KWB-R7323-1RGB

72.5mm×22.5mm RGB Full Color Backlight

Technical Data Sheet

Features

- Low current operation
- Excellent characters appearance
- Large area, uniform, bright light emitting surface.
- Switchable use of white LED and IR LED
- RoHS Compliant

Descriptions

- The KWB-R7323-1RGB is used as a backlight of emitting area 72.5mm×22.5mm.
- The display provides excellent reliability in bright ambient light.

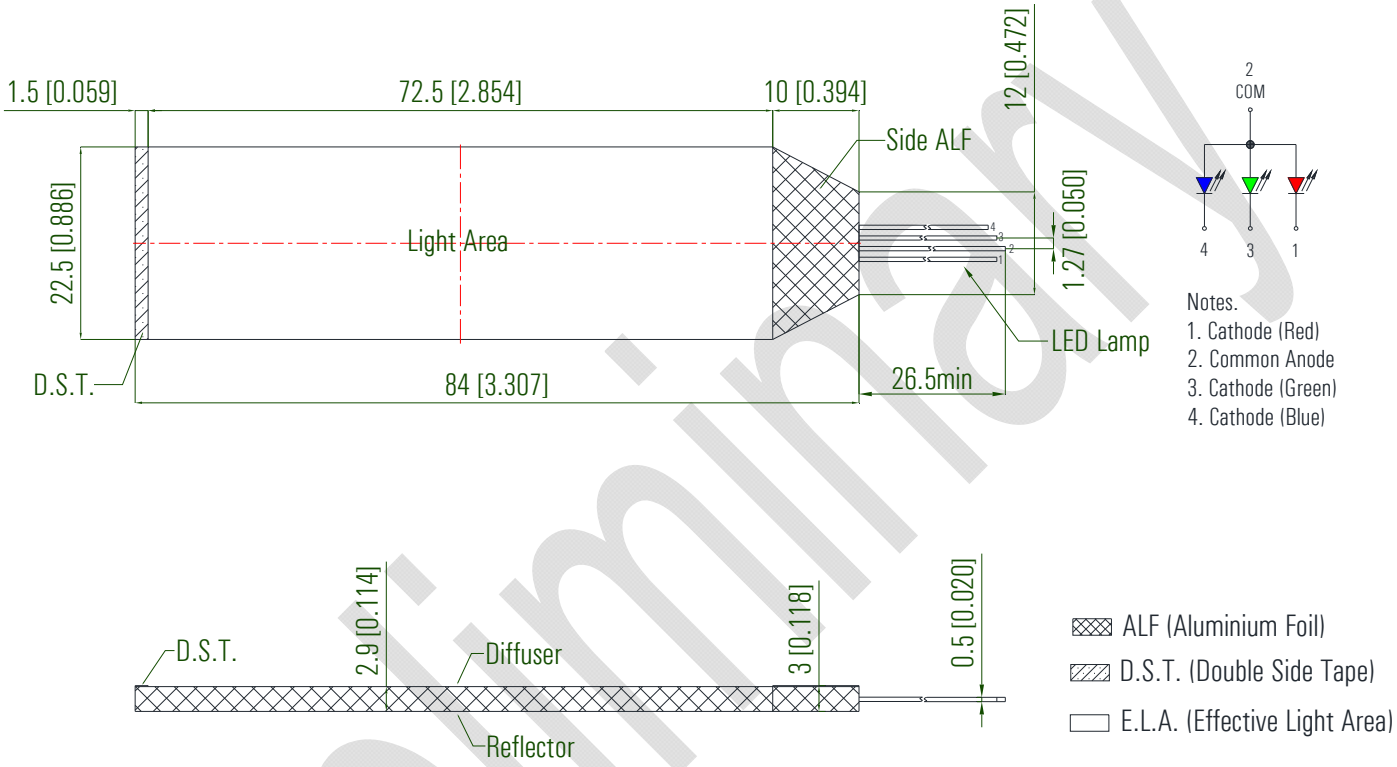
Applications

- Flat backlight for LCD, switches and symbols.
- Indicator and backlight in office equipment.
- Indicator and backlight for battery driven equipment.
- Indicator and backlight for audio and video equipment.
- Automotive: Backlighting in dashboards and switches.
- Telecommunication: Indicator and backlighting in telephone and fax.

Device Selection Guide

Part No.	Light Sources		Face Color
KWB-R7323-1RGB	R	Red	White
	G	Pure Green	
	B	Blue	

Package Dimension



Notes:

1. All dimensions are in millimeters (inches).
2. Tolerance is ± 0.25mm (.010”) unless otherwise noted.
3. The specifications, characteristics and technical data described in the datasheet are subject to change without prior notice.

Technical Data Sheet

Absolute Maximum Ratings at T_A=25℃ (Red)

Parameters	Symbol	Max	Unit
Power Dissipation	P_D	48	mW
Peak Forward Current (1/10 Duty Cycle, 0.1ms Pulse Width)	I_{FP}	40	mA
Forward Current	I_F	20	mA
Reverse Voltage	V_R	5	V
Operating Temperature Range	T_{opr}	-20℃ to +70℃	
Storage Temperature Range	T_{stg}	-25℃ to +75℃	
Soldering Temperature	T_{sld}	260℃ for 5 Seconds	

Electrical Optical Characteristics at T_A=25℃ (Red)

Parameters	Symbol	Min.	Typ.	Max.	Unit	Test Condition
Average Luminous Intensity	Iv	32	64	---	mcd	IF=10mA (Note a)
Peak Emission Wavelength	λp	---	632	---	nm	IF=10mA
Dominant Wavelength	λd	---	624	---	nm	IF=10mA (Note b)
Spectral Line Half-Width	Δλ	---	20	---	nm	IF=10mA
Forward Voltage	V_F	---	1.8	2.4	V	IF=10mA (Note c)
Reverse Current	I_R	---	---	50	μA	VR=5V

Notes:

a. Luminous intensity is measured with a light sensor and filter combination that approximates the CIE eye-response curve. Tolerance of Luminous Intensity: ± 10%.

b. The dominant wavelength (λd) is derived from the CIE chromaticity diagram and represents the single wavelength which defines the color of the device.

c. Tolerance of Forward Voltage: ± 0.1V.

Absolute Maximum Ratings at T_A=25℃ (Pure Green)

Parameters	Symbol	Max	Unit
Power Dissipation	P_D	64	mW
Peak Forward Current (1/10 Duty Cycle, 0.1ms Pulse Width)	I_{FP}	40	mA
Forward Current	I_F	20	mA
Reverse Voltage	V_R	5	V
Operating Temperature Range	T_{opr}	-20℃ to +70℃	
Storage Temperature Range	T_{stg}	-25℃ to +75℃	
Soldering Temperature	T_{sld}	260℃ for 5 Seconds	

Electrical Optical Characteristics at T_A=25℃ (Pure Green)

Parameters	Symbol	Min.	Typ.	Max.	Unit	Test Condition
Average Luminous Intensity	Iv	130	260	---	mcd	IF=10mA (Note a)
Peak Emission Wavelength	λp	---	520	---	nm	IF=10mA
Dominant Wavelength	λd	---	525	---	nm	IF=10mA (Note b)
Spectral Line Half-Width	Δλ	---	20	---	nm	IF=10mA
Forward Voltage	V_F	---	2.8	3.2	V	IF=10mA (Note c)
Reverse Current	I_R	---	---	50	μA	VR=5V

Notes:

a. Luminous intensity is measured with a light sensor and filter combination that approximates the CIE eye-response curve. Tolerance of Luminous Intensity: ± 10%.

b. The dominant wavelength (λd) is derived from the CIE chromaticity diagram and represents the single wavelength which defines the color of the device.

c. Tolerance of Forward Voltage: ± 0.1V.

Absolute Maximum Ratings at T_A=25℃ (Blue)

Parameters	Symbol	Max	Unit
Power Dissipation	P_D	64	mW
Peak Forward Current (1/10 Duty Cycle, 0.1ms Pulse Width)	I_{FP}	40	mA
Forward Current	I_F	20	mA
Reverse Voltage	V_R	5	V
Operating Temperature Range	T_{opr}	-20℃ to +70℃	
Storage Temperature Range	T_{stg}	-25℃ to +75℃	
Soldering Temperature	T_{sld}	260℃ for 5 Seconds	

Electrical Optical Characteristics at T_A=25℃ (Blue)

Parameters	Symbol	Min.	Typ.	Max.	Unit	Test Condition
Average Luminous Intensity	Iv	33	66	---	mcd	IF=10mA (Note a)
Peak Emission Wavelength	λp	---	468	---	nm	IF=10mA
Dominant Wavelength	λd	---	470	---	nm	IF=10mA (Note b)
Spectral Line Half-Width	Δλ	---	20	---	nm	IF=10mA
Forward Voltage	V_F	---	2.8	3.2	V	IF=10mA (Note c)
Reverse Current	I_R	---	---	50	μA	VR=5V

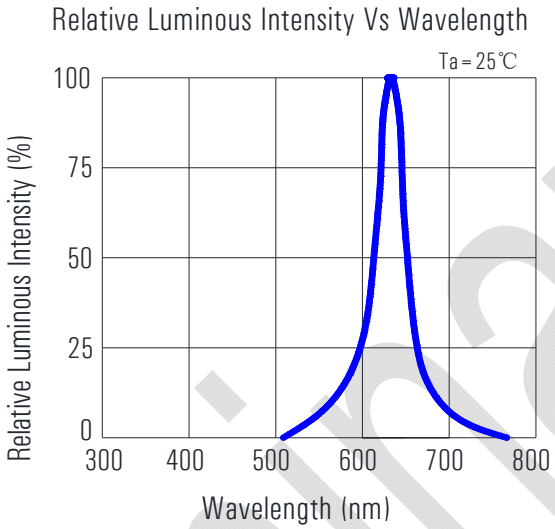
Notes:

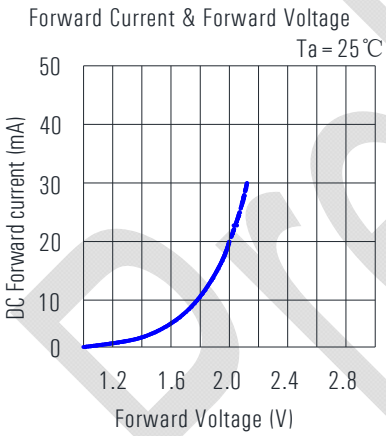
a. Luminous intensity is measured with a light sensor and filter combination that approximates the CIE eye-response curve. Tolerance of Luminous Intensity: ± 10%.

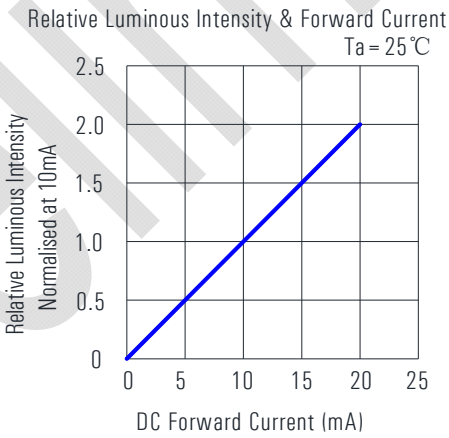
d. The dominant wavelength (λd) is derived from the CIE chromaticity diagram and represents the single wavelength which defines the color of the device.

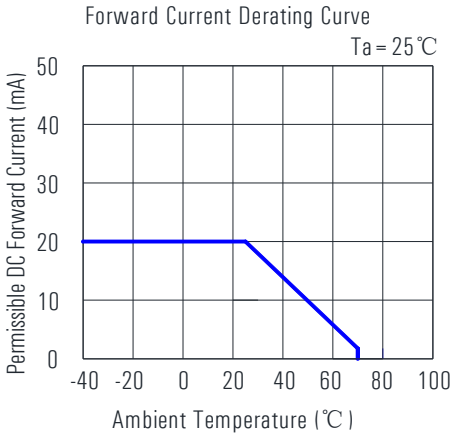
c. Tolerance of Forward Voltage: ± 0.1V.

Typical Electrical/Optical Characteristic Curves at T_A = 25°C (Red)

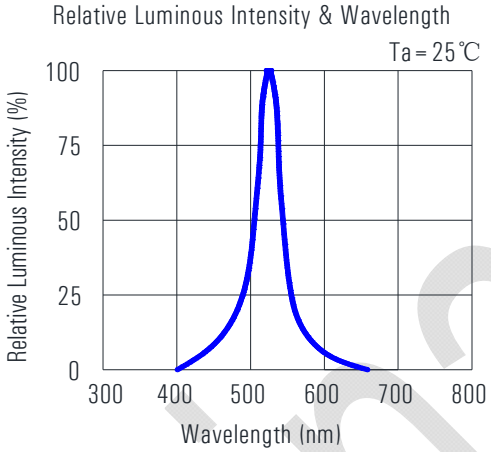


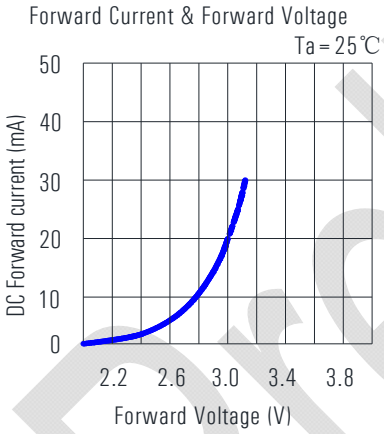


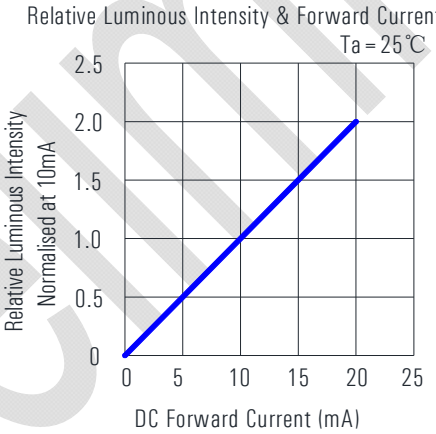


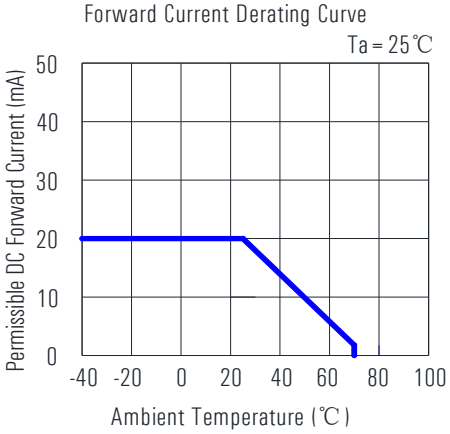


Typical Electrical/Optical Characteristic Curves at T_A = 25°C (Pure Green)

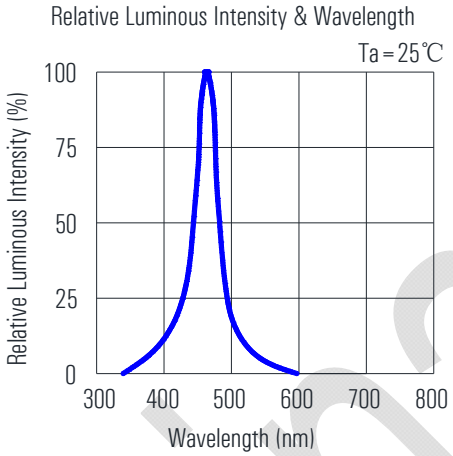


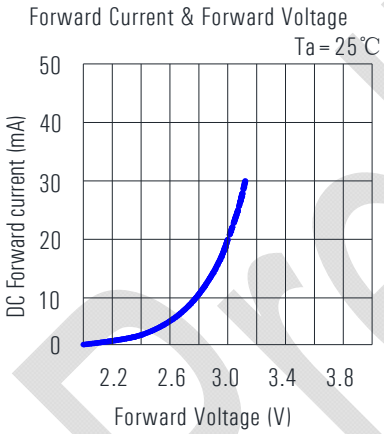


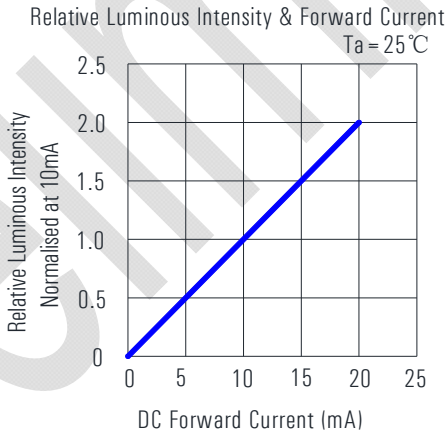


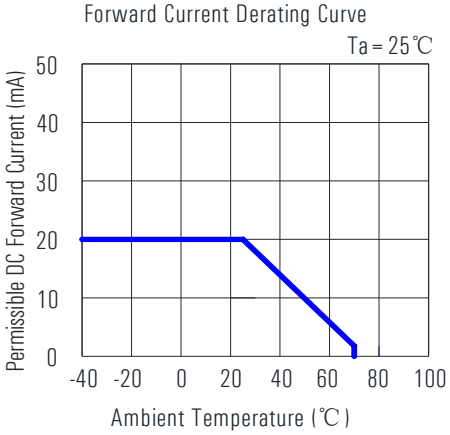


Typical Electrical/Optical Characteristic Curves at T_A = 25°C (Blue)

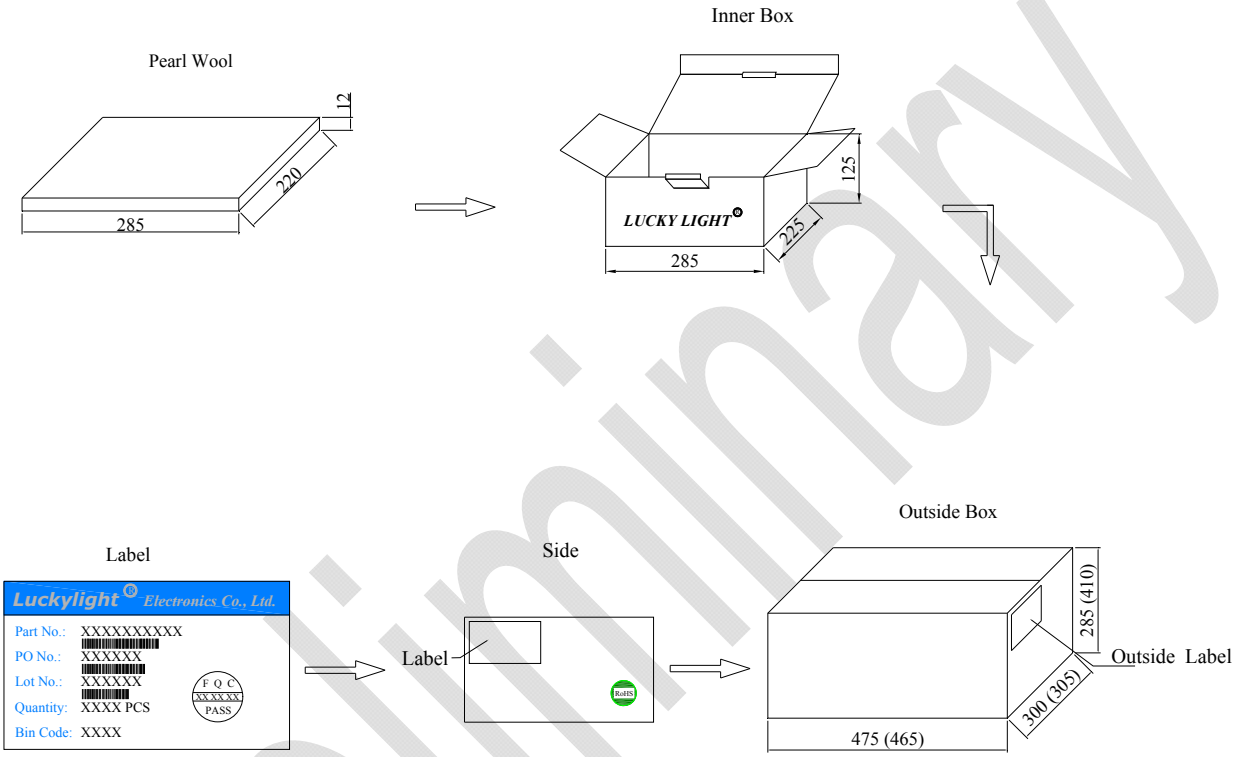








Packing & Label Specifications



Terms and conditions for the usage of this document:

a. The part number, type, and specifications mentioned in this document are subject to future change and improvement without notice. Before production usage customer should refer to the latest datasheet for the updated specifications.

b. When using the products referenced in this document, please make sure the product is being operated within the environmental and electrical limits specified in the datasheet. If customer usage exceeds the specified limits, Luckylight will not be responsible for any subsequent issues.

c. The contents and information of this document may not be reproduced or re-transmitted without permission by Luckylight.

d. Over-current-proof

Customer must apply resistors for protection, otherwise slight voltage shift will cause big current change (Burn out will happen).

e. LED Storage Instructions:

1)Store LEDs at or below 30℃ and at or below 80% relative humidity (RH) before opening the package.

2) Use LEDs within one year of purchase.

3) After opening the package, store LEDs at or below 30℃and at or below 60%RH.

f. ESD (Electrostatic Discharge)

Static Electricity or power surge will damage the LED. Suggestions to prevent ESD damage:

1) Use of a conductive wrist band or anti-electrostatic glove when handling these LEDs.

2) All devices, equipment, and machinery must be properly grounded.

3) Work tables, storage racks, etc. should be properly grounded.

g. Notes for using backlight:

1) The backlight requires a very high dust-proof level for the working environment. Welding and assembly must be done in a dust-free environment to prevent black spots and debris from affecting the lighting effect.

2) The backlight should not be touched by other hard objects or dropped on the ground to prevent damage.

3) Do not use hot air or high temperature to blow on the film of the backlight during operation to prevent damage to the film.

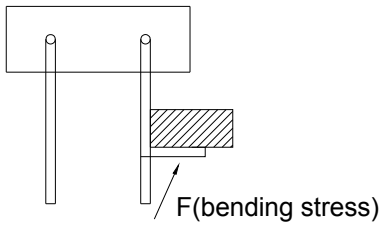
4) The backlight should be handled with care, and protective gloves should be worn to prevent sweat and debris from adhering to the film, which may affect its appearance and lighting effect.

5) Please get rid of the surface transparent protection film before use.

Through Hole Display Mounting Method

Lead Forming:

1. Do not bend the component leads by hand without proper tools.
2. The leads should be bent by clinching the upper part of the lead firmly such that the bending force Is not exerted on the plastic body.



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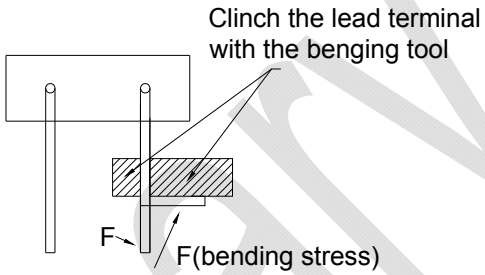
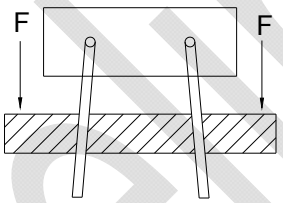


Recommended

Installation:

1. The installation process should not apply stress to the lead terminals.
2. When inserting for assembly, ensure the terminal pitch matches the substrate board's hole pitch to prevent spreading or pinching the lead terminals.



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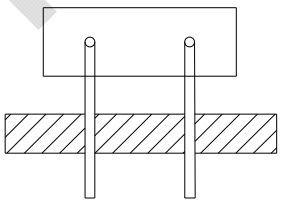
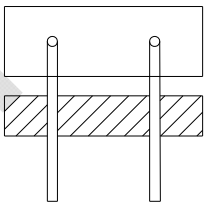
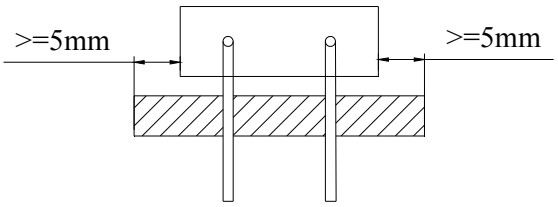


Recommended

3. The component shall be placed at least 5mm from edge of PCB to avoid damage caused excessive heat during wave soldering.





Soldering Iron

Each terminal is to go to the tip of soldering iron temperature less than 260℃for 5 seconds within once in less than the soldering iron capacity 25W. Leave two seconds and more intervals, and do soldering of each terminal. Be careful because the damage of the product is often started at the time of the hand solder.

Soldering

1. When soldering, for Lamp without stopper type and must be leave a minimum of 3mm clearance from the base of the lens to the soldering point.
2. When soldering, for Lamp without stopper type and must be leave a minimum of 3mm clearance from the base of the lens to the soldering point.
3. To avoided the Epoxy climb up on lead frame and was impact to non-soldering problem, dipping the lens into the solder must be avoided.
4. Do not apply any external stress to the lead frame during soldering while the LED is at high temperature.

Recommended soldering conditions:

Soldering Iron	
Temperature	300℃ Max.
Soldering Time	3 sec. Max. (one time only)

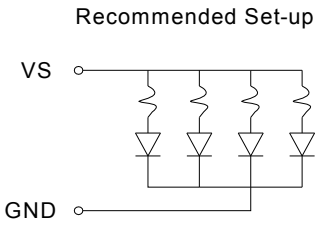
Note: Excessive soldering temperature and / or time might result in deformation of the LED lens or catastrophic failure of the LED.

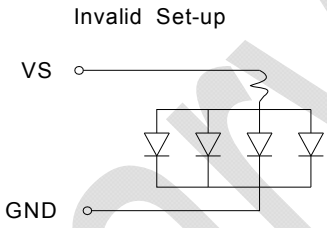
Soldering General Notes:

1. Through-hole displays are incompatible with reflow soldering.
2. If components will undergo multiple soldering processes, or other processes where the components may be subjected to intense heat, please check with Luckylightfor compatibility.

Circuit Design Notes:

1. Protective current-limiting resistors may be necessary to operate the LEDs within the specified range.
2. LEDs mounted in parallel should each be placed in series with its own current-limiting resistor.





3. The driving circuit should be designed to protect the LED against reverse voltages and transient voltage spikes when the circuit is powered up or shut down.
4. The safe operating current should be chosen after considering the maximum ambient temperature of the operating environment.
5. Prolonged reverse bias should be avoided, as it could cause metal migration, leading to an increase in leakage current or causing a short circuit.

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2. Description of Data in Datasheets:

The data presented in this datasheet represents typical values and does not constitute guaranteed figures. The data provided is for reference purposes only.

3. Compliance with Usage Instructions:

When using this product, please strictly adhere to the absolute maximum ratings and instructions outlined in the specification sheets. Luckylight shall not be held responsible for any damage resulting from non-compliance with these instructions.

4. Application Limitations:

This product is not intended for applications in military, aviation, automotive, medical, life-sustaining, or life-saving fields where failure could cause personal injury or death. For specific application requirements, please consult an authorized Luckylight sales representative.

5. Disclaimer:

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Revision History

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