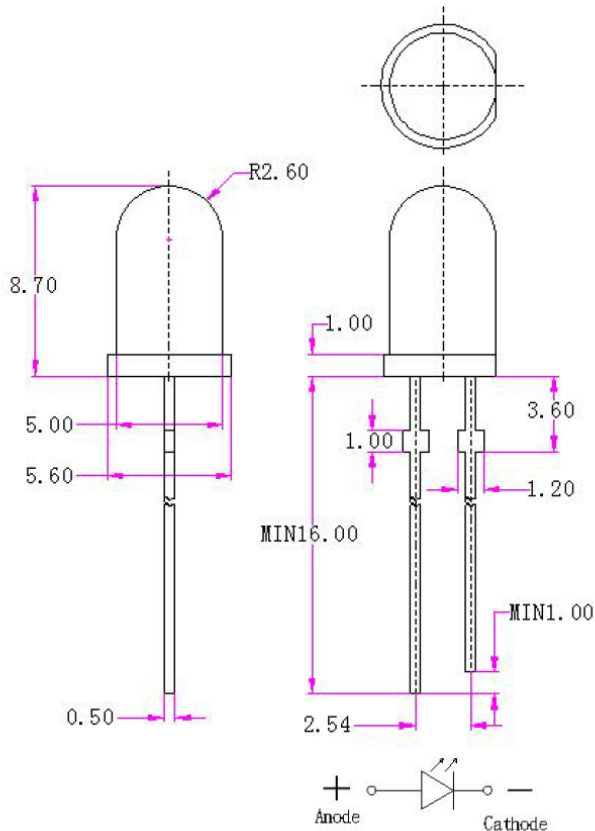


## Red 618-628nm 5mm Round LED Lamp with Stopper for LED traffic Light

Part No.: LL-501URW30-E10-2C

### Package Dimensions



#### Notes:

1. All dimension units are millimeters.
2. All dimension tolerance is  $\pm 0.15\text{mm}$

### Features

- Dimensions: 5.6mm×5.0×8.7mm
- PB Free products and RoHS Compliant
- Description
  1. Emitted color: Red(618-628nm)
  2. Luminous intensity: 3000-5500mcd at 10mA
  3. Anti-static Level(MIL-STD-883E): HBM 2( $\geq 2000\text{V}$ )
  4. Lens type: Water clear Lens
  5. Stopper: With stopper
  6. High anti-oxidation and good UV resistance performance
  7. An advanced optical-grade epoxy offers ultra-low temperature and high-moisture resistance performance.

### Application

- LED Traffic Signal lights
- Traffic Guidance Vms/DMS

### ·Absolute Maximum Ratings (Ta=25C°)

| Item                                                     | Symbol            | Maximum      | Unit |
|----------------------------------------------------------|-------------------|--------------|------|
| Power Dissipation                                        | PD                | 60           | mW   |
| Peak Forward Current (1/10 Duty Cycle 0.1ms Pulse Width) | IFP               | 120          | mA   |
| Forward Current                                          | IF <sub>max</sub> | 20           | mA   |
| Reverse Voltage                                          | VR                | 10           | V    |
| Operating Temperature Range                              | Topr              | -40 to +85°C |      |
| Storage Temperature Range                                | Tstg              | -40 to +85°C |      |

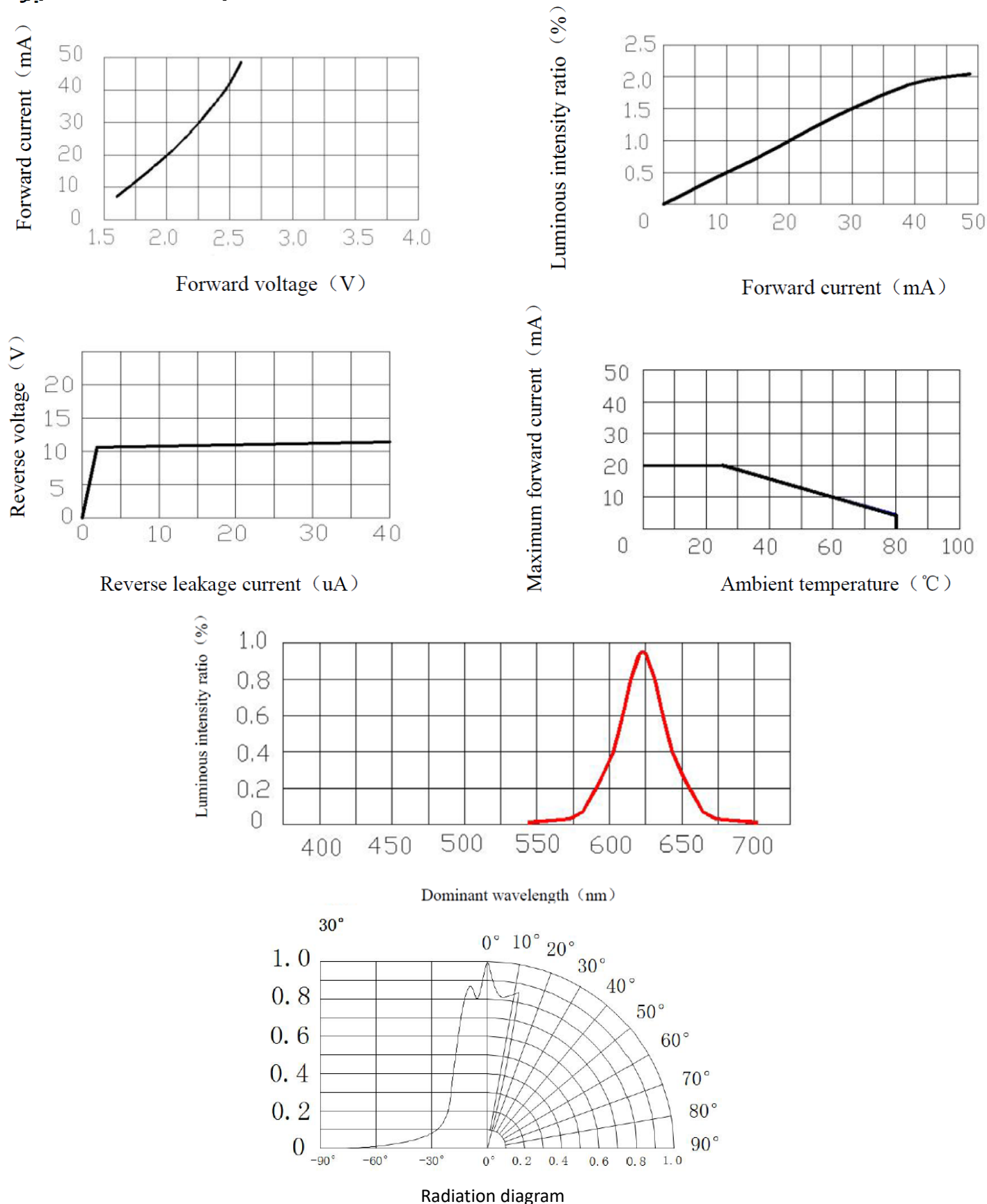
### ·Electrical / Optical Characteristics (Ta=25C°)

| Item                | Symbol | Min. | Typ. | Max. | Unit | Condition |
|---------------------|--------|------|------|------|------|-----------|
| Forward Voltage     | VF     | 1.8  | --   | 2.4  | V    | IF=10mA   |
| Luminous intensity  | Iv     | 3000 | --   | 5500 | mcd  | IF=10mA   |
| Dominant wavelength | WD     | 618  | --   | 625  | nm   | IF=10mA   |
| Reverse Current     | IR     | -    | -    | 0.5  | uA   | VR=5V     |
| Viewing Angle       | 2θ½    | --   | 30   | --   | --   | IF=10mA   |

Note:

- 1.Tolerance of measurement of luminous intensity is  $\pm 5\%$ ;
- 2.Tolerance of measurement of Forward voltage is  $\pm 0.05V$ ;
- 3.Tolerance of measurement of dominant wavelength is  $\pm 0.5\text{ nm}$ ;
- 4.Tolerance of measurement of Viewing Angle is  $\pm 10\%$ .

## Typical Electro-Optical Characteristic Curve:



## ·Reliability test items and conditions

| Category             | Test Items                      | Ref.standard              | Test Condition                                              | Time                            | Units/Failed |
|----------------------|---------------------------------|---------------------------|-------------------------------------------------------------|---------------------------------|--------------|
| Environmental<br>tes | Temperature cycle               | JEITA ED-4701<br>100 105  | -40℃→25℃→100℃→25℃<br>30min 5min 30min 5min                  | 100Cycles                       | 0/100        |
|                      | High temperature storage        | JEITA ED-4701<br>200 201  | Ta=100℃                                                     | 1000 hours                      | 0/100        |
|                      | Low temperature storage         | JEITA ED-4701<br>200 202  | Ta=-40℃                                                     | 1000 hours                      | 0/100        |
|                      | Humidity Heat Storage           | MIL-STD<br>883:1005       | Ta=85℃ RH=85%                                               | 1000 hours                      | 0/100        |
| Life Test            | Room temperature<br>life test   | MIL-STD<br>883:1005       | Ta=25℃ IF=30mA                                              | 1000 hours                      | 0/10         |
|                      | Humidity Heat life test         | MIL-STD<br>883:1005       | Ta=85℃ RH=85% IF=30mA                                       | 500 hours                       | 0/10         |
|                      | Low-Temperature<br>Life test    |                           | Ta=-40℃ IF=30mA                                             | 1000 hours                      | 0/10         |
| Damage test          | Resistance to<br>soldering heat | JEITA ED-4701<br>300 302  | Tsol=260±5℃,10sec<br>(3 mm from the base of the epoxy bulb) | One time                        | 0/100        |
|                      | Solderability                   | JEITA ED-4701<br>300 303A | Tsol=245±5℃,5sec<br>( Sn-3.0Ag-0.5Cu )                      | One time                        | 0/100        |
| Static electricity   | Antistatic ability              | AEC<br>(Q101-001)         | Human body model 2000 V                                     | Forward and<br>reverse one time | 0/100        |

## ·Failure Criteria

| Test Items         | Symbol | Test Condition | Criteria for Judgment                             |
|--------------------|--------|----------------|---------------------------------------------------|
| Forward voltage    | VF     | IF=20mA        | Less than the upper limit of x 1.1                |
| Reverse Current    | IR     | VR = 5V        | Less than the upper limit of x 2.0                |
| Luminous Intensity | Im     | IF=3*20mA      | > Initial Data x 0.9<br>(Single lamp degradation) |
| Weldability        | --     | --             | Dip tin area >95%                                 |

U. S.L: Upper Specification Limit

L.S.L: Lower Specification Limit

## **Instruction manual**

### **1. Pin forming method**

- a. 2 mm from collate is required to bend the bracket.
- b. Bracket forming must be done with a fixture or by a professional.
- c. Bracket forming must be done before welding.
- d. Bracket forming needs to ensure that the pins and spacing are consistent with the circuit board.

### **2. LED installation method**

- a. Please pay attention to the arrangement of the external lines of various types of devices, to prevent polarity from being misplaced. The device must not be too close to the heating element and the working conditions should not exceed its specified limits.
- b. Be sure not to install led in the case of pin deformation.
- c. When deciding to install it in the hole, calculate the dimensions and tolerances of the face and the pitch of the hole on the circuit board to avoid excessive pressure on the bracket.
- d. When installing LEDs, the construction of a guide set positioning.
- e. Before the welding temperature returns to normal, the LED must be avoided by any vibration or external force.

### **3. Storage conditions**

- a. Prevent continued exposure to the condensing moisture environment and keep the product away from rapid transitions in ambient temperature.
- b. LEDs should be stored with temperature  $\leq 30^{\circ}\text{C}$  and relative humidity  $\leq 60\%$ .
- c. Product in the original sealed package is recommended to be assembled within 72 hours of opening. Product in opened package for more than a week should be baked for 30 (+10/-0) hours at 85-100°C.

### **4. Static electricity**

- a. Static electricity or surge voltage damages the LEDs. It is recommended that a wrist band or an anti-electrostatic glove be used when handing the LEDs.
- b. All devices, equipment and machinery must be properly grounded. It is recommended that precautions be taken against surge voltage to the equipment that mounts LEDs.