



LIGITEK ELECTRONICS CO.,LTD.
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0.6W Power Light LED



Lead-Free Parts

LGXW-521E/TR1-D01

DATA SHEET

DOC. NO : QW0905-LGXW-521E/TR1-D01

REV. : A

DATE : 19 - Jan. - 2011



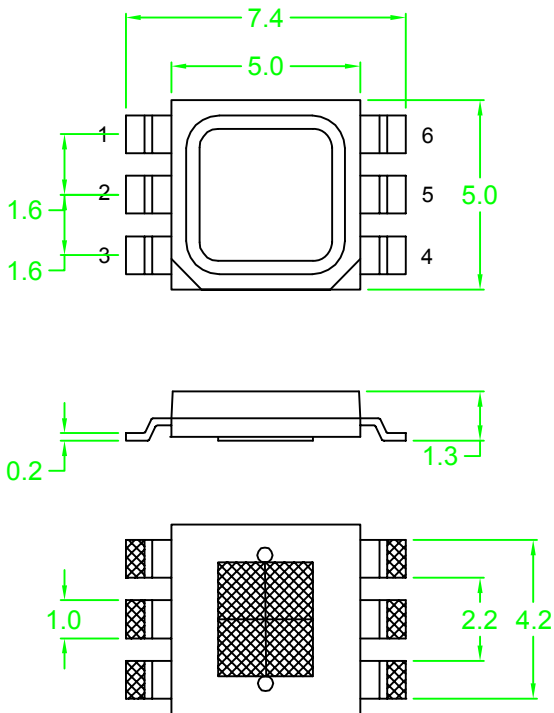
Features

- *. High Flux per LED
- *. Very long operating life(up to 100k hours).
- *. Available in White.
- *. More Energy Efficient than Incandescent and most Halogen lamps.
- *. Low voltage DC operated..
- *. Cool beam, safe to the touch.
- *. Instant light(less than 100 ns).
- *. Fully dimmable.
- *. No UV.

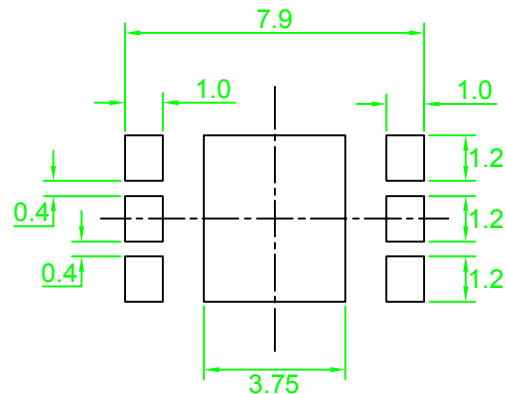
Typical Applications

- *. Reading Light (car,bus,aircraft)
- *. Portable(flashlight,bicycle).
- *. LCD Backlights / 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.
- *. Decorative.
- *. Sign and channel Letter.

Dimension



Recommended Solder Patter



Note : The tolerances unless mentioned is ± 0.1 mm,Unit=mm.

Note : 1.All dimension are in millimeter tolerance is ± 0.2 mm unless otherwise noted.
 2.Specifications are subject to change without notice.

Absolute Maximum Ratings at Ta=25°C

Parameter	Symbol	Ratings	UNIT
		White	
DC Forward Current	IF	150	mA
Peak pulse current Duty 1/10@10KHz	IFP	500	mA
Power Dissipation	PD	600	mW
Reverse Current(VR=5V)	Ir	50	μA
Electrostatic Discharge	ESD	500	V
ESD Sensitivity	VB	±500	V
Operating Temperature	Topr	-20 ~ +80	°C
Storage Temperature	Tstg	-30 ~ +100	°C

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 150mA (Ratings At 25°C Ambient)

PART NO	Emission Color	Luminous Flux @150mA			Units
		Min.	Typ.	Max.	
LGXW-521E/TR1-D01	White	39.8	51.7	----	lm

Note :

1. White emitters are built with InGaN.
2. Luminous Intensity is measured with an accuracy of ±10%

Forward Voltage Characteristics at 150mA

(Ratings At 25°C Ambient)

PART NO	Emission Color	Vf			Units
		Min.	Typ.	Max.	
LGXW-521E/TR1-D01	White	----	3.5	4.0	V

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

Chromaticity Coordinates Characteristics at 150mA

(Ratings At 25°C Ambient)

PART NO	Emission Color	Chromaticity Coordinates			
		X		Y	
		Min.	Max.	Min.	Max.
LGXW-521E/TR1-D01	White	0.3014	0.3300	0.2930	0.3690

Note : ± 0.01 is tester tolerance.

Emission Angle Characteristics at 150mA

(Ratings At 25°C Ambient)

PART NO	Emission Color	Lambertian	Units
LGXW-521E/TR1-D01	White	120	Degess

Bin Code Description

Bin Code		
Luminous Intensity	CIE	Forward Voltage
F23	WO	3.1-3.2

Luminous Intensity (lm) @IF=150mA		
Bin Code	Min.	Max.
F22	39.8	51.7
F23	51.7	67.2
F24	67.2	87.4

Color Rank @IF=150mA
WM-XP

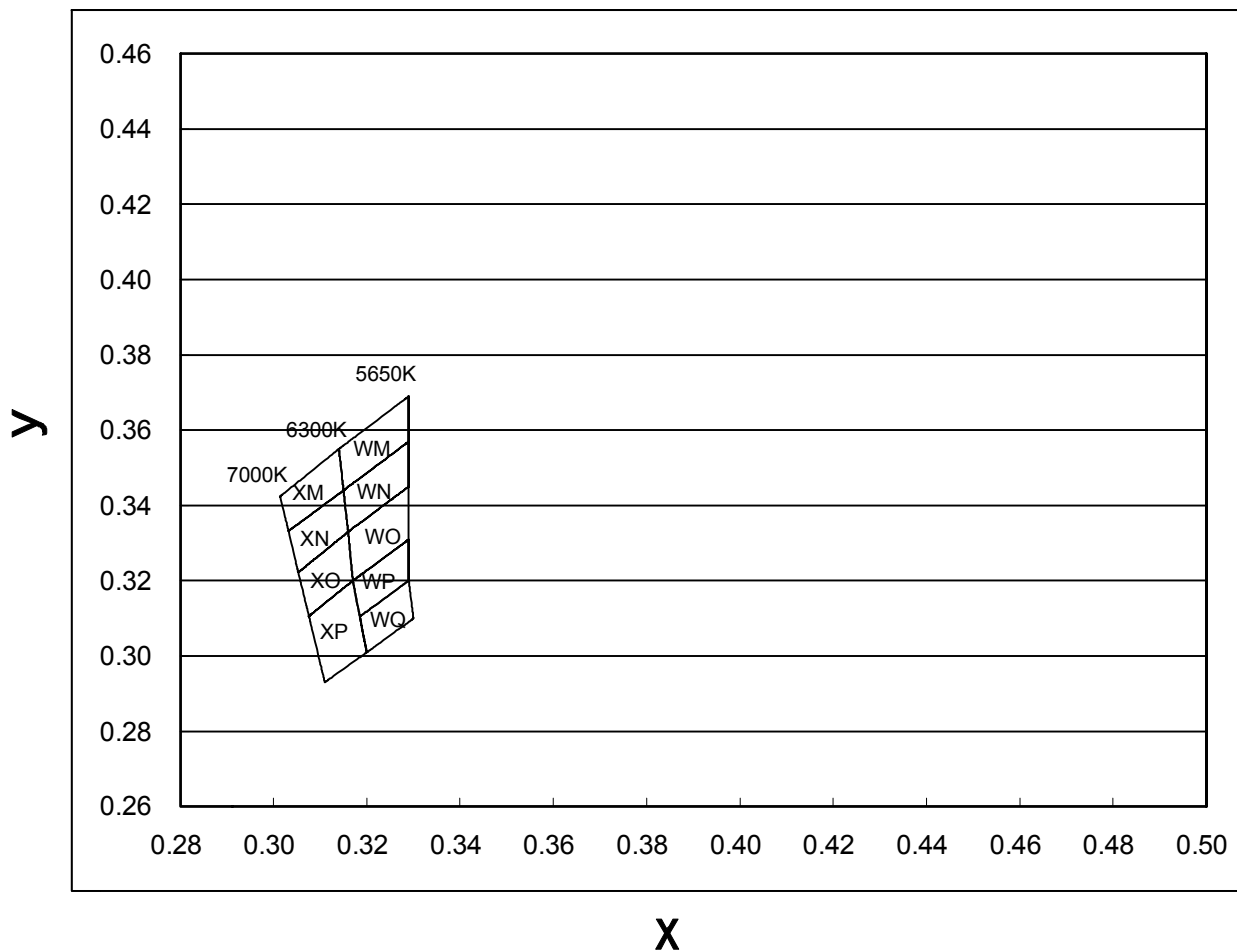
Forward Voltage(V) @IF=150mA
2.8-2.9
2.9-3.0
3.0-3.1
3.1-3.2
3.2-3.3
3.3-3.4
3.4-3.5
3.5-3.6

Bins Code of chromaticity coordinates

Color Coordiante at150mA									
CCT(K)	BIN CODE	1		2		3		4	
		X	Y	X	Y	X	Y	X	Y
5650~6300	WM	0.314	0.355	0.329	0.369	0.329	0.357	0.315	0.344
	WN	0.315	0.344	0.329	0.357	0.329	0.345	0.316	0.333
	WO	0.316	0.333	0.329	0.345	0.329	0.331	0.317	0.32
	WP	0.317	0.32	0.329	0.331	0.329	0.32	0.3185	0.3105
	WQ	0.3185	0.3105	0.329	0.32	0.33	0.31	0.32	0.301
6300~7000	XM	0.3014	0.3424	0.314	0.355	0.315	0.344	0.3032	0.3332
	XN	0.3032	0.3332	0.315	0.344	0.316	0.333	0.3053	0.3222
	XO	0.3053	0.3222	0.316	0.333	0.317	0.32	0.3076	0.3106
	XP	0.3076	0.3106	0.317	0.32	0.32	0.301	0.311	0.293

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

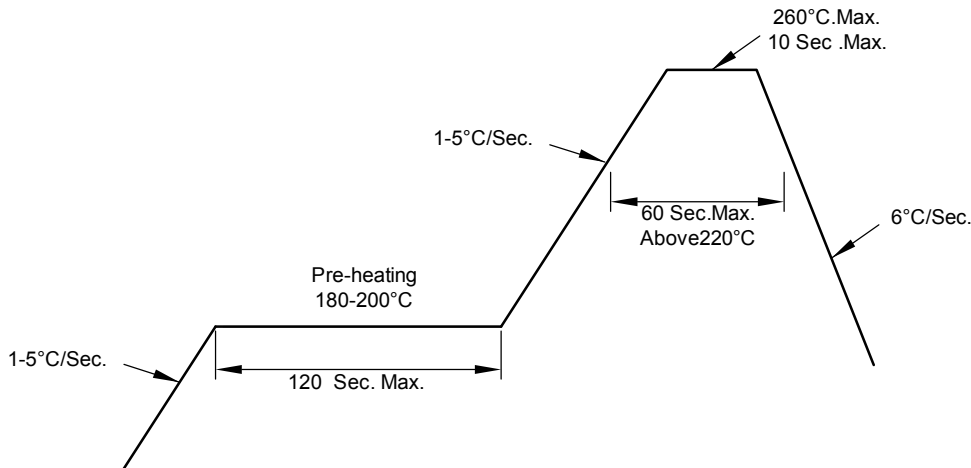
CIE Chromaticity Diagram



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 mounter, 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)

Fig.1 Forward current vs. Forward Voltage

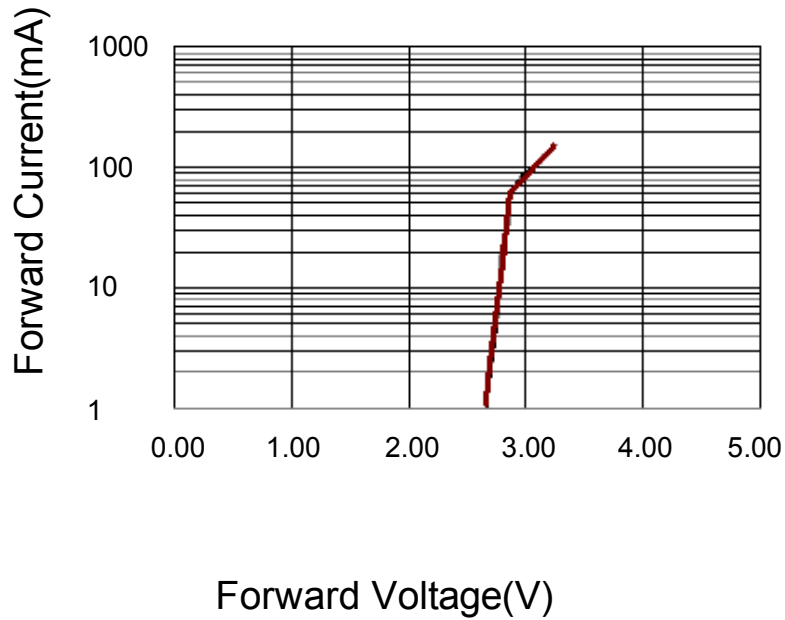


Fig.2 Forward current vs. Luminous Flux

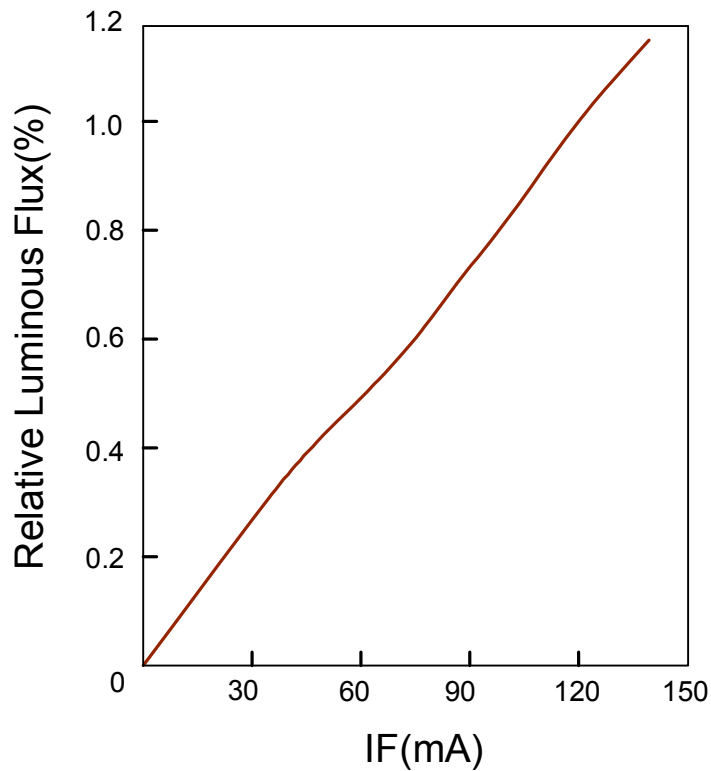


Fig.4 Luminous Spectrum(Ta=25 °C)

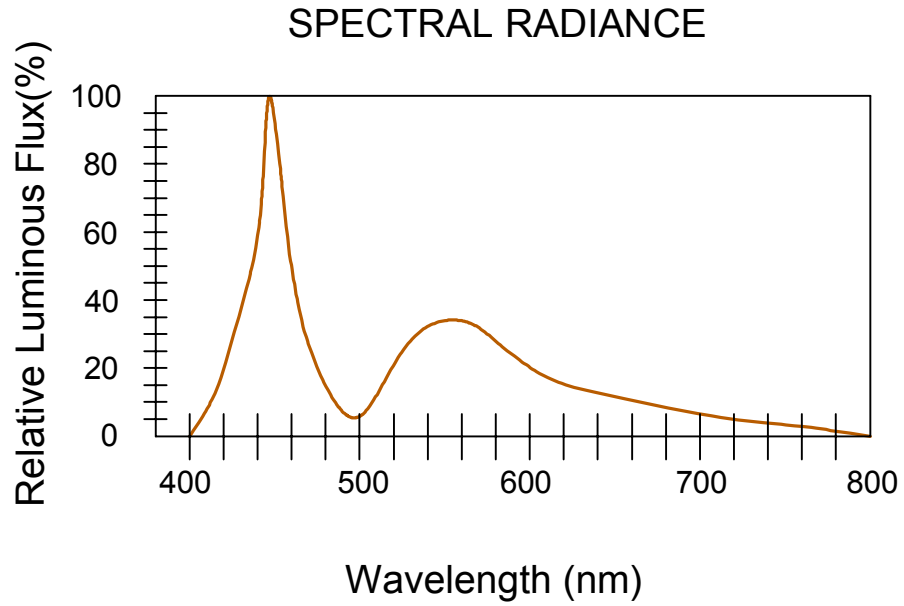
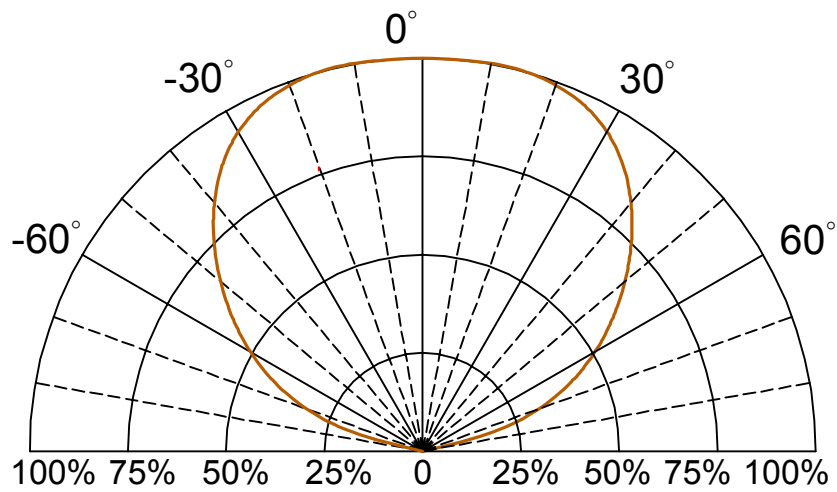
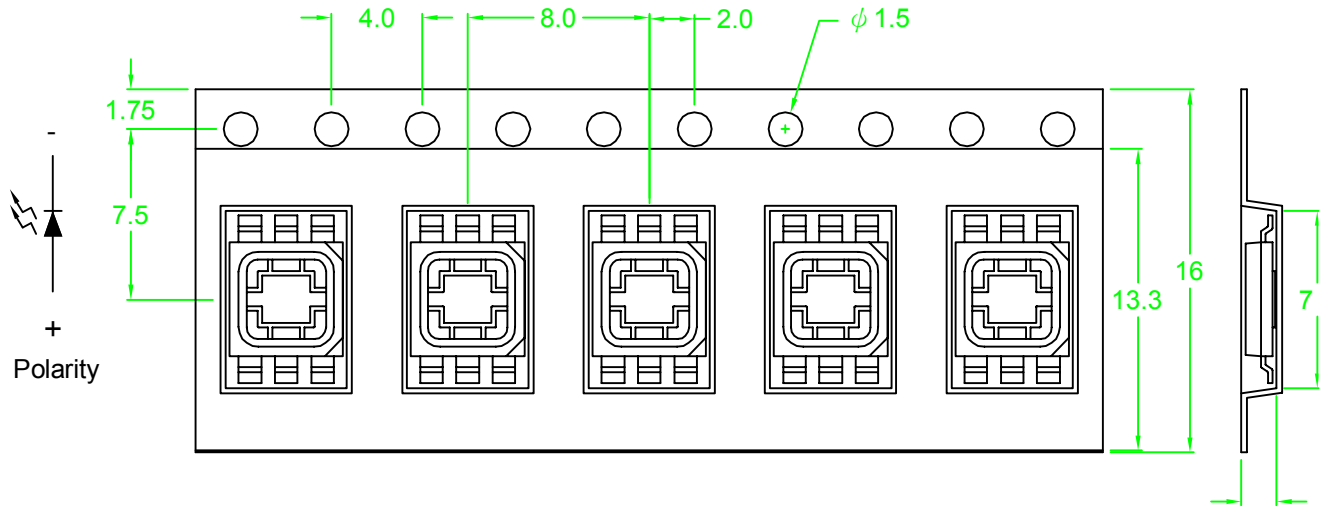


Fig.5 Directivity Radiation

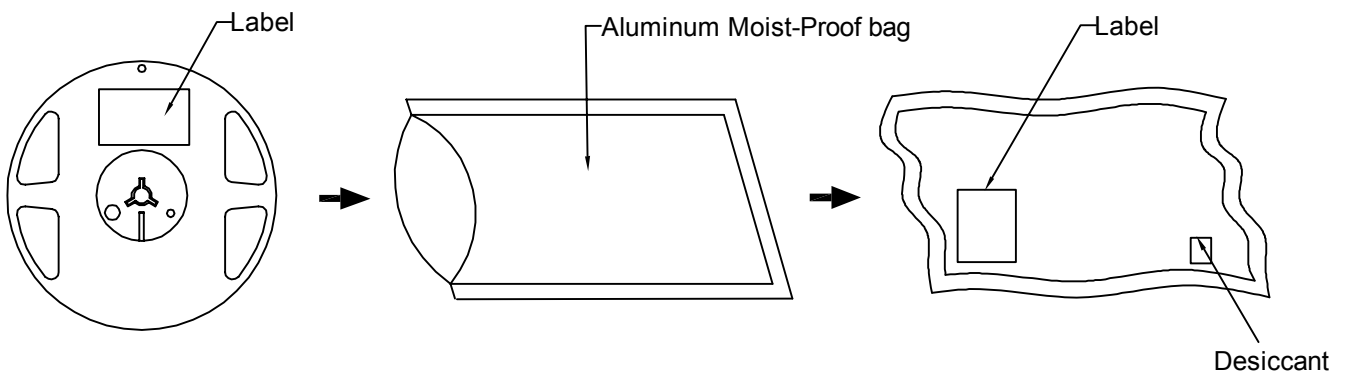


Carrier Type Dimensions









Note : The tolerances unless mentioned is ± 0.2 mm.

Packing Specifications



Label Explanation

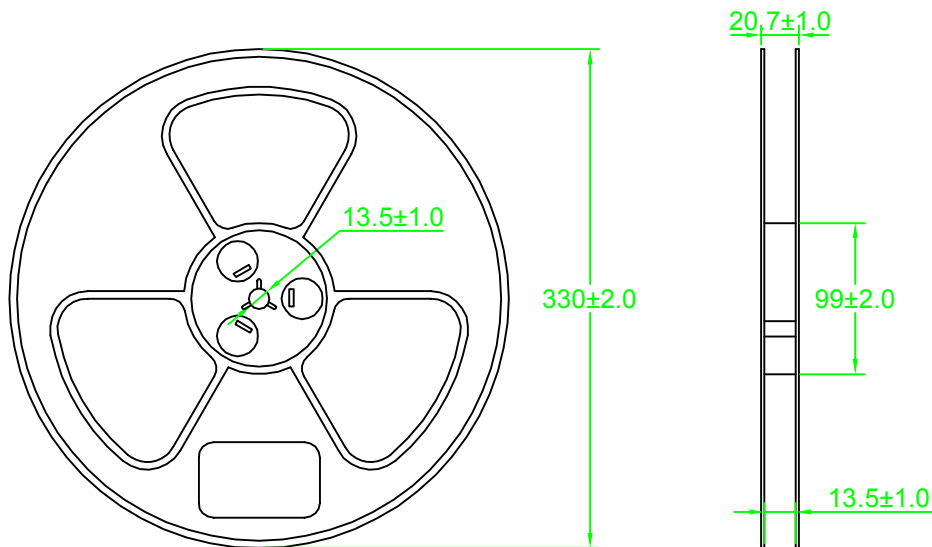
	LIGITEK ELECTRONICS CO., LTD.			
PART :		LGXW-521E/TR1-D01		
LOT :		GS1-110315		
QTY(PCS):		2000		
BIN/HUE :		F23/WO		3.3-3.4V

BIN : Luminous Intensity

HUE : Chromaticity Coordinates
(CIE_x , CIE_y)

3.3-3.4 : Forward Voltage

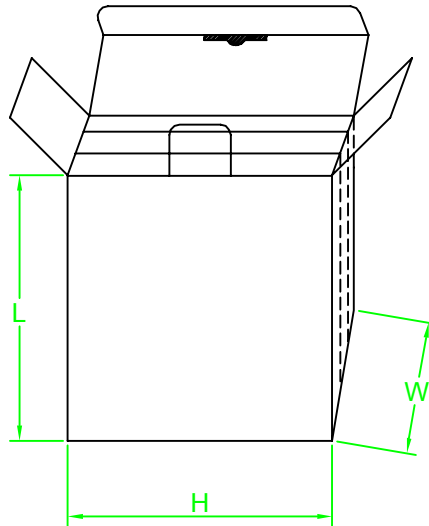
Reel Dimensions



Box Explanation

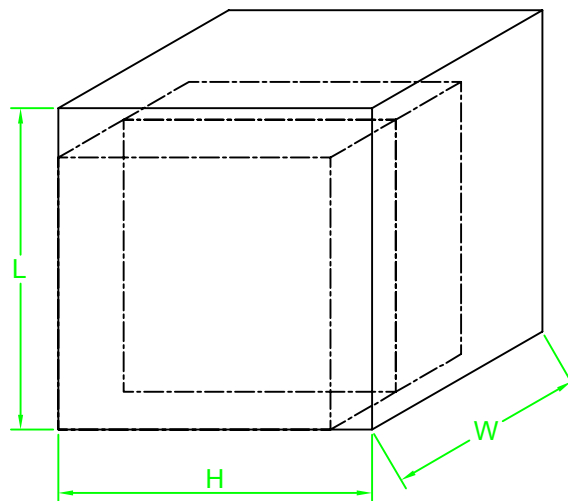
1. 3 BAG / INNER BOX

2. INNER BOX SIZE : L X W X H 36cm X 10cm x 36cm



3. 2 INNER BOXES / CARTON

4. CARTON SIZE : L X W X H 41.5cm X 26cm x42.5cm



Reliability Test

Item	Description	Stress Condition	Test Duration
RTOL	Room Temperature Operation Life	25°C, Max If	1000 hours
WHT	Wet High Temperature	85°C/85%RH	1000 hours
TC	Temperature Cycling	-40/+110°C, 30min dwell, <5min trans.	200 cycles
TS	Thermal Shock	-40/+110°C, 20min dwell, <20min trans.	200 cycles
HTSL	High Temperature Storage Life	120°C	1000 hours
LTSL	Low Temperature Storage Life	-40°C	1000 hours
SHR	Solder Heat Resistance	260±5°C, 5secs	
MS	Mechanical Shock	1500G, 0.5msec pulse, 5 shocks each 6 axis	
ND	Natural Drop	On concrete from 1.2m, 3times	
RV	Random Vibration	6G RMS from 10 to 2KHz, 10mins/axis	
VVF	Variable Vibration Frequency	10-2000-10Hz, 20G 1min, 1.5mm, 3times/axis	

Note:

Failure Criteria:

Electrical failures
 V_F shift $\geq 10\%$
 $I_R < 50 \mu A @ V_r = 5v$
 Ligitek output Degradation
 $\%I_v$ shift $\geq 30\% @ 1000hrs$ or 200cycle
 Broken or damaged package or lead
 Dimension out of tolerance