APPROVAL SHEET

CUSTOMER	
SPEC NO	SP3904D
TYPE NO	SL-HW5033
PART NO	------
MODEL	5mm 圆头有边长脚白光
DATE	2013-9-16

CUSTOMER CONFIRMATION OUTCOME OPINION：

RESULT：	☐ OK	☐ NG
COMMENTS：		
APPROVAL DATE：		

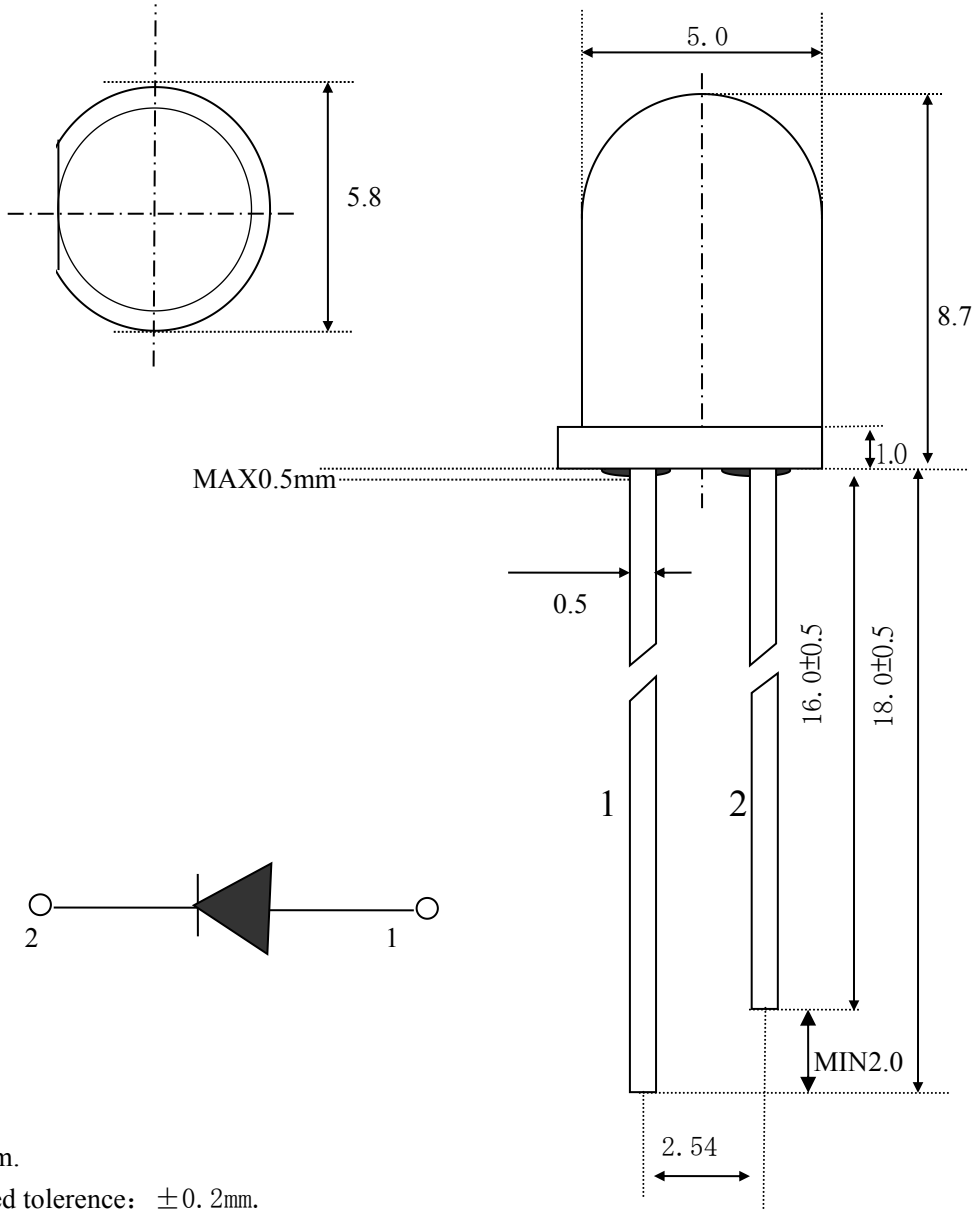
PREPARED BY	CHECKED BY	ACCEPT

MAKER：

PREPARED BY	CHECKED BY	APPROVED BY

◆

◆ LED Dimensions



NOTES：

1. Units：mm.
2. Unspecified tolerence：±0. 2mm.
3. Specifications are subject to change without notice.

Item	Materials
Resin	Epoxy
Lens Color	Water Clear
Lead Frame	Ag plating ironwork Alloy
Emitted Color	Warm White
Chip Material	------

◆ SPECIFICATION

Absolute Maximum Rating (T_a = 25℃)

Items	Symbol	Absolute maximum Rating	Unit
Forward Current	I_F	20	mA
Peak Forward Current[1]	I_{FP}	75	mA
Reverse Voltage	V_R	5	V
Power Dissipation	P_D	60	mW
Electyostatic discharge	ESD	2000	V
Operation Temperature	T_{opr}	-20 ~ +80	℃
Storage Temperature	T_{stg}	-55 ~ +100	℃
Lead Soldering Temperature[2]	T_{sol}	Max 260°C for 3 sec Max	

[1]I_{FP} Conditions: Pulse Width≤10msec

[2]T_{sol} Conditions:3mm from the base of the epoxy bulb

Initial Electrical/Optical Characteristics （Ta=25℃）

Items	Symbol	Condition	Min.	Typ.	Max.	Unit
Forward Voltage	V_F	I_F = 20mA	2.8	3.0	3.6	V
Reverse Current	I_R	V_R = 5V	---	---	10	μA
Spectrum Line Half-Width	△λ	---	---	33	---	Nm
50% Power Angle	2θ½	I_F = 20mA	---	15	---	deg
Intensity	IV	I_F = 20mA	---	10000	20000	mcd
Color Temperature	TC	I_F = 20mA	---	6000	7000	K

*For operation above 25℃, The I_F , I_{FP} & P_D must be derated, the Current derating is –0.36mA/℃ for DC drive and -0.86mA/℃ for Pulse drive, the power dissipation is -0.75mW/℃. The product working current must not more than the 60% of the I_F or I_{FP} according to the working temperature.

Notes:
*One normal delivery will include all ranks listed above.
*The quantity ratio of the ranks is decided by SOPHIA.
*Measurement Uncertainty of the Luminous intensity : ±15%
*Measurement Uncertainty of the Dominant Wavelength : ±1.0nm

◆ RELIABILITY

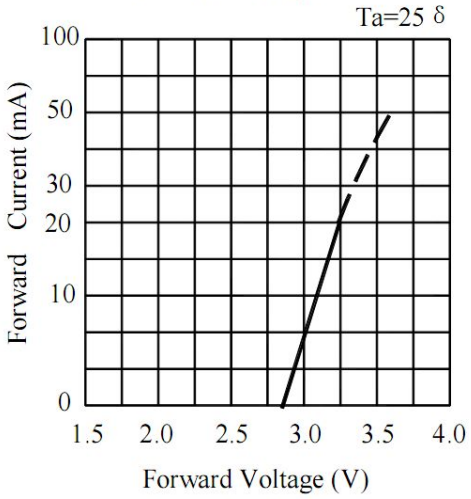
Test Items And Results

Type	Test Item	REF. Standard	Test Condition	Note	Number of Damaged
Environmental Sequence	Temperature Cycle	JIS C 7021 (1977)A-4	-40℃⇒ 25℃⇒ 100℃⇒ 25℃ 30mins, 5mins, 30mins, 5mins	100 cycles	0 / 100
	Thermal Shock	MIL-STD-1 07D	-40℃⇒ 100℃ 15mins, 15mins	100 cycles	0 / 100
	High Humidity Heat Cycle	JIS C 7021 (1977)A-5	30℃⇒ 65℃ 90%RH 24hrs/1cycle	10 cycles	0 / 100
	High Temperature Storage	JIS C 7021 (1977)B-10	T_a = 100℃	1000hrs	0 / 100
	Humidity Heat Storage	JIS C 7021 (1977)B-11	T_a = 60℃ RH = 90%	1000hrs	0 / 100
	Low Temperature Storage	JIS C 7021 (1977)B-12	T_a = -40℃	1000hrs	0 / 100
Operation Sequence	Life Test	JIS C 7035 (1985)	T_a = 25℃ I_F = 30mA	1000hrs	0 / 100
	High Humidity Heat Life Test	*	60℃ RH=90% I_F = 20mA	500hrs	0 / 100
	Low Temperature Life Test	*	T_a = -40℃ I_F = 20mA	1000hrs	0 / 100
Destructive Sequence	Resistance to Soldering Heat	JIS C 7021 (1977)A-11	T_{sol} = 260±5℃ , 10sec (3mm from the base of the epoxy bulb)	1 time	0 / 20
	Solderability	JIS C 7021 (1977)A-2	T_{sol} = 235±5℃ , 5sec (using flux)	1 time (over 95%)	0 / 20
	Lead Pull/Bend Test	JIS C 7021 (1977)A-11	Load 2.5N (0.25kgf) 0° ⇒ 90° ⇒ 0° bend 3 times	No noticeable damage	0 / 20

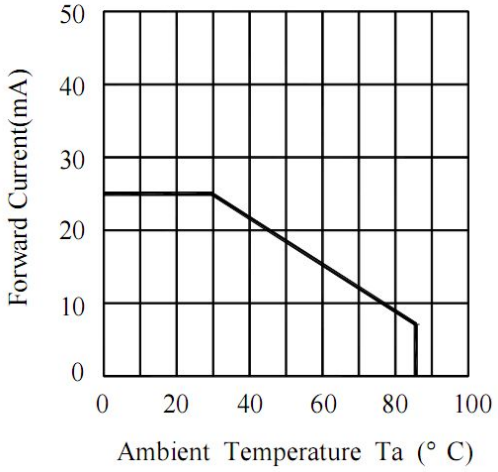
*Refer to reliabiltiy test standard specification for in this line.

◆ Typical Electro-Optical Characteristics Curves (Ta=25°)

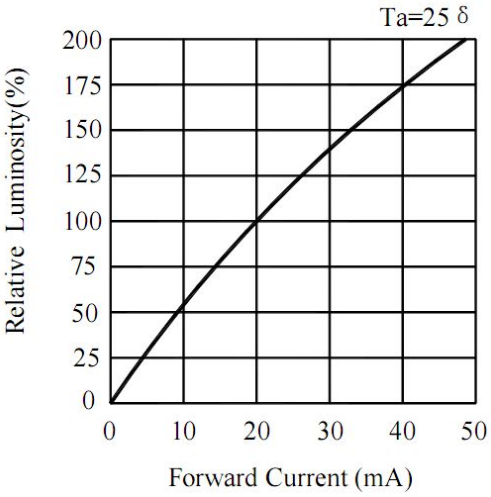
Forward Current Vs.
Forward Voltage



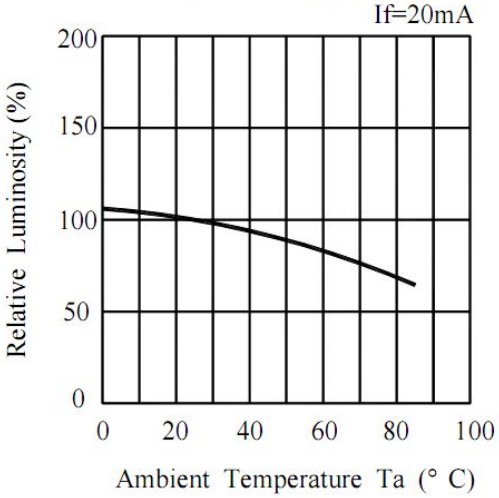
Forward Current Vs.
Ambient Temperature



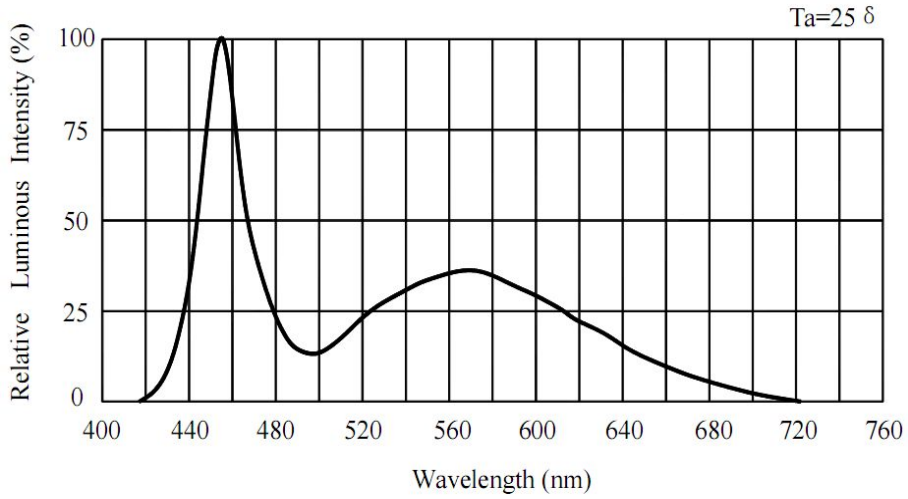
Forward Current Vs.
Relative Luminosity



Relative Luminosity Vs.
Ambient Temperature



Relative Luminous Intensity Vs. Wavelength



◆ LED Lamp Using Precautions

1. Take measures to pprevent the static electricity for the whole course:the burial of the antistatic ground wire must be tested by the anti-torpedo department of the Environmental Protection

Bureau up to the national standard.lf the exposure to the products is necessary,wear antistatic wrist strap and put on the antistatic suit if conditions permit.lf the antistatic wrist strap is wireless,only the chain of command can use it and discharge towards the ground once every two hours.The operator should wear antistatic gloves or antistatic finger cot when using wired antistatic wrist strap with good touch with land.On the rocess of using,makesure the relevant equipment such as instruments,tools,gauges,etc.is landed,theturnover crates bi used during revolving and the working table be covered with laying cloth.

2. Pay attention to keep the ambient humidity between 65% and 85%,and the using of it under the sunshine or over-dried environment is not allowed.Prevent the ambient antistatic from punturing the P/Njunction.
3. pay attention to the welding factors:power must be under 30W and the electric iron must be contracted with antistatic to the ground,the welding temperature be kept as low as possible(260℃-300℃),the welding time be controlled within three seconds,and the pin welding position be 3mmupper from the middle part.
4. The light of the products may be brinht at first(heavy electric current),but after a period of using,itmay be broken down because of the antistatic puncturing or hot puncturing(IR,that is the leakage of electricity),P/N junction has been destroyed.
5. If used under common conditions,that is:IF(straightforward electric current)≤20mA(Milliamp ere).-20℃Ta(working temperature)45℃.Generally the working time is at least more than50,000hours.
6. Working humidity is -20℃-45℃ and reserving temperature is -40℃-65℃.
7. Working electric current is DC (constant currect)5mA-20mA;the best working electris current(constant current)is 15-18mA.Please press.

❖ Please use the product strictly according to the above factors to guarantee the normal operation.