

SURFACE MOUNT LED TAPE AND REEL



Lead-Free Parts

LRGB9553/R1-B02

DATA SHEET

DOC. NO : QW0905-LRGB9553/R1-B02

REV. : B

DATE : 06 - Oct. - 2015



Features:

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

Descriptions:

The LRGB9553 SMD 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.

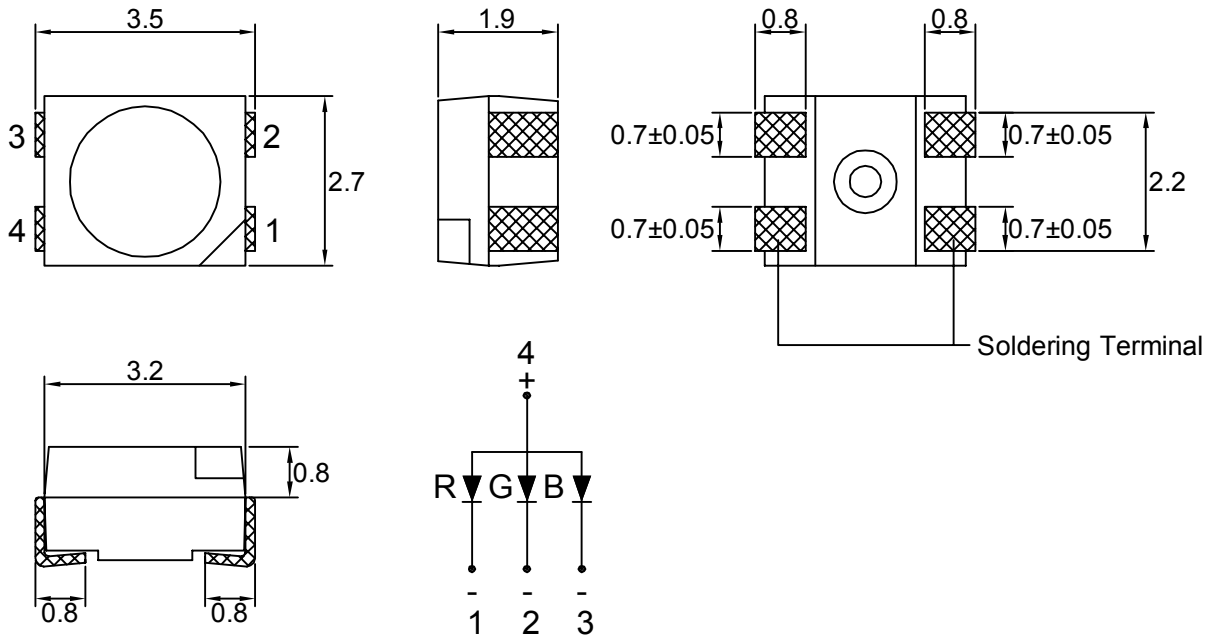
Applications:

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

Device Selection Guide:

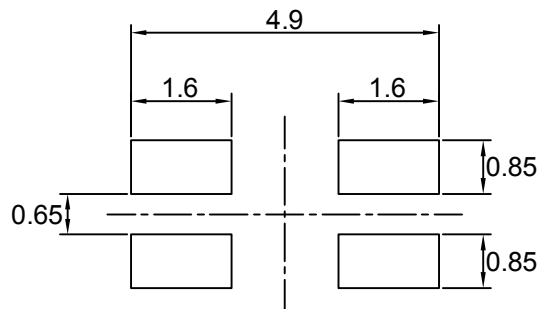
PART NO	MATERIAL	COLOR	
		Emitted	Lens
LRGB9553/R1-B02	AlGaInP	Red	Water Clear
	InGaN	Green	
	InGaN	Blue	

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.

Recommended Soldering Pad Dimensions



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

Absolute Maximum Ratings at Ta=25°C

Parameter	Symbol	Ratings			UNIT
		UEL	DGM	DBK	
Forward Current	IF	50	30	30	mA
Peak Forward Current Duty 1/10@10KHz	IFP	130	100	100	mA
Power Dissipation	PD	120	108	108	mW
Reverse Current @5V	Ir	10	50	50	μA
Electrostatic Discharge	ESD	2000	500	500	V
Operating Temperature	Topr	- 20 ~ + 80			°C
Storage Temperature	Tstg	- 30 ~ + 100			°C

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

Items	Symbol	Min.	Typ.	Max.	UNIT	CONDITION	
Luminous Intensity	Iv	UEL	800	1000	----	mcd	IF=20mA
		DGM	1000	1250	----		
		DBK	200	400	----		
Dominant Wavelength	λD	UEL	618	----	627	nm	IF=20mA
		DGM	519	----	528		
		DBK	462	----	474		
Spectral Line Half-Width	Δλ	UEL	----	20	----	nm	IF=20mA
		DGM	----	36	----		
		DBK	----	30	----		
Forward Voltage	VF	UEL	1.7	----	2.6	V	IF=20mA
		DGM	2.7	----	3.6		
		DBK	2.8	----	3.6		
Viewing Angle	2θ 1/2	UEL	----	120	----	deg	IF=20mA
		DGM	----	120	----		
		DBK	----	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 color coordinates measurement allowance is ±0.01 testing tolerance.

Luminous Intensity Classification

BIN CODE		lv(mcd) at 20mA	
		Min.	Max.
UEL	V-1	800	1000
	V-2	1000	1250
	W-1	1250	1600

BIN CODE		lv(mcd) at 20mA	
		Min.	Max.
DGM	V-2	1000	1250
	W-1	1250	1600
	W-2	1600	2000

BIN CODE		lv(mcd) at 20mA	
		Min.	Max.
DBK	S	200	320
	T	320	500
	U	500	800

Typical Electro-Optical Characteristics Curve

UEL CHIP

Fig.1 Forward current vs. Forward Voltage

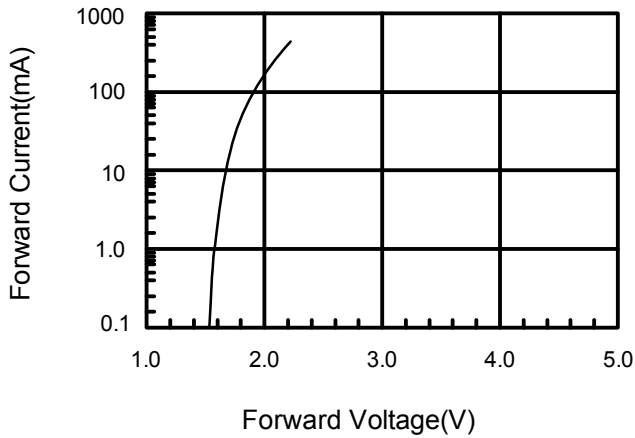


Fig.2 Relative Intensity vs. Forward Current

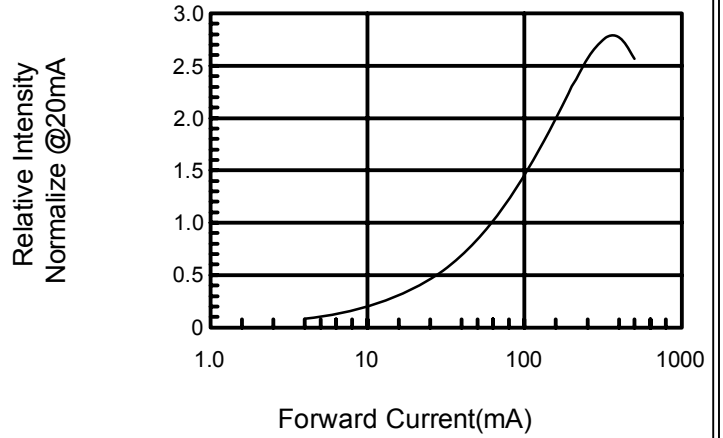


Fig.3 Forward Voltage vs. Temperature

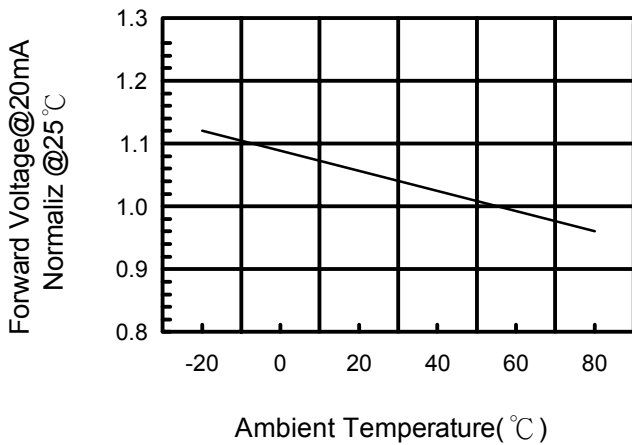


Fig.4 Relative Intensity vs. Temperature

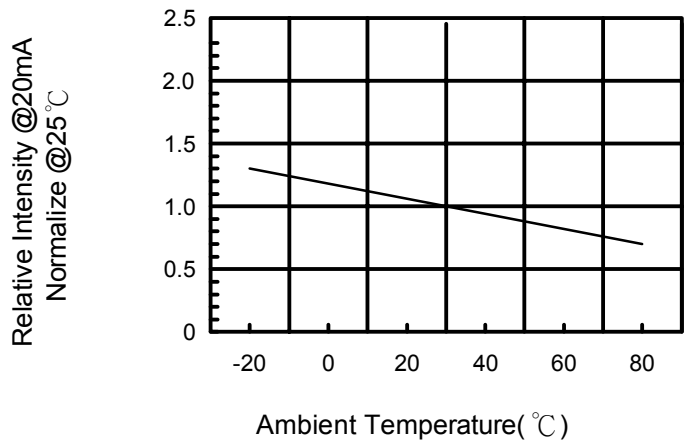


Fig.5 Relative Intensity vs. Wavelength

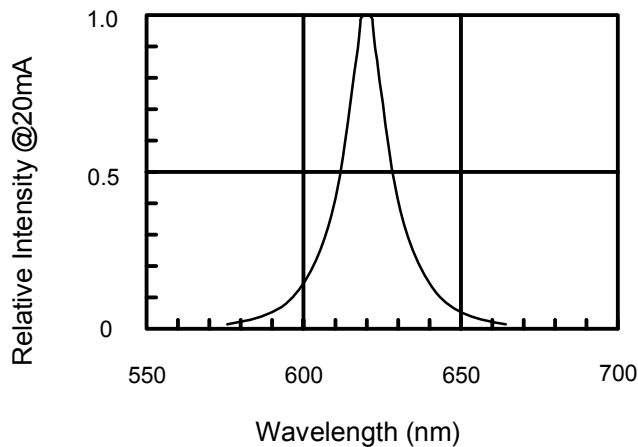
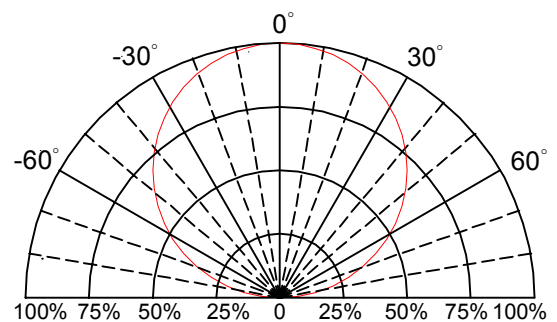


Fig.6 Directive Radiation



Typical Electro-Optical Characteristics Curve

DGM CHIP

Fig.1 Forward current vs. Forward Voltage

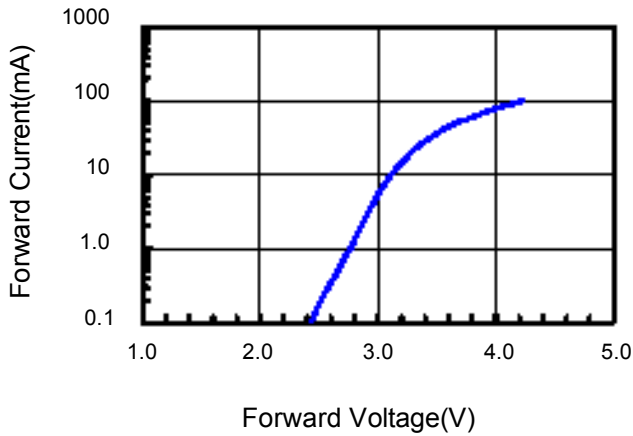


Fig.2 Relative Intensity vs. Forward Current

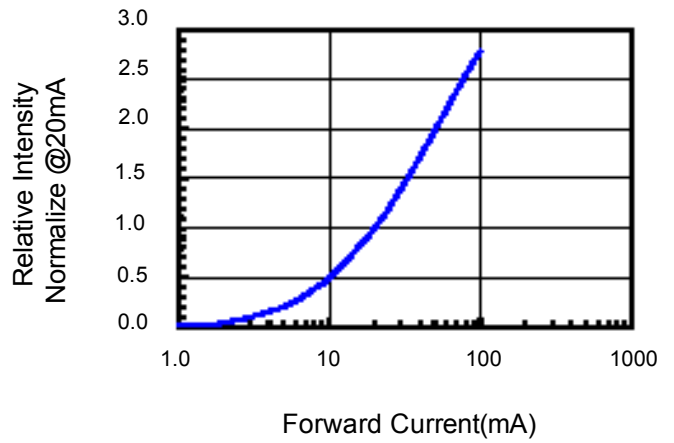


Fig.3 Forward Voltage vs. Temperature

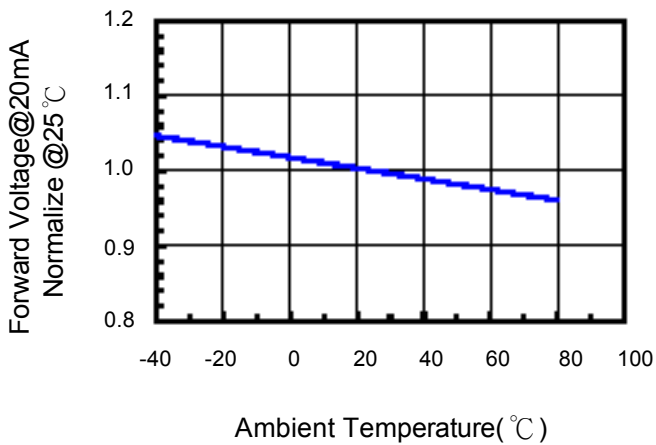


Fig.4 Relative Intensity vs. Temperature

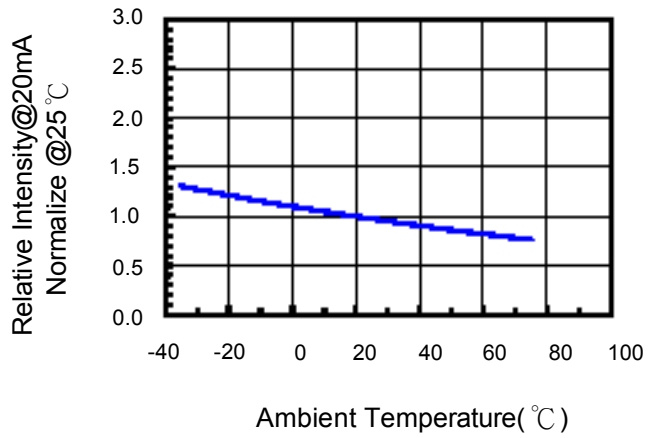


Fig.5 Relative Intensity vs. Wavelength

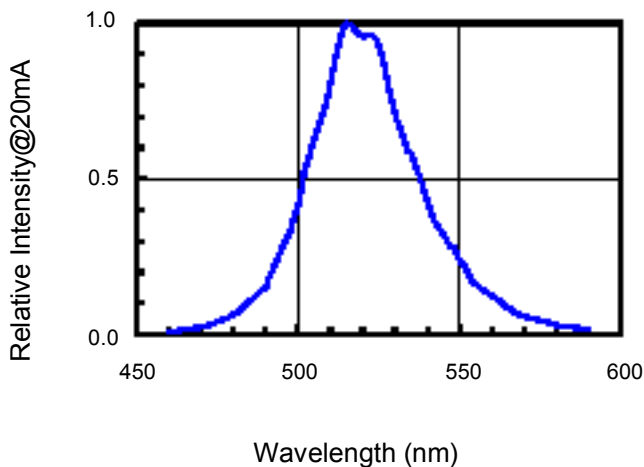
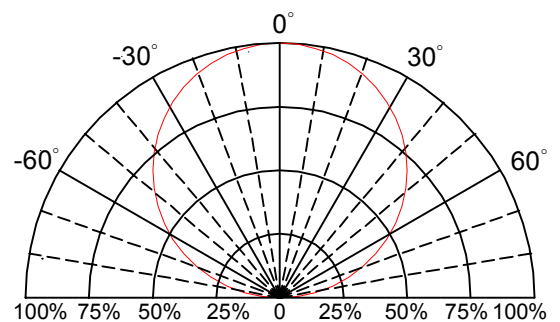


Fig.6 Directive Radiation



Typical Electro-Optical Characteristics Curve

DBK CHIP

Fig.1 Forward current vs. Forward Voltage

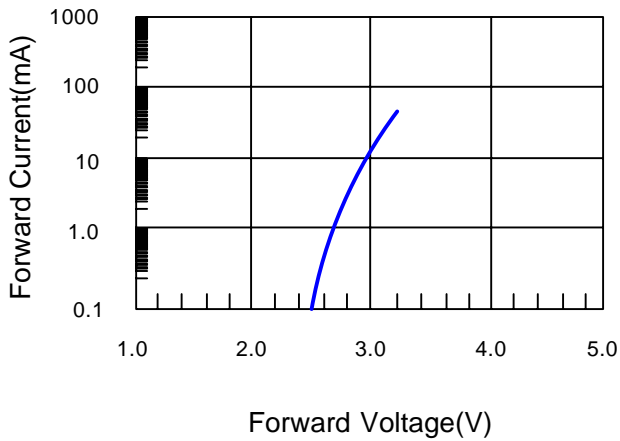


Fig.2 Relative Intensity vs. Forward Current

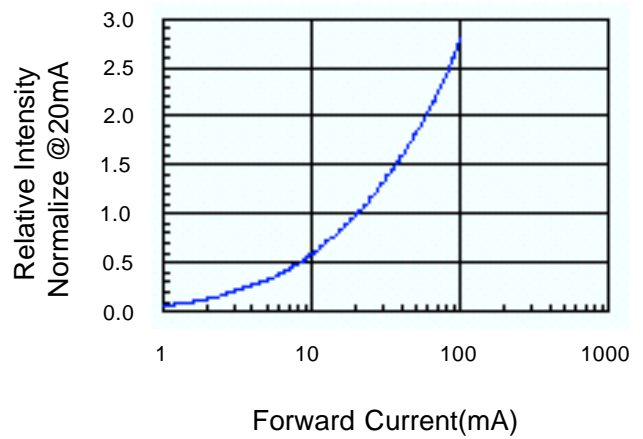


Fig.3 Forward Voltage vs. Temperature

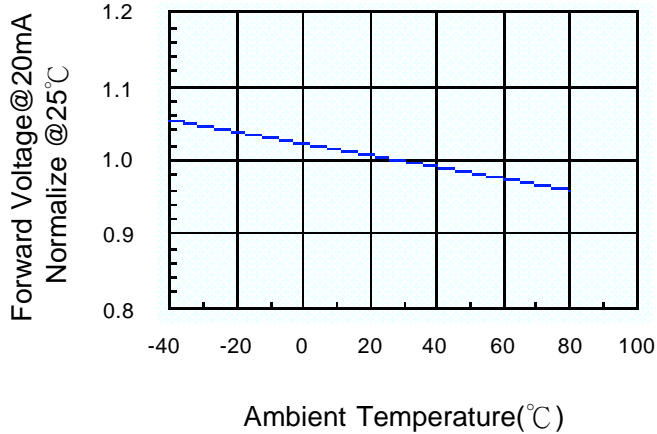


Fig.4 Relative Intensity vs. Temperature

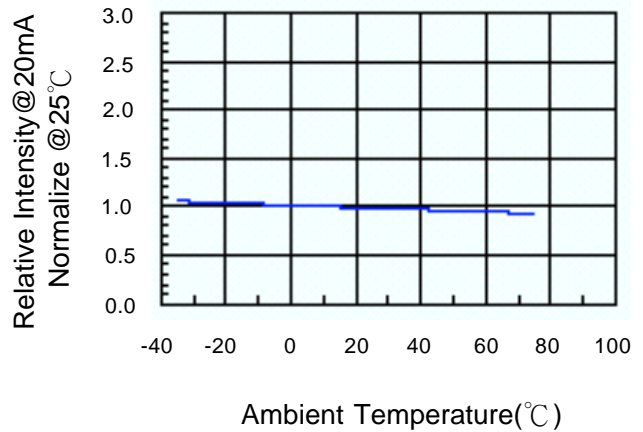


Fig.5 Relative Intensity vs. Wavelength

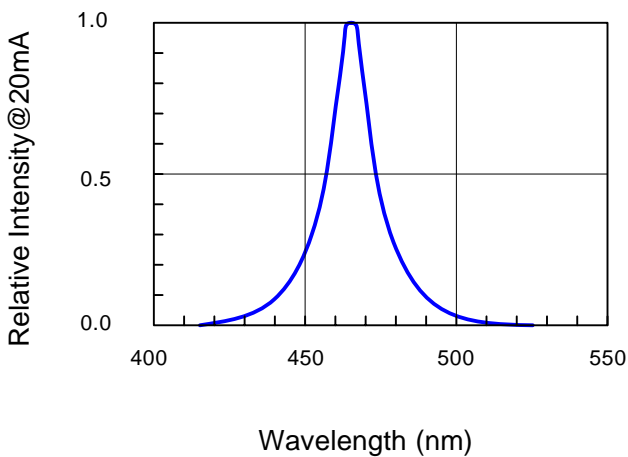
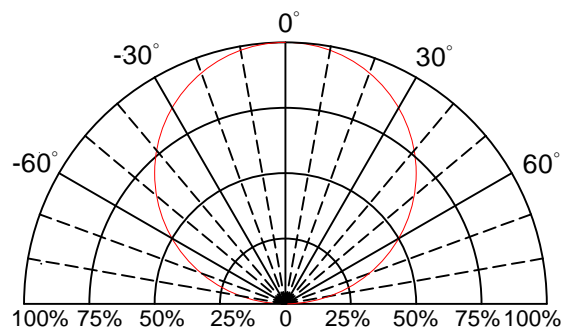
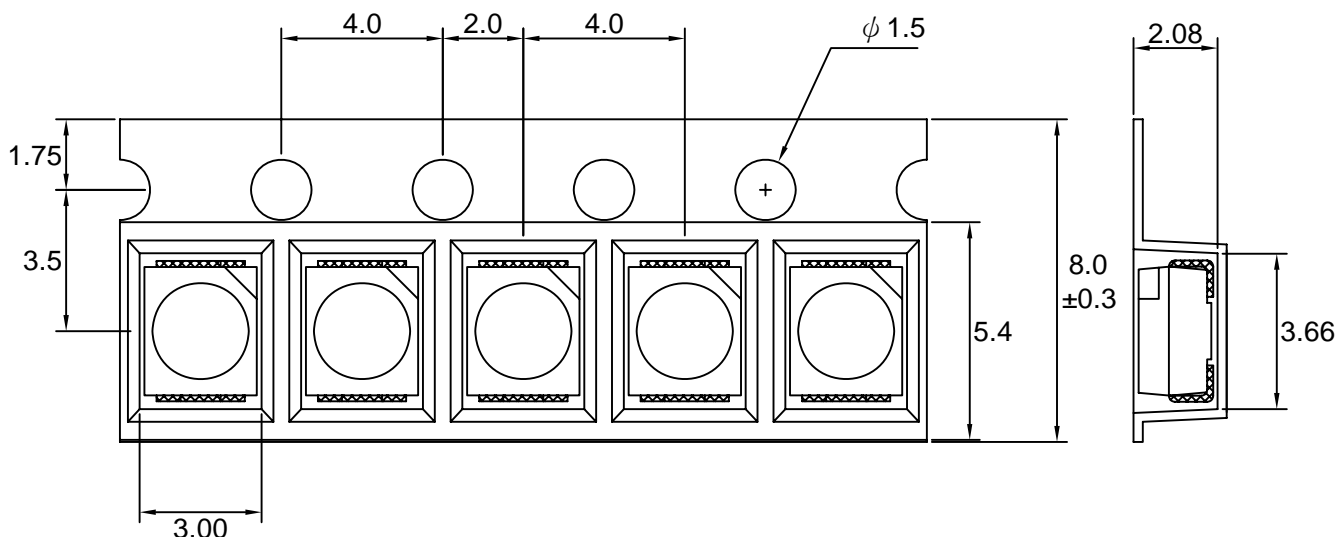


Fig.6 Directive Radiation

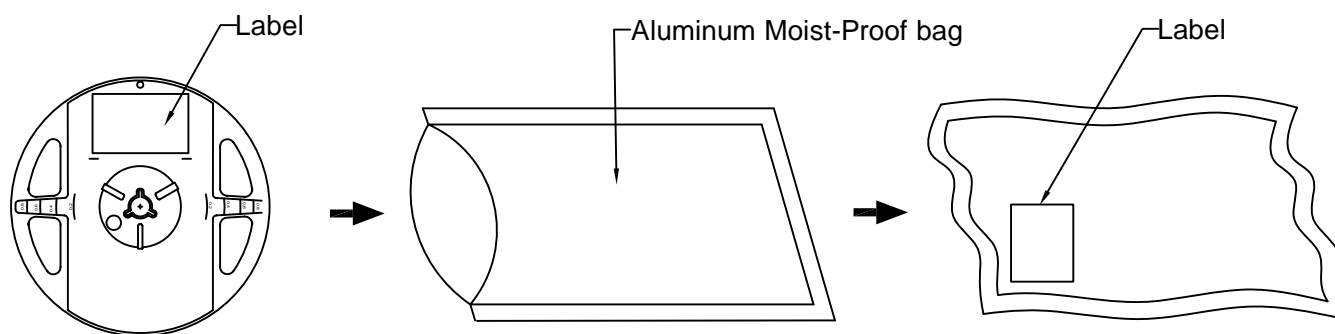


Carrier Type Dimensions








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

• Packing Specifications

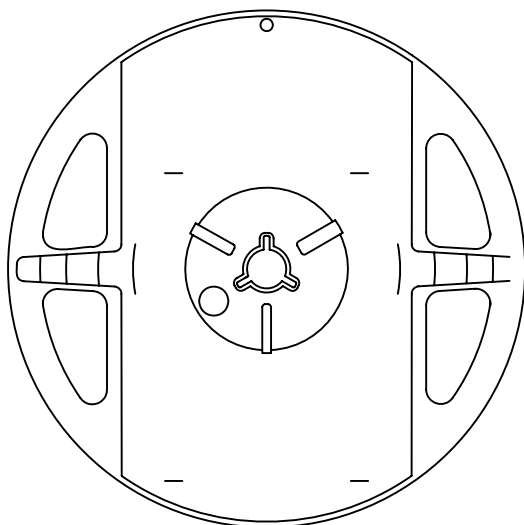


Part No.	Description	Quantity/Reel
LRGB9553/R1-B02	8.0mm tape,7"reel	2000 PCS

	LIGITEK ELECTRONICS CO., LTD.	
PART :	LRGB9553/R1-B02	
LOT :	GS11560168	 VF: 1.7-2.6
QTY(PCS):	2000	 VF: 2.7-3.6
BIN/HUE :	V-1-V-2-S	 VF: 2.8-3.6

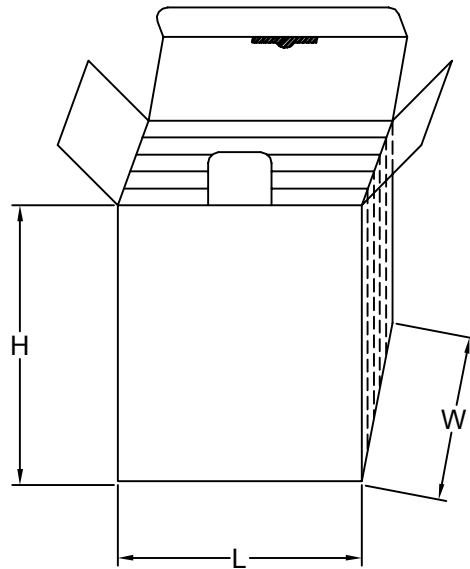
BIN : Luminous Intensity

VF : Forward Voltage

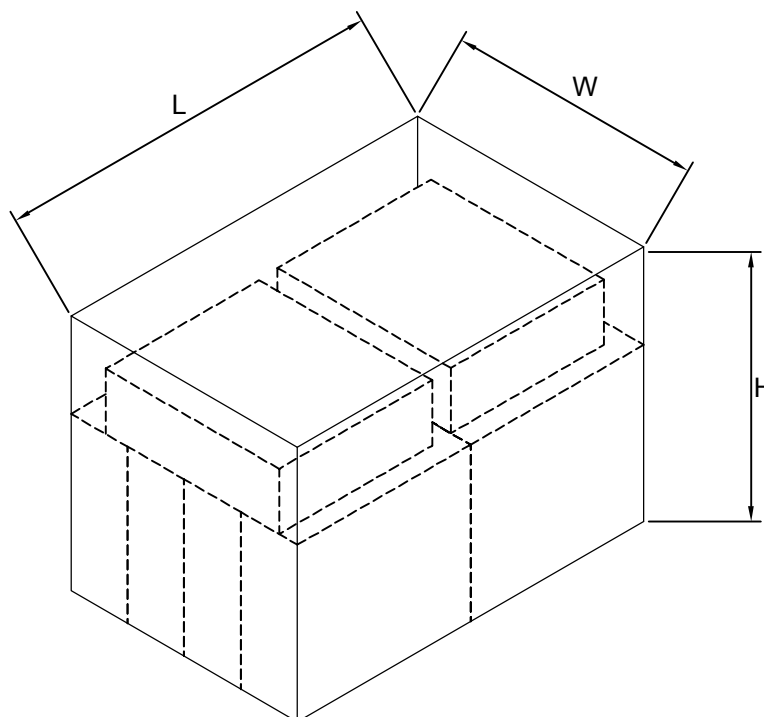


Box Explanation

1. 5 BAG / INNER BOX
2. INNER BOX SIZE : L X W X H 23cm X 8.5cm x 26cm

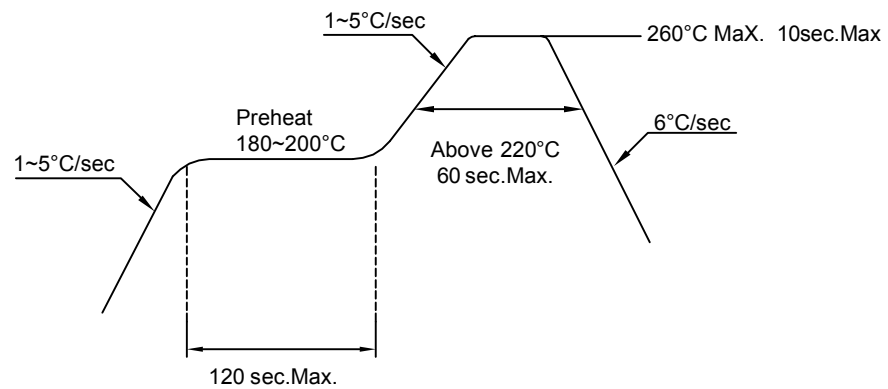


3. 10 INNER BOXES / CARTON
4. CARTON SIZE : L X W X H 58cm X 34cm x 35cm



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:**

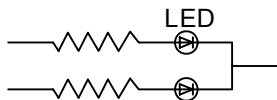
- 1.The operation of Temperatures and RH are : 5 °C~30°C,RH60%.
- 2.Once the package is opened, the products should be used within a week.
Otherwise, they should be kept in a damp proof box with descanting agent.
Considering the tape life, we suggest our customers to use our products within a year(from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

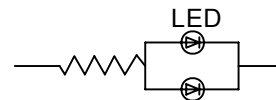
LED is a current operated device, and therefore, requirer some kind of current limiting incorporated into the driver circuit. This current limiting typically takes the form of a current limiting resistor placed in series with the LED.

Consider worst case voltage variations than could occur across the current limiting resistor. The forwr d 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.

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 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