莞市寮步镇塘边社区华南工业城金富路 13 号

鼎昊自动化孵化园 2 区 B 栋 101 号

Tel:0769-82233086 Fax:0769-82233606

[Https://www.joinhands-cn.com](https://www.joinhands-cn.com)

E-mail:hanser.yu@joinhands-cn.com

## Features

3.2mm × 1.6mm SMD LED, 1.1mm thickness

Low power consumption

Wide view angle

Package: 3000pcs/reel

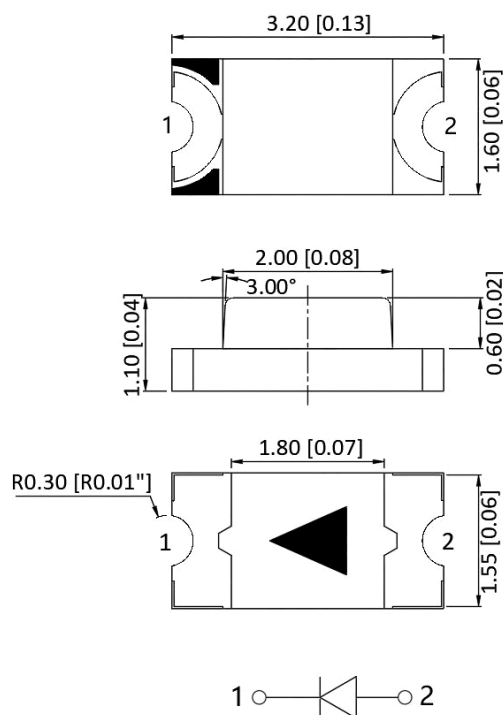
RoHS Compliant

## Applications

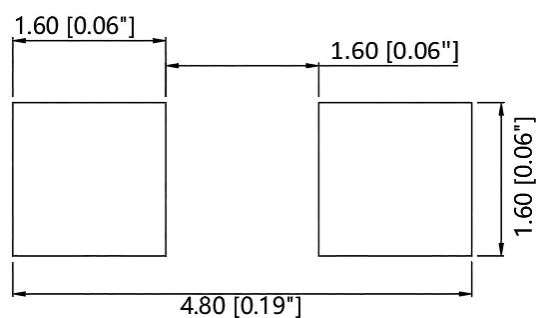
Ideal for back light and indicator

Various colors and lens types available

## Package outlines



## Recommend Pad Layout



| Part No.         | Emitted color | Dice    | Lens color        |
|------------------|---------------|---------|-------------------|
| JH-CL68D11GTP001 | Yellow-Green  | AlGaInP | Water transparent |

## 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℃)

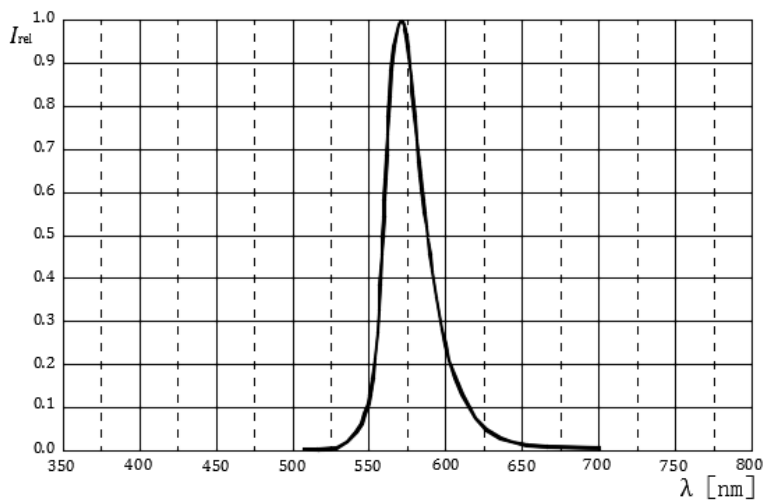
| Parameter                              | Symbol | Value    | Unit |
|----------------------------------------|--------|----------|------|
| Forward current                        | If     | 30       | mA   |
| Reverse voltage                        | Vr     | 5        | V    |
| Power dissipation                      | Pd     | 72       | mW   |
| Operating temperature                  | Top    | -40 ~+85 | ℃    |
| ESD(Human-body mode)                   | --     | 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        | $\lambda_p$      | --    | 573 | --  | nm      |
| Spectral half bandwidth     | If=20mA        | $\Delta \lambda$ | --    | 17  | --  | nm      |
| Dominant wavelength         | If=20mA        | $\lambda_d$      | 566   | --  | 576 | nm      |
| Forward voltage             | If=20mA        | Vf               | 1.8   | --  | 2.4 | V       |
| Luminous intensity          | If=20mA        | Iv               | 25    | 50  | 80  | mcd     |
| Viewing angle at 50% Iv     | If=10mA        | 2 $\theta$ 1/2   | --    | 120 | --  | Deg     |
| Reverse current             | Vr=5V          | Ir               | --    | --  | 10  | $\mu$ A |

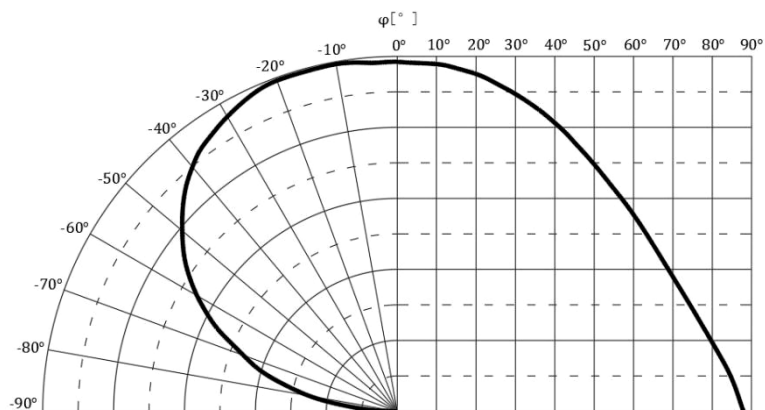
### Relative Spectral Emission

IF=20mA, Ta=25°C



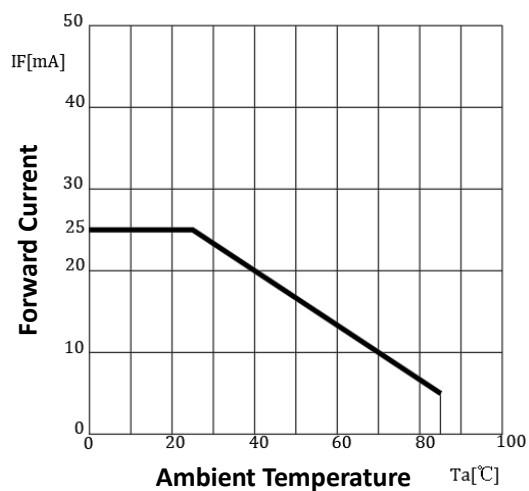
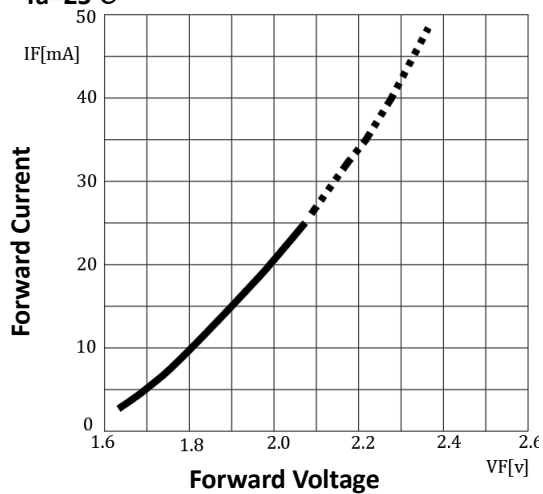
### Radiation Characteristics

IF=10mA, Ta=25°C



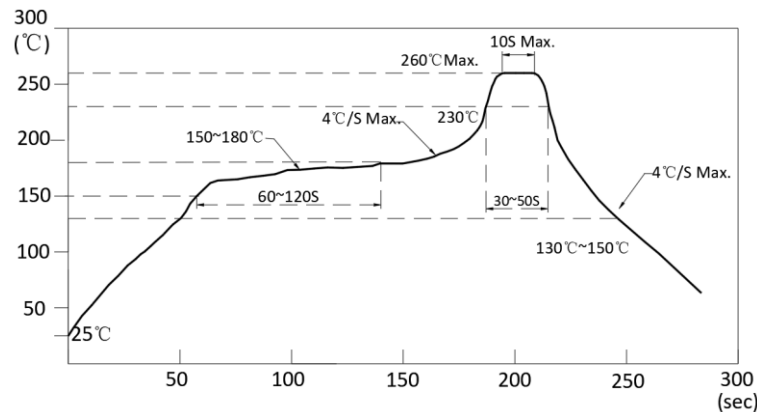
### Forward Current vs Forward Voltage Forward Current Derating Curve

Ta=25°C



## Reflow Profile

### ■ Reflow Temp/Time



### Notes:

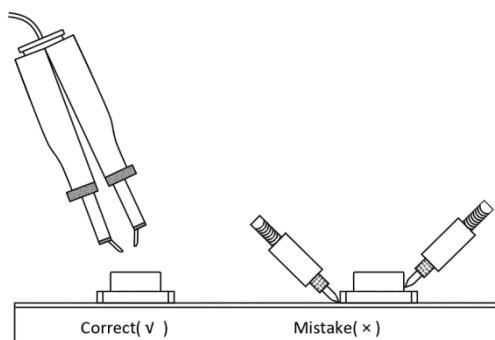
1. We recommend the reflow temperature 245°C(±5°C).The maximum soldering temperature should be limited to 260°C.
2. Don't cause stress to the epoxy resin while it is exposed to high temperature.
3. Number of reflow process shall be 2 times or less.

### ■ Soldering iron

Basic spec is ≤ 5sec when 320°C(±20°C). If temperature is higher, time should be shorter(+10°C → -1sec). Powerdissipation of iron should be smaller than 20W, and temperatures should be controllable. Surface temperature of the device should be under 350°C.

### ■ Rework

1. Customer must finish rework within 5 sec under 340°C.
2. The head of iron cannot touch copper foil
3. Twin-head type is preferred.

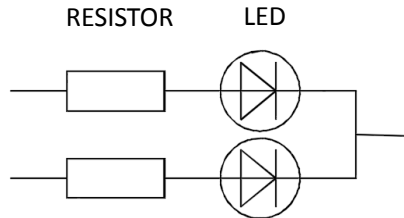


- Avoid rubbing or scraping the resin by any object, during high temperature, for example reflow solder etc.

## 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 kept to store at  $\leq 20$  R.H. with zip-lock sealed.

### 3. Baking

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

3.1  $60 \pm 3^\circ\text{C}$  x (12~24hrs) and  $< 5\%$  RH, taped reel type

3.2  $100 \pm 3^\circ\text{C}$  x (45min~1hr), bulk type

3.3  $130 \pm 3^\circ\text{C}$  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<br>↑→(25℃/5±1min)↓<br>100±5℃ 30±1min | GB/T 2423.22-2012    | 100cycles | 0/22           |
| Thermal Shock                           | Ta=-40±5℃~100±5℃,<br>15±1min dwell                  | GB/T 2423.22-2012    | 100cycles | 0/22           |
| High Humidity High Temp. Cycling        | Ta=30±5℃~65±5℃,<br>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,<br>ψ(%)=25%RH~55%RH                 | --                   | 1000hrs   | 0/22           |
| High Humidity High Temp. Operating Life | Ta=85±5℃,@20mA,<br>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 |
|------|------|------|------|
| 7    | 1.8  | 1.9  | V    |
| 8    | 1.9  | 2.0  |      |
| 9    | 2.0  | 2.1  |      |
| A    | 2.1  | 2.2  |      |
| B    | 2.2  | 2.3  |      |
| C    | 2.3  | 2.4  |      |

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

| Rank | Min. | Max. | Unit |
|------|------|------|------|
| D    | 25   | 32   | mcd  |
| E    | 32   | 40   |      |
| F    | 40   | 50   |      |
| G    | 50   | 63   |      |
| H    | 63   | 80   |      |

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

| Rank | Min. | Max. | Unit |
|------|------|------|------|
| G9   | 566  | 568  | nm   |
| G10  | 568  | 570  |      |
| G11  | 570  | 572  |      |
| G12  | 572  | 574  |      |
| G13  | 574  | 576  |      |

## Group Name on Label ( Example DATA: 9FG11 20 )

| DATA: 9FG11 20 | Vf(V)   | Iv (mcd) | $\lambda_d$ (nm) | Test Condition |
|----------------|---------|----------|------------------|----------------|
| 9→ F→ G11→20   | 2.0~2.1 | 40~50    | 570~572          | IF=20mA        |

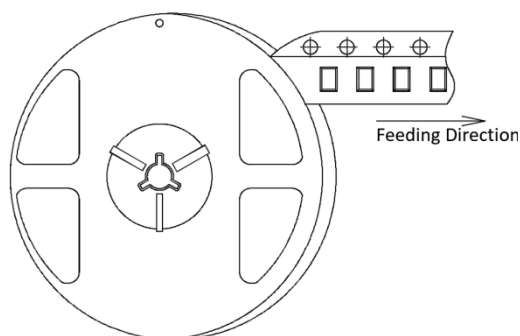
### Notes:

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.

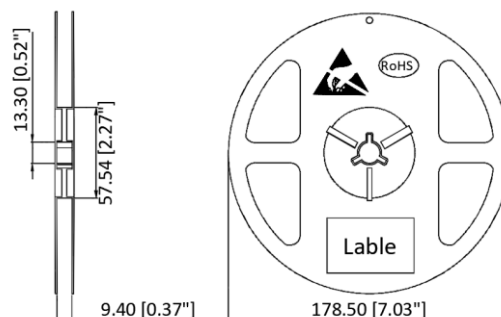


## 3216 Series SMD Chip LED Lamps Packaging Specifications

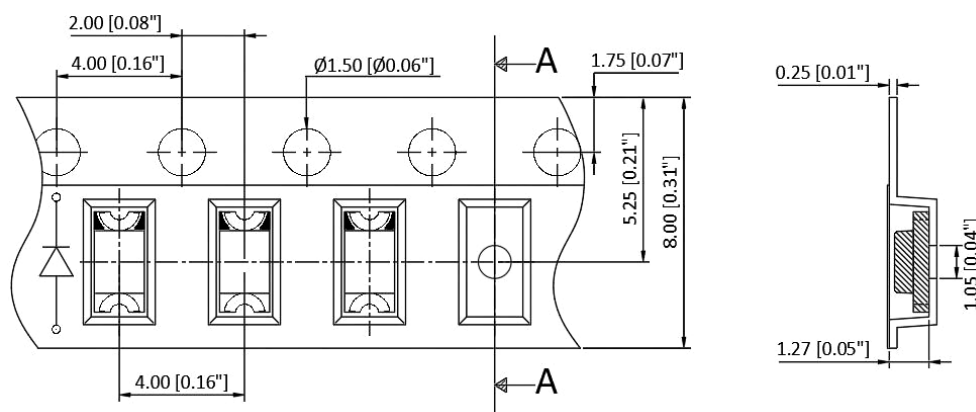
### ● Feeding Direction



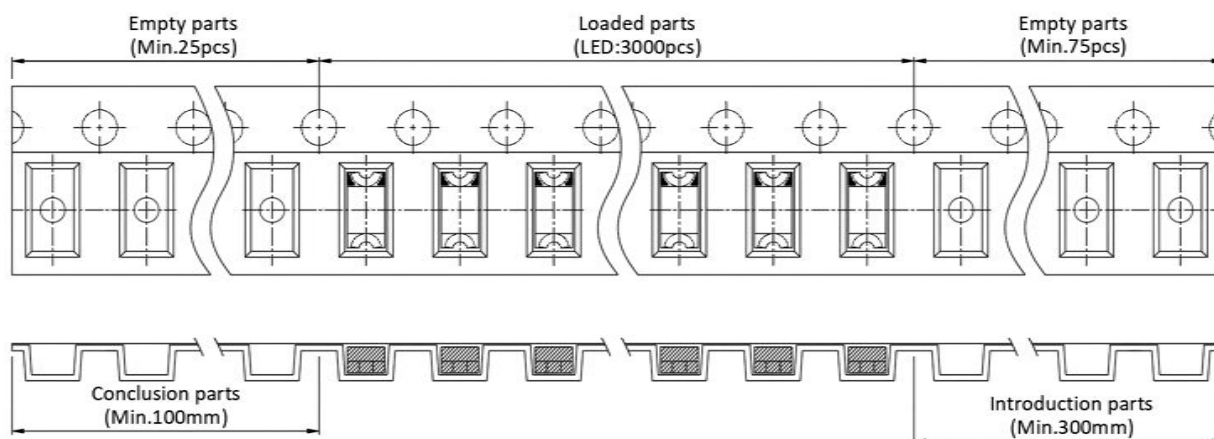
### ● Dimensions of Reel (Unit: mm)



### ● 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. 3,000pcs/Reel.

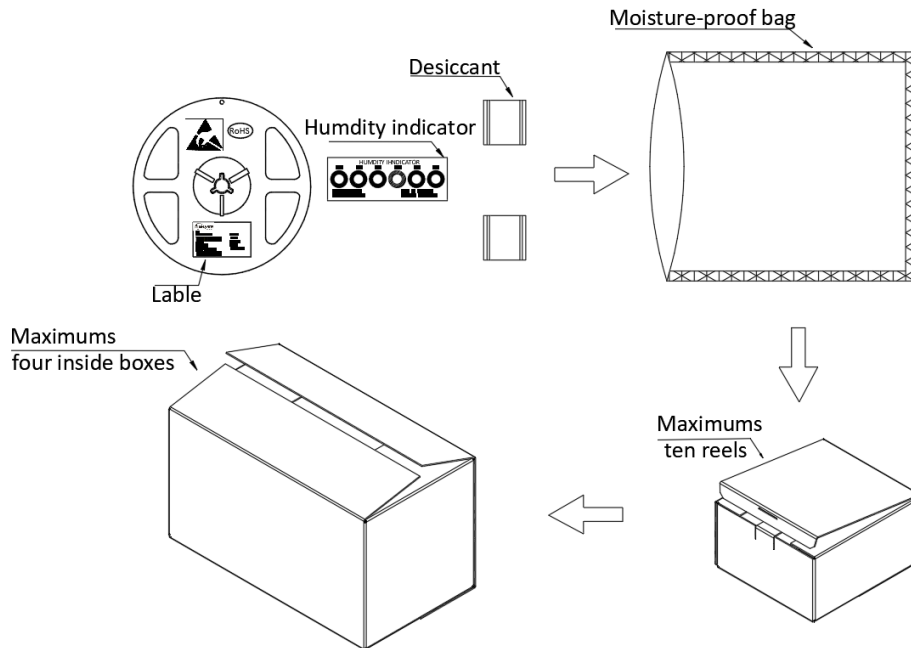
## 3216 Series SMD Chip LED Lamps Packaging Specifications

### ● 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 3,000pcs) 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 outsidebox (cardboard box) has it to three steps.