



LIGITEK

LIGITEK ELECTRONICS CO.,LTD.

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## ROUND TYPE LED LAMPS

**LDBK13743**

# DATA SHEET

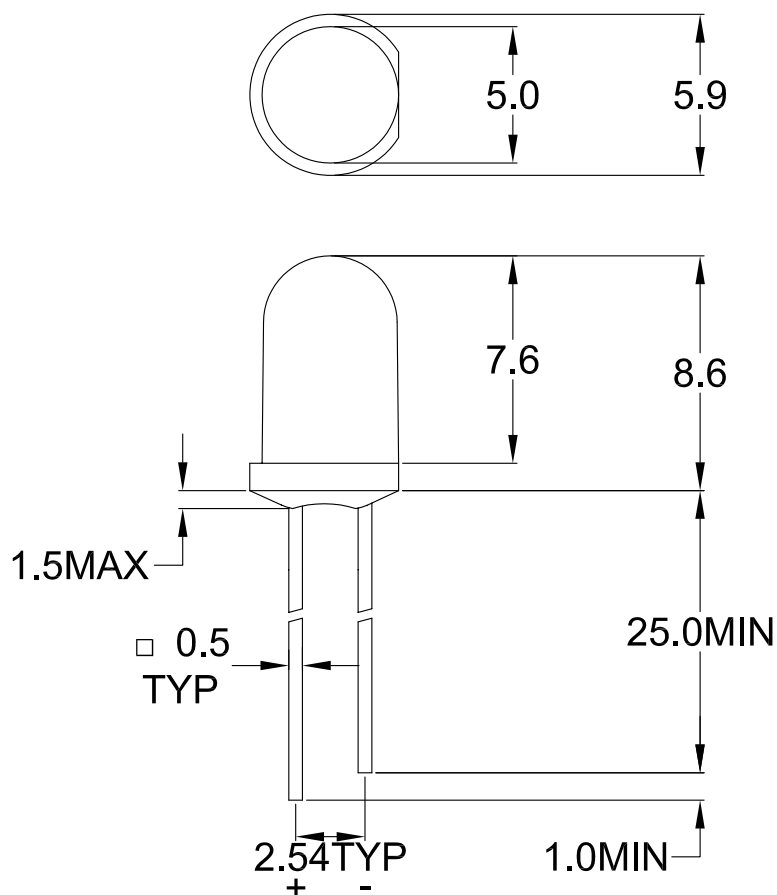
DOC. NO : QW0905-LDBK13743

REV. : D

DATE : 15 -Sep - 2004

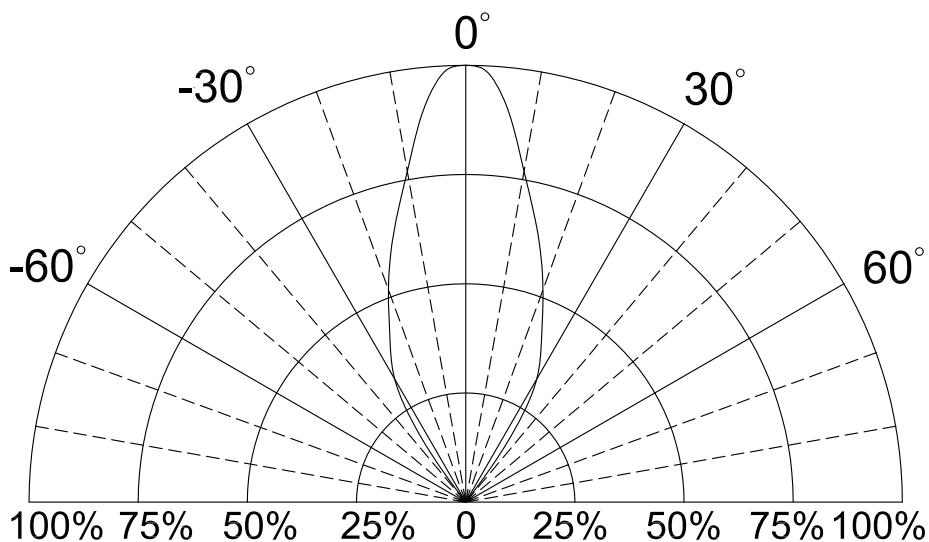


## Package Dimensions



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 |
|-----------------------------------------|------------------|--------------------------------------------|------|
|                                         |                  | DBK                                        |      |
| Forward Current                         | I <sub>F</sub>   | 30                                         | mA   |
| Peak Forward Current<br>Duty 1/10@10KHz | I <sub>FP</sub>  | 100                                        | mA   |
| Power Dissipation                       | PD               | 120                                        | mW   |
| Reverse Current @5V                     | I <sub>r</sub>   | 50                                         | μA   |
| Electrostatic Discharge                 | ESD              | 150                                        | V    |
| Operating Temperature                   | T <sub>opr</sub> | -20 ~ +80                                  | °C   |
| Storage Temperature                     | T <sub>stg</sub> | -30 ~ +100                                 | °C   |
| Soldering Temperature                   | T <sub>sol</sub> | Max 260°C for 5 sec Max<br>(2mm from body) |      |

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

| PART NO   | MATERIAL  | COLOR   |             | Dominant wave length<br>λ Dnm | Spectral halfwidth<br>Δ λ nm | Forward voltage<br>@20mA(V) |      | Luminous intensity<br>@20mA(mcd) |      | Viewing angle<br>2θ 1/2 (deg) |
|-----------|-----------|---------|-------------|-------------------------------|------------------------------|-----------------------------|------|----------------------------------|------|-------------------------------|
|           |           | Emitted | Lens        |                               |                              | Typ.                        | Max. | Min.                             | Typ. |                               |
| LDBK13743 | InGaN/GaN | Blue    | Water Clear | 470                           | 30                           | 3.5                         | 4.0  | 1100                             | 1800 | 42                            |

Note : 1.The forward voltage data did not including ±0.1V testing tolerance.

2. The luminous intensity data did not including ±15% testing tolerance.



## Typical Electro-Optical Characteristics Curve

## DBK CHIP

Fig.1 Forward current vs. Forward Voltage

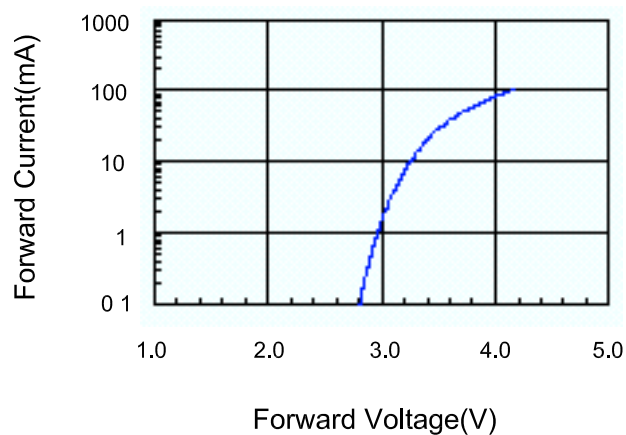


Fig.2 Relative Intensity vs. Forward Current

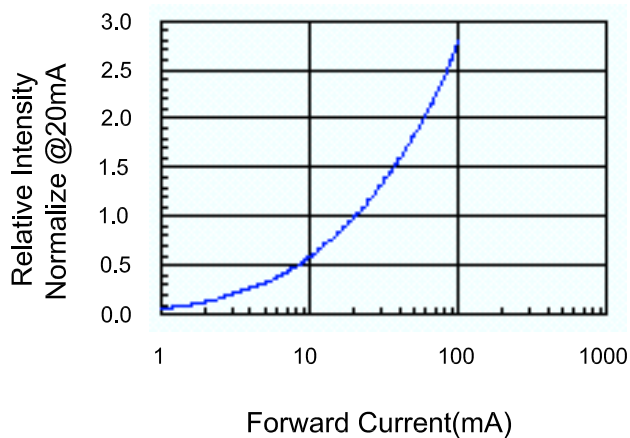


Fig.3 Forward Voltage vs. Temperature

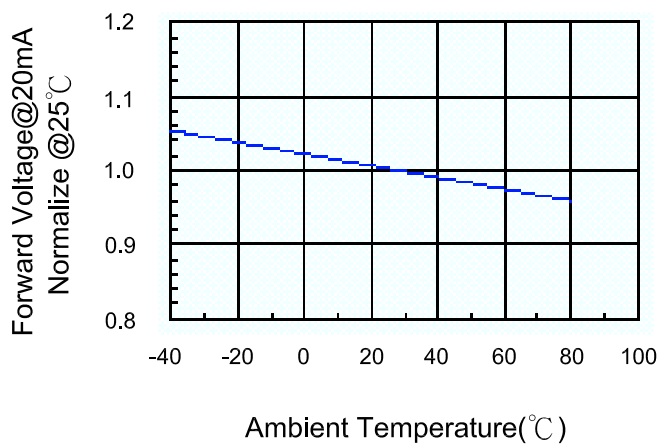


Fig.4 Relative Intensity vs. Temperature

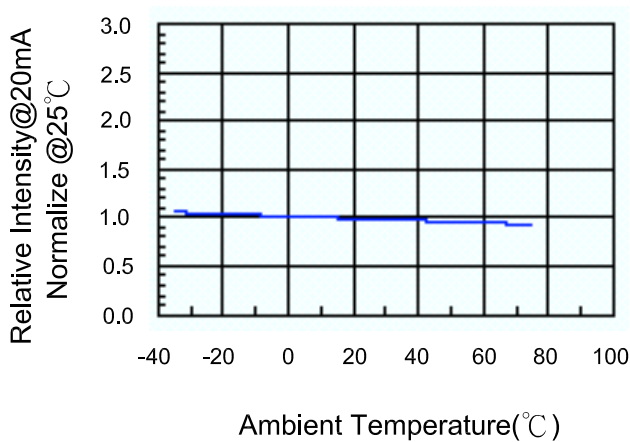
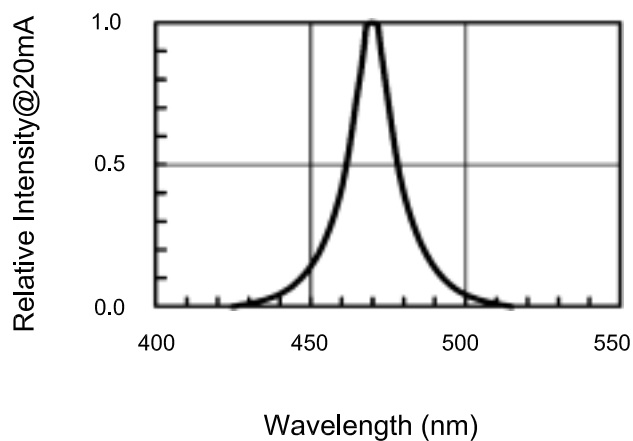


Fig.5 Relative Intensity vs. Wavelength



**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 |