Kingbright

T-1 (3mm) SOLID STATE LAMP

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

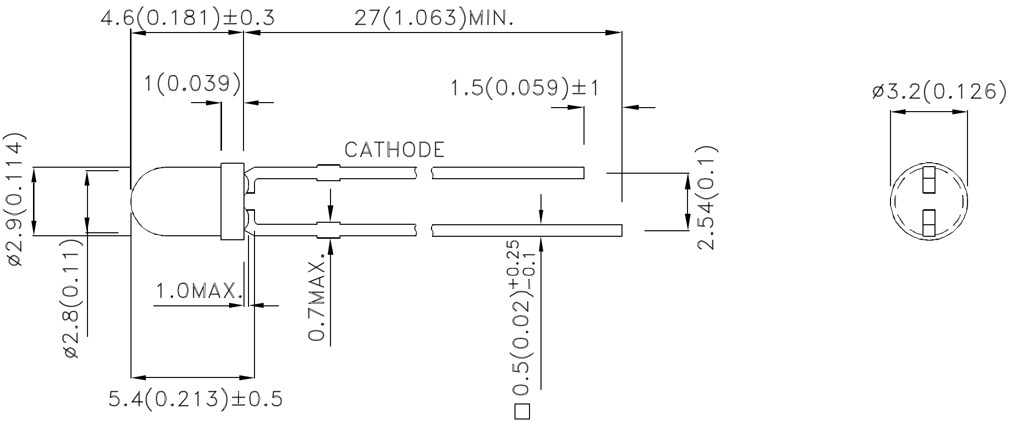
The Blue source color devices are made with InGaN Light Emitting Diode.

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

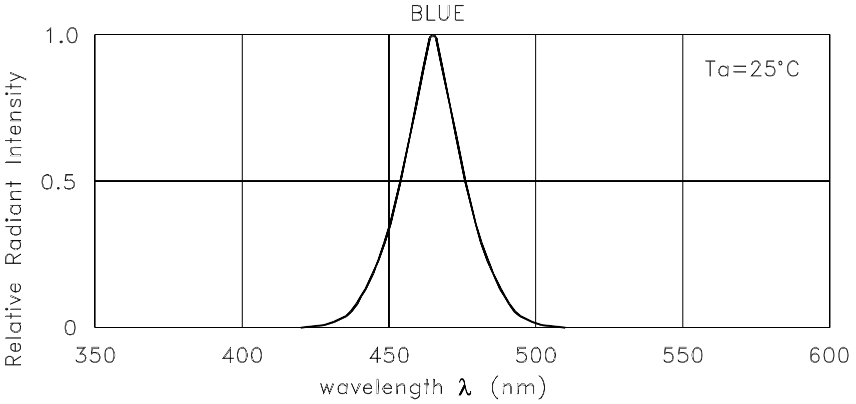
Symbol	Parameter	Device	Code.	Min.	Typ.	Max.	Units	Test Conditions
λpeak	Peak Wavelength	Blue			465		nm	I_F=20mA
λD [1]	Dominant Wavelength	Blue	1B	463		466	nm	I_F=20mA
			2A	466		469		
			2B	469		471		
Δλ1/2	Spectral Line Half-width	Blue			22		nm	I_F=20mA
C	Capacitance	Blue			100		pF	V_F=0V;f=1MHz
V_F [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

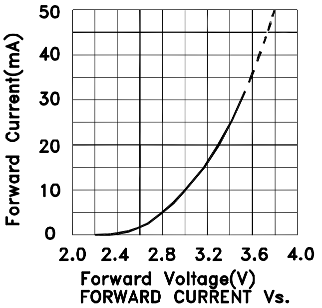
Parameter	Blue	Units
Power dissipation	120	mW
DC Forward Current	30	mA
Peak Forward Current [1]	100	mA
Reverse Voltage	5	V
Operating/Storage Temperature	-40°C To +85°C	
Lead Solder Temperature [2]	260°C For 3 Seconds	
Lead Solder Temperature [3]	260°C For 5 Seconds	

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

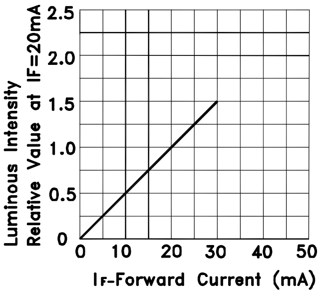


RELATIVE INTENSITY Vs. WAVELENGTH

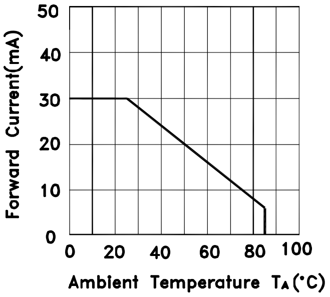
Blue **WP710A10VBC/D**



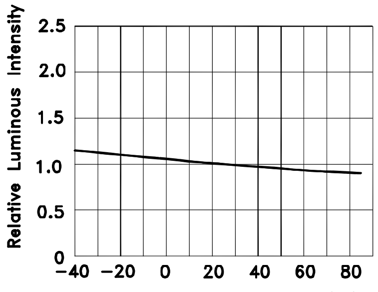
FORWARD CURRENT Vs.
FORWARD VOLTAGE



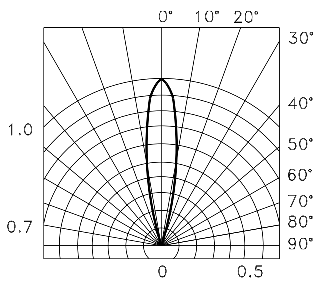
LUMINOUS INTENSITY Vs.
FORWARD CURRENT



FORWARD CURRENT
DERATING CURVE

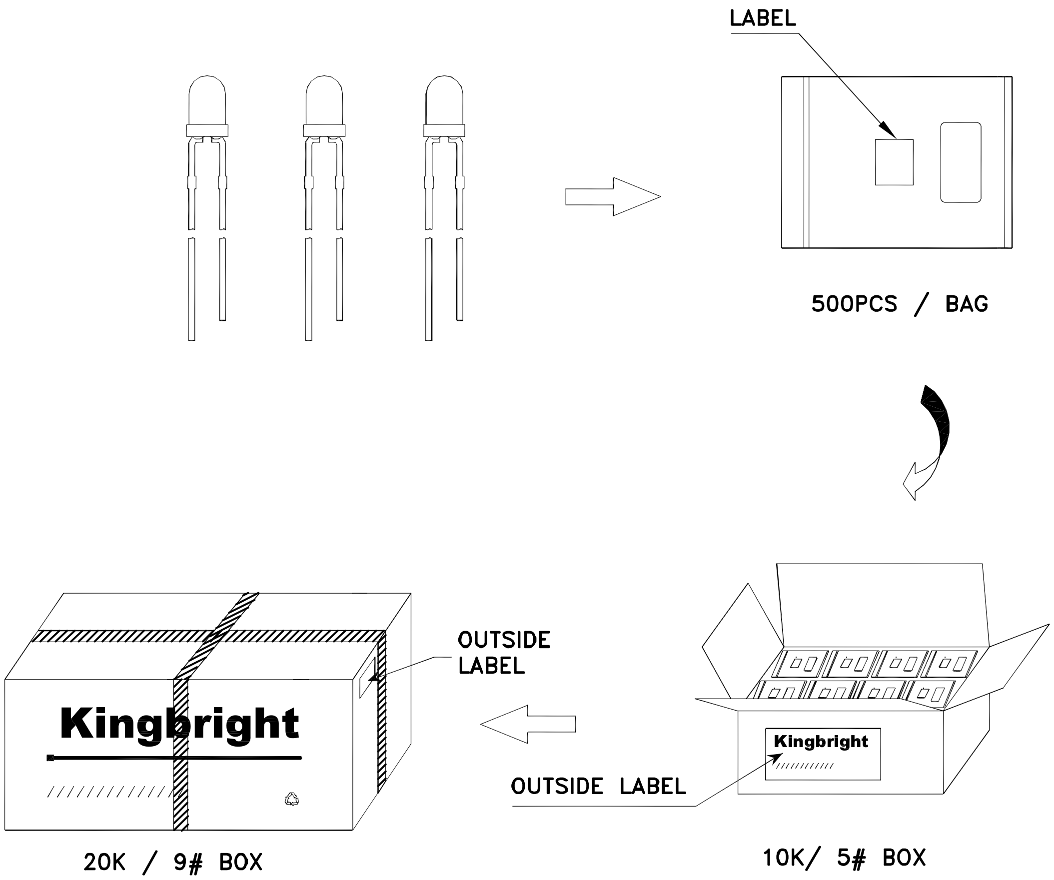


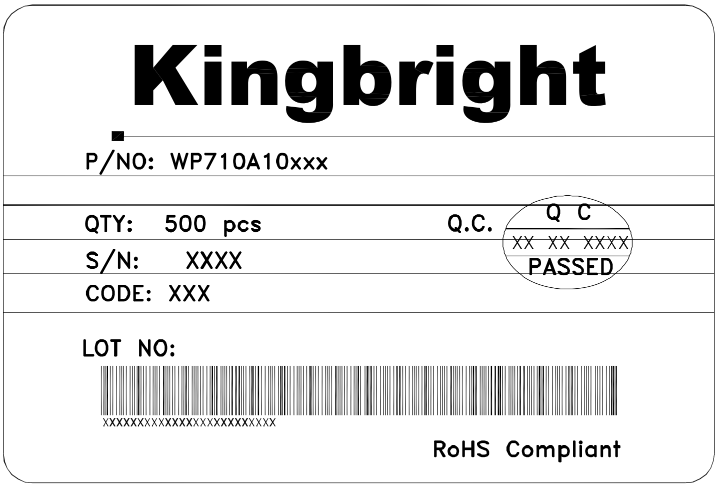
LUMINOUS INTENSITY Vs.
AMBIENT TEMPERATURE



SPATIAL DISTRIBUTION

PACKING & LABEL SPECIFICATIONS **WP710A10VBC/D**





Kingbright

P/NO: WP710A10xxx

QTY: 500 pcs Q.C.

Q C
XX XX XXXX
PASSED

S/N: XXXX

CODE: XXX

LOT NO:

XXXXXXXXXXXXXXXXXXXXXXXXX

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)

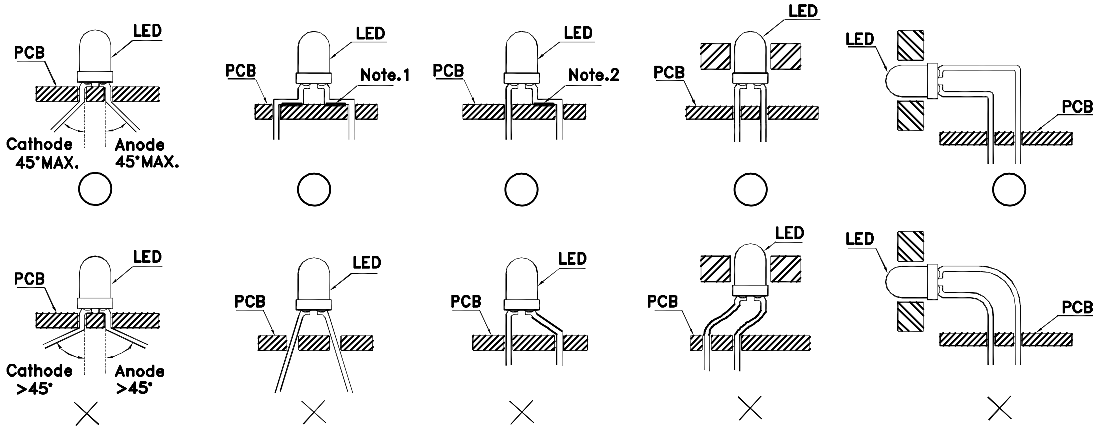


Fig.1

"○" Correct mounting method "×" 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.

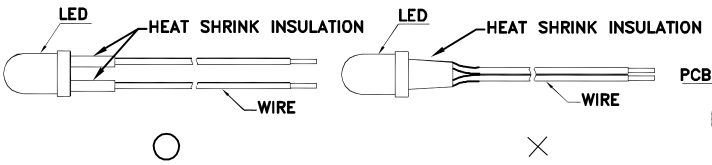


Fig. 2

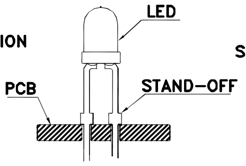


Fig. 3

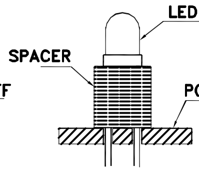


Fig. 4

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)

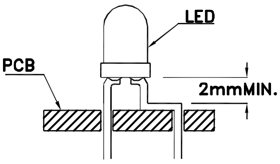


Fig. 5

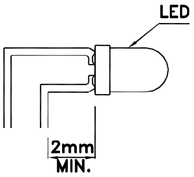


Fig. 6

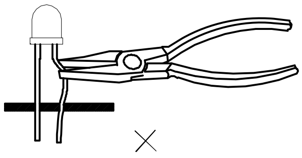


Fig. 7

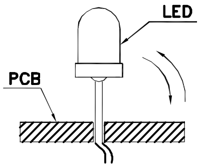
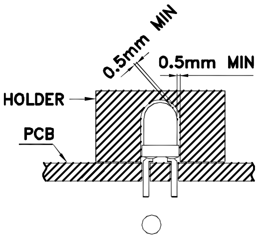
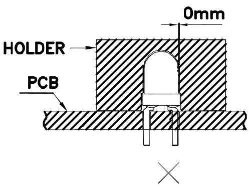
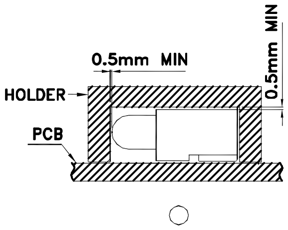


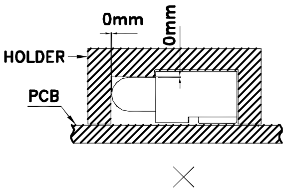
Fig. 8

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







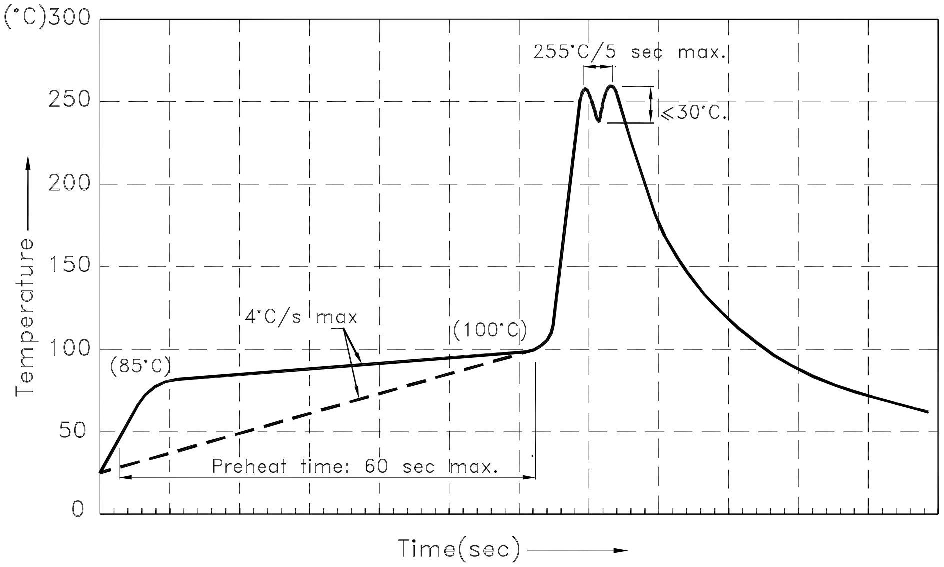


8. The tip of the soldering iron should never touch the lens epoxy.

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

Kingbright

Kingbright Group
China Factory

LED Reliability Test Report

NO. REC2013001020

☐ :____year___month plan schedule

■ :__Customer's requirement

☐ :Verification

supplier	KINGBRIGHT	chip type	/
laboratary	Kingbright Laboratary	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~5min×100cycles	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

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).

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

Tested by:Zang Yongfeng Checked by:Hou Gang Approved by:Alex Huang