



LIGITEK ELECTRONICS CO.,LTD.
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3W Power Light LED



Lead-Free Parts

LGL2V-531E-HV140-LS/TR2-D01

DATA SHEET

DOC. NO : QW0905-LGL2V-531E-HV140-LS/TR2-D01

REV. : A

DATE : 06 - Sep. - 2011



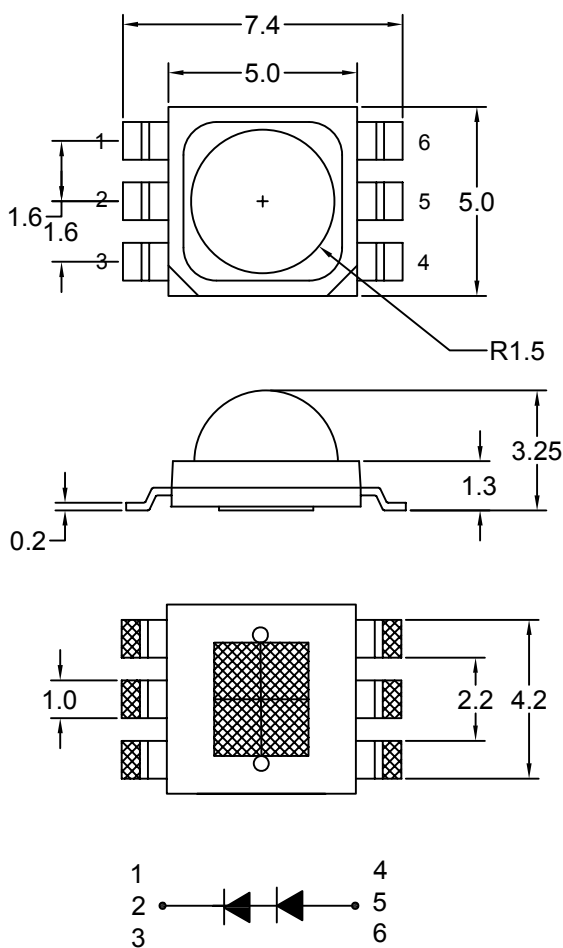
Features

- *. Saving energy and cost reduction from power converter
- *. Energy loss in voltage transform from high to low
- *. voltage conversion from high to low is expensive
- *. AC DC drive available
- *. Easy adaption for existing dimming circuit
- *. Compact design
- *. Saving space for limited area (ex. candle light)
- *. Easier for package and optical design

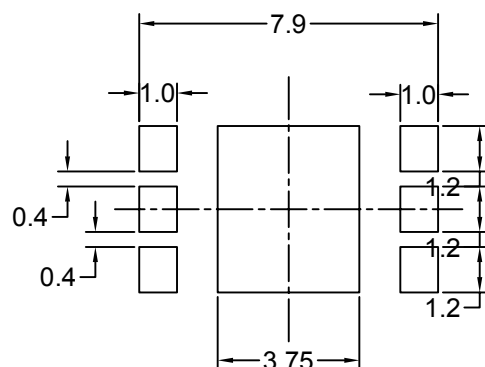
Typical Applications

- *. Reading Light (car,bus,aircraft)
- *. Portable(flashlight,bicycle).
- *. 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 Patter



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

Note : 1.All dimension are in millimeter tolerance is $\pm 0.2\text{mm}$ 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	25	mA
Peak pulse current Duty 1/10@10KHz	IFP	60	mA
Power Dissipation	PD	3.8	W
Reverse Current(VR=5V)	Ir	50	μA
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 20mA (Ratings At 25°C Ambient)

PART NO	Emission Color	Luminous Intensity @20mA			Units
		Min.	Typ.	Max.	
LGL2V-531E-HV140-LS/TR2-D01	White	90	130	----	lm

Note :

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

Forward Voltage Characteristics at 20mA

(Ratings At 25°C Ambient)

PART NO	Emission Color	Vf			Units
		Min.	Typ.	Max.	
LGL2V-531E-HV140-LS/TR2-D01	White	128	----	152	V

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

Chromaticity Coordinates Characteristics at 20mA

(Ratings At 25°C Ambient)

PART NO	Emission Color	Chromaticity Coordinates			
		X		Y	
		Min.	Max.	Min.	Max.
LGL2V-531E-HV140-LS/TR2-D01	White	0.383	0.487	0.36	0.454

Note : ± 0.01 is tester tolerance.

Emission Angle Characteristics at 20mA

(Ratings At 25°C Ambient)

PART NO	Emission Color	Lambertian	Units
LGL2V-531E-HV140-LS/TR2-D01	White	120	Degess

Color Rendering Index Characteristics at 20mA

(Ratings At 25°C Ambient)

PART NO	Emission Color	CRI		
		Min.	Typ.	Max.
LGL2V-531E-HV140-LS/TR2-D01	White	80	----	----

Bin Code Description

Bin Code		
Luminous Intensity	CIE	Forward Voltage
FA1FA2	NO	128-152

Luminous Intensity (lm) @IF=20mA		
Bin Code	Min.	Max.
F90FA0	90	100
FA0FA1	100	110
FA1FA2	110	120
FA2FA3	120	130
FA3FA4	130	140
FA4FA5	140	150
FA5FA6	150	160

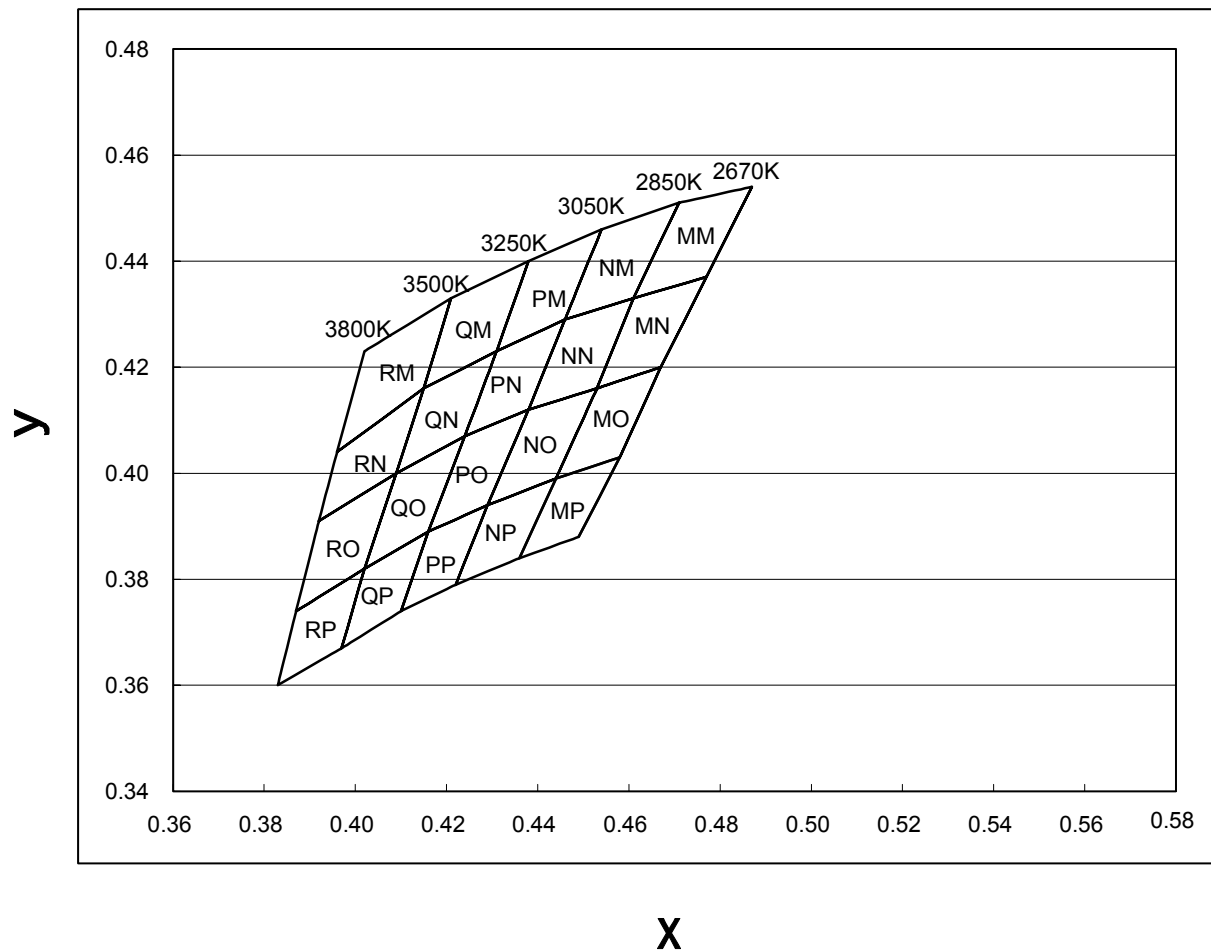
Color Rank @IF=20mA
MM
MN
MO
MP
NM
NN
NO
NP
PM
PN
PO
PP
QM
QN
QO
QP
RM
RN
RO
RP

Bins Code of chromaticity coordinates

Color Coordiante at20mA									
CCT(K)	BIN CODE	1		2		3		4	
		X	Y	X	Y	X	Y	X	Y
2670~2850	MM	0.471	0.451	0.461	0.433	0.477	0.437	0.487	0.454
	MN	0.461	0.433	0.453	0.416	0.467	0.420	0.477	0.437
	MO	0.453	0.416	0.444	0.399	0.458	0.403	0.467	0.416
	MP	0.458	0.403	0.444	0.399	0.436	0.384	0.449	0.338
2850~3050	NM	0.454	0.446	0.471	0.451	0.46	0.43	0.444	0.426
	NN	0.444	0.426	0.46	0.43	0.453	0.416	0.438	0.412
	NO	0.438	0.412	0.453	0.416	0.444	0.399	0.429	0.394
	NP	0.429	0.394	0.444	0.399	0.436	0.384	0.422	0.379
3050~3250	PM	0.438	0.44	0.454	0.446	0.444	0.426	0.43	0.421
	PN	0.43	0.421	0.444	0.426	0.438	0.412	0.424	0.407
	PO	0.424	0.407	0.438	0.412	0.429	0.394	0.416	0.389
	PP	0.416	0.389	0.429	0.394	0.422	0.379	0.41	0.374
3250~3500	QM	0.421	0.433	0.438	0.44	0.43	0.421	0.414	0.414
	QN	0.414	0.414	0.43	0.421	0.424	0.407	0.409	0.4
	QO	0.409	0.4	0.424	0.407	0.416	0.389	0.402	0.382
	QP	0.402	0.382	0.416	0.389	0.41	0.374	0.396	0.367
3500~3800	RM	0.402	0.423	0.421	0.433	0.414	0.414	0.397	0.406
	RN	0.397	0.406	0.414	0.414	0.409	0.4	0.392	0.391
	RO	0.392	0.391	0.409	0.4	0.402	0.382	0.387	0.374
	RP	0.387	0.374	0.402	0.382	0.396	0.367	0.383	0.36

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

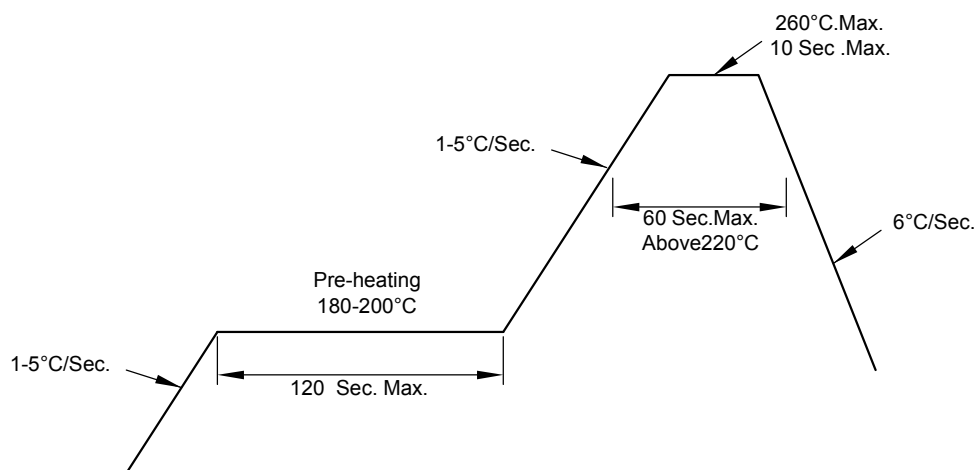
CIE Chromaticity Diagram



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

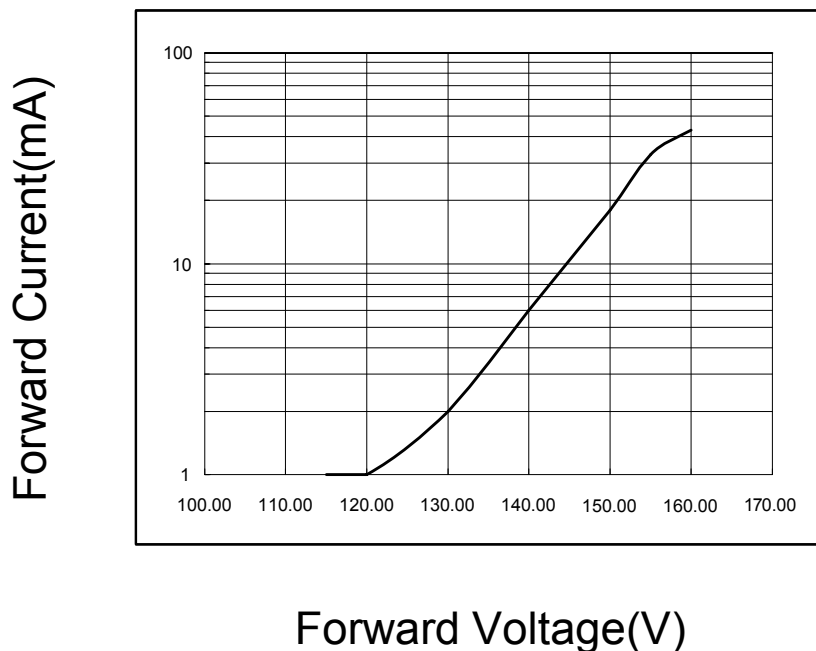


Fig.2 Forward current vs. Luminous Intensity

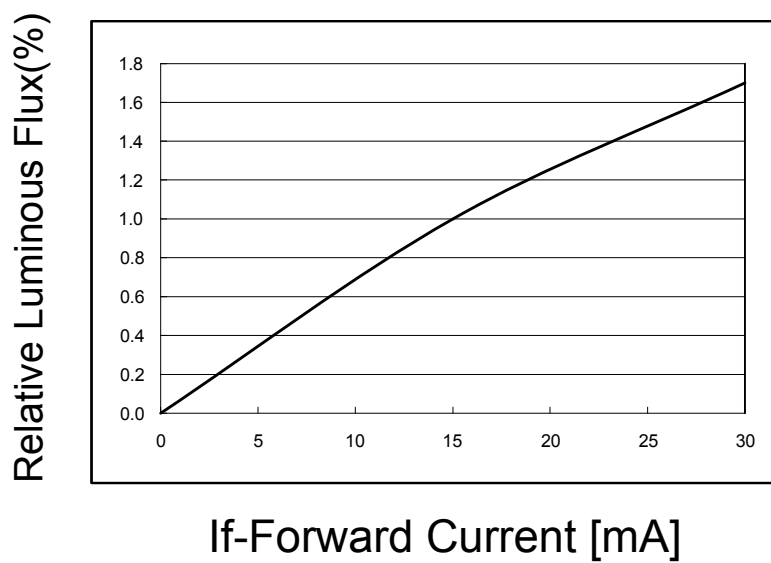


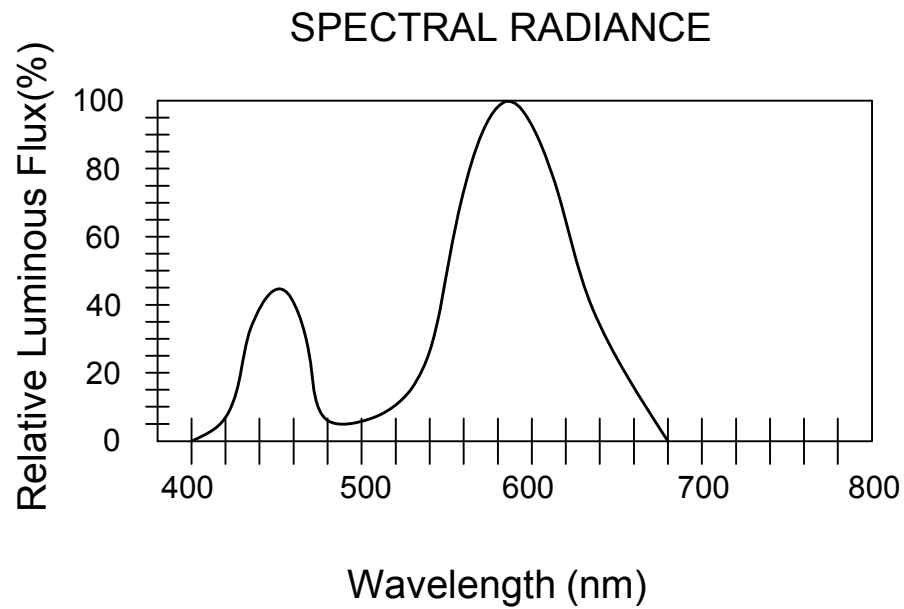
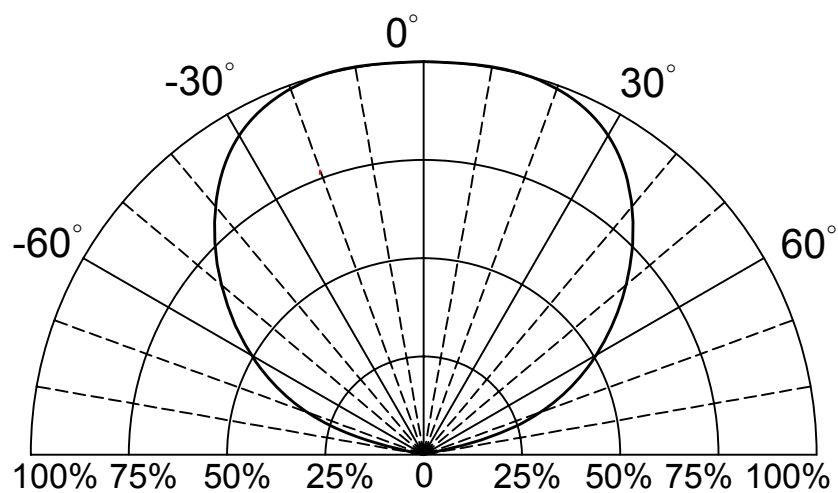
Fig.3 Luminous Spectrum(Ta=25℃)**Fig.4 Directivity Radiation**

Fig.5 Thermal Design

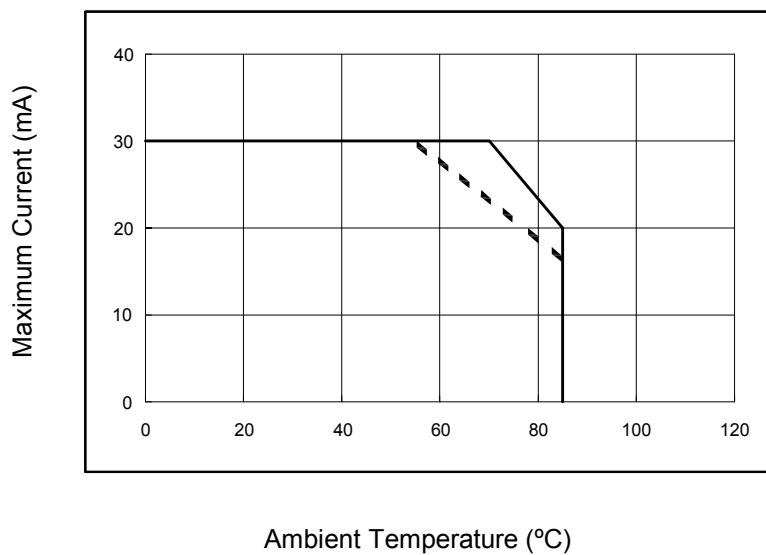
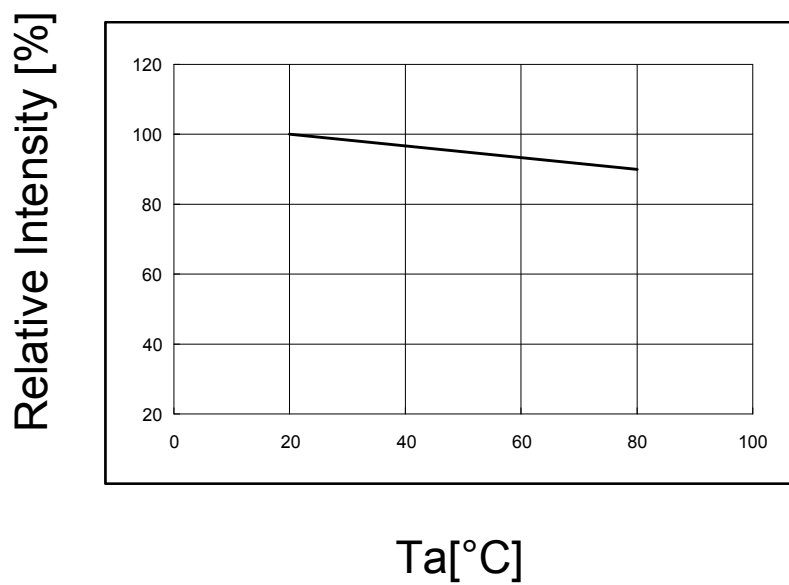
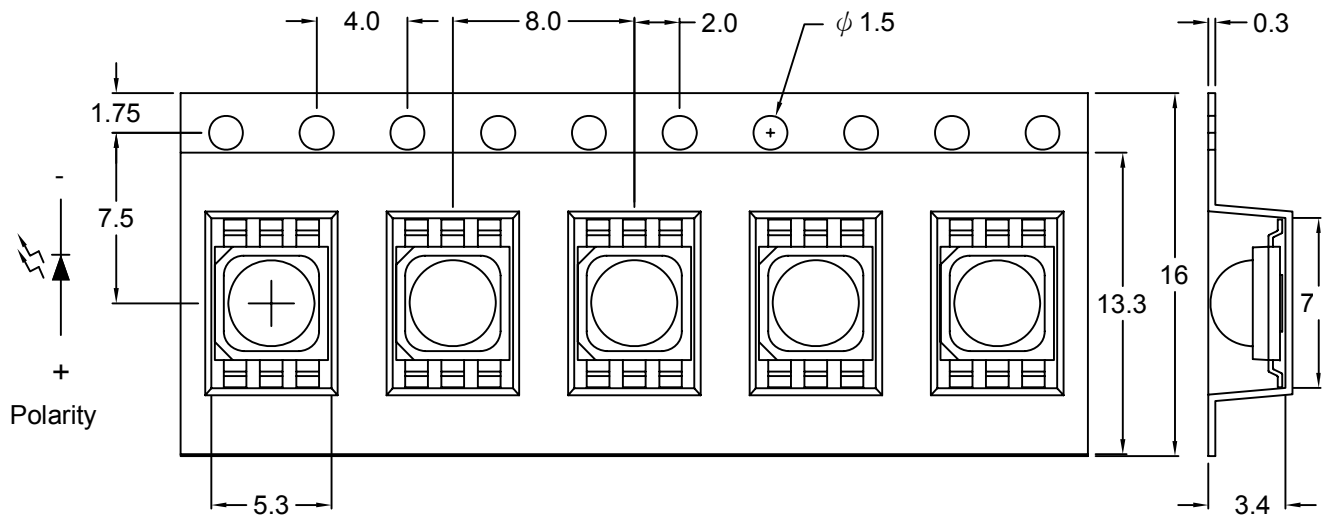


Fig.6 Relative Intensity @ vs Ambient Temperature

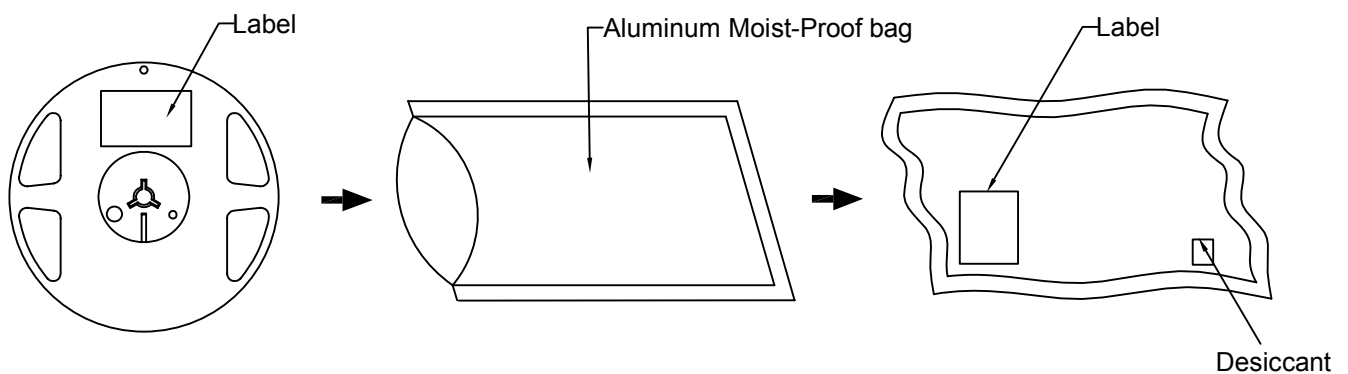


Carrier Type Dimensions



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

Packing Specifications



Label Explanation

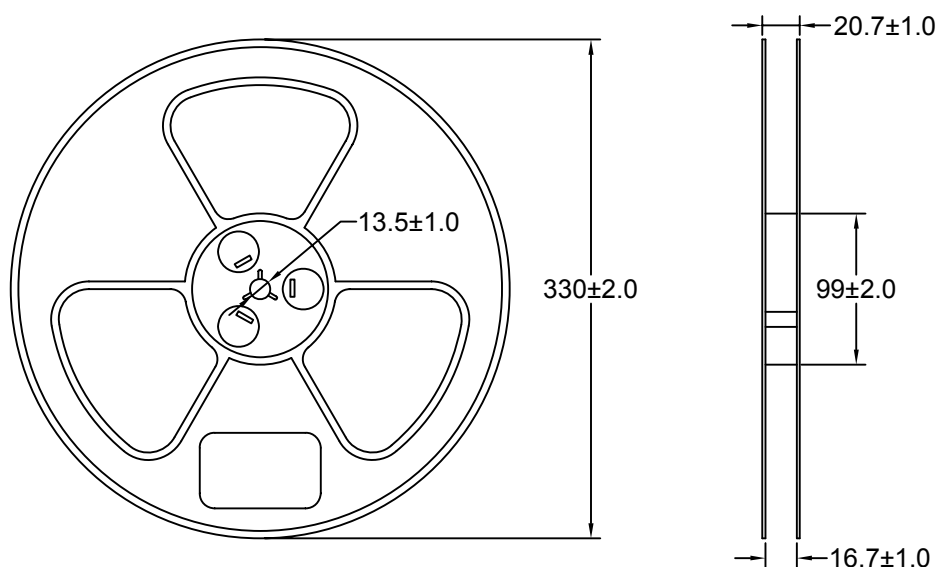
	LIGITEK ELECTRONICS CO., LTD.
PART :	LGL2V-531E-HV140-LS/TR2-D01
LOT :	GS1-110315
QTY(PCS):	1000
BIN/HUE :	FA1FA2/NO
	VF:128-152

BIN : Luminous Intensity

HUE : Chromaticity Coordinates
(CIE_x , CIE_y)

VF : Forward Voltage

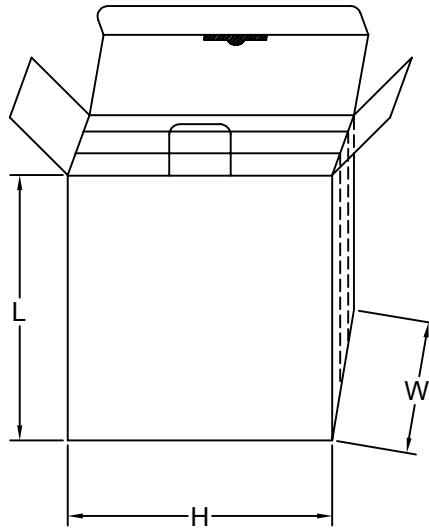
Reel Dimensions



Box Explanation

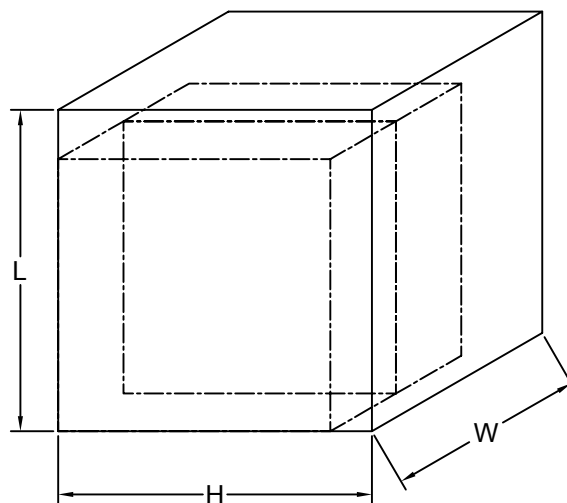
1. 3 BAG / INNER BOX

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



3. 2 INNER BOXES / CARTON

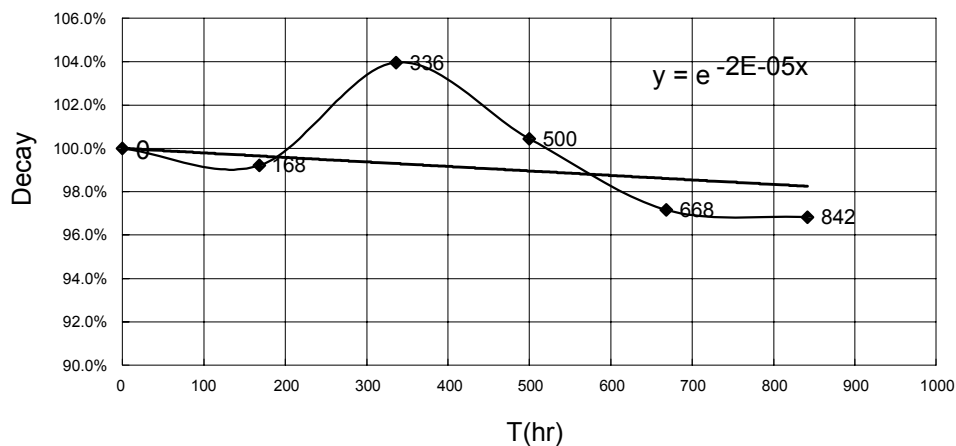
4. CARTON SIZE : L X W X H 41.5cm X 26cm x42.5cm



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	Hight 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, 3xtimes	
RV	Random Vibration	6G RMS from 10 to 2KHz, 10mins/axis	
VVF	Variable Vibration Frequency	10-2000-10Hz, 20G 1min, 1.5mm, 3timesx/axis	

Operating Life Test



Note:

Failuer Criteria:

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