## Kingbright

## Features

- Suitable for level indicators.
- Low current operation.
- Excellent on/off contrast.
- End stackable.
- Mechanically rugged
- Standard : gray face, white segment.
- RoHS compliant.


## Description

The Green source color devices are made with Gallium Phosphide Green Light Emitting Diode.

## Package Dimensions\& Internal Circuit Diagram




RECOMMENDED PCB LAYOUT



$$
\begin{array}{lllll}
20 & 19 & 18 & 17 & 16
\end{array}
$$





1. All dimensions are in millimeters (inches), Tolerance is $\pm 0.25(0.01$ ") unless otherwise noted
2. The specifications, characteristics and technical data described in the datasheet are subject to change without prior notice.

## Kingbright

## Selection Guide

| Part No. | Dice | Lens Type | $\begin{gathered} \text { Iv (ucd) [1] } \\ @ 10 \mathrm{~mA} \end{gathered}$ |  | Description |
| :---: | :---: | :---: | :---: | :---: | :---: |
|  |  |  | Min. | Typ. |  |
| DC10GWA | Green (GaP) | White Diffused | 5600 | 12000 | 10 Segments Bar graph-Display |
|  |  |  | *1400 | *4000 |  |

Note:

1. Luminous intensity/ luminous Flux: +/-15\%.
*Luminous intensity value is traceable to the CIE127-2007 compliant national standards.

Electrical / Optical Characteristics at TA $=25^{\circ} \mathrm{C}$

| Symbol | Parameter | Device | Typ. | Max. | Units | Test Conditions |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| $\lambda$ peak | Peak Wavelength | Green | 565 |  | nm | $\mathrm{IF}=20 \mathrm{~mA}$ |
| $\lambda \mathrm{D}[1]$ | Dominant Wavelength | Green | 568 |  | nm | $\mathrm{IF}=20 \mathrm{~mA}$ |
| $\Delta \lambda 1 / 2$ | Spectral Line Half-width | Green | 30 |  | nm | $\mathrm{IF}=20 \mathrm{~mA}$ |
| C | Capacitance | Green | 15 |  | pF | $\mathrm{VF}=0 \mathrm{~V} ; \mathrm{f}=1 \mathrm{MHz}$ |
| $\mathrm{VF}[2]$ | Forward Voltage | Green | 2.2 | 2.5 | V | $\mathrm{IF}=20 \mathrm{~mA}$ |
| IR | Reverse Current | Green |  | 10 | uA | $\mathrm{VR}=5 \mathrm{~V}$ |

Notes:
1.Wavelength: +/-1nm.
2. Forward Voltage: $+/-0.1 \mathrm{~V}$.
3. Wavelength value is traceable to the CIE127-2007 compliant national standards.

## Absolute Maximum Ratings at $\mathrm{TA}=25^{\circ} \mathrm{C}$

| Parameter | Green | Units |
| :--- | :---: | :---: |
| Power dissipation | 62.5 | mW |
| DC Forward Current | 25 | mA |
| Peak Forward Current [1] | 140 | mA |
| Reverse Voltage | 5 | V |
| Operating / Storage Temperature | $-40^{\circ} \mathrm{C}$ To $+85^{\circ} \mathrm{C}$ |  |
| Lead Solder Temperature[2] | $260^{\circ} \mathrm{C}$ For $3-5$ Seconds |  |

Notes:

1. $1 / 10$ Duty Cycle, 0.1 ms Pulse Width.
2. 2 mm below package base.

## Kingbright



RELATIVE INTENSITY Vs. WAVELENGTH

## Green

## DC10GWA






## Kingbright

## PACKING \& LABEL SPECIFICATIONS

DC10GWA


Outside Label On Box


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## Kingbright

## through hole display mounting method

## Lead Forming

Do not bend the component leads by hand without proper tools. 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.


Not Recommended


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.


Not Recommended

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


Not Recommended


Recommended

## Kingbright

Recommended Wave Soldering Profiles:


Notes:
1.Recommend pre-heat temperature of $105^{\circ} \mathrm{C}$ 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 $260^{\circ} \mathrm{C}$
2. Peak wave soldering temperature between $245^{\circ} \mathrm{C} \sim 255^{\circ} \mathrm{C}$ for 3 sec ( $5 \mathrm{sec} \max$ ).
3.Do not apply stress to the epoxy resin while the temperature is above $85^{\circ} \mathrm{C}$.
4.Fixtures should not incur stress on the component when mounting and during soldering proc
5.SAC 305 solder alloy is recommended.
6.No more than one wave soldering pass.

## 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 Kingbright for compatibility.

## CLEANING

1.Mild "no-clean" fluxes are recommended for use in soldering.
2. If cleaning is required, Kingbright recommends to wash components with water only. Do not use harsh organic solvents for cleaning, because they may damage the plastic parts. And the devices should not be washed for more than one minute.

## CIRCUIT DESIGN NOTES

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


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