

客戶名： \_\_\_\_\_

# 規格書

產品型號 \_\_\_\_\_  $\phi$  5無帽白-白光

規格書號碼 \_\_\_\_\_ YG-LED-02

確認

**鈺光科技股份有限公司**

E-light Technology inc.

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產品型號	Φ5無帽白-白光	制訂單位	工程部	編制	楊波
規格書號碼	YG-LED-02	制訂時間	2007.06.04	審核	

● COMMODITY: Φ5

● ELECTRICAL AND OPTICAL CHARACTERISTICS (Ta=25°C)

Chip	Absolute Maximum Rating	Electro-optical Data(At 20mA)		Viewing Angle	Leakage current	CIE TC (K)
		Emitted Color	WLD (nm)			
	$\Delta\lambda$ (nm) Pd (mW) If (mA)		2θ 1/2 (deg)	-5V (IR) (u A)	X:0.25-0.32 Y:0.23-0.36	
Super White	455~462.5	10 100 30	3.0~3.6 8000 20000	15±1	5	6000-20000K

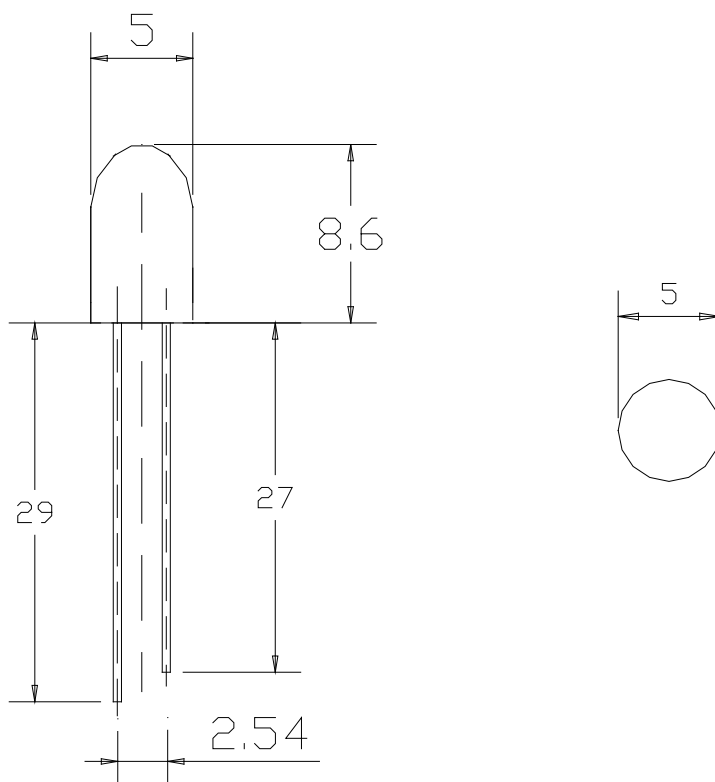
Remark :Viewing angle is the Off-axis angle at which the luminous intensity is half the axial luminous intensity.

● PACKAGE DIMENSIONS

Type :

Unit : mm

Tolerance : +/- 0.1



NOTES:

- 2.Tolerance is +0.25mm(0.01) unless otherwise specified
- 3.Lead spacing is measured where the leads emerge from the package.
- 4.Specifications are subject to change without notice.

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**Optoelectronic Characteristics at Ta=25°C.**

■ **Chip:**

Parameter	Symbol	Condition	Value	Unit
Forward Voltage	$V_F$	$I_F = 20 \text{ mA}$	3.0~3.6	V
CIE Value (X, Y)*	A	$I_F = 20 \text{ mA}$	X=0.29~0.32 Y=0.30~0.364	nm
	B		X=0.27~0.298, Y=0.27~0.324	
	C		X=0.25~0.28 Y=0.23~0.292	
Luminous Intensity*	$I_O$	$I_F = 20\text{mA}$	8000~20000	mcd
Operating Temperature	$T_{OPR}$		-40 ~ +85	°C
Storage Temperature	$T_C$		-40 ~ +85	°C
Leakage current	$I_r$	-5V	≤5	uA

\* LED reading.

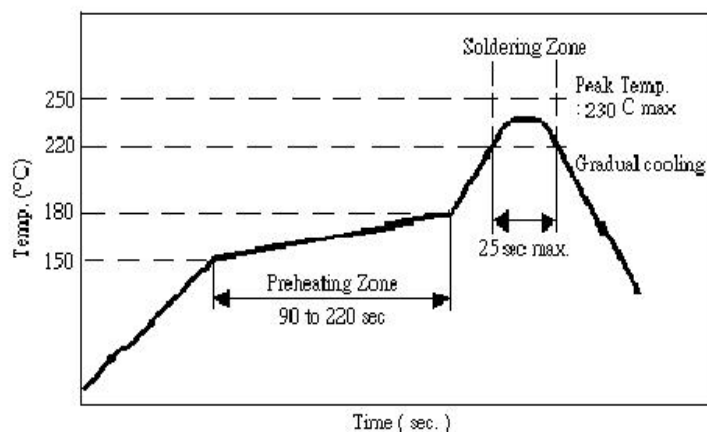
\* Customer can select which CIE range(A, B or C) they need.

\* One delivery will include four different ranks of the luminous intensity depend on customer request.

**Absolute Maximum Ratings.**

	Maximum Value	Unit
DC forward current per chip	20	mA
Peak pulse current; (1/10 duty cycle, Pulse width =0.1msec)	100	mA
Reverse voltage.	5	V
LED junction temperature.	125	°C
Operating temperature.	-40 ~ +85	°C
Storage temperature.	-40 ~ +85	°C
Power dissipation (at room temperature )	100	mW

**Recommended Soldering Temperature - Time Profile (Reflow Soldering)**



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**Group Definition of wavelength and brightness, forward voltage (@20mA)**

**A Type**

CIE	Brightness @20mA	No	Vf@ 20mA
X=0.29~0.32 Y=0.30~0.364	8000 ~ 10000 mcd 10000~13000mcd 13000~15000mcd 15000~18000mcd 18000~20000mcd	1	3.0-3.1
		2	3.1-3.2
		3	3.2-3.3
		4	3.3-3.4
		5	3.4-3.5
		6	3.5-3.6

**B Type**

CIE	Brightness @20mA	No	Vf@ 20mA
X=0.27~0.298, Y=0.27~0.324	8000 ~ 10000 mcd 10000~13000mcd 13000~15000mcd 15000~18000mcd 18000~20000mcd	1	3.0-3.1
		2	3.1-3.2
		3	3.2-3.3
		4	3.3-3.4
		5	3.4-3.5
		6	3.5-3.6

**C Type**

CIE	Brightness @20mA	No	Vf@ 20mA
X=0.25~0.28 Y=0.23~0.292	8000 ~ 10000 mcd 10000~13000mcd 13000~15000mcd 15000~18000mcd	1	3.0-3.1
		2	3.1-3.2
		3	3.2-3.3
		4	3.3-3.4
		5	3.4-3.5
		6	3.5-3.6

\* One delivery would be included 54 different ranks of the luminous intensity ,  
wavelength and Vf depend on customer request.

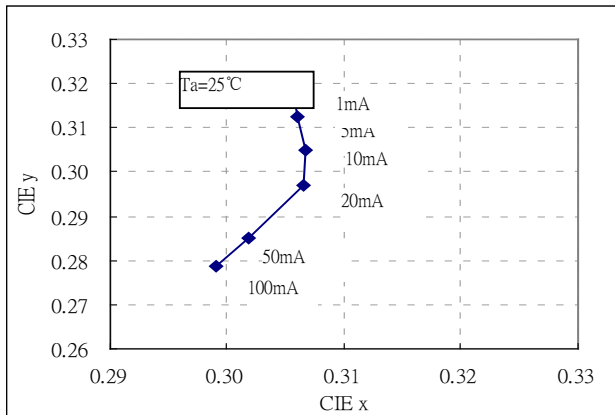
\* The quantity ratio of the different intensity and wavelength ranks in one delivery is decided by YG.

\* The reel of LED shows the number of definition of LEDs on reel label.

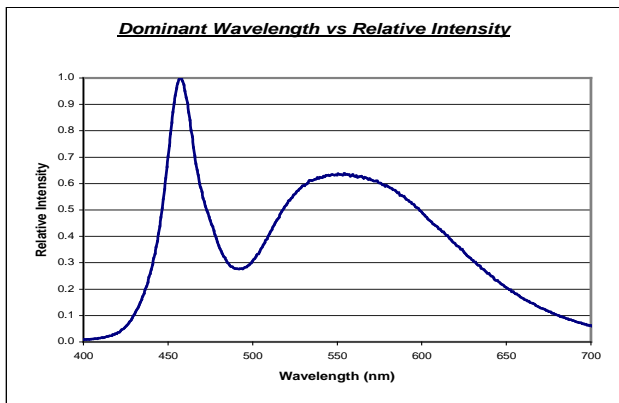
產品型號	φ5無帽白-白光	制訂單位	工程部的	編制	楊波
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**Optical and electrical characteristics**

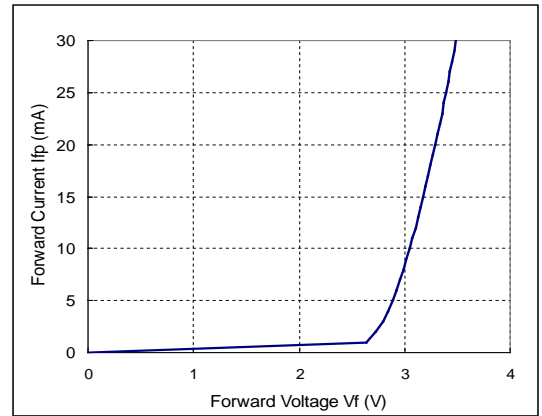
*Forward Current vs. Chromaticity diagram*



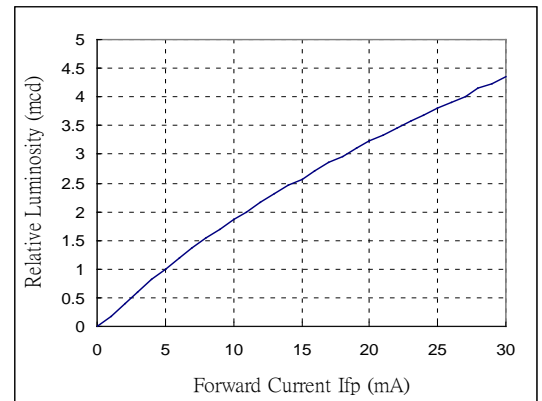
Spectrum



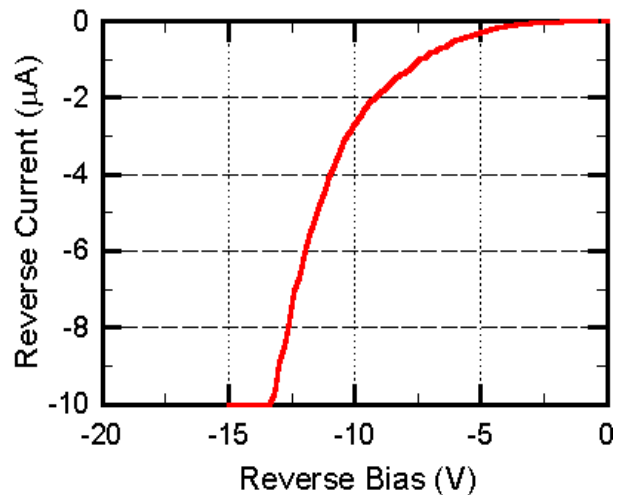
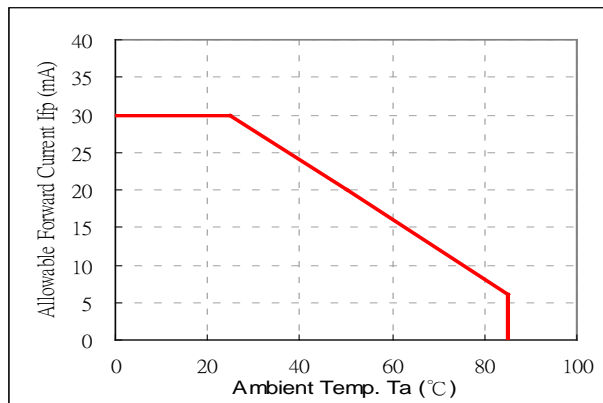
*Forward current vs. forward voltage.*



Relative luminous intensity vs. forward current.



Allowable Forward Current vs. Ambient Temperature.



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**Reliability Test :**

NO	Test Item	Test Conditions	Time	Results (Failure/ Sample Size)
1.	Thermal Cycle Test (168 cycle)	H : +75°C 30min ~ L : -35°C 30min	168Hrs	0/20
2	Thermal Shock Test (84 cycle, Rate=5min)	-40 °C( Holding 120 min) --> 85°C( Holding 120 min) 15 cycles, rate = 5 min	168Hrs	0/20
3.	High Temp. Storage Test	85°C, 120 Hr	168Hrs	0/20
4.	Low Temp. Storage Test	-25°C, 120 Hr	168Hrs	0/20
5	High Temp. High Humidity Test	80°C, 85% RH, 168 Hr M.S. Level 3M.S. Level 3	168Hrs	0/20
6	Press Cook Test	T=121°C, P=2atm, H=100%RH	168Hrs	0/20
7	Operating Life Test	If=20mA, 25°C	500Hrs	0/20
8	Soldering Heat Test	260+/-10°C, 10 sec	2 Times	20
9	ESD Test	HBM Class 1		10
10	Drop Test	152 cm, 12 times		20

**Conclusions:**

The reliability tests were designed to evaluate both package integrity as well as workability of product performance over time. All samples have done well by completed test requirement and passed all the qualification criteria with zero failure. From design standpoint, the package is robust enough to meet its datasheet conditions. Based on the good result shows on the above test, this product is qualified and released for market.