

Specifications for Approval

Customer Part No.:

JOINHANDS Part No.: JH-CMRWB06GDP004

Part Name: 1608 红白双色 LED

Spec Issue Date:2019-01-09

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 : |
| 李飞 | 卢伟昌 | 钟志鸿 |
| Customer Approve | | |
| | | |



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

Features

1.6mm X 0.8mm SMD LED, 0.6mm thickness

Low power consumption

Wide view angle

Package: 4000pcs/reel

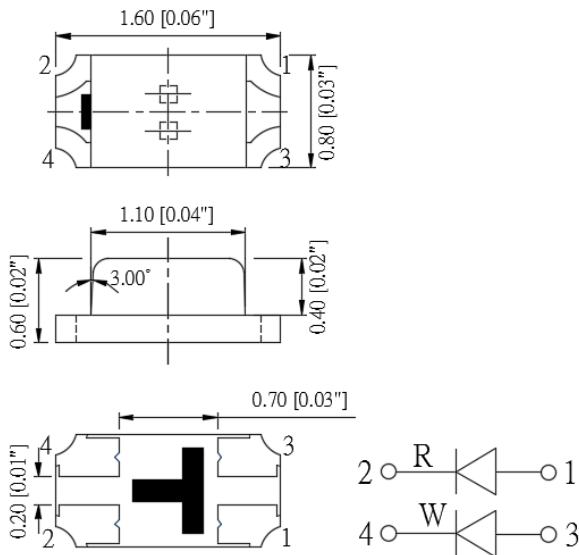
RoHS Compliant

Applications

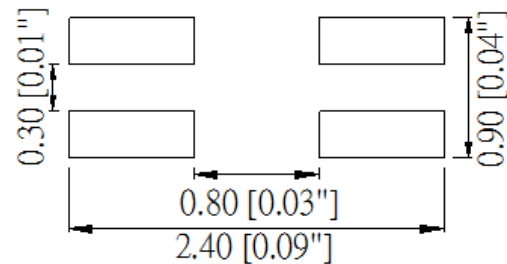
Ideal for back light and indicator

Various colors and lens types available

Package outlines



Recommend Pad Layout



| Part No. | Emitted color | Dice | Lens color |
|------------------|---------------|-----------|------------|
| JH-CMRWB06GDP004 | Red | AlGaInP | Yellow |
| | White | InGaN/GaN | |

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°C) (White)

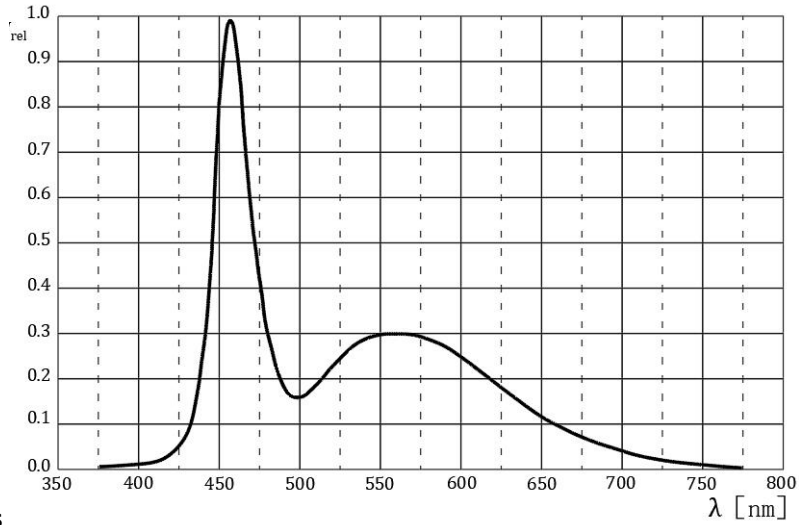
| Parameter | Symbol | Value | Unit |
|--|--------|----------|------|
| Forward current | If | 30 | mA |
| Reverse voltage | Vr | 5 | V |
| Power dissipation | Pd | 108 | mW |
| Operating temperature | Top | -40 ~+85 | °C |
| ESD(Human-body mode) | -- | 2 | KV |
| Storage temperature | Tstg | -40 ~+85 | °C |
| Peak pulsing current (1/8 duty f=1kHz) | Ifp | 125 | mA |

Electro-Optical Characteristics (Ta=25°C) (White)

| Parameter | Test Condition | Symbol | Value | | | Unit |
|-------------------------|----------------|--------|--------|-----|--------|------|
| | | | Min | Typ | Max | |
| CIE Coordinates | If=20mA | X | 0.2517 | -- | 0.2948 | -- |
| | | Y | 0.2292 | -- | 0.3057 | |
| Forward voltage | If=20mA | Vf | 2.8 | -- | 3.6 | V |
| Luminous intensity | If=20mA | Iv | 320 | 500 | 800 | mcd |
| Viewing angle at 50% Iv | If=10mA | 2θ1/2 | -- | 140 | -- | Deg |
| Reverse current | Vr=5V | Ir | -- | -- | 10 | μA |

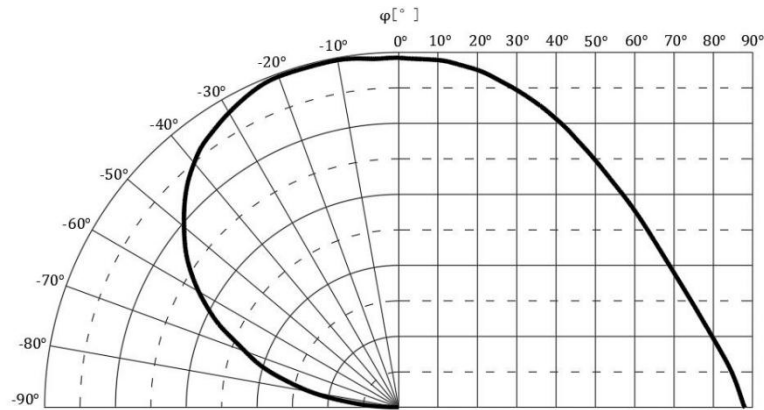
Relative Spectral Emission (White)

IF=20mA, Ta=25°C



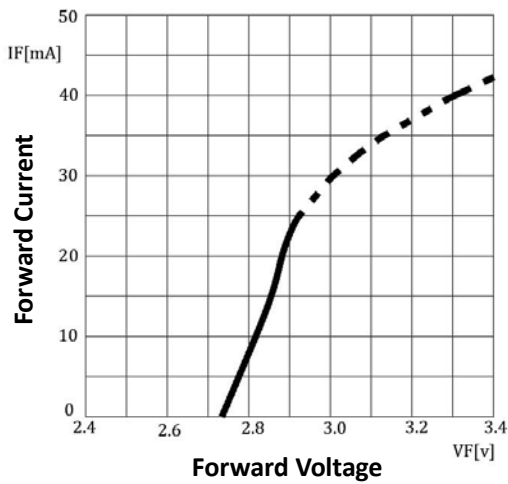
Radiation Characteristics

IF=10mA, Ta=25°C

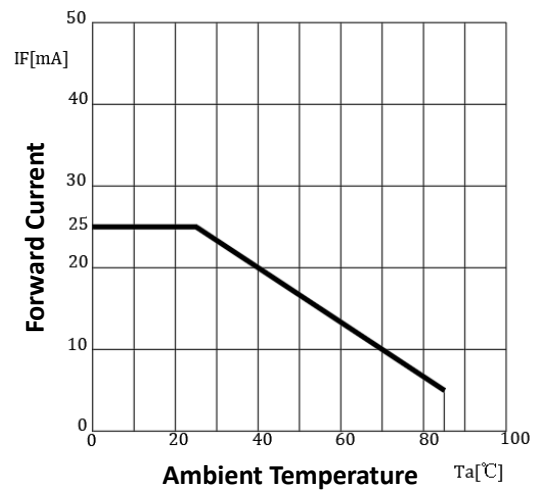


Forward Current vs Forward Voltage (White)

Ta=25°C



Forward Current Derating Curve (White)



Absolute Maximum Ratings (Ta=25°C) (Red)

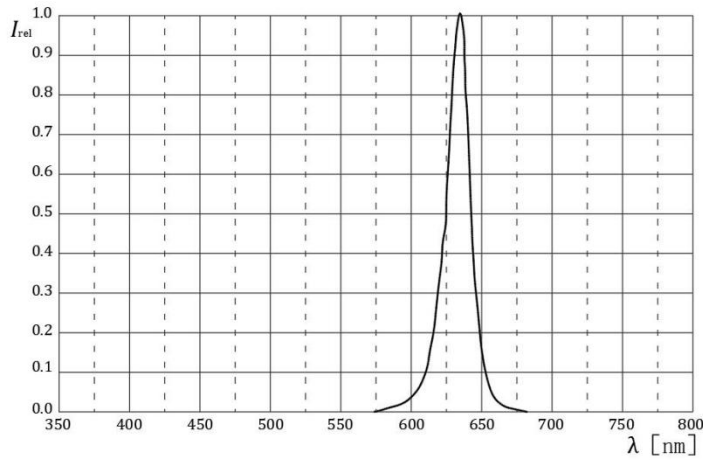
| Parameter | Symbol | Value | Unit |
|--|--------|----------|------|
| Forward current | If | 30 | mA |
| Reverse voltage | Vr | 5 | V |
| Power dissipation | Pd | 72 | mW |
| Operating temperature | Top | -40 ~+85 | °C |
| ESD(Human-body mode) | -- | 4 | KV |
| Storage temperature | Tstg | -40 ~+85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

Electro-Optical Characteristics (Ta=25°C) (Red)

| Parameter | Test Condition | Symbol | Value | | | Unit |
|-----------------------------|----------------|------------------|-------|-----|-----|---------|
| | | | Min | Typ | Max | |
| Wavelength at peak emission | If=20mA | λ_p | -- | 630 | -- | nm |
| Spectral half bandwidth | If=20mA | $\Delta\lambda$ | -- | 20 | -- | nm |
| Dominant wavelength | If=20mA | λ_d | 620 | -- | 630 | nm |
| Forward voltage | If=20mA | Vf | 1.8 | -- | 2.4 | V |
| Luminous intensity | If=20mA | Iv | 100 | 140 | 320 | mcd |
| Viewing angle at 50% Iv | If=10mA | 2 $\theta_{1/2}$ | -- | 120 | -- | Deg |
| Reverse current | Vr=5V | Ir | -- | -- | 10 | μ A |

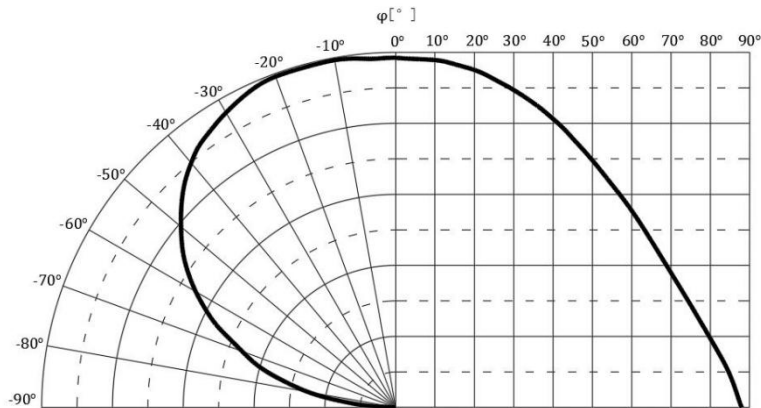
Relative Spectral Emission (Red)

IF=20mA, Ta=25°C



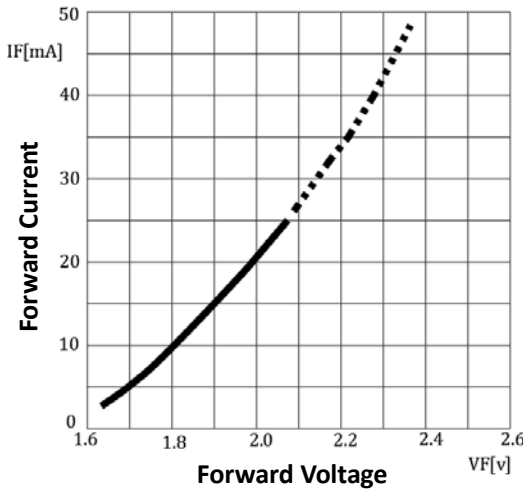
Radiation Characteristics (Red)

IF=10mA, Ta=25°C

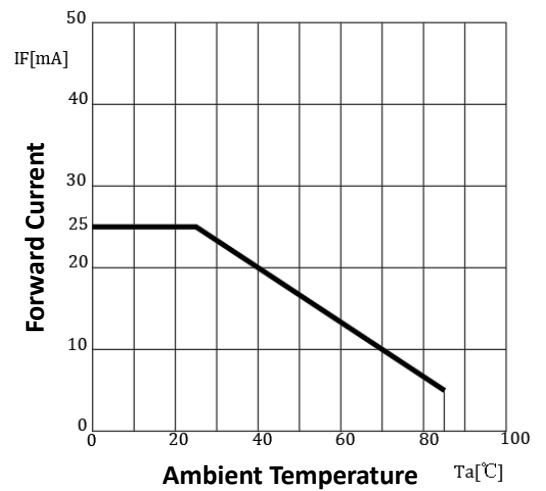


Forward Current vs Forward Voltage (Red)

Ta=25°C

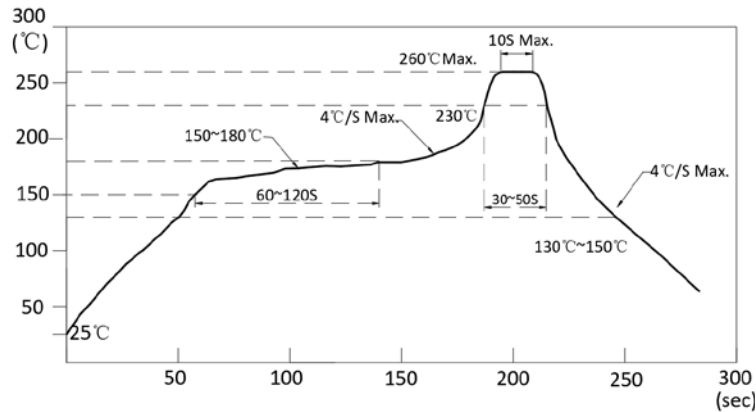


Forward Current Derating Curve (Red)



Reflow Profile

■ Reflow Temp/Time



Notes:

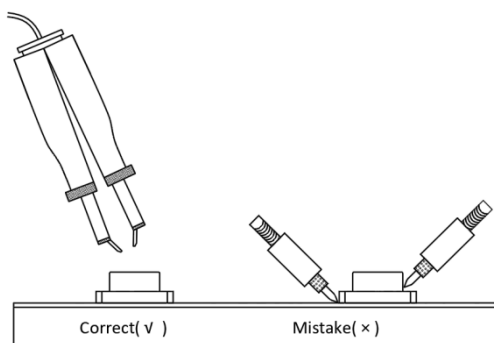
1. We recommend the reflow temperature 245°C(±5°C).The maximum soldering temperature should be limited to 260°C.
2. Don't cause stress to the epoxy resin while it is exposed to high temperature.
3. Number of reflow process shall be 2 times or less.

■ 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.

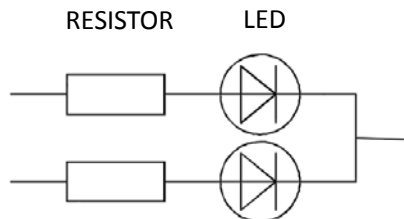


- Avoid rubbing or scraping the resin by any object, during high temperature, for example reflow solder etc.

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 $\leq 20^{\circ}\text{C}$ with zip

3. Baking

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

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

| Rank | Min. | Max. | Unit |
|------|------|------|------|
| f | 2.8 | 3.1 | V |
| g | 3.1 | 3.4 | |
| h | 3.4 | 3.7 | |

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

| Rank | Min. | Max. | Unit |
|------|------|------|------|
| O | 320 | 400 | mcd |
| P | 400 | 500 | |
| Q | 500 | 630 | |
| R | 630 | 800 | |

Chromaticity coordinates Ranks combination (IF=20mA) (White)

| Rank | Chromaticity coordinates | | | | |
|------|--------------------------|--------|--------|--------|--------|
| | X | Y | Z | u' | v' |
| A5 | X | 0.2537 | 0.2438 | 0.2517 | 0.2612 |
| | Y | 0.2123 | 0.2165 | 0.2338 | 0.2292 |
| A8 | X | 0.2612 | 0.2517 | 0.2611 | 0.2697 |
| | Y | 0.2292 | 0.2338 | 0.2524 | 0.2463 |
| B2 | X | 0.2697 | 0.2611 | 0.2701 | 0.2777 |
| | Y | 0.2463 | 0.2524 | 0.2704 | 0.2621 |
| B5 | X | 0.2777 | 0.2701 | 0.2794 | 0.2855 |
| | Y | 0.2621 | 0.2704 | 0.2871 | 0.2769 |

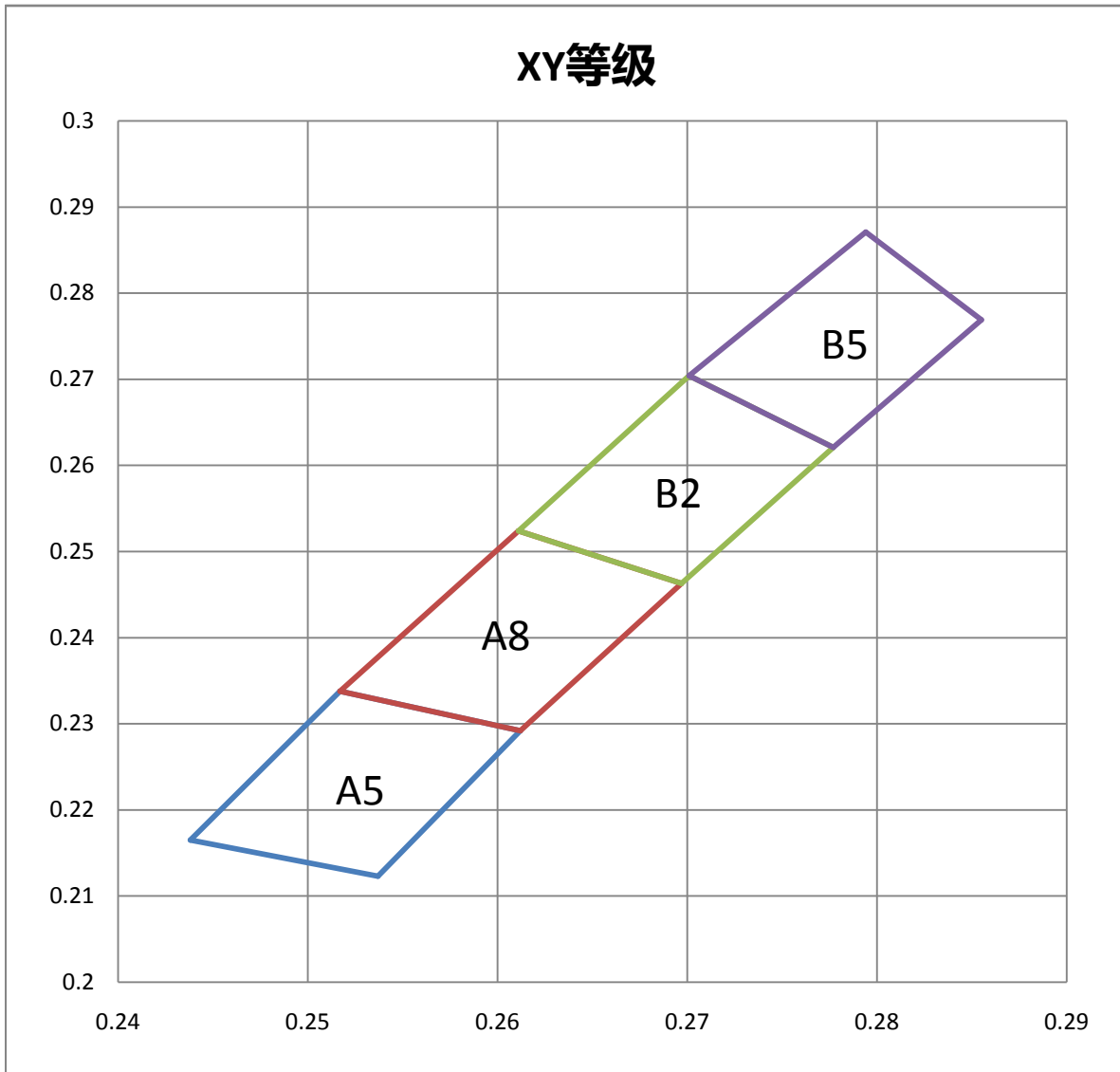
Group Name on Label (Example DATA: fRA8 20) (White)

| DATA: fOA8 20 | Vf(V) | Iv (mcd) | CIE(X,Y) | Test Condition |
|---------------|---------|----------|-----------------------------------|----------------|
| f→O→A8→20 | 2.8~3.1 | 320~400 | X(0.2517~0.2697),Y(0.2292~0.2524) | IF=20mA |

Notes:

1. The tolerance of luminous intensity (Iv) is $\pm 15\%$.
2. The tolerance of CIE Coordinates(X,Y) is ± 0.01 .
3. This specification is preliminary.
4. This specification is a standard specification of our factory, can make in accordance with customer's special requirement.

XY chromaticity coordinate



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

| Rank | Min. | Max. | Unit |
|------|------|------|------|
| □ | 1.8 | 2.4 | V |

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

| Rank | Min. | Max. | Unit |
|------|------|------|------|
| J | 100 | 125 | mcd |
| K | 125 | 160 | |
| L | 160 | 200 | |
| M | 200 | 250 | |
| N | 250 | 320 | |

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

| Rank | Min. | Max. | Unit |
|------|------|------|------|
| Ra | 620 | 622 | nm |
| Rb | 622 | 624 | |
| Rc | 624 | 626 | |
| Rd | 626 | 628 | |
| Re | 628 | 630 | |

Group Name on Label (Example DATA: □KR_a 20) (Red)

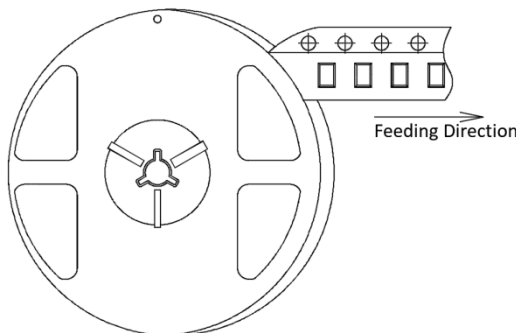
| DATA: □KR _a 20 | V _f (V) | I _v (mcd) | λ _d (nm) | Test Condition |
|---------------------------|--------------------|----------------------|---------------------|----------------|
| □→K→R _a →20 | 1.8~2.4 | 125~160 | 620~622 | IF=20mA |

Notes:

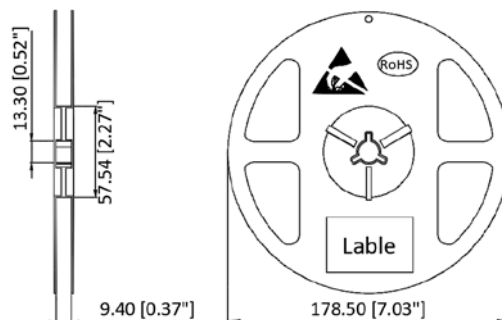
1. The tolerance of luminous intensity (I_v) is ±15%.
2. The tolerance of dominant wavelength is ±1nm.
3. This specification is preliminary.
4. This specification is a standard specification of our factory, can make in accordance with customer's special requirement.

1608 Series SMD Chip LED Lamps Packaging Specifications

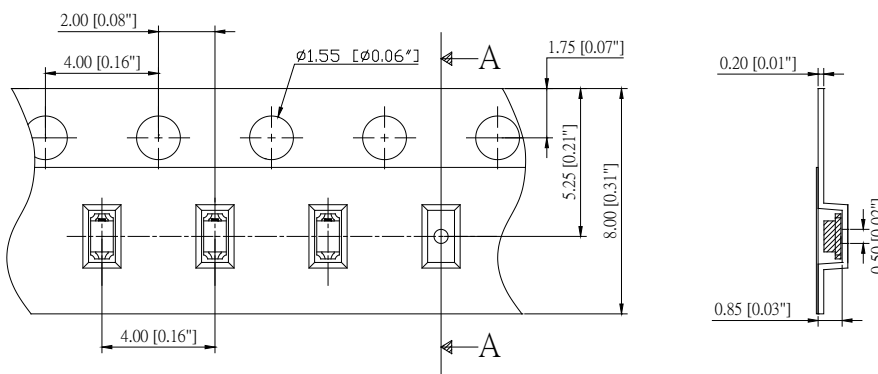
● **Feeding Direction**



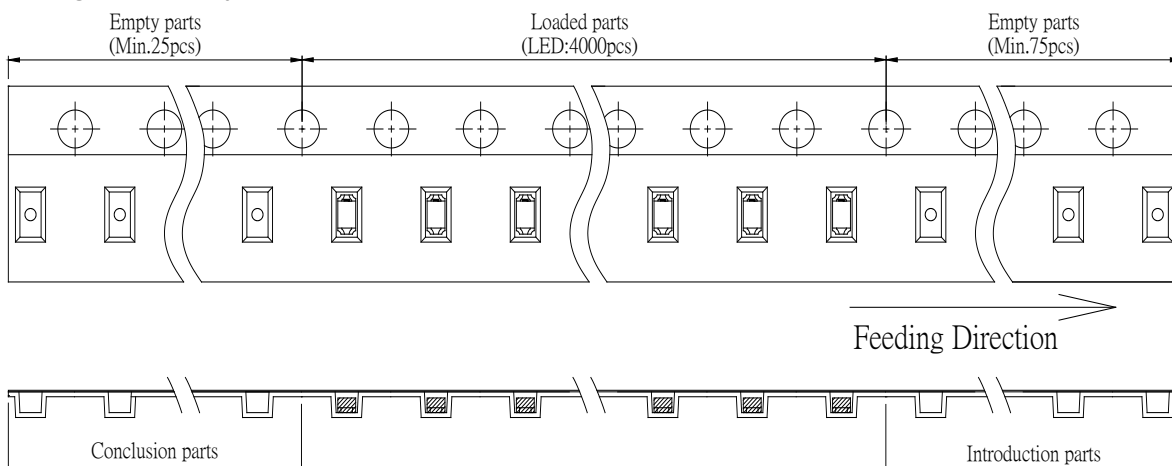
● **Dimensions of Reel (Unit: mm)**



● **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.

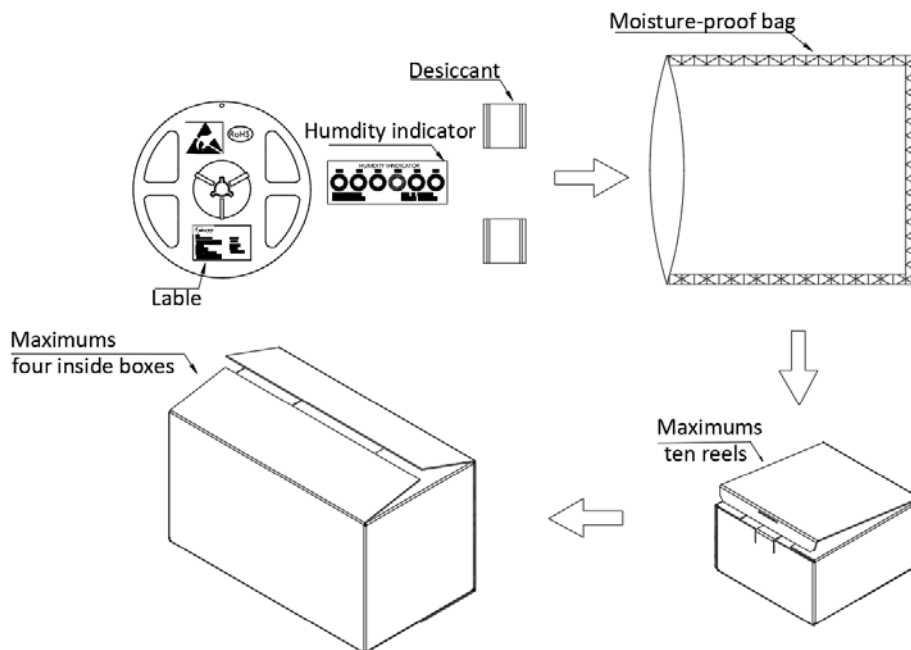
1608Series SMD Chip LED Lamps Packaging Specifications

- **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 outsidebox(cardboard box) has it to three steps.