



# Technical Data Sheet

## 3.0mm Round Type LED Lamps

### 204HD

#### ■ Features :

- Choice of various viewing angles
- Available on tape and reel.
- Reliable and robust
- Pb free



#### ■ Descriptions :

- The series is specially designed for applications requiring higher brightness
- The led lamps are available with different colors, intensities,

#### ■ Applications :

- TV set
- Monitor
- Telephone
- Computer

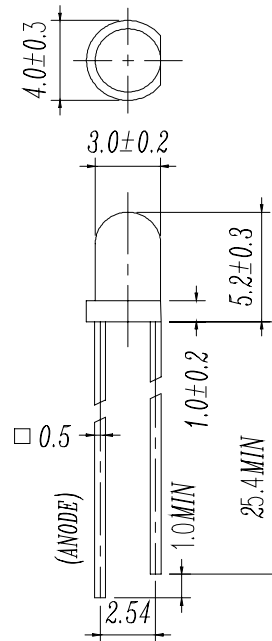
| PART NO. | Material | Emitted Color | Lens Color   |
|----------|----------|---------------|--------------|
| 204HD    | GaP      | Bright Red    | Red Diffused |

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#### Package Dimensions



- Notes:**
1. All dimensions are in millimetres
  2. An epoxy meniscus may extend about 1.5mm(0.059") down to the lead.
  3. Tolerances unless Dimension  $\pm 0.25$ mm.

#### Absolute Maximum Ratings at $T_a = 25^\circ\text{C}$

| Parameter             | Symbol             | Rating      | Unit             |
|-----------------------|--------------------|-------------|------------------|
| Forward Current       | $I_F$              | 15          | mA               |
| Operating Temperature | $T_{opr}$          | -40 to +85  | $^\circ\text{C}$ |
| Storage Temperature   | $T_{stg}$          | -40 to +100 | $^\circ\text{C}$ |
| Soldering Temperature | $T_{sol}$          | $260 \pm 5$ | $^\circ\text{C}$ |
| Power Dissipation     | $P_d$              | 45          | mW               |
| Peak Forward Current  | $I_F(\text{Peak})$ | 50          | mA               |
| Reverse Voltage       | $V_R$              | 5           | V                |

Note: \*1:  $I_{FP}$  Conditions -- Pulse Width  $\leq 1\text{msec}$  and Duty  $\leq 1/10$ .

\*2: Soldering time  $\leq 5$  seconds.



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**Electro-Optical Characteristics (Ta=25°C)**

| Parameter                    | Symbol         | Condition              | Min. | Typ. | Max. | Unit |
|------------------------------|----------------|------------------------|------|------|------|------|
| Forward Voltage              | V <sub>F</sub> | I <sub>F</sub> = 10 mA | 1.5  | 2.0  | 2.4  | V    |
| Reverse Current              | I <sub>R</sub> | V <sub>R</sub> = 5 V   | /    | /    | 10   | μA   |
| Luminous Intensity           | I <sub>v</sub> | I <sub>F</sub> = 10 mA | 0.5  | 1.0  | /    | mcd  |
| Viewing Angle                | 2θ 1/2         | I <sub>F</sub> = 10 mA | /    | 60   | /    | deg  |
| Peak Wavelength              | λ <sub>p</sub> | I <sub>F</sub> = 10 mA | /    | 697  | /    | nm   |
| Dominant Wavelength          | λ <sub>d</sub> | I <sub>F</sub> = 10 mA | /    | 650  | /    | nm   |
| Spectrum Radiation Bandwidth | Δλ             | I <sub>F</sub> = 10 mA | /    | 90   | /    | nm   |



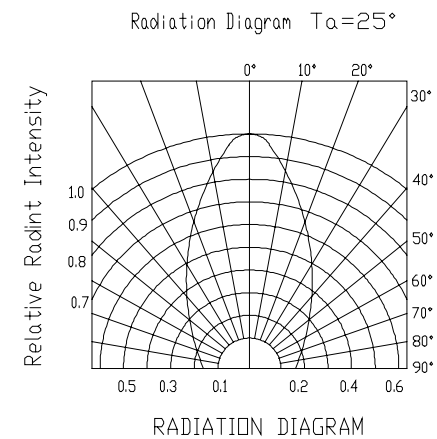
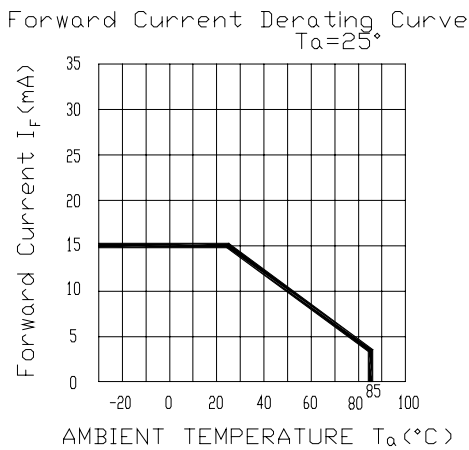
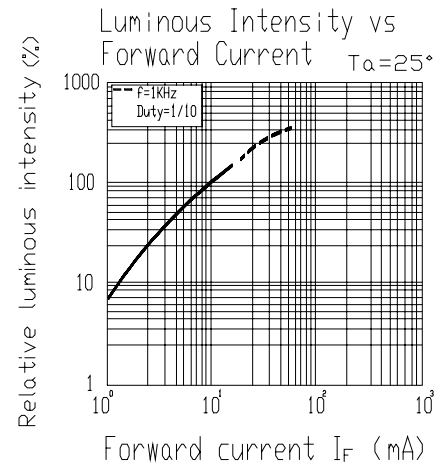
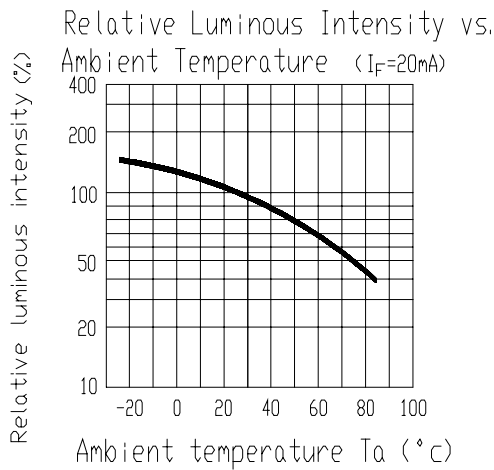
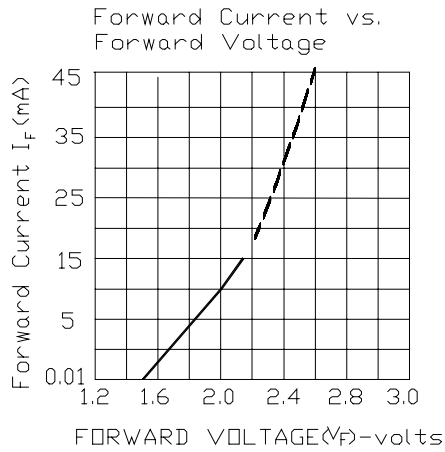
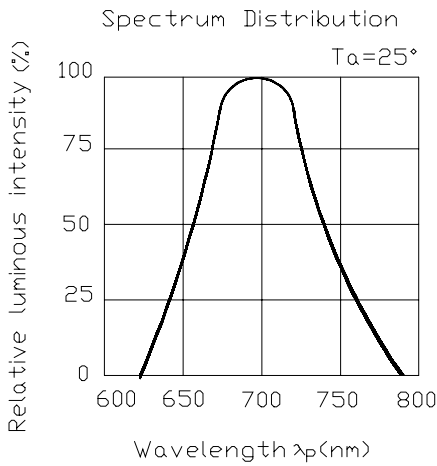
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#### Typical Electro-Optical Characteristic Curves:

( H )





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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                            | 10 SEC           | 76 PCS      | 0/1   |
| 2  | Temperature Cycle                | H : +100°C 15min<br>∫ 5 min<br>L : -40°C 15min | 300 CYCLES       | 76 PCS      | 0/1   |
| 3  | Thermal Shock                    | H : +100°C 5min<br>∫ 10 sec<br>L : -10°C 5min  | 300 CYCLES       | 76 PCS      | 0/1   |
| 4  | High Temperature Storage         | TEMP : 100°C                                   | 1000 HRS         | 76 PCS      | 0/1   |
| 5  | Low Temperature Storage          | TEMP : -40°C                                   | 1000 HRS         | 76 PCS      | 0/1   |
| 6  | DC Operating Life                | TEMP : 25°C<br>IF = 10mA                       | 1000 HRS         | 76 PCS      | 0/1   |
| 7  | High Temperature / High Humidity | 85°C / 85% RH                                  | 1000 HRS         | 76 PCS      | 0/1   |



# Technical Data Sheet

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### 204HD

#### Packing Quantity Specification

- 1.1000PCS/1Bag · 4Bags/1Box
- 2.10Boxes/1Carton

#### Label Form Specification



CPN:  
P/N:



204HD

QTY:



CAT:  
HUE:  
REF:

LOT NO: EL



- CPN: Customer's Production Number
- P/N : Production Number
- QTY: Packing Quantity
- CAT: Ranks
- HUE: Peak Wavelength
- REF: Reference
- LOT No: Lot Number
- MADE IN TAIWAN: Production Place

MADE IN TAIWAN

#### Notes

1. Above specification may be changed without notice. EVERLIGHT will reserve authority on material change for above specification.
2. When using this product, please observe the absolute maximum ratings and the instructions for using outlined in these specification sheets. EVERLIGHT assumes no responsibility for any damage resulting from use of the product which does not comply with the absolute maximum ratings and the instructions included in these specification sheets.
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