

Part Number: WP710A10VBC/D

Blue



ATTENTION
OBSERVE PRECAUTIONS
FOR HANDLING
ELECTROSTATIC
DISCHARGE
SENSITIVE
DEVICES

Features

- Low power consumption.
- Popular T-1 diameter package.
- General purpose leads.
- Reliable and rugged.
- Long life - solid state reliability.
- Available on tape and reel.
- RoHS compliant.

Description

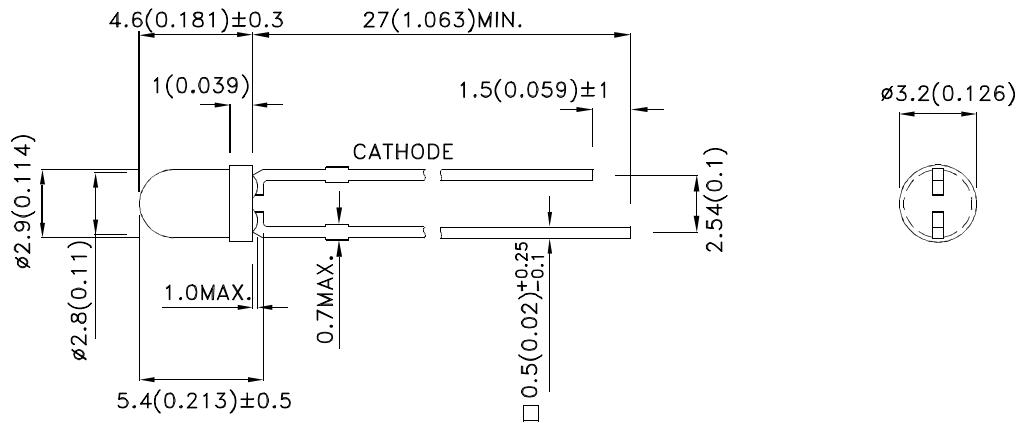
The Blue source color devices are made with InGaN Light Emitting Diode.

Static electricity and surge damage the LEDs.

It is recommended to use a wrist band or anti-electrostatic glove when handling the LEDs.

All devices, equipment and machinery must be electrically grounded.

Package Dimensions



Notes:

1. All dimensions are in millimeters (inches).
2. Tolerance is ±0.25(0.01") unless otherwise noted.
3. Lead spacing is measured where the leads emerge from the package.
4. The specifications, characteristics and technical data described in the datasheet are subject to change without prior notice.



Selection Guide

| Part No. | Dice | Lens Type | Iv (mcd) [2] @ 20mA | | | Viewing Angle [1] |
|---------------|--------------|-------------|------------------------|------|------|----------------------|
| | | | Code. | Min. | Max. | 2θ1/2 |
| WP710A10VBC/D | Blue (InGaN) | Water Clear | Z | 2700 | 3100 | 20° |
| | | | ZA | 3100 | 3600 | |
| | | | ZB | 3600 | 4200 | |
| | | | ZC | 4200 | 5000 | |
| | | | ZD | 5000 | 6000 | |
| | | | ZE | 6000 | 7000 | |

Notes:

1. θ1/2 is the angle from optical centerline where the luminous intensity is 1/2 of the optical peak value.
2. Luminous intensity/ luminous Flux: +/-15%.

Electrical / Optical Characteristics at TA=25°C

| Symbol | Parameter | Device | Code. | Min. | Typ. | Max. | Units | Test Conditions |
|--------------------|--------------------------|--------|-------|------|------|------|-------|---------------------------|
| λ _{peak} | Peak Wavelength | Blue | | | 465 | | nm | I _F =20mA |
| λ _D [1] | Dominant Wavelength | Blue | 1B | 463 | | 466 | nm | I _F =20mA |
| | | | 2A | 466 | | 469 | | |
| | | | 2B | 469 | | 471 | | |
| Δλ1/2 | Spectral Line Half-width | Blue | | | 22 | | nm | I _F =20mA |
| C | Capacitance | Blue | | | 100 | | pF | V _F =0V;f=1MHz |
| V _F [2] | Forward Voltage | Blue | | 2.6 | 3.3 | 4 | V | I _F =20mA |
| I _R | Reverse Current | Blue | | | | 50 | uA | V _R = 5V |

Notes:

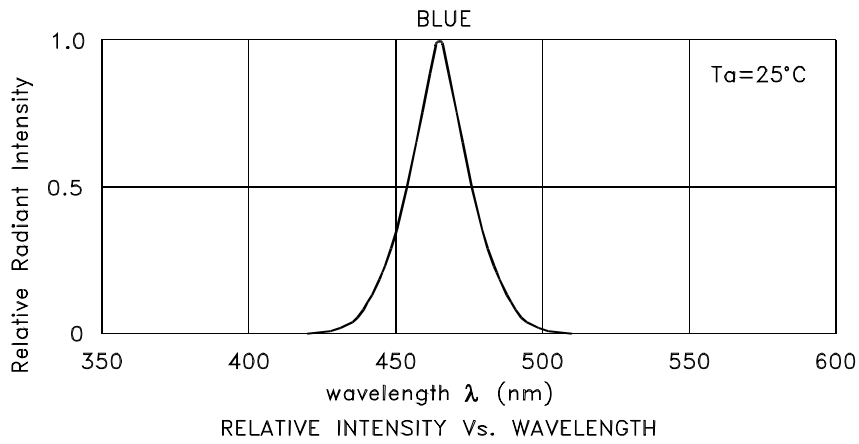
1. Wavelength: +/-1nm.
2. Forward Voltage: +/-0.1V.

Absolute Maximum Ratings at TA=25°C

| Parameter | Blue | Units |
|-------------------------------|---------------------|-------|
| Power dissipation | 120 | mW |
| DC Forward Current | 30 | mA |
| Peak Forward Current [1] | 100 | mA |
| Reverse Voltage | 5 | V |
| Operating/Storage Temperature | -40°C To +85°C | |
| Lead Solder Temperature [2] | 260°C For 3 Seconds | |
| Lead Solder Temperature [3] | 260°C For 5 Seconds | |

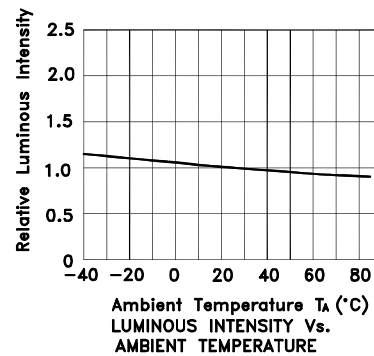
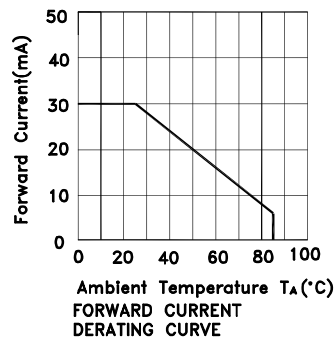
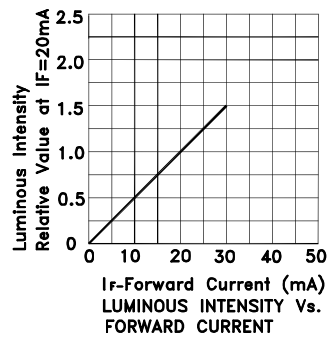
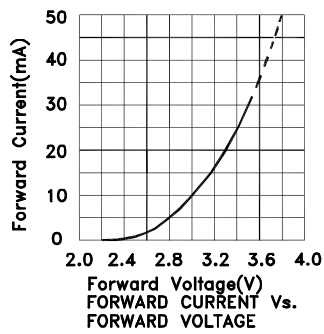
Notes:

1. 1/10 Duty Cycle, 0.1ms Pulse Width.
2. 2mm below package base.
3. 5mm below package base.



Blue

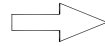
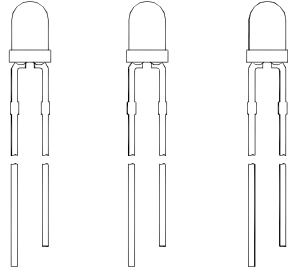
WP710A10VBC/D



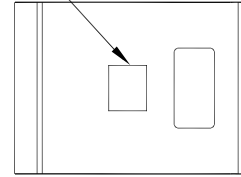
Kingbright

PACKING & LABEL SPECIFICATIONS

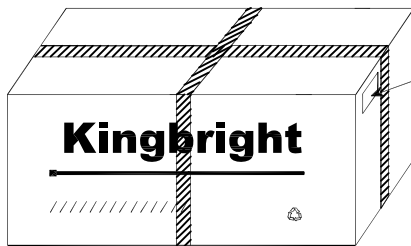
WP710A10VBC/D



LABEL

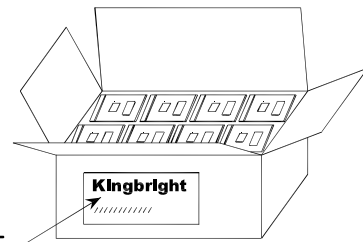
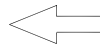


500PCS / BAG




20K / 9# BOX

OUTSIDE LABEL



10K / 5# BOX

OUTSIDE LABEL

| | |
|--|--|
| <h1>Kingbright</h1> | |
| P/NO: WP710A10xxx | |
| QTY: 500 pcs | Q.C. Q C XX XX XXXX PASSED |
| S/N: XXXX | |
| CODE: XXX | |
| LOT NO: | |
|  xxxxxxxxxxxxxxxxxxxxxxxx | |
| RoHS Compliant | |

PRECAUTIONS

1. The lead pitch of the LED must match the pitch of the mounting holes on the PCB during component placement. Lead-forming may be required to insure the lead pitch matches the hole pitch. Refer to the figure below for proper lead forming procedures. (Fig. 1)



Fig.1

”O” Correct mounting method ”X” Incorrect mounting method

2. When soldering wire to the LED, use individual heat-shrink tubing to insulate the exposed leads to prevent accidental contact short-circuit. (Fig.2)
3. Use stand-offs (Fig.3) or spacers (Fig.4) to securely position the LED above the PCB.



Fig. 2

Fig. 3

Fig. 4

4. Maintain a minimum of 2mm clearance between the base of the LED lens and the first lead bend. (Fig. 5 and 6)
5. During lead forming, use tools or jigs to hold the leads securely so that the bending force will not be transmitted to the LED lens and its internal structures. Do not perform lead forming once the component has been mounted onto the PCB. (Fig. 7)

6. Do not bend the leads more than twice. (Fig. 8)



7. During soldering, component covers and holders should leave clearance to avoid placing damaging stress on the LED during soldering.



8. The tip of the soldering iron should never touch the lens epoxy.

9. Through-hole LEDs are incompatible with reflow soldering.

10. If the LED will undergo multiple soldering passes or face other processes where the part may be subjected to intense heat, please check with Kingbright for compatibility.

11. Recommended Wave Soldering Profiles:



Notes:

1. Recommend pre-heat temperature of 105°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°C
2. Peak wave soldering temperature between 245°C ~ 255°C for 3 sec (5 sec max).
3. Do not apply stress to the epoxy resin while the temperature is above 85°C.
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.

All design applications should refer to Kingbright application notes available at <http://www.KingbrightUSA.com/ApplicationNotes>

LED Reliability Test Report

NO. REC2013001020

: ___year___month plan schedule

: ___Customer's requirement

:Verification

| | | | |
|------------|-----------------------|---------------------|----------------|
| supplier | KINGBRIGHT | chip type | / |
| laboratory | Kingbright Laboratory | chip lot. | / |
| P/N | WP710A10VBC/D | Scope Of Inspection | WI-MQ00-R-0105 |

| NO | TEST ITEM | TEST DATE | TEST CONDITION | STANDARDS | JUDGEMENT | LTPD | SAMPLE |
|----|-------------------------------|-------------------------|---|------------|-----------|------|--------|
| 1 | Continuous operating | 2012/11/5 ~ 2012/12/17 | IF=20mA Ta=25Degree C. T=1000hr | A schedule | PASSED | 10% | 22pcs |
| 2 | High temp. and hum. storage | 2012/11/5 ~ 2012/12/17 | Ta=85Degree C. T=1000hr RH=85%RH | B schedule | PASSED | 10% | 22pcs |
| 3 | High temp. and hum. Operating | 2012/11/5 ~ 2012/12/17 | Ta=85Degree C. T=1000hr RH=85%RH IF=5mA | B schedule | PASSED | 10% | 22pcs |
| 4 | Solderability | 2012/11/7 | Ta=245Degree C. T=5sec | Cover 95% | PASSED | 20% | 18PCS |
| 5 | Soldering resistance | 2012/11/10 | Ta=260Degree C. T=10sec(MAX) | A schedule | PASSED | 20% | 18PCS |
| 6 | Thermal shock | 2012/11/10 ~ 2012/11/12 | Ta=0Degree C.~100Degree C. T=5min~5minx100cycles | B schedule | PASSED | 10% | 22pcs |
| 7 | Drop | 2012/11/12 ~ 2012/11/12 | H=100cm T=3cycles | B schedule | PASSED | 10% | 22pcs |
| 8 | Vibration | 2012/11/12 | Accelerate speed 200m/s ² Frequency=100-2000Hz, T=48min, X.Y.Z Three directions,Four times | A schedule | PASSED | 10% | 22pcs |

Standard schedule

| | Characteristics item | Symbol | Standards |
|---|----------------------|---------|------------------------|
| A | Forward voltage | VF(V) | USL(MAX) |
| | Reverse current | IR(μA) | USL(MAX) |
| | Intensity value | IV(mcd) | Initial valueX0.6(min) |
| | Apperance | / | Damage |

Specification

| Characteristics | Symbol | spec |
|-----------------|---------|------------------|
| VF | VF(V) | MAX 4 V |
| IR | IR(uA) | MAX 50 μA |
| IV | IV(mcd) | MIN 2100 mcd |
| remark | LSL | Initial SPEC LSL |
| | USL | Initial SPEC USL |

Standard schedule

| | Characteristics item | Symbol | standards |
|---|----------------------|---------|------------------------|
| B | Forward voltage | VF(V) | USL(MAX) |
| | Reverse current | IR(μA) | USL(MAX) |
| | Intensity value | IV(mcd) | Initial valueX0.8(min) |
| | Appearance | / | Damage |

P.S:LTPD(Lot Tolerance Percent Defective).

Tested by:Zang Yongfeng

Checked by:Hou Gang

Approved by:Alex Huang

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JONHON

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Телефон: 8 (812) 309-75-97 (многоканальный)

Факс: 8 (812) 320-03-32

Электронная почта: ocean@oceanchips.ru

Web: <http://oceanchips.ru/>

Адрес: 198099, г. Санкт-Петербург, ул. Калинина, д. 2, корп. 4, лит. А