

**WCN-0603WW-0E-30****SPECIFICATION**

| WCN                 |                        |                                                                                     | CUSTOMER<br>Confirmed |
|---------------------|------------------------|-------------------------------------------------------------------------------------|-----------------------|
| Prepared by         | Checked by             | Approved by                                                                         |                       |
| LiuGuo<br>2018-11-9 | ZhangChun<br>2018-11-9 |  |                       |

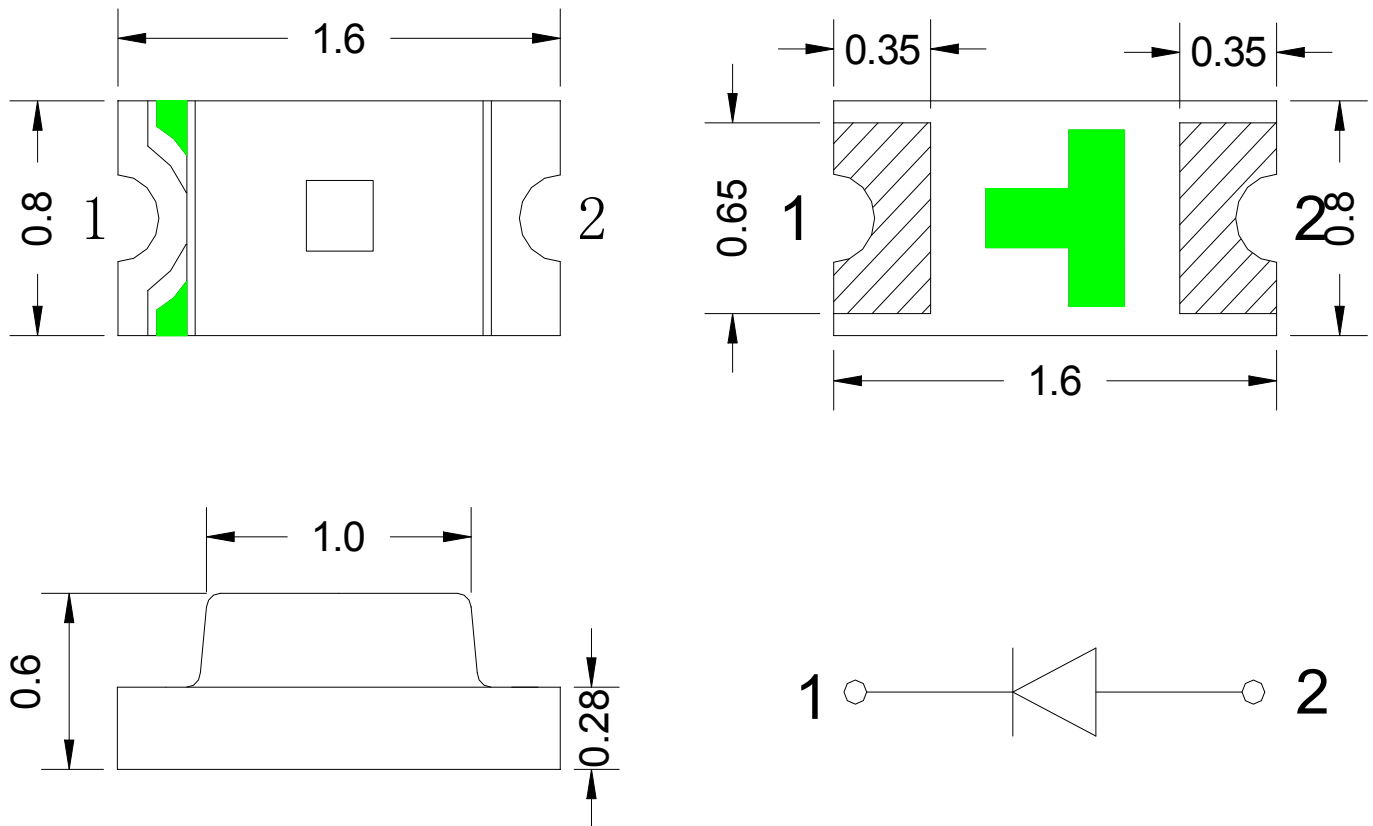


ATTENTION  
OBSERVE PRECAUTIONS  
FOR HANDLING  
ELECTROSTATIC  
SENSITIVE DEVICES



**Description**

- ◆ Viewing angle:120 deg
- ◆ The materials of the LED dice is InGaN
- ◆ 1.6mm×0.8mm×0.6mm
- ◆ RoHS compliant lead-free soldering compatible

**Package Outline**

**NOTES:**

1. All dimensions units are millimeters ;
2. All dimensions tolerances are  $\pm 0.2\text{mm}$  unless otherwise noted.

## Absolute Maximum Ratings at Ta=25℃

| Parameter               | Symbol | Rating    | Units |
|-------------------------|--------|-----------|-------|
| Power Dissipation       | Pd     | 68        | mW    |
| Forward current         | IF     | 20        | mA    |
| Peak Forward Current    | IFP    | 100       | mA    |
| Reverse voltage         | VR     | 5         | V     |
| Electrostatic Discharge | ESD    | 1000      | V     |
| Operating temperature   | Topr   | -30~+85   | ℃     |
| Storage temperature     | Tstg   | -40 ~+100 | ℃     |
| junction temperature    | Tj     | 95        | ℃     |

## Electrical/Optical characteristics at Ta=25℃

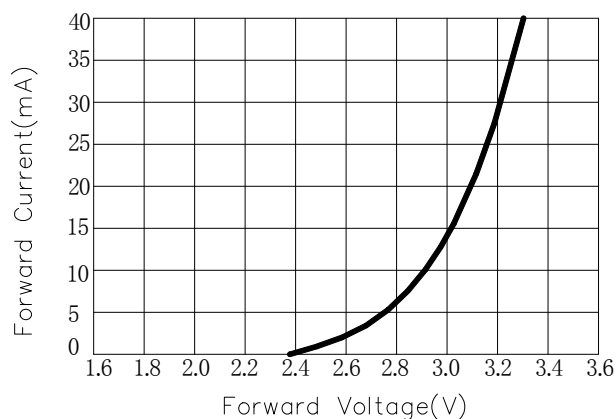
| Item                         | test condition | Symbol   | Value |      |      | Unit |
|------------------------------|----------------|----------|-------|------|------|------|
|                              |                |          | Min.  | Typ. | Max. |      |
| Forward voltage              | If=20mA        | Vf       | 2.8   | --   | 3.0  | V    |
|                              |                |          | 3.0   | --   | 3.2  | V    |
|                              |                |          | 3.2   | --   | 3.4  | V    |
| Luminous intensity           | If=20mA        | Iv       | 500   | --   | 600  | mcd  |
|                              |                |          | 600   | --   | 800  | mcd  |
|                              |                |          | 800   | --   | 1100 | mcd  |
| Correlated Color Temperature | If=20mA        | CCT      | 2800  | --   | 3200 | K    |
| Viewing angle at 50% Iv      | If=20mA        | 2 θ1/2   | --    | 120  | --   | Deg  |
| Reverse current              | Vr=5V          | Ir       | --    | --   | 10   | μA   |
| Thermal resistance           | If=20mA        | Rth(j-s) | --    | --   | 450  | ℃/W  |

### NOTE:

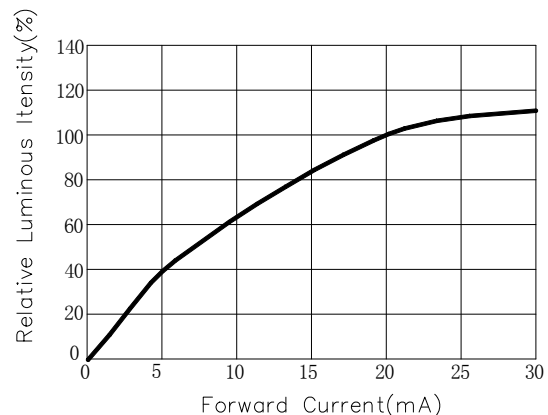
- 1.1/10 Duty cycle, 0.1ms pulse width.
2. The above forward voltage measurement allowance tolerance is 0.1V.
3. the above luminous intensity measurement allowance tolerance ±10%.

## Optical characteristics curves

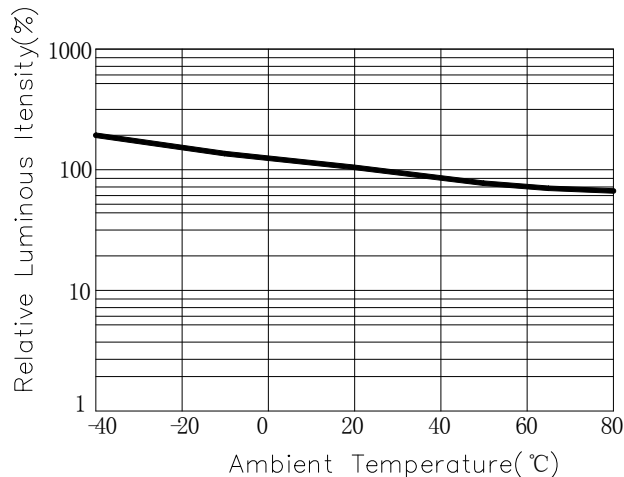
**Forward Current VS Forward Voltage**



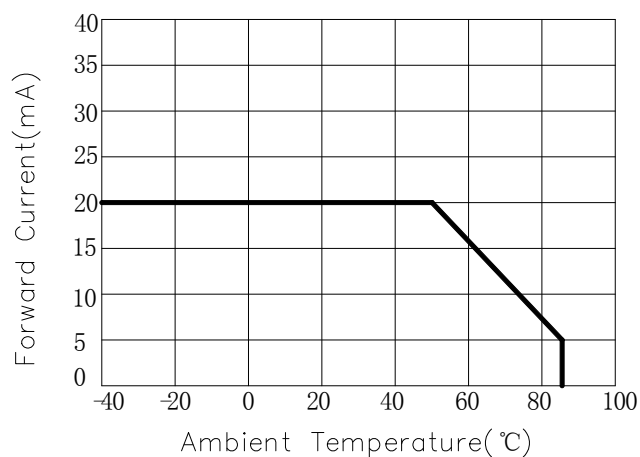
**Relative Flux VS Forward Current**



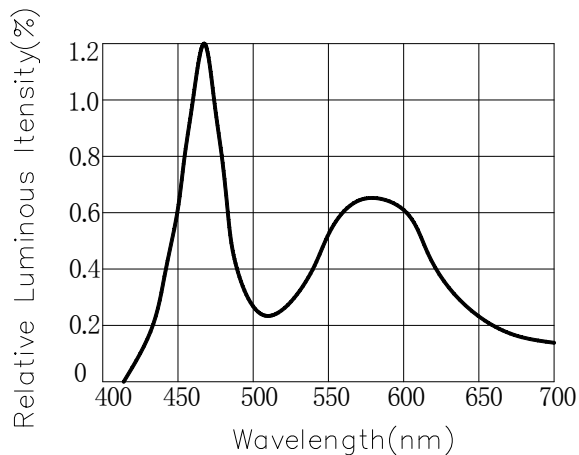
**Relative Flux VS Ambient Temperature**



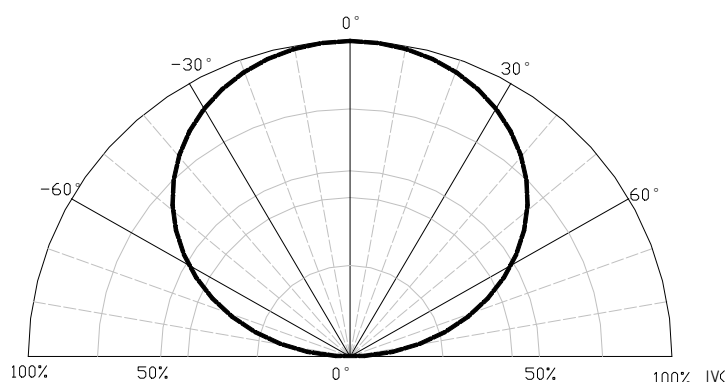
**Forward Current VS Ambient Temperature**



**Relative Spectral Distribution**

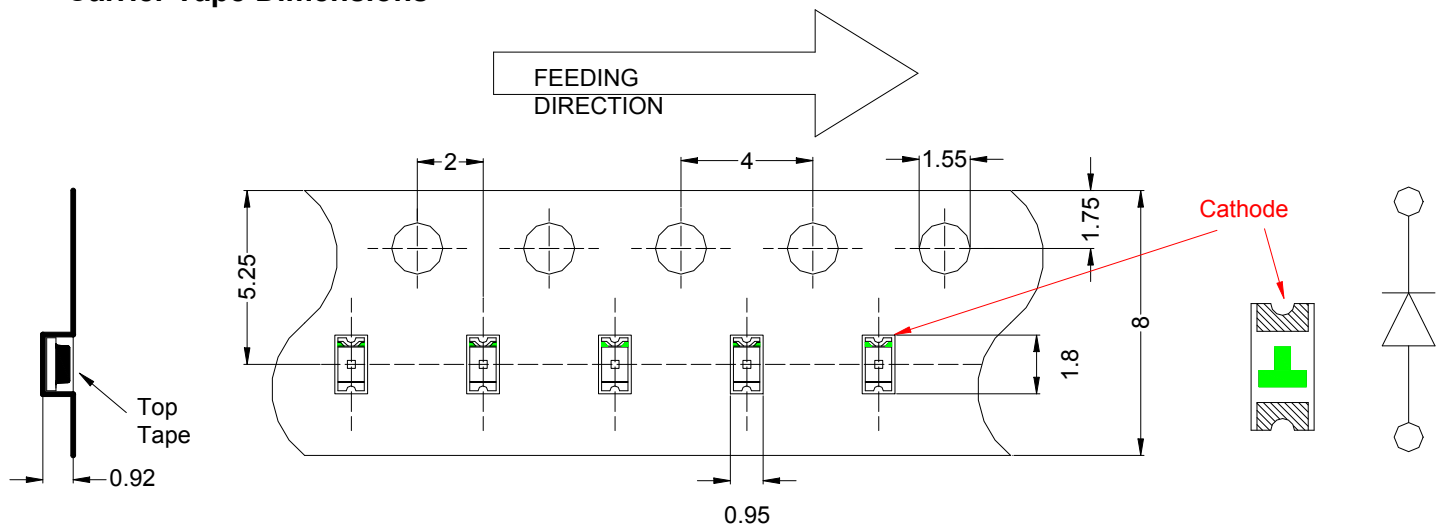


**Typical Spectral Distribution**

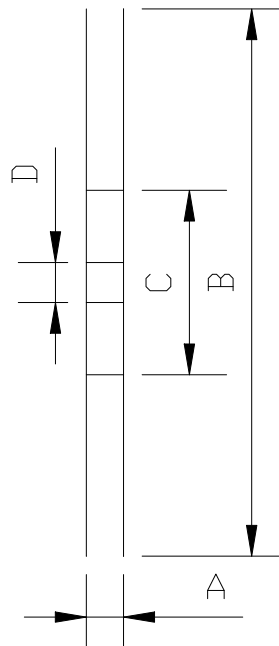
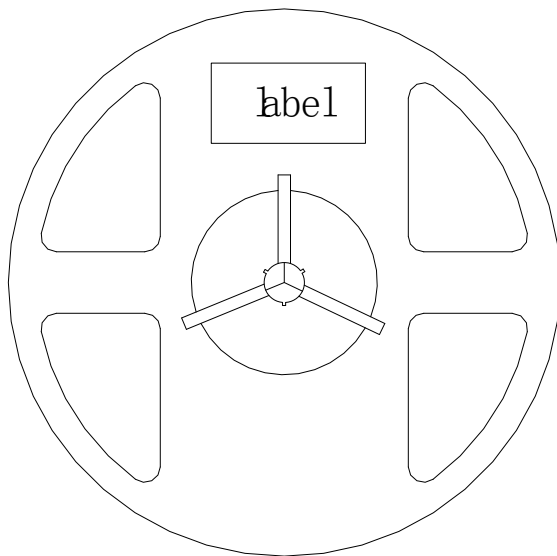


## Packaging Specifications

## ■ Carrier Tape Dimensions



## ■ Reel Dimension



|   |            |
|---|------------|
| A | 8.0±0.1mm  |
| B | 178±1mm    |
| C | 60±1mm     |
| D | 13.0±0.5mm |

**NOTE:**

- 1.The tolerances unless mentioned  $\pm 0.1\text{mm}$ . Unit : mm  
2. 4,000 pcs/Reel.

## Label Form Specification

WCN Opto Group Co., Ltd

P/N:



ROHS

QTY: PCS



IV:

LOT NO:



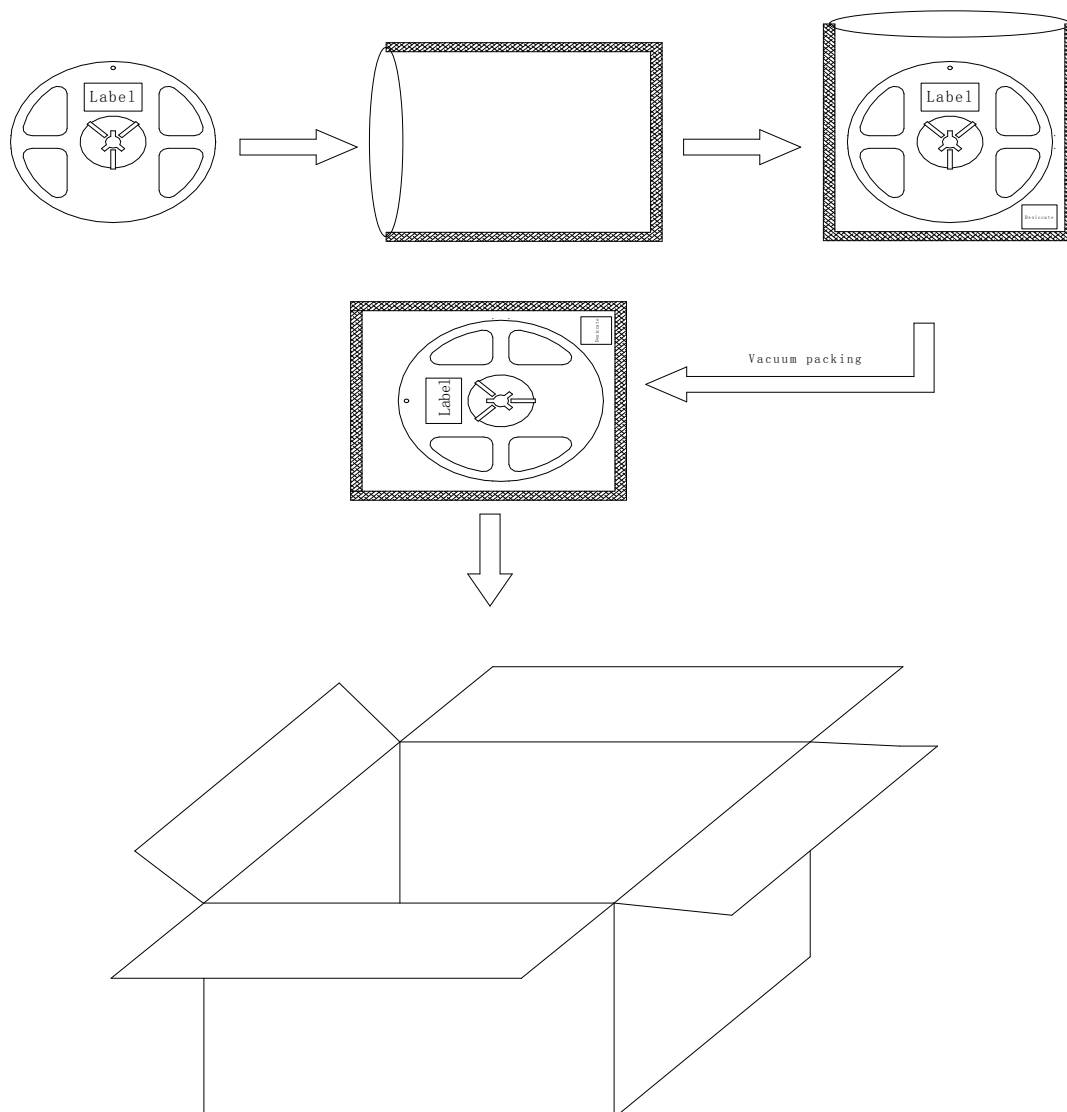
CCT:

VF:

MADE IN CHINA

|        |                              |
|--------|------------------------------|
| P/N    | Part Number                  |
| QTY    | Packing Quantity             |
| LOT NO | Made Date                    |
| IV     | Luminous intensity           |
| CCT    | Correlated Color Temperature |
| VF     | Forward Voltage              |

## Moisture Resistant Packing Process

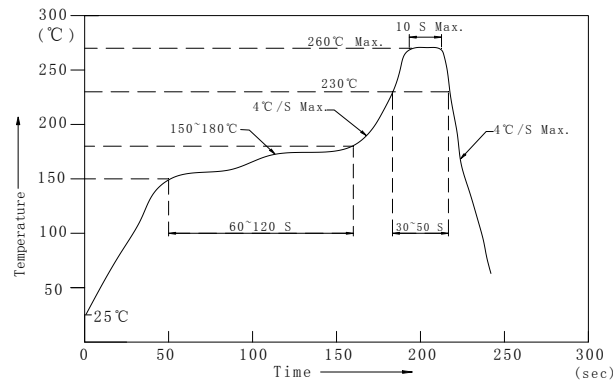


## Test items and results of reliability

| Type                   | Test Item                    | Test Conditions                | Note      | Number of Damaged |
|------------------------|------------------------------|--------------------------------|-----------|-------------------|
| Environmental Sequence | Reflow                       | Ta=260℃max<br>T=10s            | 2 times   | 0/22              |
|                        | Temperature Cycle            | -40℃ 30min<br>↑↓<br>100℃ 30min | 100 cycle | 0/22              |
|                        | Thermal Shock                | -40℃ 15min<br>↑↓<br>100℃ 15min | 100 cycle | 0/22              |
|                        | High Humidity Heat Cycle     | 30℃↔65℃<br>90%RH 24hrs/1cycle  | 10 cycle  | 0/22              |
|                        | High Temperature Storage     | Ta=100℃                        | 1000 hrs  | 0/22              |
|                        | Low Temperature Storage      | Ta=-40℃                        | 1000 hrs  | 0/22              |
|                        | Humidity Heat Storage        | Ta=60℃<br>RH=90%               | 1000 hrs  | 0/22              |
|                        | Low Temperature Storage      | Ta=-30℃                        | 1000 hrs  | 0/22              |
| Operation Sequence     | Life Test                    | Ta=25℃<br>IF=20mA              | 1000 hrs  | 0/22              |
|                        | High Humidity Heat Life Test | 60℃ RH=90%<br>IF=10mA          | 500 hrs   | 0/22              |
|                        | Low Temperature Life Test    | Ta=-20℃<br>IF=20mA             | 1000 hrs  | 0/22              |

## Reflow Profile

### ■ Reflow Temp/Time



### Notes:

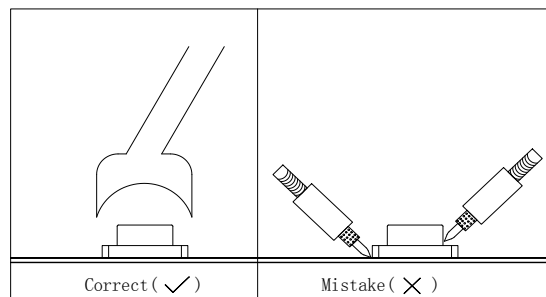
1. We recommend the reflow temperature 245°C (±5°C). the maximum soldering temperature should be limited to 260°C.
2. Don't cause stress to the epoxy resin while it is exposed to high temperature.
3. Number of reflow process shall be 2 times or less.

### ■ Soldering iron

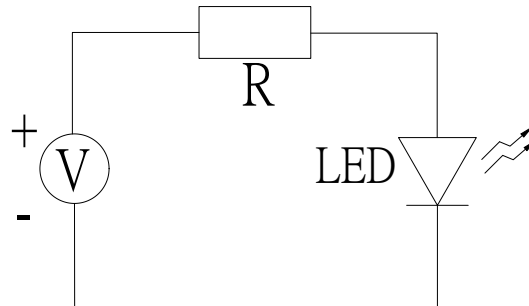
Basic spec is  $\leq 5\text{sec}$  when 260°C. If temperature is higher, time should be shorter (+10°C → -1sec). Power dissipation of iron should be smaller than 20W, and temperatures should be controllable. Surface temperature of the device should be under 230°C.

### ■ Rework

1. Customer must finish rework within 5 sec under 260°C.
2. The head of iron can not 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.

**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:

Humidity: 60% R.H. Max.

Temperature : 5°C~30°C (41°F~86°F)

2.2 Shelf life in sealed bag: 12 month at <5°C~30°C and <30% R.H. After the package is

Opened, the products should be used within a week or they should be keeping to stored 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 70 $\pm$ 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