

**ROUND TYPE LED LAMPS**

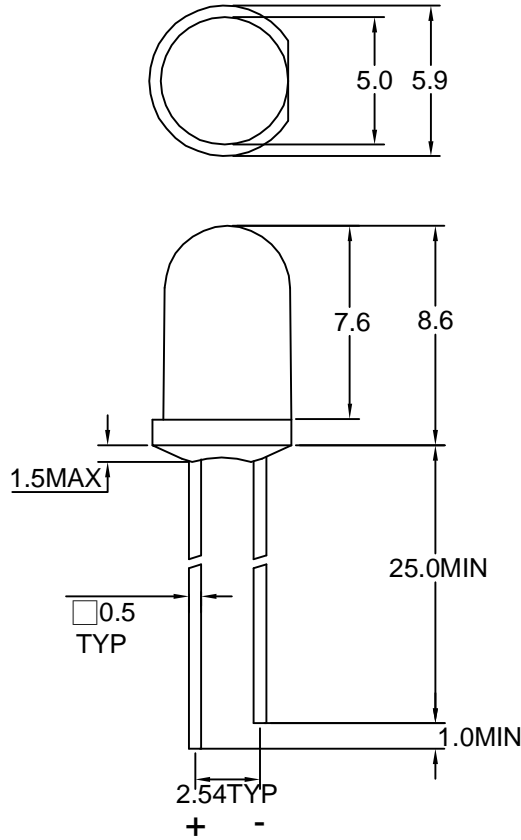


Lead-Free Parts

**LH3330**

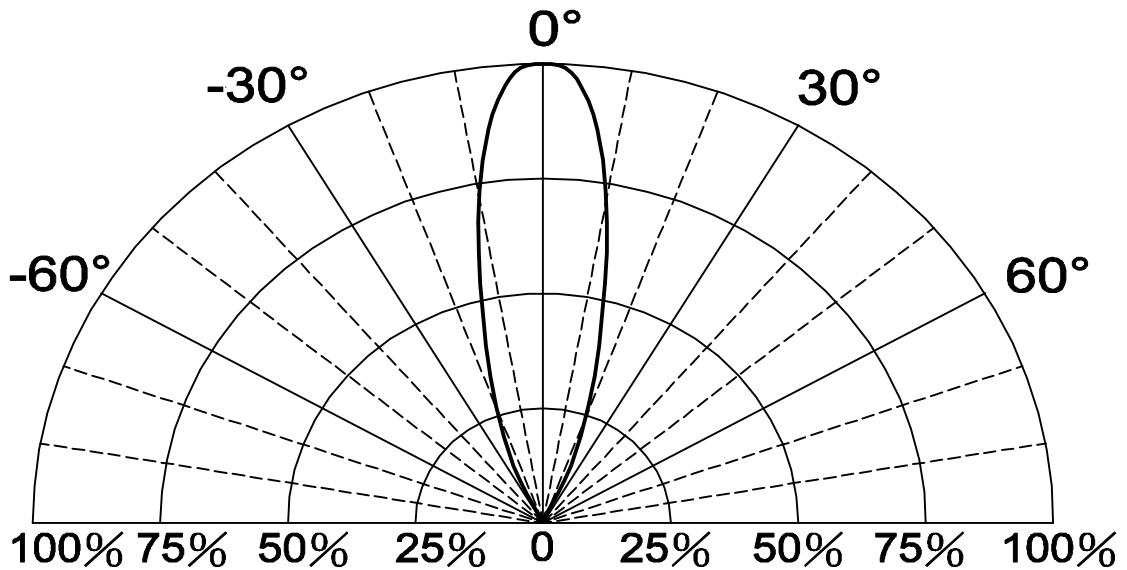
**DATA SHEET**

### Package Dimensions



Note : 1.All dimension are in millimeter tolerance is  $\pm 0.25\text{mm}$  unless otherwise noted.  
 2.Specifications are subject to change without notice.

### Directivity Radiation



## Absolute Maximum Ratings at Ta=25 °C

| Parameter                               | Symbol | Ratings    | UNIT    |
|---|--------|------------|---------|
|   |        | H          |         |
| Forward Current                         | IF     | 15         | mA      |
| Peak Forward Current<br>Duty 1/10@10KHz | IFP    | 60         | mA      |
| Power Dissipation                       | PD     | 40         | mW      |
| Reverse Current @5V                     | Ir     | 10         | $\mu$ A |
| Operating Temperature                   | Topr   | -40 ~ +85  | °C      |
| Storage Temperature                     | Tstg   | -40 ~ +100 | °C      |

## Typical Electrical &amp; Optical Characteristics (Ta=25 °C)

| PART NO   | MATERIAL | COLOR   |              | Peak wave length<br>$\lambda$ Pnm | Spectral halfwidth<br>$\Delta \lambda$ nm | Forward voltage<br>@20mA(V) |      | Luminous intensity<br>@10mA(mcd) |      | Viewing angle<br>2 $\theta$ 1/2<br>(deg) |
|-----------|----------|---------|--------------|-----------------------------------|---|-----------------------------|------|----------------------------------|------|--|
|           |          | Emitted | Lens         |                                   |   | Min.                        | Max. | Min.                             | Typ. |  |
| LH3330-PF | GaP      | Red     | Red Diffused | 697                               | 90  | 1.7                         | 2.6  | 3.0                              | 4.5  | 28                                       |

Note : 1. The forward voltage data did not including  $\pm 0.1V$  testing tolerance.  
 2. The luminous intensity data did not including  $\pm 15\%$  testing tolerance.

# Typical Electro-Optical Characteristics Curve

H CHIP

Fig.1 Forward current vs. Forward Voltage

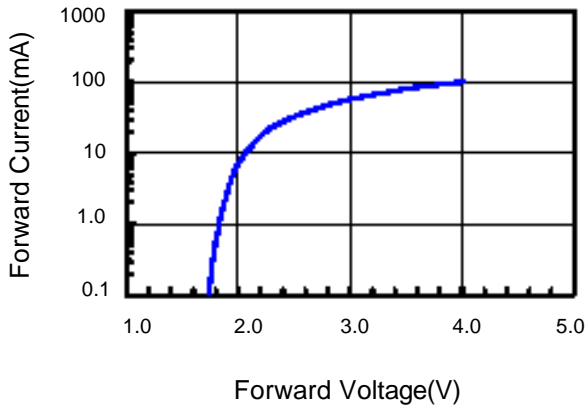


Fig.2 Relative Intensity vs. Forward Current

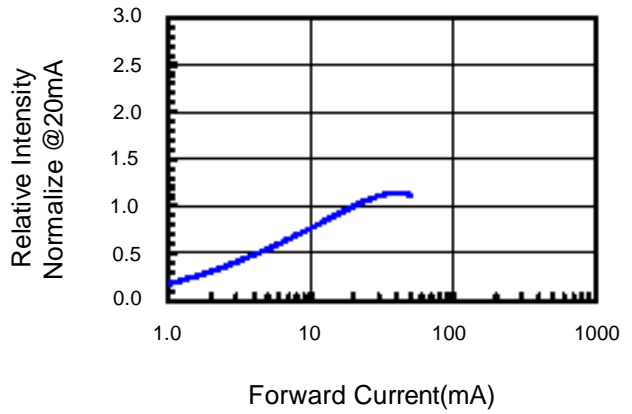


Fig.3 Forward Voltage vs. Temperature

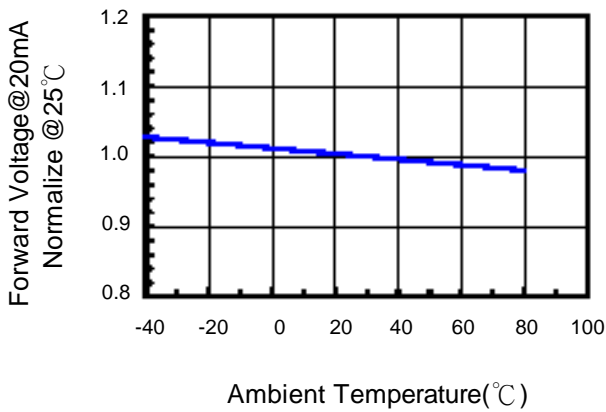


Fig.4 Relative Intensity vs. Temperature

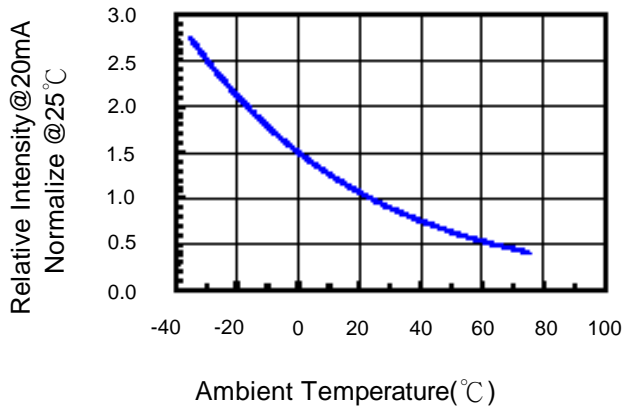
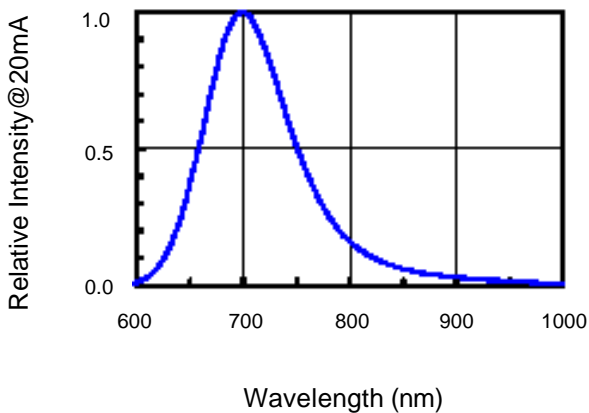


Fig.5 Relative Intensity vs. Wavelength



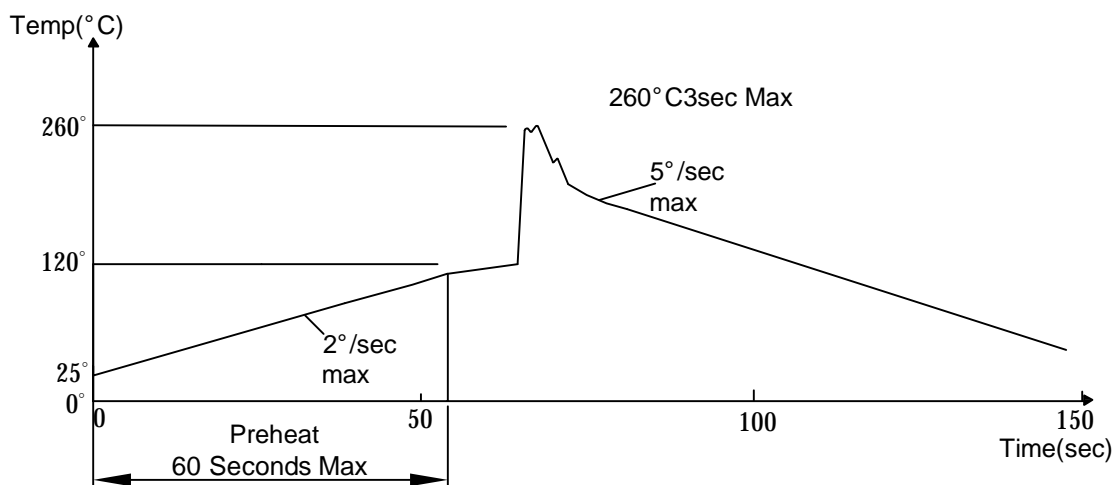
## Soldering Condition(Pb-Free)

### 1.Iron:

Soldering Iron:30W Max  
Temperature 350° C Max  
Soldering Time:3 Seconds Max(One time only)  
Distance:2mm Min(From solder joint to body)

### 2.Wave Soldering Profile

Dip Soldering  
Preheat: 120° C Max  
Preheat time: 60seconds Max  
Ramp-up  
2° C/sec(max)  
Ramp-Down:-5° C/sec(max)  
Solder Bath:260° C Max  
Dipping Time:3 seconds Max  
Distance:2mm Min(From solder joint to body)



Note: 1.Wave solder should not be made more than one time.  
2.You can just only select one of the soldering conditions as above.

## Reliability Test:

| Test Item                           | Test Condition   | Description   | Reference Standard   |
|-------------------------------------|--|---|--|
| Operating Life Test                 | 1.Under Room Temperature<br>2.If=20mA<br>3.t=1000 hrs (-24hrs, +72hrs) | This test is conducted for the purpose of determining the resistance of a part in electrical and thermal stressed.  | MIL-STD-750: 1026<br>MIL-STD-883: 1005<br>JIS C 7021: B-1                      |
| High Temperature Storage Test       | 1.Ta=105 °C ±5°C<br>2.t=1000 hrs (-24hrs, +72hrs)                      | The purpose of this is the resistance of the device which is laid under condition of high temperature for hours.  | MIL-STD-883:1008<br>JIS C 7021: B-10   |
| Low Temperature Storage Test        | 1.Ta=-40 °C ±5°C<br>2.t=1000 hrs (-24hrs, +72hrs)                      | The purpose of this is the resistance of the device which is laid under condition of low temperature for hours.   | JIS C 7021: B-12   |
| High Temperature High Humidity Test | 1.Ta=65 °C ±5°C<br>2.RH=90%~95%<br>3.t=240hrs ±2hrs                    | The purpose of this test is the resistance of the device under tropical for hours.  | MIL-STD-202:103B<br>JIS C 7021: B-11   |
| Thermal Shock Test                  | 1.Ta=105 °C ±5°C & -40 °C ±5°C (10min) (10min)<br>2.total 10 cycles    | The purpose of this is the resistance of the device to sudden extreme changes in high and low temperature.  | MIL-STD-202: 107D<br>MIL-STD-750: 1051<br>MIL-STD-883: 1011                    |
| Solder Resistance Test              | 1.T.Sol=260 °C ±5°C<br>2.Dwell time= 10 ±1sec.                         | This test intended to determine the thermal characteristic resistance of the device to sudden exposures at extreme changes in temperature when soldering the lead wire. | MIL-STD-202: 210A<br>MIL-STD-750: 2031<br>JIS C 7021: A-1                      |
| Solderability Test                  | 1.T.Sol=230 °C ±5°C<br>2.Dwell time=5 ±1sec                            | This test intended to see soldering well performed or not.  | MIL-STD-202: 208D<br>MIL-STD-750: 2026<br>MIL-STD-883: 2003<br>JIS C 7021: A-2 |