

DATA SHEET for LED Lamp

(Chip LED)



| | | |
|------------------|------------------|-------------|
| Part No. | WR106AM/W | |
| Emitted Color | Chip Material | Lens Color |
| High Super Amber | AlGaInP | Water Clear |

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| Customer Confirm | Approved by | Checked by | Issued by |
|------------------|-------------|------------|-----------|
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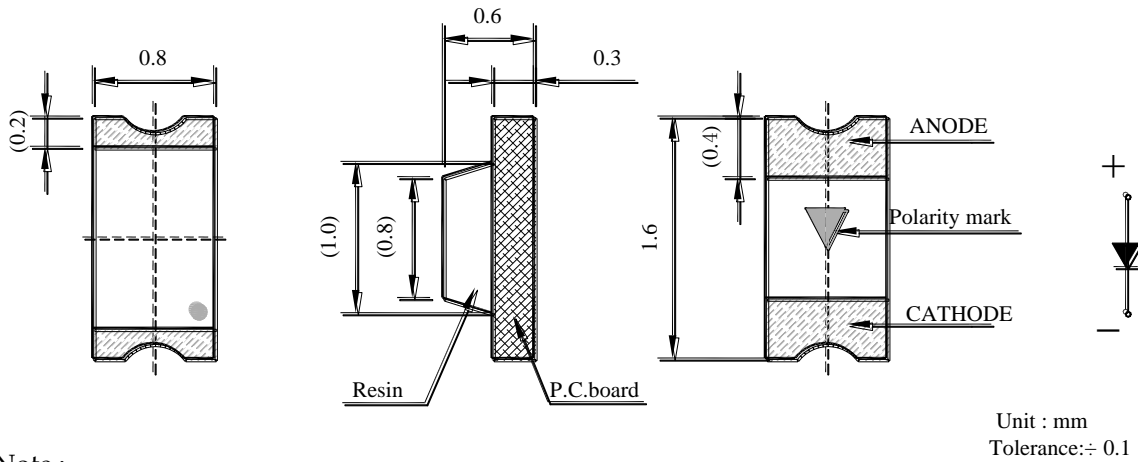
Features :

- Compatible with automatic placement equipment
- Compatible with reflow solder process
- Low power consumption and wide viewing angle
- This product doesn't contain restriction Substance, comply RoHS standard

Applications :

- Automotive and Telecommunication
- Flat backlight for LCD ,switch and symbol in telephone and fax
- General use for indicators

Package Dimensions :



Note :

1. Electrodes: Au Plating
2. Encapsulating Resin: Epoxy Resin
3. Package: BT Resin

Absolute Maximum Rating (Ta = 25°C)

| Parameter | Symbol | Maximum Rating | Unit |
|--|------------------|----------------|------|
| Power Dissipation | P _d | 70 | mW |
| Pulse Forward Current (Duty 1/10 @ 1kHz) | I _{FP} | 100 | mA |
| Continuous Forward Current | I _F | 25 | mA |
| Reverse Voltage | V _R | 5 | V |
| Operation Temperature | T _{opr} | - 30 ~ 85 | °C |
| Storage Temperature | T _{stg} | - 40 ~ 100 | °C |
| Soldering Temperature | T _{sol} | 260±5 | °C |

Electron-Optical Characteristics (Ta = 25 °C)

| Parameter | Symbol | Min. | Typ. | Max. | Unit | Test Condition |
|--------------------------|-------------------|------|------|------|------|-----------------------|
| Luminous Intensity | I _v | 100 | | 250 | mcd | I _F =15 mA |
| Forward Voltage | V _F | 1.8 | | 2.2 | V | I _F =15 mA |
| Reverse Current | I _R | | | 10 | μA | V _R =5V |
| Dominant Wavelength | λ _d | 600 | | 608 | nm | I _F =15 mA |
| Spectral Line Half Width | Δλ | | 30 | | nm | I _F =15 mA |
| Viewing Angle | 2θ _{1/2} | | 120 | | deg | I _F =15 mA |

Notes : 1.Tolerance of Luminous Intensity ±10%

2.Tolerance of Dominant Wavelength ±2nm

3. Tolerance of Forward voltage ±0.05V

4. Luminous Intensity is measured by WENRUN's equipment on bare chips

BIN Range

1) Luminous Intensity (tolerance is ±10% @ I_F =15 mA)

| BIN Code | Min. (mcd) | Max. (mcd) |
|----------|------------|------------|
| M | 100 | 130 |
| N | 130 | 160 |
| P | 160 | 200 |
| Q | 200 | 250 |

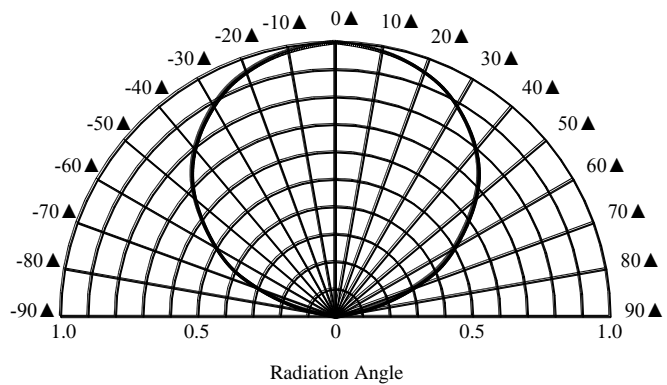
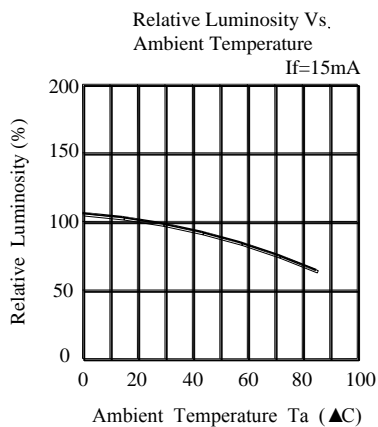
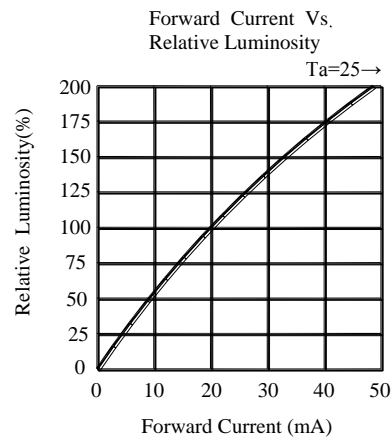
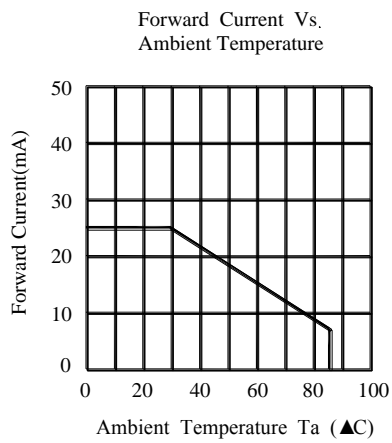
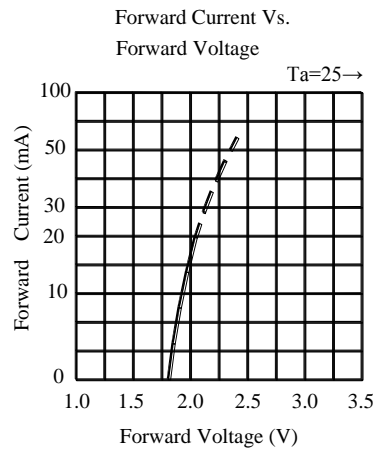
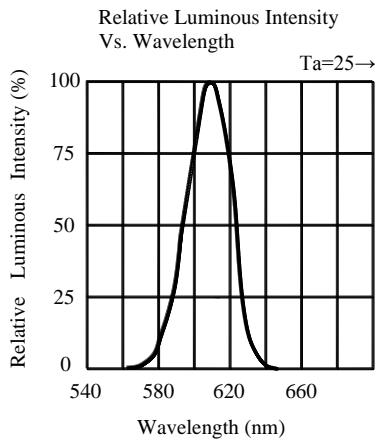
2) Dominant Wavelength (tolerance is ±2 nm @ I_F =15 mA)

| BIN Code | Min. (nm) | Max. (nm) |
|----------|-----------|-----------|
| A | 600 | 602 |
| B | 602 | 604 |
| C | 604 | 606 |
| D | 606 | 608 |

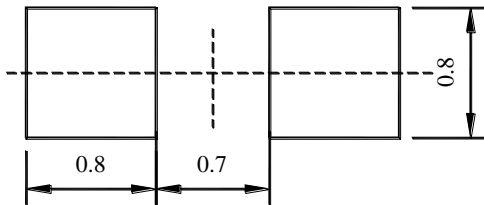
3) Forward Voltage (tolerance is ±0.05V @ I_F =15 mA)

| BIN Code | Min. (V) | Max. (V) |
|----------|----------|----------|
| F | 1.8 | 1.9 |
| G | 1.9 | 2.0 |
| H | 2.0 | 2.1 |
| J | 2.1 | 2.2 |

Typical Characteristic Curves :



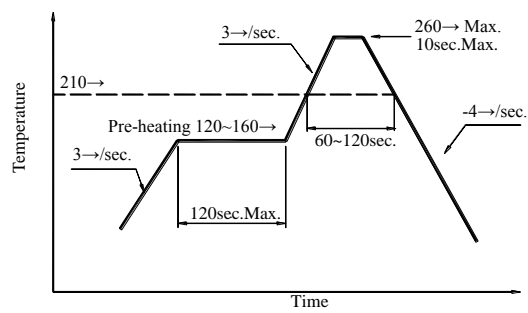
Soldering Pad Dimensions



Soldering Conditions (Maximum allowable soldering conditions)

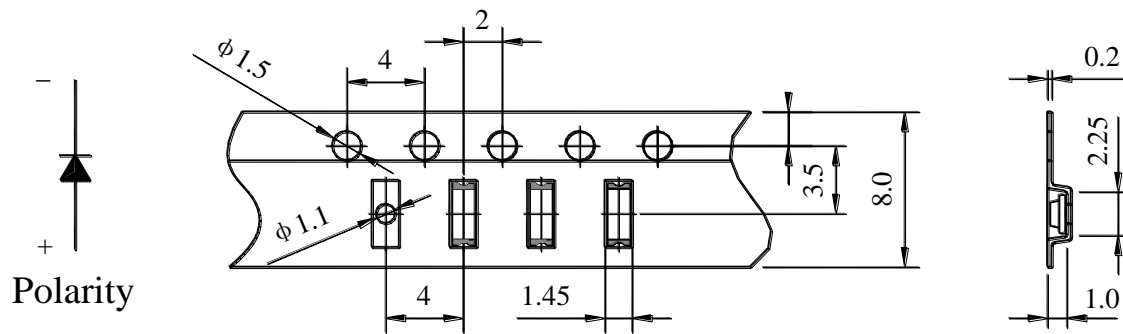
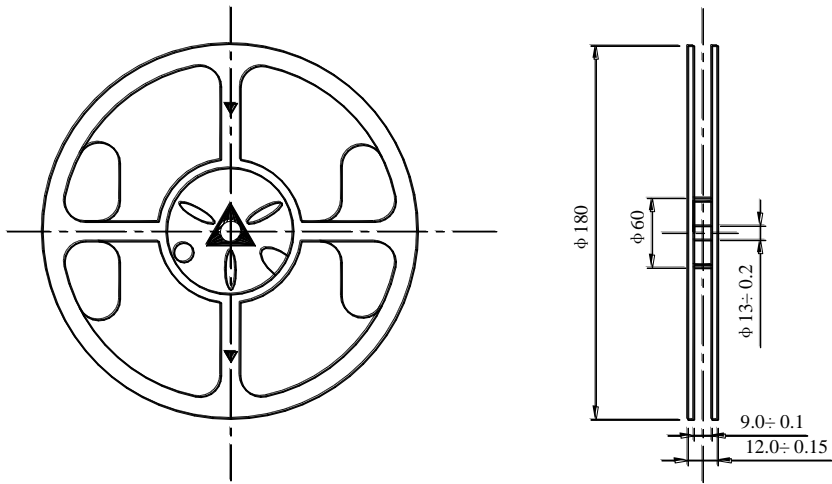
Reflow soldering profile

<Pb-free solder>

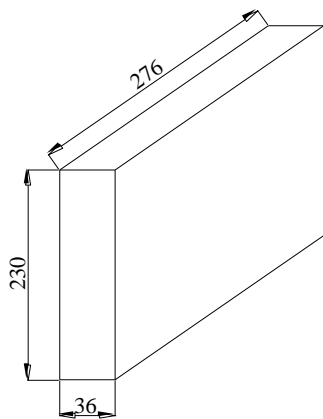


1. Reflow soldering should not be done more than two times.
2. Do not stress its resin while soldering.
3. After soldering, do not warp the circuit board.

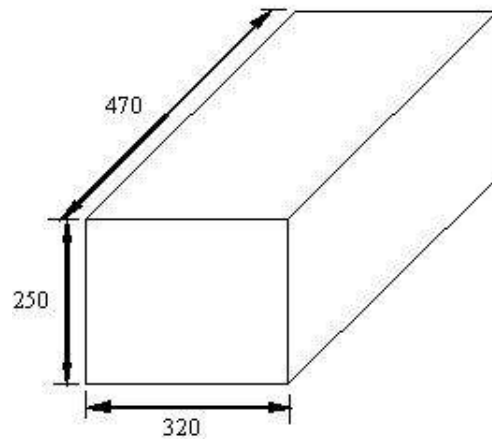
Package Tape Specification (4,000 pcs/Reel)



Reel Lead Min.60mm No LEDs



5 Reels in one Box



10 Boxes in one Carton

Reliability

1) Test Items and Conditions

| Test Item | Test Conditions | Sample | Ac/Re |
|--|---|--------|-------|
| Temperature Cycle | -40±5℃→25±5℃→100±5℃→25±5℃ (30min, 5min, 30min, 5min) 100 Cycles | 20 | 0/1 |
| High Temperature Storage | Ta : 100±5℃ Test time=1000HRS(-24HRS,+72HRS) | 20 | 0/1 |
| High Temperature And High Humidity Working | Ta : 85±5℃, RH:85±5%, IF=15mA Test time=500HRS(-24HRS,+72HRS) | 20 | 0/1 |
| Low Temperature Storage | Ta : -40±5℃ Test time=1000HRS(-24HRS,+72HRS) | 20 | 0/1 |
| Operating Life Test | Connect with a power IF=15mA Ta=Under room temperature Test time=1000HRS(-24HRS,+72HRS) | 20 | 0/1 |
| Thermal Shock | -40±5℃→100±5℃ (15min, 15min) 100 Cycles | 20 | 0/1 |
| IR-Reflow Pb-Free Process | ①80℃②100℃③120℃④160℃⑤170℃⑥235℃ ⑦270℃⑧255℃, 60cm/min, 2 times | 20 | 0/1 |

2) Criteria of judging the damage

| Item | Symbol | Test condition | Criteria for judgement | |
|--------------------|--------|----------------|------------------------|-----------|
| | | | Min. | Max. |
| Forward voltage | VF | IF=20 mA | / | U.S.L*1.1 |
| Reverse current | IR | VR=5V | / | 15uA |
| Luminous intensity | IV | IF=20 mA | L.S.L*0.7 | / |
| Wave length | λD/λP | IF=20 mA | / | U.S.L±2nm |
| Appearance | / | View check | No mechanical damage | |

* U.S.L: Upper standard level

L.S.L: Lower standard level

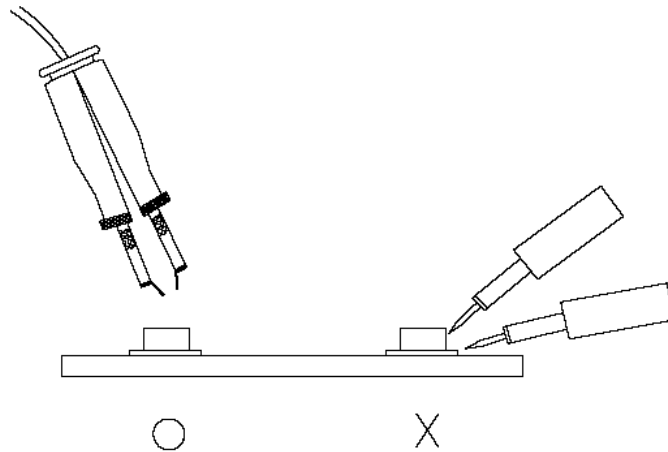
Cautions

1. Package : When moisture is absorbed into the package it may vaporize and expand during soldering. There is a possibility that this can cause exfoliation of the contacts and damage to the optical characteristics of the LEDs. So the moisture proof package is used to keep moisture to a minimum in the package.

2. Storage : Before opening the package: The LEDs should be kept at 5~30°C and 60%RH or less. The LEDs should be used within a year. After opening the package: The LED must be used within 24 hours, else should be kept at 5~30°C and 30% RH or less. The LEDs should be used within 7days after opening the package. If unused LEDs remain, they should be stored in moisture proof packages, recommended to return the LEDs to the original moisture proof bag and to reseal the moisture proof bag again. If the LEDs have exceeded the storage time, baking treatment should be performed more than 24 hours at $60 \pm 5^\circ\text{C}$.

3. Soldering Iron : Each terminal is to the tip of soldering iron temperature less than 300°C for 3 seconds within once in less than the soldering iron capacity 25 W. Leave two seconds and more internally, and do soldering of each terminal. Be careful because the damage of the product is often started at the time of the hand solder.

4. Repairing : Repairing should not be done after the LEDs have been soldered. When repairing is unavoidable, a double-head soldering iron should be used (as below figure). It should be confirmed beforehand whether the characteristics of the LEDs will or will not be damaged by repairing.



5. The LED electrode sections are comprised of a gold plated. The gold surface may be affected by environments which contain corrosive gases and so on. Please avoid conditions which may cause the LED to corrode or discolor. This corrosion or discoloration may cause difficulty during soldering operations. It is recommended that the User use the LEDs as soon as possible.

6. Please avoid rapid transitions in ambient temperature, especially in high humidity environments where condensation can occur.

Notes :

1. Above specification may be changed without notice. We will reserve authority on material change for above specification.

2. When using this product, please observe the absolute maximum ratings and the instructions for the specification sheets. We assume no responsibility for any damage resulting from use of the product which does not comply with the instructions included in the specification sheets.