

# DATA SHEET

PART NO.:L-T650WDT-NW-U1

REV: A/0

3.0\*2.0\*1.3 mm PLCC LED

L-T650WDT-NW-U1

REV:A/0

### • Features

- Fluorescence Type
- High Luminous Intensity
- High Efficiency
- Pb-free.
- Moisture sensitivity level:3
- The product itself will remain within RoHS compliant version.



**ATTENTION**  
OBSERVE PRECAUTIONS  
FOR HANDLING  
ELECTROSTATIC  
DISCHARGE  
SENSITIVE  
DEVICES  
注意：操作时应注意静电  
敏感释放设备装置

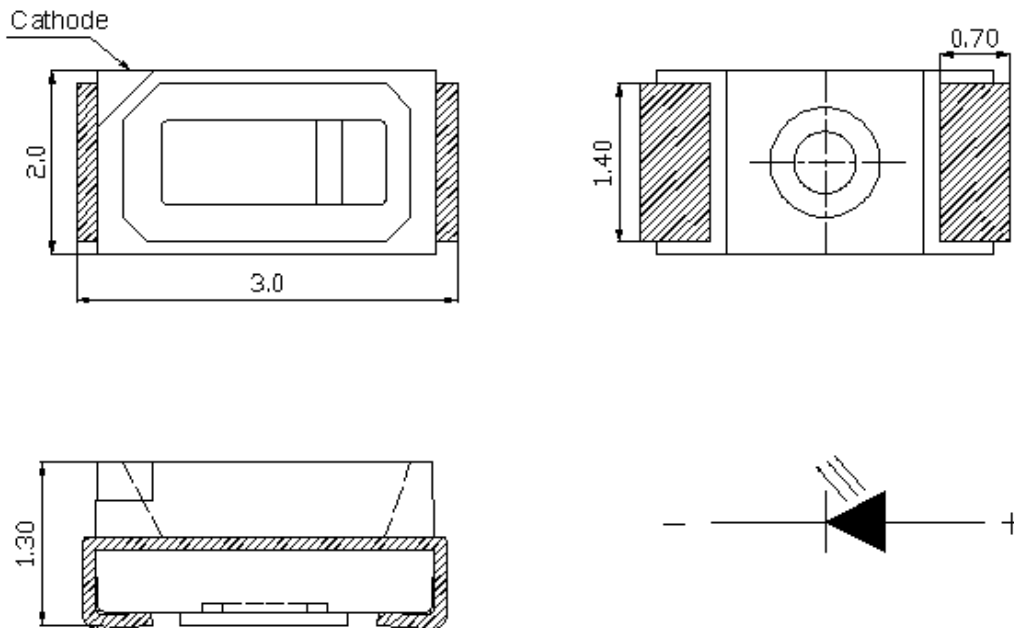
### • Descriptions

- Due to the package design, 3020 has wide viewing angle, low power consumption and white LEDs are devices which are materialized by combing Blue LEDs and special phosphors. This feature makes the LED ideal for light guide application.

### • Applications

- TV back lighting
- Decorative and Entertainment Lighting.
- Illuminations.

### • Package Dimensions(Lens Type: Yellow Diffused)



#### Notes:

1. All dimensions are in millimeters (inches).
2. Tolerance is  $\pm 0.254\text{mm}$  (0.01") unless otherwise specified.
3. Lead spacing is measured where the leads emerge from the package.
4. Specifications are subject to change with notice.
5. The colors of the lines are specified in the specification unless otherwise specified.

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• **Electrical and optical characteristics(Ta=25°C)**

Parameter	Symbol	Min.	Typ.	Max.	Unit	Test Condition
Luminous Flux	$\Phi_v$	7	---	9	lm	IF =20mA
Viewing Angle	2 $\theta$ 1/2	---	120	---	deg	IF =20mA
Color Temperature	Tc	4000	---	5000	K	IF =20mA
Forward Voltage	VF	2.6	---	3.6	V	IF =20mA
Reverse Current	IR	---	---	10	$\mu$ A	VR=5V

• **Absolute Maximum Ratings At Ta=25°C**

Parameter	Symbol	Rating	Unit
Power Dissipation	Pd	80	mW
Peak Forward Current	IFP	60	mA
DC Forward Current	IF	30	mA
Reverse Voltage	VR	5	V
Operating Temperature Range	Topr	-40°C ~ + 85°C	
Storage Temperature Range	Tstg	-40°C ~ +100°C	
Soldering Condition	Tsol	Reflow soldering : 260°C For 5 Seconds Hand soldering: 300°C For 3 Seconds	

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## •Typical electro-optical characteristics curves

Fig.1 Relative Intensity vs. Wavelength

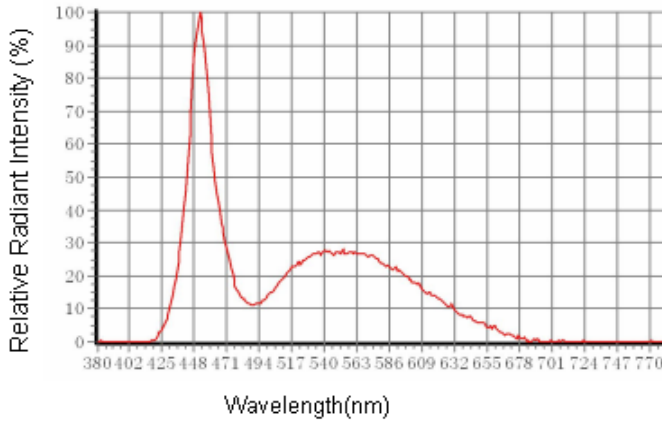


Fig.2 Forward Current vs. Ambient Temperature

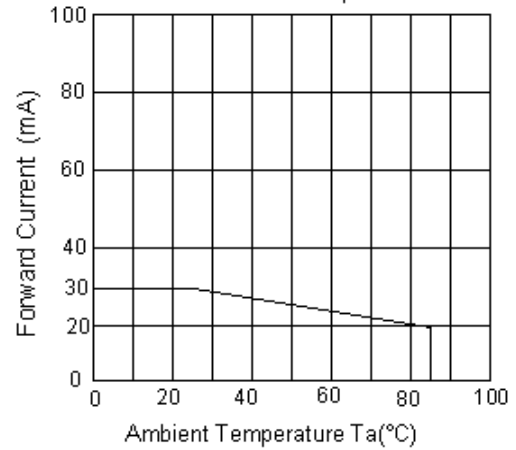


Fig.3 Forward Current vs. Forward Voltage

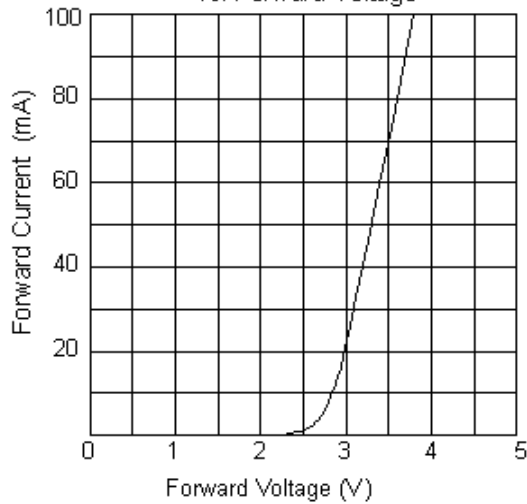


Fig.4 Relative Luminous Intensity vs. Ambient Temperature

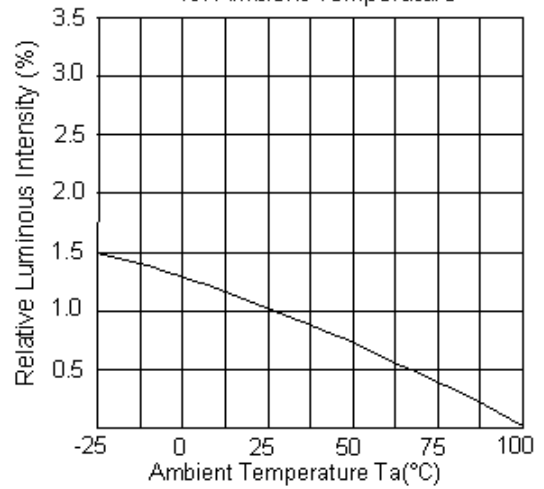


Fig.5 Relative Luminous Intensity vs. Forward Current

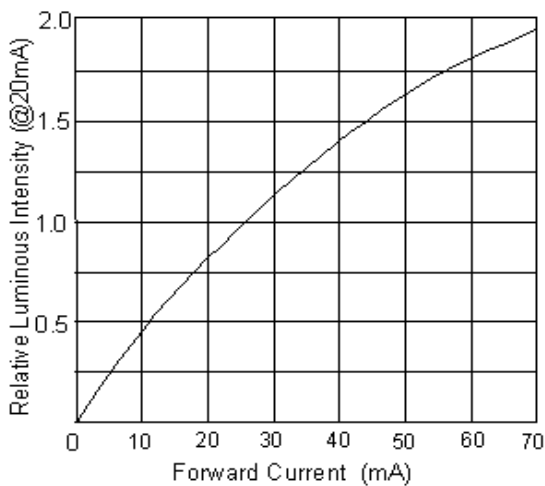
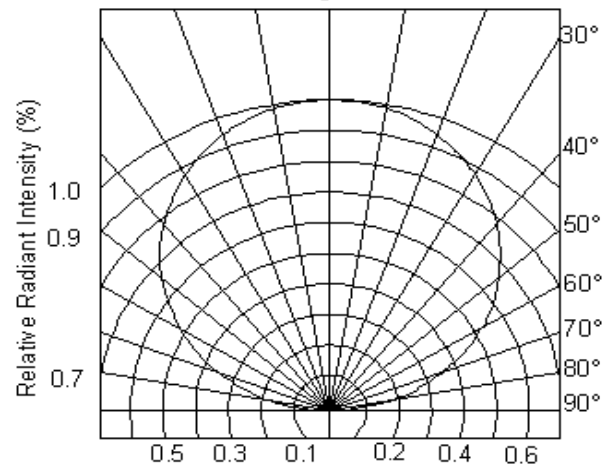


Fig.6 Radiation diagram (Ta=25°C)



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**●Reliability Test Items and Conditions**

The reliability of products shall be satisfied with items listed below.

Confidence level : 90%.

LTPD : 10%.

Items	Test Condition	Test Hours/Cycles	Quantity	Ac/Re
Reflow Soldering	Temp. : 260°C±5°C Min. 5sec.	6 Min.	22 PCS	0/1
Temperature Cycle	H : +85°C 15min. ┆ 5 min L : -40°C 15min.	300 Cycles	22PCS	0 1
Thermal Shock	H : +100°C 10min. ┆ 10 sec L : -40°C 10min.	100Cycles	22PCS	0/1
High Temperature Storage	Temp. : 100°C	500Hrs	22PCS	0/1
Low Temperature Storage	Temp. : -40°C	500Hrs	22PCS	0 1
Dc Life	IF =20mA	500Hrs	22PCS	0/1
High Temperature / High Humidity	85°C/ 85%RH	500Hrs	22PCS	0/1
Drop Test	75cm	3 Times	22PCS	0/1

**Label Explanation**

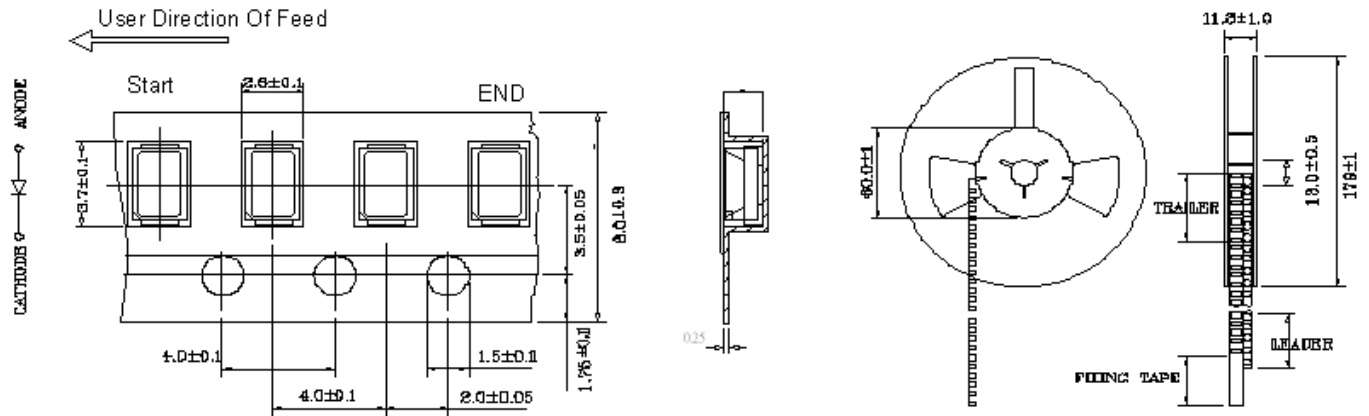
	光鼎电子股份有限公司 PARA LIGHT ELECTRONICS.,LTD
客户型号:	
客户名称:	
型号:	LT650WDT-NW1
批号:	ENSSXXXXXXXX
数量:	4000PCS
日期:	20210127
	QC:
	GP RoHS

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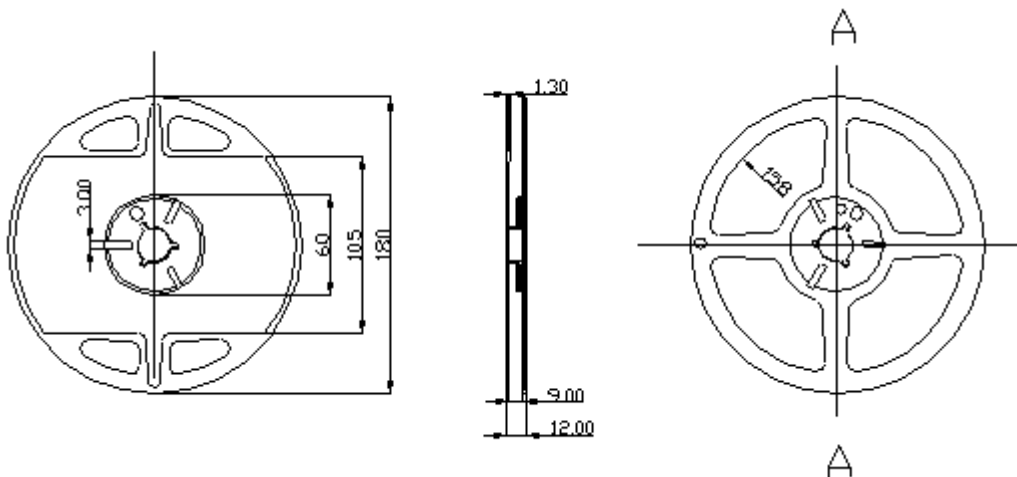
REV:A/0

## ● Packaging

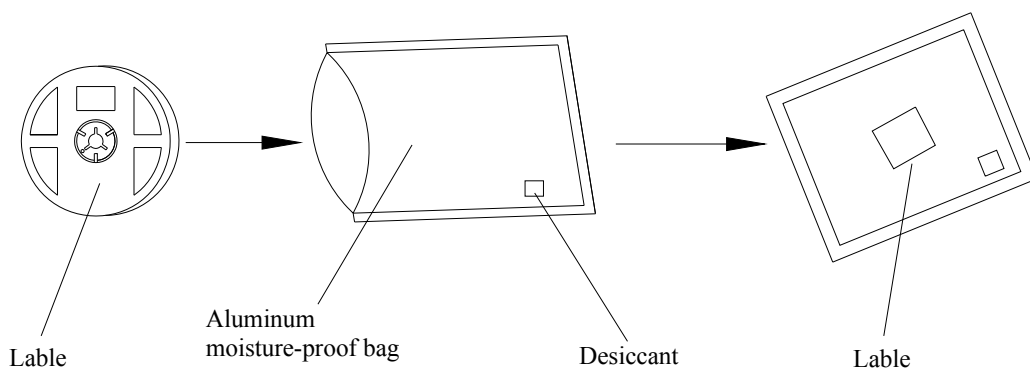


Note: 4000PCS PER REEL

Carrier Tape Dimensions: Loaded Quantity 4000 pcs Per Reel.

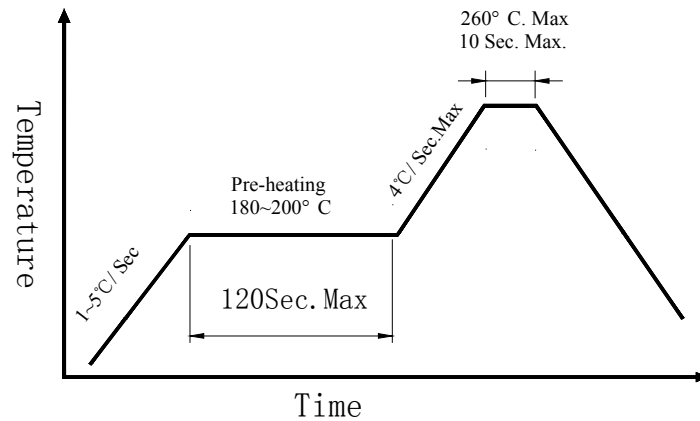


## ● Moisture Resistant Packaging

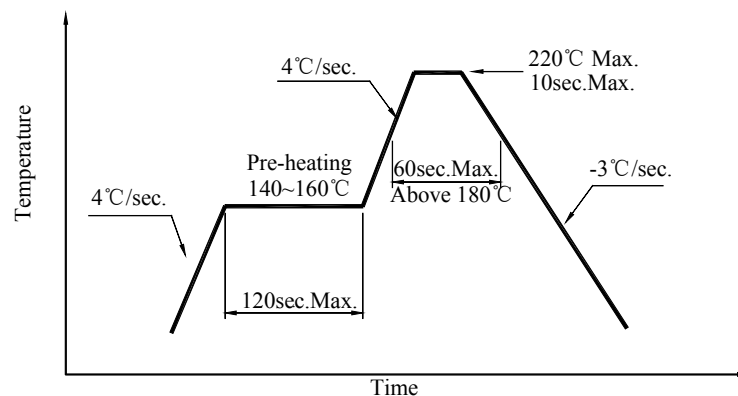


### ● SMT Reflow Soldering Instructions

<Pb-free solder>



<Lead solder>



1. Reflow soldering should not be done more than two times
2. When soldering, do not put stress on the LEDs during heating

### ● Cautions

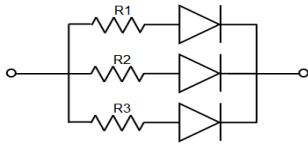
#### Application

1. A LED is a current-operated device. The slight shift of voltage will cause big change of current, which will damage LEDs. Customer should use resistors in series for the Over-Current-Proof.
2. In order to ensure intensity uniformity on multiple LEDs connected in parallel in an application, it is recommended to use individual resistor separately, as shown in Circuit A below. The brightness of each LED shown in Circuit B might appear difference due to the differences in the I-V characteristics of those LEDs.

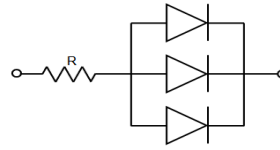
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**Circuit model A**



**Circuit model B**

High temperature may reduce LEDs' intensity and other performances, so keeping it away from heat source to get good performance is necessary.

## Storage

1. Before opening original package, it is recommended to store them in the following environment: Temperature: 5°C~30°C/ Humidity: 85%RH max.
2. After opening original package, the storage ambient for the LEDs should be in 5~30°C temperature and 60% or less relative humidity.
3. In order to avoid moisture absorption, it is recommended that the LEDs that out of the original package should be stored in a sealed container with appropriate desiccant, or in desiccators with nitrogen ambient.
4. The LEDs should be used within 24hrs (1 day) after opening the package. Once been mounted, soldering should be quick.
5. If the moisture absorbent material (silica gel) has faded away or the LEDs stored out of original package for more than 168hrs (7 days), baking treatment should be performed using the conditions: 60°C at least 24 hours.
6. More than one months of the products must be disassembled for high temperature baking at 150°C/6 hours before they can be produced.

## ESD (Electrostatic Discharge )-Protection

A LED (especially the Blue 、 White and Green product) is an ESD sensitive component, and static electricity or power surge will damage the LED. ESD-damaged LEDs will exhibit abnormal characteristics such as high reverse leakage current, low forward voltage, or “no light-up” at low currents, etc.

Some advice as below should be noticed:

1. A conductive wrist strap or anti-electrostatic glove should be worn when handling these LEDs.
2. All devices, equipment, machinery, work tables and storage racks, etc. must be properly grounded.
3. Use anti-static package or boxes to carry and storage LEDs. And ordinary plastic package or boxes is forbidden to use.
4. Use ionizer to neutralize the static charge during handling or operating.
5. All surfaces and objects within 1 ft close to LEDs measure less than 100V.



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### **Cleaning**

Use alcohol-based cleaning solvents such as IPA (isopropyl alcohol) to clean LEDs if necessary.

### **Soldering**

1. Soldering condition refer to the draft “Soldering Profile Suggested” on page 4.
2. Reflow soldering should not be done more than 2 times.
3. Manual soldering is only suggested on repair and rework. The maximum soldering temperature should not exceed 300°C within 3 sec. And the maximum capacity of soldering iron is 30W in power.
4. During the soldering process, do not touch the lens at high temperature.
5. After soldering, any mechanical force on the lens or any excessive vibration shall not be accepted to apply, also the circuit board shall not be bent as well.

### **Others**

1. The LEDs described here are intended to be used for ordinary electronic equipment (such as office equipment, communication equipment and household applications). Consult Sales in advance for the applications in which exceptional reliability is required, particularly when the failure or malfunction of the LEDs may directly jeopardize life or health. (such as in aviation, transportation, traffic control equipment, medical and life support systems and safety devices).
2. The light output from the high luminous intensity LEDs may cause injury to human eyes when viewed directly.
3. The appearance and specifications of the product may be modified for improvement without prior notice.