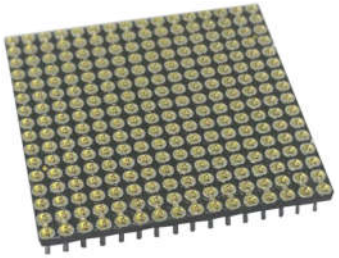
KWM-181616AA/KWM-181616CA

1.57 inch (40.0mm), Orange

Φ1.8mm 16×16 Dot Matrix LED Display

Technical Data Sheet

Features:



- 1.57 inch (40.0mm) Matrix height
- 16 × 16 dot matrix font
- Low power consumption
- Categorized for luminous intensity
- Choice of colors: Red or Green, etc.
- Choice of face paint colors: Gray or black
- Design flexibility: Common row anode or common row cathode
- RoHS Compliant.

Descriptions:

- The KWM-181616AA/ KWM-181616CA is a 1.57 inch (40.0mm) height dot matrix display.
- The display provides excellent reliability in bright ambient light.
- The device is made with clarity dots .

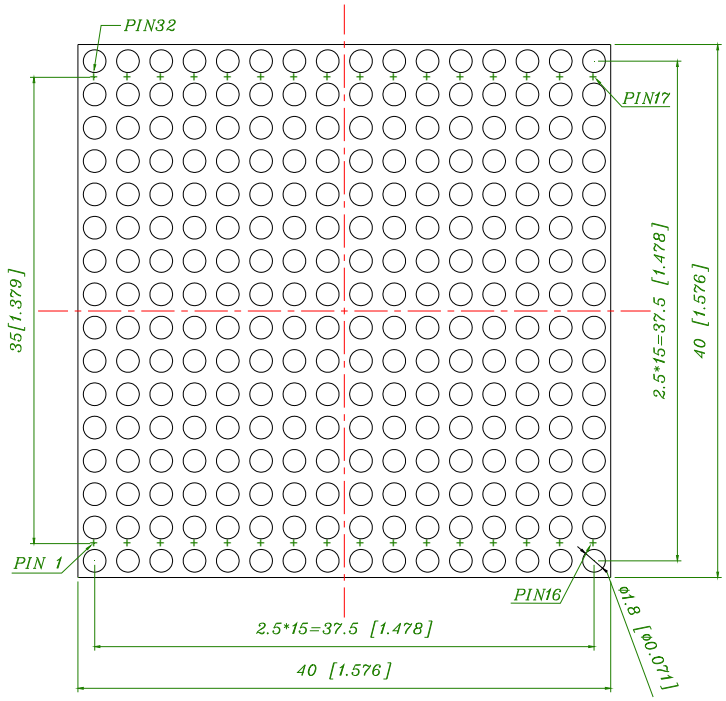
Applications:

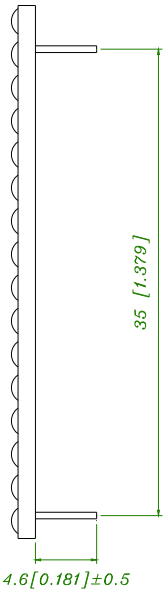
- Indoor monochromatic display applications, used in variable message signs and static massage panels
- Airport, train and bus station display panels
- Electronic message centers---Stock market, department stores, stadiums, banks and cafes
- Safety Signage---Factories and Hospitals

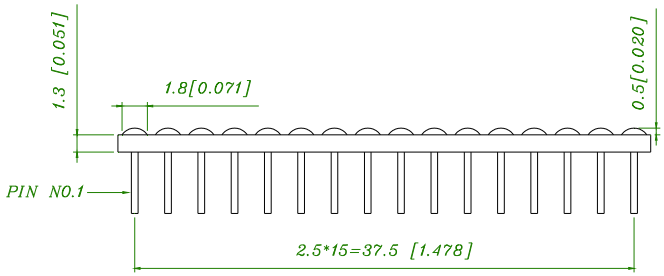
Device Selection Guide:

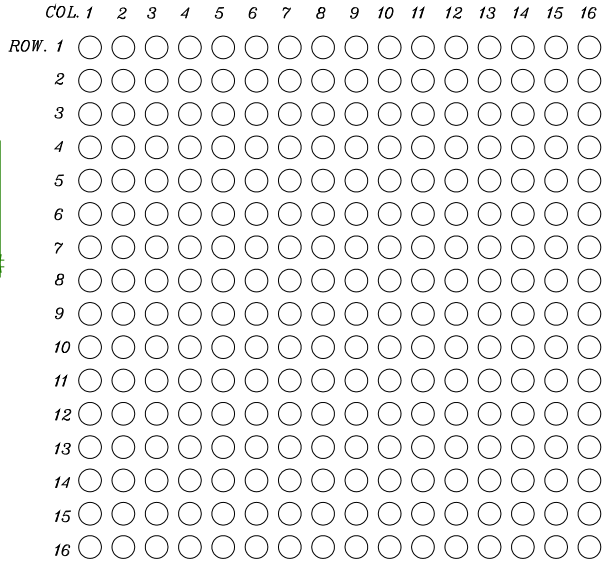
Part No.	Emitting Color	Polarity
KWM-181616AA	Orange	Common Row Anode
KWM-181616CA	Orange	Common Row Cathode

Package Dimension:







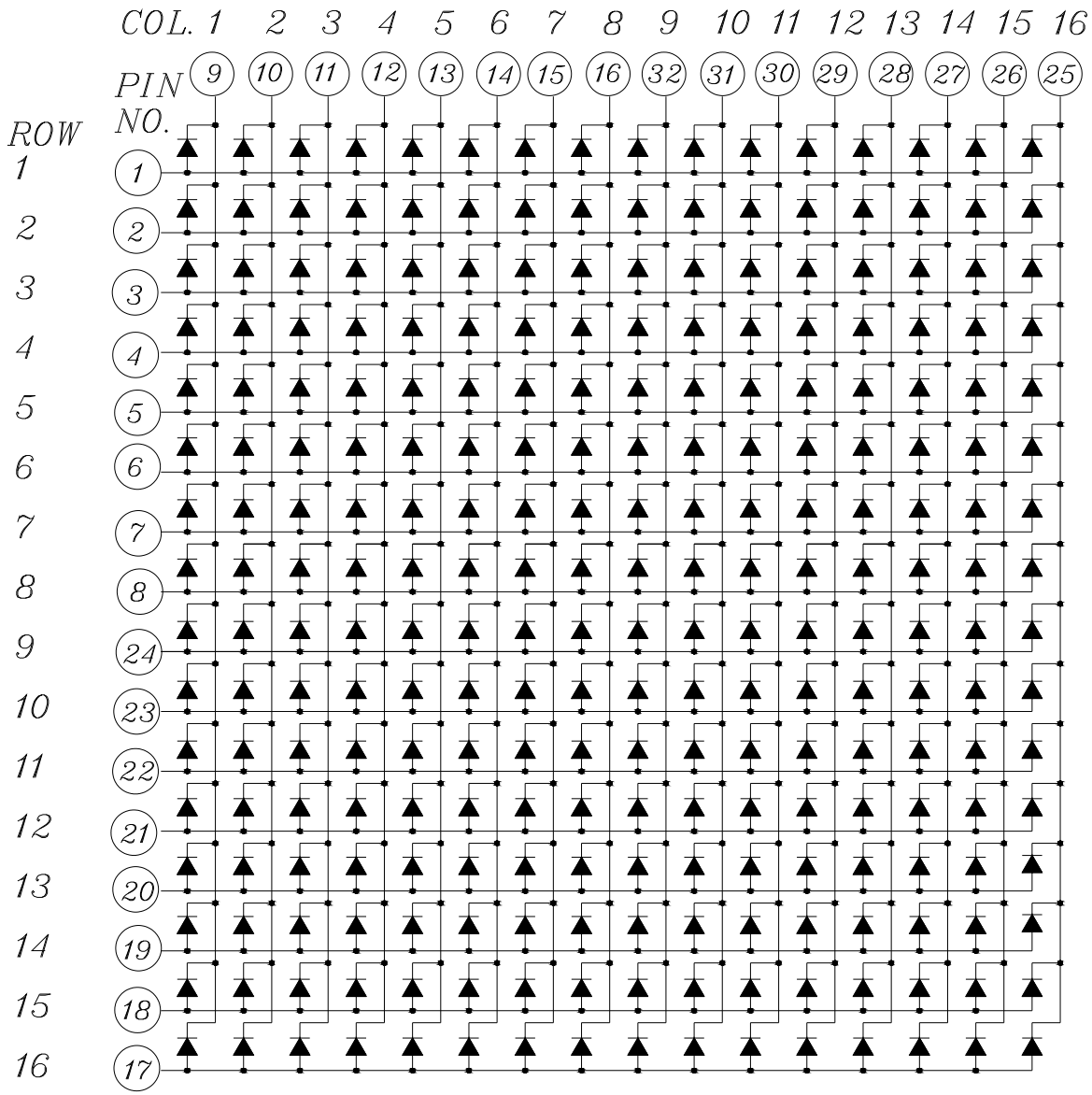


Notes:

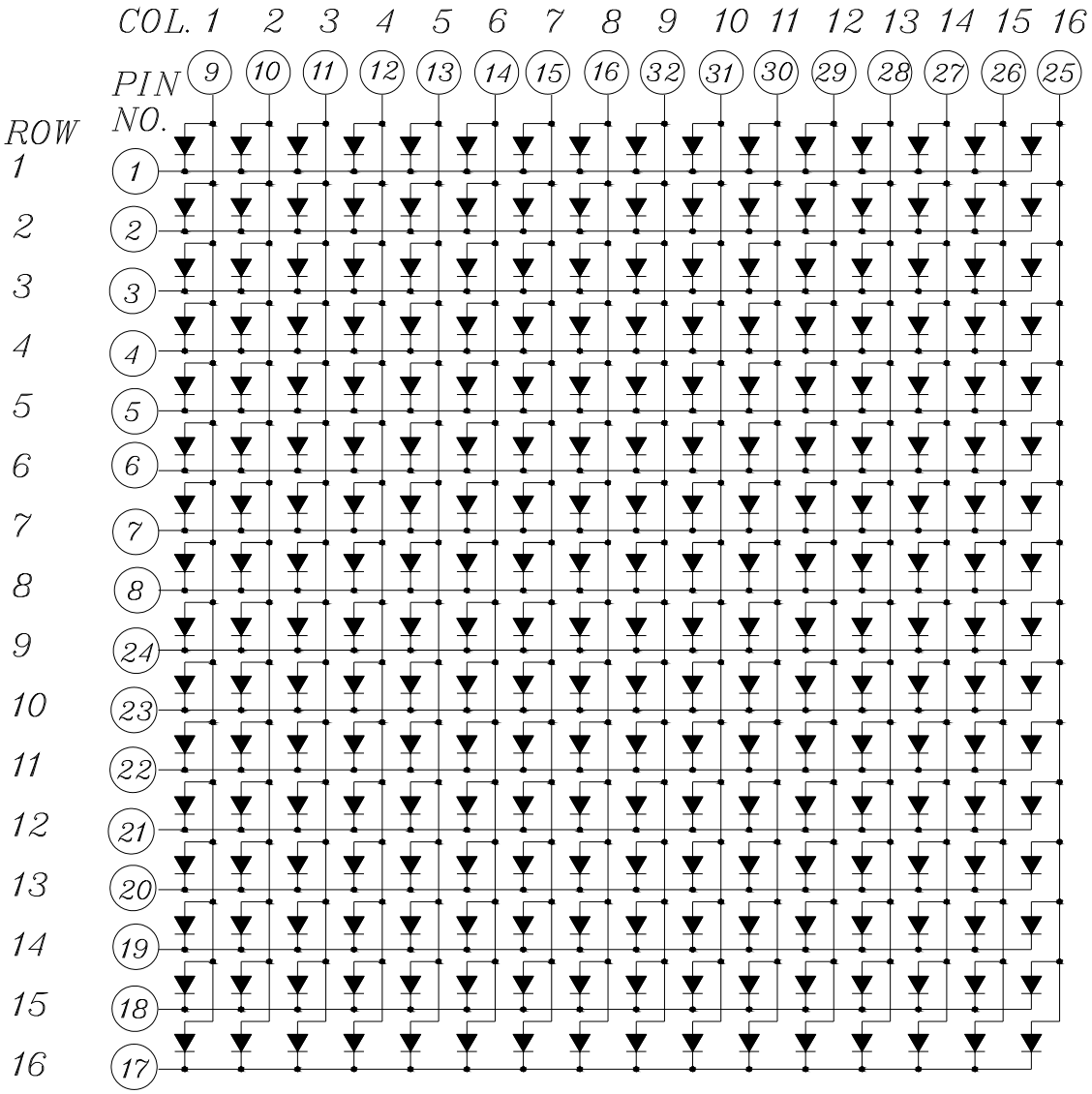
1. All dimensions are in millimeters (inches).
2. Tolerance is ± 0.25 mm (.010″) unless otherwise noted.

Internal Circuit Diagram:

Common Row Anode: KWM-181616AA



Common Row Cathode: KWM-181616CA



Absolute Maximum Ratings at Ta=25℃

Parameters	Symbol	Max	Unit
Power Dissipation Per Dot	P_d	48	mW
Peak Forward Current Per Dot (1/10 Duty Cycle, 0.1ms Pulse Width)	I_{FP}	100	mA
Forward Current Per Dot	I_F	20	mA
Reverse Voltage Per Dot	V_R	5	V
Operating Temperature Range	T_{opr}	-40℃ to +80℃	
Storage Temperature Range	T_{stg}	-40℃ to +85℃	
Soldering Temperature	T_{sld}	260℃ for 5 Seconds	

Electrical Optical Characteristics at Ta=25℃

Parameters	Symbol	Min.	Typ.	Max.	Unit	Test Condition
Average Luminous Intensity	Iv	18.0	35.0	---	mcd	IF=10mA (Note a)
		35.0	70.0	---	mcd	IF=20mA (Note a)
Luminous Intensity Matching Ratio	I_{v-m}	---	---	2:1		IF=10mA
Peak Emission Wavelength	λp	---	610	---	nm	IF=20mA
Dominant Wavelength	λd	---	605	---	nm	IF=20mA (Note b)
Spectral Line Half-Width	△λ	---	20	---	nm	IF=20mA
Forward Voltage Per Dot	V_F	---	2.1	2.4	V	IF=20mA
Reverse Current Per Dot	I_R	---	---	50	μA	VR=5V

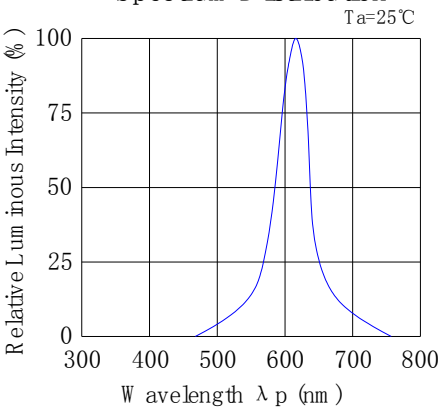
Notes:

a. Luminous intensity is measured with a light sensor and filter combination that approximates the CIE eye-response curve.

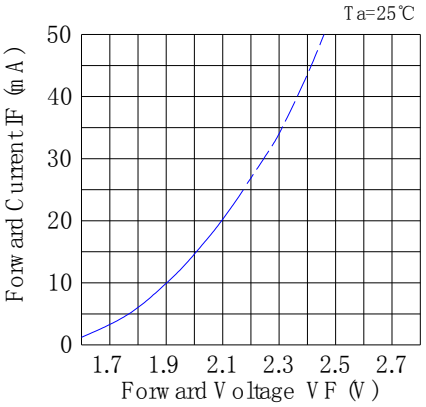
b. The dominant wavelength (λd) is derived from the CIE chromaticity diagram and represents the single wavelength which defines the color of the device.

Typical Electrical / Optical Characteristics Curves
(25℃ Ambient Temperature Unless Otherwise Noted)

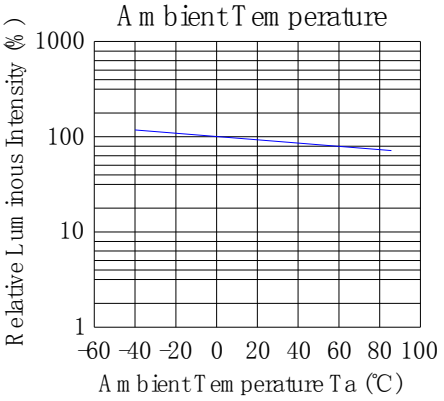
Spectrum Distribution



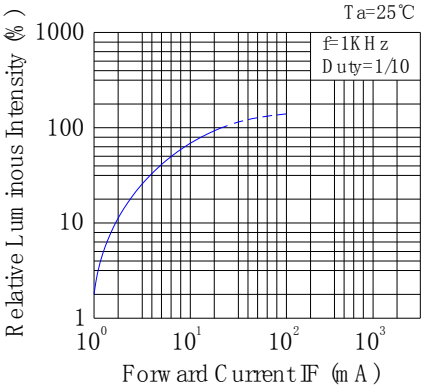
Forward Current& Forward Voltage



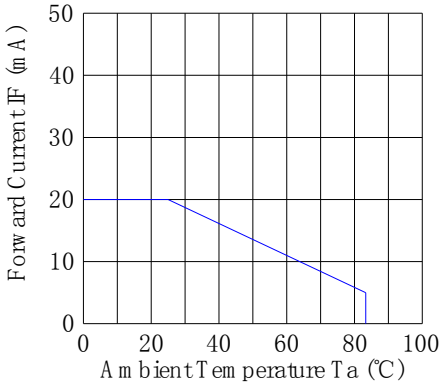
Luminous Intensity & Ambient Temperature



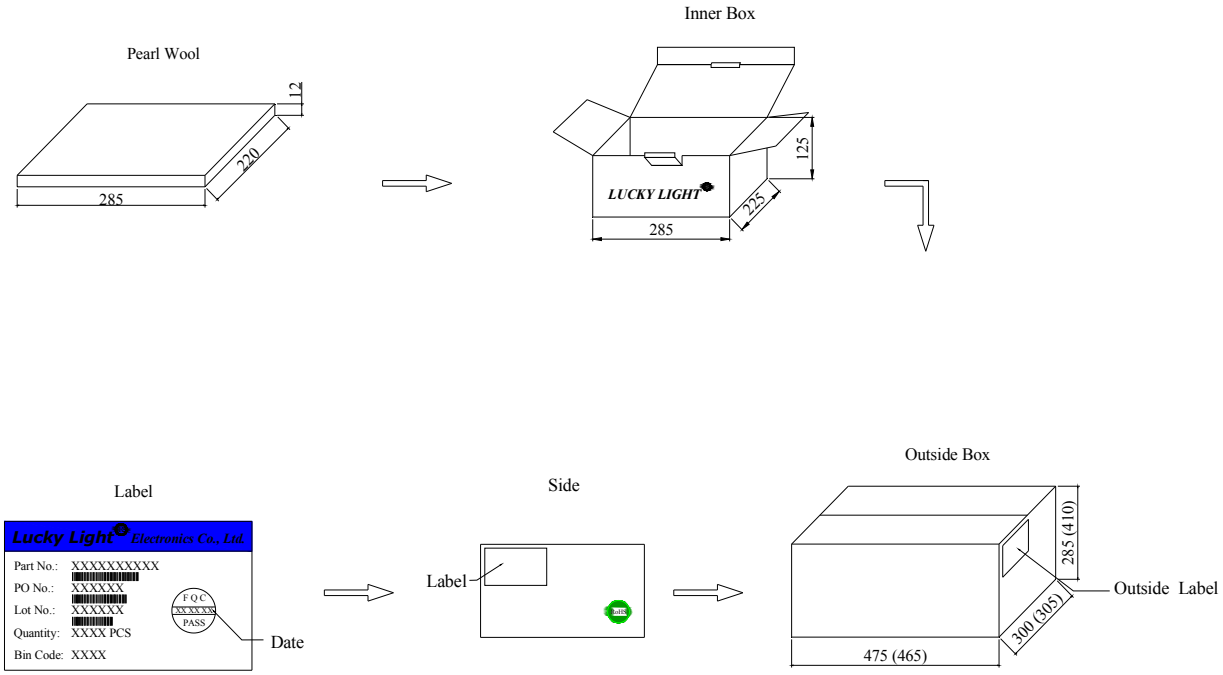
Luminous Intensity & Forward Current



Forward Current Derating Curve



Packing & Label Specifications:



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b. 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.

c. 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.

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f. Over-current-proof

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

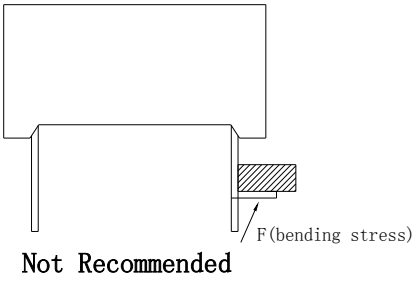
g. Storage

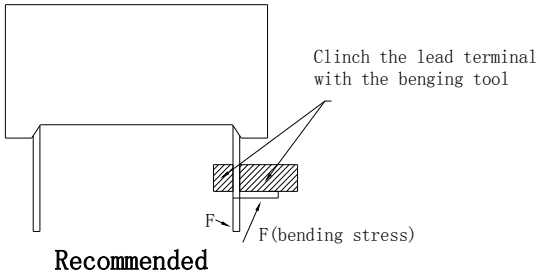
1. Before opening the package, the LEDs should be kept at 30℃or less and 80%RH or less.
2. The LEDs should be used within a year.
3. After opening the package, the LEDs should be kept at 30℃or less and 60%RH or less.

Through Hole Display Mounting Method

Lead Forming:

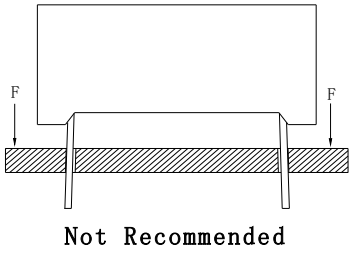
1. Do not bend the component leads by hand without proper tools.
2. The leads should be bent by clinching the upper part of the lead firmly such that the bending force Is not exerted on the plastic body.

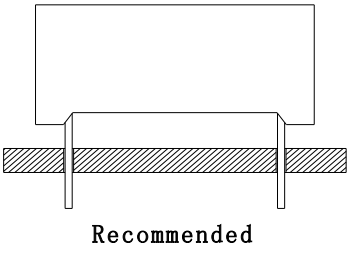




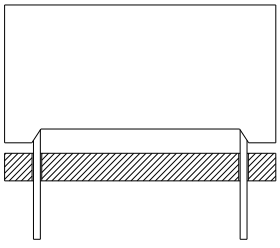
Installation:

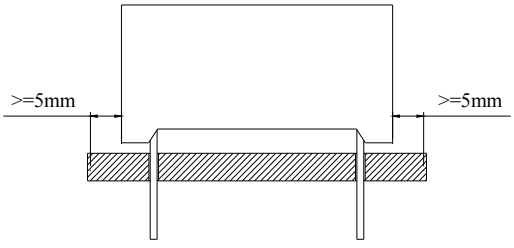
1. The installation process should not apply stress to the lead terminals.
2. When inserting for assembly, ensure the terminal pitch matches the substrate board's hole pitch to prevent spreading or pinching the lead terminals.



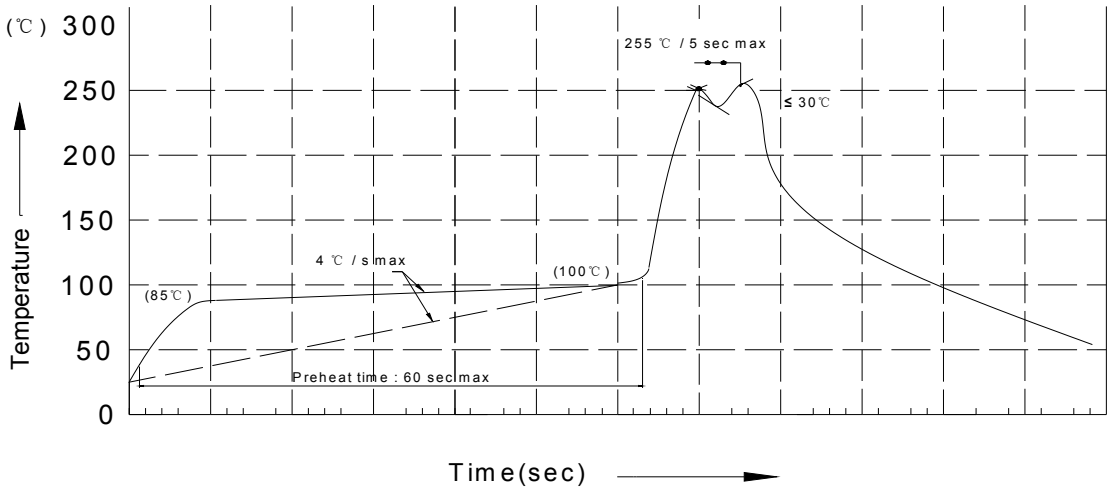


3. The component shall be placed at least 5mm from edge of PCB to avoid damage caused excessive heat during wave soldering.





Recommended Wave Soldering Profiles



Notes:

1. Recommend pre-heat temperature of 105℃ or less (as measured with a thermocouple attached to the LED pins) prior to immersion in the solder wave with a maximum solder bath temperature of 260℃.
2. Peak wave soldering temperature between 245℃～255℃ for 3 sec (5 sec max).
3. Do not apply stress to the epoxy resin while the temperature is above 85℃.
4. Fixtures should not incur stress on the component when mounting and during soldering process.
5. SAC 305 solder alloy is recommended.
6. No more than one wave soldering pass.
7. During wave soldering, the PCB top-surface temperature should be kept below 105℃.

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 omponents may be subjected to intense heat, please check with luckylight for compatibility.

Cleaning:

1. Mild “no-clean” fluxes are recommended for use in soldering.
2. If cleaning is required, luckylight recommends to wash components with water only.

Do not use harsh organic solvents for cleaning because they may damage the plastic parts.

3. The cleaning process should take place at room temperature and the devices should not be washed for more than one minute.
4. When water is used in the cleaning process, immediately remove excess moisture from the component with forced-air drying afterwards.

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.