



PARA LIGHT ELECTRONICS CO., LTD.

11F., No. 8, Jiankang Rd., Zhonghe Dist., New Taipei City 235, Taiwan

Tel: 886-2-2225-3733

Fax: 886-2-2225-4800

E-mail: para@para.com.tw

www.paralighttaiwan.com

DATA SHEET

PART NO.: L-S020WWDT-U1

REV: A / 0

CUSTOMER'S APPROVAL: _____

DCC: _____

DRAWING NO.: DS-31P-21-0007

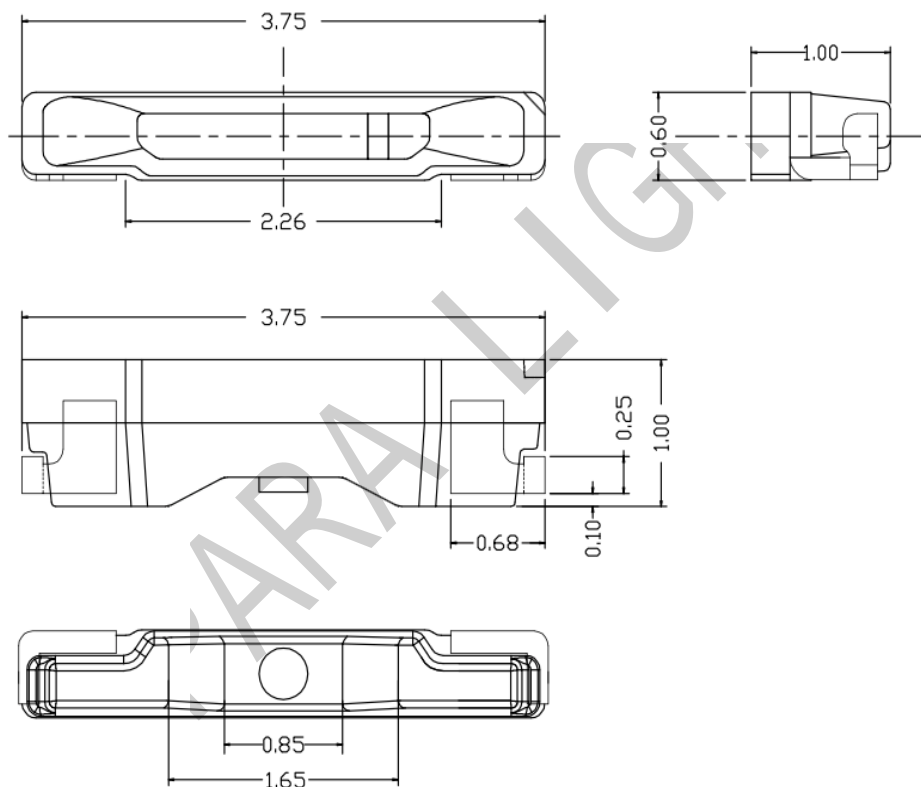
DATE: 2021-01-30

PAGE

1

■Features

1. Side-emitting LED
2. Luminescent colour: infrared light
3. Suitable for SMT Welding Technology
4. Compliance with RoSH Standard

■Package Dimensions**Notes:**

1. All dimensions are in millimeters.
2. Tolerance is ± 0.05 mm unless otherwise specified.
3. Without notice, product specifications will not change.



SURFACE MOUNT DEVICE LED

Part No.: L-S020WWDT-U1

REV:A / 0

Maximum Ratings(Ta=25°C)

Parameter	Symbol	Rating	Unit
Forward Current	IF	30	mA
Reverse Voltage	VR	5	V
Power Dissipation	Pd	120	mW
Operating Temperature	Topr	-30~ +85	°C
Storage Temperature	Tstg	-40 ~ +100	°C
Welding temperature	Tsld	Reflow soldering : 260 °C for 10 sec. Hand soldering: 300°C for 3 sec.	
Antistatic ability	ESD	2000	V

Note: Pulse width≤0.1ms, Duty≤1/10

Electrical - Optical Characteristics (Ta =25°C)

Product model	Parameter	Symbol	Condition	Min.	Typ.	Max.	Unit
L-S020WWDT-U1	Reverse Current	IR	VR=5			1	μA
	Forward Voltage	VF	IF=20mA	2.7		3.3	V
	Luminous flux	IV	IF=20mA	2000		3000	mcd
	Chromaticity	CCT	IF=20mA	2000		3000	K
	Viewing Angle	2θ1/2			120		Deg

● **Blue Typical Electro-Optical Characteristics Curves**

(25°C Ambient Temperature Unless Otherwise Noted)

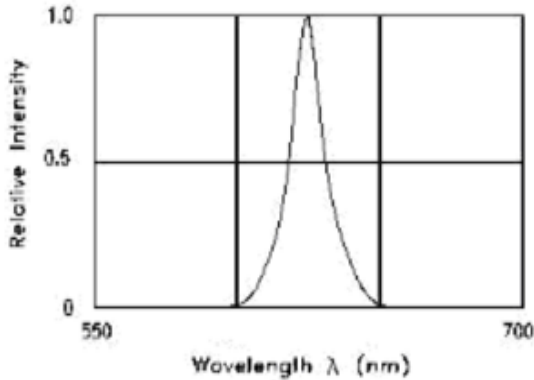


Fig.1 RELATIVE INTENSITY VS. WAVELENGTH

Fig.2 Forward Current VS Forward Voltage

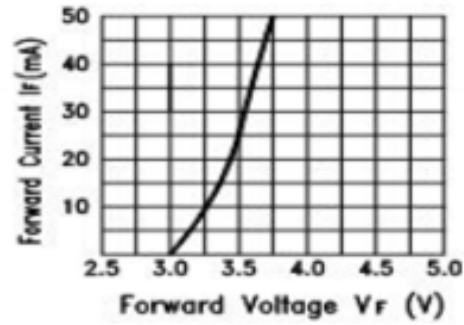


Fig.3 Forward Current Derating Curve

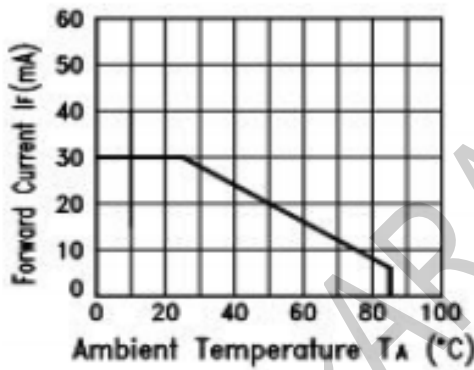


Fig.5 Luminous Intensity VS. Ambient Temperature

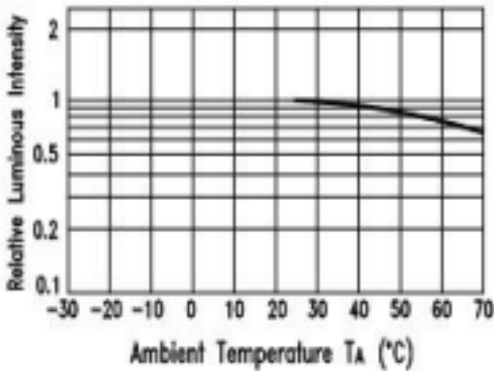


Fig.4 Relative Luminous Intensity VS. Forward Current

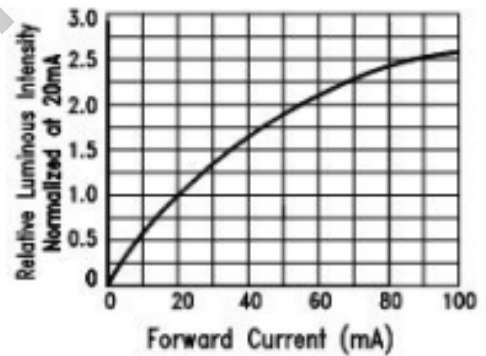
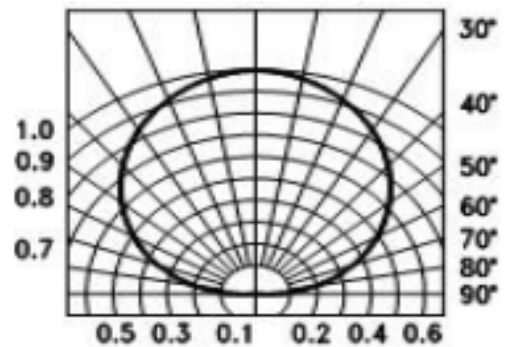


Fig.6 Spatial Distribution





SURFACE MOUNT DEVICE LED

Part No.: L-S020WWDT-U1

REV:A / 0

BIN Code list

20mA Test				
BIN CODE	MIN.(mcd)	MAX.(md)	MIN.(Lm)	MAX.(Lm)
20D	2000	2200	5.0	5.5
22D	2200	2400	5.5	6.0
24D	2400	2600	6.0	6.5
26D	2600	2800	6.5	7.0
28D	2800	3000	7.0	7.5

Tolerance of each bin are $\pm 3\%$

20mA Test		
BIN CODE	MIN.(v)	MAX.(v)
V0	2.8	2.9
V1	2.9	3.0
V2	3.0	3.1
V3	3.1	3.2
V4	3.2	3.3

Tolerance of each bin are ± 0.05 Volt

BIN CODE	MIN.(K)	MAX.(K)
20K	2000	3000

Tolerance of each bin are ± 100 K @If=20mA



SURFACE MOUNT DEVICE LED

Part No.: L-S020WWDT-U1

REV:A / 0

●Reliability Test Items and Conditions

NO	Items	Test Condition	Sample Size	Ac/Re
1	DC Operation Life	20mA 25°C 1000Hrs	25	0/1
2	High Temperature /High Humidity	60°C 90%HR 1000Hrs	25	0/1
3	Thermal Shock	-30°C~80°C 30min 30min 100cycles	25	0/1
4	High Temperature storage	100°C 1000hrs	25	0/1
5	Low Temperature Storage	-40°C 1000hrs	25	0/1
6	Temperature Cycle	-40°C~25°C~+100°C 30min 5min 30min 100cycles	25	0/1
7	Reflow Soldering	260°C(max) 10s(max)	25	0/1

Failure criteria:

Measuring items	Symbol	Measuring conditions	Criteria for Judgment of Pas	
			min	max
Forward voltage	VF	IF=2mA	--	S*1.1
Luminous intensity	IV	IF=2mA	S*0.7	--
XY	XY	IF=2mA	S-0.009	S+0.009
Reverse current	IR	VR=5V	--	1uA

NOTE:

1.S means initial value.



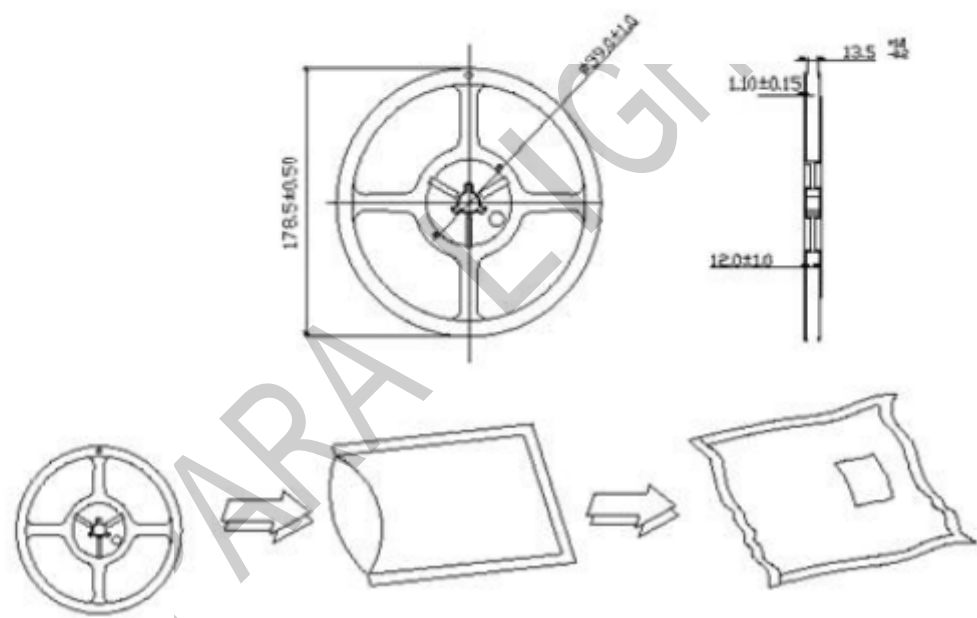
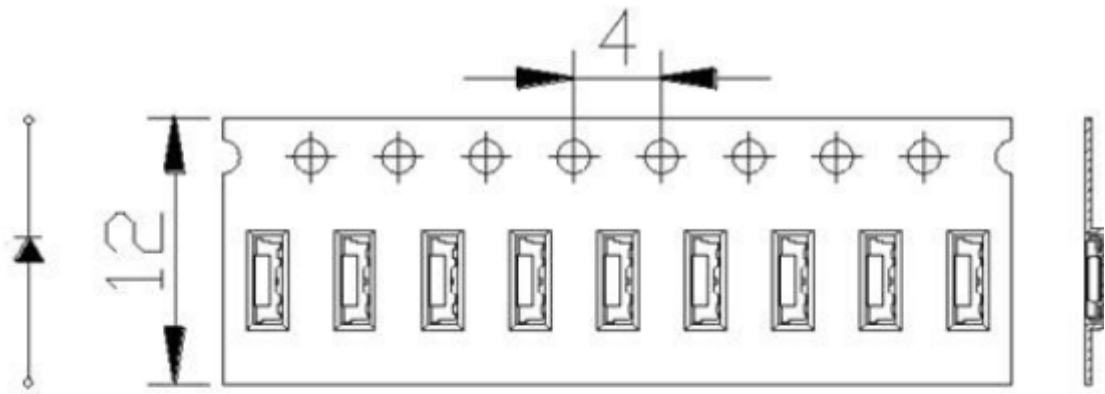
SURFACE MOUNT DEVICE LED

Part No.: L-S020WWDT-U1

REV:A / 0

Packaging

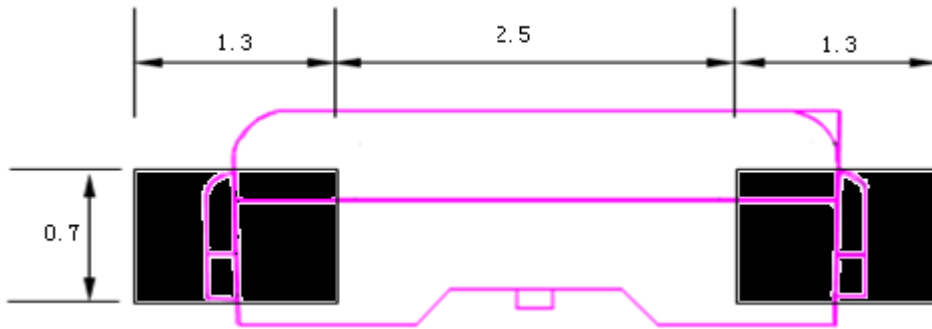
PACKING QUANTITY:1000-5000PCS/REL



Label:

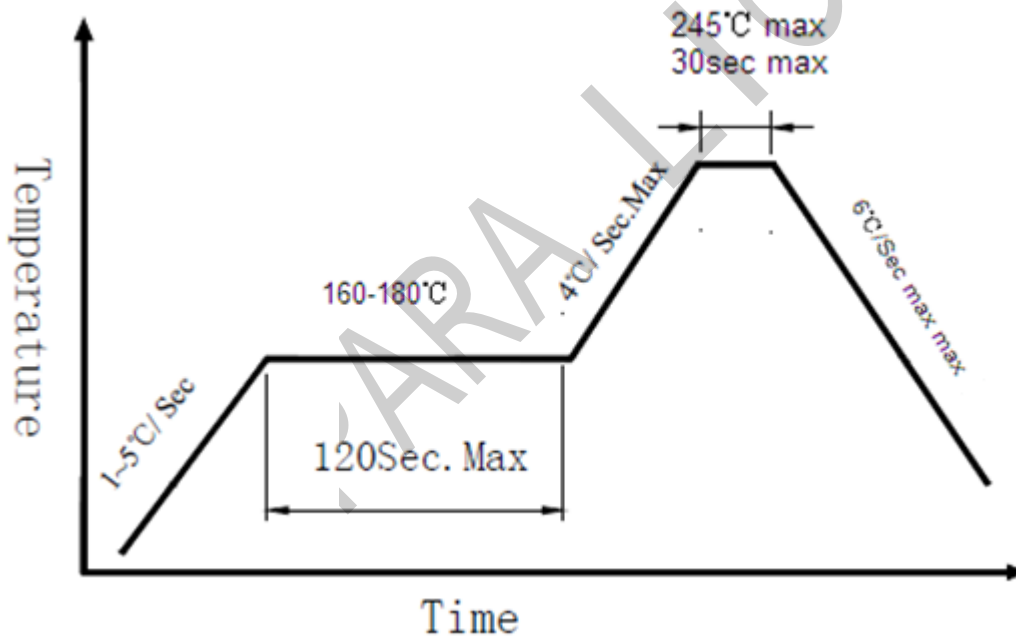
		光鼎電子股份有限公司 PARALIGHT ELECTRONICS CO.,LTD	
CUS.PART NO:			
CUSTOMER:			
PART NO:			
LOT NO:			
		WD:	
		VF:	
QUANTITY:		IE:	
DATE CODE:			
		QC:	RoHS

Recommended Soldering Pattern(unit:mm)



Guideline for Soldering

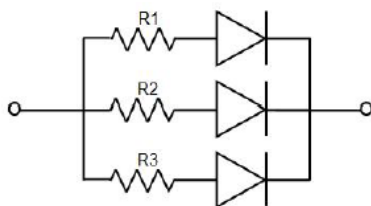
1. IR Reflow soldering Profile for Lead Free solder



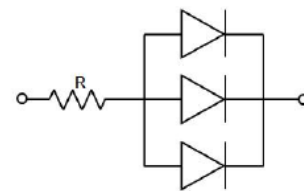
During welding, do not add any pressure to the product.

1. Application

- 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.
- 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.



Circuit model A



Circuit model B

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

5. Storage

- Before opening original package, it is recommended to store them in the following environment:
Temperature: 5°C~30°C Humidity: 85%RH max.
- After opening original package, the storage ambient for the LEDs should be in 5~30°C temperature and 60% or less relative humidity.
- 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.
- The LEDs should be used within 24hrs (1 day) after opening the package. Once been mounted, soldering should be quick.
- 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.

● 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.

●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 Gtlight’s 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.