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SURFACE MOUNT LED TAPE AND REEL



Lead-Free Parts

LG-3228RGB/S2-A01

DATA SHEET

DOC. NO : QW0905-LG-3228RGB/S2-A01

REV. : A

DATE : 11 - Mar. - 2016



Features:

1. Top view white LED.
2. Leadframe package with individual 4 pin.
3. Wide viewing angle.
4. Feature of the device:more light due to higher optical efficiency;extremely wide viewing angle;ideal for backlighting and coupling in light guide.
5. High Luminous Intensity.
6. High Efficiency.

Descriptions:

The LG-3228 has wide viewing angle and optimized light coupling by inter reflector,The low current requirement makes this device ideal for portable equipment or any other application where power is at a premium.

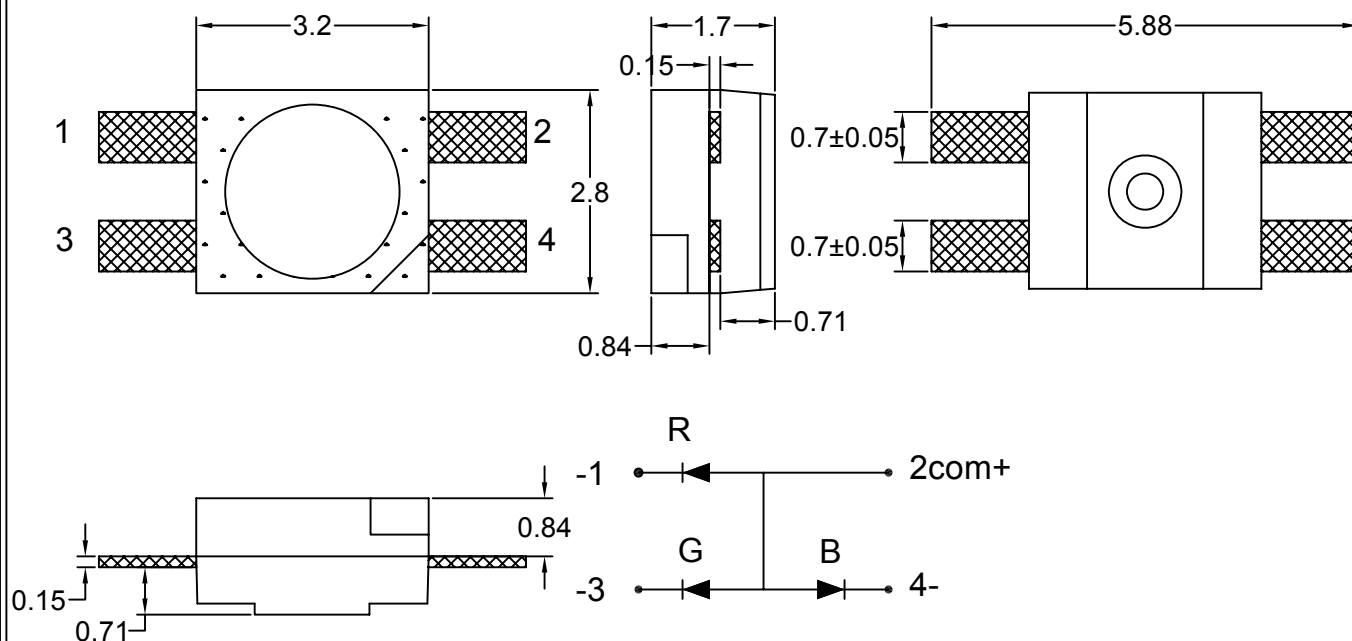
Applications:

1. LCD back light.
2. Mobile phones.
3. Indicators.
4. Switch lights.
5. Lighting.

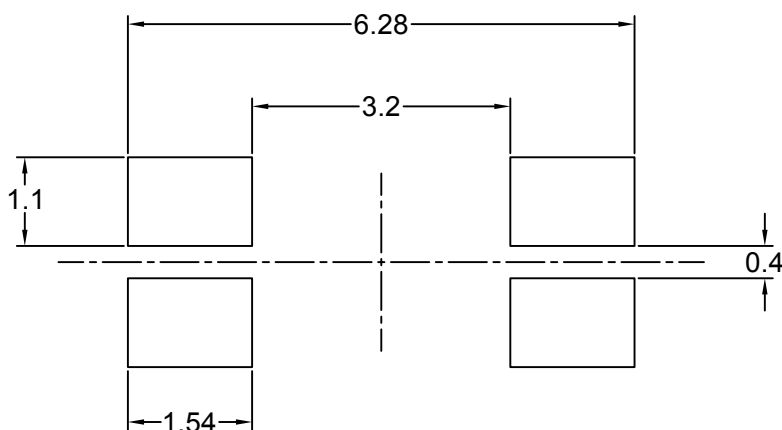
Device Selection Guide:

PART NO	MATERIAL	COLOR	
		Emitted	Lens
LG-3228RGB/S2-A01	AlGaInP	Red	Water Clear
	InGaN	Green	
	InGaN	Blue	

Package Dimensions



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.



Note : The tolerances unless mentioned is $\pm 0.1\text{mm}$, Angle ± 0.5 . Unit=mm.

Absolute Maximum Ratings at Ta=25°C

Parameter	Symbol	Ratings			UNIT
		B	G	R	
Forward Current	IF	30	30	25	mA
Peak Forward Current Duty 1/10@10KHz	IFP	120	120	100	mA
Power Dissipation	PD	90	90	50	mW
Reverse Current @5V	Ir	5	5	5	μA
Electrostatic Discharge	ESD	2000	2000	2000	V
Operating Temperature	Topr	- 55 ~ + 100			°C
Storage Temperature	Tstg	- 55 ~ + 100			°C

Typical Electrical & Optical Characteristics (Ta=25°C)

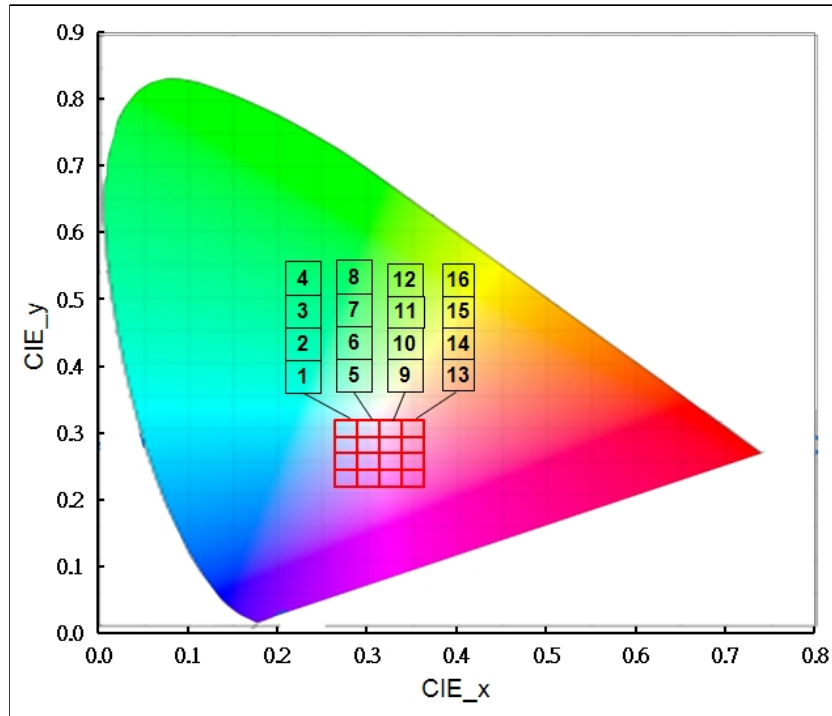
Items	Symbol	Min.	Typ.	Max.	UNIT	CONDITION	
Luminous Intensity	IV	350	----	630	mcd	R IF=3.4mA G IF=2.0mA B IF=2.0mA	
Dominant Wavelength	λD	R	----	620	----		nm
		G	----	528	----		
		B	----	468	----		
Spectral Line Half-Width	Δλ	R	----	20	----		nm
		G	----	36	----		
		B	----	30	----		
Forward Voltage	VF	R	1.5	----	2.0		V
		G	2.4	----	3.0		
		B	2.4	----	3.0		
Viewing Angle	2θ 1/2	R	----	120	----	deg	
		G	----	120	----		
		B	----	120	----		

Note : 1.The forward voltage data did not including ±0.1V testing tolerance.
 2.The luminous intensity data did not including ±15% testing tolerance.
 3.The dominant wavelength data did not including ±1nm testing tolerance

Luminous Intensity Classification

Iv(mcd)		
BIN CODE	MIN	MAX
A	350	430
B	430	520
C	520	630

Chromaticity Coordinates Specifications For Bin Grading



X

y

Color Coordiante								
CODE	1		2		3		4	
	X	Y	X	Y	X	Y	X	Y
1	0.264	0.219	0.264	0.244	0.289	0.244	0.289	0.219
2	0.264	0.244	0.264	0.269	0.289	0.269	0.289	0.244
3	0.264	0.269	0.264	0.294	0.289	0.294	0.289	0.269
4	0.264	0.294	0.264	0.319	0.289	0.319	0.289	0.294
5	0.289	0.219	0.289	0.244	0.314	0.244	0.314	0.219
6	0.289	0.244	0.289	0.269	0.314	0.269	0.314	0.244
7	0.289	0.269	0.289	0.294	0.314	0.294	0.314	0.269
8	0.289	0.294	0.289	0.319	0.314	0.319	0.314	0.294
9	0.314	0.219	0.314	0.244	0.339	0.244	0.339	0.219
10	0.314	0.244	0.314	0.269	0.339	0.269	0.339	0.244
11	0.314	0.269	0.314	0.294	0.339	0.294	0.339	0.269
12	0.314	0.294	0.314	0.319	0.339	0.319	0.339	0.294
13	0.339	0.219	0.339	0.244	0.364	0.244	0.364	0.219
14	0.339	0.244	0.339	0.269	0.364	0.269	0.364	0.244
15	0.339	0.269	0.339	0.294	0.364	0.294	0.364	0.269
16	0.339	0.294	0.339	0.319	0.364	0.319	0.364	0.294

Typical Electro-Optical Characteristics Curve

R CHIP

Fig.1 Forward current vs. Forward Voltage

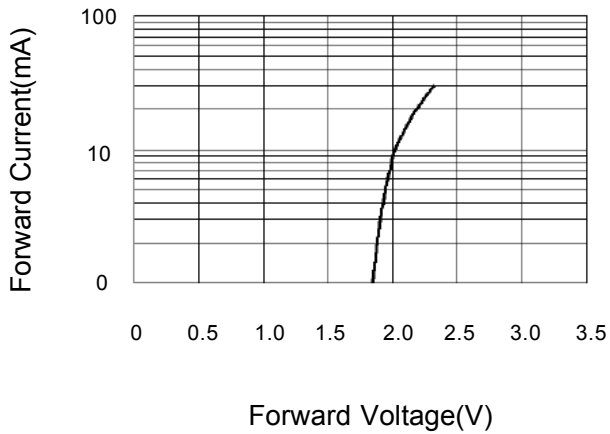


Fig.2 Luminous Intensity vs. Forward Current

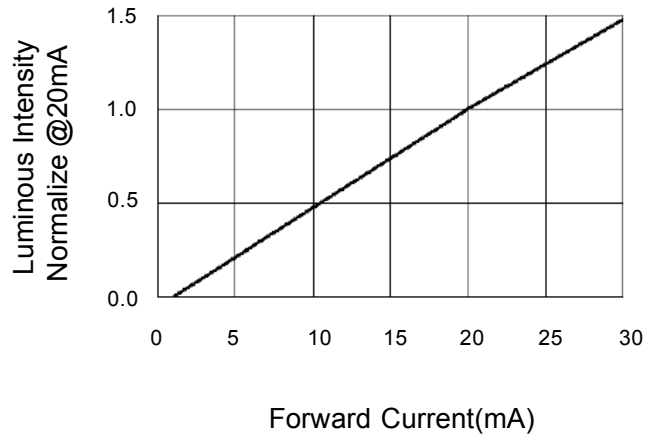


Fig.3 Forward Voltage vs. Temperature

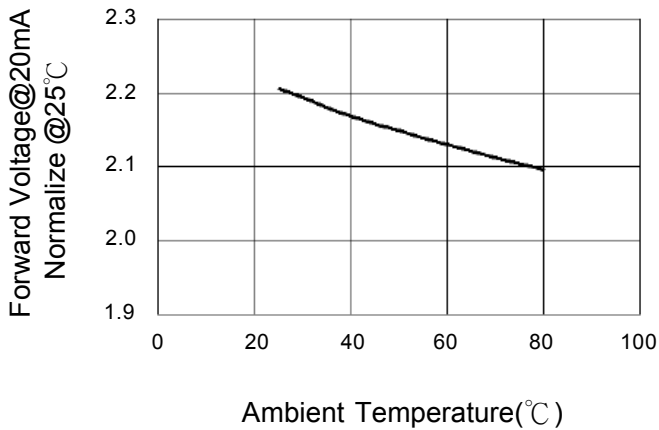


Fig.4 Luminous Intensity vs. Temperature

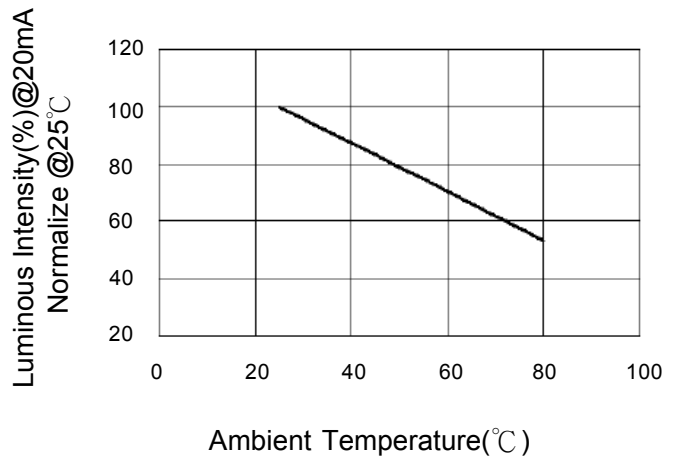


Fig.5 Relative Intensity vs. Wavelength

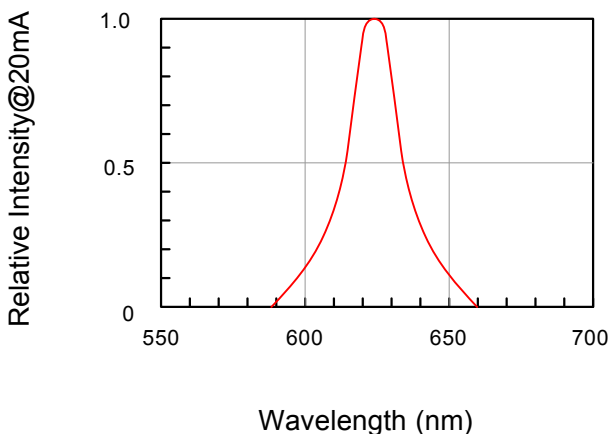
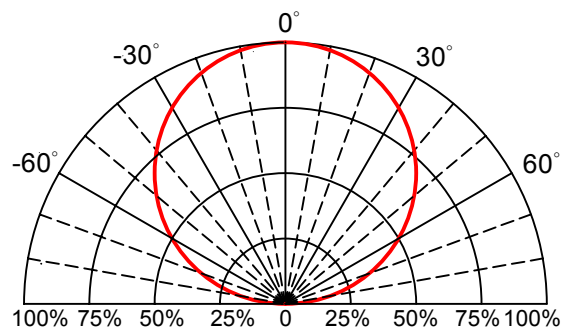


Fig.6 Directive Radiation



Typical Electro-Optical Characteristics Curve

G CHIP

Fig.1 Forward current vs. Forward Voltage

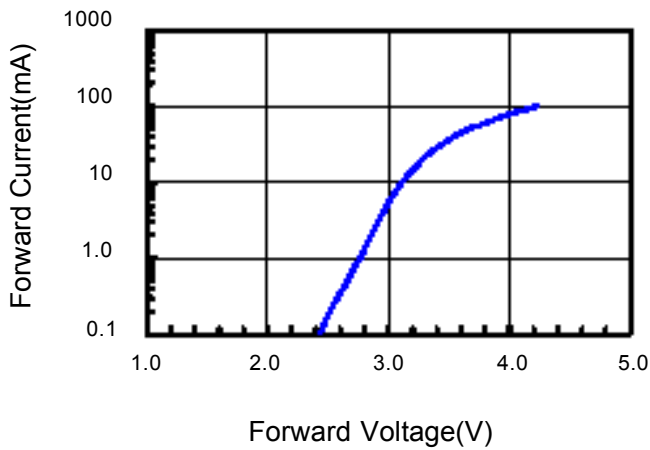


Fig.2 Relative Intensity vs. Forward Current

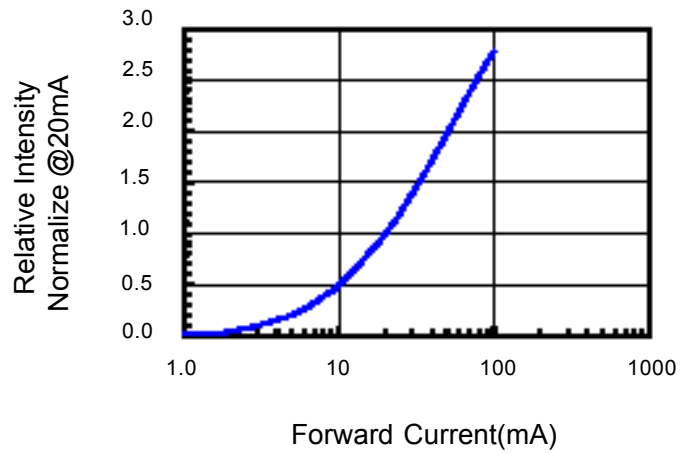


Fig.3 Forward Voltage vs. Temperature

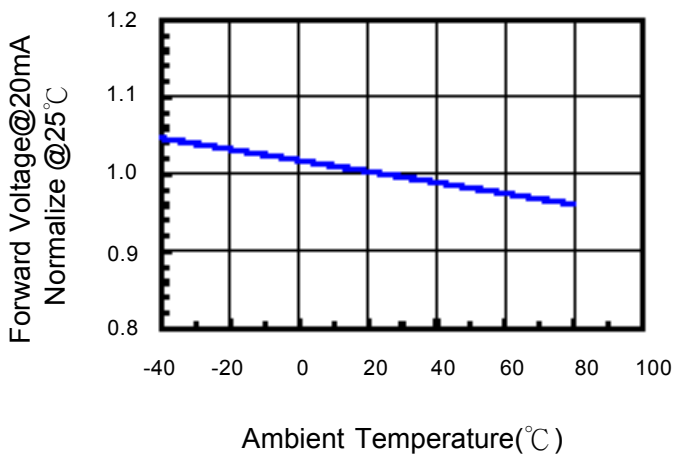


Fig.4 Relative Intensity vs. Temperature

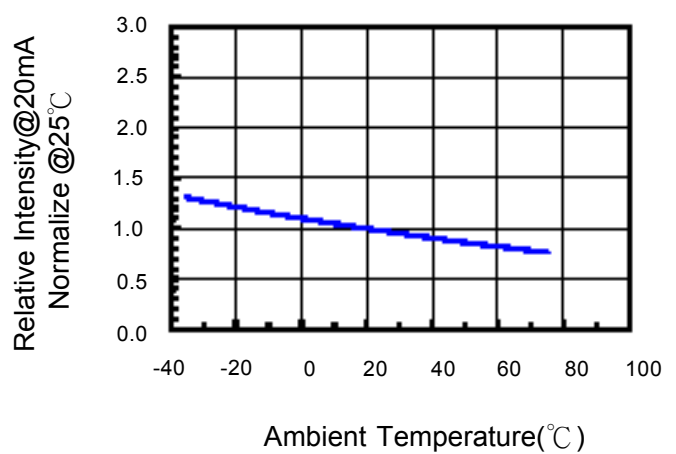


Fig.5 Relative Intensity vs. Wavelength

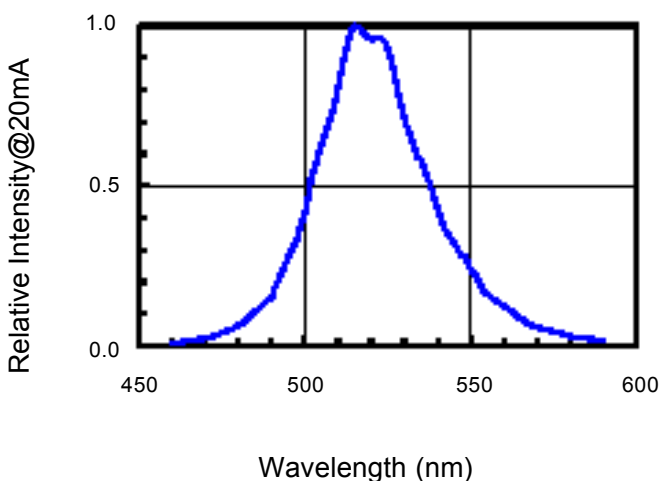
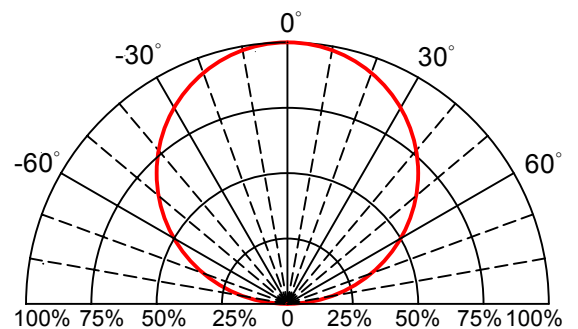


Fig.6 Directive Radiation



Typical Electro-Optical Characteristics Curve

B CHIP

Fig.1 Forward current vs. Forward Voltage

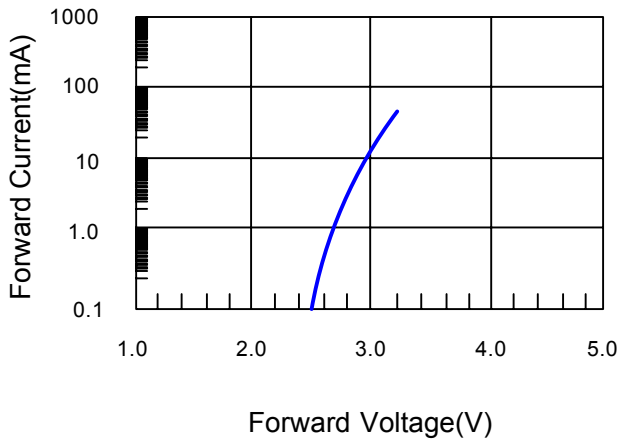


Fig.2 Relative Intensity vs. Forward Current

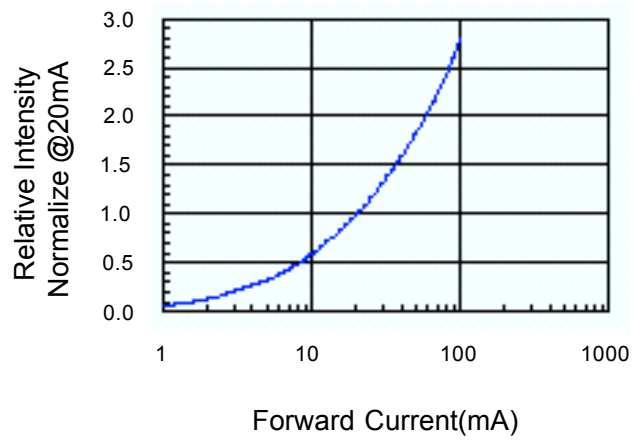


Fig.3 Forward Voltage vs. Temperature

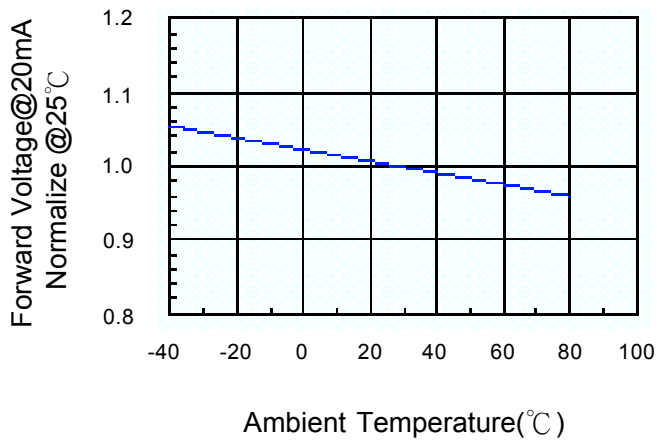


Fig.4 Relative Intensity vs. Temperature

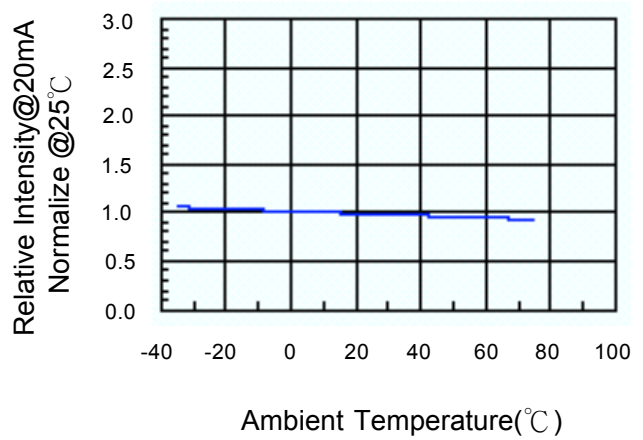


Fig.5 Relative Intensity vs. Wavelength

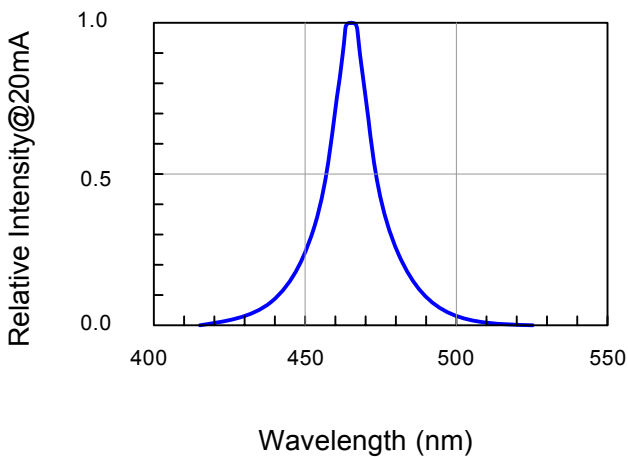
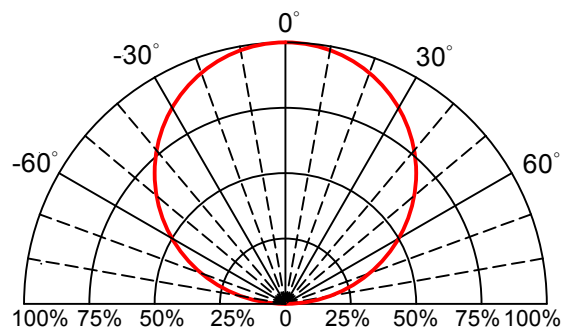
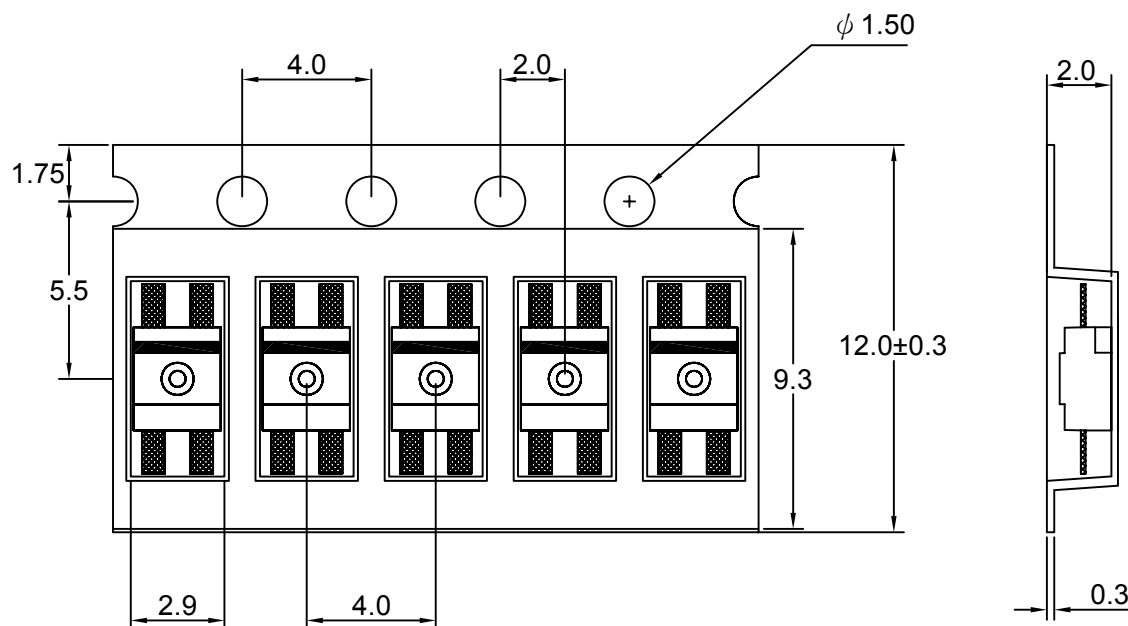


Fig.6 Directive Radiation

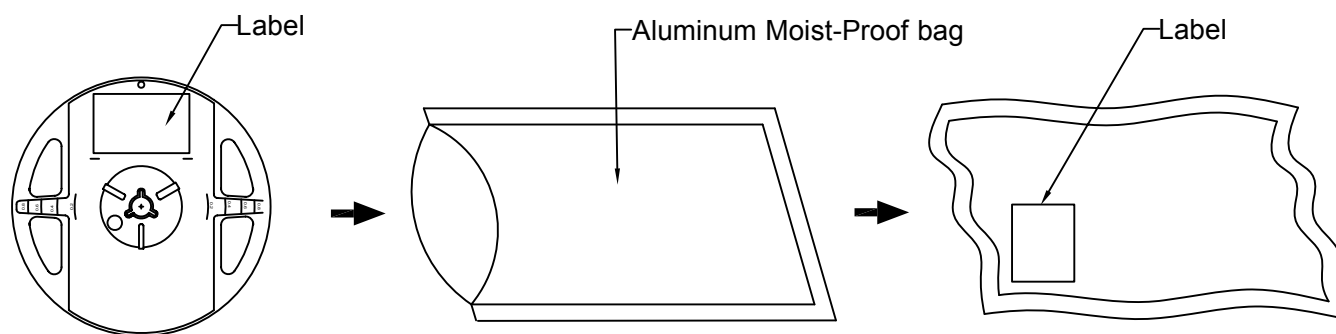


Carrier Tape Dimensions




Note : The tolerances unless mentioned is $\pm 0.1\text{mm}$, Angle ± 0.5 . Unit=mm.

• Packing Specifications



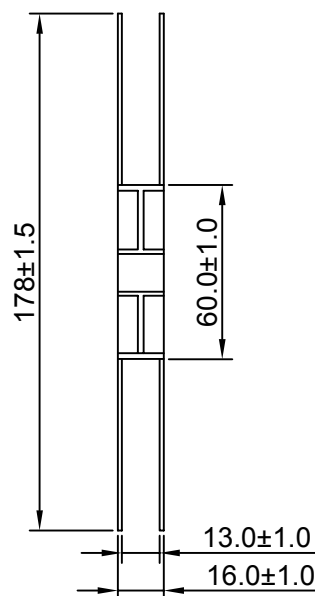
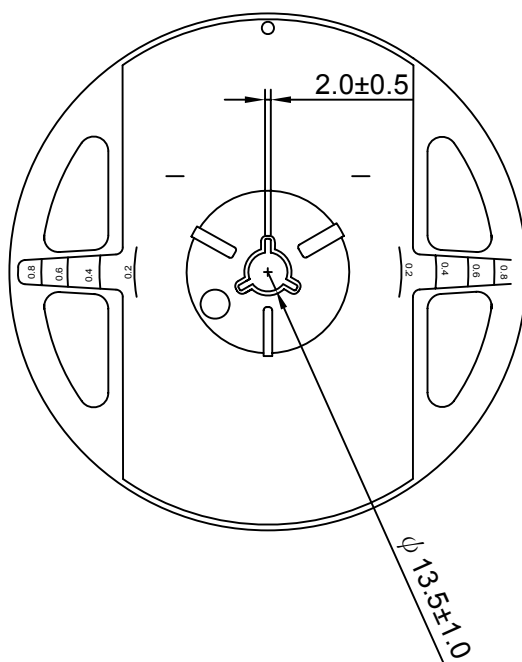
Part No.	Description	Quantity/Reel
LG-3228RGB/S2-A01	12mm tape, 7" reel	2000 PCS

Label Explanation

	LIGITEK ELECTRONICS CO., LTD.
PART :	LG-3228RGB/S2-A01
LOT :	GS115C0168
QTY(PCS):	2000
BIN/HUE :	A/1

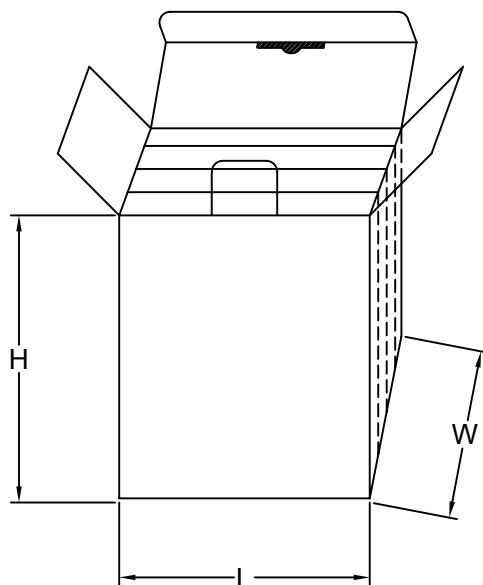
BIN/HUE : Luminous Intensity
Chromaticity Coordinates
(CIE_x , CIE_y)

Reel Dimensions

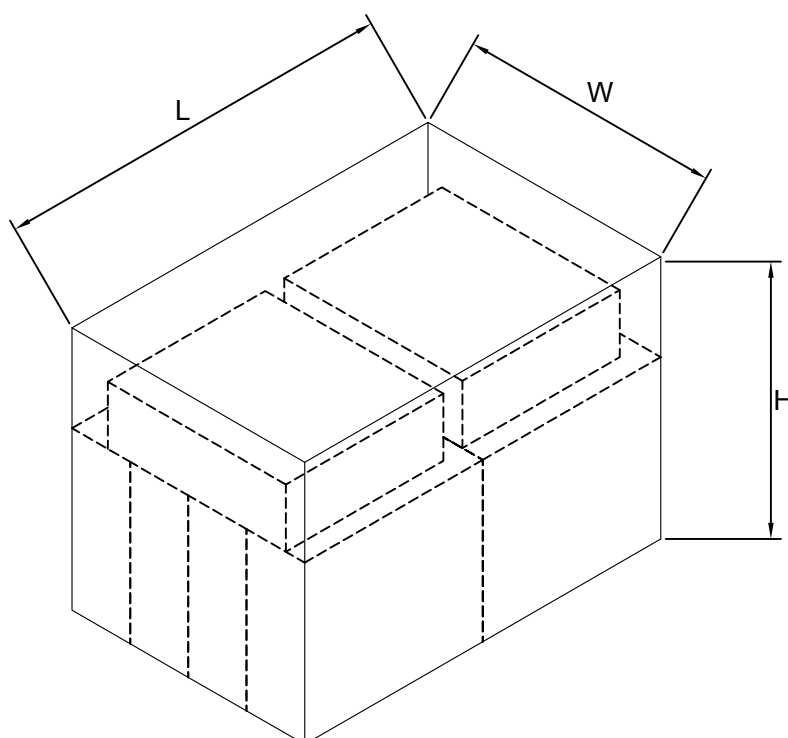


Box Explanation

1. 4 BAG / INNER BOX
2. INNER BOX SIZE : L X W X H 23cm X 8.5cm x 26cm

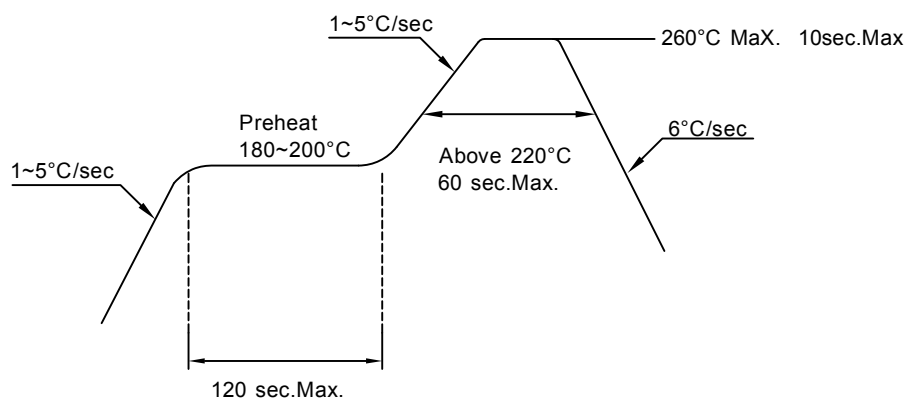


3. 10 INNER BOXES / CARTON
4. CARTON SIZE : L X W X H 58cm X 34cm x 35cm



Recommended Soldering Conditions**1. Hand Solder**

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

2. 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.

Precautions For Use:**Storage time:**

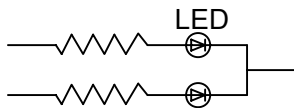
1. Calculated shelf life before opening is 12 months at $< 30^{\circ}\text{C}$ and $< 90\%$ relative humidity (RH)
2. After bag is opened, devices which will be subjected to reflow soldering or other high temperature processes must be
 - a) Assembled within 168 hours in an environment of $\leq 30^{\circ}\text{C} / 60\%$ 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 >24 hours at $60\pm 5^{\circ}\text{C}$. Performing baking only once, and using the baked devices within 72 hours.

Drive Method:

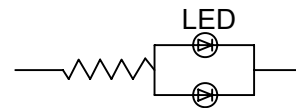
LED is a current operated device, and therefore, requires some kind of current limiting incorporated into the driver circuit. This current limiting typically takes the form of a current limiting resistor placed in series with the LED.

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.

Reliability Test:

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 300 cycles	22
	Temperature Cycling	1.100°C±5°C ~ -40°C±5°C 30mins / 5mins / 30mins 2.300 Cyeles	22
	IR Reflow	1.T=260°C Max. 10sec.Max. 2. 6 Min	22