

Part No.	GNL-5050RGBC		GNL-5050RGBC-TL
Emitted Color	RED	GREEN	BLUE
Chip Materia	AlGaInP	InGaN	InGaN
Len's Color	Water Clear		

◆ Features:

Compatible with automatic placement equipment

This product doesn't contain restriction Substance, comply ROHS standard.

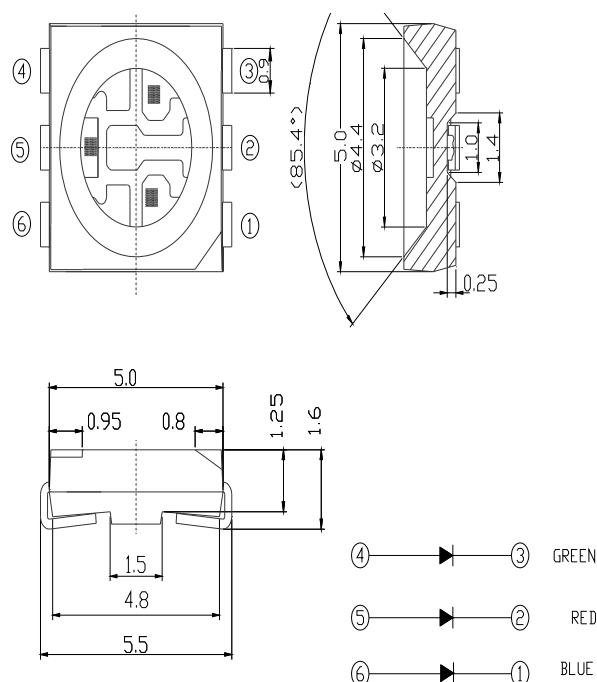
◆ Applications:

Indoor and outdoor displays

Camera Flash or Backlighting

RGB full color displays

◆ Package Dimensions:



Unit : mm Toleranc : $\pm 0.2\text{mm}$ unless otherwise noted

Electrodes: Ag Plating Copper Alloy

Encapsulating Resin: Epoxy Resin

Package: Heat-Resistant Polymer

◆ Absolute Maximum Rating (Ta=25℃)

Parameter	Symbol	Max.			Unit
		UE	UG	UB	
Pulse Forward Current (1/10 duty and 0.1msec width)	I _{FP}	80	60	60	mA
DC Forward Current	I _F	20	20	20	mA
Reverse Voltage	V _R	5	5	5	V
Operating Temperature Range	T _{opr}	-20℃ ~ 85℃			℃
Storage Temperature Range	T _{stg}	-30℃ ~ 100℃			℃
Junction Temperature	T _j	+110			℃

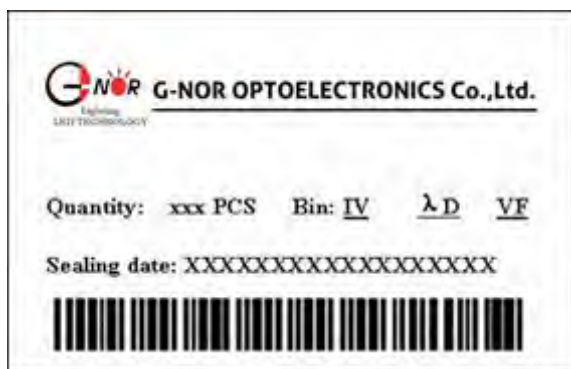
◆ Electrical Optical Characteristics (Ta=25℃)

Parameter	Symbol	Condition	Values			Unit
			UE	UG	UB	
Dominant Wavelength	λ _d	I _F =20mA	622	522	468	nm
Spectral Line Half Width	Δ λ	I _F =20mA	30	30	30	nm
Forward Voltage	V _F (avg)	I _F =20mA	1.9	3.0	3.0	V
	V _F (max)		2.3	3.5	3.5	V
Reverse Current (max.)	I _R	V _R =5V	10	10	10	μA
Viewing Angle	2 θ _{1/2}	I _F =20mA	120	120	120	Deg.

◆ Parameter Classification (Ta=25℃ UY each I_F=60mA)

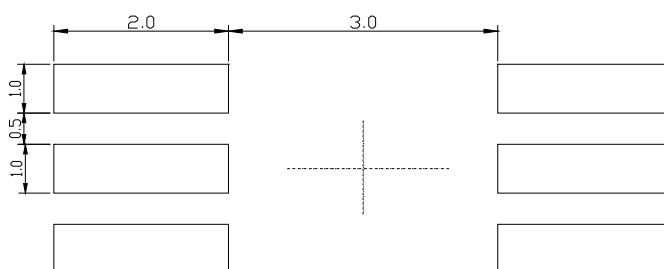
Color \ Class	Forward Voltage (I _F =20mA)	Dominant Wavelength (I _F =20mA)	Luminous Intensity (I _F =20mA)
	Min~Max	Min~Max	Min~Max
UE	1.9~2.3	620~624	700~900
UG	3.0~3.5	520~524	1600~2000
UB	3.0~3.5	466~470	320~400

◆ Package Label:



← Type
 ← Quantity
 ← Sealing Date
 ← Parameter Classing

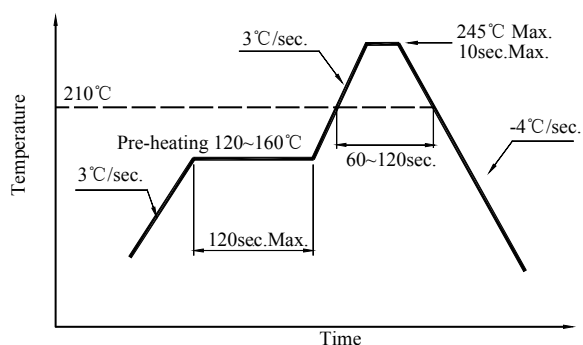
◆ Soldering Pad Dimensions:



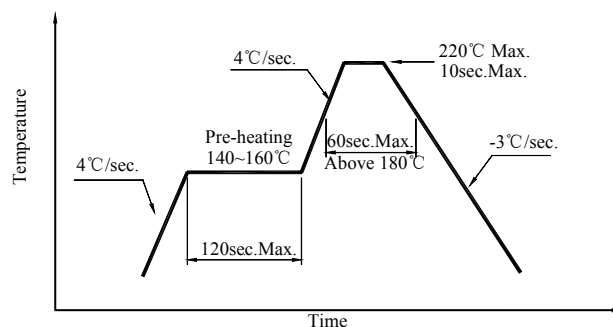
◆ Soldering Conditions (Maximum allowable soldering conditions)

1、Reflow soldering profile

<Pb-free solder>



<Lead solder>

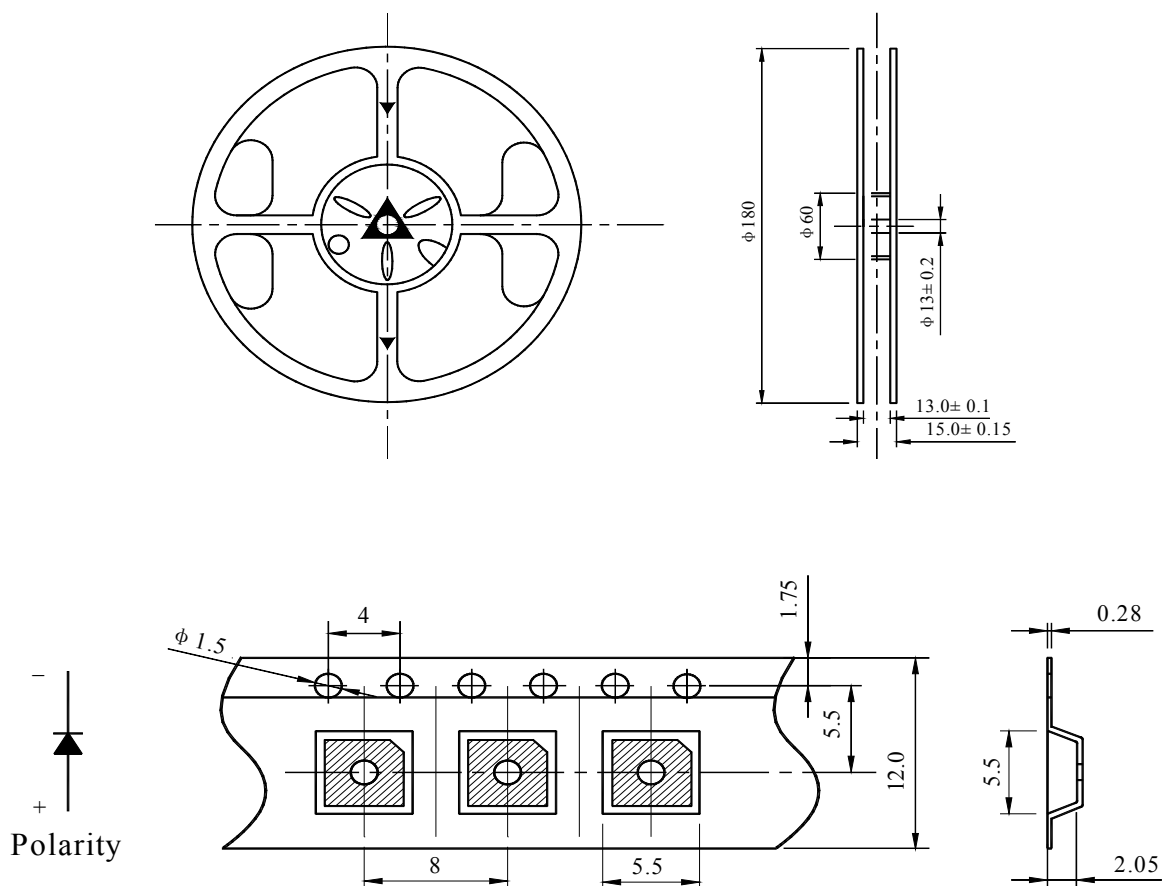


2、Soldering Iron

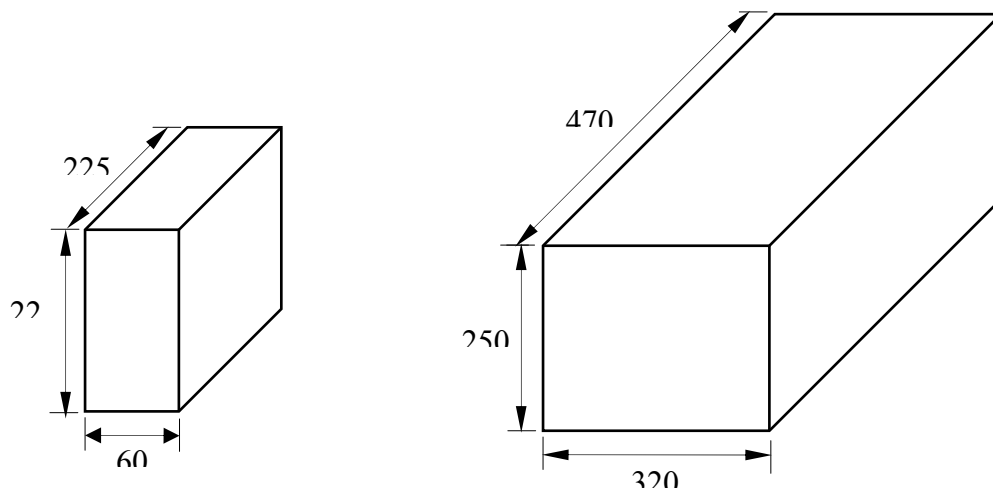
Power dissipation of Iron should be smaller than 25W, and temperature should be controllable. The work must be finished within 3sec under 300°C, only once.

- Do not stress its resin while soldering.
- After soldering, do not warp the circuit board.
- Pay attention to electrostatic (ESD).

◆ Package Tape Specifications: (500~1000 pcs/Reel)



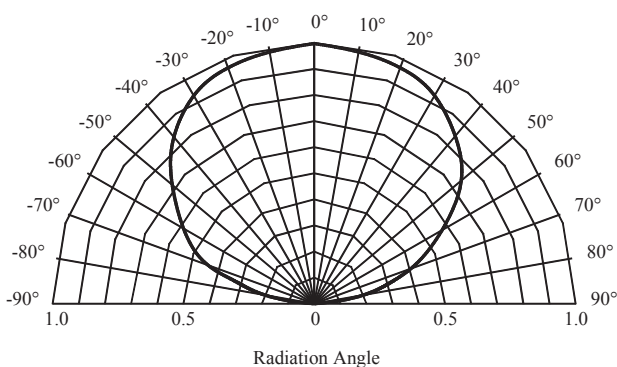
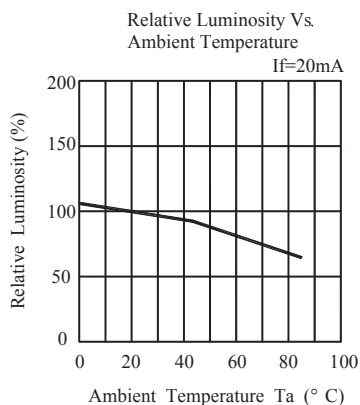
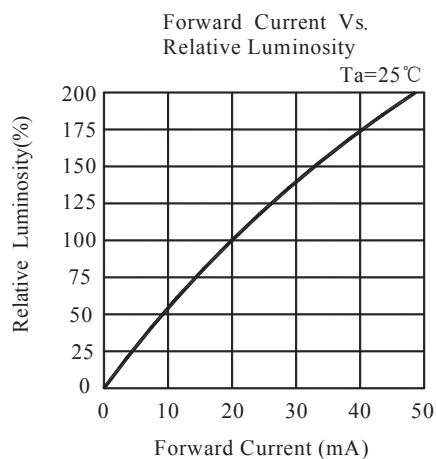
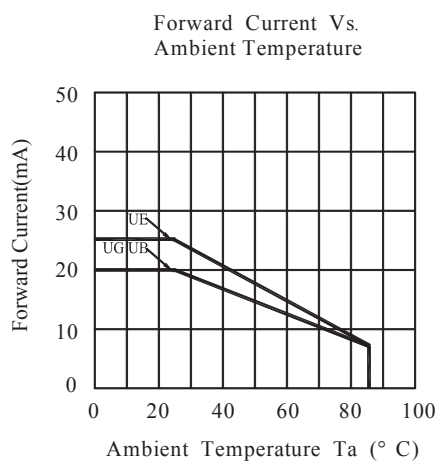
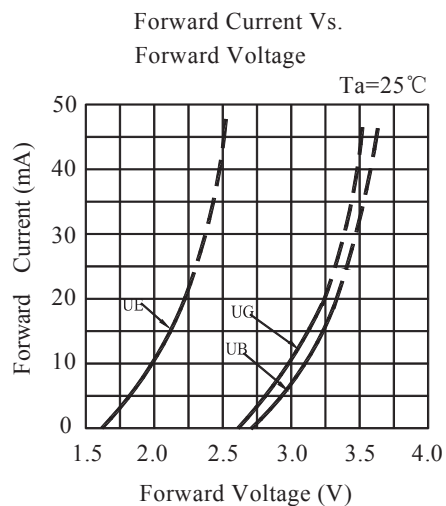
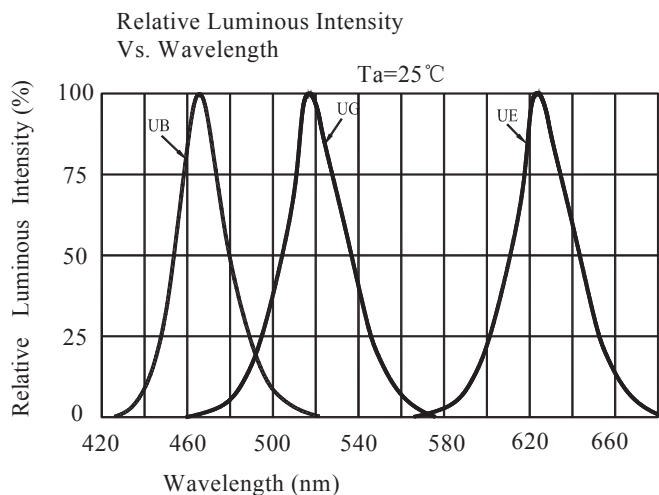
Reel Lead Min.60mm No LEDs



5 Reel in one Box

10 Box in one Carton

◆ Typical Electro-Optical Characteristics Curves :



◆ Reliability Test Items and Conditions

NO	Test Item	Test Conditions	Duration	Sample	Ac/Re
1	Temperature Cycle	$-40^{\circ}\text{C} \pm 5^{\circ}\text{C} \sim 25^{\circ}\text{C} \pm 5^{\circ}\text{C}$ 30min 5min } $100^{\circ}\text{C} \pm 5^{\circ}\text{C} \sim 25^{\circ}\text{C} \pm 5^{\circ}\text{C}$ 30min 5min	100cycles	20	0/1
2	High Temp. Storage	$T_a = 100^{\circ}\text{C} \pm 5^{\circ}\text{C}$	1000hours	20	0/1
3	Temp.& Humidity Test	$T_a = 85^{\circ}\text{C} \pm 5^{\circ}\text{C}$, $\text{RH} = 85\% \pm 5\%$	1000hours	20	0/1
4	Low Temp. Storage	$T_a = -40^{\circ}\text{C} \pm 5^{\circ}\text{C}$	1000hours	20	0/1
5	Operating Life Test	$T_a = 25 \pm 5^{\circ}\text{C}$, DC IF=20mA	1000hours	20	0/1
6	Thermal Shock	$-40 \pm 5^{\circ}\text{C} \rightarrow 100 \pm 5^{\circ}\text{C}$ 15min 15min	100cycles	20	0/1

◆ Cautions

1、Package

When moisture is absorbed into the package it may vaporize and expand during soldering. There is a possibility that this can cause exfoliation of the contacts and damage to the optical characteristics of the LEDs. So the moisture proof package is used to keep moisture to a minimum in the package.

2、Storage

Before opening the package: The LEDs should be kept at $5 \sim 30^{\circ}\text{C}$ and 60%RH or less. The LEDs should be used within a year.

After opening the package: The LED must be used within 24 hours, else should be kept at $5 \sim 30^{\circ}\text{C}$ and 30% RH or less. The LEDs should be used within 7days after opening the package. If unused LEDs remain, they should be stored in moisture proof packages, recommended to return the LEDs to the original moisture proof bag and to reseal the moisture proof bag again.

If the LEDs have exceeded the storage time, baking treatment should be performed more than 24 hours at $80 \pm 5^{\circ}\text{C}$.

3、The LED electrode sections are comprised of a gold plated. The gold surface may be affected by environments which contain corrosive gases and so on. Please avoid conditions which may cause the LED to corrode or discolor. This corrosion or discoloration may cause difficulty during soldering operations. It is recommended that the User use the LEDs as soon as possible.

4、Please avoid rapid transitions in ambient temperature, especially in high humidity environments where condensation can occur.

5、Static Electricity

5.1、These products are sensitive to static electricity charge, and users are required to handle with care. Particularly, if an current and or voltage which exceeds the Absolute Maximum Rating of Products is applied, the overflow in energy may cause damage to, or possibly result in electrical destruction of, the Products. The customer is requested to take adequate countermeasures against static electricity charge and surge when handling Products.

5.2、Proper grounding of Products, use of conductive mat, conductive working uniform and shoes, and conductive containers are effective against static electricity and surge.

5.3、Ground low-resistance areas where the product contacts, such as metal surfaces of the work platform, with a conductive mat (surface resistance 10^6 - $10^8 \Omega$).

5.4、A tip of soldering iron is requested to be grounded. An ionizer should also be installed where risk of static generation is high.

◆ Notes:

1、Above specification may be changed without notice. We will reserve authority on material change for above specification.

2、When using this product, please observe the absolute maximum ratings and the instructions for the specification sheets. We assume no responsibility for any damage resulting from use of the product which does not comply with the instructions included in the specification sheets.