



주식회사 포트론

PHOTRON POWER LED Star

1W High Power Light Emitting Diode For Application

DEVICE : Red, Green, Blue, White, Amber color

FORMING DATE. 2007 년 02 월 22 일

CUSTOMER .

DESIGN	CHECK	APPROVAL

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Specification Contents-Star

◆ Specification Contents

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1. POWER LED Series Feature

High power LED is a revolutionary, energy efficient and compact new light source, combining the Lifetime and reliability advantages of Light Emitting Diodes with brightness of conventional lighting.

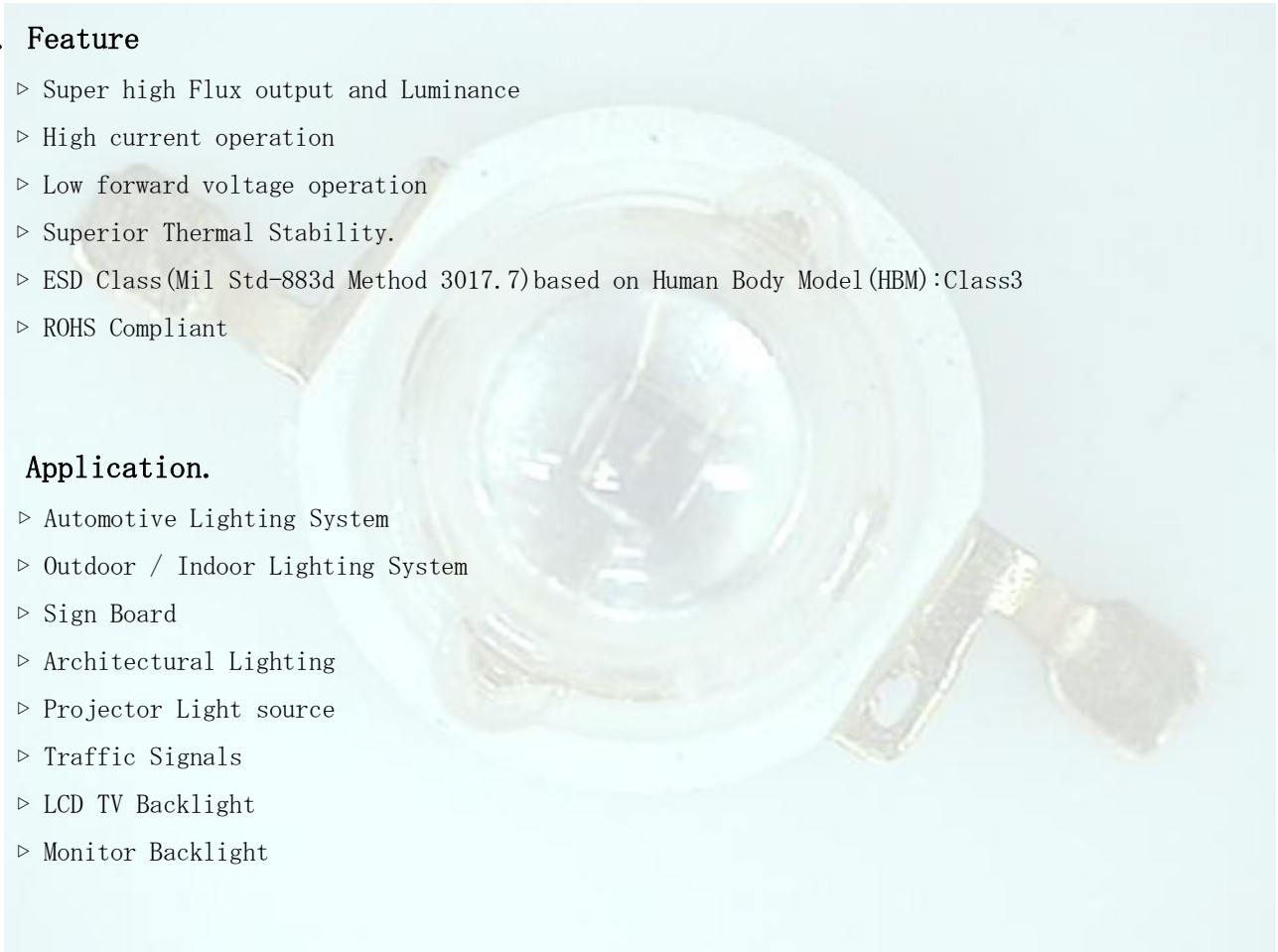
Slots in aluminum-core PCB for M3 or #4 mounting screw.

2. Feature

- ▷ Super high Flux output and Luminance
- ▷ High current operation
- ▷ Low forward voltage operation
- ▷ Superior Thermal Stability.
- ▷ ESD Class(Mil Std-883d Method 3017.7)based on Human Body Model (HBM):Class3
- ▷ ROHS Compliant

3. Application.

- ▷ Automotive Lighting System
- ▷ Outdoor / Indoor Lighting System
- ▷ Sign Board
- ▷ Architectural Lighting
- ▷ Projector Light source
- ▷ Traffic Signals
- ▷ LCD TV Backlight
- ▷ Monitor Backlight



HIGH POWER LED Part Explanation-Star

4. High Power led Part Explanation

Full Part Code : P P ◇◇◇ - ◇ ◇ ◇ ◇ ◇◇ - ◇◇ ◇ ◇ ◇
① ② ③ ④ ⑤ ⑥ ⑦ ⑧ ⑨ ⑩ ⑪ ⑫

(1) P - Photron initial

(2) P - Photron Power LED LAMP

(3) ◇◇◇ - Wavelength (Dominant / peak)

- White led lamp code : 00W

(4) ◇ - Size of lens

(5) ◇ - Shape of lens

L: Lambertian, B: Batwing, S: Sid Emitting

(6) ◇ - S : Star

(7) ◇ - Forward voltage rank

(8) ◇◇ - Luminous flux rank

* Internal Number

(9) ◇◇

(10) ◇

(11) ◇

(12) ◇

SPECIFICATIONS- Star

5. Absolute maximum ratings.

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

Parameter	Symbol	Ratings	Unit
Forward current	I_F	350	mA
Pulse Forward Current *1	I_{FP}	1000	mA
Reverse voltage	V_R	5	V
Power dissipation(blue, green, white)	P_D	1.40	w
Power dissipation(red, yellow)	P_D	1.12	w
LED junction Temperature(blue, green, white)	T_j	127	$^{\circ}\text{C}$
LED junction Temperature(red, yellow)	T_j	126	$^{\circ}\text{C}$
Viewing angle(Lamdertan Lens)	$\Theta_{1/2}$	125	deg
Operation temperature	Topr.	$-30 \sim +85$	$^{\circ}\text{C}$
Storage temperature	Tstg.	$-40 \sim +100$	$^{\circ}\text{C}$
Manual Soldering Time at 260°C (MAX.)	Tsol.	5	seconds

*Notes

*1 IFP Conditions : Pulse Width $\leq 10\text{msec}$. And Duty Ration $\leq 1/10$

* ESD Class based on Human Body Model (HBM) : Class3.

* Photron maintains a tolerance of $\pm 10\%$ on power measurements.

Electrical & Optical Characteristics- Star

6. Luminous Flux Characteristics at 350mA, Ta = 25°C

Color	Part No	Item	Symbol	Luminous Flux			Unit
				MIN	TYP	MAX	
Red	PP625-8LS15-AOBT	Luminous Flux	LX	30	50		lm
Amber	PP592-8LS14-AOBT	Luminous Flux	LX	15	35		lm
Green	PP525-8LS26-EDBT	Luminous Flux	LX	25	45		lm
Blue	PP465-8LS21-EDBT	Luminous Flux	LX	11	25		lm
white	PP00W-8LS21-EDBT	Luminous Flux	LX	30	45		lm

* Luminous Flux Measurement is $\pm 10\%$.

7. Forward Voltage Characteristics at 350mA, Ta = 25°C

Color	Part No	Item	Symbol	Luminous Flux			Unit
				MIN	TYP	MAX	
Red	PP625-8LS15-AOBT	Forward Voltage	Vf	1.8	2.25	3.2	V
Amber	PP592-8LS14-AOBT	Forward Voltage	Vf	1.8	2.25	3.2	V
Green	PP525-8LS26-EDBT	Forward Voltage	Vf	2.7	3.5	4.0	V
Blue	PP465-8LS21-EDBT	Forward Voltage	Vf	2.7	3.5	4.0	V
white	PP00W-8LS21-EDBT	Forward Voltage	Vf	2.7		4.0	V

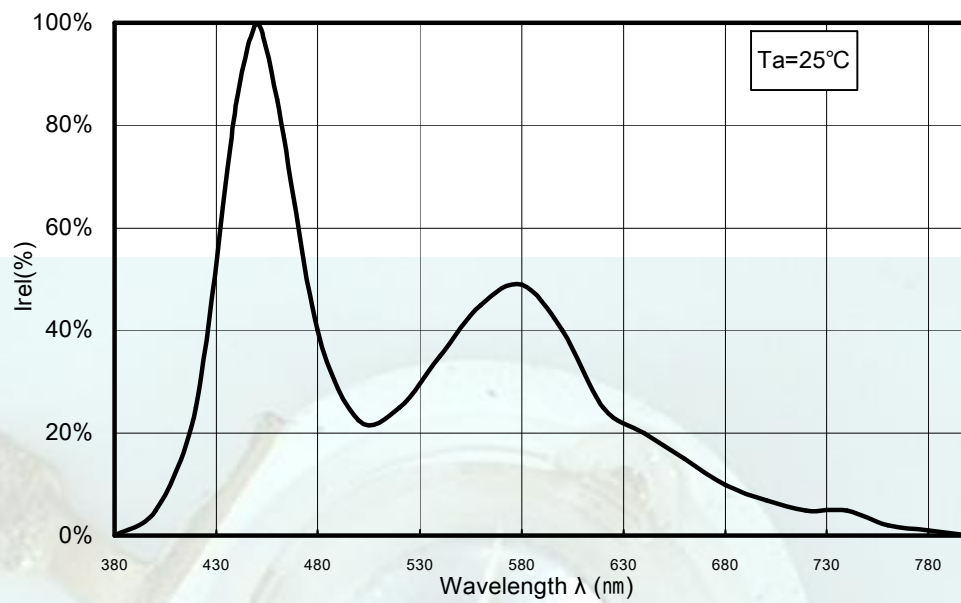
* Forward Voltage Measurement allowance is $\pm 3\%$.

8. Dominant Wavelength or Color Temperature Characteristics at 350mA, Ta = 25°C

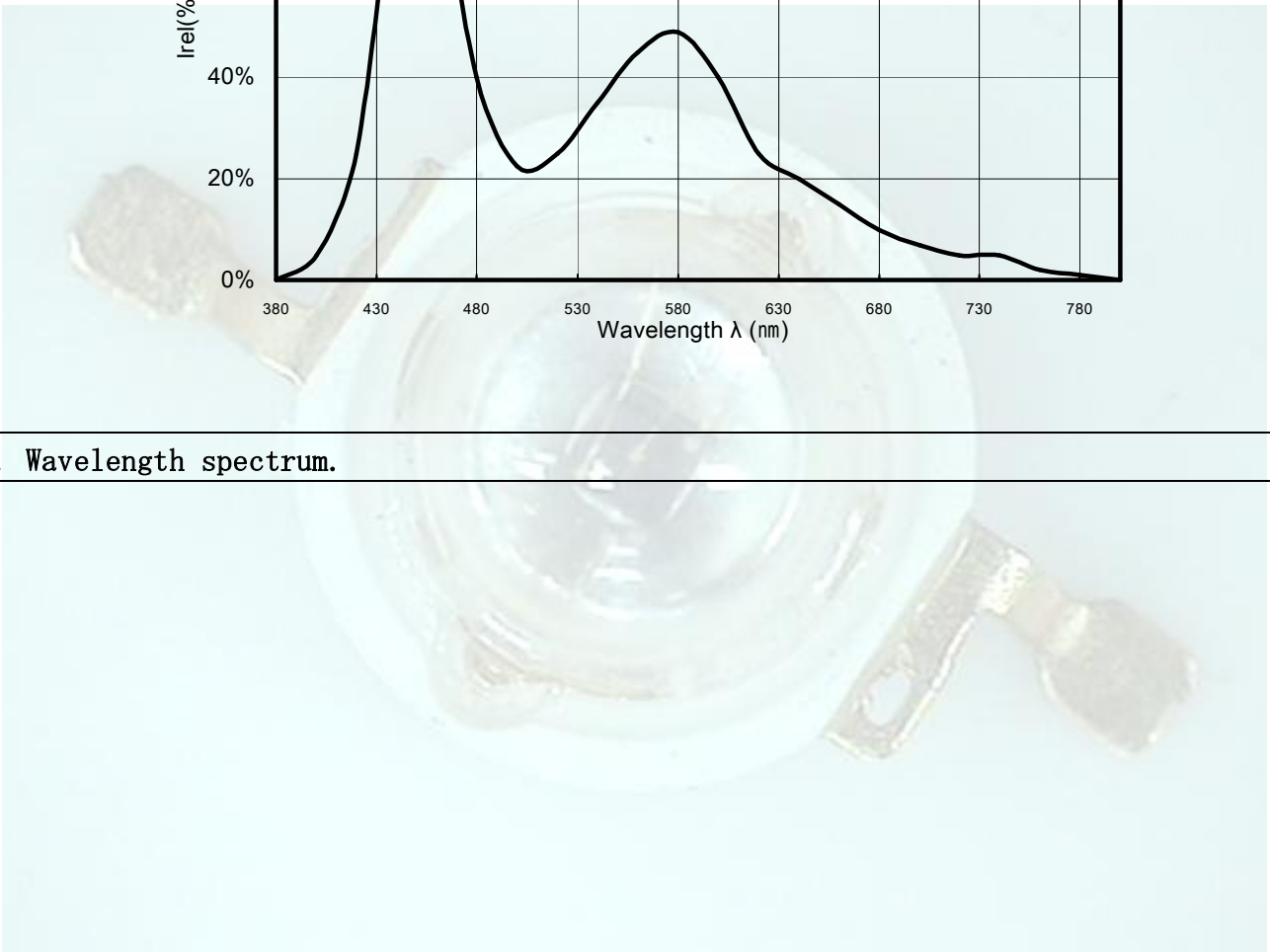
Color	Part No	Item	Symbol	Luminous Flux			Unit
				MIN	TYP	MAX	
Red	PP625-8LS15-AOBT	Dominant Wavelength	λ_d	615		645	nm
Amber	PP592-8LS14-AOBT	Dominant Wavelength	λ_d	582		598	nm
Green	PP525-8LS26-EDBT	Dominant Wavelength	λ_d	520		530	nm
Blue	PP465-8LS21-EDBT	Dominant Wavelength	λ_d	460		470	nm
white	PP00W-8LS21-EDBT	Correlated Color Temperature	CCT	4500		10000	K

* Dominant Wavelength Measurement allowance is $\pm 0.5\text{nm}$.

9. Color Spectrum Curves

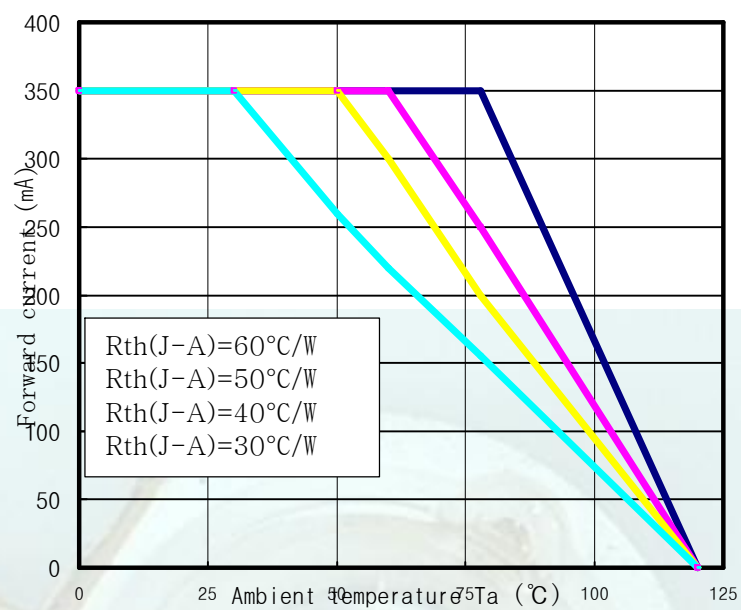


10. Wavelength spectrum.



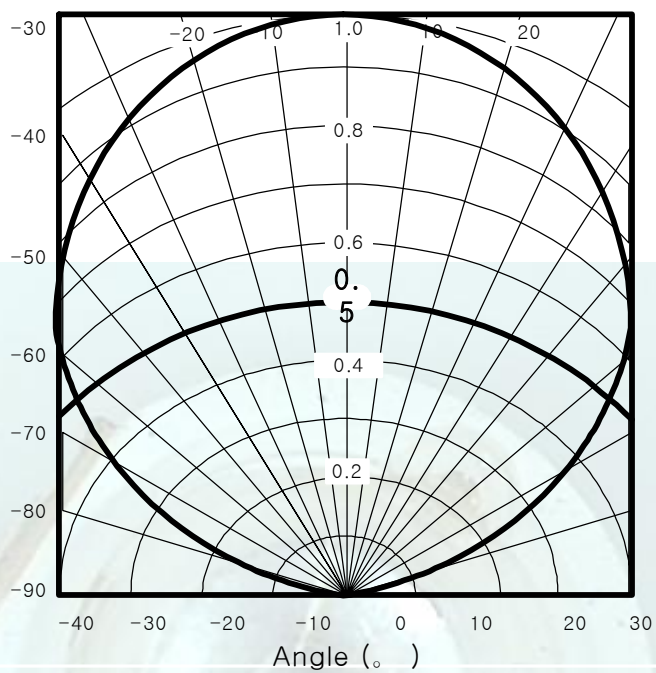
Electrical & Optical Curves- Star

11. Forward Current & Ambient Temperature.

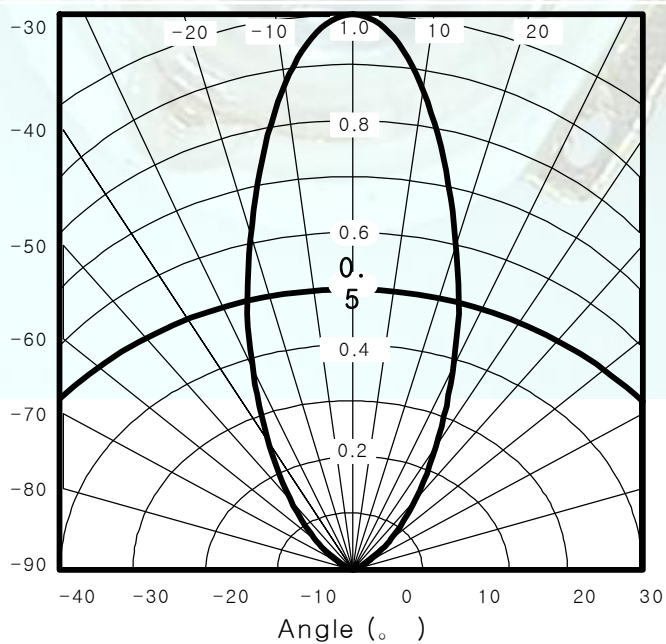


Lambertian Typical Radiation Pattern- Star

12. Typical Radiation Pattern.

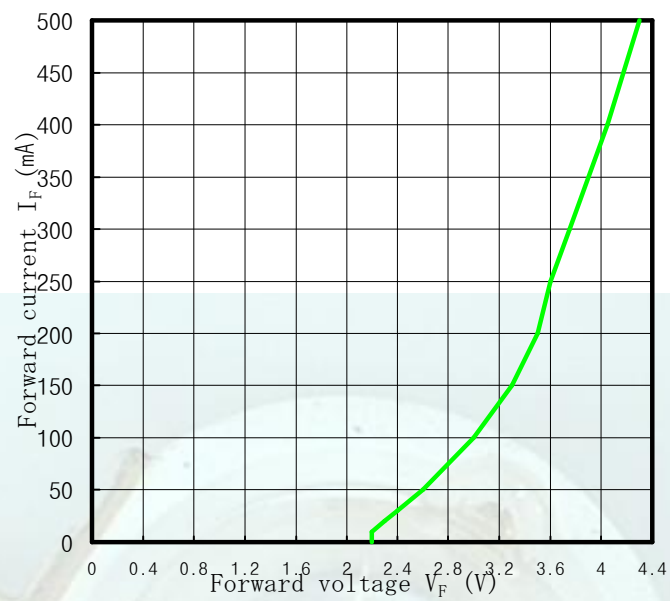


Typical Radiation Pattern (black Collimator).

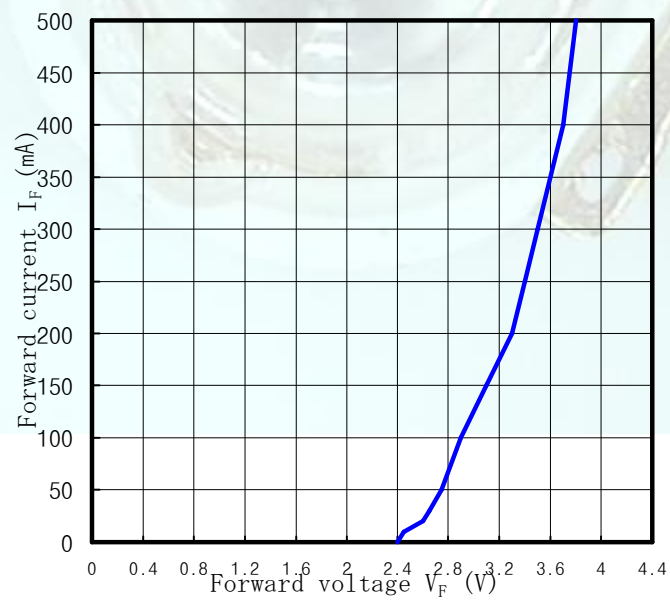


Forward Current Characteristics- Star

13. Green Forward Current & Ambient Temperature.

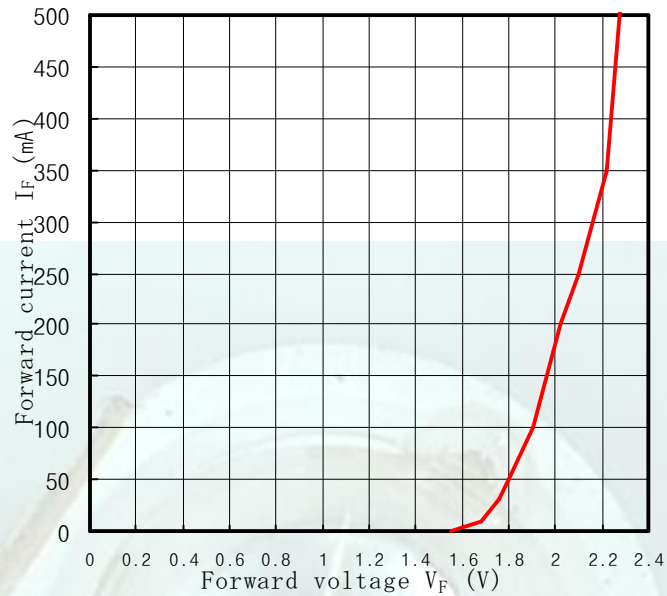


Blue, white Forward Current & Ambient Temperature.

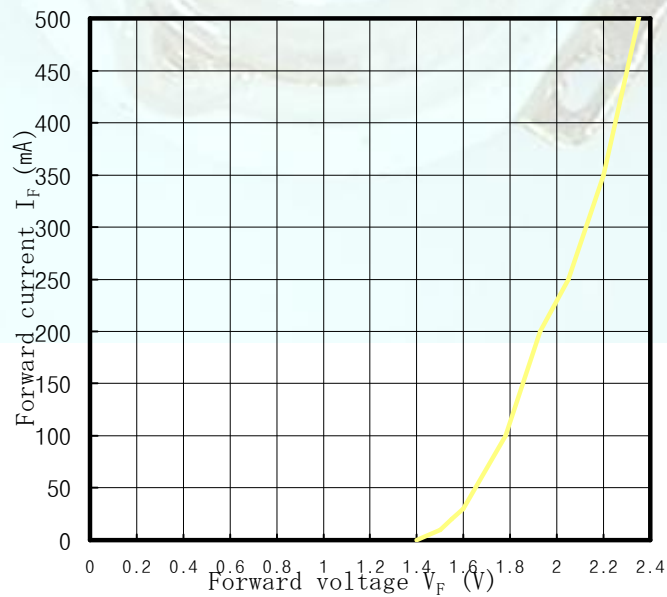


Forward Current Characteristics- Star

Red Forward Current & Ambient Temperature.

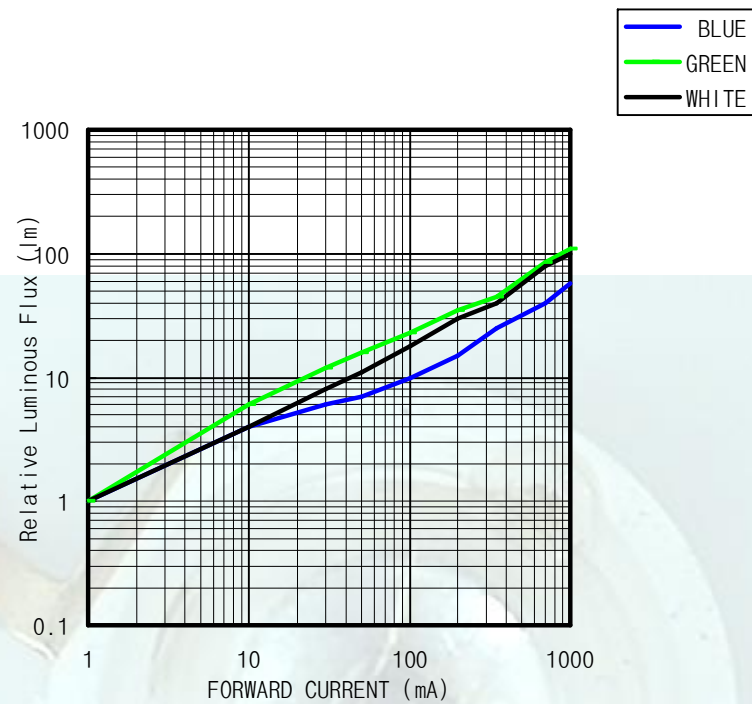


Yellow Forward Current & Ambient Temperature.

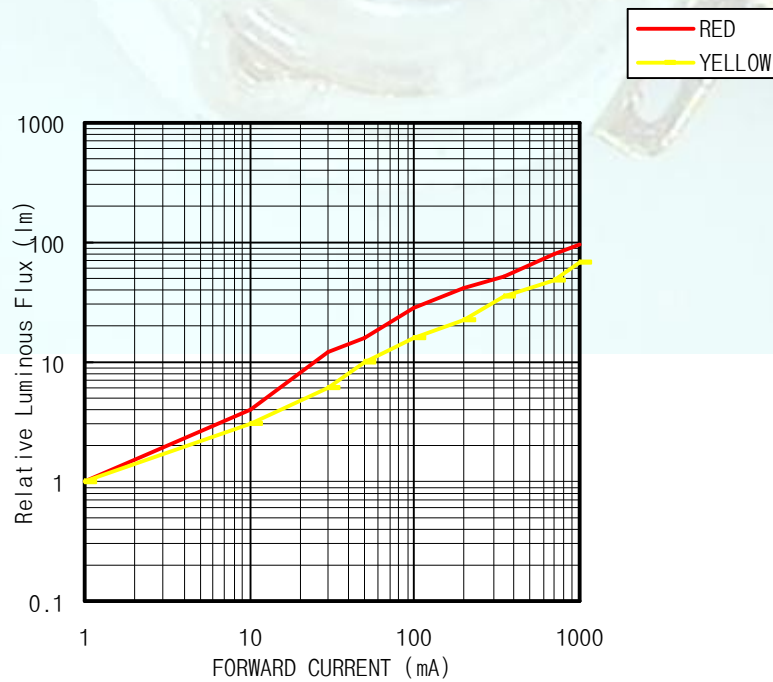


Luminous Flux Characteristics- Star

14. Relative Luminous Flux & Forward Current.



Relative Luminous Flux & Forward Current.



Reliability Results- Star

15. Results of Reliability Test

item	Test Condition	Note	Fail / Sample
Temperature cycle	-40℃ 30min ~ 25℃ 5min ~100℃ ~ 25℃30min	100 cycles	0/45
High temperature storage	Ta = 100℃	500 hrs	0/45
Temperature humidity storage	Ta=60℃ RH=90%	500 hrs	0/45
Low temperature storage	Ta = -40℃	500 hrs	0/45
Operating life time	Ta = 25℃ If=350mA	500 hrs	0/45
Solderability	260℃ for 5sec 1time	1time	0/10



◆ Soldering conditions

- When soldering leave minimum clearance between the resin and soldering point
- Maximum allowable soldering conditions
Soldering dipping: 260 degrees C max., 5 seconds max.,
Soldering iron: 340 degrees C max., 3 seconds max., 1 time 40w max.
- Contact between molten solder and the resin must be avoided.
- In soldering, do not apply any stress to the lead frame, particularly heated.

◆ storage

- Storage Conditions

Before opening the package

The LEDs should be kept below 30°C and 70%RH. When storing the LEDs, try to unpack the moisture proof package and store them in a dry place. If the LEDs are stored for 3months or more after being from PHOTRON, a sealed container with a nitrogen atmosphere is recommended for storing.

After opening the package

The LEDs should be kept below 30°C and 70%RH. The LEDs should be soldered within 24hours after opening the package. If there is leftover, they should be stored in moisture proof package with moisture absorbent material(e.g. silica gel) inside.

- It is strongly recommended that the user use the LEDs as soon as possible since there Exist a possibility that unfavorable environmental factors could deteriorate the properties of the LEDs.

◆ Static Electricity

- Static electricity or surge voltage damages the LEDs.

It is recommended that a wrist bond or an anti-electrostatic glove be used when handling the LEDs.

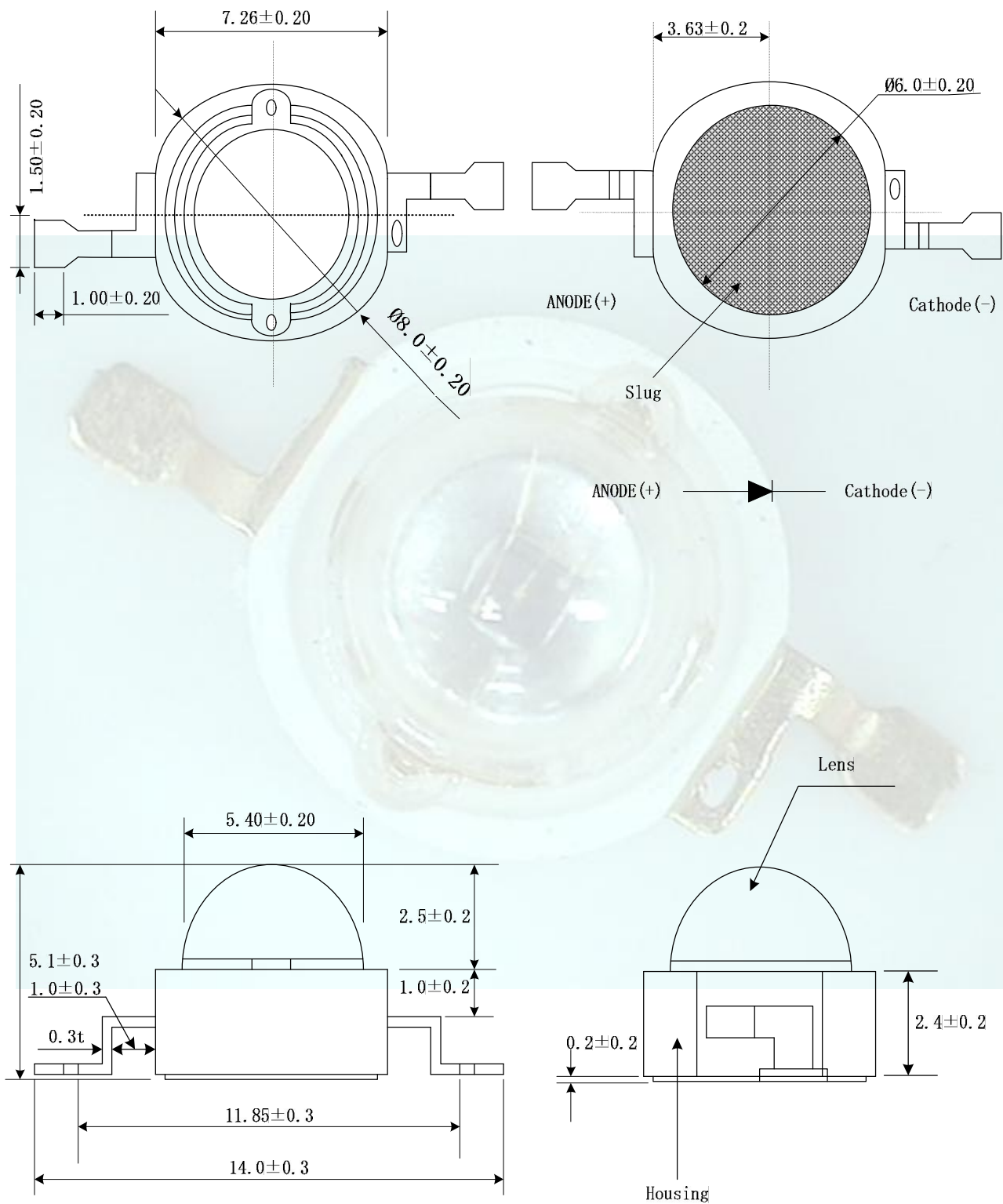
- All devices, equipment and machinery must be properly grounded.

It is recommended that measures be taken against surge voltage to the equipment that mounts the LEDs.

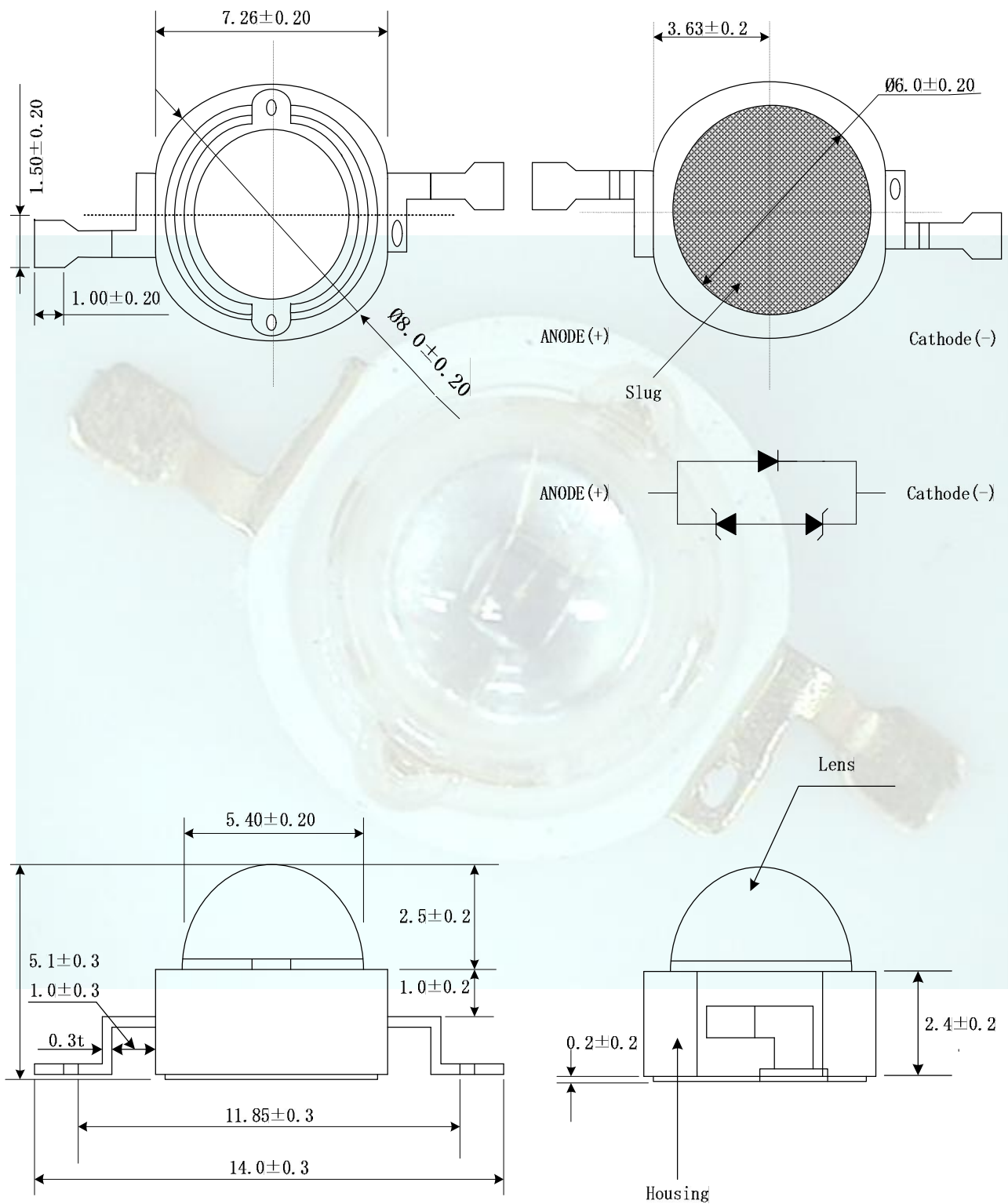
- When inspecyimg the final products in which LEDs were assembled, it is recommended to check whether the assembled LEDs are damaged by static electricity or not. It is easy to find static-damaged LEDs by a light-on test or a VF test at a lower current (below 1mA is recommended).
- Damaged LEDs will show some unusual characteristics such as the forward voltage becomes lower. Or the LEDs do not light at the low current.

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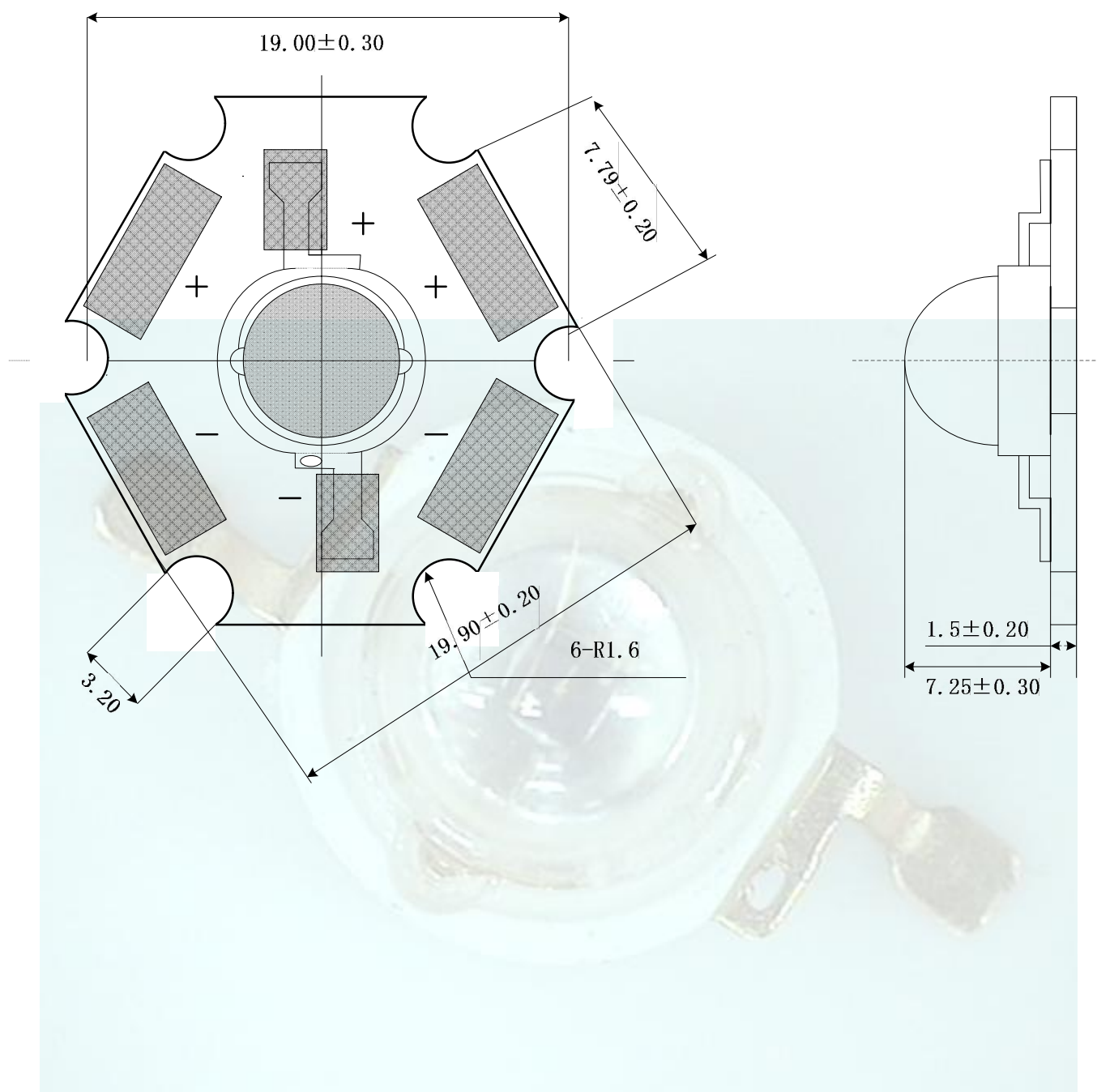
Red / Yellow Outline Dimensions



Blue / white / Green Outline Dimensions



Outline Dimensions- Star



Revision history sheet - Star

개 정	변경 전	변경 후	변경사유	적용 일자	Page
	품명/규격	품명/규격			
1.0	R,G,B,A POWER	star	임시사양 제정	2007-02-22	18

