



CIEL LIGHT CO.,LTD.

## PRODUCT SPECIFICATION

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

Customer's Model No.:\_\_\_\_\_

Customer's Drawing No.:\_\_\_\_\_

Model No.: CL-5019URUBW1A-001-CA

Drawing No.:\_\_\_\_\_

## Features

Low power consumption

High Efficiency

Round type

T1 (5mm) diameter

With Flange

Solder leads without stand-off

Compliant with RoHS

## Descriptions

Chip Material: AlGaInP/GaAs InGaN/GaN

Emitting Color: Red 、 Blue

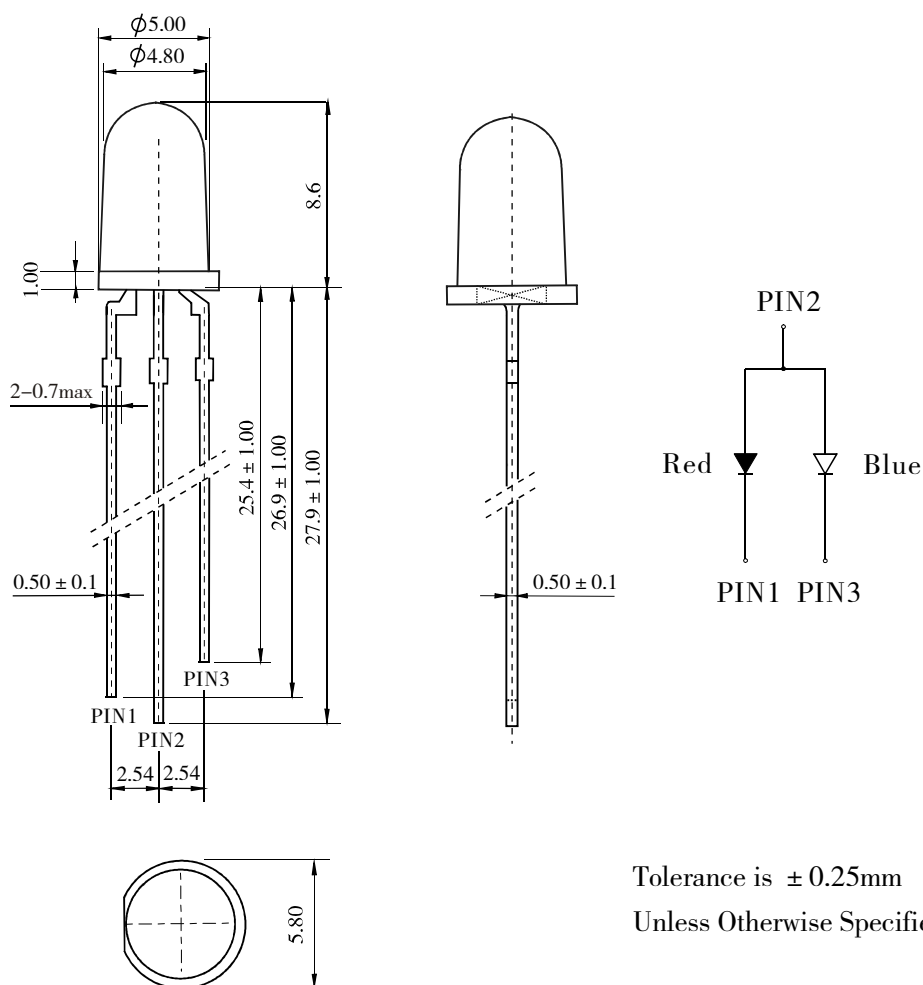
Lens Color: White Diffused

## ATTENTION



OBSERVE PRECAUTIONS  
FOR HANDLING  
ELECTROSTATIC  
SENSITIVE DEVICES

## Outline Drawing



Tolerance is  $\pm 0.25\text{mm}$   
Unless Otherwise Specified.

**Electrical Optical Characteristics ( Ta=25℃ )**

| Parameter                | Symbol           | Red |     |     | Unit    | Test Condition |
|--------------------------|------------------|-----|-----|-----|---------|----------------|
|                          |                  | Min | Typ | Max |         |                |
| Forward Voltage          | $V_F$            | --- | 2.0 | 2.4 | V       | IF=20mA        |
| Luminous Intensity       | $I_V$            | 390 | 770 | --- | med     | IF=20mA        |
| Peak Wavelength          | $\lambda_P$      | --- | 632 | --- | nm      | IF=20mA        |
| Dominant Wavelength      | $\lambda_d$      | --- | 624 | --- | nm      | IF=20mA        |
| Spectral Line half-width | $\Delta \lambda$ | --- | 20  | --- | nm      | IF=20mA        |
| Reverse Leakage Current  | $I_R$            | --- | --- | 50  | $\mu A$ | VR=5V          |
| Viewing Angle            | $2\theta_{1/2}$  | --- | 60  | --- | Deg     | IF=20mA        |

**Absolute Maximum Parameters ( Ta=25℃ )**

| Parameter                   | Symbol    | Condition      | Rating     | Unit |
|-----------------------------|-----------|----------------|------------|------|
| Power Dissipation           | $P_D$     | ---            | 80         | mW   |
| Reverse Voltage             | $V_R$     | ---            | 5          | V    |
| Forward Average Current     | $I_F$     | ---            | 30         | mA   |
| Temperature coefficient     | I/C       | ---            | 0.33       | mA/℃ |
| Pulse Current               | IFP       | Duty=1/10,1kHz | 100        | mA   |
| Operating Temperature Range | $T_{opr}$ | ---            | -25 ~ +85  | ℃    |
| Storage Temperature Range   | $T_{stg}$ | ---            | -30 ~ +100 | ℃    |
| Soldering Condition         | $T_{sd}$  | ---            | 260℃/5sec  | ℃    |

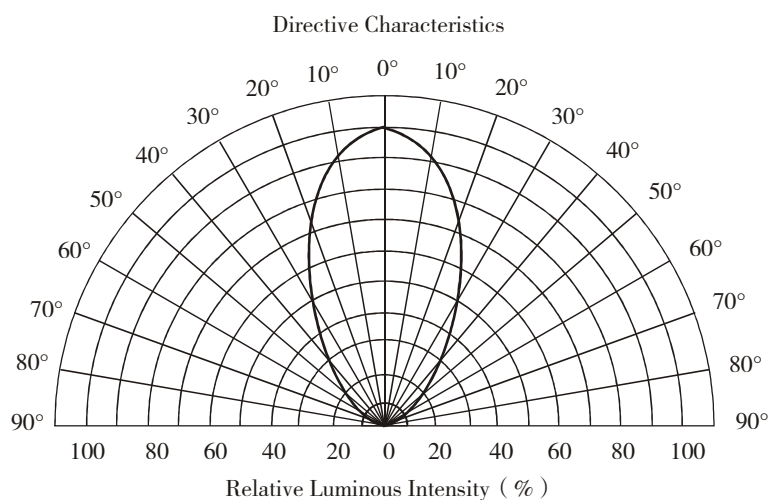
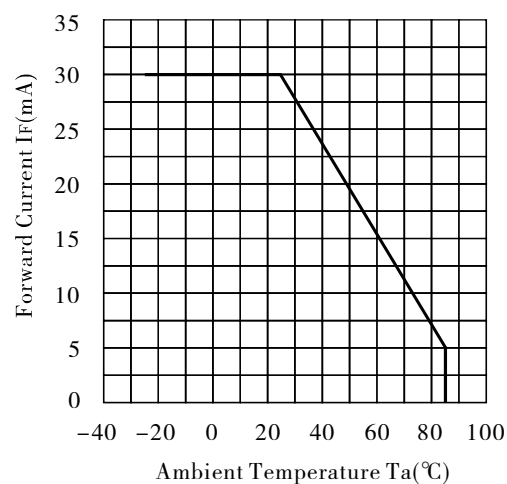
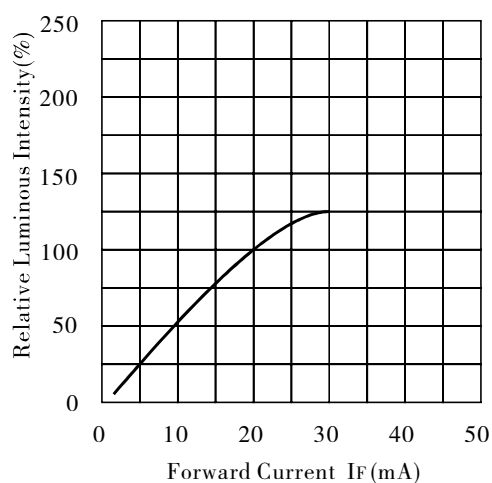
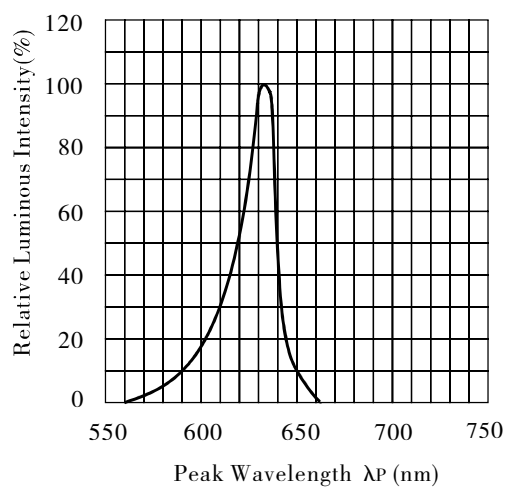
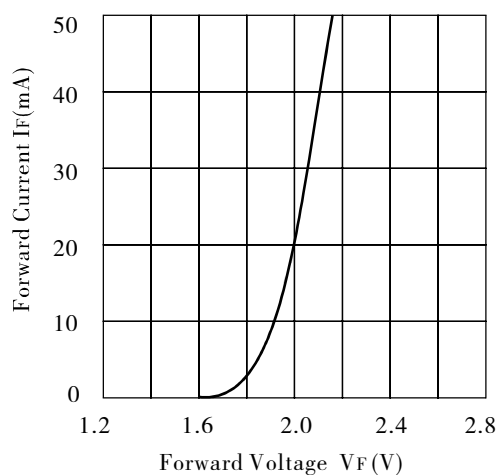
**NOTE:**

Luminous Intensity Measurement allowance is  $\pm 10\%$ .

$2\theta_{1/2}$  is the off-axis angle at which the luminous intensity is half the axial luminous intensity.

The dominant wavelength is derived from the CIE chromaticity diagram and represents the single wavelength which defines the color of the device.

Typical Electro-Optical Characteristic Curves ( Ta=25°C )



**Electrical Optical Characteristics ( Ta=25℃ )**

| Parameter                | Symbol           | Blue |     |     | Unit    | Test Condition |
|--------------------------|------------------|------|-----|-----|---------|----------------|
|                          |                  | Min  | Typ | Max |         |                |
| Forward Voltage          | $V_F$            | ---  | 3.2 | 3.6 | V       | IF=20mA        |
| Luminous Intensity       | $I_V$            | 200  | 390 | --- | med     | IF=20mA        |
| Peak Wavelength          | $\lambda_P$      | ---  | 468 | --- | nm      | IF=20mA        |
| Dominant Wavelength      | $\lambda_d$      | ---  | 470 | --- | nm      | IF=20mA        |
| Spectral Line half-width | $\Delta \lambda$ | ---  | 30  | --- | nm      | IF=20mA        |
| Reverse Leakage Current  | $I_R$            | ---  | --- | 50  | $\mu A$ | VR=5V          |
| Viewing Angle            | $2\theta_{1/2}$  | ---  | 60  | --- | Deg     | IF=20mA        |

**Absolute Maximum Parameters ( Ta=25℃ )**

| Parameter                   | Symbol    | Condition      | Rating     | Unit |
|-----------------------------|-----------|----------------|------------|------|
| Power Dissipation           | $P_D$     | ---            | 120        | mW   |
| Reverse Voltage             | $V_R$     | ---            | 5          | V    |
| Forward Average Current     | $I_F$     | ---            | 30         | mA   |
| Temperature coefficient     | I/C       | ---            | 0.4        | mA/℃ |
| Pulse Current               | IFP       | Duty=1/10,1kHz | 100        | mA   |
| Operating Temperature Range | $T_{opr}$ | ---            | -25 ~ +85  | ℃    |
| Storage Temperature Range   | $T_{stg}$ | ---            | -30 ~ +100 | ℃    |
| Soldering Condition         | $T_{sd}$  | ---            | 260℃/5sec  | ℃    |

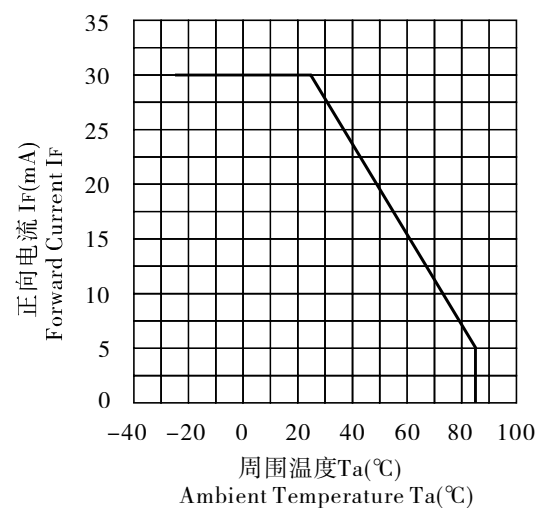
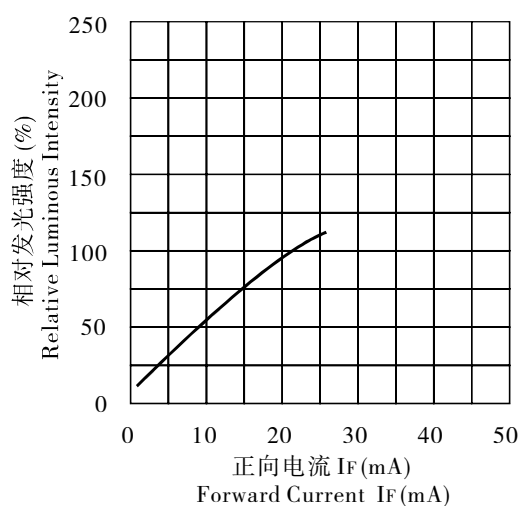
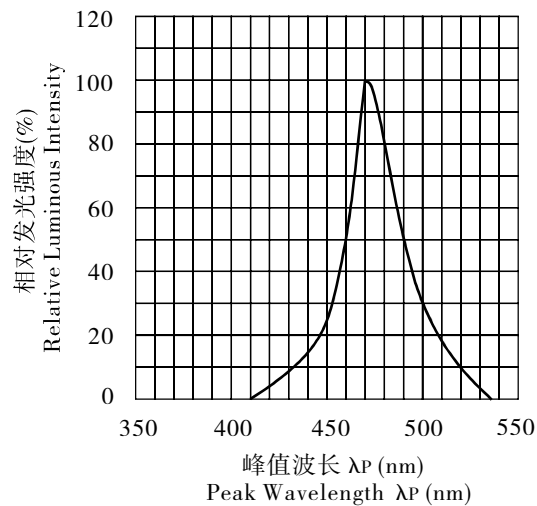
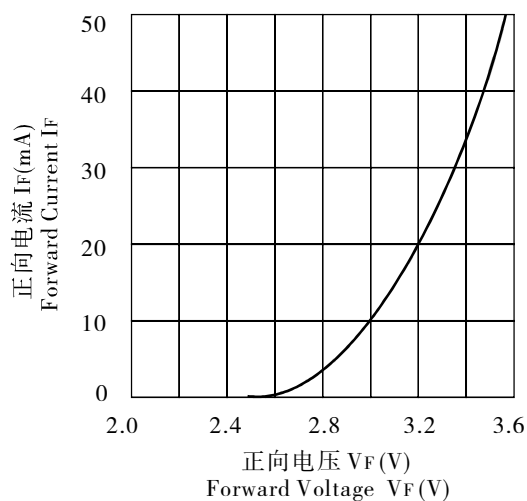
**NOTE:**

Luminous Intensity Measurement allowance is  $\pm 10\%$ .

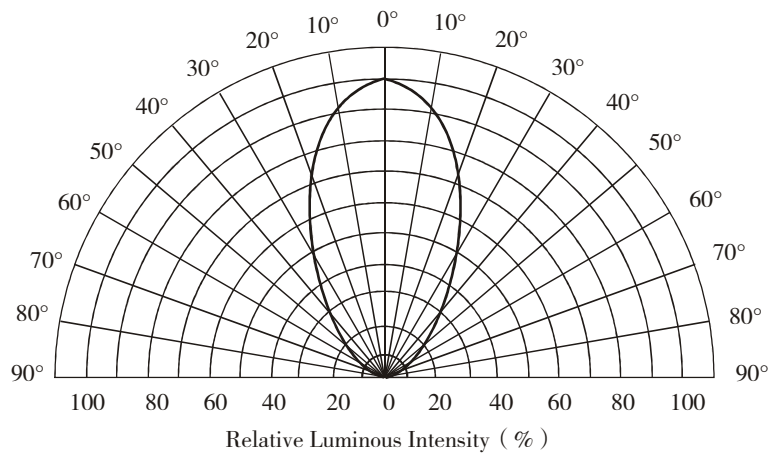
$2\theta_{1/2}$  is the off-axis angle at which the luminous intensity is half the axial luminous intensity.

The dominant wavelength is derived from the CIE chromaticity diagram and represents the single wavelength which defines the color of the device.

Typical Electro-Optical Characteristic Curves ( Ta=25°C )



Directive Characteristics



## Reliability Test Conditions

| Test Item                                   | Test Condition                             | Result | Judgment Criteria                                                                                                                                                                                        |
|---------------------------------------------|--------------------------------------------|--------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Consecutive operating life test             | IF=20mA, T=25℃, t=168h                     | 0/100  | Forward Voltage<br>$VF(V) = \text{Upper Limit} \times 1.2$<br>Reverse Leakage Current<br>$IR(\mu A) = \text{Upper Limit} \times 2.0$<br>Luminous Intensity IV<br>$(mcd) = \text{Lower Limit} \times 0.7$ |
| High temperature storage life test          | T=100℃, t=168h                             | 0/100  |                                                                                                                                                                                                          |
| Low temperature storage life test           | T=25℃, t=168h                              | 0/100  |                                                                                                                                                                                                          |
| High temperature humidity storage life test | T=85 ± 2℃, RH=85% ± 3, t=168h              | 0/100  |                                                                                                                                                                                                          |
| Temperature cycle test                      | -25℃~25℃~100℃<br>30min 5min 30min 10cycles | 0/100  |                                                                                                                                                                                                          |
| Thermal shock test                          | 100℃ 0℃<br>5min 5min 20cycles              | 0/100  |                                                                                                                                                                                                          |
| Soldering heat test                         | T=260 ± 5℃, t=10s ± 1s                     | 0/100  |                                                                                                                                                                                                          |
| Solderability test                          | T=235 ± 5℃, t=5s ± 0.5s                    | 0/100  | Steeped Part ≥ 95%                                                                                                                                                                                       |
| Fall test                                   | h=100cm, 50times                           | 0/100  | Intact                                                                                                                                                                                                   |
| Terminal strength test                      | W=9.8N, t=30 ± 5s                          | 0/100  |                                                                                                                                                                                                          |
| Lead bending test                           | W=4.9N, 2times                             | 0/100  |                                                                                                                                                                                                          |