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High Power Light LED



Lead-Free Parts

**LGX2WAS-521E-A01**

# DATA SHEET

DOC. NO : QW0905-LGX2WAS-521E-A01

REV. : A

DATE : 10 - Jul. - 2013



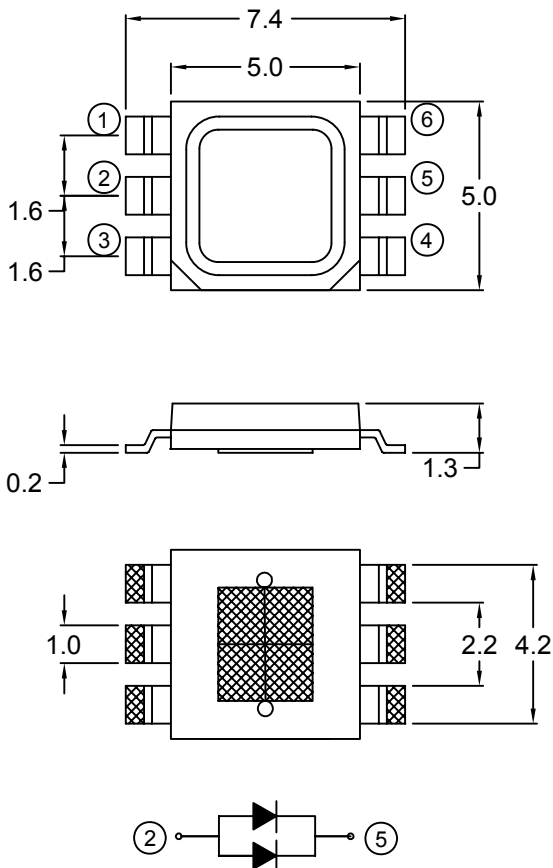
## Features

- \* 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.

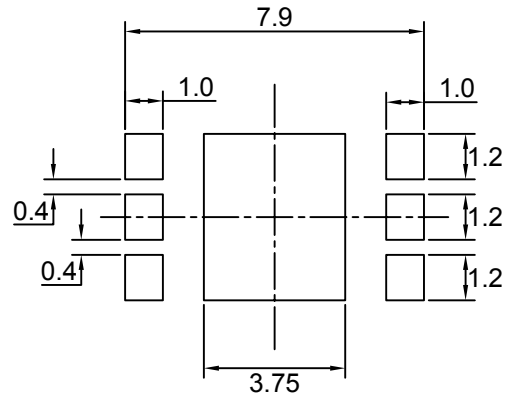
## Typical Applications

- \* Reading Light (car,bus,aircraft)
- \* Portable(flashlight,bicycle).
- \* LCD Backlights / Light Guides.
- \* Automotive Exterior (Stop-Tail-Turn,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  $\pm 0.1$ mm,Unit=mm.

Note : 1.All dimension are in millimeter tolerance is  $\pm 0.2$ 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	350	mA
Power Dissipation	PD	1.3	W
Peak pulse current Duty 1/10@10KHz	IFP	700	mA
LED junction Temperature	Tj	125	°C
Reverse Current(VR=5V)	Ir	50	µA
Electrostatic Discharge	ESD	500	V
Storage Temperature	Tstg	-30 ~ +100	°C
Operating Temperature	Topr	-20 ~ +80	°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 350mA**  
(Ratings At 25°C Ambient)

PART NO	Emission Color	Luminous Flux @350mA			Units
		Min.	Typ.	Max.	
LGX2WAS-521E-A01	White	120	130	----	lm

Note :

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

## Forward Voltage Characteristics at 350mA

(Ratings At 25°C Ambient)

PART NO	Emission Color	Vf			Units
		Min.	Typ.	Max.	
LGX2WAS-521E-A01	White	2.8	----	3.8	V

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

## Chromaticity Coordinates Characteristics at 350mA

(Ratings At 25°C Ambient )

PART NO	Emission Color	Chromaticity Coordinates			
		X		Y	
		Min.	Max.	Min.	Max.
LGX2WAS-521E-A01	White	0.3207	0.3376	0.3243	0.3616

Note :  $\pm 0.01$  is tester tolerance.

## Emission Angle Characteristics at 350mA

(Ratings At 25°C Ambient )

PART NO	Emission Color	Lambertian	Units
LGX2WAS-521E-A01	White	120	Degess

## Bin Code Description

Bin Code		
Luminous Intensity	CIE	Forward Voltage
FA2FA3	57K-1	3.0-3.2

Luminous Intensity (lm) @IF=350mA		
Bin Code	Min.	Max.
FA2FA3	120	130
FA3FA4	130	140
FA4FA5	140	150
FA5FA6	150	160
FA6FA7	160	170

Color Rank @IF=350mA
57K-1
57K-2
57K-3
57K-4

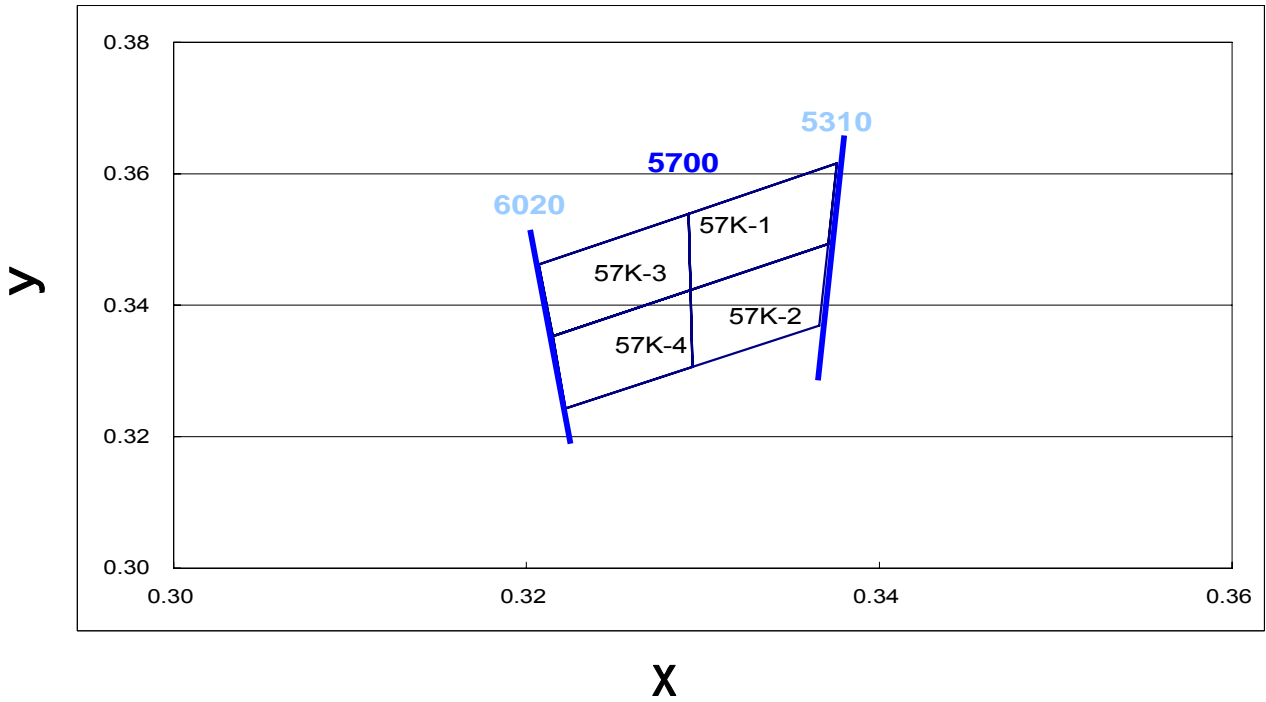
Forward Voltage(V) @IF=350mA
2.8-3.0
3.0-3.2
3.2-3.4
3.4-3.6
3.3-3.8

## Bins Code of chromaticity coordinates

Color Coordiante at350mA									
CCT(K)	BIN CODE	1		2		3		4	
		X	Y	X	Y	X	Y	X	Y
5700	57K-1	0.3376	0.3616	0.3292	0.3539	0.3293	0.3423	0.3371	0.3493
	57K-2	0.3371	0.3493	0.3293	0.3423	0.3294	0.3306	0.3366	0.3369
	57K-3	0.3292	0.3539	0.3207	0.3462	0.3215	0.3353	0.3293	0.3423
	57K-4	0.3293	0.3423	0.3215	0.3353	0.3222	0.3243	0.3294	0.3306

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

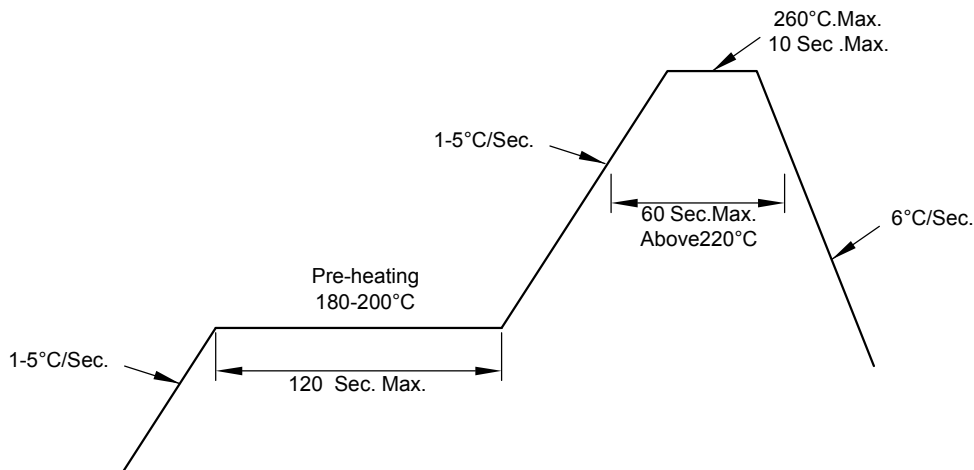
CIE Chromaticity Diagram



## 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)



## Typical Electro-Optical Characteristics Curve

Fig.1 Forward current vs. Forward Voltage

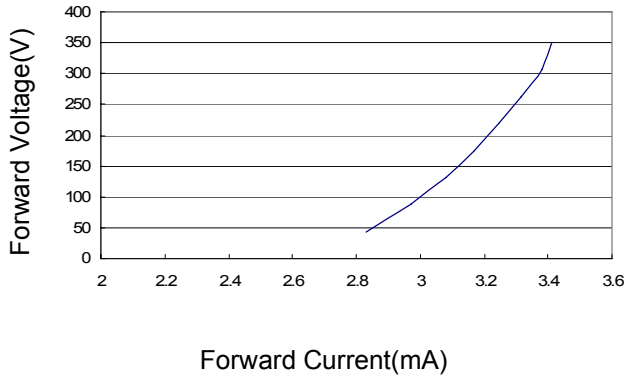


Fig.2 Forward current vs. Luminous Intensity

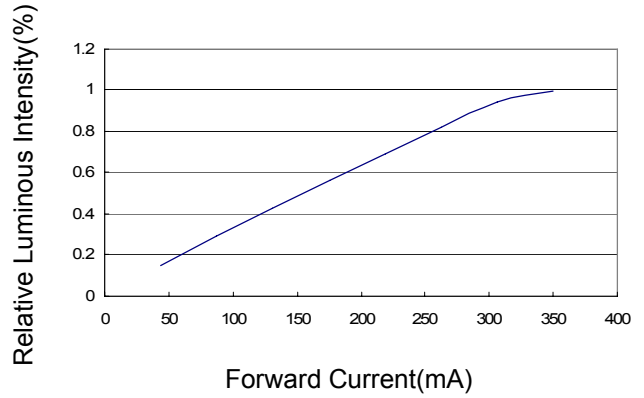


Fig.3 Directivity Radiation

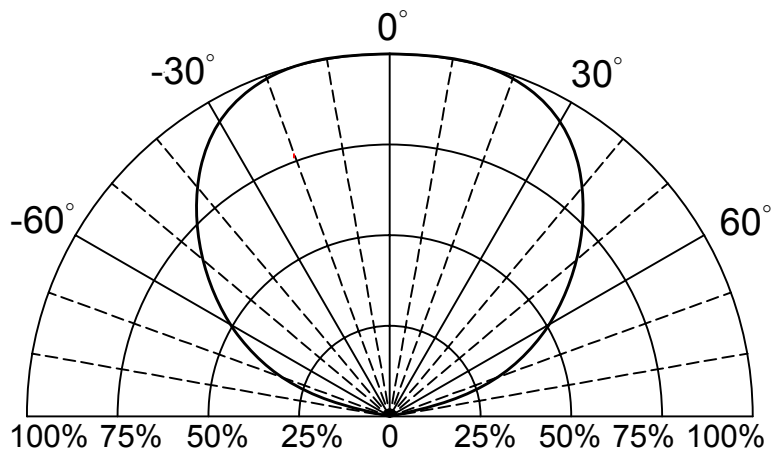
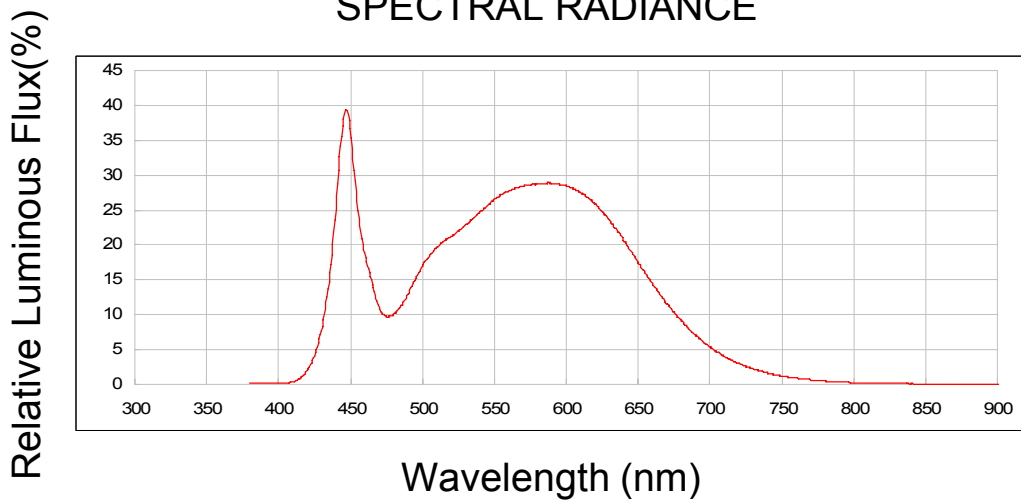
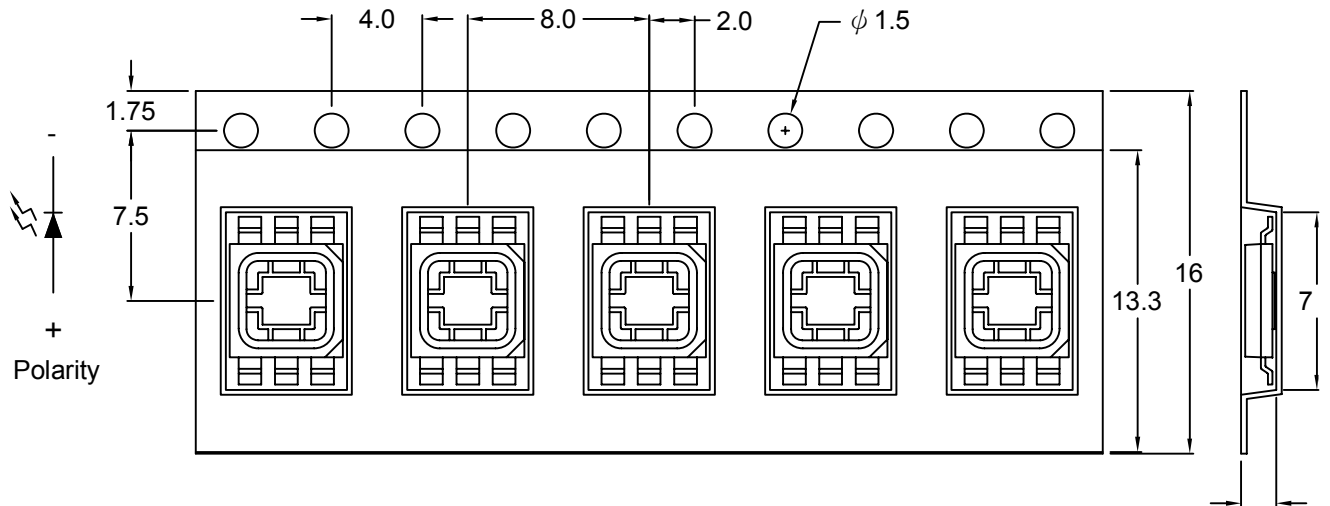


Fig.5 Luminous Spectrum (Ta=25 °C)  
SPECTRAL RADIANCE

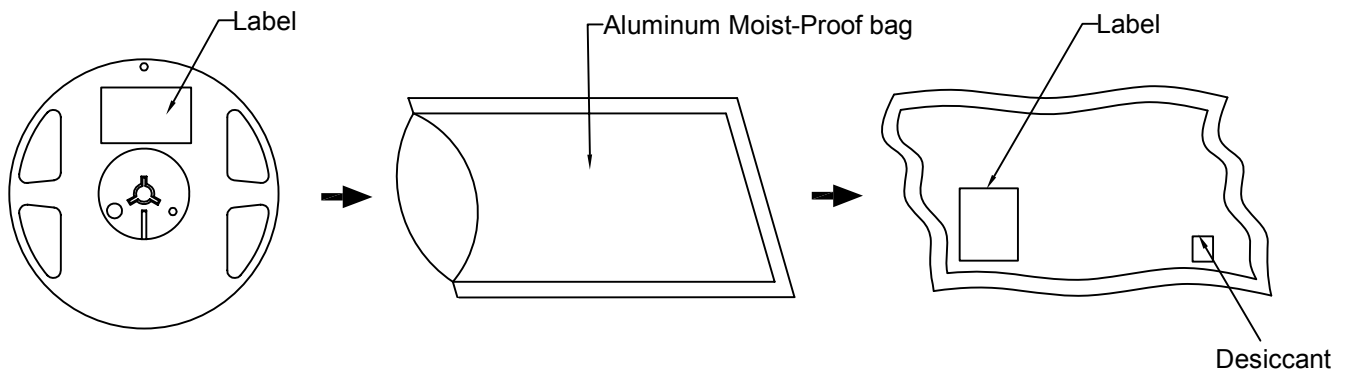


## Carrier Type Dimensions








Note : The tolerances unless mentioned is  $\pm 0.2$ mm.

## Packing Specifications



## Label Explanation

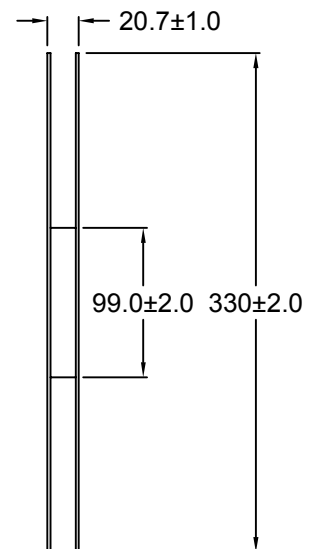
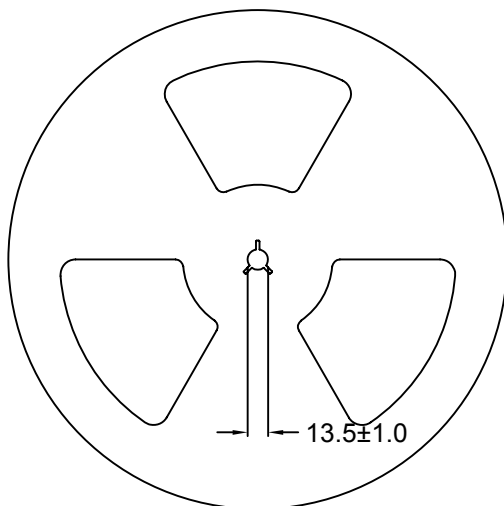
	LIGITEK ELECTRONICS CO., LTD.	
PART :	LGX2WAS-521E-A01	
LOT :	GS11370168	
QTY(PCS):	1500	
BIN/HUE :	FA2FA3/57K-1	VF:3.0-3.2 

BIN : Luminous Intensity

HUE : Chromaticity Coordinates  
(CIE\_x , CIE\_y)

VF : Forward Voltage

## Reel Dimensions



Reliability Test:

(1)Test items and results

Classification	Test Item	Test Condition	Sample Size
Endurance Test	Operating Life Test	1.Ta=Under Room Temperature As Per Data Sheet Maximum Rating. 2.If=350mA 3.t=1000 hrs	22
	High Temperature Storage Test	1.Ta=105°C±5°C 2.t=500 hrs	22
	Low Temperature Storage Test	1.Ta=-40°C±5°C 2.t=1000 hrs	22
	High Temperature High Humidity Storage Test	1.IR-Reflow In-Board, 2 Times 2.Ta=85°C±5°C 3.RH=90%~95% 4.t=500hrs±2hrs	22
Environmental Test	Thermal Shock Test	1.IR-Reflow In-Board,2 times 2.Ta=105°C ±5°C & -40°C±5°C (30min) (30min) 3.total 100 cycles	22
	Reflow Soldering Test	1.T.Sol=260°C±5°C 2.Dwell Time= 10 Max.	22
	Temperature Cycling	1.105°C ~ 25°C ~ -40°C 30mins 15mins 30mins 2.100 Cyeles	22

(2)Criteria for judging the damage

Item	Symbol	Test Conditions	Criteria for Judgement	
			Min.	Max.
Forward Voltage	Vf	If=350mA	-	U.S.L x1.2
Reverse Current	Ir	Vr=5V	-	U.S.L x2.0
Luminous Intensity	Iv	If=350mA	L.S.L x 0.7	-