



LIGITEK ELECTRONICS CO.,LTD.
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LED SMD



Lead-Free Parts

LG-170WK-DT/T-A01

DATA SHEET

DOC. NO : QW0905-LG-170WK-DT/T-A01C

REV. : A

DATE : 21 - Jan. - 2016



Features:

1. Package in 8.0mm carrier tape on 7" diameter reel.
2. Compatible with automatic placement equipment.
3. Compatible with reflow solder process.

Descriptions:

1. The LG-170 SMD Taping is much smaller than lead frame type components, thus enable smaller board size, higher packing density, reduced storage space and finally smaller equipment to be obtained.
2. Besides, lightweight makes them ideal for miniature applications. etc.

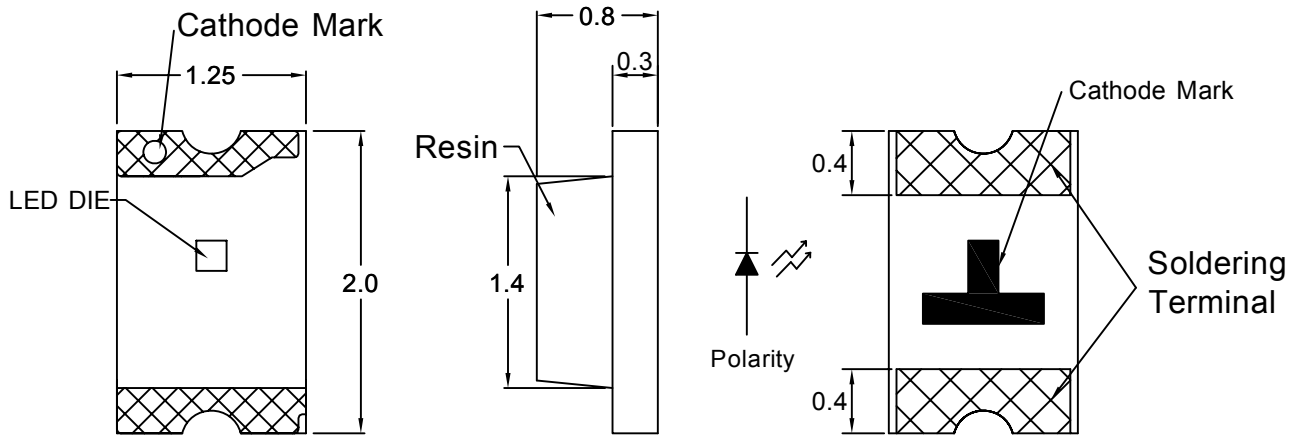
Applications:

1. Automotive : backlighting in dashboard and switch.
2. Telecommunication : indicator and backlighting in telephone and fax.
3. Flat backlight for LCD, switch and symbol
4. General use.

Device Selection Guide:

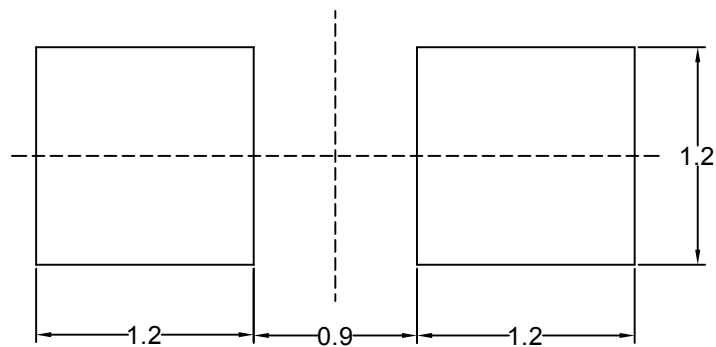
PART NO	MATERIAL	COLOR	
		Emitted	Lens
LG-170WK-DT/T-A01	InGaN	White	Yellow Diffused

Package Dimensions



Note : 1.All dimension are in millimeter tolerance is $\pm 0.1\text{mm}$ unless otherwise noted.
2.Specifications are subject to change without notice.

Recommended Soldering Pad Dimensions



Note : The tolerances unless mentioned is $\pm 0.1\text{mm}$, Angle ± 0.5 . Unit=mm.

Absolute Maximum Ratings at Ta=25°C

Parameter	Symbol	Ratings	UNIT
Power Dissipation	PD	32	mW
Peak Forward Current Duty 1/10@10KHz	IFP	100	mA
Forward Current	IF	10	mA
Reverse Current @5V	Ir	50	μA
Electrostatic Discharge	ESD	500	V
Operating Temperature	Topr	-40 ~ +85	°C
Storage Temperature	Tstg	-40 ~ +100	°C

Typical Electrical & Optical Characteristics (Ta=25°C)

Items	Symbol	Min.	Typ.	Max.	UNIT	CONDITION
Luminous Intensity	Iv	50	80	----	mcd	IF=5mA
Chromaticity Coordinates	X	0.26	----	0.29	----	IF=5mA
	Y	0.225	----	0.31	----	IF=5mA
Forward Voltage	V _F	2.6	----	3.2	V	IF=5mA
Viewing Angle	2θ 1/2	----	150	----	deg	IF=5mA

- Note : 1.The forward voltage data did not including ±0.1V testing tolerance.
 2. The luminous intensity data did not including ±15% testing tolerance.
 3.The color coordinates measurement allowance is±0.01 testing tolerance

Luminous Intensity Classification

BIN CODE	Iv(mcd) at 5mA	
	Min.	Max.
P	50	80
Q	80	125
R	125	200
S	200	320

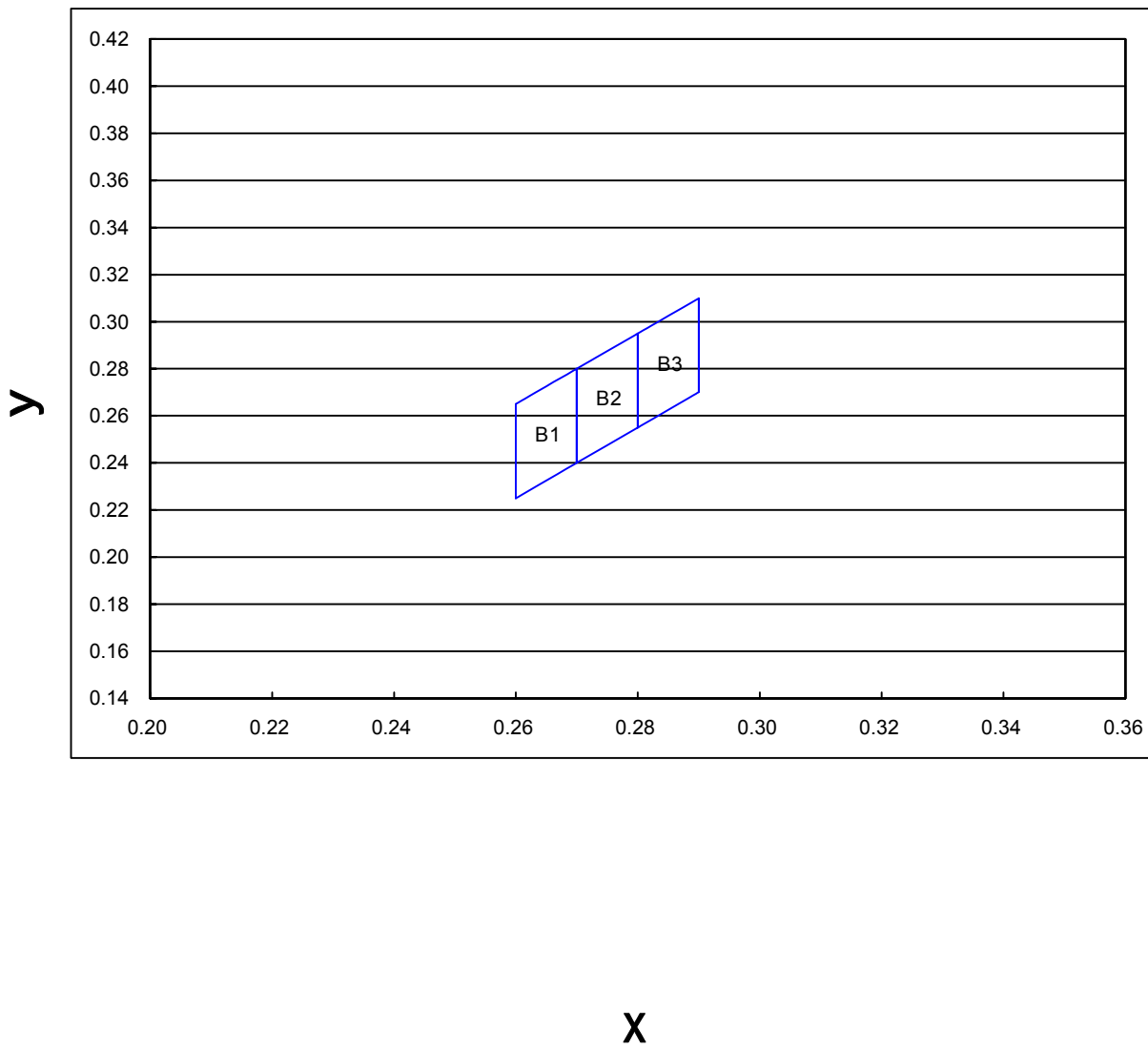
Forward Voltage Classification

BIN CODE	Vf(v) at 5mA	
	Min.	Max.
1	2.6	2.7
2	2.7	2.8
3	2.8	2.9
4	2.9	3.0
5	3.0	3.1
6	3.1	3.2

Chromaticity Coordinates Specifications For Bin Grading

Color Coordiante at5mA								
BIN CODE	1		2		3		4	
	X	Y	X	Y	X	Y	X	Y
B1	0.26	0.265	0.26	0.225	0.27	0.24	0.27	0.28
B2	0.27	0.28	0.27	0.24	0.28	0.225	0.28	0.295
B3	0.28	0.295	0.28	0.255	0.29	0.27	0.29	0.31

CIE Chromaticity Diagram



Typical Electro-Optical Characteristics Curve

WK CHIP

Fig.1 Forward current vs. Forward Voltage

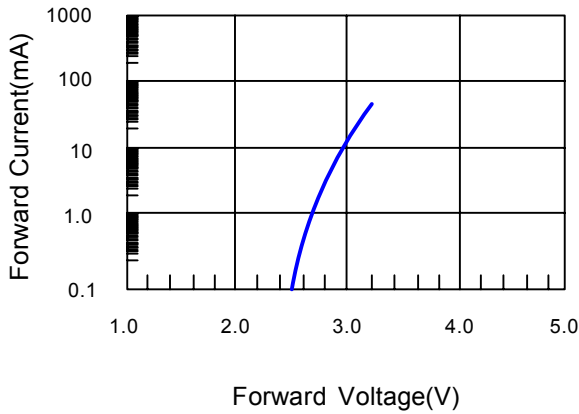


Fig.2 Relative Intensity vs. Forward Current

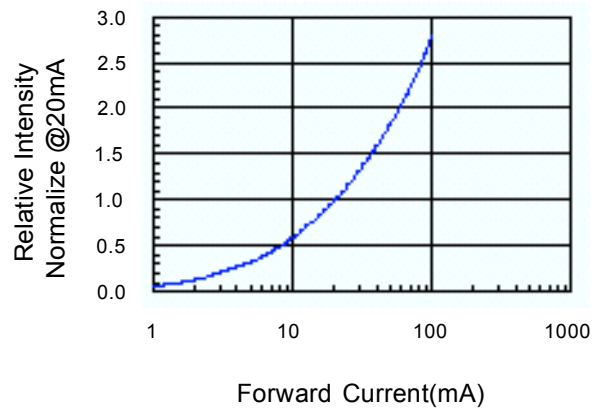


Fig.3 Forward Current vs. Temperature

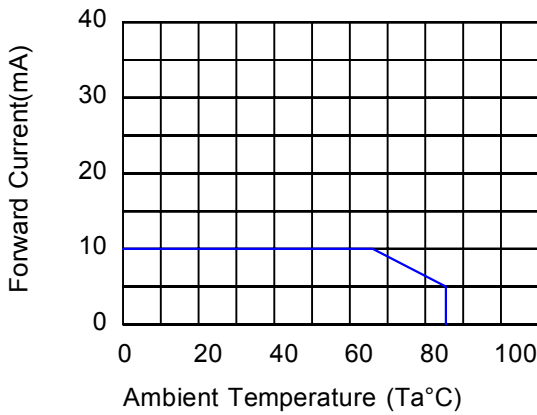


Fig.4 Relative Intensity vs. Temperature

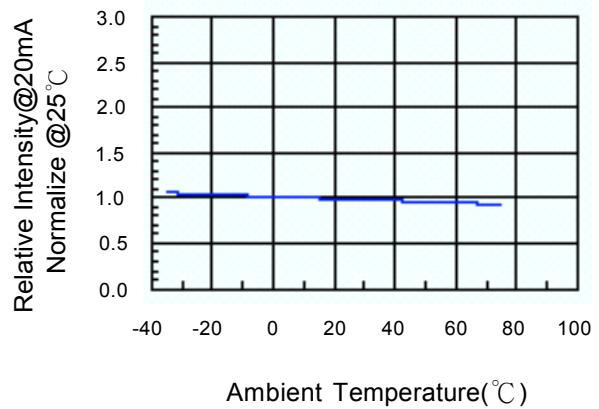


Fig.5 Luminous Spectrum (Ta=25°C)

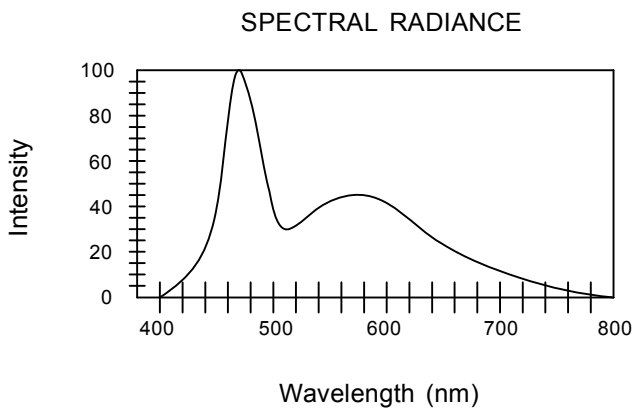
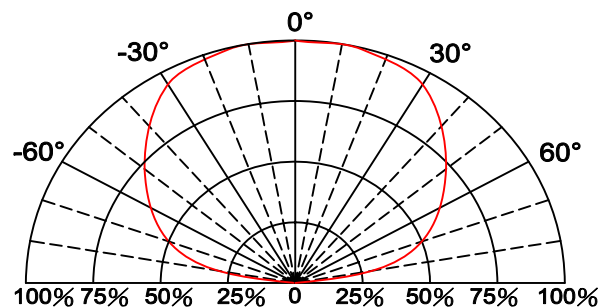
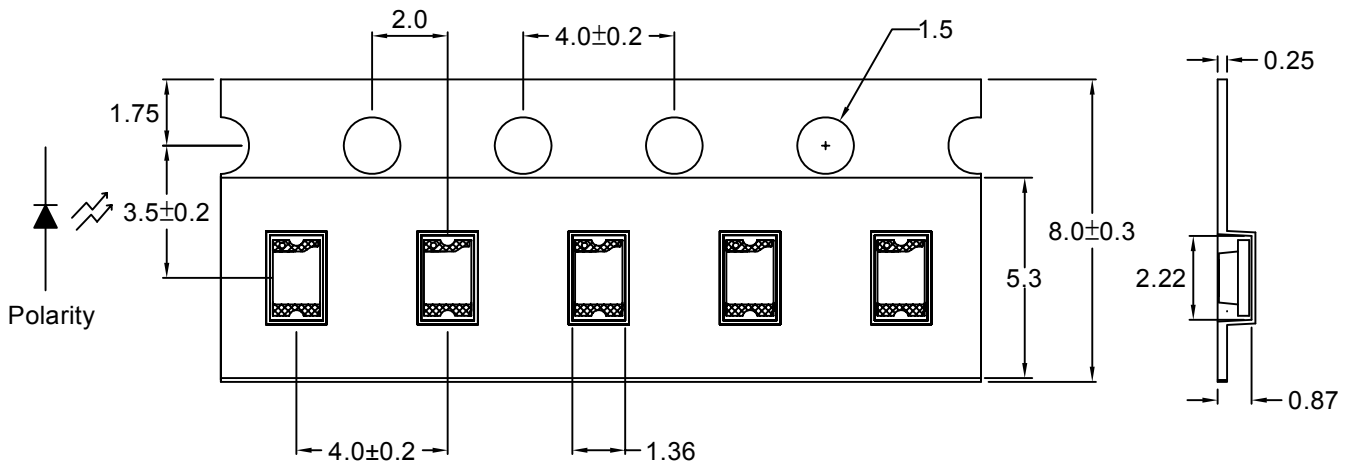


Fig.6 Directive Radiation

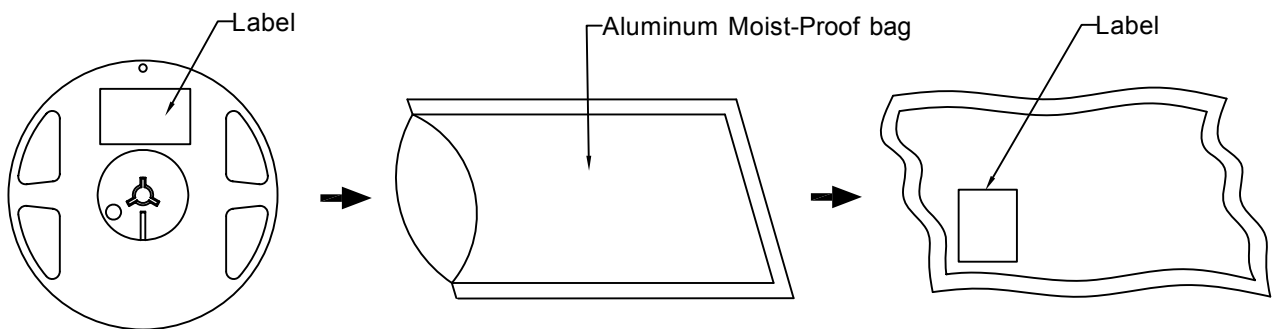


Carrier Type Dimensions



Note : The tolerances unless mentioned is $\pm 0.1\text{mm}$, Angle ± 0.5 . Unit=mm.

• Packing Specifications



Part No.	Description	Quantity/Reel
LG-170WK-DT/T-A01	8.0mm tape,7"reel	4000 devices

Label Explanation

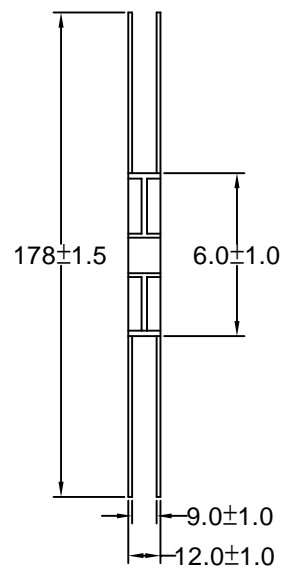
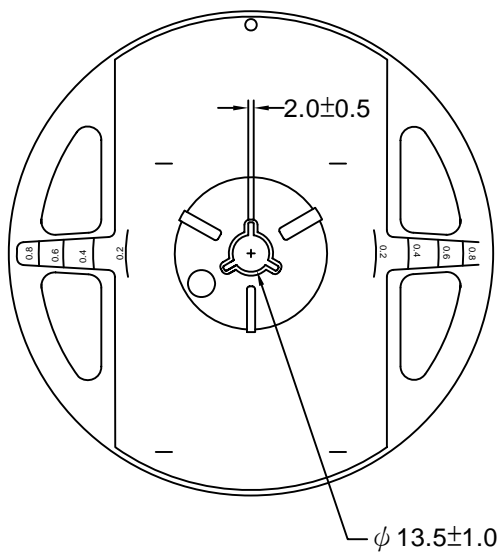
	LIGITEK ELECTRONICS CO., LTD.	
PART :	LG-170WK-DT/T-A01	
LOT :	GS11610168	
QTY(PCS):	4000	
BIN/HUE :	P/B2	VF:3.0-3.1

BIN : Luminous Intensity

HUE : Chromaticity Coordinates
(CIE_x , CIE_y)

VF : Forward Voltage

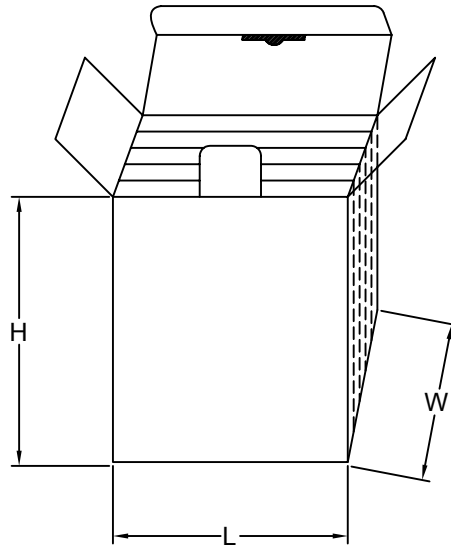
Reel Dimensions



Box Explanation

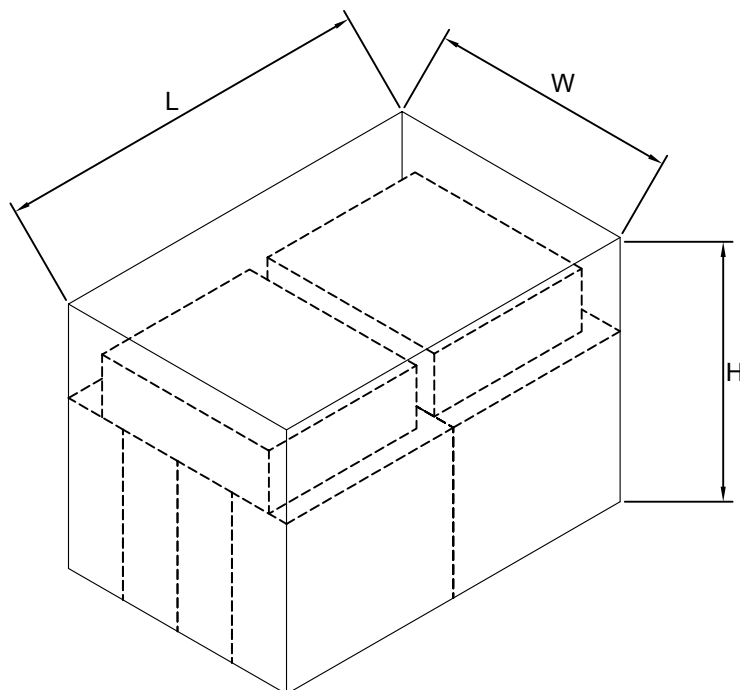
1. 5 BAG / INNER BOX

2. INNER BOX SIZE : L X W X H 23cm X 8.5cm x 26cm



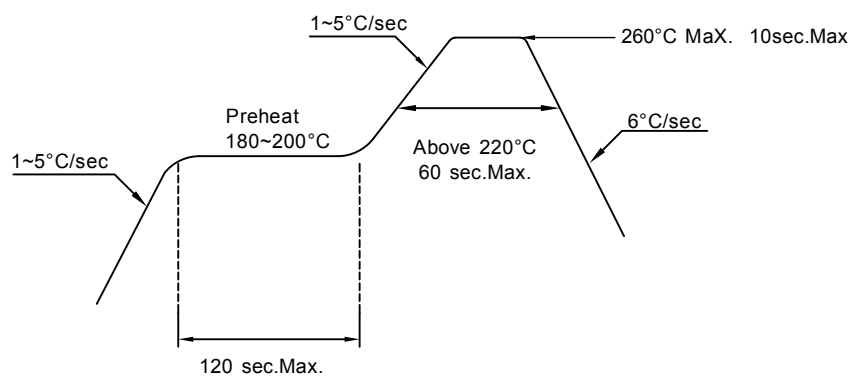
3. 10 INNER BOXES / CARTON

4. CARTON SIZE : L X W X H 58cm X 34cm x 35cm



Recommended Soldering Conditions**1. Hand Solder**

Basic spec is $\leq 280^{\circ}\text{C}$ 3 sec one time only.

2. PB-Free Reflow Solder**Note:**

- 1.Reflow soldering should not be done more than two times.
- 2.When soldering,do not put stress on the LEDs during heating.
- 3.After soldering,do not warp the circuit board.

Precautions For Use:**Storage time:**

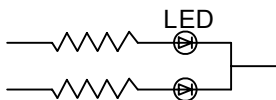
- 1.The operation of Temperatures and RH are : 5 °C~30°C,RH60%.
- 2.Once the package is opened, the products should be used within a week.
Otherwise, they should be kept in a damp proof box with desiccating agent.
Considering the tape life, we suggest our customers to use our products within a year(from production date).
- 3.If opened more than one week in an atmosphere 5 °C ~ 30°C,RH60%, they should be treated at 60°C±5 °C for 24hrs.

Drive Method:

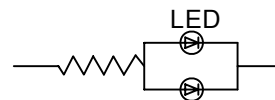
LED is a current operated device, and therefore, requires some kind of current limiting incorporated into the driver circuit. This current limiting typically takes the form of a current limiting resistor placed in series with the LED.

Consider worst case voltage variations than could occur across the current limiting resistor. The forward current should not be allowed to change by more than 40% of its desired value.

Circuit model A



Circuit model B



(A) Recommended circuit.

(B) The difference of brightness between LED could be found due to the VF-IF characteristics of LED.

Cleaning:

Use alcohol-based cleaning solvents such as isopropyl alcohol to clean the LED.

ESD(Electrostatic Discharge):

Static Electricity or power surge will damage the LED. Use of a conductive wrist band or anti-electrostatic glove is recommended when handling these LED. All devices, equipment and machinery must be properly grounded.

Reliability Test:

Classification	Test Item	Test Condition	Sample Size
Endurance Test	Operating Life Test	1.Ta=25°C 2.If=5mA 3.t=1000 hrs (-24hrs,+72hrs)	22
	High Temperature Storage Test	1.Ta=100°C±5°C 2.t=1000 hrs (-24hrs,+72hrs)	22
	Low Temperature Storage Test	1.Ta=-40°C±5°C 2.t=1000 hrs (-24hrs,+72hrs)	22
	High Temperature High Humidity Storage Test	1.Ta=85°C 2.RH=85% 3.t=1000hrs(-24hrs,+72hrs)	22
Environmental Test	Thermal Shock Test	1.Ta=100°C±5°C ~ -40°C±5°C 20min/ 10sec / 20min 2.total 100 cycles	22
	Temperature Cycling	1.100°C±5°C ~ -40°C±5°C 30mins / 5mins / 30mins 2.100 Cyeles	22
	IR Reflow	1.T=260°C Max. 10sec.Max. 2. 6 Min	22