

# VISIBLE LIGHT PRODUCTS SPECIFICATION

## HPLB-5xK15x



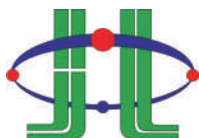
High Power 15W LED Module

Drawn by	Checked by	Approved by



DATE:2009/4/17

REV:B



**HUEY JANN ELECTRONICS INDUSTRY CO., LTD.**

No.27 Line 466 Sec.2,Cannng-nan Rd. Wu-chi Town Taichung Shien, Taiwan, R.O.C.

TEL:+886-4-26393976 FAX:+886-4-26393125

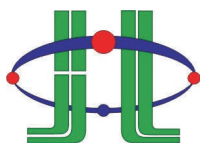
HUEY JANN High Power 15W LED Module is made of hi-eff AS/TS GaInN chips with precise package technique which makes excellent heat dissipation to reach the advantages of high luminous efficiency, low decay, and long endurance. Now we have these colors available: red, green, blue, white, yellow .

☰ **FEATERUS**

- Instant light
- Long operating life
- Superior ESD defense
- Low voltage DC operated
- More energy efficient than incandescent and most halogen lamps
- Color bright saturated

☰ **TYPICAL APPLICATIONS**

- Architectural detail lighting
- Medical applications
- Beacon lights
- Decoration lights



**HUEY JANN ELECTRONICS INDUSTRY CO., LTD.**

No.27 Line 466 Sec.2,Cannng-nan Rd. Wu-chi Town Taichung Shien, Taiwan, R.O.C.

TEL:+886-4-26393976 FAX:+886-4-26393125

Explanation of Part Number:

H P LB - 5 x K 15 x  
 ① ② ③ ④ ⑤ ⑥ ⑦

1.H: Huey Jann

2.P: High power LED Type

3.Shape distinguish:

LB: Light Bar

4.Lens appearance:

5:White Diffusion

5.Color number:

3K: Green

4K: Yellow

5K: Red

8K: Blue

6.Power type:

15: 15W

30: 30W

7.Color kind:

G: Green

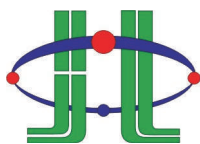
Y: Yellow

R: Red

B: Blue

DEVICES

Item	Lens Color	Dice Source	Color
HPLB-53K15G	White Diffusion	GaN/GaN	Green
HPLB-54K15Y		AlInGaP/GaP	Yellow
HPLB-55K15R		AlInGaP/GaP	Red
HPLB-58K15B		GaN/GaN	Blue

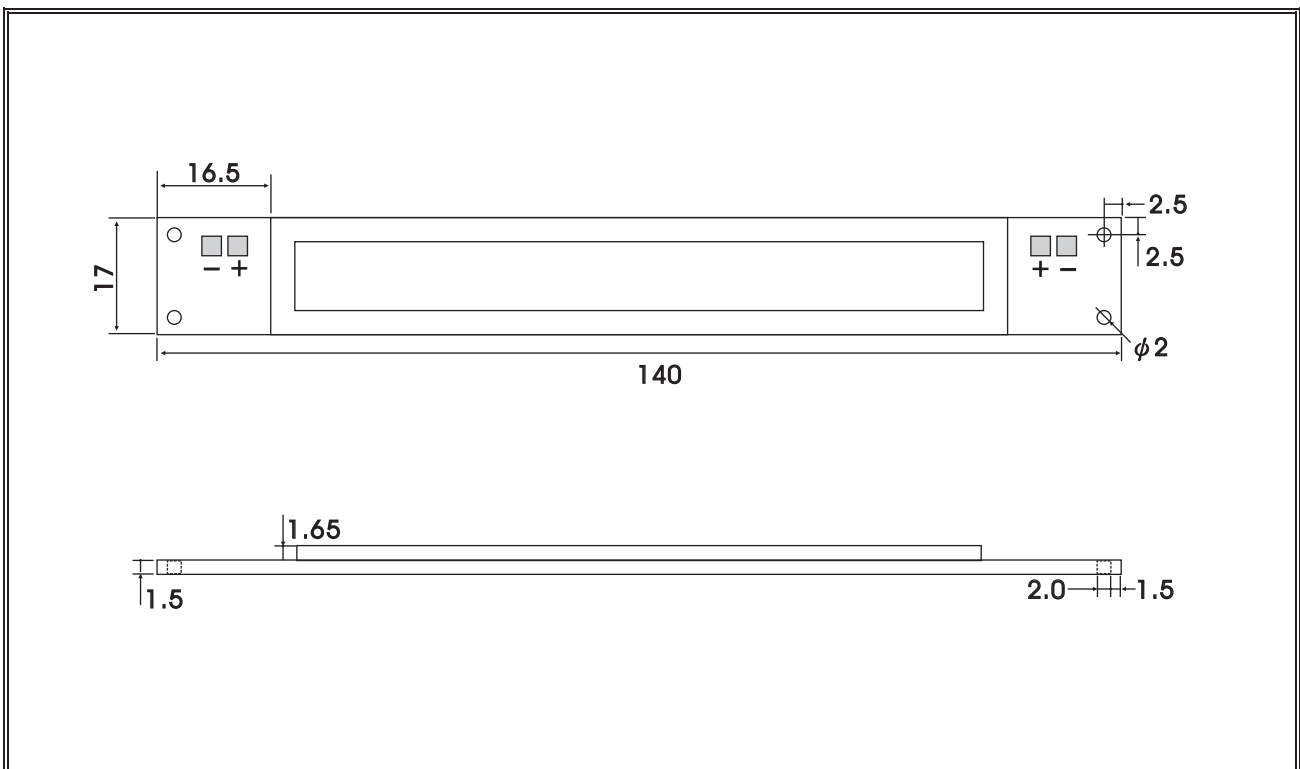


**HUEY JANN ELECTRONICS INDUSTRY CO., LTD.**

No.27 Line 466 Sec.2,Cannng-nan Rd. Wu-chi Town Taichung Shien, Taiwan, R.O.C.

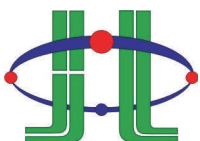
TEL:+886-4-26393976 FAX:+886-4-26393125

PACKAGE DIMENSIONS:



NOTE:

- 1.All dimensions are in millimeter.
- 2.Lead spacing is measured where the lead emerge from the package.
- 3.protruded resin under flange is 1.5mm max.
- 4.specifications are subject to change without notice.
- 5.Tolerance is  $\pm 0.3$ mm unless otherwise noted.
- 6.Driving LED without heat sinking device is forbidden.
- 7.It is strongly recommended that the temperature of lead be not higher than 55°C.
- 8.Proper current derating must be observed to maintain junction temperature below the maximum.
- 9.LEDs are not designed to be driven in reserve bias.
10. Warps the degree  $\pm 0.5$ mm.



**HUEY JANN ELECTRONICS INDUSTRY CO., LTD.**

No.27 Line 466 Sec.2,Cannng-nan Rd. Wu-chi Town Taichung Shien, Taiwan, R.O.C.

TEL:+886-4-26393976 FAX:+886-4-26393125

**ABSOLUTE MAXIMUM RATINGS**

TA=25°C

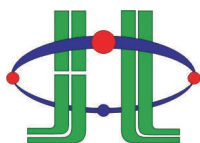
PARAMETER	SYMBOL	MAX. RATING		UNIT
Continuous Forward Current	IF	1400		mA
Peak Forward Current *1	IFM	1500		mA
Electrostatic Discharge (HBM)	ESD	4000		V
LED Junction Temperature	Tj	G · B	135	°C
		R · Y	125	
Operating Temperature	Topr	-40 ~ +110		°C
Storage Temperature	Tstg	-40 ~ +120		°C
Manual Soldering Temperature 260 °C for 5 seconds max. *2				

\*1.Duty Ratio=0.1%,Pulse Width=10us.

\*2.Iron soldering high temperature will not cause damage to the dice. But be aware of the high temperature will make the epoxy soften and the gold wire broken and even open. So before returning to the normal temperatures PLEASE AVOID any serious pressure on the top of epoxy and lead.

\*3. We suggest using PWM (Pulse Width Modulation) for driving.

\*4. It is recommended to use series as there are several 3pcs. If there are more than 5pcs, please use product with higher power.



**HUEY JANN ELECTRONICS INDUSTRY CO., LTD.**

No.27 Line 466 Sec.2,Cannng-nan Rd. Wu-chi Town Taichung Shien, Taiwan, R.O.C.

TEL:+886-4-26393976 FAX:+886-4-26393125

**ELECTRIC-OPTICAL CHARACTERISTICS FOR GREEN & BLUE**

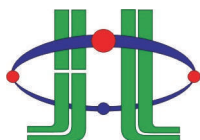
TA=25°C

PARAMETER	SYMBOL	TEST CONDITION	MIN	TYP	MAX	UNIT
View Angle of Half Power	2θ <sub>1/2</sub>	IF=1400mA		120		deg
Forward Voltage	V <sub>F</sub>			10.5	12.0	V
Thermal Resistance Junction To Case	R <sub>θ J-C</sub>			2.8		°C/W
Temperature Coefficient Of Forward Voltage	ΔV <sub>F</sub> /ΔT			-2		mV/°C

**ELECTRIC-OPTICAL CHARACTERISTICS FOR RED & YELLOW**

TA=25°C

PARAMETER	SYMBOL	TEST CONDITION	MIN	TYP	MAX	UNIT
View Angle of Half Power	2θ <sub>1/2</sub>	IF=1400mA		120		deg
Forward Voltage	V <sub>F</sub>			7.0	8.5	V
Thermal Resistance Junction To Case	R <sub>θ J-C</sub>			2.8		°C/W
Temperature Coefficient Of Forward Voltage	ΔV <sub>F</sub> /ΔT			-2		mV/°C



**HUEY JANN ELECTRONICS INDUSTRY CO., LTD.**

No.27 Line 466 Sec.2,Cannng-nan Rd. Wu-chi Town Taichung Shien, Taiwan, R.O.C.

TEL:+886-4-26393976 FAX:+886-4-26393125

**ELECTRIC-OPTICAL CHARACTERISTICS FOR LUMINOUS INTENSITY**

TA=25°C

ITEM	SYMBOL	TEST CONDITION	MIN	TYP	MAX	UNIT
HPLB-53K15G	IV	IF=1400mA		967		lm
HPLB-54K15Y				732		
HPLB-55K15R				758		
HPLB-58K15B				407		

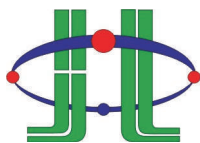
\*Tolerance:±15% HUEY-JANN measuring equipment : EXELTRON 2001. 2.S370 made by U.D.T.

**ELECTRIC-OPTICAL CHARACTERISTICS FOR WAVELENGTH**

TA=25°C

ITEM	TEST CONDITION	$\lambda P$	$\lambda d$	UNIT
HPLB-53K15G	IF=1400mA	520	525	nm
HPLB-54K15Y		595	590	
HPLB-55K15R		635	625	
HPLB-58K15B		462	465	

\*Tolerance:±15% HUEY-JANN measuring equipment : EXELTRON 2001. 2.S370 made by U.D.T.



**HUEY JANN ELECTRONICS INDUSTRY CO., LTD.**

No.27 Line 466 Sec.2,Cannng-nan Rd. Wu-chi Town Taichung Shien, Taiwan, R.O.C.

TEL:+886-4-26393976 FAX:+886-4-26393125

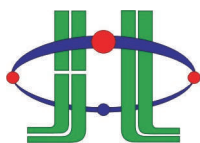
RELIABILITY TEST

Endurance Test

Test Item	Reference Standard	Test Conditions	Result
Operation Life	MIL-STD-750:1026 MIL-STD-883:1005 JIS-C-7021 :B-1	Connect with a power if=1400mA Ta=Under room temperature Test Time=1,000hrs	0/22
High Temperature High Humidity Storage	MIL-STD-202:103B JIS-C-7021 :B-11	Ta=+85°C±5°C RH=80% ~ 85% Test Time=1,000hrs	0/22
High Temperature Storage	MIL-STD-883:1008 JIS-C-7021 :B-10	High Ta=+120°C±5°C Test Time=1,000hrs	0/22
Low Temperature Storage	JIS-C-7021 :B-12	Low Ta=-40°C±5°C Test Time=1,000hrs	0/22

\*Failure Criteria:

1. VF arise  $\geq 10\%$
2. IV decline  $\geq 30\%$
3. A failure is an LED that is open or shorted



**HUEY JANN ELECTRONICS INDUSTRY CO., LTD.**

No.27 Line 466 Sec.2,Canng-nan Rd. Wu-chi Town Taichung Shien, Taiwan, R.O.C.

TEL:+886-4-26393976 FAX:+886-4-26393125



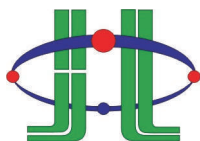
RELIABILITY TEST

➤ Environmental Test

Test Item	Reference Standard	Test Conditions	Result
Temperature Cycling	MIL-STD-202:107D MIL-STD-750:1051 MIL-STD-883:1010 JIS-C-7021 :A-4	-40°C ~ +25°C ~ +85°C ~ +25°C 60min 20min 60min 20min Test Time=200cycle	0/22
Thermal Shock	MIL-STD-202:107D MIL-STD-750:1051 MIL-STD-883:1010	-40°C±5°C ~ +110°C±5°C 20min 20min Test Time=200cycle	0/22

\*Failure Criteria:

1. VF arise  $\geq 10\%$
2. IV decline  $\geq 30\%$
3. A failure is an LED that is open or shorted

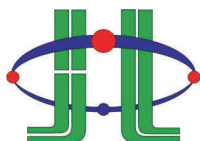
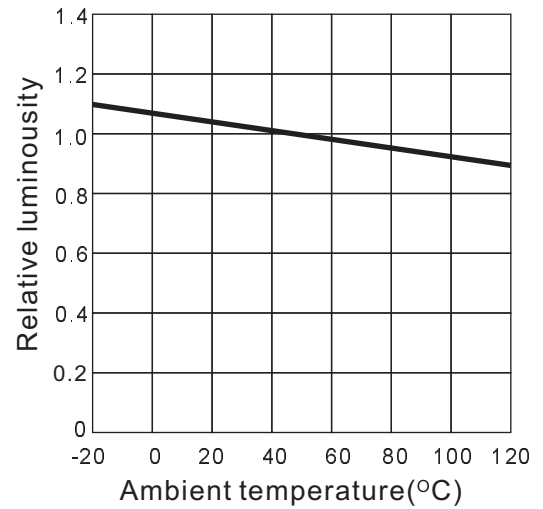
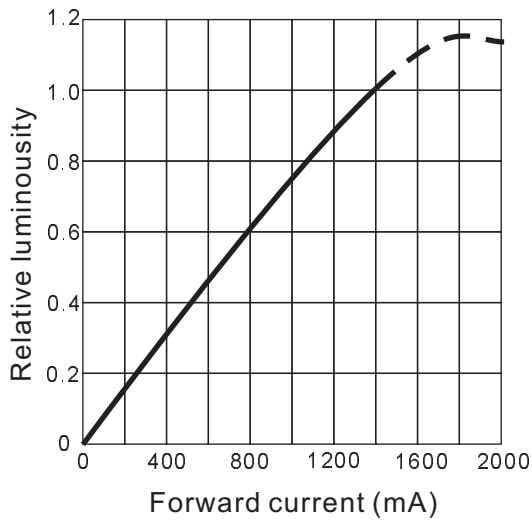
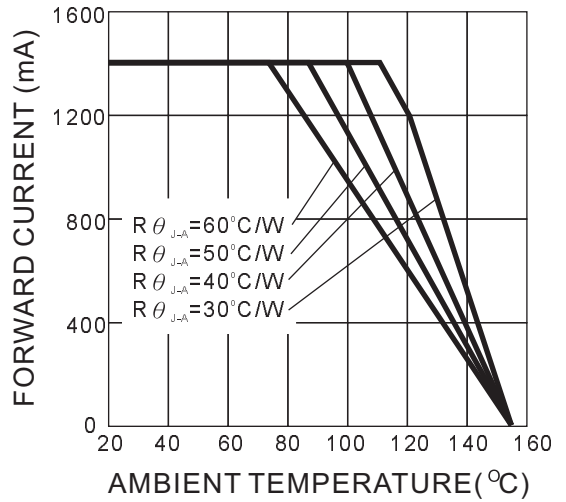
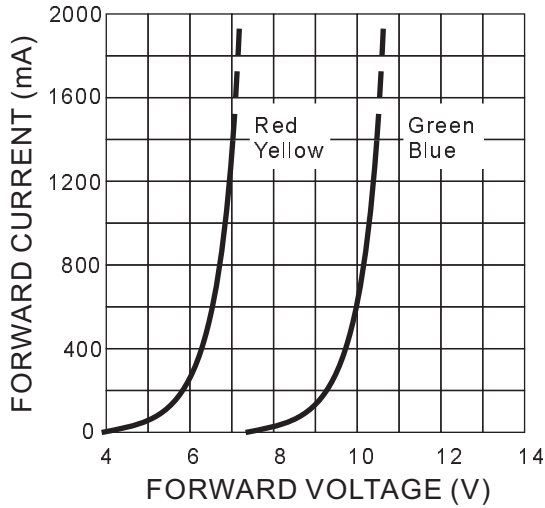


**HUEY JANN ELECTRONICS INDUSTRY CO., LTD.**

No.27 Line 466 Sec.2,Canng-nan Rd. Wu-chi Town Taichung Shien, Taiwan, R.O.C.

TEL:+886-4-26393976 FAX:+886-4-26393125

TYPICAL ELECTRICAL OPTICAL CHARACTERISTICS CURVES

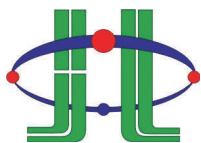
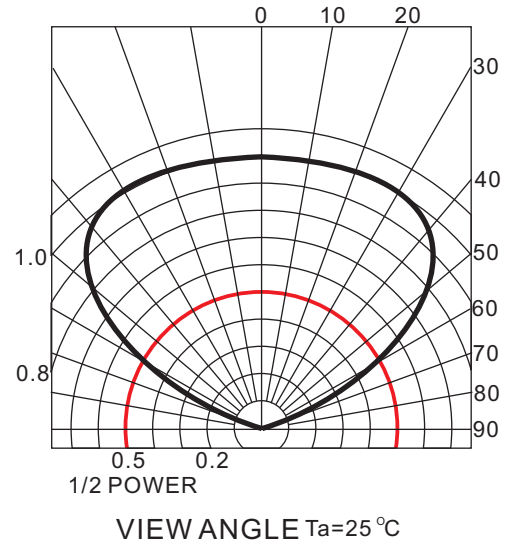
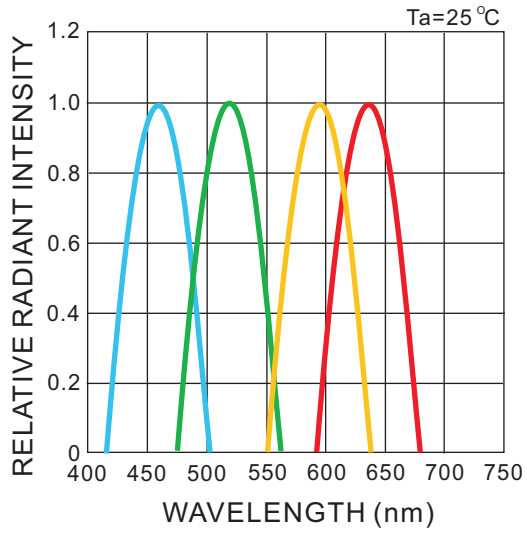


**HUEY JANN ELECTRONICS INDUSTRY CO., LTD.**

No.27 Line 466 Sec.2,Cannng-nan Rd. Wu-chi Town Taichung Shien, Taiwan, R.O.C.

TEL:+886-4-26393976 FAX:+886-4-26393125

TYPICAL ELECTRICAL OPTICAL CHARACTERISTICS CURVES

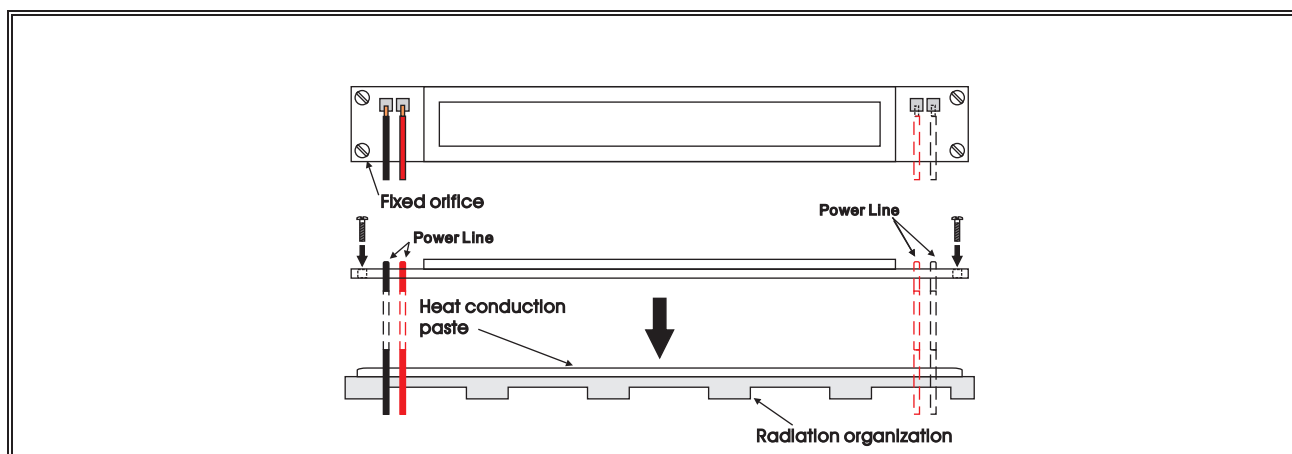


**HUEY JANN ELECTRONICS INDUSTRY CO., LTD.**

No.27 Line 466 Sec.2,Canng-nan Rd. Wu-chi Town Taichung Shien, Taiwan, R.O.C.



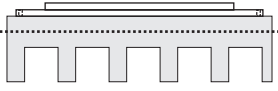
TEL:+886-4-26393976 FAX:+886-4-26393125

POSITION EXPLANATION:



Conclusion

Huey Jann provide simple comparison table for High Power LED, you could find your request heat dissipation area from the following table.

	 Free Convection Horizontal Flat Heat Dissipation-Set-up ( Area Require mm <sup>2</sup> )	 Free Convection Vertical Flat Heat Dissipation-Set-up ( Area Require mm <sup>2</sup> )	 Free Convection Finned Heat Dissipation-Set-up ( Area Require mm <sup>2</sup> )
Green	22,500	17,000	78,500
Yellow	11,500	9,000	40,500
Red	7,000	5,500	24,500
Blue	18,000	13,500	63,000

\*TAB in this table is according to highest operating temperature 65°C.

\*Different materials of second heat dissipation device, the surface area of heat sink will be different. Thus, this document is for reference only.

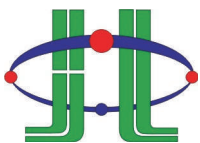
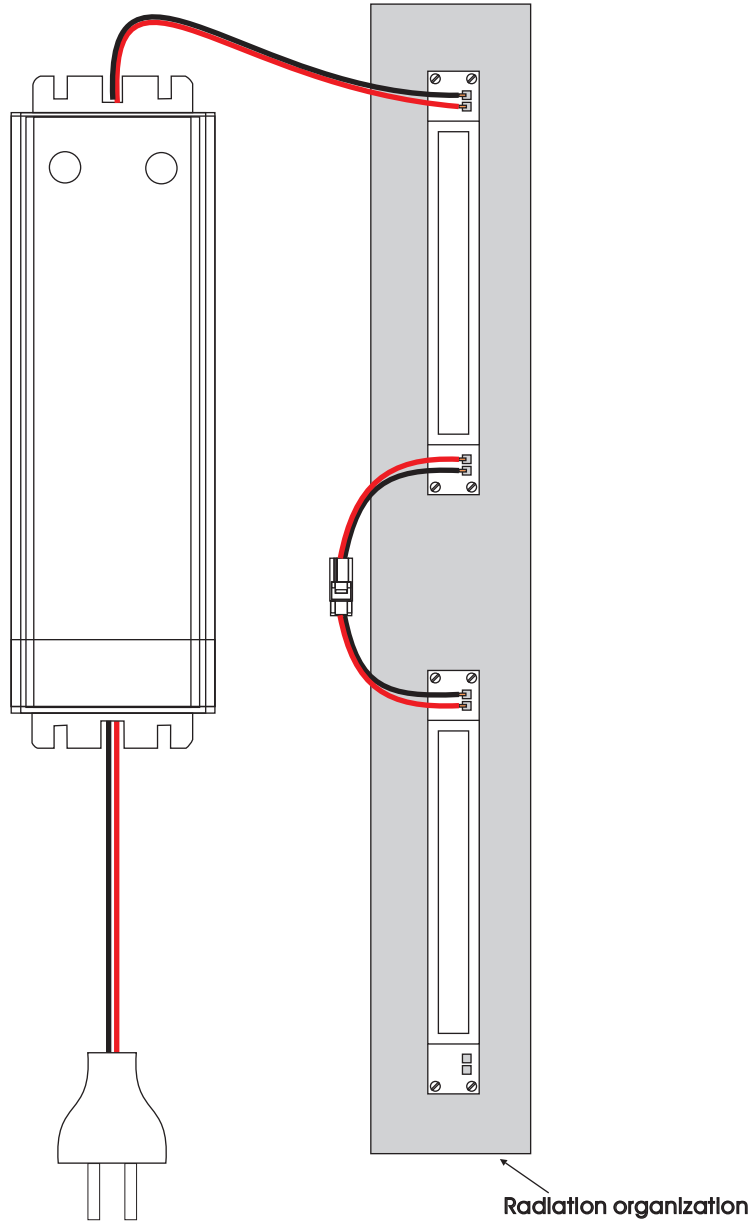


**HUEY JANN ELECTRONICS INDUSTRY CO., LTD.**

No.27 Line 466 Sec.2,Cannng-nan Rd. Wu-chi Town Taichung Shien, Taiwan, R.O.C.

TEL:+886-4-26393976 FAX:+886-4-26393125

PRODUCT APPLICATION

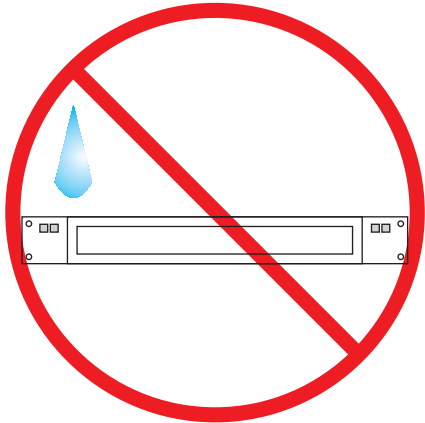


**HUEY JANN ELECTRONICS INDUSTRY CO., LTD.**

No.27 Line 466 Sec.2,Cannng-nan Rd. Wu-chi Town Taichung Shien, Taiwan, R.O.C.

TEL:+886-4-26393976 FAX:+886-4-26393125

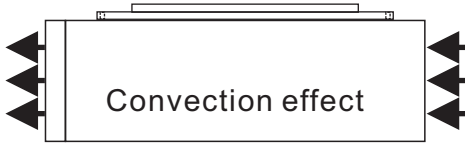
15W Operating Instructions



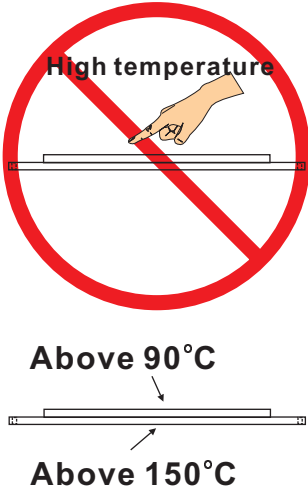
1. It is important to keep away the product from water, in order to avoid the product electronic characteristics to be harmful.



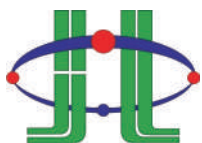
2. When making use of products, it is necessary to use anti-ESD devices to prevent destructive electronic characteristics.



3. It should be noticed whether there is convection in design of device. Convection has to exist.



4. There is 150°C directly from the front of 15W emitting diode. It is untouchable to prevent burning.

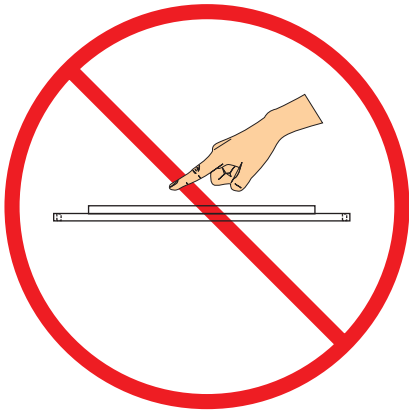


**HUEY JANN ELECTRONICS INDUSTRY CO., LTD.**

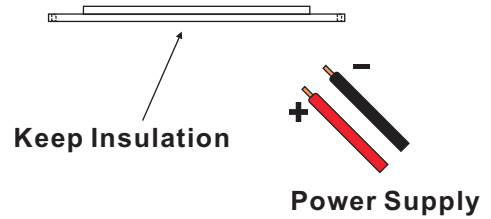
No.27 Line 466 Sec.2,Canng-nan Rd. Wu-chi Town Taichung Shien, Taiwan, R.O.C.

TEL:+886-4-26393976 FAX:+886-4-26393125

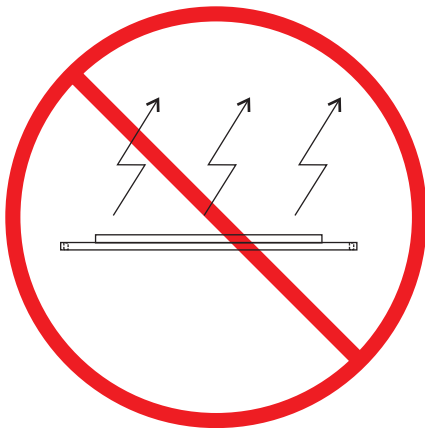
15W Operating Instructions



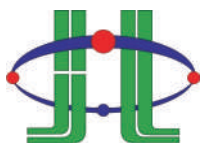
5. The material in the central top of 15W LED is soft. Therefore, it is un-squeezable and untouchable.



6. In the bottom of heat sink cannot be touched with neither positive nor negative pole. (Heat sink has to be insulation.)



7. The product should not be light up directly without heat dissipation device.

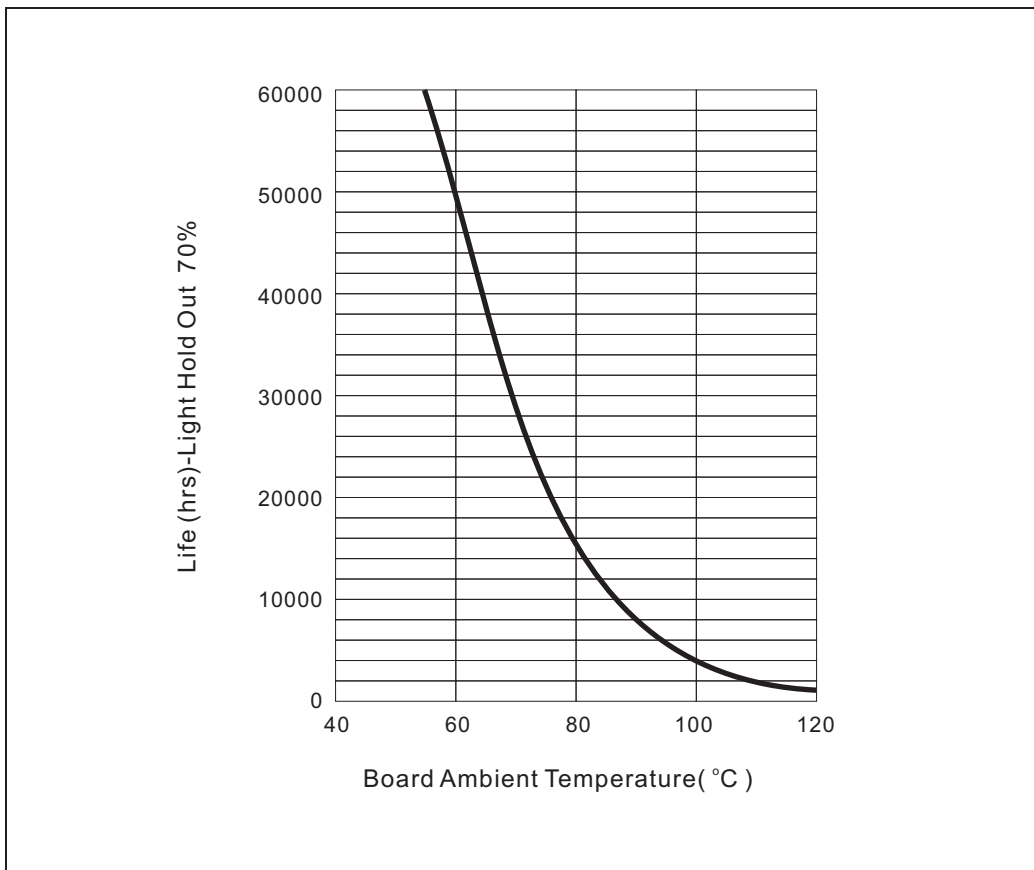
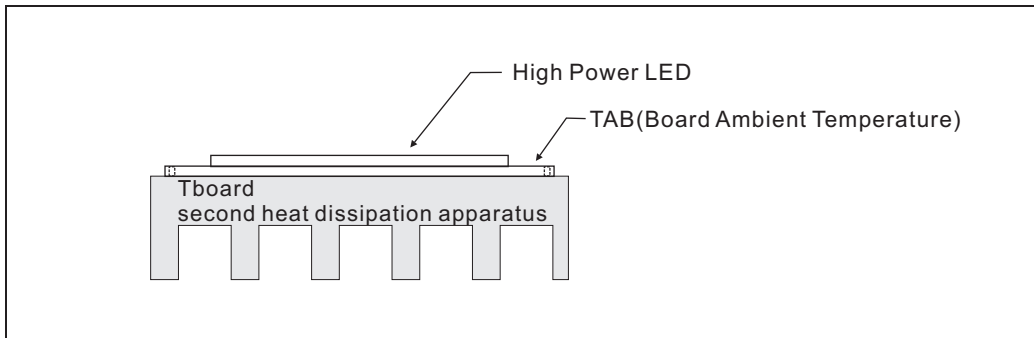


**HUEY JANN ELECTRONICS INDUSTRY CO., LTD.**

No.27 Line 466 Sec.2,Canng-nan Rd. Wu-chi Town Taichung Shien, Taiwan, R.O.C.

TEL:+886-4-26393976 FAX:+886-4-26393125

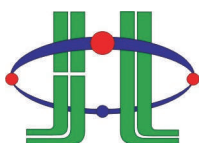
TAB Temperature - Life Characteristics Curves



\*Board Ambient Temperature Tolerance  $\pm 5^{\circ}\text{C}$ .

\*The TAB is the stable testing value for the product lighted 100% after one hour.

\*This document is for reference only.



**HUEY JANN ELECTRONICS INDUSTRY CO., LTD.**

No.27 Line 466 Sec.2,Canng-nan Rd. Wu-chi Town Taichung Shien, Taiwan, R.O.C.

TEL:+886-4-26393976 FAX:+886-4-26393125