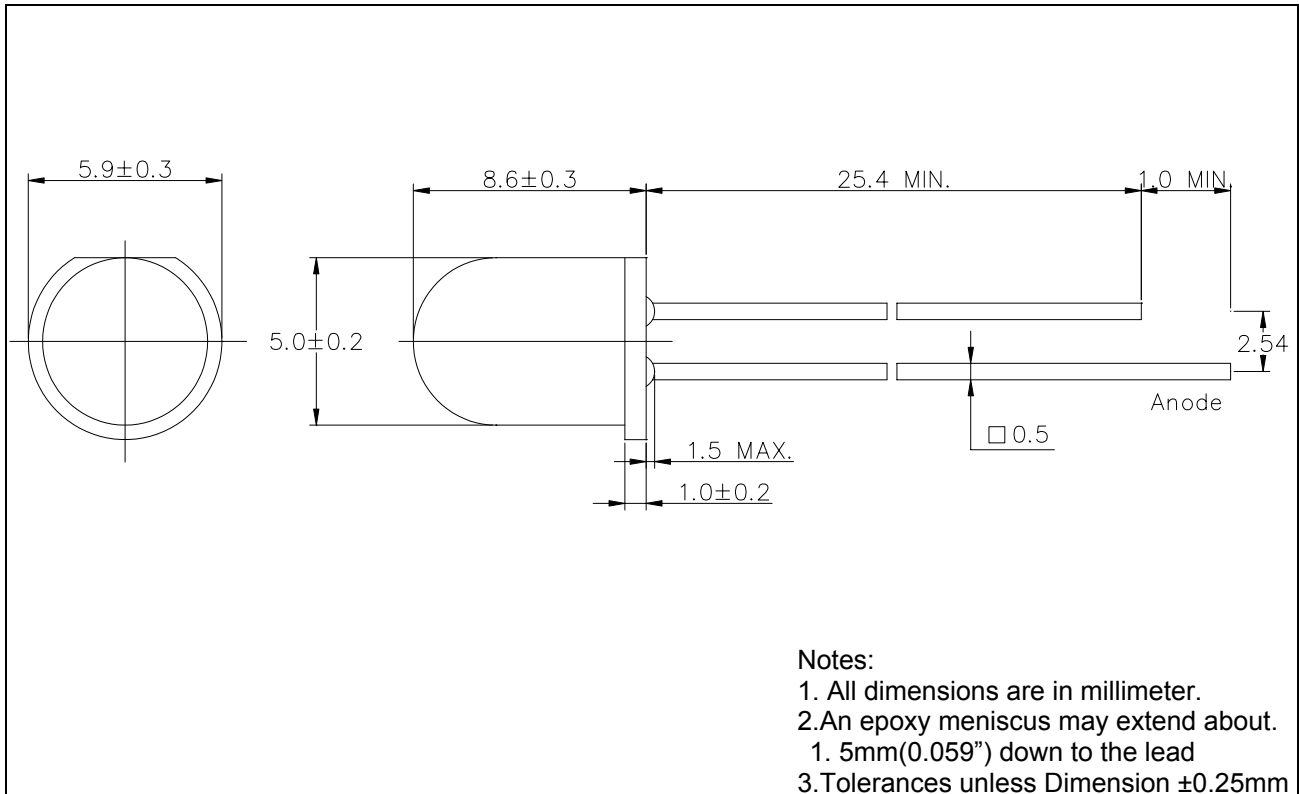


| | | |
|----------|-----------------|------------------|
| Part No. | AL-513HD | Diff No. |
| 5 mm | Round | Type : LED Lamps |

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 colors, intensity, epoxy colors etc.

■ Applications :

- TV set
- Monitor
- Telephone

Part No.

AL-513HD

Diff No.

5 mm

Round

Type : LED Lamps

| PART NO. | Chip | | Lens Color |
|----------|----------|---------------|--------------|
| | Material | Emitted Color | |
| AL-513HD | GaP | Hi-Eff Red | Red Diffused |

■ Absolute Maximum Ratings at Ta=25°C

| Parameter | Symbol | Rating | Unit |
|--|-----------------------|-------------|------|
| Forward Current | I _F | 20 | mA |
| Operating Temperature | T _{opr} | -40 to +85 | °C |
| Storage Temperature | T _{stg} | -40 to +100 | °C |
| Soldering Temperature | T _{sol} | 260 ±5 | °C |
| Electrostatic Discharge | ESD | 1000 | V |
| Power Dissipation | P _D | 100 | mW |
| Peak Forward Current (Duty 1/10@1KHz) | I _F (Peak) | 160 | mA |
| Reverse Voltage | V _R | 5 | V |

■ Electronic Optical Characteristics :

| Parameter | Symbol | Min. | Typ. | Max. | Unit | Condition |
|------------------------------|-------------------|------|------|------|------|----------------------|
| Luminous Intensity | I _v | / | 12 | / | mcd | I _F =20mA |
| Viewing Angle | 2θ _{1/2} | / | 35 | / | deg | I _F =20mA |
| Peak Wavelength | λ _p | / | / | / | nm | I _F =20mA |
| Dominant Wavelength | λ _d | / | 700 | / | nm | I _F =20mA |
| Spectrum Radiation Bandwidth | Δλ | / | 90 | / | nm | I _F =20mA |
| Forward Voltage | V _F | / | 2.2 | 2.6 | V | I _F =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 ∫ 5min L : -55°C 30min | 50 CYCLES | 76 PCS | 0/1 |
| 3 | Thermal Shock | H : +100°C 5min ∫ 10set 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 I _F =20mA | 1000 HRS | 76 PCS | 0/1 |
| 7 | High Temperature / High Humidity | 85°C / 85%RH | 1000 HRS | 76 PCS | 0/1 |

Part No.

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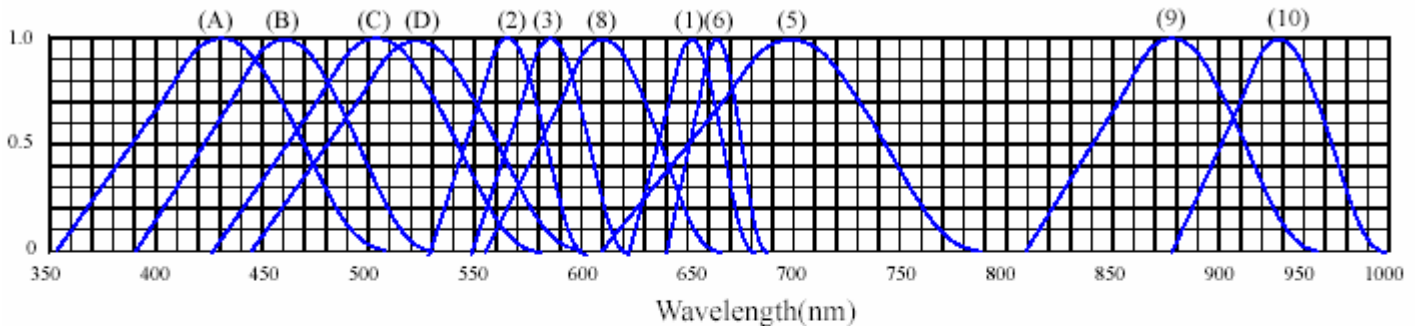
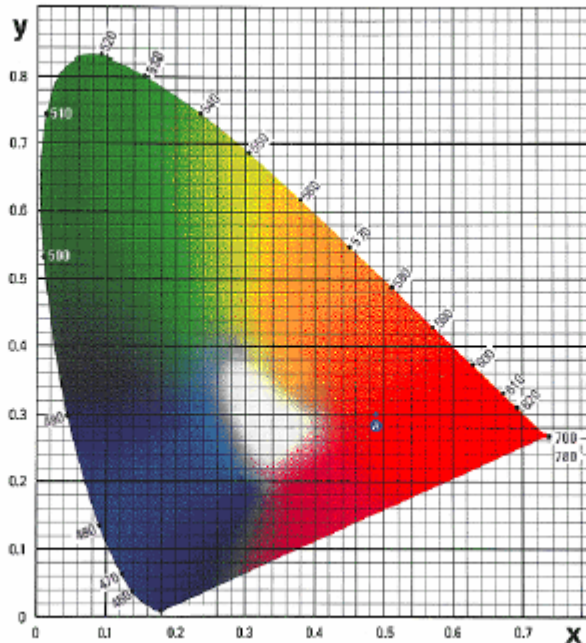
Diff No.

5 mm

Round

Type : LED Lamps

◆ TYPICAL ELECTRICAL-OPTICAL CHARACTERISTICS CURVES



RELATIVE INTENSITY VS. WAVELENGTH(λ_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 | |

Part No.

AL-513HD

Diff No.

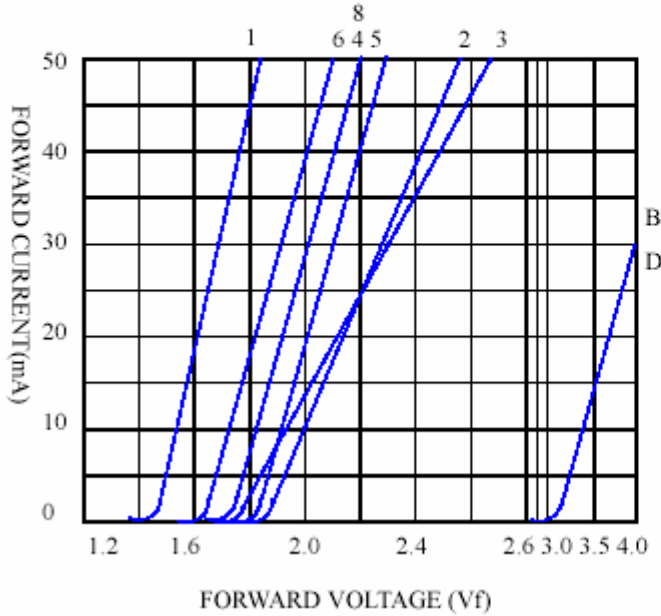
5 mm

Round

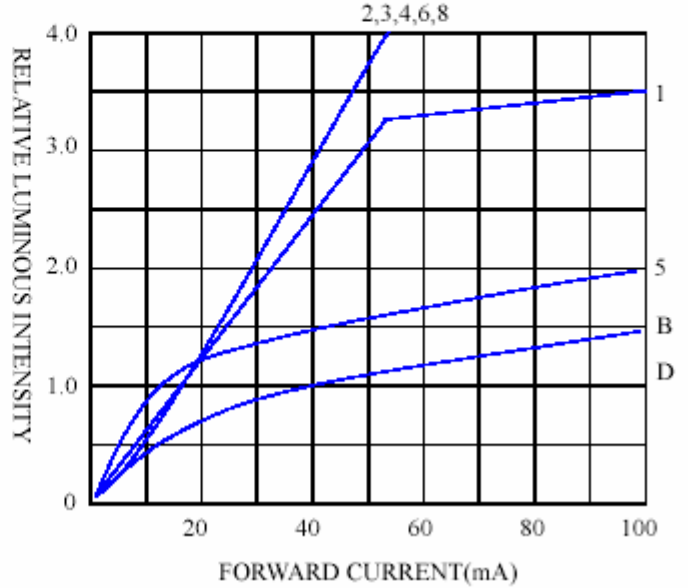
Type : LED Lamps

◆ CHARACTERISTICS DIAGRAMS

FORWARD CURRENT VS. FORWARD VOLTAGE



RELATIVE LUMINOUS INTENSITY VS. FORWARD CURRENT



FORWARD CURRENT VS. AMBIENT TEMPERATURE

