

Part No.

**AL-513BG3C**

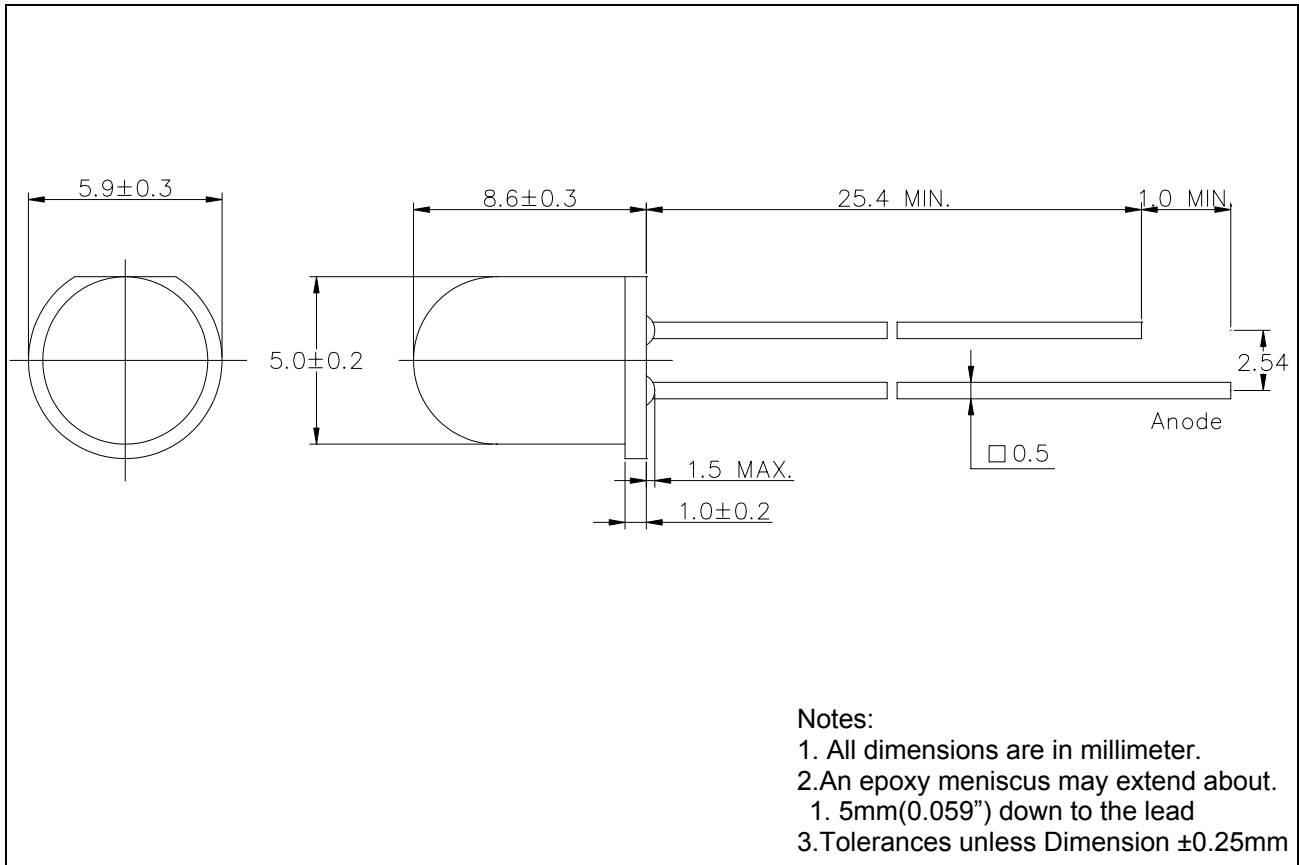
Diff No.

5 mm

Round

Type : LED Lamps

Package Dimension :



■ Features :

- Choice of various viewing angles.
- Available on Tape and Reel.
- Reliable and robust.

■ Descriptions :

- The series is specially designed for application requiring higher brightness.
- The LED lamps are available with different color, intensities, epoxy colors etc.

■ Applications :

- TV set
- Monitor
- Telephone

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| PART NO.   | Chip     |               | Lens Color  |
|------------|----------|---------------|-------------|
|            | Material | Emitted Color |             |
| AL-513BG3C | InGaN    | Bluish Green  | Water Clear |

## ■ Absolute Maximum Ratings at Ta=25°C

| Parameter                                | Symbol                | Rating     | Unit |
|--|-----------------------|------------|------|
| Forward Current                          | I <sub>F</sub>        | 30         | mA   |
| Operating Temperature                    | T <sub>opr</sub>      | -40 to +85 | °C   |
| Storage Temperature                      | T <sub>stg</sub>      | -40 to +85 | °C   |
| Soldering Temperature                    | T <sub>sol</sub>      | 260 ±5     | °C   |
| Electrostatic Discharge                  | ESD                   | 1000       | V    |
| Power Dissipation                        | P <sub>D</sub>        | 120        | mW   |
| Peak Forward Current<br>(Duty 1/10@1KHz) | I <sub>F</sub> (Peak) | 100        | mA   |
| Reverse Voltage                          | V <sub>R</sub>        | 5          | V    |

## ■ Electronic Optical Characteristics :

| Parameter                    | Symbol            | Min. | Typ. | Max. | Unit | Condition            |
|------------------------------|-------------------|------|------|------|------|----------------------|
| Luminous Intensity           | I <sub>v</sub>    | 7000 | 9000 | /    | mcd  | I <sub>F</sub> =20mA |
| Viewing Angle                | 2θ <sub>1/2</sub> | /    | 15   | /    | deg  | I <sub>F</sub> =20mA |
| Peak Wavelength              | λ <sub>p</sub>    | /    | 510  | /    | nm   | I <sub>F</sub> =20mA |
| Dominant Wavelength          | λ <sub>d</sub>    | /    | 505  | /    | nm   | I <sub>F</sub> =20mA |
| Spectrum Radiation Bandwidth | Δλ                | /    | 30   | /    | nm   | I <sub>F</sub> =20mA |
| Forward Voltage              | V <sub>F</sub>    | /    | 3.5  | 4.0  | V    | I <sub>F</sub> =20mA |
| Reverse Current              | I <sub>R</sub>    | /    | /    | 50   | μA   | V <sub>R</sub> =5V   |

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## ■ Reliability test items and conditions :

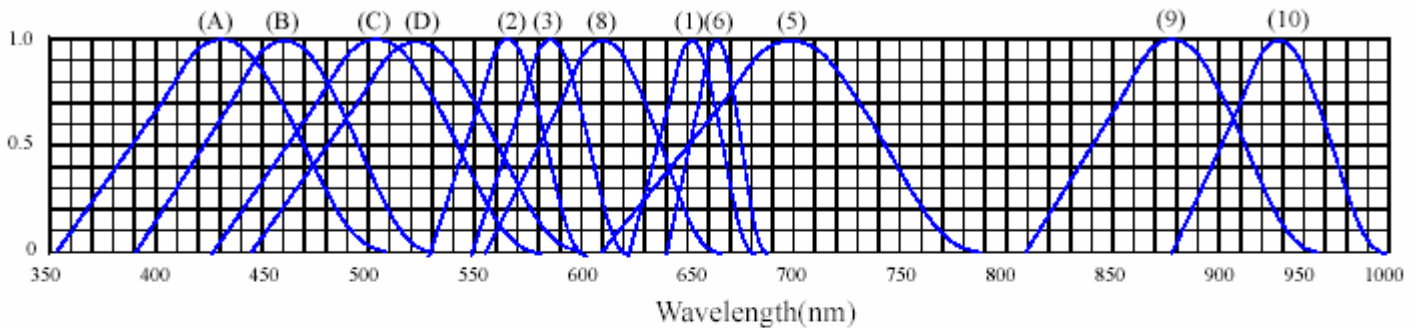
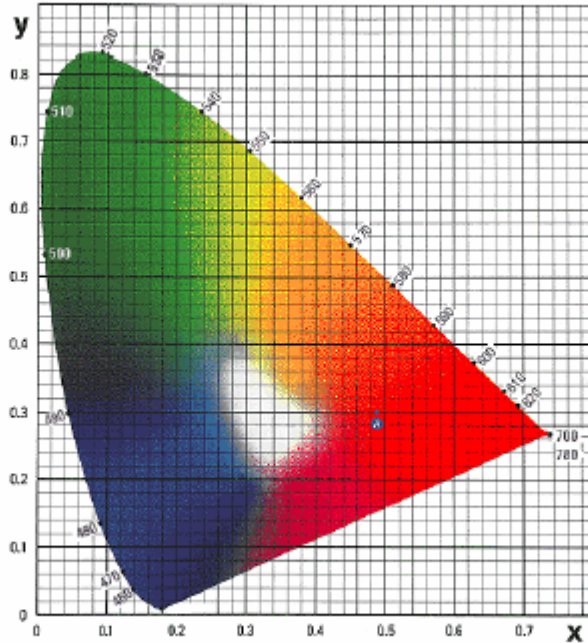
| NO | Item                             | Test Conditions                              | Test Hours/Cycle | Sample Size | Ac/Re |
|----|----------------------------------|--|------------------|-------------|-------|
| 1  | Solder Heat                      | TEMP : 260°C ± 5°C                           | 5 SEC            | 76 PCS      | 0/1   |
| 2  | Temperature Cycle                | H : +85°C 30min<br>∫ 5min<br>L : -55°C 30min | 50 CYCLES        | 76 PCS      | 0/1   |
| 3  | Thermal Shock                    | H : +100°C 5min<br>∫ 10set<br>L : -10°C 5min | 50 CYCLES        | 76 PCS      | 0/1   |
| 4  | High Temperature Storage         | TEMP : 100°C                                 | 1000 HRS         | 76 PCS      | 0/1   |
| 5  | Low Temperature Storage          | TEMP : -55°C                                 | 1000 HRS         | 76 PCS      | 0/1   |
| 6  | DC Operating Life                | TEMP : 25°C<br>I <sub>F</sub> =20mA          | 1000 HRS         | 76 PCS      | 0/1   |
| 7  | High Temperature / High Humidity | 85°C / 85%RH                                 | 1000 HRS         | 76 PCS      | 0/1   |

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◆ TYPICAL ELECTRICAL-OPTICAL CHARACTERISTICS CURVES



RELATIVE INTENSITY VS. WAVELENGTH( $\lambda_p$ )

- |   |                                  |
|---|----------------------------------|
| (1) GaAsP/GaAs 655nm/Red                | (9)- GaAlAs 880nm                |
| (2) GaP 568nm/ Yellow Green             | (10)-GaAs/GaAs&GaAlAs/GaAs 940nm |
| (3) GaAsP/GaP 585nm/Yellow              | (A)- GaN 430nm/Blue              |
| (4) GaAsP/GaP 635nm/Orange & Hi-Eff Red | (B)- InGaN 470nm/Blue            |
| (5) GaP 700nm/Bright Red                | (C)- InGaN 502nm/Ultra Green     |
| (6) GaAlAs/GaAs 660nm/Super Red         | (D)- InGaN 523nm/Ultra Green     |
| (8) GaAsP/GaP 610nm/Super Red           |                                  |

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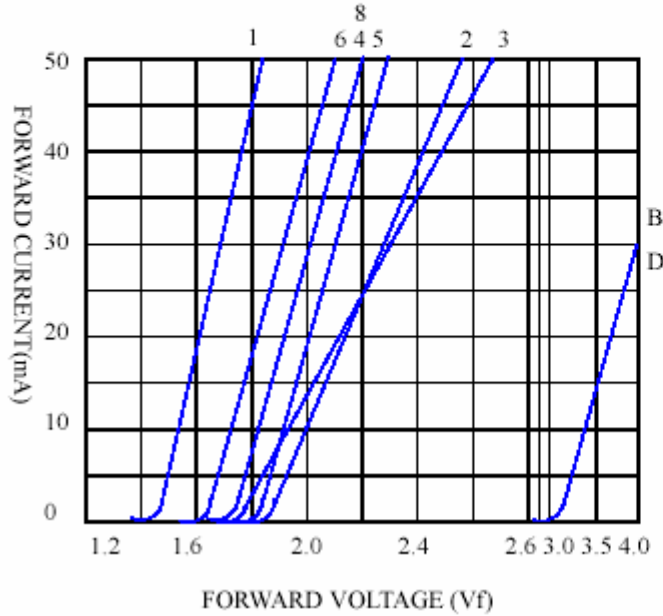
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◆ CHARACTERISTICS DIAGRAMS

FORWARD CURRENT VS. FORWARD VOLTAGE



RELATIVE LUMINOUS INTENSITY VS. FORWARD CURRENT



FORWARD CURRENT VS. AMBIENT TEMPERATURE

