



Pb-free
HEAT



H-□000L Series

Single Color Ultra High Brightness ϕ 5 Type

Features

| | |
|----------------------|--|
| Package | ϕ 5 Round shape type, Water Clear epoxy |
| Product features | <ul style="list-style-type: none">• Outer Dimension ϕ 5 Round shape type• Operation temperature range. Storage Temperature : -30°C~100°C Operating Temperature : -30°C~85°C• Lead-free soldering compatible• RoHS compliant |
| Dominant wavelength | 647 nm |
| Half Intensity Angle | 10 deg. |
| Die materials | GaAlAs |
| Soldering methods | TTW (Through The Wave) soldering and manual soldering |
| ESD | More than 2kV(HBM) |
| Packing | Bulk : 200pcs(MIN.) |

Recommended Applications

Amusement Equipment, Electric Household Appliances, OA/FA, Other General Applications



H-□000L Series

Single Color Ultra High Brightness $\phi 5$ Type

Color and Luminous Intensity

(Ta=25°C)

| Part No. | Material | Emitted Color | Lens Color | | Dominant Wavelength λd (nm) | | Luminous Intensity I_v (mcd) | | |
|----------|----------|---------------|------------|----|--------------------------------------|--------|--------------------------------|-------------|-------|
| | | | | | TYP. | I_f | MIN. | TYP. | I_f |
| | | | | | H-3000L | GaAlAs | Red | Water Clear | Clear |
| H-2000L | GaAlAs | Red | 647 | 20 | 1,400 | 2,000 | 20 | | |
| H-1000L | GaAlAs | Red | 647 | 20 | 700 | 1,000 | 20 | | |

Absolute Maximum Ratings

(Ta=25°C)

| Item | Symbol | Absolute Maximum Ratings | Unit |
|---------------------------------|--------------|--------------------------|-------|
| Power Dissipation | P_d | 125 | mW |
| Forward Current | I_F | 50 | mA |
| Pulse Forward Current ※1 | I_{FRM} | 300 | mA |
| Derating (Ta=25°C or higher) | ΔI_F | 0.67 | mA/°C |
| Reverse Voltage | V_R | 4 | V |
| Operating Temperature | T_{opr} | -30~+85 | °C |
| Storage Temperature | T_{stg} | -30~+100 | °C |

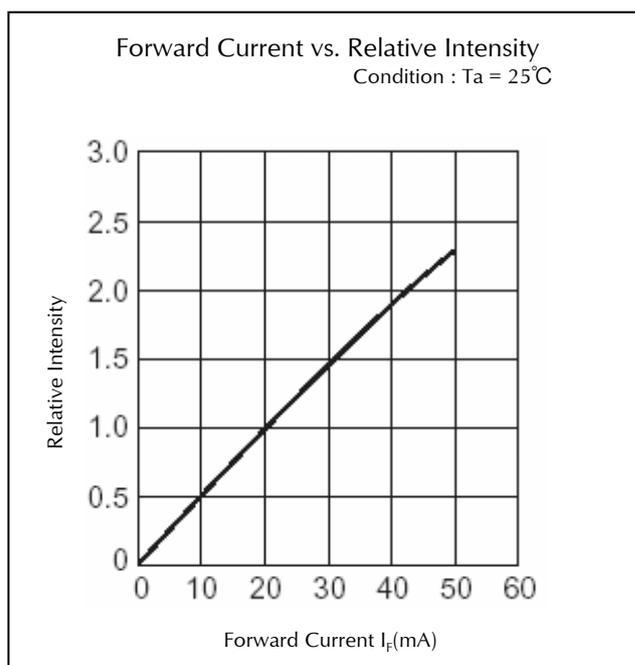
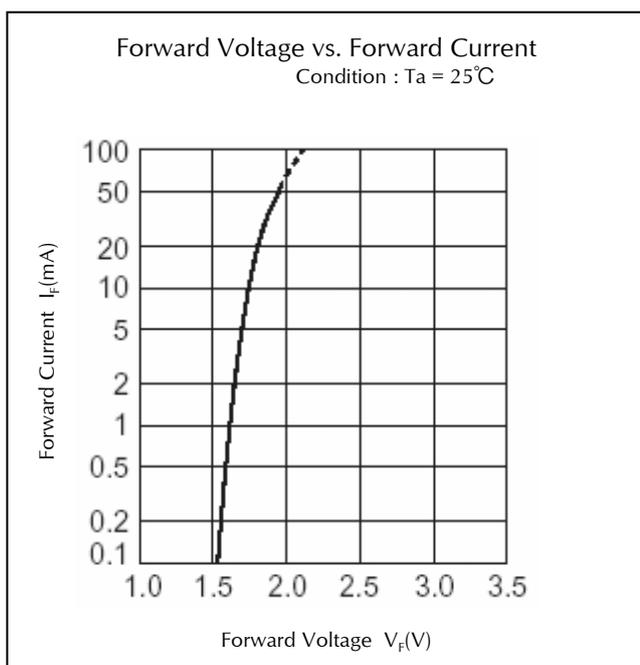
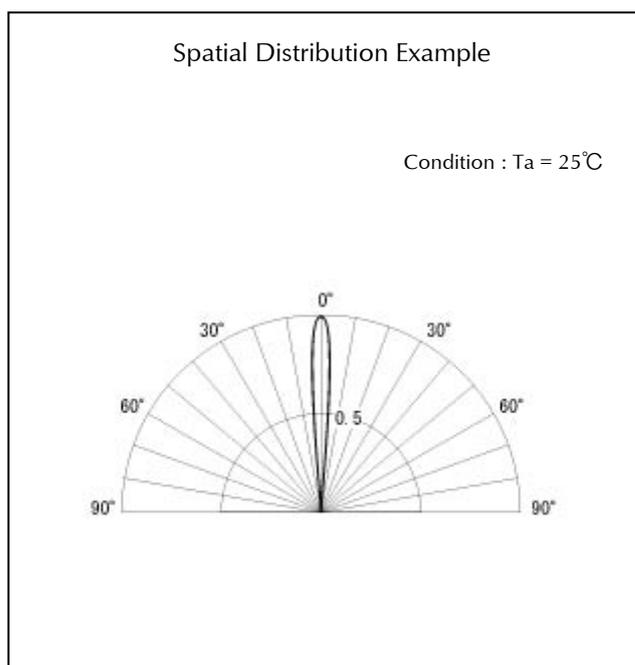
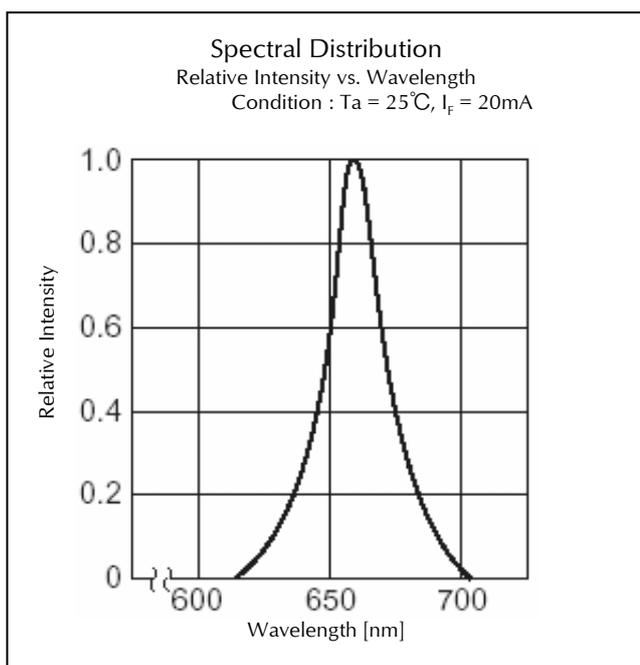
※1 I_{FRM} Measurement condition : Pulse Width ≤ 1 ms., Duty $\leq 1/20$.

Electro-Optical Characteristics

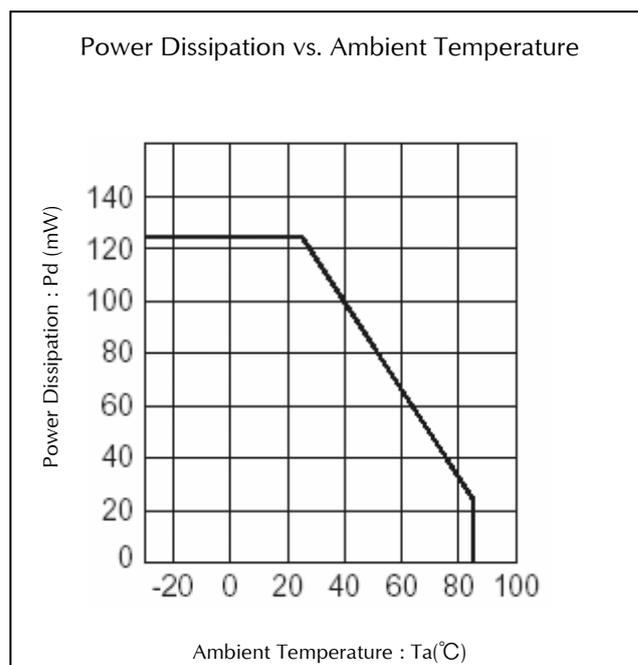
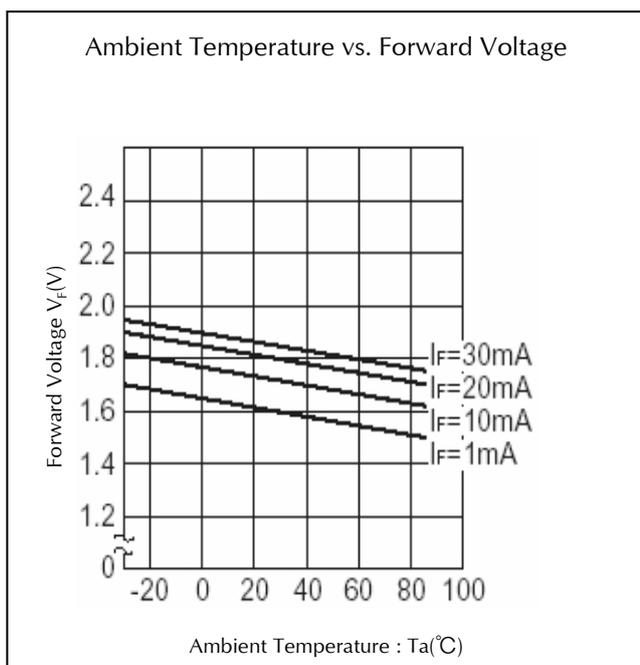
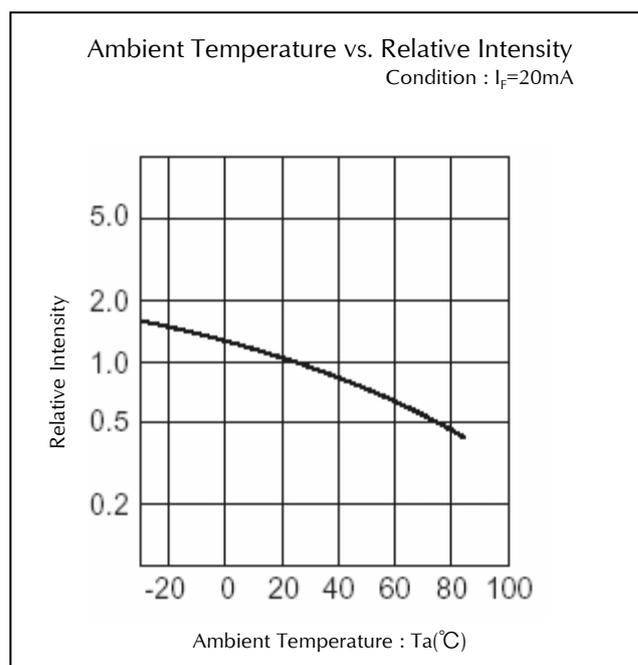
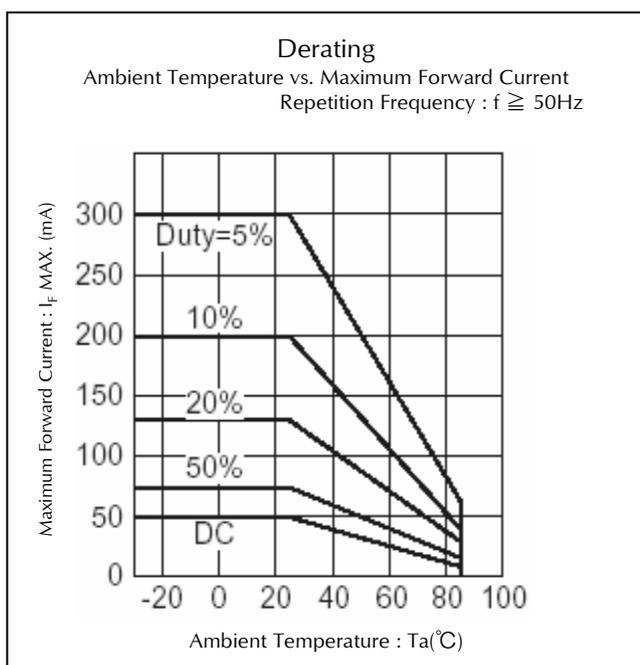
($T_a=25^\circ\text{C}$)

| Item | Conditions | Symbol | Characteristics | | Unit |
|--------------------------|-------------------|-----------------|-----------------|-----|---------------|
| | | | | | |
| Forward Voltage | $I_F=20\text{mA}$ | V_F | TYP. | 1.8 | V |
| | | | MAX. | 2.5 | |
| Reverse Current | $V_R=4\text{V}$ | I_R | MAX. | 100 | μA |
| Peak Wavelength | $I_F=20\text{mA}$ | λ_p | TYP. | 660 | nm |
| Dominant Wavelength | $I_F=20\text{mA}$ | λ_d | TYP. | 647 | nm |
| Spectral Line Half Width | $I_F=20\text{mA}$ | $\Delta\lambda$ | TYP. | 25 | nm |
| Half Intensity Angle | $I_F=20\text{mA}$ | $2\theta_{1/2}$ | TYP. | 10 | deg. |

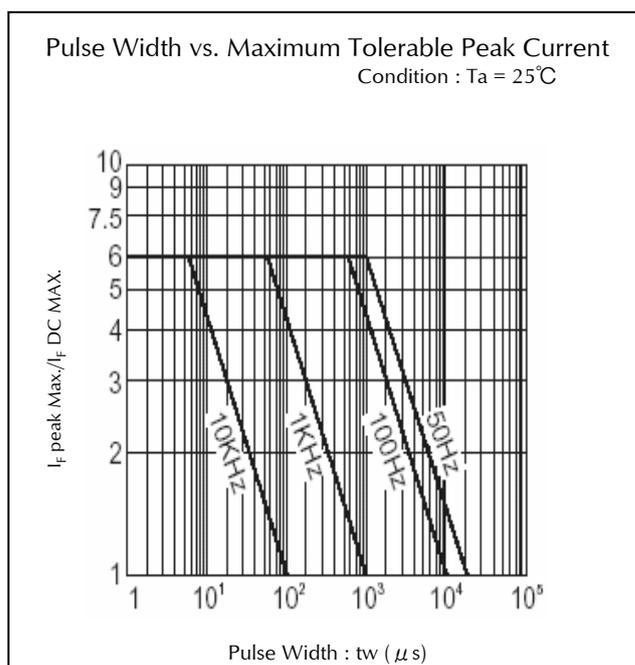
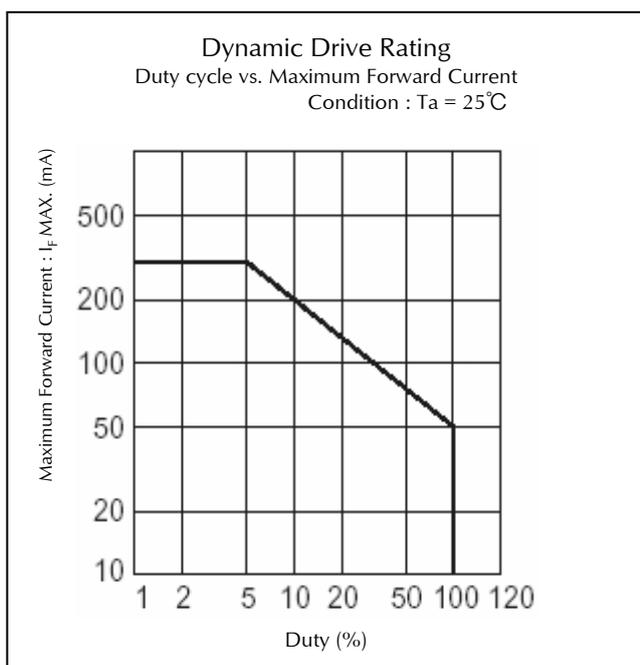
Technical Data



Technical Data

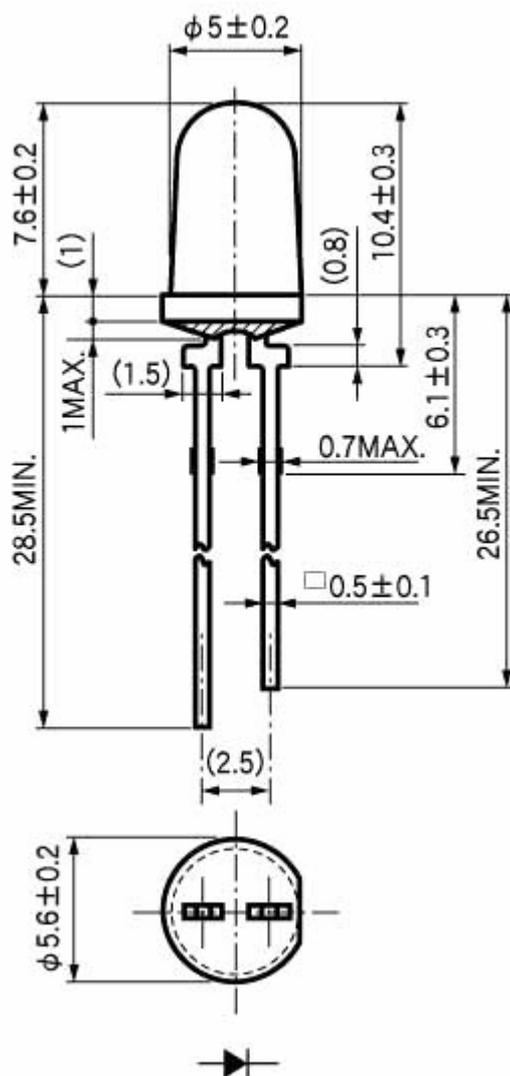


Technical Data



Package Dimensions

(Unit: mm)



TTW (Through The Wave) soldering Conditions

| | | |
|-------------------|--------|--------|
| Pre-heating | 100 °C | (MAX.) |
| Solder Bath Temp. | 265°C | (MAX.) |
| Dipping Time | 5 s | (MAX.) |

- 1) The dip soldering process shall be 2 times maximum.
- 2) The product shall be cooled to room temp. before the second dipping process.

※The detail is described to LED and Photodetector handling precautions of home page:
 "Mounting through-hole Type Devices" and "Soldering", and use it after the confirmation, please.

Manual Soldering Conditions

| | | |
|------------------------------|---------|--------|
| Iron tip temp. | 400°C | (MAX.) |
| Soldering time and frequency | 3 s | (MAX.) |
| | 2 times | (MAX.) |

※The detail is described to LED and Photodetector handling precautions of home page:
 "Mounting through-hole Type Devices" and "Soldering", and use it after the confirmation, please.

Reliability Testing Result

| Reliability Testing Result | Applicable Standard | Testing Conditions | Duration | Failure |
|-------------------------------|-----------------------|---|----------|---------|
| Room Temp. Operating Life | EIAJ ED-4701/100(101) | Ta = 25°C, If = Maximum Rated Current | 1,000 h | 0/25 |
| Resistance to Soldering Heat | EIAJ ED-4701/300(302) | 260±5°C, 3mm from package base | 10s | 0/25 |
| Temperature Cycling | EIAJ ED-4701/100(105) | Minimum Rated Storage Temperature(30min) ~Normal Temperature(15min) ~Maximum Rated Storage Temperature(30min) ~Normal Temperature(15min) | 5 cycles | 0/25 |
| Wet High Temp. Storage Life | EIAJ ED-4701/100(103) | Ta = 60±2°C, RH = 90±5% | 1,000 h | 0/25 |
| High Temp. Storage Life | EIAJ ED-4701/200(201) | Ta = Maximum Rated Storage Temperature | 1,000 h | 0/25 |
| Low Temp. Storage Life | EIAJ ED-4701/200(202) | Ta = Minimum Rated Storage Temperature | 1,000 h | 0/25 |
| Lead Tension | EIAJ ED-4701/400(401) | 10N, 1time (□0.4 and Flat Package : 5N) | 10s | 0/10 |
| Vibration, Variable Frequency | EIAJ ED-4701/400(403) | 98.1m/s ² (10G), 100 ~ 2KHz sweep for 20min., XYZ each direction | 2 h | 0/10 |

Failure Criteria

| Items | Symbols | Conditions | Failure criteria |
|---------------------|----------------|---|---|
| Luminous Intensity | Iv | If Value of each product Luminous Intensity | Testing Min. Value < Spec. Min. Value x 0.5 |
| Forward Voltage | V _F | If Value of each product Forward Voltage | Testing Max. Value ≥ Spec. Max. Value x 1.2 |
| Reverse Current | I _R | V _R = Maximum Rated Reverse Voltage V | Testing Max. Value ≥ Spec. Max. Value x 2.5 |
| Cosmetic Appearance | - | - | Occurrence of notable decoloration, deformation and cracking |

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