



Part No.

**AL-513GD**

Diff No.

5 mm

Round

Type : LED Lamps

| PART NO. | Chip     |               | Lens Color     |
|----------|----------|---------------|----------------|
|          | Material | Emitted Color |                |
| AL-513GD | GaP/GaP  | Green         | Green Diffused |

■ Absolute Maximum Ratings at Ta=25°C

| Parameter                                | Symbol                | Rating      | Unit |
|--|-----------------------|-------------|------|
| Forward Current                          | I <sub>F</sub>        | 20          | mA   |
| Operating Temperature                    | T <sub>opr</sub>      | -40 to +85  | °C   |
| Storage Temperature                      | T <sub>stg</sub>      | -40 to +100 | °C   |
| Soldering Temperature                    | T <sub>sol</sub>      | 260 ± 5     | °C   |
| Electrostatic Discharge                  | ESD                   | 1000        | V    |
| Power Dissipation                        | P <sub>D</sub>        | 100         | mW   |
| Peak Forward Current<br>(Duty 1/10@1KHz) | I <sub>F</sub> (Peak) | 160         | 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>    | /    | 80   | /    | mcd  | I <sub>F</sub> =20mA |
| Viewing Angle                | 2θ <sub>1/2</sub> | /    | 35   | /    | deg  | I <sub>F</sub> =20mA |
| Peak Wavelength              | λ <sub>p</sub>    | /    | 575  | /    | nm   | I <sub>F</sub> =20mA |
| Dominant Wavelength          | λ <sub>d</sub>    | /    | 570  | /    | nm   | I <sub>F</sub> =20mA |
| Spectrum Radiation Bandwidth | Δλ                | /    | 30   | /    | nm   | I <sub>F</sub> =20mA |
| Forward Voltage              | V <sub>F</sub>    | /    | 2.2  | 2.6  | V    | I <sub>F</sub> =20mA |

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■ Reliability test items and conditions :

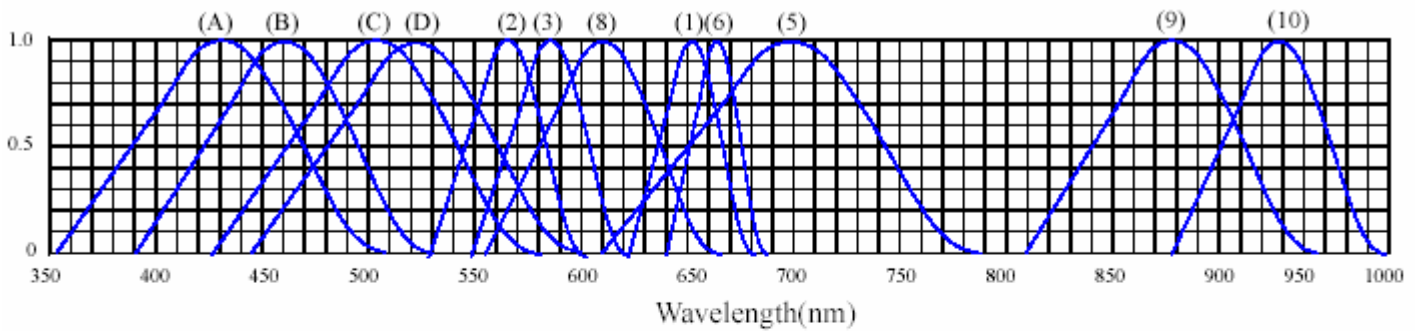
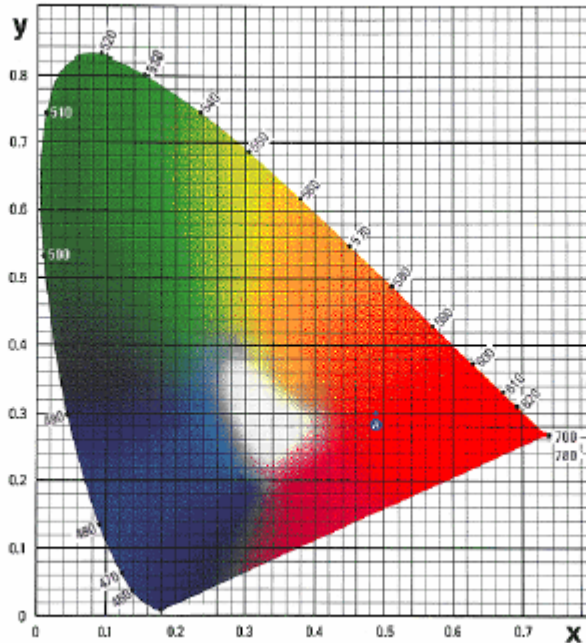
| NO | Item                             | Test Conditions                              | Test Hours/Cycle | Sample Size | Ac/Re |
|----|----------------------------------|--|------------------|-------------|-------|
| 1  | Solder Heat                      | TEMP : 260°C ± 5°C                           | 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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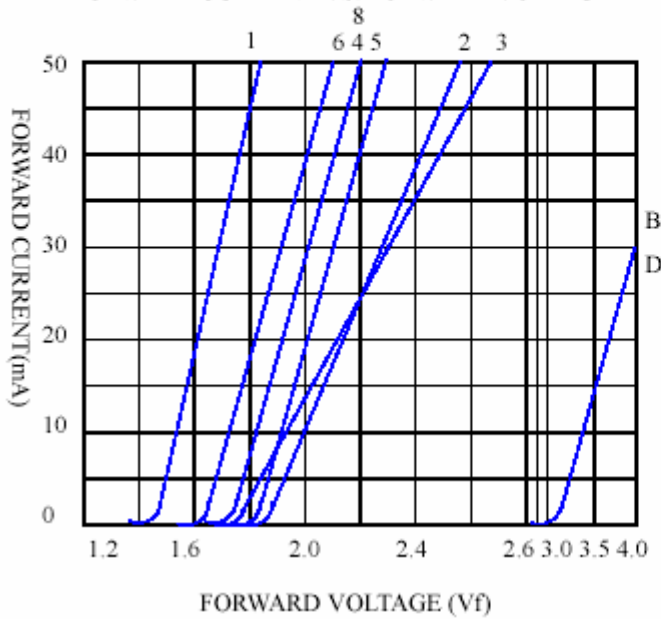
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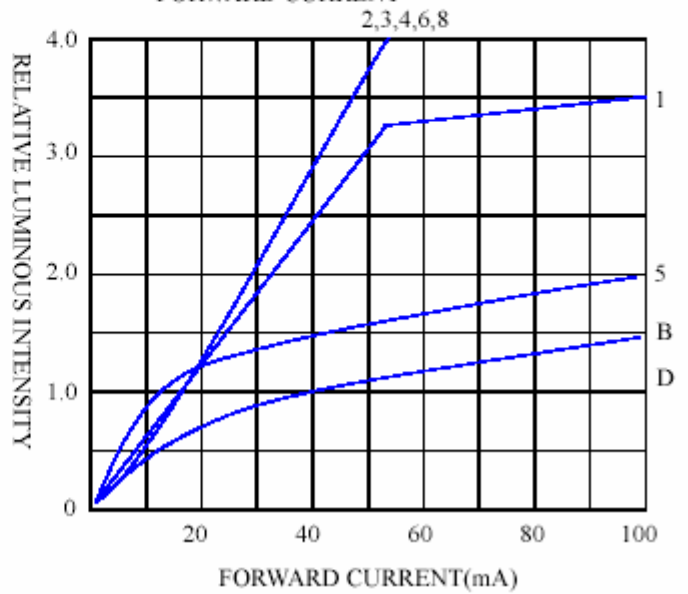
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◆ CHARACTERISTICS DIAGRAMS

FORWARD CURRENT VS. FORWARD VOLTAGE



RELATIVE LUMINOUS INTENSITY VS. FORWARD CURRENT



FORWARD CURRENT VS. AMBIENT TEMPERATURE

