

WCN-5050RGBW-AE**SPECIFICATION**

WCN			CUSTOMER Confirmed
Prepared by	Checked by	Approved by	
LiuGuo 2018-11-9	ZhangChun 2018-11-9		



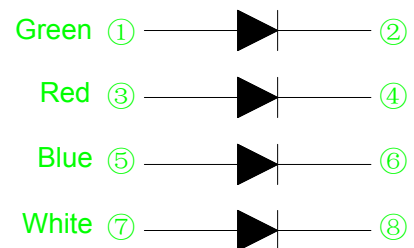
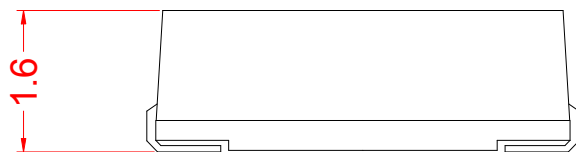
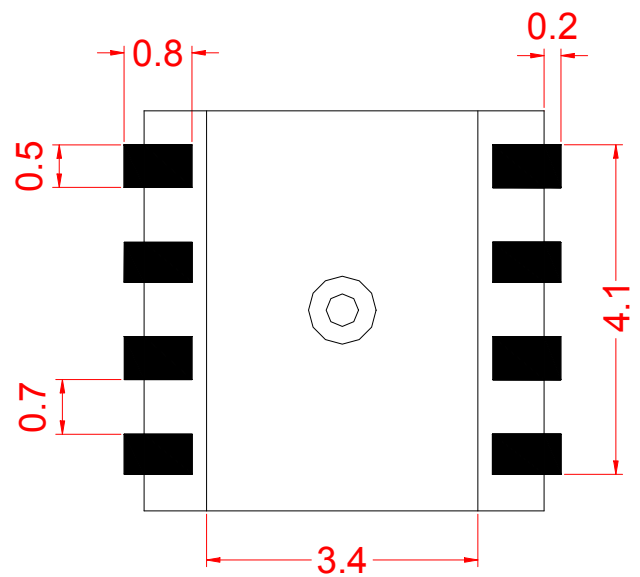
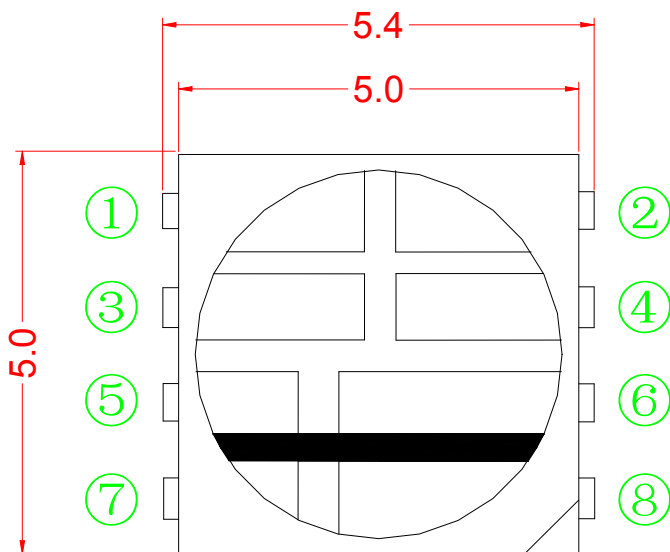
ATTENTION
OBSERVE PRECAUTIONS
FOR HANDLING
ELECTROSTATIC
SENSITIVE DEVICES



Description

- ◆ Viewing angle:120 deg
- ◆ The materials of the LED dice is AlGaInP/InGaN/InGaN
- ◆ 5.4mm×5.0mm×1.6mm
- ◆ RoHS compliant lead-free soldering compatible

Package Outline



NOTES:

1. All dimensions units are millimeters ;
2. All dimensions tolerances are $\pm 0.2\text{mm}$ unless otherwise noted.

Absolute Maximum Ratings at Ta=25℃

Parameter	Symbol	Rating				Units
		R	G	B	W	
Power Dissipation	Pd	65	105	105	105	mW
Forward current	IF	30				mA
Peak Forward Current	IFP	100				mA
Reverse voltage	VR	5				V
Electrostatic Discharge	ESD	1000				V
Operating temperature	Topr	-30~+85				℃
Storage temperature	Tstg	-40 ~+100				℃
junction temperature	Tj	95				℃

Electrical/Optical characteristics at Ta=25℃

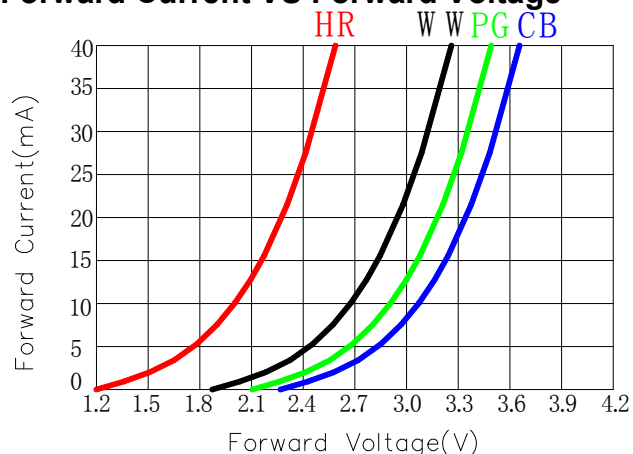
Item	test condition	Symbol		Value			Unit
				Min.	Typ.	Max.	
Forward voltage	If=20mA	Vf	R	1.8	--	2.2	V
			G	3.0	--	3.5	V
			B	3.0	--	3.5	V
			W	3.0	--	3.4	V
Luminous intensity	If=20mA	Iv	R	600	--	700	mcd
			G	1400	--	1500	mcd
			B	300	--	400	mcd
			W	2300	--	2800	mcd
Dominant wavelength	If=20mA	λ_d	R	620	--	625	nm
			G	520	--	525	nm
			B	467.5	--	472.5	nm
Correlated Color Temperature	If=20mA	CCT		5000	--	5500	K
Viewing angle at 50% Iv	If=20mA	2 θ 1/2		--	120	--	Deg
Reverse current	Vr=5V	Ir		--	--	10	μ A
Thermal resistance	If=20mA	Rth(j-s)		--	--	450	$^{\circ}$ C/W

NOTE:

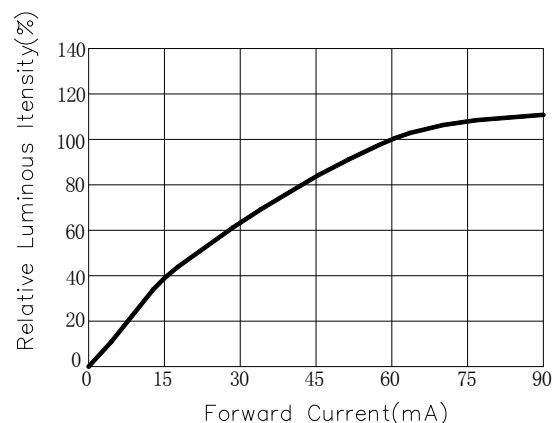
- 1.1/10 Duty cycle, 0.1ms pulse width.
2. The above forward voltage measurement allowance tolerance is 0.1V.
3. the above luminous intensity measurement allowance tolerance $\pm 10\%$.

Optical characteristics curves

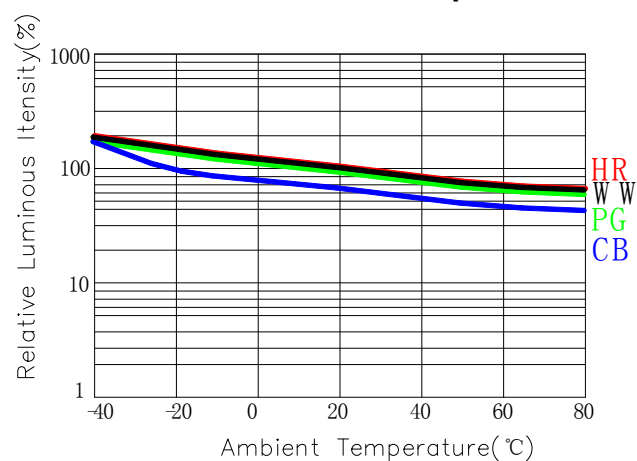
Forward Current VS Forward Voltage



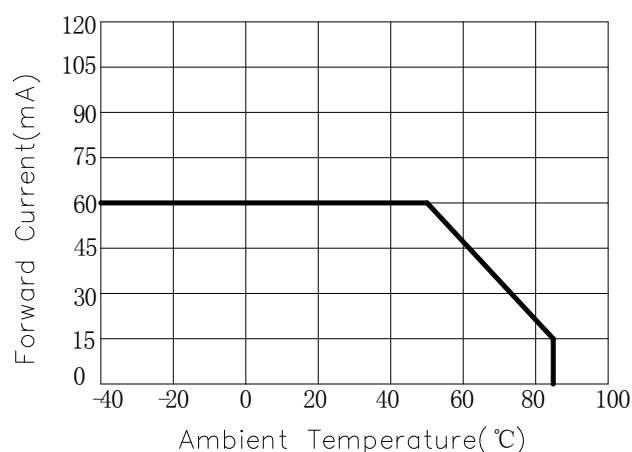
Relative Flux VS Forward Current



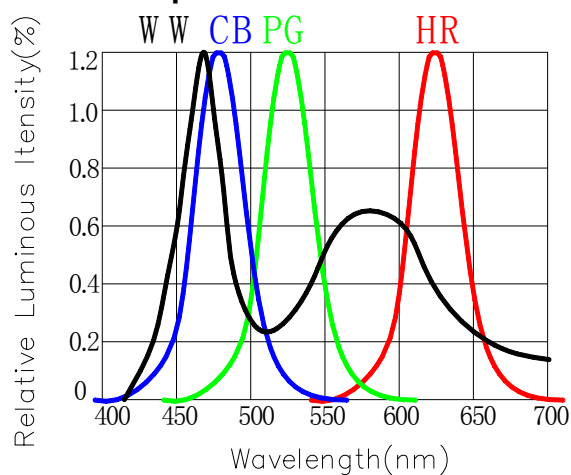
Relative Flux VS Ambient Temperature



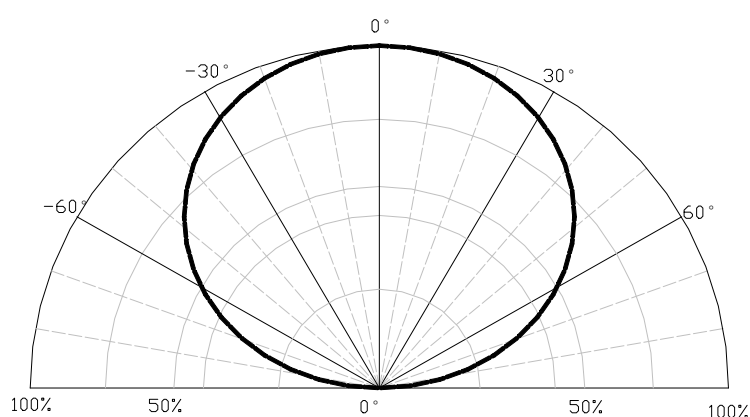
Forward Current VS Ambient Temperature



Relative Spectral Distribution

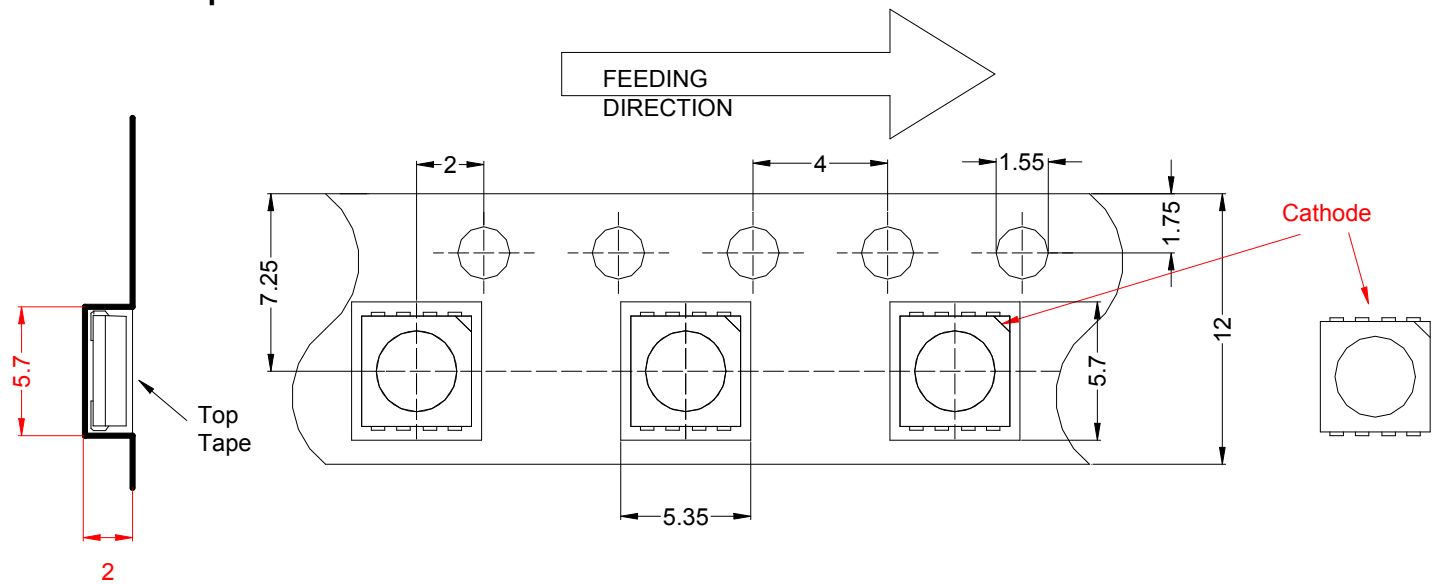


Typical Spectral Distribution

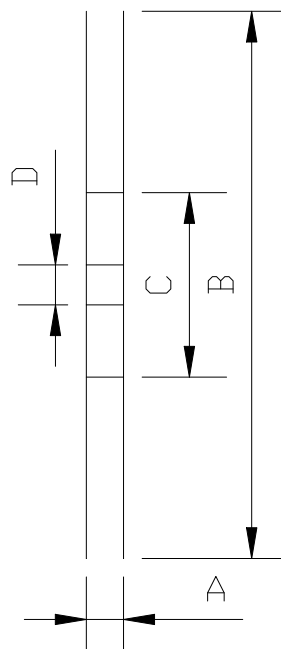
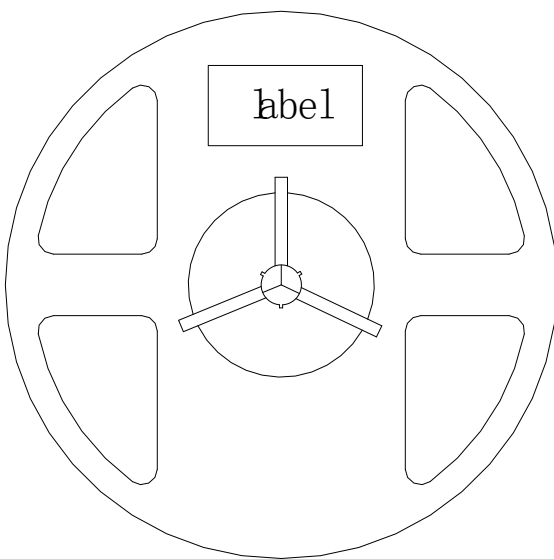


Packaging Specifications

Carrier Tape Dimensions



Reel Dimension



A	8.0±0.1mm
B	178±1mm
C	60±1mm
D	13.0±0.5mm

NOTE:

1. The tolerances unless mentioned $\pm 0.1\text{mm}$. Unit : mm
2. 1,000 pcs/Reel.

■ Label Form Specification

WCN Opto Group Co., Ltd

P/N:



QTY: PCS



LOT NO:



ROHS

IV:

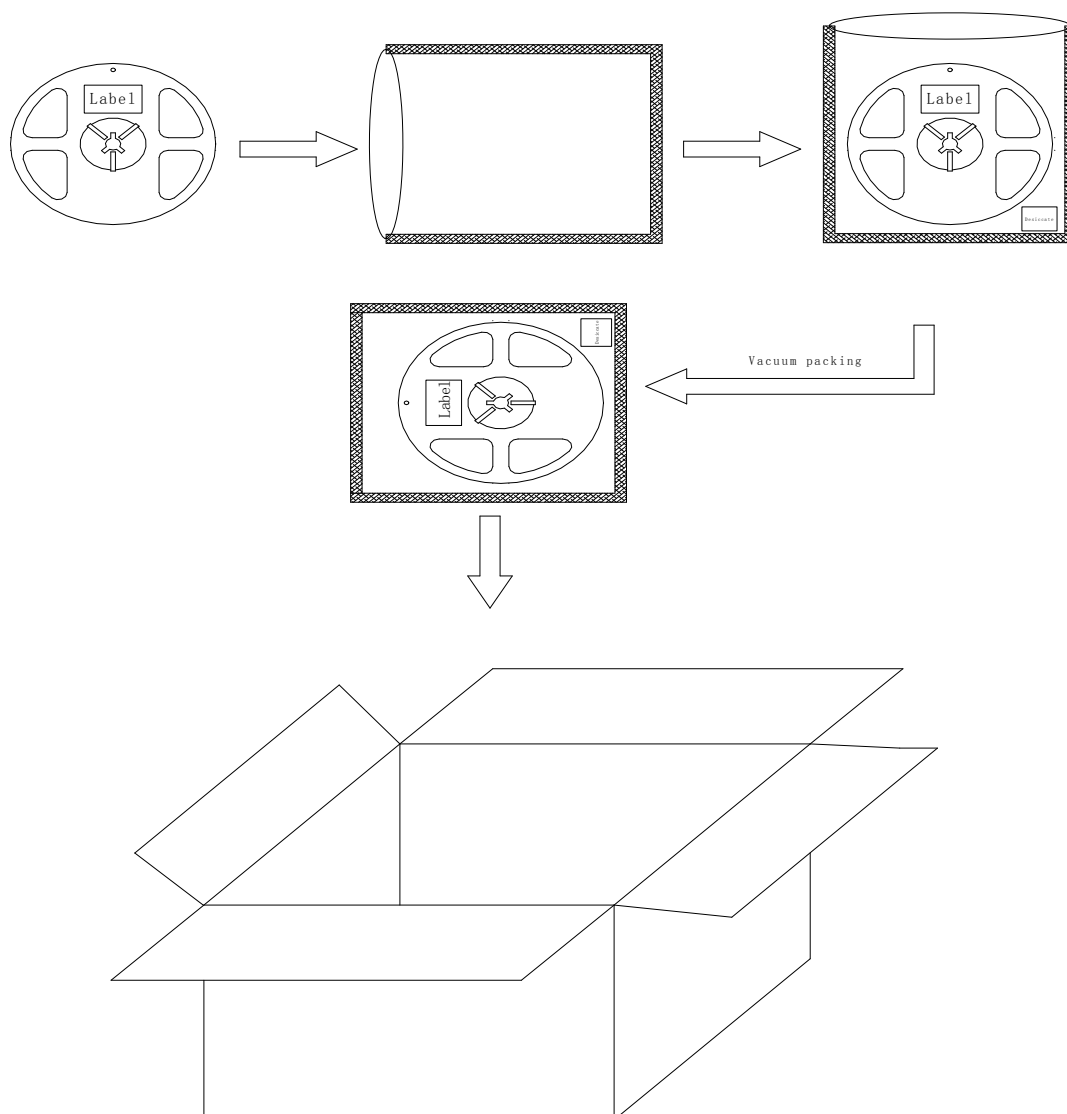
CCT:

VF:

MADE IN CHINA

P/N	Part Number
QTY	Packing Quantity
LOT NO	Made Date
IV	Luminous intensity
CCT	Correlated Color Temperature
VF	Forward Voltage

■ Moisture Resistant Packing Process

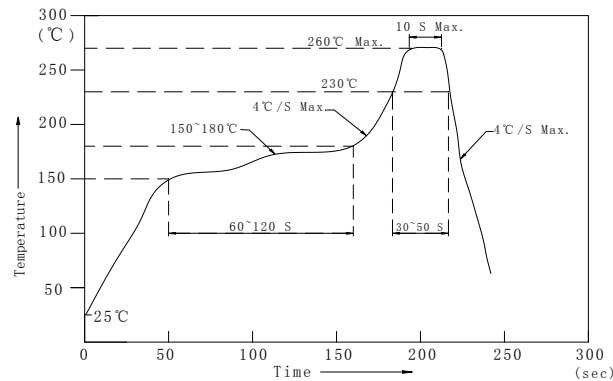


Test items and results of reliability

Type	Test Item	Test Conditions	Note	Number of Damaged
Environmental Sequence	Reflow	Ta=260℃max T=10s	2 times	0/22
	Temperature Cycle	-40℃ 30min ↑↓ 100℃ 30min	100 cycle	0/22
	Thermal Shock	-40℃ 15min ↑↓ 100℃ 15min	100 cycle	0/22
	High Humidity Heat Cycle	30℃↔65℃ 90%RH 24hrs/1cycle	10 cycle	0/22
	High Temperature Storage	Ta=100℃	1000 hrs	0/22
	Low Temperature Storage	Ta=-40℃	1000 hrs	0/22
	Humidity Heat Storage	Ta=60℃ RH=90%	1000 hrs	0/22
	Low Temperature Storage	Ta=-30℃	1000 hrs	0/22
Operation Sequence	Life Test	Ta=25℃ IF=20mA	1000 hrs	0/22
	High Humidity Heat Life Test	60℃ RH=90% IF=10mA	500 hrs	0/22
	Low Temperature Life Test	Ta=-20℃ IF=20mA	1000 hrs	0/22

Reflow Profile

■ Reflow Temp/Time



Notes:

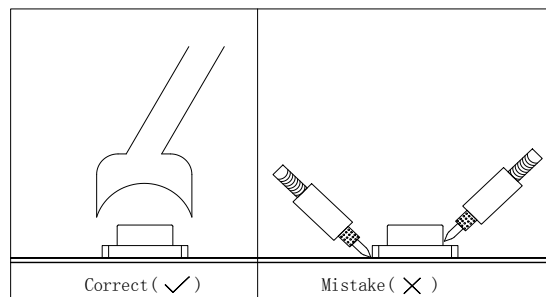
1. We recommend the reflow temperature 245°C(±5°C). the maximum soldering temperature should be limited to 260°C.
2. Don't cause stress to the epoxy resin while it is exposed to high temperature.
3. Number of reflow process shall be 2 times or less.

■ Soldering iron

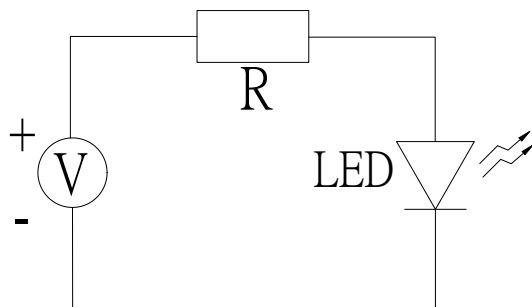
Basic spec is $\leq 5\text{sec}$ when 260°C. If temperature is higher, time should be shorter (+10°C → -1sec). Power dissipation of iron should be smaller than 20W, and temperatures should be controllable. Surface temperature of the device should be under 230°C.

■ Rework

1. Customer must finish rework within 5 sec under 260°C.
2. The head of iron can not touch copper foil
3. Twin-head type is preferred.



■ Avoid rubbing or scraping the resin by any object, during high temperature, for example reflow solder etc.

Test circuit and handling precautions**■ Test circuit****■ Handling precautions****1. Over-current-proof**

Customer must apply resistors for protection; otherwise slight voltage shift will cause big current change (Burn out will happen).

2. Storage

2.1 It is recommended to store the products in the following conditions:

Humidity: 60% R.H. Max.

Temperature : 5°C~30°C (41°F~86°F)

2.2 Shelf life in sealed bag: 12 month at <5°C~30°C and <30% R.H. After the package is

Opened, the products should be used within a week or they should be keeping to stored at ≤ 20 R.H. with zip-lock sealed.

3. Baking

It is recommended to baking before soldering when the pack is unsealed after 72hrs. The Conditions are as followings:

3.1 70 $\pm$ 3°C x(12~24hrs) and <5%RH, taped reel type

3.2 100 $\pm$ 3°C x(45min~1hr), bulk type

3.3 130 $\pm$ 3°C x(15~30min), bulk type