

# SPECIFICATION FOR APPROVAL

Customer : \_\_\_\_\_

Customer Part No: \_\_\_\_\_

SHINING Part No: SN-NE2835PAED60KG-N

Emitted color: White

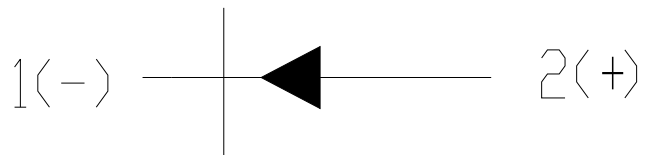
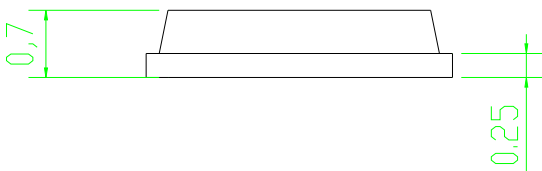
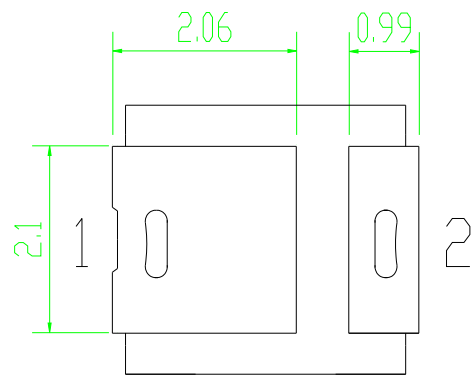
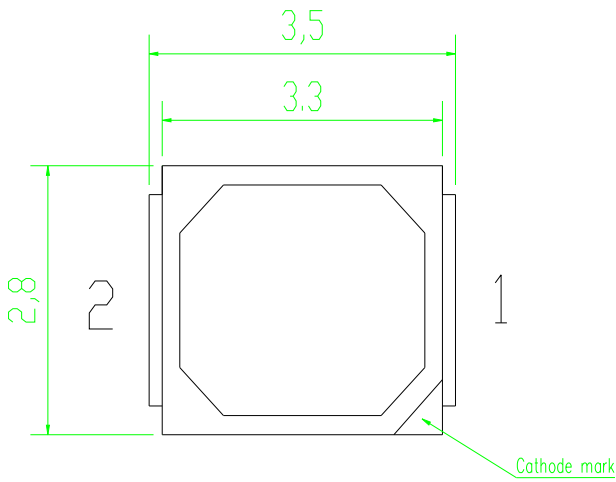
| Revision History |                  |          |
|------------------|------------------|----------|
| Date             | Revision History | Prepared |
| 2022.8.11        | New Version      | A/0      |
|                  |                  |          |
|                  |                  |          |
|                  |                  |          |


| Confirmed By Customer | Approval by | Prepared by    |
|-----------------------|-------------|----------------|
|                       | Liusan      | Shaochengcheng |

**Feature**

- △ Viewing angle:120 deg
- △ The materials of the LED dice is InGaN
- △ 3.50mm×2.80mm×0.7mm
- △ Pb-free
- △ RoHS compliant lead-free soldering compatible
- △ AEC-Q102 Qualified
- △ Precondition: Bases on JEDEC J-STD 020D Level 3

**Package Outline**





**ATTENTION**  
OBSERVE PRECAUTIONS  
FOR HANDLING  
ELECTROSTATIC  
SENSITIVE DEVICES

**NOTES:**

1. All dimensions are in millimeters ;
2. Tolerances are ±0.2mm unless otherwise noted.

## Absolute maximum ratings at Ta=25°C

| Parameter  | Symbol           | Value     | Unit |
|--|------------------|-----------|------|
| Forward current  | I <sub>f</sub>   | 160       | mA   |
| Reverse voltage  | V <sub>r</sub>   | 5         | V    |
| Operating temperature range                                      | T <sub>op</sub>  | -40 ~+100 | °C   |
| Storage temperature range  | T <sub>stg</sub> | -40~+100  | °C   |
| Pulse Forward Current<br>(Pulse Width ≤ 1 msec. and Duty ≤ 1/10) | I <sub>fp</sub>  | 80        | mA   |
| Electrostatic Discharge  | ESD              | 2000(HBM) | V    |

## Electro-optical characteristics at Ta=25°C

| Parameter                           | Test Condition        | Symbol         | Value |      |      | Unit |
|-------------------------------------|-----------------------|----------------|-------|------|------|------|
|                                     |                       |                | Min.  | Typ. | Max. |      |
| Forward voltage                     | I <sub>f</sub> =150mA | V <sub>f</sub> | 2.8   | --   | 3.6  | V    |
| Luminous intensity                  | I <sub>f</sub> =150mA | Φ              | 45    | --   | 60   | lm   |
| Color temperature                   | I <sub>f</sub> =150mA | CCT            | --    | 6000 | --   | K    |
| Viewing angle at 50% I <sub>v</sub> | I <sub>f</sub> =150mA | 2 θ 1/2        | --    | 120  | --   | Deg  |
| Reverse current                     | V <sub>r</sub> =5V    | I <sub>r</sub> | --    | --   | 10   | μA   |

NOTE: (Tolerance: Φ±10%, V<sub>f</sub>±0.1V, X/Y ±0.01)

**Forward voltage range**

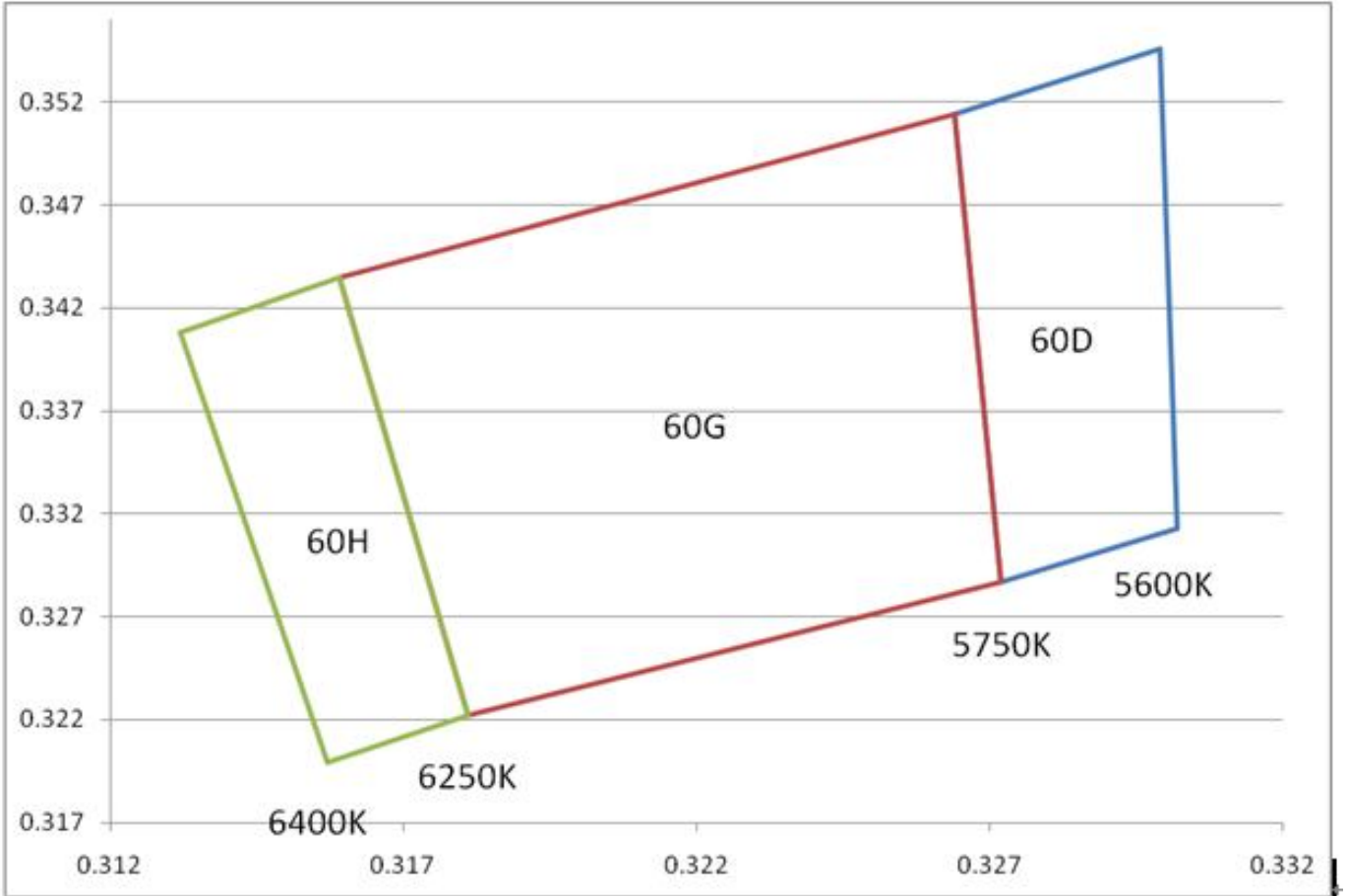
| Forward Voltage Unit: V@150mA |     |     |
|-------------------------------|-----|-----|
| Bin Code                      | MIN | MAX |
| F05                           | 2.8 | 3.0 |
| F06                           | 3.0 | 3.2 |
| F07                           | 3.2 | 3.4 |
| F08                           | 3.4 | 3.6 |

**Luminous intensity range**

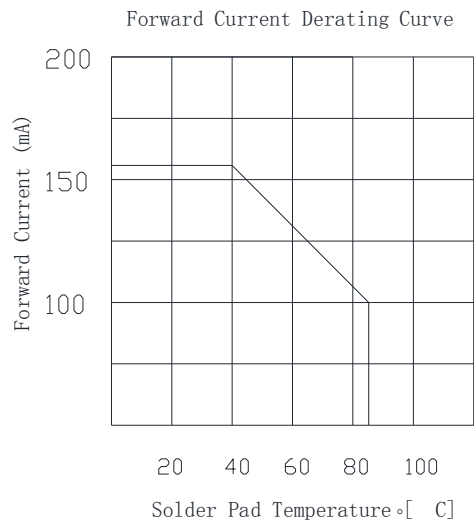
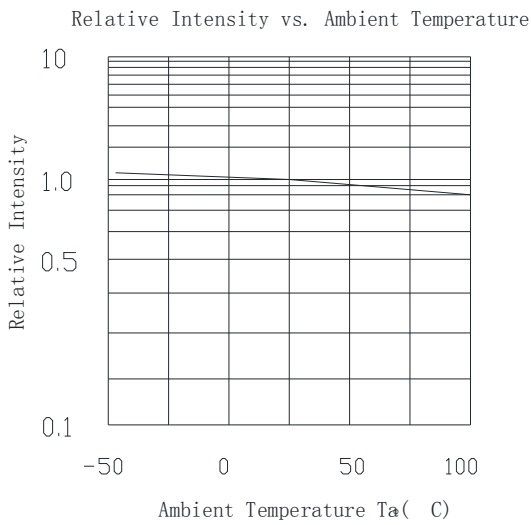
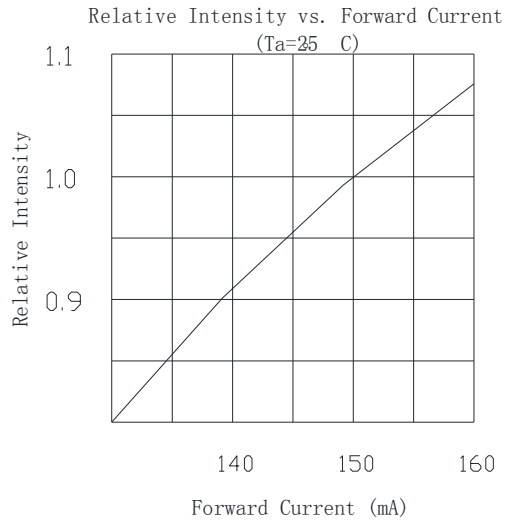
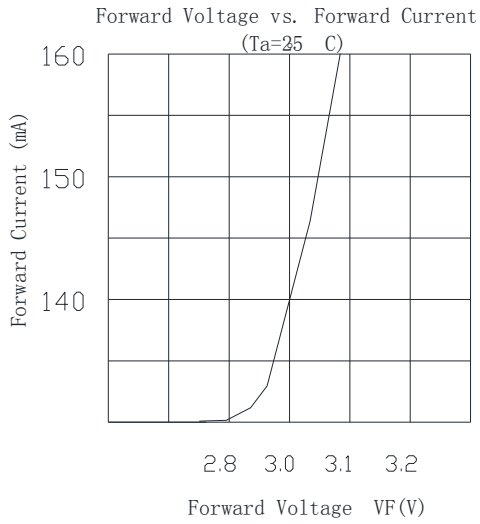
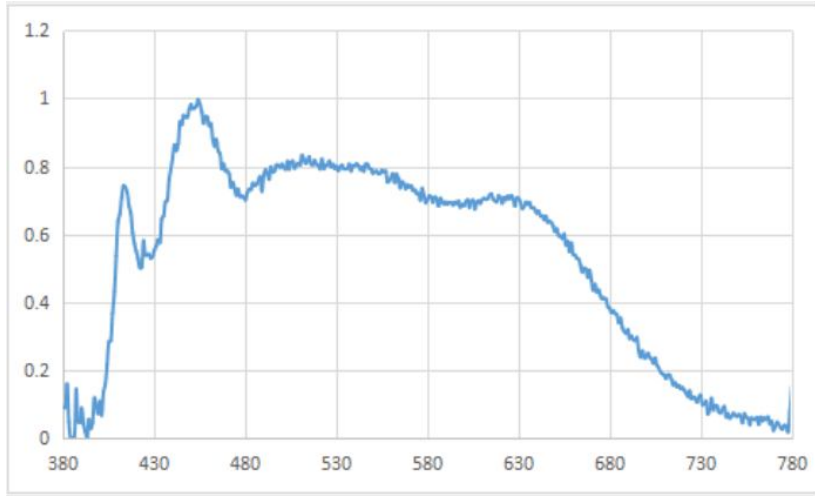
| Luminous Intensity Unit: lm@150mA |     |     |
|-----------------------------------|-----|-----|
| Bin Code                          | MIN | MAX |
| D45                               | 45  | 50  |
| D50                               | 50  | 55  |
| D55                               | 55  | 60  |

**Chromaticity range**

| BIN               | X      | Y      | BIN               | X      | Y      | BIN               | X      | Y      |
|-------------------|--------|--------|-------------------|--------|--------|-------------------|--------|--------|
| 60D<br>5600-5750K | 0.3272 | 0.3287 | 60G<br>5750-6250K | 0.3181 | 0.3222 | 60H<br>6250-6400K | 0.3157 | 0.3199 |
|                   | 0.3264 | 0.3514 |                   | 0.3159 | 0.3435 |                   | 0.3132 | 0.3408 |
|                   | 0.3299 | 0.3546 |                   | 0.3264 | 0.3514 |                   | 0.3159 | 0.3435 |
|                   | 0.3302 | 0.3313 |                   | 0.3272 | 0.3287 |                   | 0.3181 | 0.3222 |



Typical optical characteristics curves



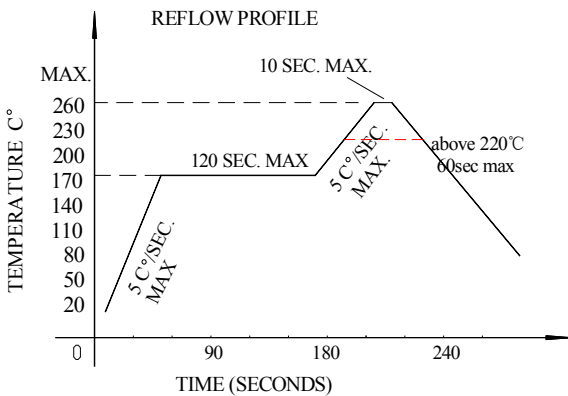
**Reflow profile**

- Soldering condition
  - Recommended soldering conditions

| Reflow Soldering |                              | Hand Soldering |                                  |
|------------------|------------------------------|----------------|----------------------------------|
| Pre-heat         | 160~180℃                     | Temperature    | 300℃ Max.                        |
| Pre-heat time    | 120 seconds Max.             | Soldering time | 3 second Max.<br>(one time only) |
| Peak temperature | 260℃ Max.                    |                |                                  |
| Soldering time   | 10 seconds Max.              |                |                                  |
| Condition        | Refer to Temperature-profile |                |                                  |

- After reflow soldering rapid cooling should be avoided

- Temperature-profile (Surface of circuit board)  
Use the following conditions shown in the figure.



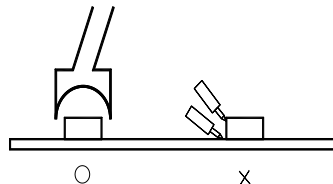
1. Reflow soldering should not be done more than two times
2. When soldering ,do not put stress on the LEDs during heating

■ Soldering iron

1. When hand soldering, keep the temperature of the iron under 300℃, and at that temperature keep the time under 3 sec.
2. The hand soldering should be done only a time
3. The basic spec is ≤5 sec. when the temperature of 260℃, do not contact the resin when hand soldering

■ Rework

1. Customer must finish rework within 5 sec und
2. The head of iron can not touch the resin
3. Twin-head type is preferred.



■ CAUTIONS

The encapsulated material of the LEDs is silicone . Therefore the LEDs have a soft surface on the top of package. The pressure to the top surface will be influence to the reliability of the LEDs. Precautions should be taken to avoid the strong pressure on the encapsulated part. So when using the picking up nozzle, the pressure on the silicone resin should be proper.

## Reliability

### (1)TEST ITEMS AND RESULTS

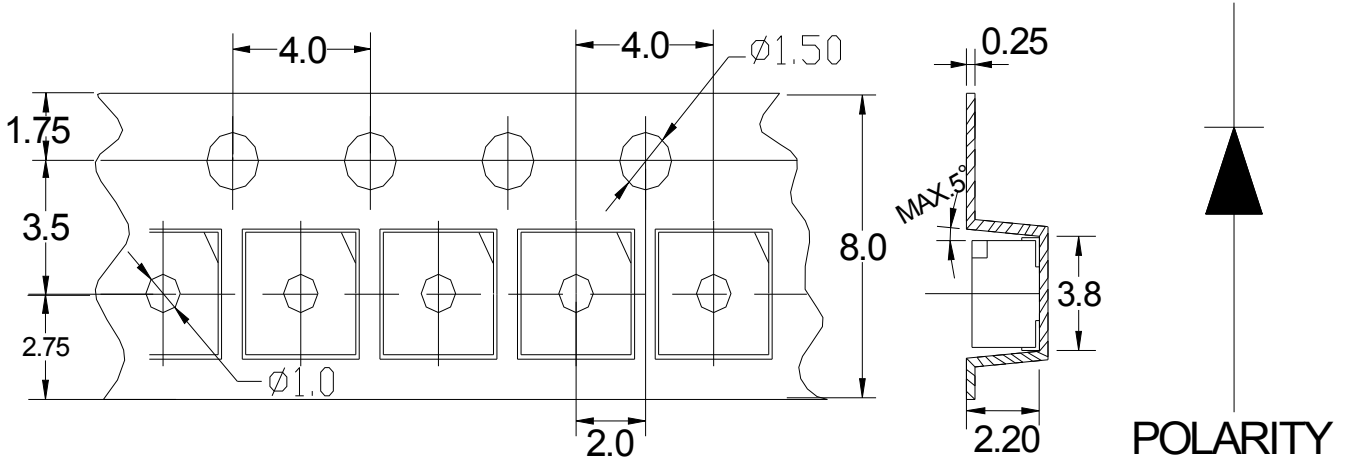
| Type                   | Test Item                                      | Test Conditions                      | Note      | Number of Damaged |
|------------------------|--|--------------------------------------|-----------|-------------------|
| Environmental Sequence | Resistance to Soldering Heat(Reflow Soldering) | Tsld=260°C,10sec                     | 2 times   | 0/22              |
|                        | Temperature Cycle                              | -40°C 30min<br>↑↓5min<br>100°C 30min | 100 cycle | 0/22              |
|                        | High Temperature Storage                       | Ta=100°C                             | 1000 hrs  | 0/22              |
|                        | Low Temperature Storage                        | Ta=-40°C                             | 1000 hrs  | 0/22              |
| Operation Sequence     | Life Test                                      | Ta=25°C<br>IF=150mA                  | 1000 hrs  | 0/11              |
|                        | High Humidity Heat Life Test                   | 60°C RH=85%<br>IF=150mA              | 1000 hrs  | 0/11              |

### (2)CRITERIA FOR JUDGING THE DAMAGE

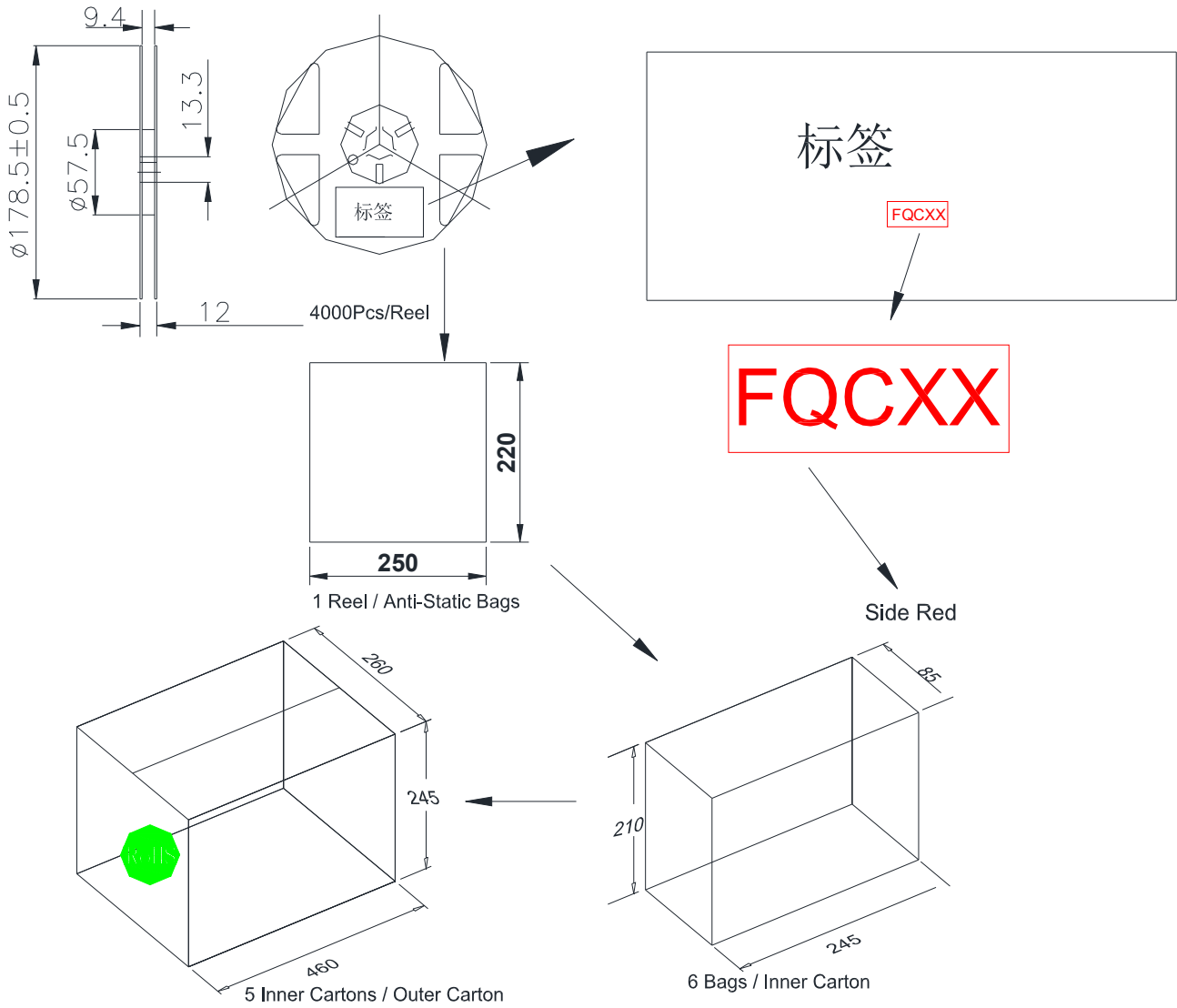
| Item               | Symbol | Test Conditions | Criteria for Judgement |                  |
|--------------------|--------|-----------------|------------------------|------------------|
|                    |        |                 | Min.                   | Max.             |
| Forward Voltage    | VF     | IF=150mA        | -                      | Initial Data×1.2 |
| Luminous Intensity | IV     | IF=150mA        | Initial Data×0.7       | -                |



**Packaging Specifications**



**Packaging specifications**



## CAUTIONS

### Storage conditions

#### Before opening the package:

The LEDs should be kept at 30°C or less and 70%RH or less. The LEDs should be used within a year. When storing the LEDs, moisture proof packaging with absorbent material (silica gel) is recommended.

#### After opening the package:

The LEDs should be kept at 30°C or less and 50%RH or less. The LEDs should be soldered within 24 hours (1days) after opening the package. If unused LEDs remain, they should be stored in moisture proof packages, such as sealed containers with packages of moisture absorbent material (silica gel). It is also recommended to return the LEDs to the original moisture proof bag and to reseal the moisture proof bag again.

This specification shining has the right of final interpretation