

1W Power Light LED



Lead-Free Parts

LG-7020WKZ-2-P-A07

DATA SHEET

DOC. NO : QW0905-LG-7020WKZ-2-P-A07

REV. : A

DATE : 01 - Dec. - 2016



Product Model Designation System

LG - 70 20 WK Z - 2 - P - A07
 A B C D E F G H

A	B	C	D	E
Title	Dimension(L)	Dimension(W)	EmittingColor	Zener
	70:7.0mm	20:2.0mm	WK:White Color	
F	G	H		
Chip Modification	Patent	BinModification		
-2: 2 chip in 1(Series)	P: IP Free			

PART NO. LG-7020WKZ-2-P-A07

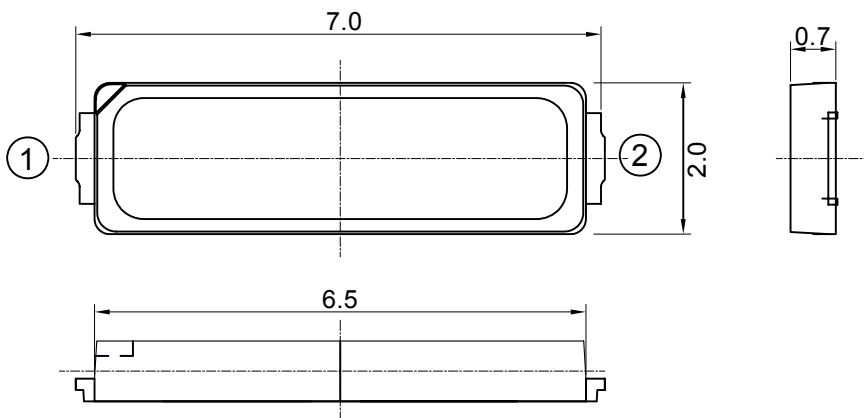
Features

- *. White colored SMTpackage
- *.Suitable for all SMT assembly and soldering methodes
- *. Pb-Free Reflow soldering application
- *. More Energy Efficient than Incandescent and most Halogen lamps.
- *. RoHS compliant

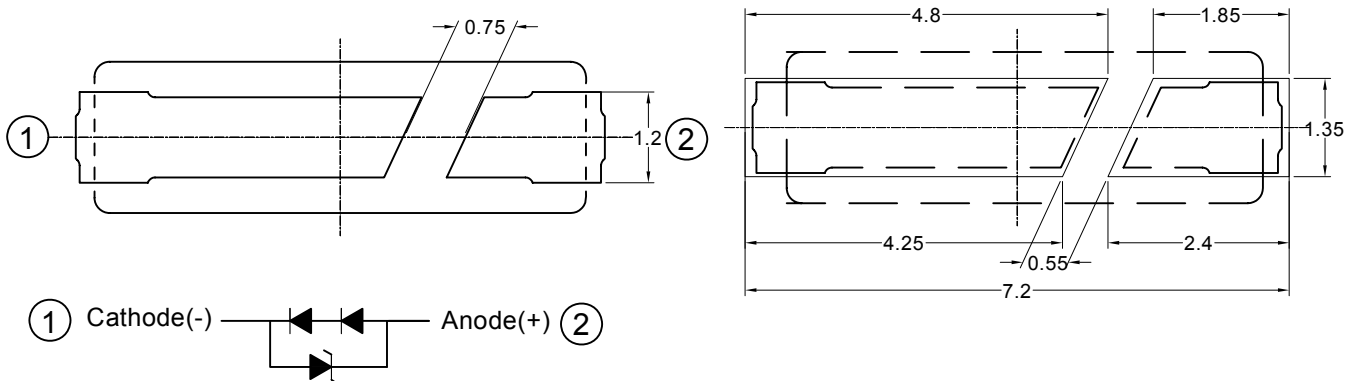
Typical Applications

- *. Reading Light (car,bus,aircraft)
- *. Portable(flashlight,bicycle).
- *. Backlights(Monitor,TV) / Light Guides.
- *. Automotive Exterior (Stop-Tail-Tum,CHMSL,Mirror Side Repeat).
- *. Commercial and Residential Architectural lighting.
- *. Mini-accent / Uplighters / Downlighters / Orientation lighting
- *. Fiber Optic Alternative / Decorative / Entertainment lighting.
- *. Security / Garden lighting.
- *. Cove / Undershef / Task lighting.
- *. Traffic signaling / Beacons / Rail crossing and Wayside lighting.

Dimension



Recommended Solder Patterns



Note:

- 1.The tolerance unless mentioned is $\pm 0.2\text{mm}$,unit=mm.

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Absolute Maximum Ratings at Ta=25°C

Parameter	Symbol	Ratings	UNIT
		White	
DC Forward Current	IF	150	mA
Power Dissipation	PD	1	W
Peak pulse current Duty 1/10@10KHz	IFP	200	mA
LED junction Temperature	Tj	125	°C
Reverse Current(VR=5V)	Ir	10	µA
Electrostatic Discharge	ESD	2000	V
Storage Temperature	Tstg	-40 ~ +100	°C
Operating Temperature	Topr	-40 ~ +85	°C
Soldering Temperature	Tp	260	°C
Hand Soldering Time at320°C(Max)	Tsol	3	seconds

Note:

- 1.Proper current derating must be observed to maintain temperature below the maximum.
- 2.LEDS are not designed to be driven in reverse bias.

Luminous Intensity Characteristics at 120mA (Ratings At 25°C Ambient)

PART NO	Emission Color	Luminous Intensity			Units
		Min.	Typ.	Max.	
LG-7020WKZ-2-P-A07	White	55	60	----	lm

Note :

1. White emitters are built with InGaN.
2. Luminous Intensity is measured with an accuracy of ±15%

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Forward Voltage Characteristics at 120mA

(Ratings At 25°C Ambient)

PART NO	Emission Color	Vf			Units
		Min.	Typ.	Max.	
LG-7020WKZ-2-P-A07	White	5.6	----	6.6	V

Note : Forward Voltage is measured with an accuracy of $\pm 0.1V$

Chromaticity Coordinates Characteristics at 120mA

(Ratings At 25°C Ambient)

PART NO	Emission Color	Chromaticity Coordinates			
		X		Y	
		Min.	Max.	Min.	Max.
LG-7020WKZ-2-P-A07	White	0.246	0.2741	0.2101	0.25

Note : ± 0.01 is tester tolerance.

Emission Angle Characteristics at 120mA

(Ratings At 25°C Ambient)

PART NO	Emission Color	Lambertian	Units
LG-7020WKZ-2-P-A07	White	120	Degrees

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Luminous Intensity Classification

BIN CODE	Iv(lm) at 120mA	
	Min.	Max.
F55V	55	60
F60V	60	65
F65V	65	70
F70V	70	75

Forward Voltage Classification

BIN CODE	Vf(v) at 120mA	
	Min.	Max.
1	5.6	5.8
2	5.8	6
3	6	6.2
4	6.2	6.4
5	6.4	6.6

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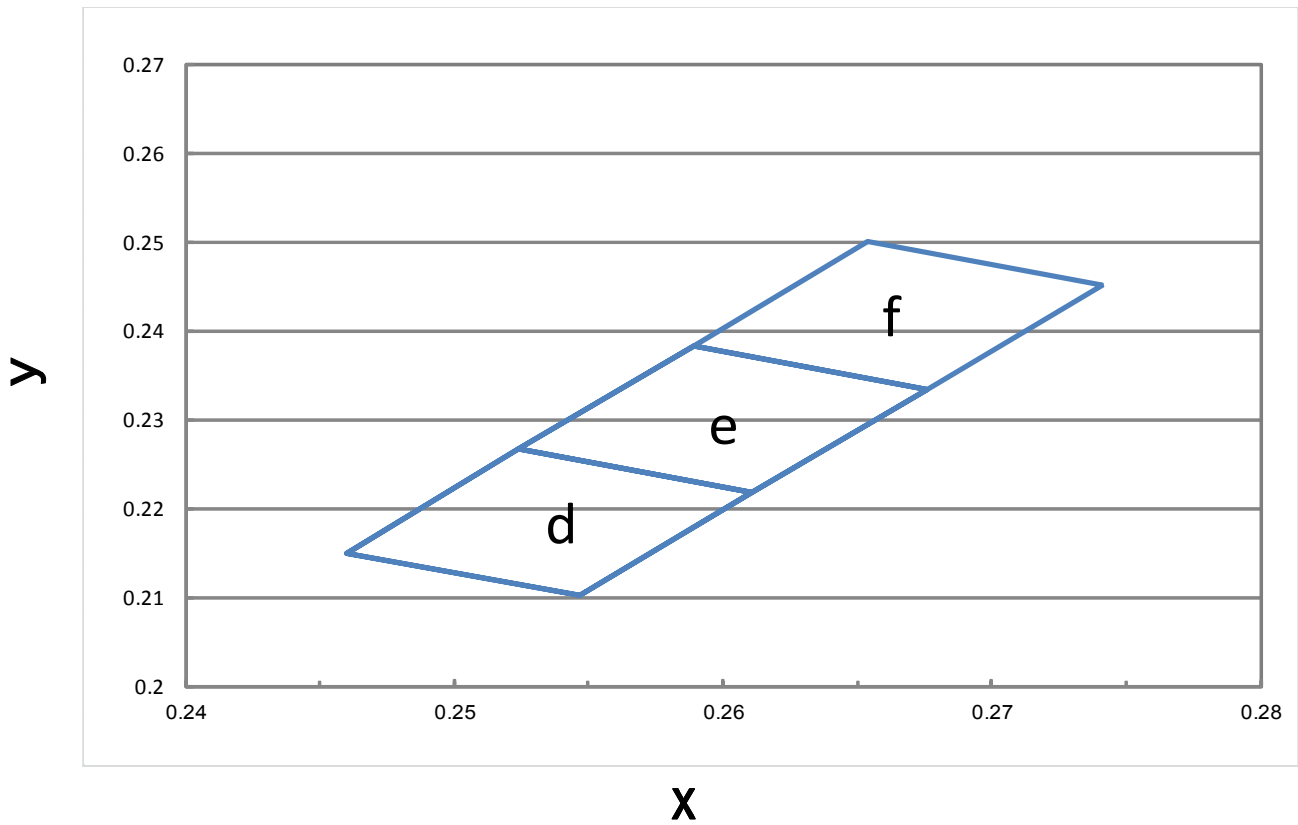
Bins Code of chromaticity coordinates

CODE	1		2		3		4	
	X	Y	X	Y	X	Y	X	Y
d	0.2611	0.2217	0.2547	0.2101	0.246	0.215	0.2524	0.2266
e	0.2676	0.2334	0.2611	0.2217	0.2524	0.2266	0.2589	0.2383
f	0.2741	0.2451	0.2676	0.2334	0.2589	0.2383	0.2654	0.25

NOTE: Tolerance on each color bin(x,y) is ± 0.01

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The C.I.E 1931 Chromaticity Coordinates



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Typical Electro Optical Characteristics Curves

Fig.1 Forward current vs. Forward Voltage

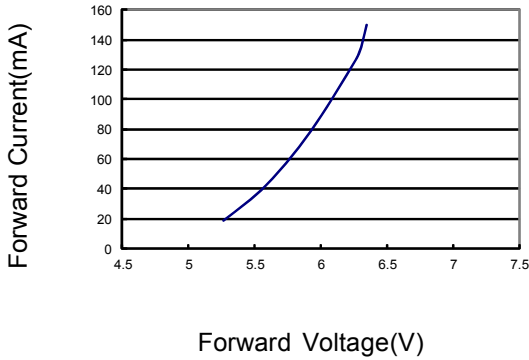


Fig.3 Driving Forward Current VS. Temperature

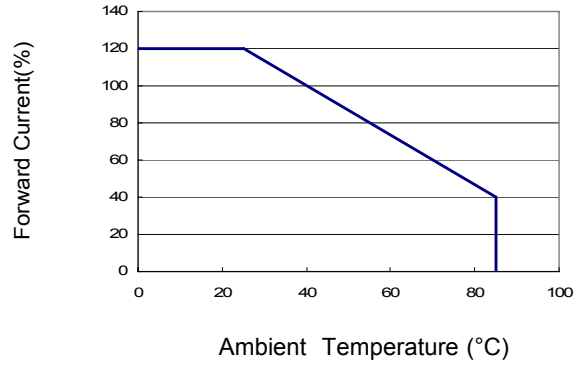


Fig.2 Forward current vs.Luminous Intensity

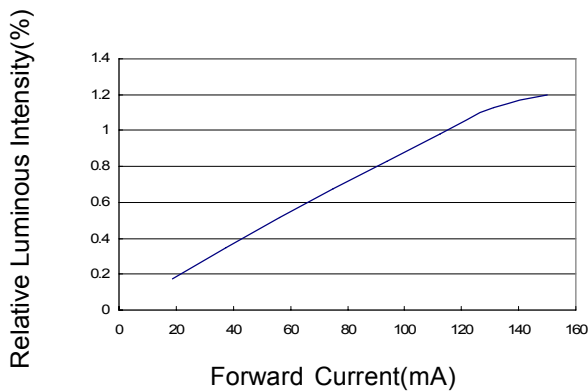


Fig.4 Luminous Intensity vs. Temperature

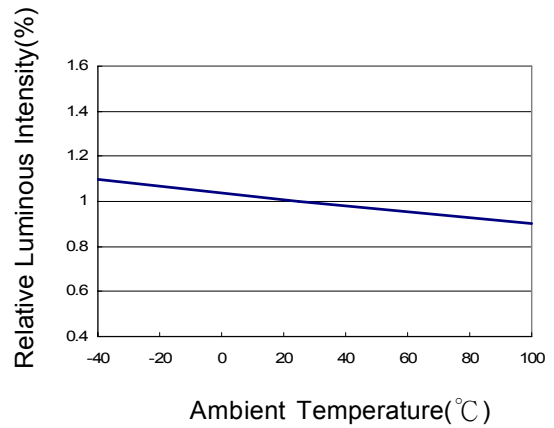


Fig.5 Luminous Spectrum(Ta=25°C)

SPECTRAL RADIANCE

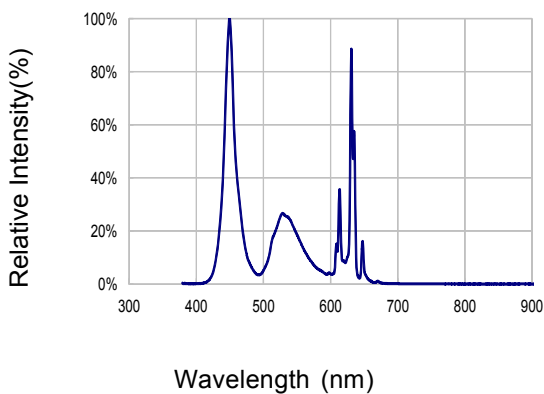
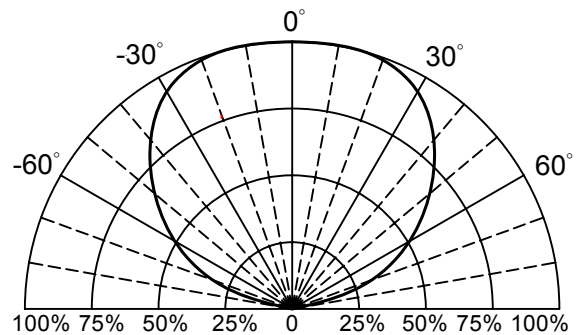


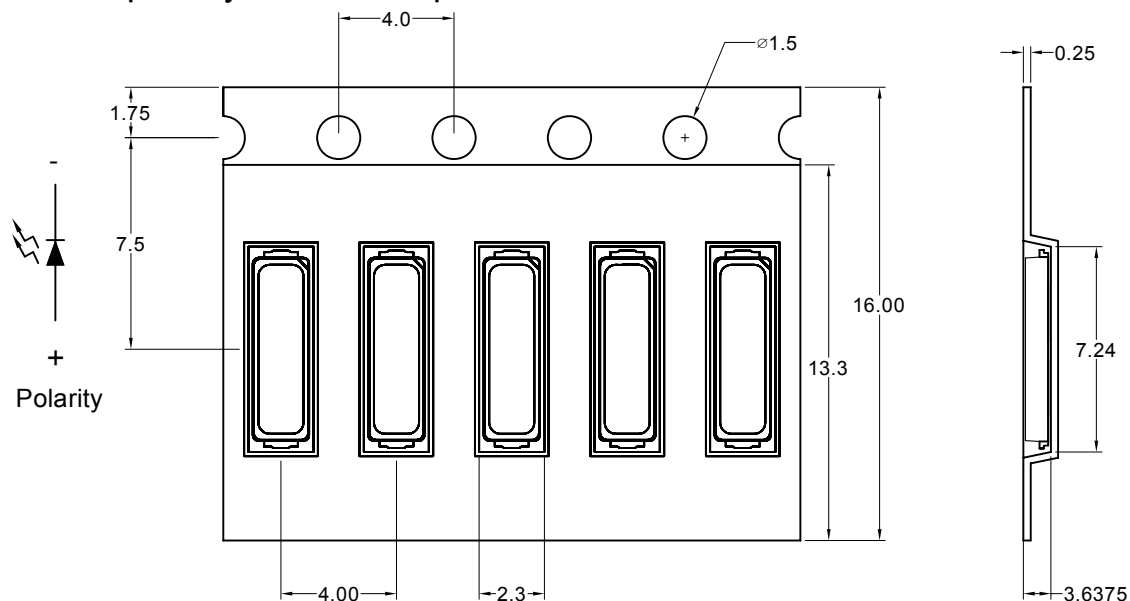
Fig.6 Directivity Radiation



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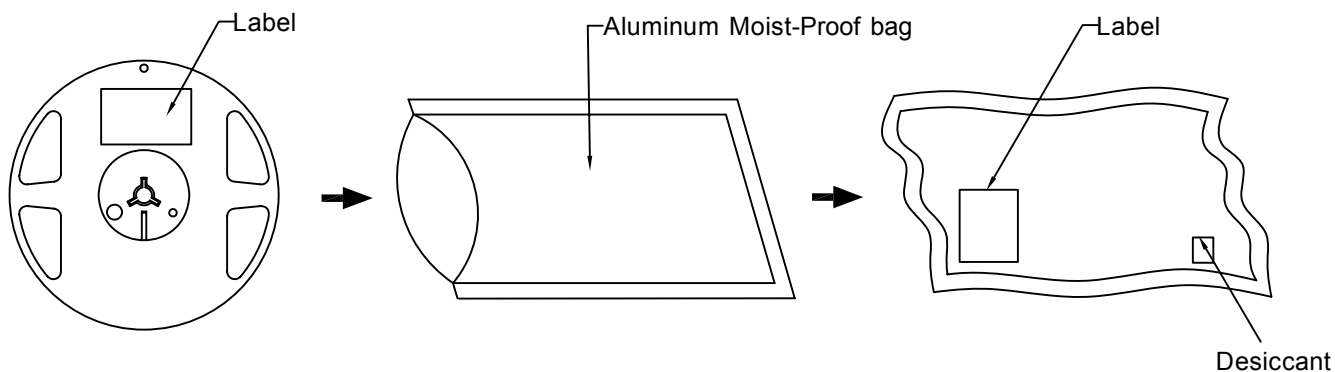
Carrier Type Dimensions

Loaded quantity 2000 PCS per reel









Note : The tolerances unless mentioned is ± 0.2 mm.

Packing Specifications



PART NO. LG-7020WKZ-2-P-A07

Label Explanation

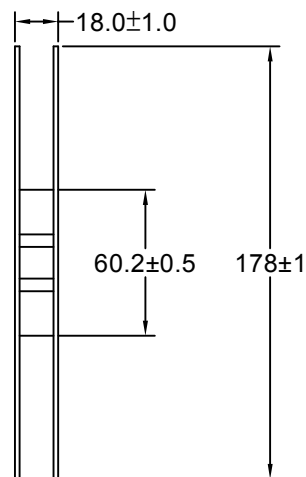
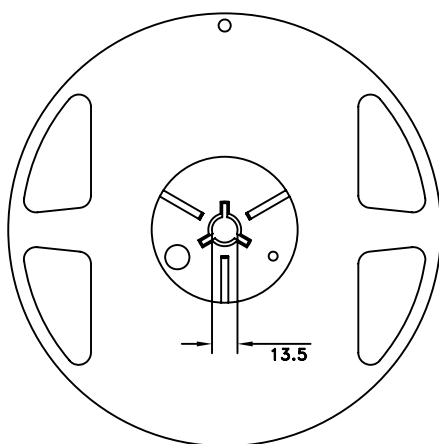
 LIGITEK ELECTRONICS CO., LTD.	
PART :	 LG-7020WKZ-2-P-A07
LOT :	 GS11650168
QTY(PCS):	 2000
BIN/HUE :	 F55V/e  VF:6.4-6.6

BIN : Luminous Intensity

HUE : Chromaticity Coordinates
(CIE_x , CIE_y)

VF : Forward Voltage

Reel Dimensions

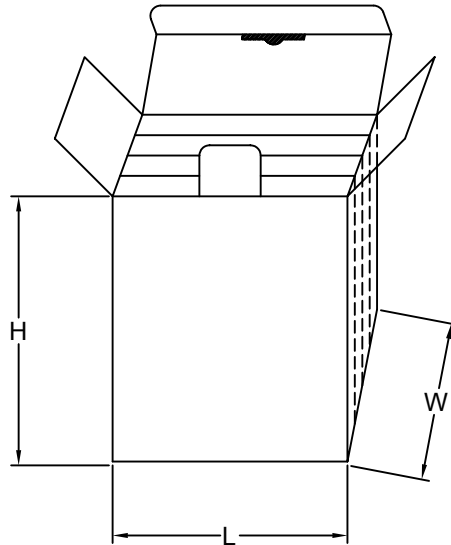


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Box Explanation

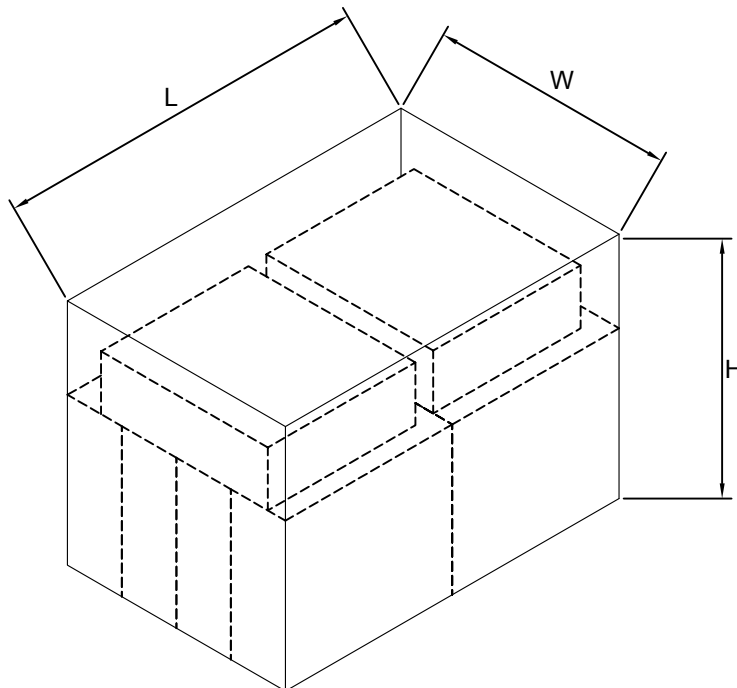
1. 4 BAG / INNER BOX

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

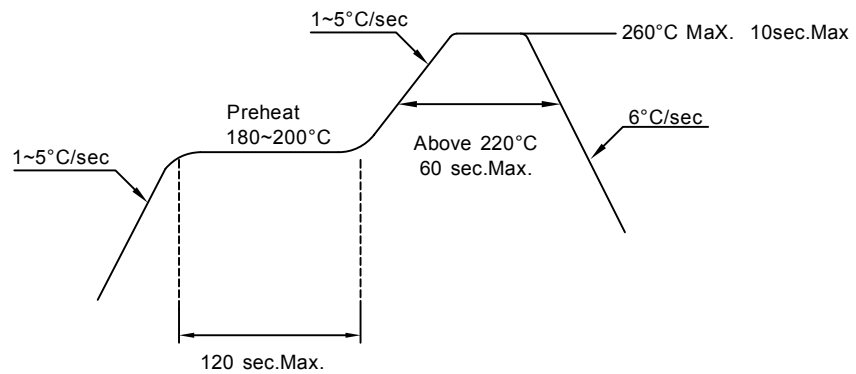


Recommended Soldering Conditions

1. Hand Solder

Basic spec is $\leq 320^{\circ}\text{C}$ 3 sec one time only.

3. 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.

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Precautions For Use:**Storage time:**

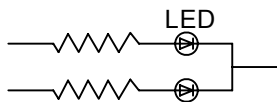
1. Calculated shelf life before opening is 12 months at $< 30^{\circ}\text{C}$ and $< 90\%$ relative humidity (RH)
2. After bag is opened, devices which will be subjected to reflow soldering or other high temperature processes must be
 - a) Assembled within 168 hours in an environment of $\leq 30^{\circ}\text{C} / 60\%$ RH, or
 - b) Stored at ambient of 10% RH or less
3. Devices are required baking before assembly if:
 - a) Humidity Indicator Card reads $>10\%$ (for level 2a -5a) or $>60\%$ (for level 2) at ambient temperature $23 \pm 5^{\circ}\text{C}$
 - b) 2.a) or 2.b) doesn't meet
4. If baking is required, devices should be baked for >72 hours at $60 \pm 5^{\circ}\text{C} / 5\%$ RH. Performing baking only once, and using the baked devices within 72 hours.

Drive Method:

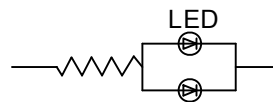
LED is a current operated device, and therefore, requires some kind of current limiting incorporated into the driver circuit. This current limiting typically takes the form of a current limiting resistor placed in series with the LED.

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.

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Classification	Test Item	Test Condition	Sample Size
Endurance Test	Operating Life Test	1.Ta=25°C 2.If=120mA 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