

0.4W Power Light LED



Lead-Free Parts

LG-7020WKZ-2-P-A03**DATA SHEET**DOC. NO : QW0905-LG-7020WKZ-2-P-A03REV. : CDATE : 26 - Oct. - 2015

Product Model Designation System

LG - 70 20 WK Z - 2 - P - A03
 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-A03

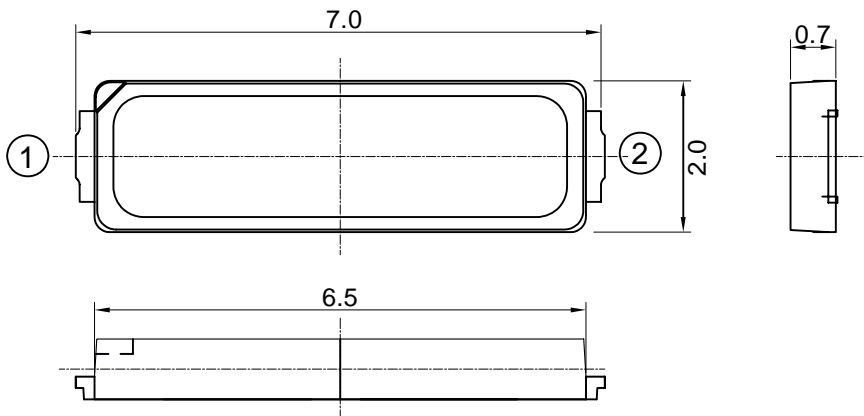
Features

- *. 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

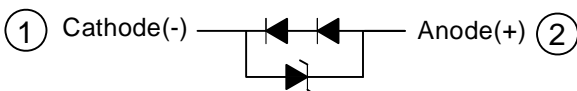
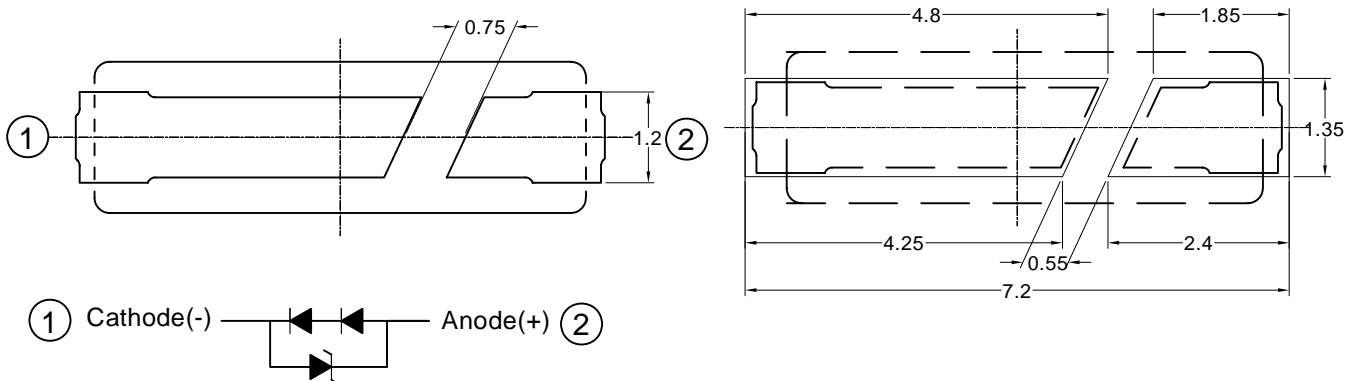
Typical Applications

- *. 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.

PART NO. LG-7020WKZ-2-P-A03

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-A03	White	80	90	----	lm

Note :

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

PART NO. LG-7020WKZ-2-P-A03

Forward Voltage Characteristics at 120mA

(Ratings At 25°C Ambient)

PART NO	Emission Color	Vf			Units
		Min.	Typ.	Max.	
LG-7020WKZ-2-P-A03	White	5.6	----	6.8	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-A03	White	0.2655	0.2906	0.2339	0.2727

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-A03	White	120	Degrees

PART NO. LG-7020WKZ-2-P-A03

Luminous Intensity Classification

BIN CODE	Iv(lm) at 120mA	
	Min.	Max.
F80V	80	85
F85V	85	90
F90V	90	95
F95V	95	100

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
6	6.6	6.8

PART NO. LG-7020WKZ-2-P-A03

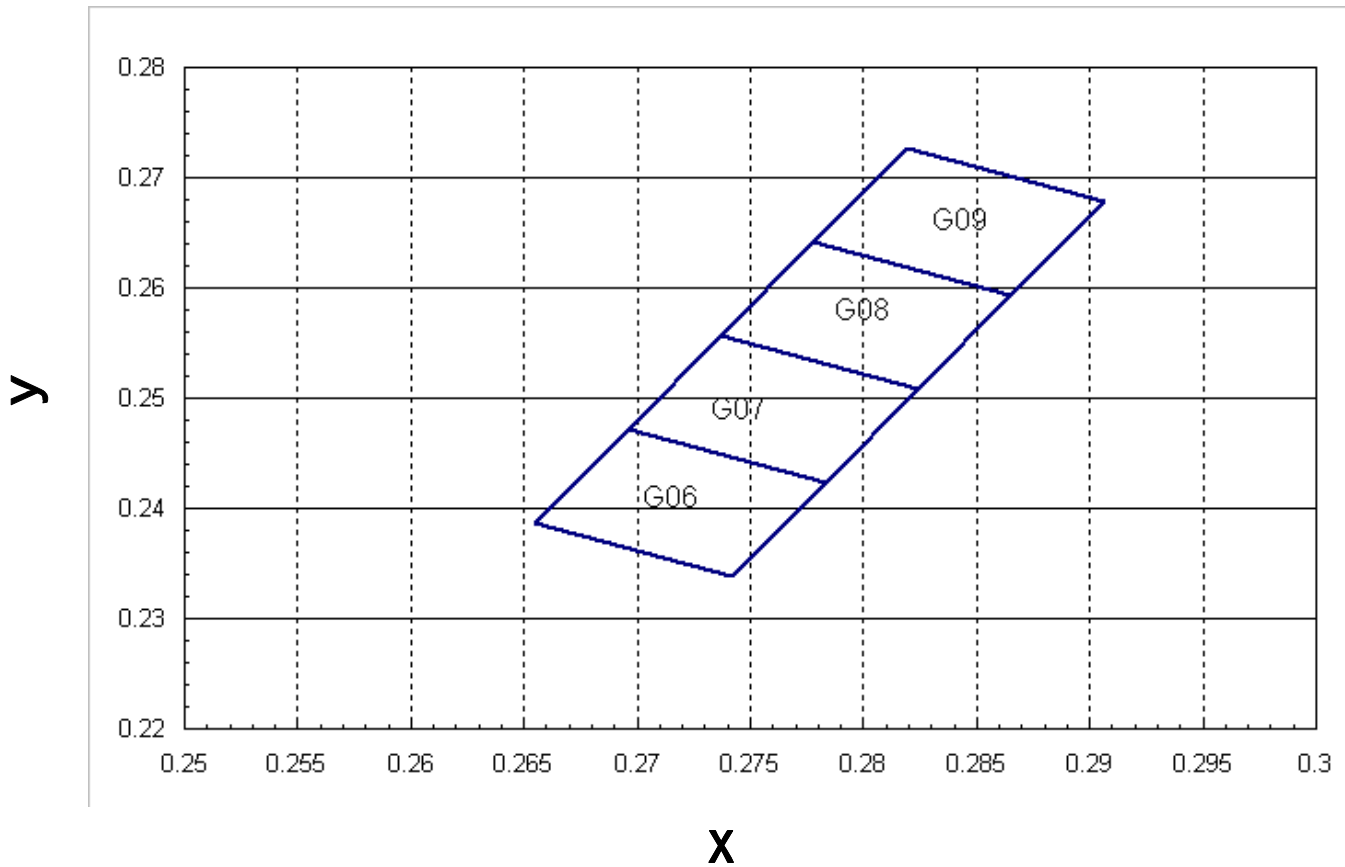
Bins Code of chromaticity coordinates

CODE	1		2		3		4	
	X	Y	X	Y	X	Y	X	Y
G06	0.2655	0.2387	0.2742	0.2339	0.2783	0.2424	0.2696	0.2472
G07	0.2696	0.2472	0.2783	0.2424	0.2824	0.2509	0.2737	0.2557
G08	0.2737	0.2557	0.2824	0.2509	0.2865	0.2594	0.2778	0.2642
G09	0.2778	0.2642	0.2865	0.2594	0.2906	0.2679	0.2819	0.2727

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

PART NO. LG-7020WKZ-2-P-A03

The C.I.E 1931 Chromaticity Coordinates

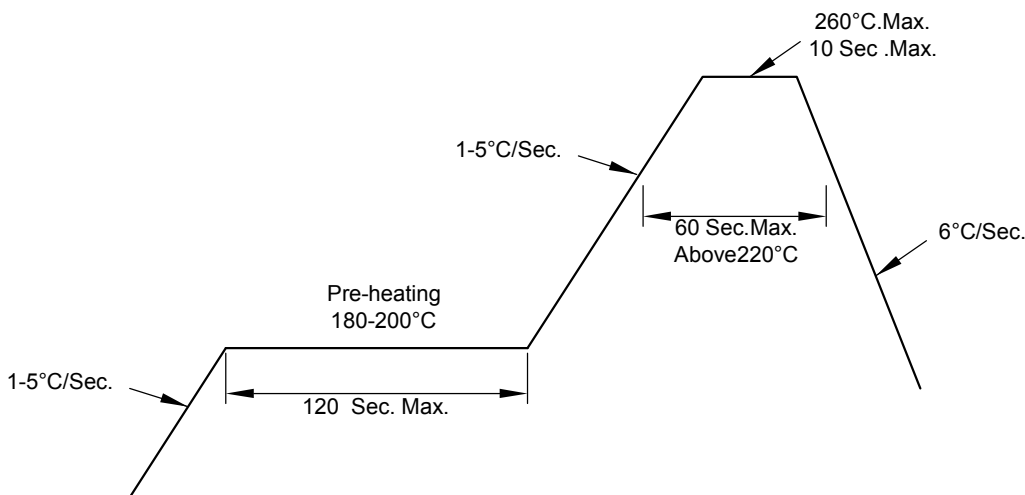


PART NO. LG-7020WKZ-2-P-A03

Recommended Profile for Reflow Soldering

Pb -free solder temperature profile

Pb -free solder Temperature profile	
Pre-heat	180-200°C
Pre-heat time	120 Sec Max
Peak-Temperature	260°C Max
Soldering time condition	10 Sec Max



- (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.
- (4) The encapsulated material of the LEDs is silicone.

Precautions should be taken to avoid the strong pressure on the encapsulated part. So when using the chip moulder, the picking up nozzle that does not affect the silicone resin should be used.

Hand Soldering Conditions:

Do not exceed 3 seconds at maximum 320°C under soldering iron. (one time only)

PART NO. LG-7020WKZ-2-P-A03

Typical Electro Optical Characteristics Curves

Fig.1 Forward current vs. Forward Voltage

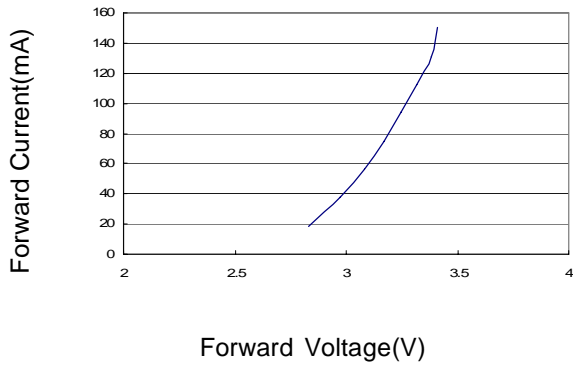


Fig.3 Driving Forward Current VS. Temperature

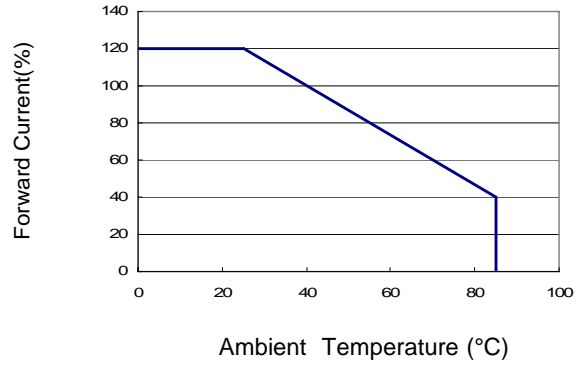


Fig.2 Forward current vs.Luminous Intensity

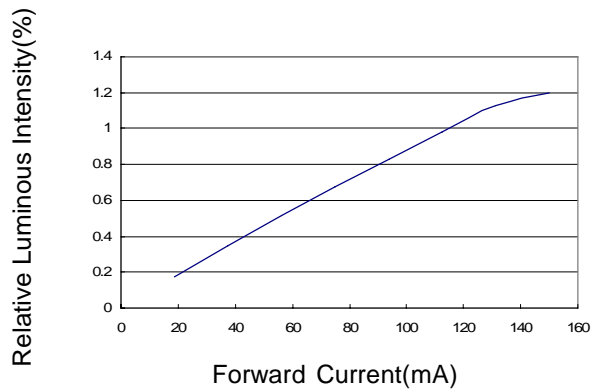


Fig.4 Luminous Intensity vs. Temperature

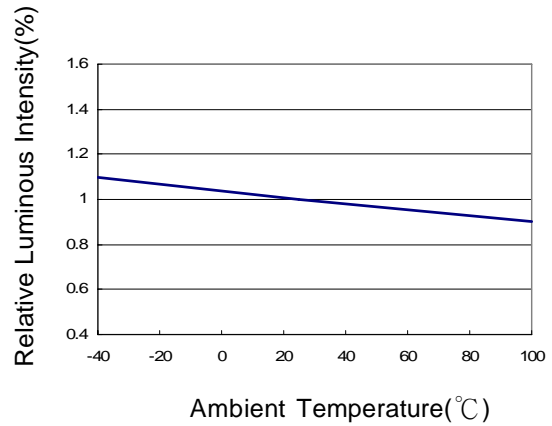


Fig.5 Luminous Spectrum(Ta=25°C)

SPECTRAL RADIANCE

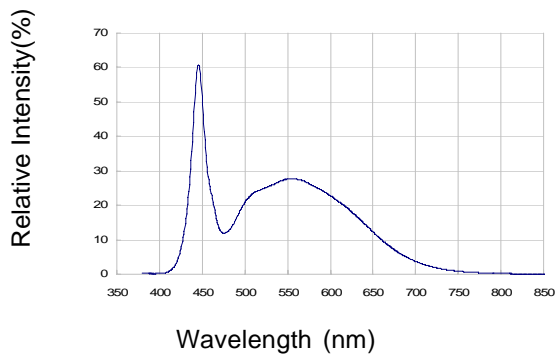
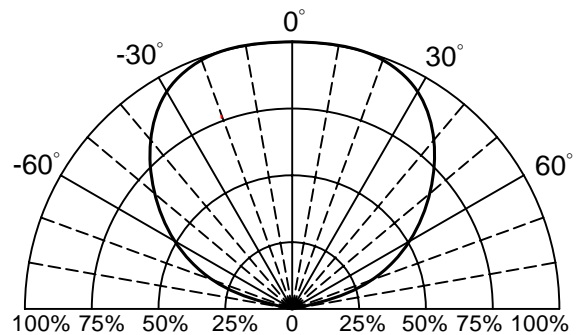


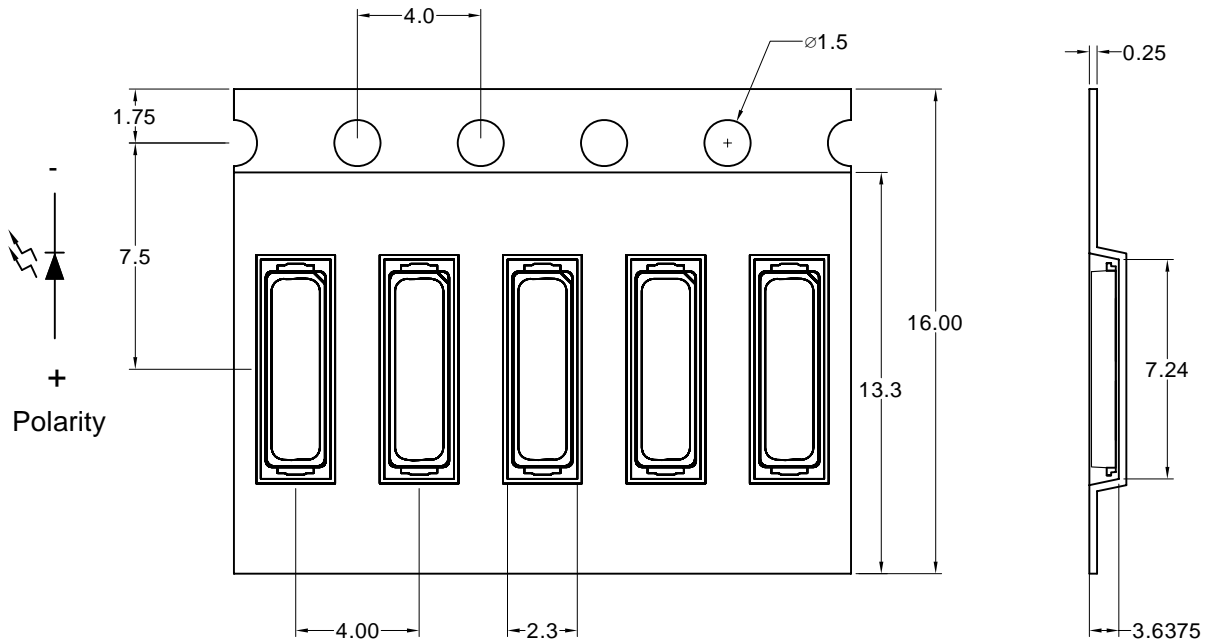
Fig.6 Directivity Radiation



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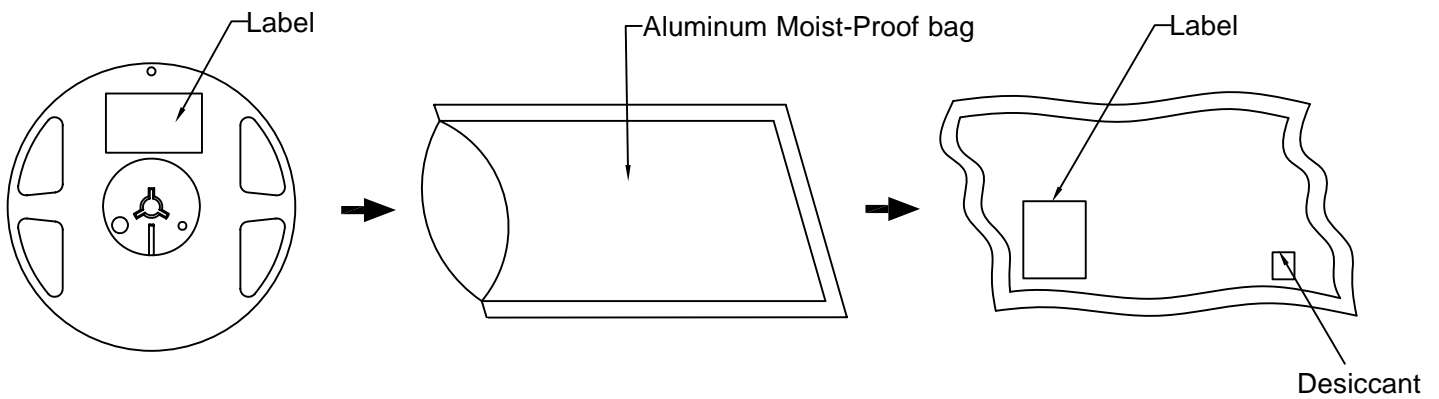
Carrier Type Dimensions

Loaded quantity 2000 PCS per reel









Note : The tolerances unless mentioned is ± 0.2 mm.

Packing Specifications



PART NO. LG-7020WKZ-2-P-A03

Label Explanation

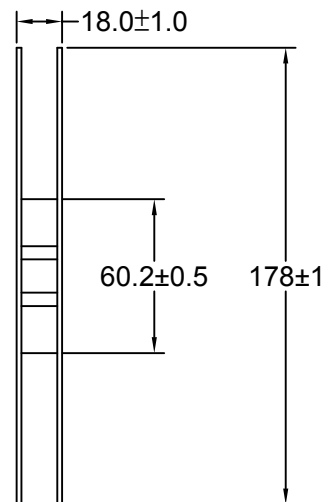
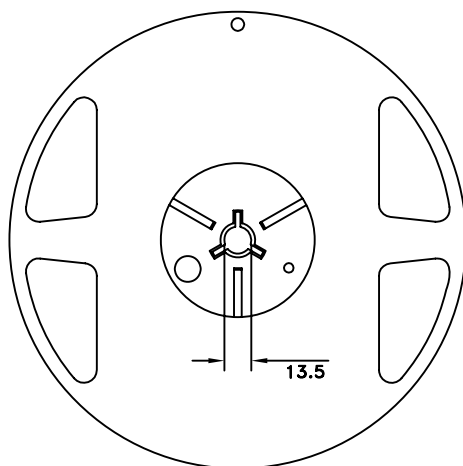
	LIGITEK ELECTRONICS CO., LTD.	
	PART :	 LG-7020WKZ-2-P-A03
	LOT :	 GS114C0168
	QTY(PCS):	 2000
	BIN/HUE :	 F80V/G06  VF:6.4-6.6

BIN : Luminous Intensity

HUE : Chromaticity Coordinates
(CIE_x , CIE_y)

VF : Forward Voltage

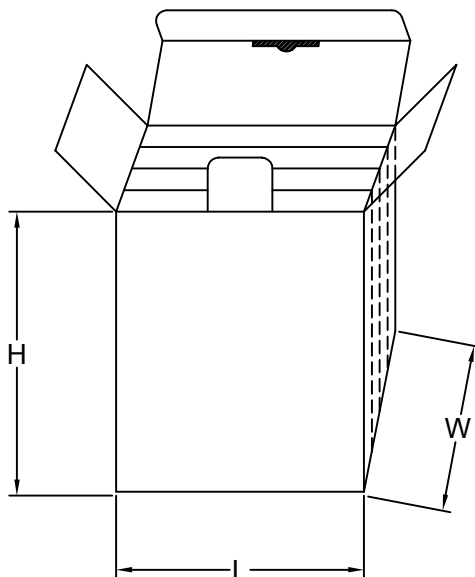
Reel Dimensions



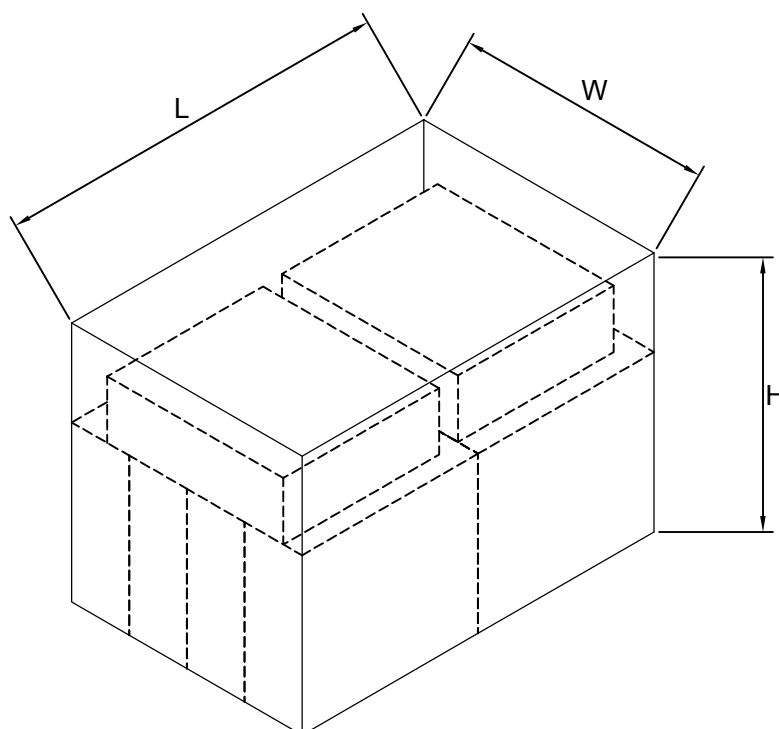
PART NO. LG-7020WKZ-2-P-A03

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



PART NO. LG-7020WKZ-2-P-A03

Classification	Test Item	Test Condition	Sample Size
Endurance Test	Operating Life Test	1.Ta=25°C 2.If=20mA 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

PART NO. LG-7020WKZ-2-P-A03

Precautions For Use:

Storage time:

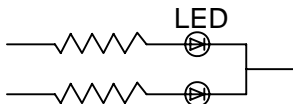
- 1.The operation of Temperatures and RH are : 5°C~30°C,RH60%.
- 2.Once the package is opened, the products should be used within a week.
Otherwise, they should be kept in a damp proof box with descanting agent.
Considering the tape life, we suggest our customers to use our products within a year(from 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:

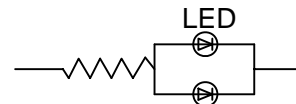
LED is a current operated device, and therefore, requirer some kind of current limiting incorporated into the driver circuit. This current limiting typically takes the form of a current limiting resistor placed in series with the LED.

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-electrosatic glove is recommended when handing these LED. All devices, equipment and machinery must be properly grounded.