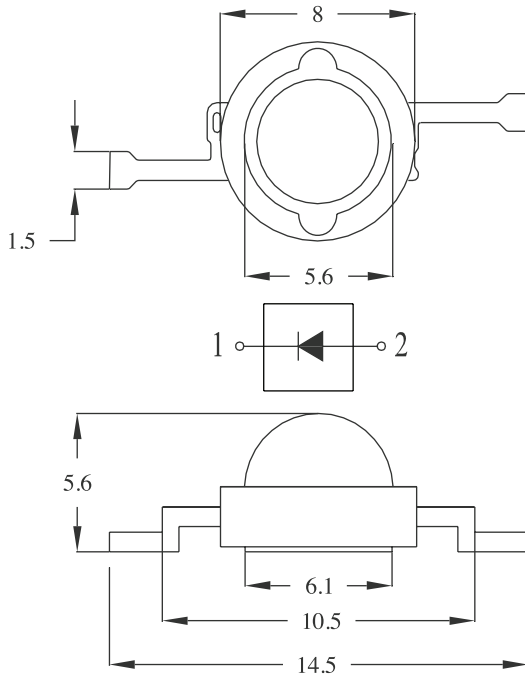


1W White High Power LED



Package Dimensions:



All dimensions are in mm
Tolerance: $\pm 0.25\text{mm}$

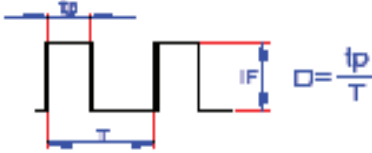
Absolute Maximum Ratings at $T_a=25^\circ\text{C}$

| Parameter | Rating | Unit |
|---|---|------------------|
| LED Junction Temperature | 120 | $^\circ\text{C}$ |
| Reverse Voltage | 5 | V |
| D.C. Forward Current | 350 | mA |
| Pulsed Forward Current ($t_p \leq 100\mu\text{s}$, Duty cycle = 0.005) $\times 1$ | 700 | mA |
| Operating Temperature Range | -40 to +75 | $^\circ\text{C}$ |
| Storage Temperature Range | -40 to +100 | $^\circ\text{C}$ |
| Soldering Temperature | Reflow Soldering : 260°C for 10sec Hand Soldering: 350°C for 3sec. | |
| Electric Static Discharge (HBM) | 6,000 | V |

1W White High Power LED



Duty Cycle:



- Proper current derating must be observed to maintain junction temperature below the maximum.
- All products no sensitive to ESD damage (6000 Volts by HBM condition)
- Be careful with a powered up current limited power supply, because of current spikes during power up and/or connection. Best practice is to connect the LED then turn up the voltage gradually. People building their own power supplies should design for minimum current spikes during power up and connection.
- For best results the customer needs to provide proper control of the thermal path, protect against electrical overstress conditions and ensure they are properly attached to the heat sink.
- It is strongly recommended that the temperature of lead does not exceed 55°C.
- It is strongly recommended to apply an electrically isolated heat conducting film between the slug and contact surfaces

Electrical & Optical Characteristics

| Parameter | | Symbol | Condition | Values | | | Unit |
|--------------------------------------|----------|--------|-----------|--------|--------|-------|------|
| | | | | Min. | Typ. | Max. | |
| Luminous Flux | FULL | Φv | IF=350mA | 55 | 70 | | lm |
| | Rank T1 | | | 55 | | 63 | |
| | Rank T2 | | | 63 | | 72 | |
| | Rank U1 | | | 72 | | 83 | |
| | Rank U2 | | | 83 | | 96 | |
| | Rank V1 | | | 96 | | 113 | |
| | Rank V2 | | | 113 | | 134 | |
| Forward Voltage | Rank V01 | Vf | IF=350mA | 2.7 | | 3 | V |
| | Rank V02 | | | 3 | | 3.25 | |
| | Rank V03 | | | 3.25 | | 3.5 | |
| | Rank V04 | | | 3.5 | | 3.75 | |
| | Rank V05 | | | 3.75 | | 4 | |
| Correlated Colour Temperature | | CCT | IF=350mA | 2,600 | | 2,900 | K |
| CIE Chromaticity Coordinates: X Axis | | X | IF=350mA | | 0.4578 | | |
| CIE Chromaticity Coordinates: Y Axis | | Y | IF=350mA | | 0.4101 | | |
| Colour Rendering Index (Ra) | | CRI | IF=350mA | | 72 | | |
| Reverse Current | | IR | VR=5V | | | 50 | µA |
| Viewing Angle at 50% IV | | 2 θ ½ | IF=350mA | | 120 | | deg |
| Thermal resistance Junction to Case | | Rθ J-C | IF=350mA | | 15 | | °C/W |

- Notes: 1. The data is tested by an IS tester.
2. Customer's special requirements are also welcome.



Typical Electrical & Optical Characteristics Curves:

(25°C Ambient temperature unless otherwise noted)

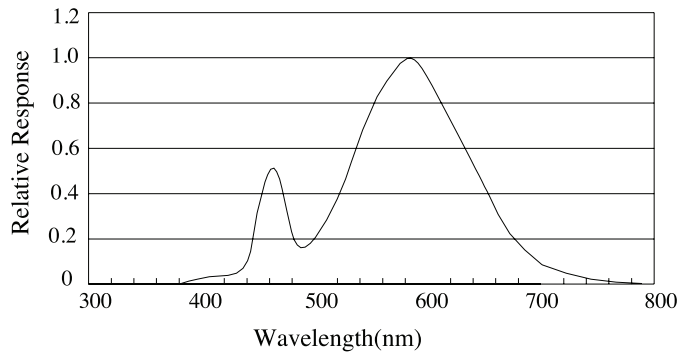
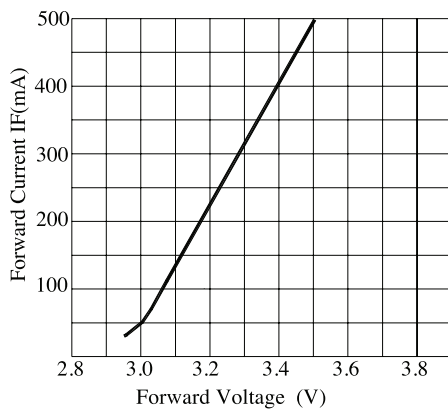
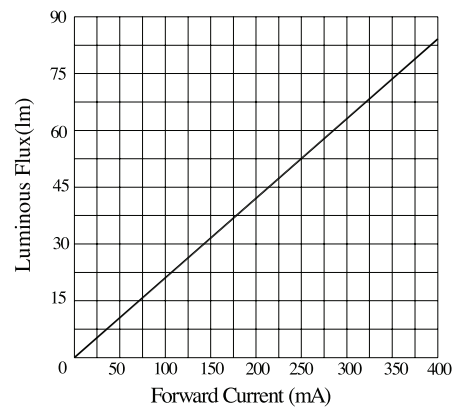


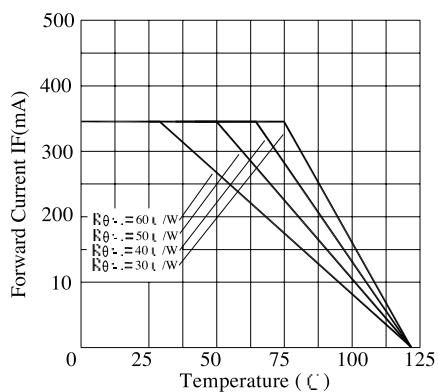
Fig.1 WHITE LED Spectrum VS. WAVELENGTH



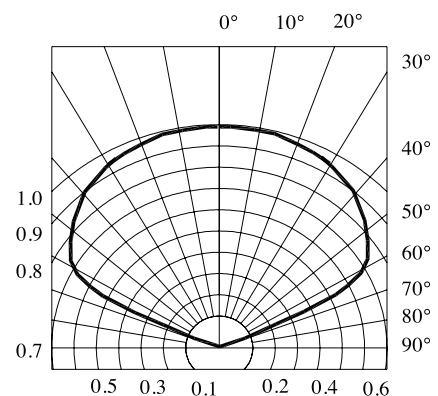
Forward Current VS. Applied Voltage



Forward Current VS. Luminous Flux



Ambient Temperature VS. Forward Current



Radiation Diagram

1W White High Power LED

Chromaticity Coordinates Specifications for Bin Grading:

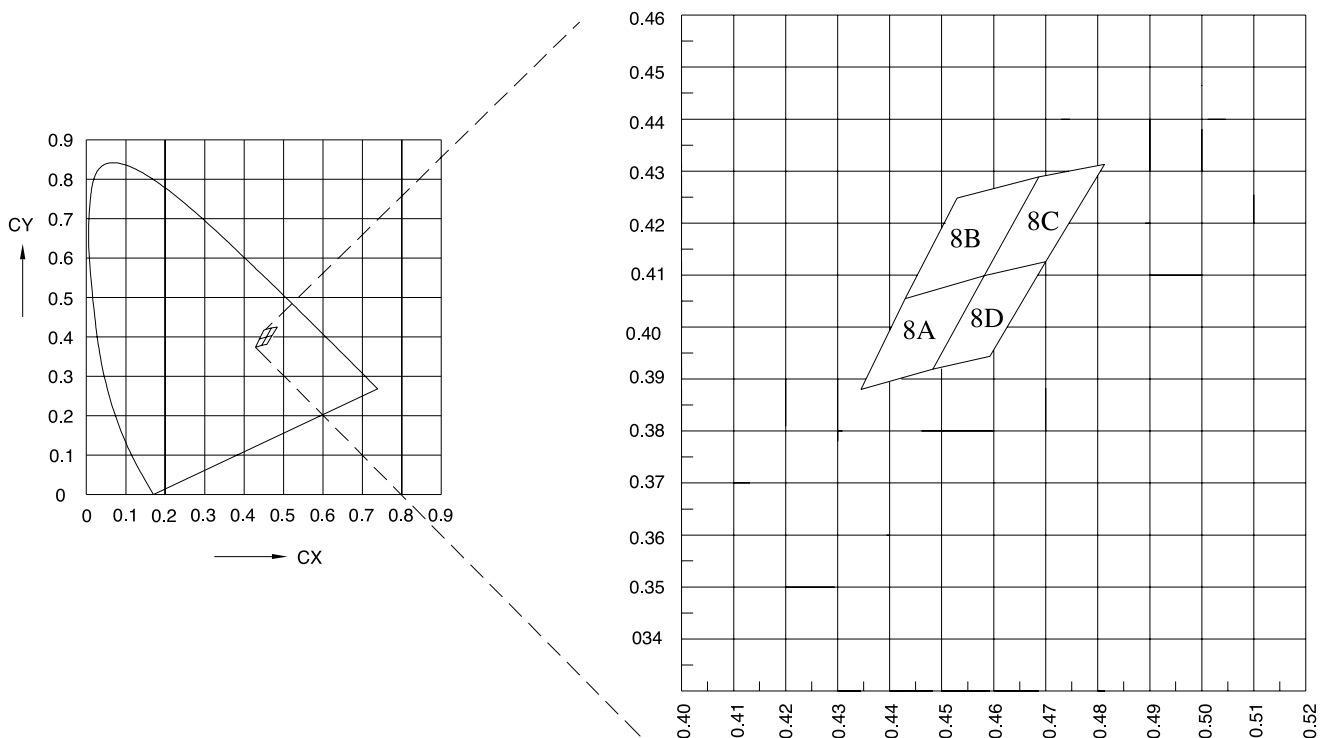
Colour Ranks (IF=350mA. Ta=25°C)

| Bin | Rank | | | | |
|-----|------|--------|--------|--------|--------|
| | X | Y | Z | u' | |
| 8A | X | 0.4345 | 0.4430 | 0.4582 | 0.4483 |
| | Y | 0.3880 | 0.4055 | 0.4099 | 0.3919 |
| 8B | X | 0.4430 | 0.4530 | 0.4687 | 0.4582 |
| | Y | 0.4055 | 0.4248 | 0.4289 | 0.4099 |
| 8C | X | 0.4582 | 0.4687 | 0.4813 | 0.4700 |
| | Y | 0.4099 | 0.4289 | 0.4319 | 0.4126 |
| 8D | X | 0.4483 | 0.4582 | 0.4700 | 0.4593 |
| | Y | 0.3919 | 0.4099 | 0.4126 | 0.3944 |

Note: X, Y

Tolerance each Bin limit is ± 0.01

Chromaticity Coordinates & Bin Grading Diagram:



1W White High Power LED



Recommended Storage Environment:

- Temperature: 5°C ~ 30°C (41°F ~ 86°F)
- Humidity: 60% RH Max.
- Use within 7 days after opening of sealed vapour/ESD barrier bags.
- If moisture absorbent material (silica gel) has faded away or LEDs have exceeded the storage time, baking treatment should be performed using the following conditions:
- Baking Treatment: 60 ± 5°C for 24 hours
- Fold the opened bag firmly and keep in dry environment.

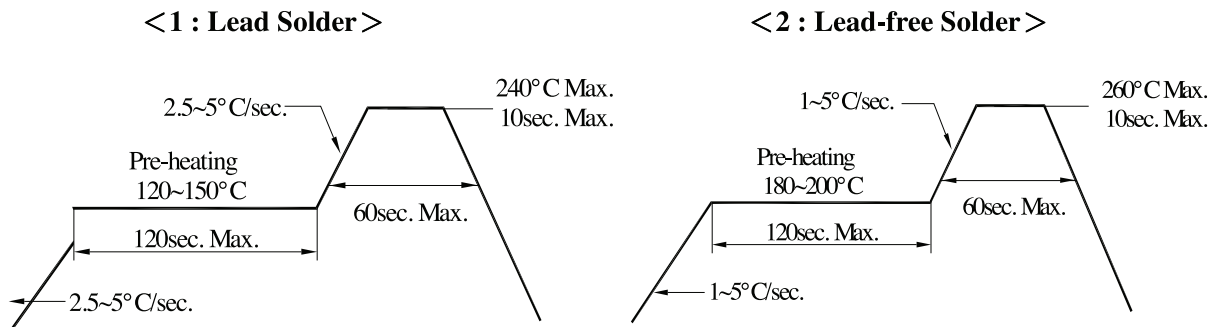
Soldering

| Reflow Soldering | | | |
|------------------|--------------------------------|--------------------------------|---------------------------|
| | Lead Solder | Lead-free Solder | |
| Pre-heat | 120 ~ 150°C | 180 ~ 200°C | Temperature |
| Pre-heat Time | 120sec. max. | 120sec. max. | Soldering time |
| Peak Temperature | 240°C max. | 260°C max. | |
| Soldering Time | 10sec. max. | 10sec. max. | |
| Condition | Refer to temperature-profile 1 | Refer to temperature-profile 2 | |
| | | | 350°C max. |
| | | | 3sec max. (one time only) |

*After reflow soldering rapid cooling should be avoided.

Temperature-profile (surface of circuit board):

Use the conditions shown under figure.



Part Number Table

| LED Chip | | Lens Colour | Part Number |
|---------------------|-----------------|-------------|-------------|
| Material | Emitting Colour | | |
| InGaN / Metal Alloy | Warm white | Water clear | 703-0143 |

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