



Specification

Client Name: _____

Client P/N: _____

Wenrun P/N: **WR-PA5050UG3-S-M08**

Date: _____

| Customer confirm | Approved by | Checked by | Issued by |
|------------------|-------------|------------|-----------|
| | | | |

| | | | |
|---------------|--------------------|-------------|-------------|
| Part No. | WR-PA5050UG3-S-M08 | | |
| Emitted Color | Ultra Super Green | Len's Color | Water Clear |
| Chip Material | InGaN | -- | -- |

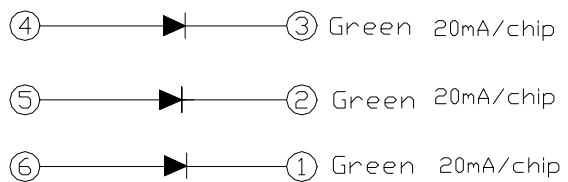
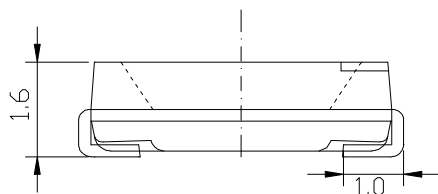
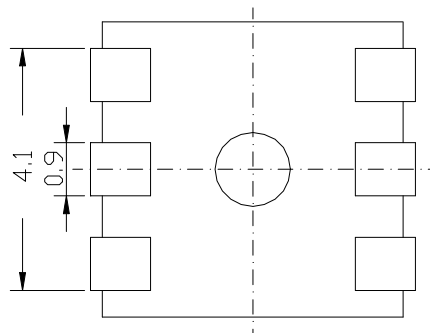
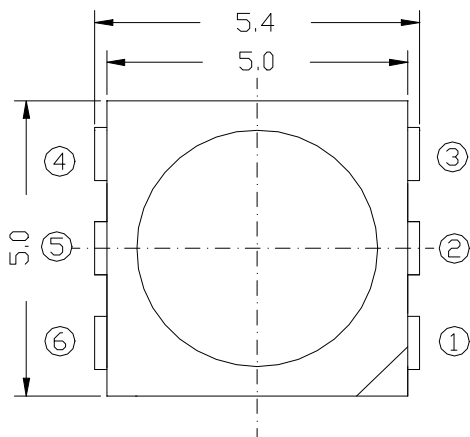
◆ Features:

Compatible with automatic placement equipment
 This product doesn't contain restriction Substance, comply ROHS standard.

◆ Applications:

Indoor and outdoor displays
 Camera Flash or Backlighting

◆ Package Dimensions:



Unit: mm

Tolerance: ±0.2mm unless otherwise noted

Electrodes: Ag Plating Copper Alloy

Encapsulating Resin: Silicon Resin

Package: Heat-Resistant Polymer

◆ Absolute Maximum Rating (Ta=25℃)

| Parameter | Symbol | Max. | Unit |
|-----------------------------|------------------|-----------|---------|
| Pulse Forward Current | I _{FP} | 60 | mA/chip |
| DC Forward Current | I _F | 30 | mA/chip |
| Reverse Voltage | V _R | 5 | V/chip |
| Operating Temperature Range | T _{opr} | -40℃~85℃ | ℃ |
| Storage Temperature Range | T _{stg} | -40℃~100℃ | ℃ |

* I_{FP} condition: pulse width ≤1ms, duty cycle ≤1/10.

◆ Electrical Optical Characteristics (Ta=25℃)

| Parameter | Symbol | Min. | Typ. | Max. | Unit | Test Condition |
|--------------------------|-------------------|------|------|------|------|----------------------------|
| Dominant Wavelength | λ _d | 516 | -- | 526 | nm | I _F =20 mA/chip |
| Luminous Intensity | I _v | 3000 | -- | 5000 | mcd | I _F =20 mA/chip |
| Luminous Flux | Φ | -- | -- | -- | lm | I _F =20 mA/chip |
| Forward Voltage | V _F | 2.9 | -- | 3.4 | V | I _F =20 mA/chip |
| Reverse Current | I _R | -- | -- | 10 | uA | V _R =5 V/chip |
| Spectral Line Half Width | Δλ | -- | 30 | -- | nm | I _F =20 mA/chip |
| Viewing Angle | 2θ _{1/2} | -- | 120 | -- | Deg. | I _F =20 mA/chip |

- Notes:
1. Three chips of total currents are 60mA.
 2. Tolerance of Luminous Intensity ±10%.
 3. Tolerance of Dominant Wavelength ±2nm.
 4. Tolerance of Forward voltage ±0.05V.
 5. Luminous Intensity is measured by WENRUN's equipment on bare chips.

◆ BIN range

Dominant Wavelength (tolerance is $\pm 2\text{nm}$ @ $I_F = 20\text{ mA/chip}$):

| BIN CODE | Min.(nm) | Max. (nm) |
|-----------------|-----------------|------------------|
| N | 516 | 518 |
| P | 518 | 520 |
| Q | 520 | 522 |
| R | 522 | 524 |
| S | 524 | 526 |


Luminous intensity (tolerance is $\pm 10\%$ @ $I_F = 20\text{ mA/chip}$):

| BIN CODE | Min.(mcd) | Max. (mcd) |
|-----------------|------------------|-------------------|
| B5 | 3000 | 3600 |
| B6 | 3600 | 4300 |
| B7 | 4300 | 5000 |

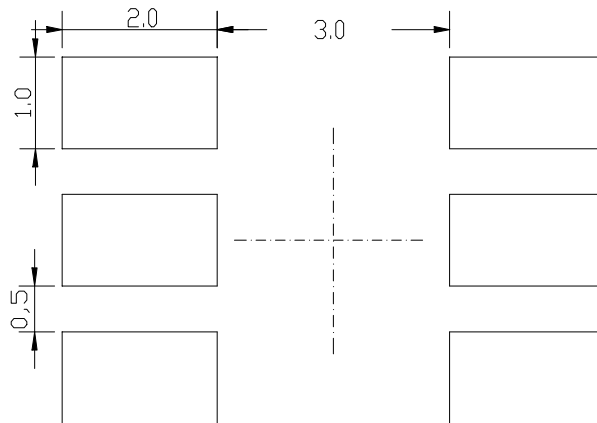
Forward voltage (tolerance is $\pm 0.05\text{V}$ @ $I_F = 20\text{ mA/chip}$):

| BIN CODE | Min.(V) | Max. (V) |
|-----------------|----------------|-----------------|
| S | 2.9 | 3.0 |
| T | 3.0 | 3.1 |
| U | 3.1 | 3.2 |
| V | 3.2 | 3.3 |
| W | 3.3 | 3.4 |

◆ Package Label: (For example)

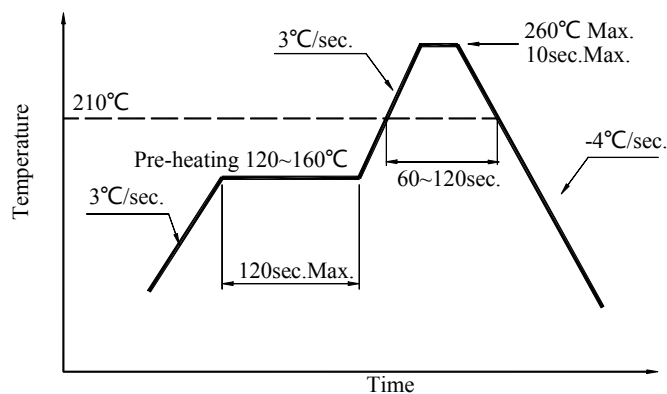
| | | |
|---|------|-----------------------------|
| TOP LED | ROHS | ← LED Type |
| TYPE: WR-PAXXXXXX-XXX | | ← Part No. |
|  | HUE. | ← Parameter Classing |
| VF: 3.0~3.1 v For 20 mA | | |
| XY: N15 | | |
| IV: 5000~6000 mcd | | |
| QUTY: 2000 PCS DATE: 2010-02-21 | | ← Quantity and Sealing Date |
| LOT:10-001-A1-S2010020402-04063822 | | ← Lot No. |

◆ Soldering Pad Dimensions:



◆ Soldering Conditions (Maximum allowable soldering conditions)

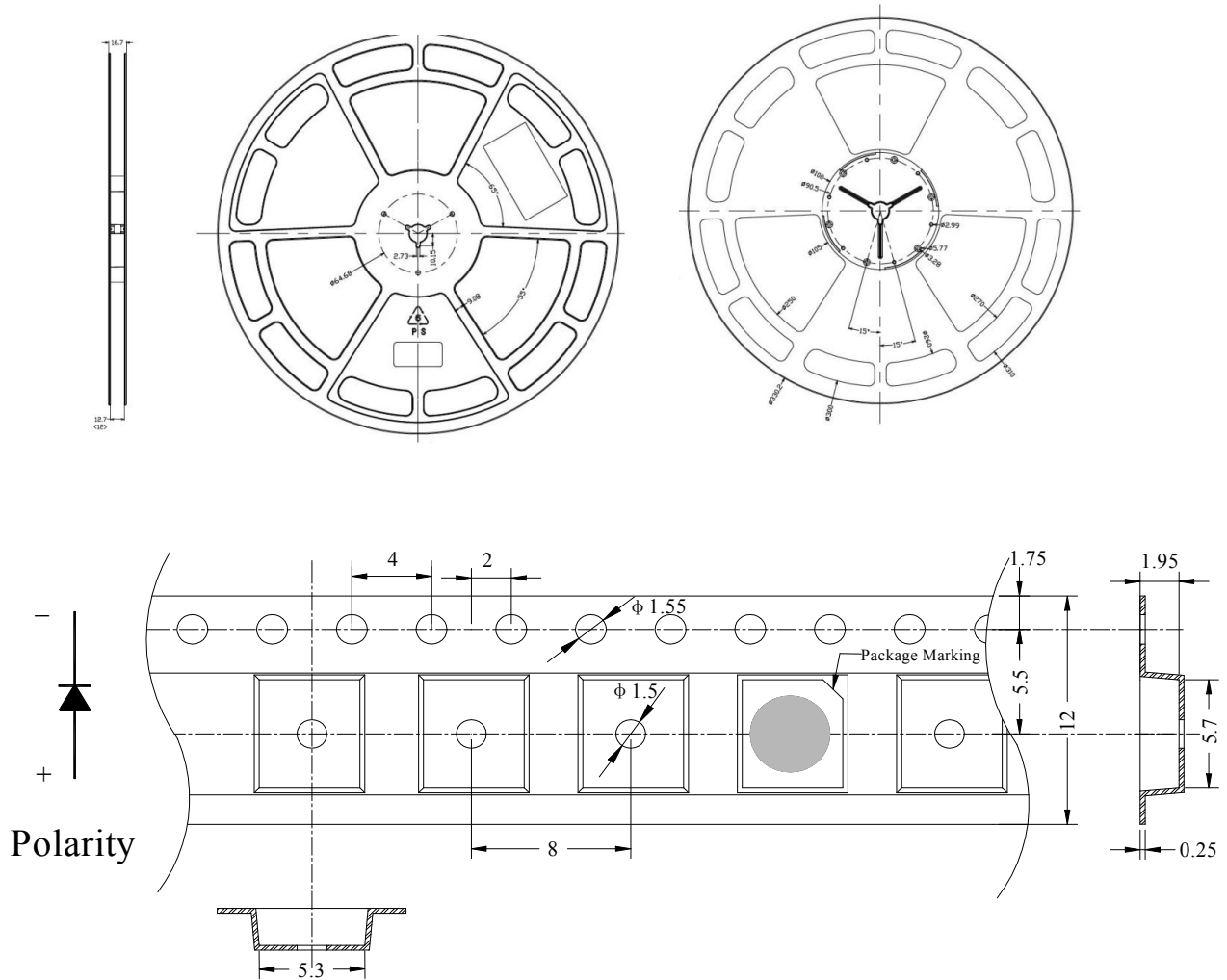
Reflow soldering profile <Pb-free solder>



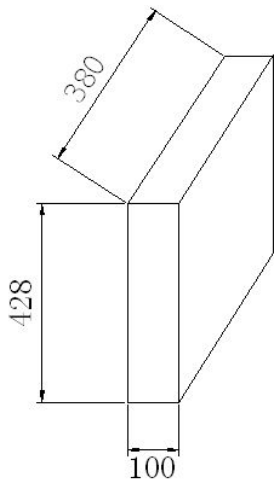
- Reflow soldering should not be done more than two times.
- Do not stress its resin while soldering.
- After soldering, do not warp the circuit board.
- Pay attention to electrostatic (ESD) .

◆ Package Tape Specifications: (4000 pcs/Reel)

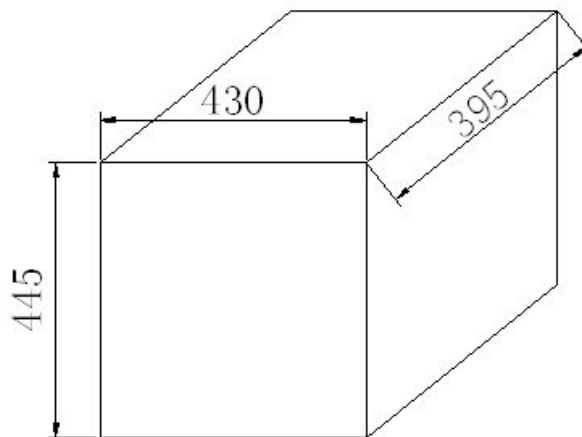
13*12 REEL 规格图



Reel Lead Min.60mm No LEDs



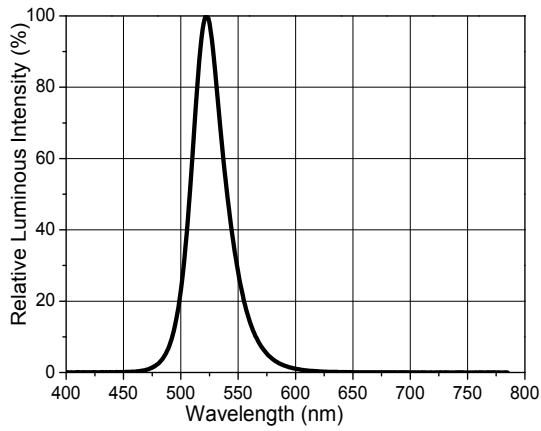
5 Reels in one Box



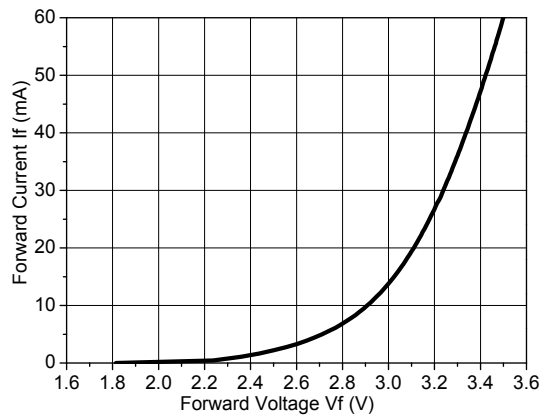
4 Boxes in one Carton

◆ Typical Electro-Optical Characteristics Curves:

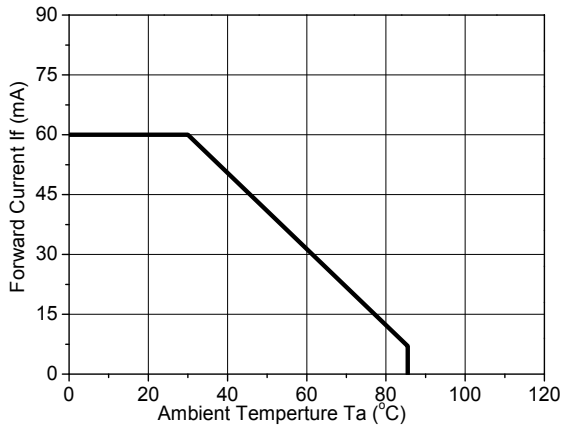
Relative Luminous Intensity Vs. Wavelength



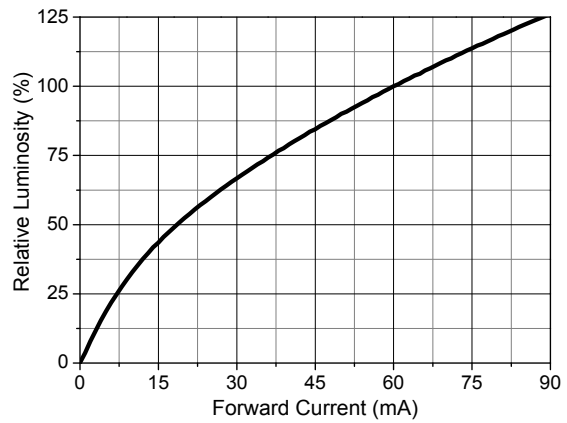
Forward Current vs Forward Voltage at Ta=25°C



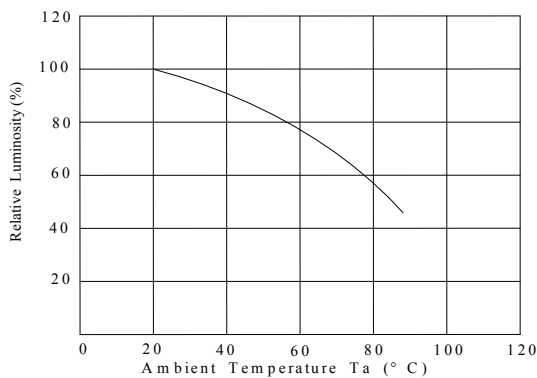
Forward Current Vs. Ambient Temperature



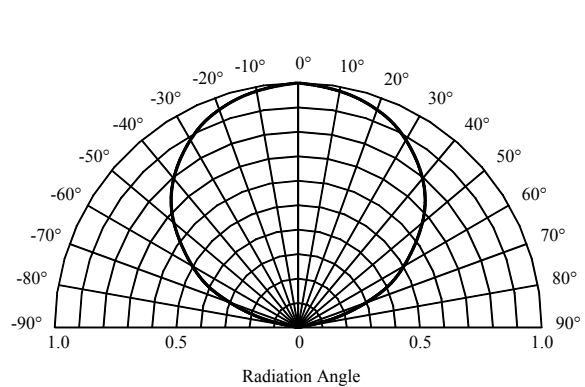
Forward Current Vs. Relative Luminosity Ta=25°C



Relative Luminosity Vs. Ambient Temperature



Radiation diagram



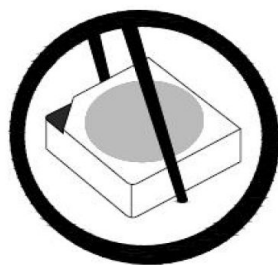
◆ Storage and application notices

1. Storage

1. Calculated shelf life in sealed bag: 12 months at $<30^{\circ}\text{C}$ and $<90\%$ relative humidity (RH)
- 2.1 TOP LED: After bag is opened, devices that will be subjected to reflow solder or other high temperature process must be:
 - a) Mounted within: 168 hours of factory conditions $\leq 30^{\circ}\text{C}/60\%$ RH, or
 - b) Stored at ambient of $<20\%$ RH
- 2.2 CHIP LED: After bag is opened, devices that will be subjected to reflow solder or other high temperature process must be:
 - a) Mounted within: one year of factory conditions $\leq 30^{\circ}\text{C}/60\%$ RH, or
 - b) Stored at ambient of $<20\%$ RH.
3. Device require bake, before mounting, if:
 - a) Humidity indicator Card reads $>10\%$ when read at $25 \pm 5^{\circ}\text{C}$
 - b) Above conditions are not metBaking condition: 24 hours at $60 \pm 3^{\circ}\text{C}$ and $<5\%$ RH
4. The internal and esterand boxes can not be contacted with ground to prevent absorption of moisture;
5. No acid, alkali, salt, corrosive and explosive gas; away from sunlight and keep the environment clean;

2. Application

1. Do not use any unknown chemical liquid to clean LED, it will damage the LED resin surface; use the alcohol under the room temperature if necessary but less than 1 min, or use the ultrasonic cleaning with proper characters, such as correct power, frequency, etc..
2. Do not touch the epoxy resin area when carrying LEDs by tweezers (as the following pictures), especially after the soldering process, the epoxy resin will turn to soft, the internal instruction will be damaged by the tweezers which cause the electric character's failure; nozzle is recommended by using SMT mounting.



Correct



Incorrect

3. Soldering iron: double-side soldering iron with power of less than 25W; soldering temperature: less than 300°C; soldering time: less than 3sec.; 1 time completed is recommended, if the 2nd soldering process is requested, 3mins must be left to ensure the high temperature status can return to room temperature.
 - a. REFLOW soldering: set and test the temperature of the different area of REFLOW equipment in advance.
 - b. To set the peak temperature according to different SMDs, but the actual peak temperature should be less than 260 °C ,processing time should be less than 10sec, only 1 time is allowed.
4. SMDs should be soldered at the coordinated position on the PCB.
5. Note of Electrical matter:
 - ① One-way conduction, LED does not allow the reverse driving.
 - ② LED is a kind of constant current component which can not be lighted by the constant voltage mode; a smaller voltage fluctuation can cause the large current fluctuation which causes the failure of LED.

Each LED should be drove under constant current mode if in a parallel circuit design, otherwise, the colour and brightness will be nonuniform; When the environmental temperature rising, the LED junction temperature will rise, internal resistance will decrease, so the current will be increased by the constant voltage power which short the life span.
 - ③ If the brightness of lighting source can meet the requirement, we recommend using the driving current less than the rated current, in order to improve the product's reliability.
6. LED is a kind of electrostatic sensitive devises, anti-static measures have to be processed during storage and operation:
 - ① LED production workshop should lay anti-static floor and ground connection, the work table have to use the anti-static materials and cover a table mater with the surface resistance of 10^6 - $10^9\Omega$.
 - ② Production machine: REFLOW, SMT equipment, electric iron, test equipment; all the equipments must be well grounded, and the grounding alternating current impedance should be less than 1.0Ω . A fan need to be installed on the equipments and production processes that easy to generate static electricity; the operators must wear anti-static clothing, shoes, wristband, and gloves, etc. in the process.
 - ③ LEDs must be contained in the anti-static box, and all the package material should be the anti-static materials.
7. The details electronic characters can refer to our product specification.

◆ 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.