

LEKOLED

LKL-HP RGBW LED



Features:

- High cost performance
- Red copper base
- high thermal conductivity
- Reflow soldering available
- Great Color consistency
- RoHS compliant
- Long life span >50000 hrs

Application:

- Landscape lighting
- Plant Growth
- Traffic signal lighting
- Stage lighting
- Architectural lighting

Table of Contents:

Characteristics.....	2
Part Number Nomenclature.....	2
Specifications.....	3
Spectral features.....	4
Electrical Features.....	5
Dimension.....	5
Reflow Soldering.....	6
Reliability Test.....	7
Packaging..	8
Precautions.....	9
Precautions.....	10



Characteristics

Characteristics	Unit	Min	Typical	Max
Dimension L*W	mm		14.5*8.05	
Diameter of Luminous Area Φ	mm		5.5	
Beam Angle $2\theta_{1/2}$	deg.		120	
Wavelength WL	nm	450		660
Power Dissipation PD	W		3	5
Operating Temperature Top	°C	-40		+60
Storage Temperature Tst	°C	-40		+85
Testing Point Tc	°C			60
Junction Temperature Tj	°C			115
Reverse Current (Vr=5V) Ir	uA			10
Thermal Resistance Rj-c	°C/W		12	
ESD (HBM)	V			2000
Reflow Soldering(Lead-Free) ST	°C			180

Part Number Nomenclature

LKL — HP — RGBW — 4 — B

Company Name	SMD type	Color Type	Power	Lumen Grade
LEKOLED	High Power LED	R: Red 620-630nm G: Green 520-530nm B: Blue 460-470nm W: White 6500-7000K	4: 4W	A

Specifications (Tc = 25°C)

4 in 1 RGBW LED

Color	Wavelength (nm)	Voltage (V)	Current (mA)	Lumen (LM)	Part Number
RGBW (4 in 1)	620-630	2.0-2.4	350	50-70	LKL-HPRGBW4A
	520-530	2.8-3.4	350	80-100	
	460-470	2.8-3.4	350	20-30	
	6500-7000K	2.8-3.4	350	130-140	
RGBW (4 in 1)	620-630	2.0-2.4	350	70-80	LKL-HPRGBW4A
	520-530	2.8-3.4	350	140-150	
	460-470	2.8-3.4	350	25-35	
	6500-7000K	2.8-3.4	350	150-160	

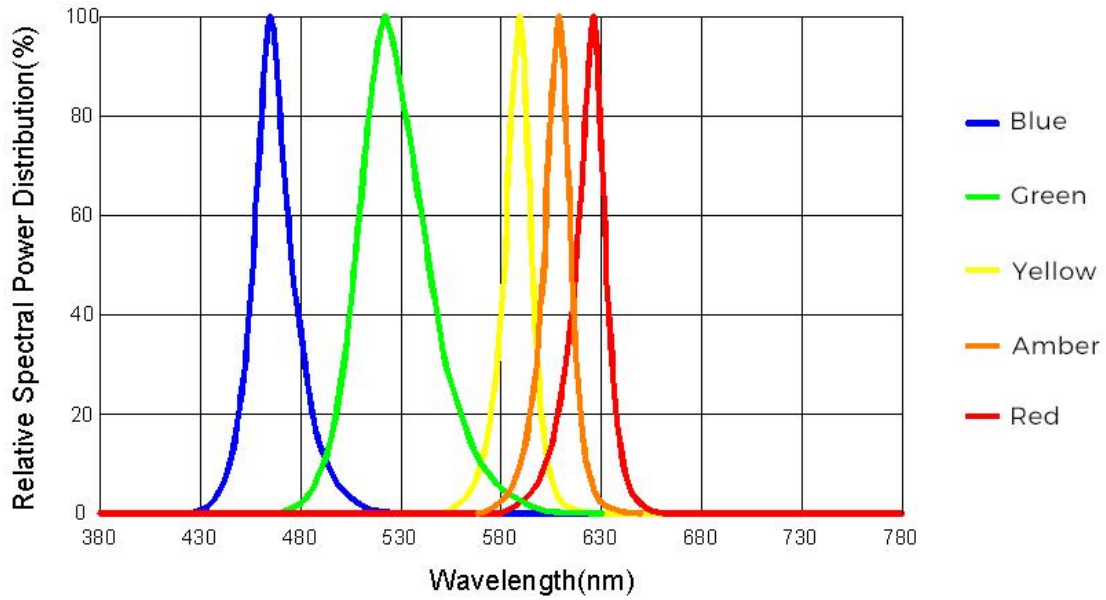
Notes:

Above charts include the most regular specs for color leds for reference.

Please consult sales representative for specs that are not listed or please visit www.lekoled.com.

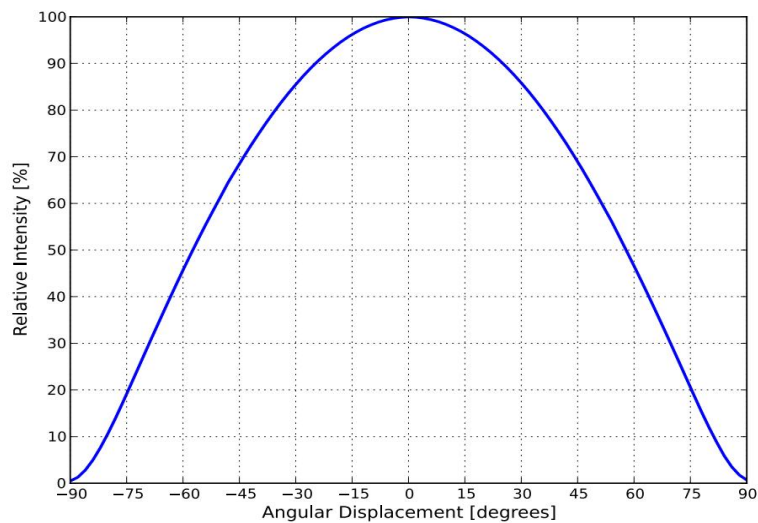
Machine Tolerance $\pm 3\%$ on luminous flux and $\pm 2\text{nm}$ on wavelength.

Spectral Features ($\tau_c = 25^\circ\text{C}$)

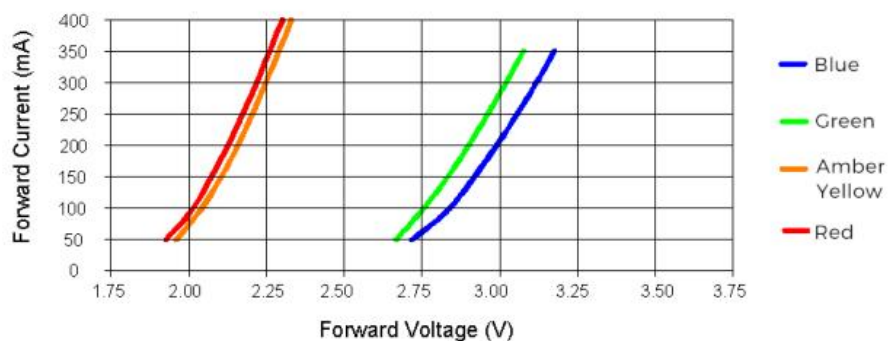


Typical Spatial Distribution ($\tau_c = 25^\circ\text{C}$)

Intensity Distribution Curve

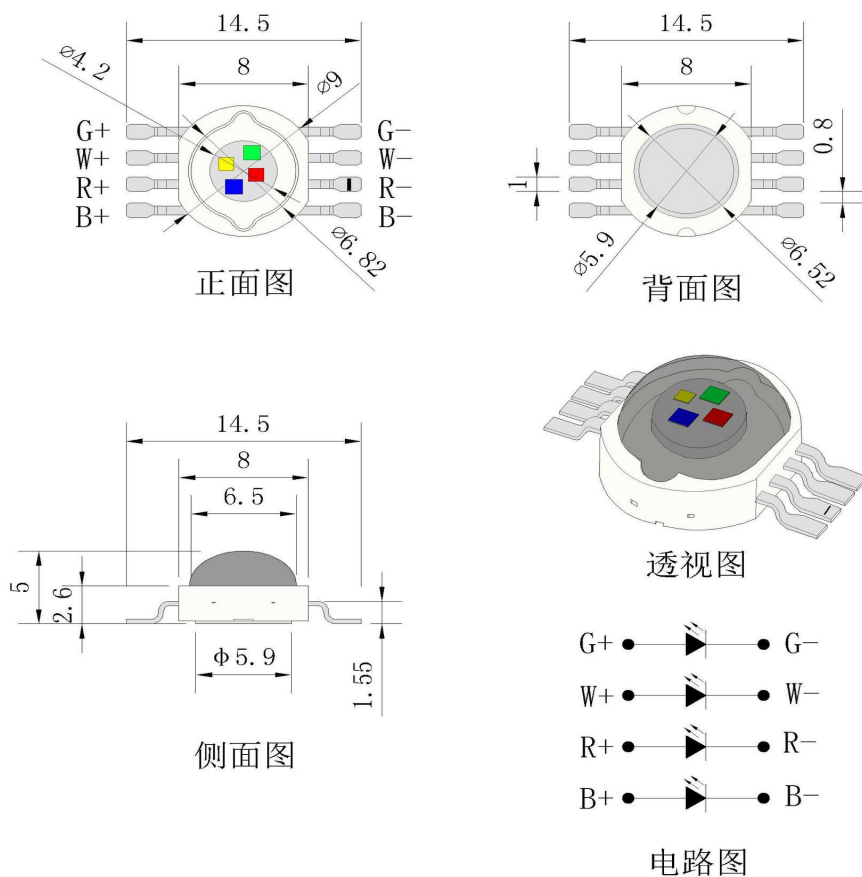


Electrical Features (Tc = 25°C)

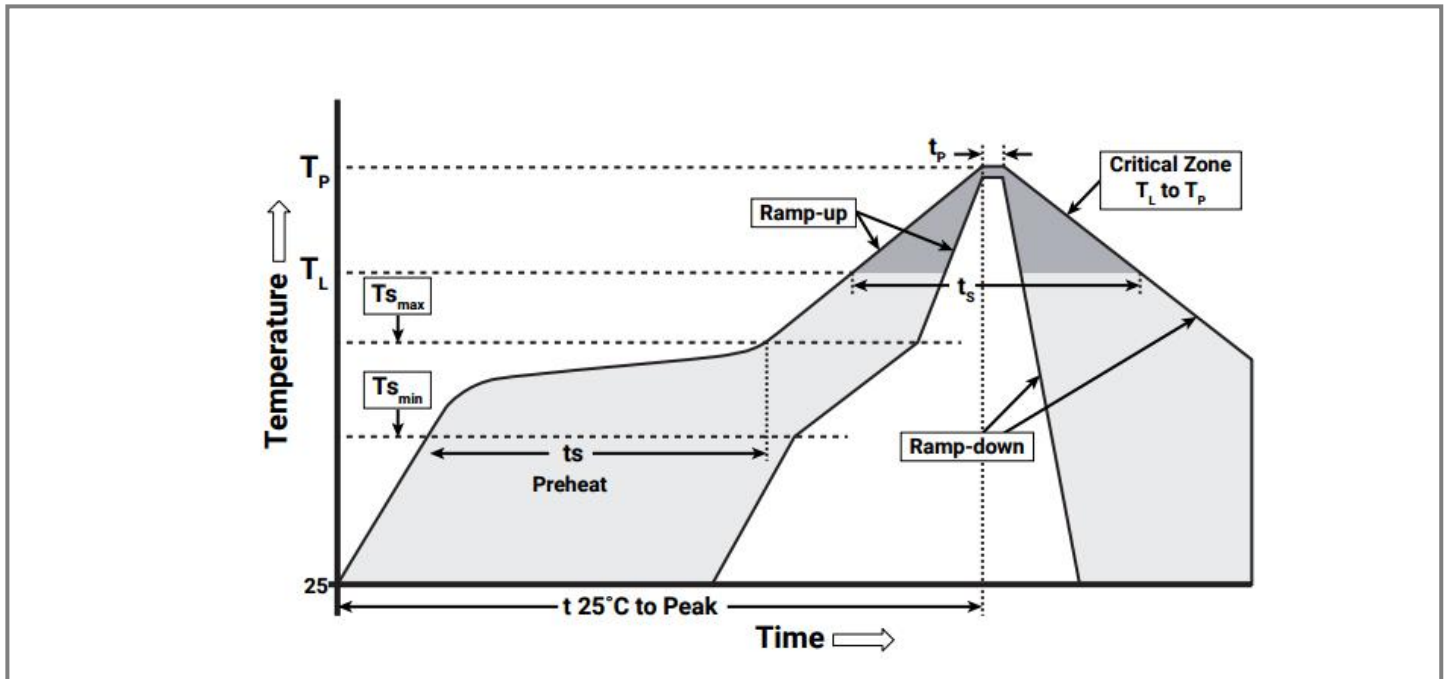


Dimension (Unit:mm)

Tolerance +/-0.1mm



Reflow Soldering



Reflow Soldering Characteristics	Lead-free Solder	Soldering Iron	
Average Ramp Up (Ts max to Tp)	3 °C/second max.	350°C	3 Seconds/time
Preheat (Tsmín)	90 °C		
Preheat (Tsmáx)	120 °C		
Preheat (tsmín to ts máx)	60-180 seconds		
Temp Maintenance: (TL)	150 °C		
Time Maintenance :(tL)	60-150 seconds		
Peak Temp (Tp)	180 °C		
(5°C before Reach 220 °C)(tp)	20-40 seconds		
Ramp Down	6 °C/second max.		
25°C(Time to Reach Peak Temp)	6 minutes max.		

Notes: The data in the document is juts for reference. Pleases do the initial inspection in accordance with the reflow soldering characteristics in data sheet strictly (Tolerance should be considered). Do not proceed mass production before initial inspection in order to avoid unnecessary loss.

Reliability Tests

Test Items	Test Conditions	Sample Quantity	Ac/Re
Aging Test	IF=350mA Ta=25°C×1000hrs	22	0/1
	IF=350mA Ta=85°C×1000hrs	22	0/1
High Temperature Storage	100°C × 1000 hours	22	0/1
Low Temperature Storage	-40°C × 1000 hours	22	0/1
High Temp & Humidity	IF=350mA 85°C, 85 %RH for 1000 hours	22	0/1
Temperature Shock	-40°C × 30 minutes – +100°C × 30 minutes, 100 cycle	22	0/1
ESD (HBM)	2000V HBM/Time	10	0/1

Criteria for Judging Led Failure (Tc=25°C)

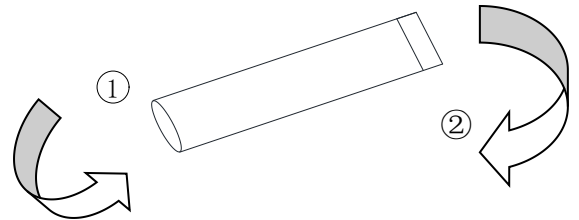
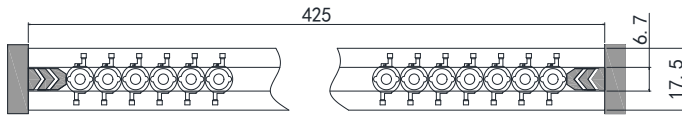
Items	Symbol	Test Conditions	Criteria for Judging LED Failure
Forward Voltage	VF	IF=350mA	>U × 1.1
Reverse Current	IR	VR=5V	IR≥10μA
Luminous Flux	φv	IF=350mA	<S × 0.7

U refers to max value; S refers to initial value.

Notes: Judging criteria based on Tc=25°C.

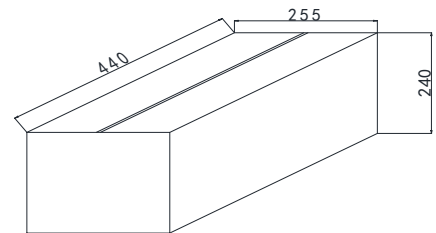
Packaging (Unit:mm)

Packaging 1: Tube



Standard Packaging Details

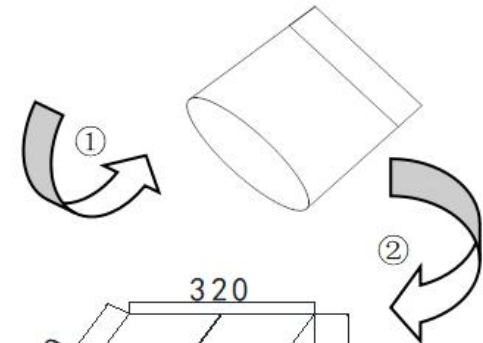
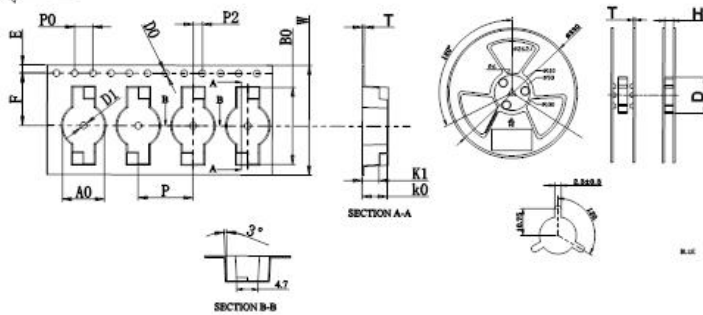
Tube: 50pcs/tube
 Aluminum Foil Bag: 1000pcs/bag
 Carton: 15Kpcs/carton



Packaging 2: Reel

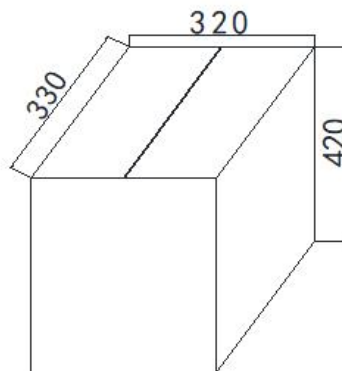
D	24.00	8.30	16.00	5.50	4.70	1.75	11.5	12.00	4.00	2.00	1.50	1.50	0.40
A	220	420	420	420	420	420	420	420	420	420	420	420	420
T	220	420	420	420	420	420	420	420	420	420	420	420	420
A	W	A ₀	B ₀	K ₀	K ₁	E	F	P	P ₀	P ₂	D ₀	D ₁	T

卷带引出方向



Standard Packaging Details

Reel: 1000pcs/reel
 Carton: 14Kpcs/carton



Precautions

Product Specifications

This is a product family data sheet without extra emphasis on a specific model. The specifications in the document refers to its general value under certain test conditions. Please consult sales representative or technical people if encounters specs that are not listed. (Tolerance should be considered).

Operation Tips

1. Reflow soldering is allowed only once.
2. Stencil thickness recommended 0.08mm.
3. Please don't use heating platform to solder the LEDs.
4. To protect the LED from damage, please don't impact or pile up the LEDs after reflow soldering.

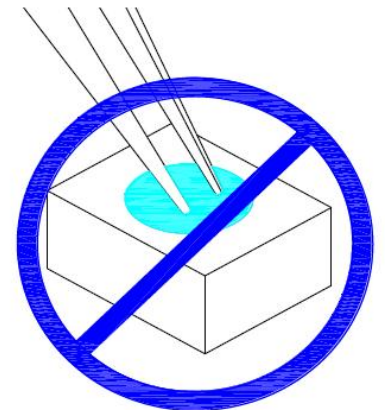
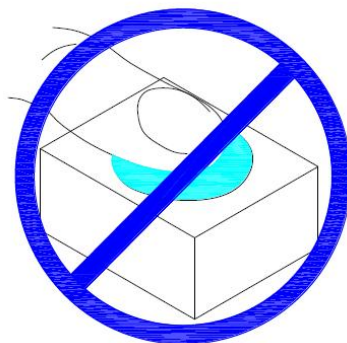
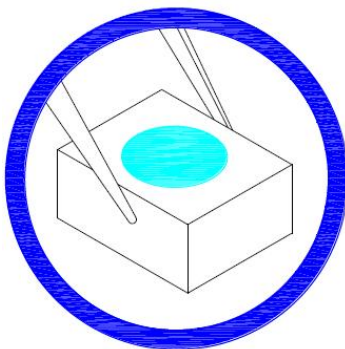
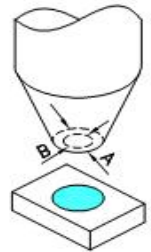
Service Conditions

1. The LEDs should be dehumidified @65 °C ± 5 °C for 12 Hours when the aluminum moisture-proof bag opened for 1 week.
2. The products must be operated within the rated range of parameters. Constant current drivers are recommended.

Installation

The LEDs have a soft surface on the top of package. The pressure to the top surface will be influence to the reliability of the LEDs. Precautions should be taken to avoid the strong pressure on the encapsulated part. So when use the picking up nozzle, the pressure on the lens should be proper.

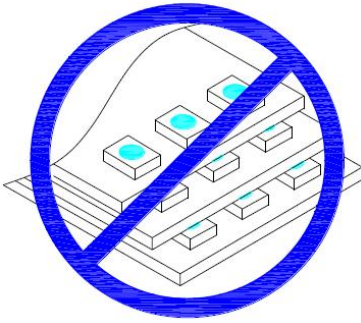
Handle the component along the side surface by using forceps or appropriate tools; Do not directly touch or handle the lens surface, it may damage the internal circuitry.



Precautions

Do not stack together assembled PCBs containing LEDs.
Impact may scratch the silicone lens or damage the
Internal circuitry

Not suitable to operate in acidic environment, $\text{PH} < 7$



ESD Protection

Statics or surge volt would cause LED failure. When using the products, we suggest wearing anti-static wrist strap or gloves. All devices, equipment and machinery must be grounded. Precautions should be taken to protect the products from the surge voltage generated by the devices.

Heat Dissipation

The thermal design of the end product is particularly important, please consider it seriously. Do avoid high temperature condensation on the product.

Cleaning

Recommend ethanol as the only clean solvent.

Others

The bright light emitted by LED may hurt the eyes. Do not look directly at the products when not wearing protective glasses. The strong irritant glare makes people feel uncomfortable and precautions should be taken during usage.