

# 4-Chip-Built-In RGBW 5050 SMD Datasheet

Part No.: LLH-RGBW-5050

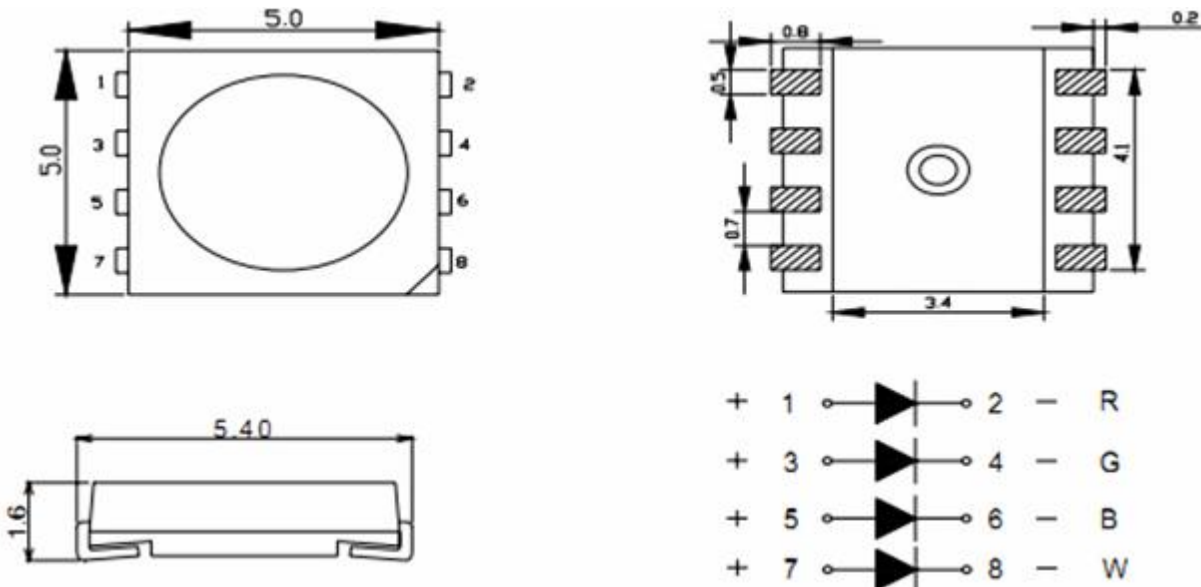
## Features:

- Dimension:5.0\*5.0\*1.6mm,Top led
- Emitting color: RGBW, 4 chips
- Wide view angle
- Comply ROHS standard
- Package:1000pcs/Reel

## Application:

- LCD backlight
- Mobile phones: LCD, keypad and symbol
- Status indicators: Consumer & industrial electronics
- General use

## Package Outline Dimension:



## NOTES:

1. All dimensions are in millimeters.
2. Tolerances are  $\pm 0.1$ mm, unless otherwise noted.

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

Parameter	Symbol	Value	Unit
Forward current	If	20	mA

Reverse voltage	Vr	5	V
Power dissipation	Pd	280	mW
Soldering Temperature	Tsol	260(for 5seconds)	°C
Operating temperature range	Top	-25~+80	°C
Storage Temperature range	Tstg	-30~+80	°C
Peak pulsing current ( 1/8 duty f=1KHz )	Ifp	100	mA
Electrostatic discharge	ESD	500	V

### Electrical & Optical characteristics(Ta=25°C)

Parameter	Test Condition	Symbol	Value			Unit
			Min	Typ.	Max	
Color Temperature Wavelength	If=20mA	CT	6000	6500	7000	K
		CT	2600	3000	3400	
		$\lambda_d$ (R)	620	625	630	nm
		$\lambda_d$ (G)	515	520	525	nm
		$\lambda_d$ (B)	465	470	475	nm
Forward Voltage	If=20mA	Vf	3.0	3.2	3.4	V
		Vf (R)	1.8	2.0	2.2	
		Vf (G)	3.0	3.2	3.4	
		Vf (B)	3.0	3.2	3.4	
Luminous Intensity	If=20mA	Iv	6.0	7.0	8.0	Im
		Iv	2.5	3	3.5	
		Iv	3.5	4	4.5	
		Iv	1.5	2	2.5	

Viewing Angle at 50% IV	If=20mA	$2\theta_{1/2}$	---	120	---	Deg
Reverse current	If=20mA	Ir	---	10	---	$\mu A$

### Reliability test items and conditions:

No.	Test Item	Test Condition	Sample Size	Ac/Re
1	DC Operation Life	If=DC60mA Temp: Room temperature Test Time:1000hrs	22	0/1
2	High Temperature High Humidity	Temp.:+85°C RH=85%HR Test Time:1000hrs	22	0/1
3	Thermal Shock	-35°C---~---+85°C 20min 10s 20min Test Time:300cycles	22	0/1
4	High Temperature Storage	High Temp.:+85°C Test Time:1000hrs	22	0/1
5	Low Temperature Storage	Low Temp.: -35°C Test Time:1000hrs	22	0/1
6	Temperature Cycle	-35°C---~---+100°C 15min 5min 15min Test time:300cycles	22	0/1
7	Reflow Soldering	Operation heating: 260°C(Max.) within 10seconds(Max.)	22	0/1

## Judgment criteria of failure for the reliability

- Iv: below 50% of the initial value
- Vf: over 20% of the upper limit value
- Ir: over 2 times of the upper limit value

Note: Measurement should be taken between 2 hours and after the test leds have been returned to normal ambient condition after completion of each test.

## Precautions for use this 4-Chip-Built-In SMD 5050 RGBW LED:

1. Customer must apply the current limiting resistor on the circuit so as to drive the LEDs within the rated current. Other slight voltage maybe cause big current change and burn out will open.
2. Caution should be taken not to overload the LEDs with instantaneous high voltage at the turning ON and OFF of the circuit.

### 3. Storage:

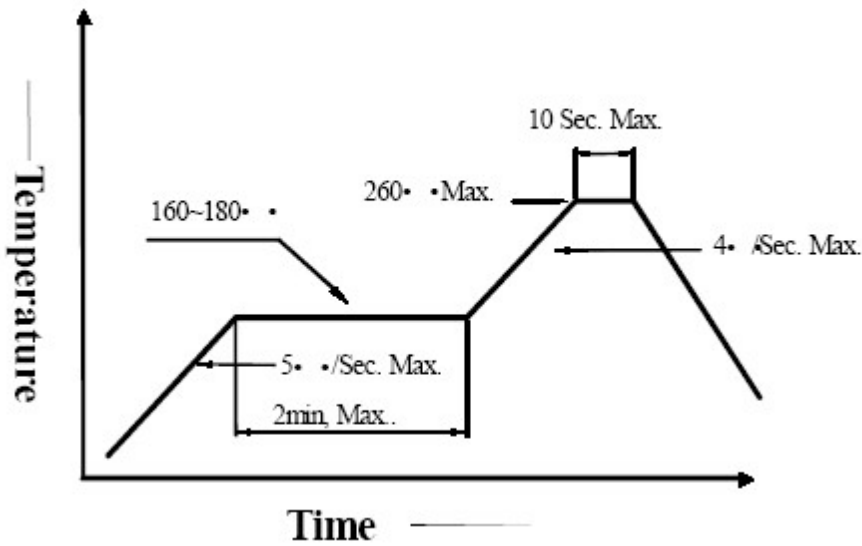
- Don't open the moisture proof bag before ready to use the this LEDs.
- The LEDs should be kept at 30°C or less and 60%RH or less before opening the package.
- The max. Storage period before opening the package is 1 year.
- After opening the package, the LEDs should be kept at 30°C/35%RH or less, and it should be used within 7 days.
- If the LEDs be kept over the conditions of 3.4, baking is required before mounting. Baking conditions as below:60±5°C for 12 hrs.

### 4. Soldering conditions:

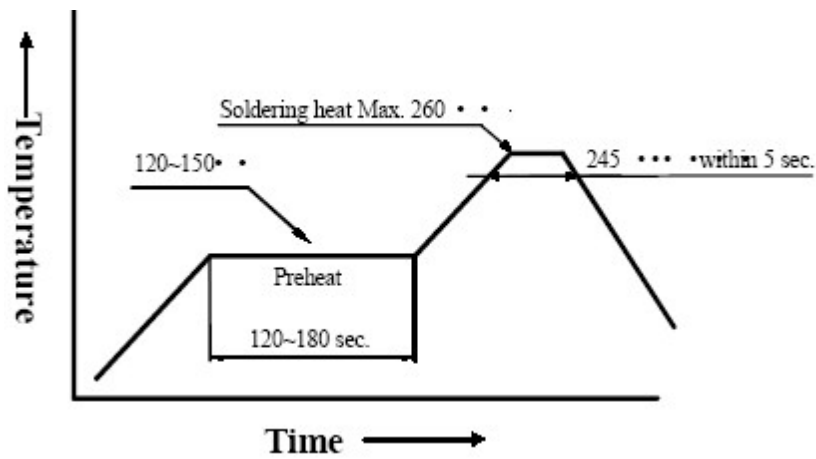
- Manual of soldering

The temp. of the iron should be lower than 300°C and soldering within 3sec,per solder-pad is to be observed.

- Pb- free solder temp. –time profile:



➤ Dip soldering (Wave Soldering) temp. -time profile :



Note:

1. Reflow soldering should not be done more than two times.
2. Don't put stress on the LEDs when soldering.
3. Don't warp the circuit board before it have been returned to normal ambient conditions after soldering.