L30W45-4250K

LED 30W Neutral White 4000-4500k
0.9A, 30~34V, 45mil

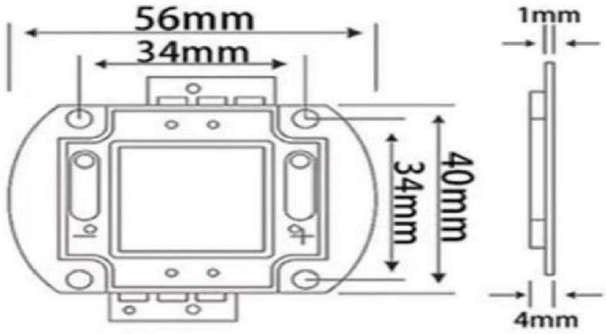
Top View

Bottom View

FEATURES

- 30W High Power LED
- Ultra-long Lifespan
- High Performance

DIMENSIONS



PACKAGE CHIP PARAMETERS

Chip Name: American Purui
Size: 45 * 45

	Min	Avg	Max	Std
I (MW/sr)	110	120	130	
VF (V)	30	32	34	

LIGHT SOURCE PHOTOMETRIC PARAMETERS (T_A=25°C, 10 Series 3 Parallel)

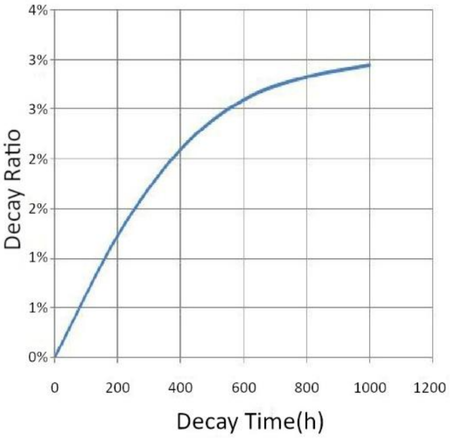
Parameter	Min	Rated Value	Max	Unit
Forward DC (IF)	-	1000	1050	mA
Reverse Voltage (VR)	-	-	5	V
Reverse Current (IR)	-	-	50	µA
Actual Power (PD)	28	-	30	W
Voltage (VF)	30	-	34	V
Color Temp.	4000	-	4500	K
Luminous Flux*	2000	2500	3000	LM
Light Emitting Angle (θ)		175		Deg
Operating Temperature	-20	-	120	°C
Storage Temperature	-20	-	80	°C

*I_F = 1050mA, T_A=25°C

LUMINOUS DECAY PARAMETERS

The right luminous decay test graph is a typical test result from our company, which is representative. The aging current is 3500mA, and the operating temperature is around 45°C, with the test temperature being at room temperature 25°C. When the light-emitting diode is assembled into various lamps, the actual application luminous decay will deviate due to the influence of heat dissipation design. It is recommended that the working temperature of the customer does not exceed 80°C, and try to maintain around 50°C, the lower the temperature, the better.

Note: The working temperature of our company is based on the temperature at the bottom of the light-emitting diode.



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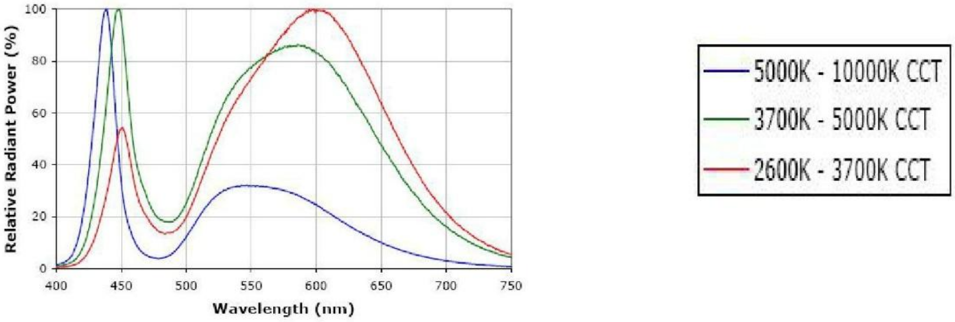
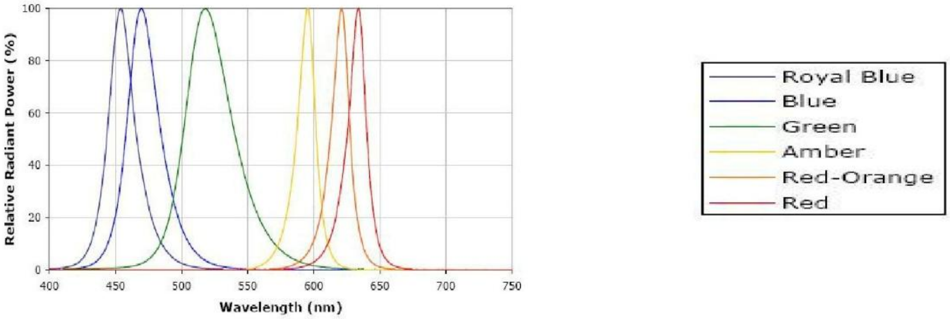
SPECTRUM GRAPH

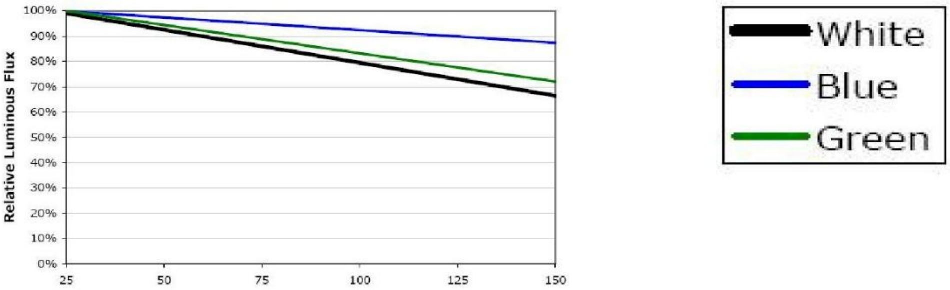


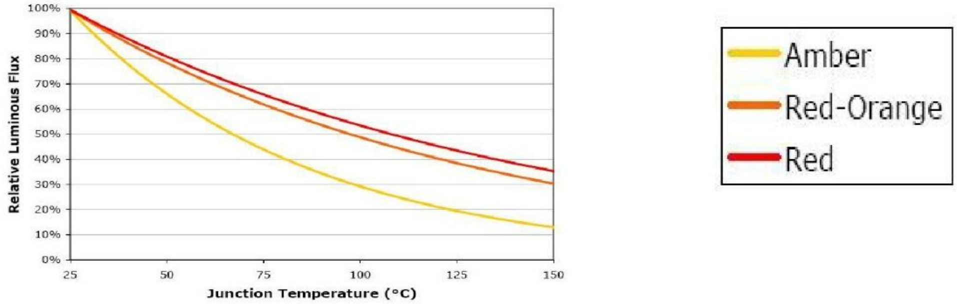
White



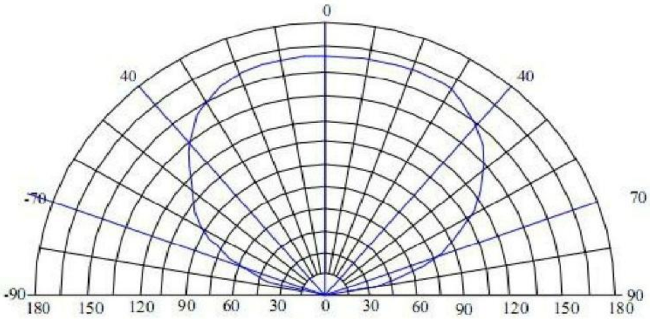
Color

JUNCTION TEMPERATURE AND LIMINOUS FLUX OUTPUT





ANGLE OUTPUT



Typical polar radiation pattern for white lambertian

PRODUCT USAGE INSTRUCTIONS

Operational Precautions

The characteristics of high-power LED products and devices are significantly affected by heat dissipation (thermal management), electrostatic discharge (ESD) protection, and soldering during application. These factors require the serious attention of end-users.

Heat Dissipation

Due to current limitations in semiconductor light-emitting diode (LED) chip technology, the photoelectric conversion efficiency still needs improvement. Especially for high-power LEDs, due to their higher wattage, approximately 60% or more of the electrical energy is converted and released as heat (the photoelectric conversion efficiency will gradually increase with the development of semiconductor technology). This necessitates that end-users implementing high-power LED products must perform adequate heat dissipation measures to ensure the high-power LED products operate correctly.

1. Heatsink Requirements

Shape and Material: If the final product sealing requirements are not high and it can directly utilize convection with the external air environment, we recommend using aluminum or copper heatsinks with fins.

2. Effective Heat Dissipation Surface Area

For 1W high-power white LEDs (other colors are generally similar), our company recommends that the total effective heat dissipation surface area of the heatsink be ≧ 50-60 cm^2. For 3W products, we recommend that the total effective heat dissipation surface area of the heatsink be ≧ 150 cm^2. For higher wattages, the area should be increased based on specific conditions and test results. Try to ensure the heatsink temperature does not exceed 60°C.

3. Connection Method

When connecting the high-power LED substrate to the heatsink, please ensure that the two contact surfaces are flat and in good contact. To enhance the bond between the two contact surfaces, we recommend applying a layer of thermal grease (with a thermal conductivity ≧ 0.8 W/m.k) to the bottom of the LED substrate or the surface of the heatsink. The thermal grease must be applied evenly before the two parts are pressed and fixed together with screws.

Electrostatic Discharge (ESD) Protection

LEDs are semiconductor devices and are quite sensitive to static electricity. Special precautions for static electricity generation and elimination must be taken, especially for white, green, blue, and violet/purple LEDs.

1. Generation of Static Electricity
    - Friction: In daily life, static electricity can be generated when any two objects made of different materials touch and then separate. The most common method of generating static electricity is triboelectric charging (friction). The poorer the insulating properties of the material, the more easily it generates static electricity through friction. Additionally, static electricity can be generated when any two objects of different materials contact and separate.
    - Induction: For conductive materials, since electrons can flow freely on their surface, placing them in an electric field will cause positive and negative ions to shift due to repulsion of like charges and attraction of opposite charges, thus generating a charge on the surface.
    - Conduction: For conductive materials, since electrons can flow freely on their surface, charge transfer will occur if they come into contact with a charged object.

2. Harm Caused by Static Electricity to LEDs
    - Local damage to the LED caused by the heat generated from an instantaneous electric field or current. This manifests as a rapid increase in leakage current. The LED can still function, but the brightness is reduced and the lifespan is compromised.
    - The electric field or current destroys the insulating layer of the LED, making the device inoperable (complete destruction). This manifests as a "dead lamp" (device failure).

3. Static Protection and Elimination Measures

For the entire process (production, testing, packaging, etc.), all personnel who directly contact the LEDs must take measures to prevent and eliminate static electricity. These measures primarily include:

- Laying anti-static flooring in the workshop and ensuring proper grounding.
- Using anti-static workbenches, and ensuring production machinery is well-grounded.
- Operators wearing anti-static clothing, anti-static wrist straps, gloves, or foot straps.
- Utilizing an ionizing air blower.
- Ensuring soldering irons are properly grounded.
- Using anti-static materials for packaging.

Soldering

1. General Recommendations

When soldering, it is best to use a constant temperature soldering iron. The soldering temperature should be below 230°C, and the contact time between the soldering iron tip and the LED pad should not exceed 3 seconds per contact.

2. Silicone Encapsulation

If the high-power LED uses silicone encapsulation, the maximum heat resistance temperature of the silicone is 180°C. Therefore, the soldering temperature for the LED must not exceed 170°C. Use a low-temperature soldering iron and low-temperature solder paste (or wire) for soldering, and the contact time between the soldering iron tip and the LED pad should not exceed 3 seconds per contact.

3. Soft Colloid (Molding) Encapsulation

If the encapsulation is soft colloid (molding), the reflow soldering temperature should be maintained at 230°C. Do not forcefully press the colloid part of the LED chip to prevent damage to the internal structure.