



## Data Sheet

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Customer: \_\_\_\_\_

Part No: \_\_\_\_\_

CLT5811

Sample No: \_\_\_\_\_

Description: \_\_\_\_\_

5Ø Lamp Photo Transister

Item No: \_\_\_\_\_

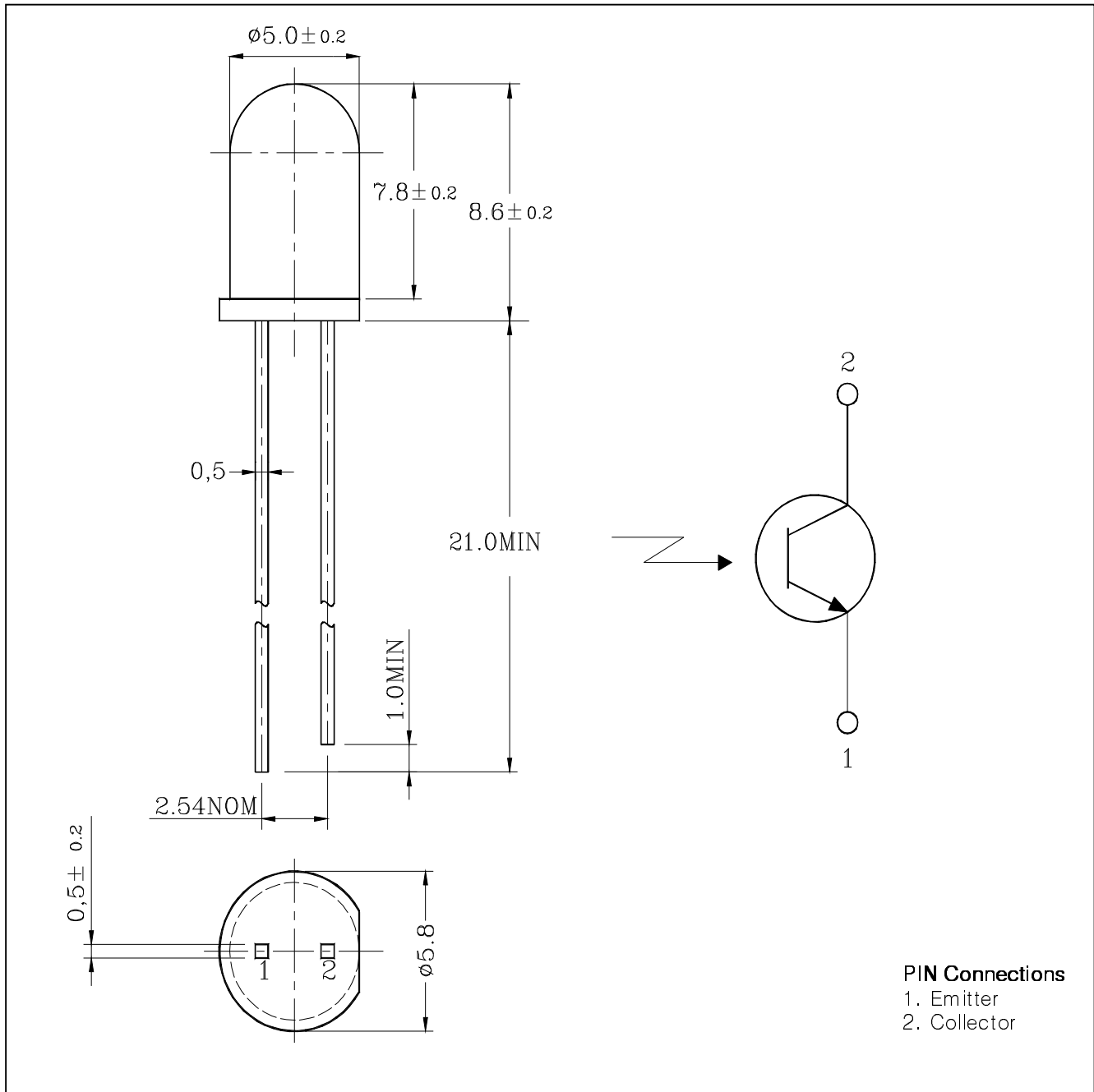
Customer			
Check	Inspection	Approval	Date

### 1. Features

- ▶ Lensed for high sensitivity
- ▶  $\phi$  5mm all plastic mold type
- ▶ High reliability and stable characteristics

### 2. Package Dimensions

Unit : mm



### 3. Absolute maximum ratings

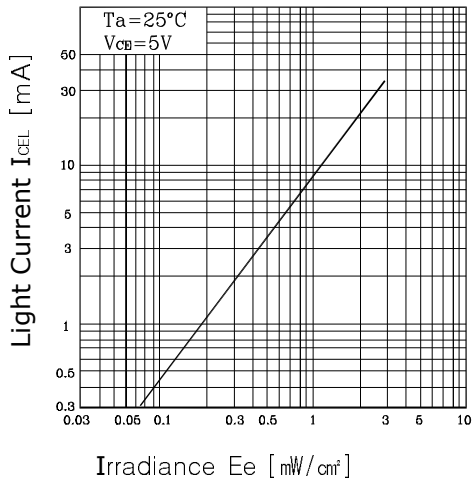
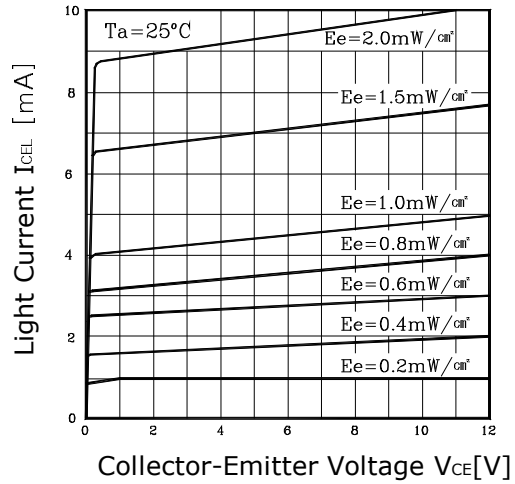
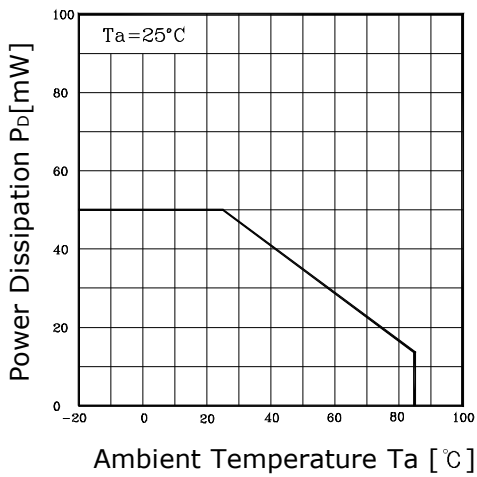
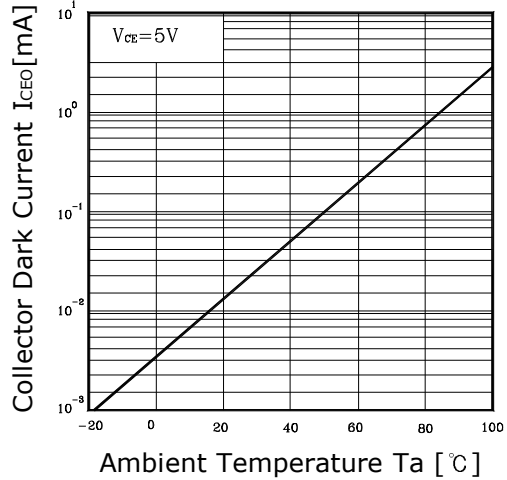
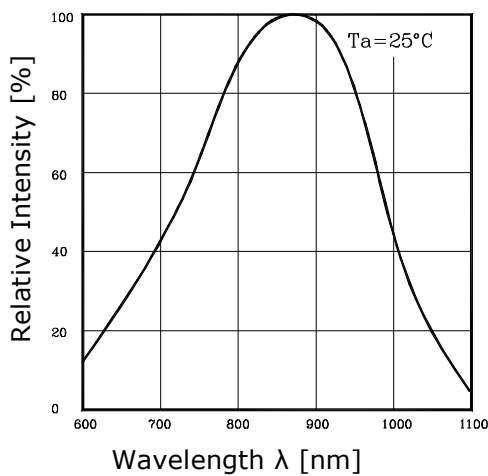
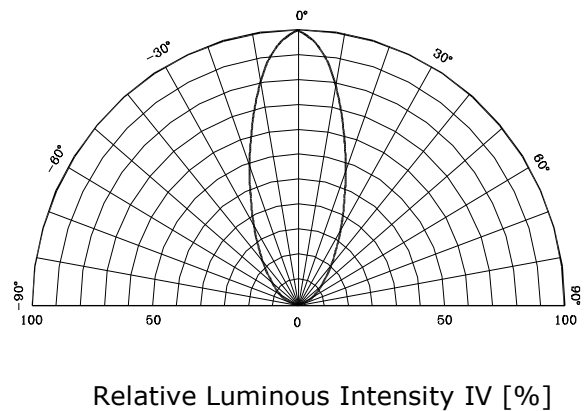
Characteristic	Symbol	Ratings	Unit
Collector-Emitter Voltage	$V_{CEO}$	35	V
Emitter-Collector Voltage	$V_{ECO}$	6	V
Collector Current	$I_C$	20	mA
Collector Power Dissipation	$P_D$	75	mW
Operating Temperature	$T_{opr}$	-25~85	°C
Storage Temperature	$T_{stg}$	-30~100	°C
*1 Soldering Temperature	$T_{sol}$	260°C for 5 seconds	

\*1. Keep the distance more than 2.0mm from PCB to the bottom of LED package

### 4. Electrical Characteristics

Characteristic	Symbol	Test Condition	Min	Typ	Max	Unit
Current Dark Current	$I_{CEO}$	$V_{CEO}=10V, E_e=0$	-	0.05	0.5	$\mu A$
*1 Light Current	$I_{CEL}$	$V_{CE}=5V, E_e \pm 1mW/cm^2$	4	-	7	mA
			7		10	
			10	-	12	
			12	-	14	
Current-Emitter Saturation Voltage	$V_{CE(sat)}$	$I_C=0.5mA, E_e \pm 1mW/cm^2$	-	0.2	-	V
Switching Time	Rise Time	$V_{CC}=10V, I_C=1mA$ $R_1=100\Omega$	-	2.5	-	$\mu s$
	Fall Time			$t_f$		
Spectral Sensitivity	$\lambda$	-	750~1050			nm
Peak Sensitivity Wavelength	$\lambda_P$	-	-	880	-	nm
Half angle	$\theta_{1/2}$	$I_F=20mA$	-	$\pm 20$	-	deg

\*1. Tolerance =  $\pm 30\%$

**5.Characteristic Diagrams**
**Fig.1 I<sub>CEL</sub> - E<sub>e</sub>**

**Fig.2 I<sub>CEL</sub> - V<sub>CE</sub>**

**Fig.3 P<sub>b</sub> - T<sub>a</sub>**

**Fig.4 I<sub>CE0</sub> - T<sub>a</sub>**

**Fig.5 Spectrum Sensitivity**

**Fig.6 Sensitivity Diagram**


## 6-1. Soldering conditions

(1) The LEDs can be soldered in place using the reflow soldering method.

Ciellight does not make any guarantee on the LEDs after they have been assembled using the dip soldering method.

(2) Recommended soldering conditions

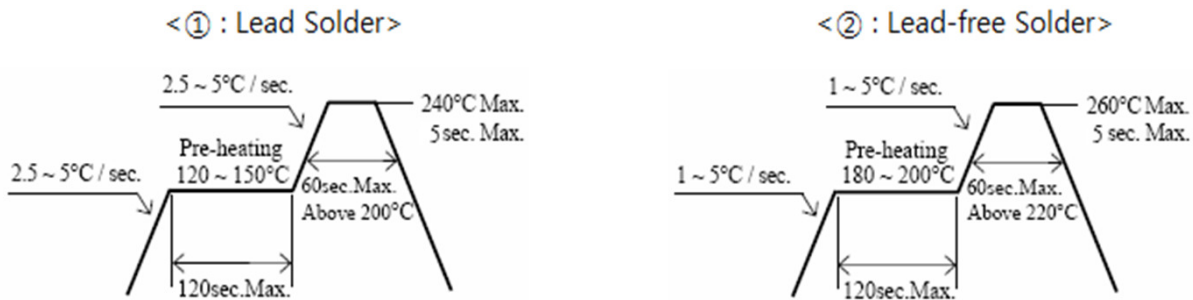
	Reflow Soldering		Hand Soldering	
	Lead Solder	Lead-free Solder	Temperature	350°C Max. 3sec Max. (one time only)
Pre-Heat	120~150°C	180~200°C		
Pre-Heat Time	120sec Max.	120sec Max.		
Peak Temperature	240°C Max.	260°C Max.		
Soldering Time	5sec Max.	5sec Max.		
Condition	refer to profile ①	refer to profile ②		

\* Although the recommended soldering conditions are specified in the above table, reflow soldering at the lowest possible temperature is desirable for the LEDs.

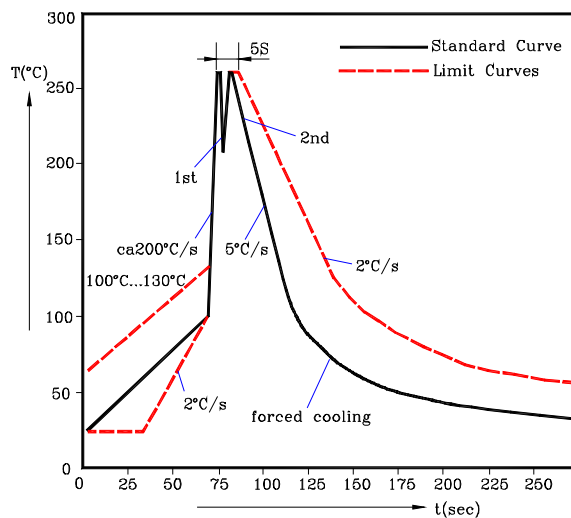
\* A rapid-rate process is not recommended for cooling the LEDs down from the peak temperature.

[Temperature-Profile (surface of circuit board)]

Use the conditions shown to the following figures.



## 6-2. TTW Soldering



## **7. Caution on usage**

7-1. Static electricity and surge will damage the LEDs. It is recommended to take measures to prevent ESD problem (for example, grounding equipment and the human body, using grounded soldering iron and so on).

7-2. Be careful never to exceed, even momentarily, the absolute maximum ratings specified in the data sheet.

7-3. Ciel Light will not be held responsible for any damage to the user that may result from accidents or any other reasons during operation of the user's unit if use to exceed the absolute maximum ratings, or not keep the matters that demand special attention.

7-4. Store and use where there is no corrosive gas.

7-5. While the device is operational across the temperature range, functionality will vary with temperature. Specifications are stated only.

7-6. Stresses beyond those listed under "absolute maximum ratings" may cause permanent damage to the device. These are stress ratings only, and functional operation of the device at these or any other conditions beyond those indicated under "recommended operating conditions" is not implied. Exposure to absolute-maximum-rated conditions for extended periods may affect device reliability.

## **8. Warranty period : One year after delivery.**

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