



# CIEL LIGHT CO., LTD.

## PRODUCT SPECIFICATION

Model No.: CLS-12011CUR-11

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

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

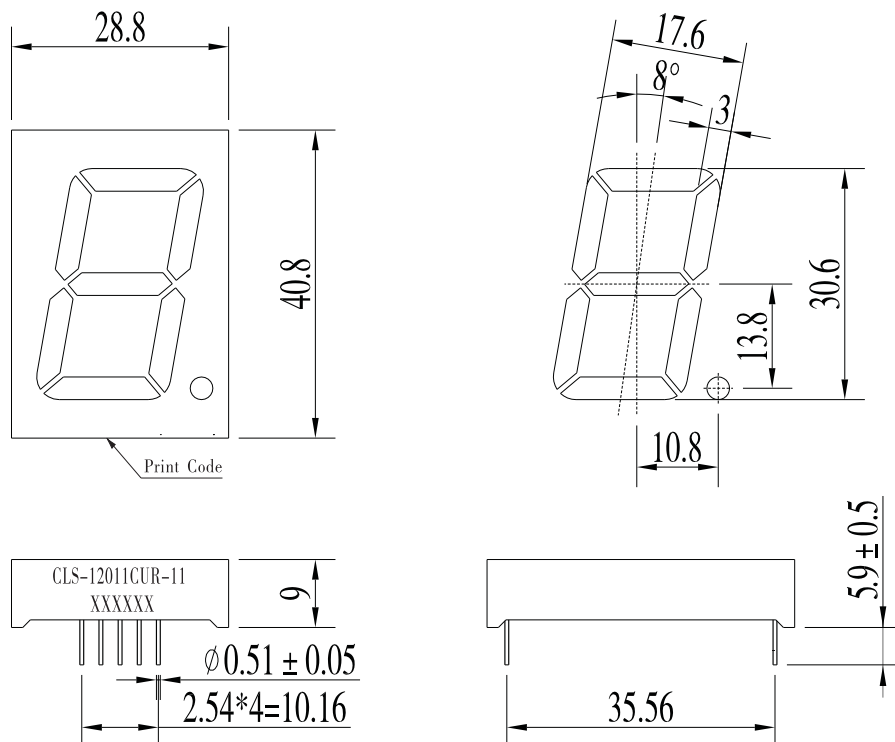
Customer's Model No.: \_\_\_\_\_

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

## Descriptions

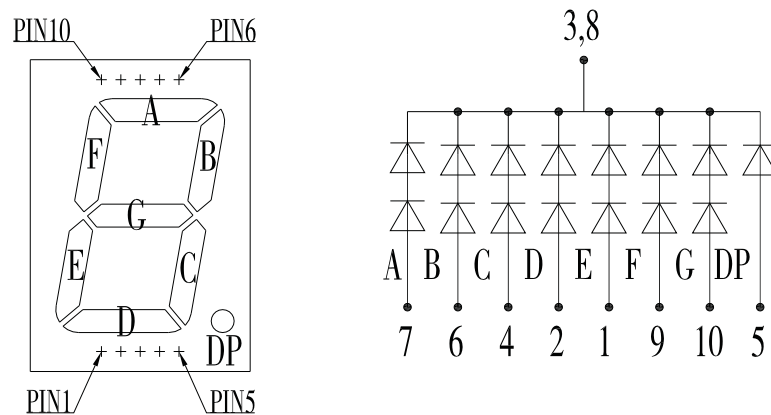
1. Emitting Color: Ultra Red
2. Lens Color: White Diffused
3. Surface Black Color : Black
4. Dice Material: AlGaInP/GaAs

## Outline Drawing



Tolerance is  $\pm 0.25$ mm unless otherwise noted, Unit=mm  
Pin bending  $\leq$  length\*1%

## Internal Circuit Diagram(C.C.)



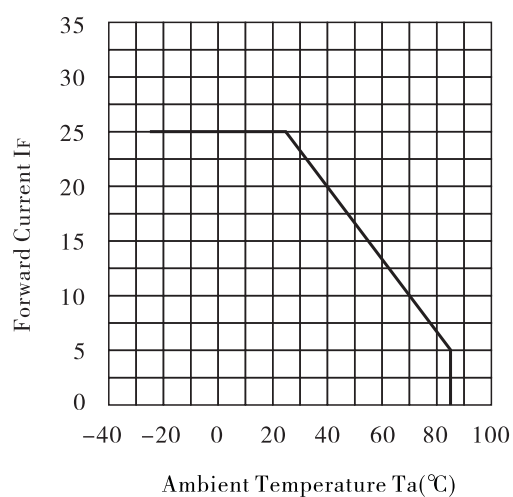
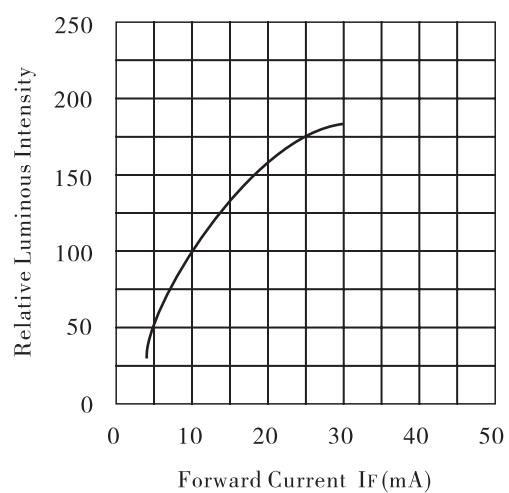
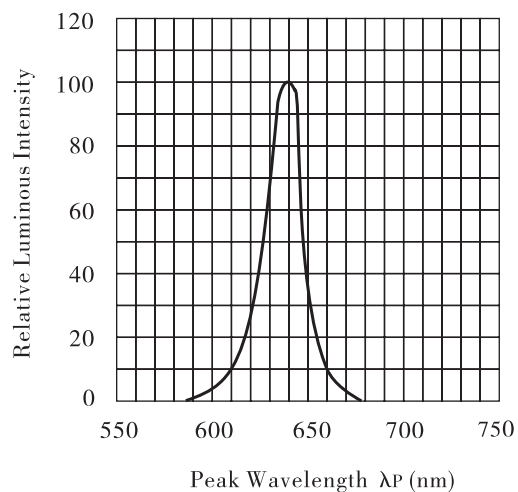
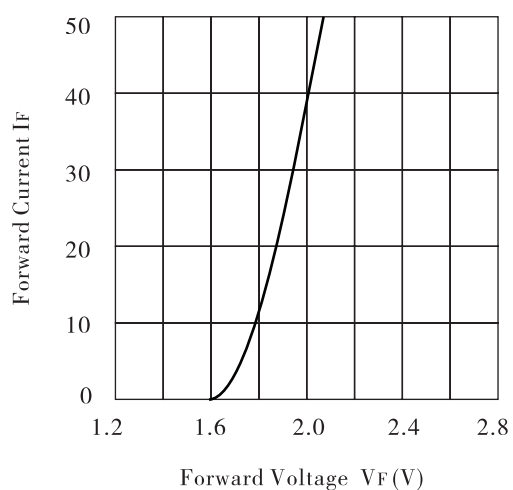
## Electrical optical characteristics ( Ta=25℃ )

| Parameter                | Symbol          | Ultra Red |     |     | Unit    | Test Condition |
|--------------------------|-----------------|-----------|-----|-----|---------|----------------|
|                          |                 | Min       | Typ | Max |         |                |
| Forward Voltage          | $V_F$           | ---       | 2.0 | 2.4 | V       | IF=20mA        |
| Luminous Intensity       | $I_V$           | 26.6      | 52  | --- | mcd     | IF=10mA        |
| Peak Wavelength          | $\lambda_P$     | ---       | 645 | --- | nm      | IF=20mA        |
| Dominant Wavelength      | $\lambda_d$     | ---       | 635 | --- | nm      | IF=20mA        |
| Spectral Line half-width | $\Delta\lambda$ | ---       | 20  | --- | nm      | IF=20mA        |
| Reverse Leakage Current  | $I_R$           | ---       | --- | 50  | $\mu A$ | VR=5V          |

## 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 | Topr   | ---            | -25 ~ +85  | ℃    |
| Storage Temperature Range   | Tstg   | ---            | -30 ~ +100 | ℃    |
| Soldering Condition         | Tsd    | ---            | 260℃/5sec  | ℃    |

Typical Electro/Optical Characteristic Curves( $T_a=25^{\circ}\text{C}$ )



## Reliability test conditions

| Test Item                                   | Test Condition                           | Result | Judgment criteria                                                                                                                                                                                    |
|---------------------------------------------|------------------------------------------|--------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Consecutive operating life test             | IF=20mA, T=25℃, t=168h                   | 0/12   | Forward Voltage<br>$V_F(V) = \text{Upper Limit} \times 1.2$<br>Reverse Leakage Current<br>$I_R(\mu A) = \text{Upper Limit} \times 2.0$<br>Luminous Intensity $I_v$<br>(mcd)=Lower Limit $\times 0.7$ |
| High temperature storage life test          | T=100℃, t=168h                           | 0/12   |                                                                                                                                                                                                      |
| Low temperature storage life test           | T=-25℃, t=168h                           | 0/12   |                                                                                                                                                                                                      |
| high Temperature humidity storage life test | T=85 ± 2℃, RH=85% ± 3, t=168h            | 0/12   |                                                                                                                                                                                                      |
| Temperature cycle test                      | -25℃~25℃~100℃, 30min 5min 30min 10cycles | 0/12   |                                                                                                                                                                                                      |
| Thermal shock test                          | 100℃ 0℃<br>5min 5min 20 cycles           | 0/12   |                                                                                                                                                                                                      |
| Soldering heat test                         | T=260 ± 5℃, t=10s ± 1s                   | 0/12   |                                                                                                                                                                                                      |
| Solderability test                          | T=230 ± 5℃, t=5s ± 0.5s                  | 0/12   | Steeped Part ≥ 95%                                                                                                                                                                                   |
| Fall test                                   | h=100cm, Free fall, 3times               | 0/12   | Intact                                                                                                                                                                                               |
| Terminal strength test                      | W=9.8N, t=30 ± 5s                        | 0/12   |                                                                                                                                                                                                      |
| Lead Bending test                           | W=4.9N, 2times                           | 0/12   |                                                                                                                                                                                                      |