WS2850B

5050 RGB 3 in 1 LED

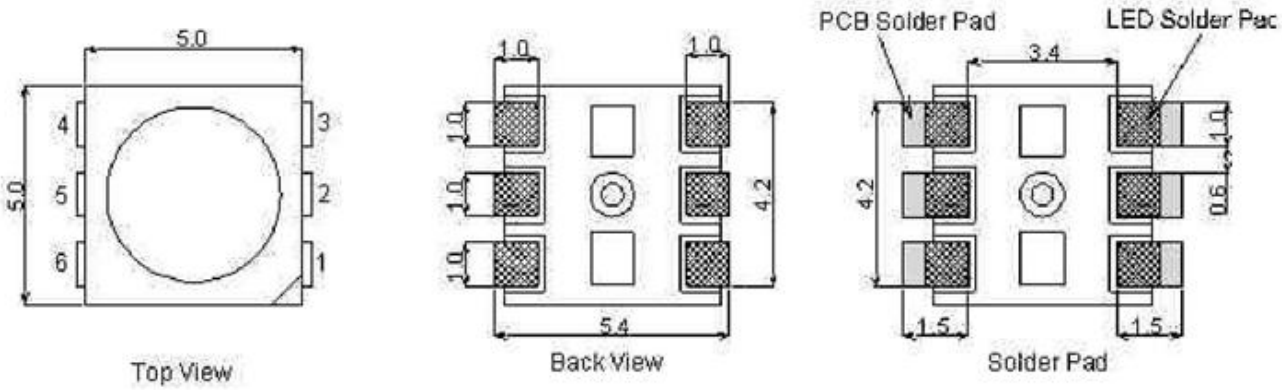
Features and Benefits

- Use original SANAN RGB Chips,R/G/B chip's wavelength and brightness with same BIN material.High color consistency
- Red copper bracket, good heat dissipation, reliable quality.
- Epoxy resin encapsulation has strong anti-vulcanization performance, good air tightness, high transparency, high temperature resistance and luster.
- LED Frame support white and black surface, convenient for customers to choose.

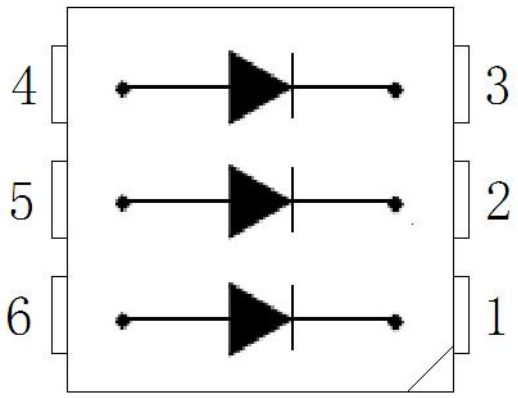
Applications

- LED Pixel Light
- LED flexible strip,LED rigid strip
- LED Module

Mechanical Dimensions



PIN Configuration



PIN Function

NO.	Symbol	PIN
1	B-	BLUE NEGATIVE
2	R-	RED NEGATIVE
3	G-	GREEN NEGATIVE
4	G+	GREEN POSITIVE
5	R+	RED POSITIVE
6	B+	BLUE POSITIVE

Absolute Maximum Ratings（TA=25℃）

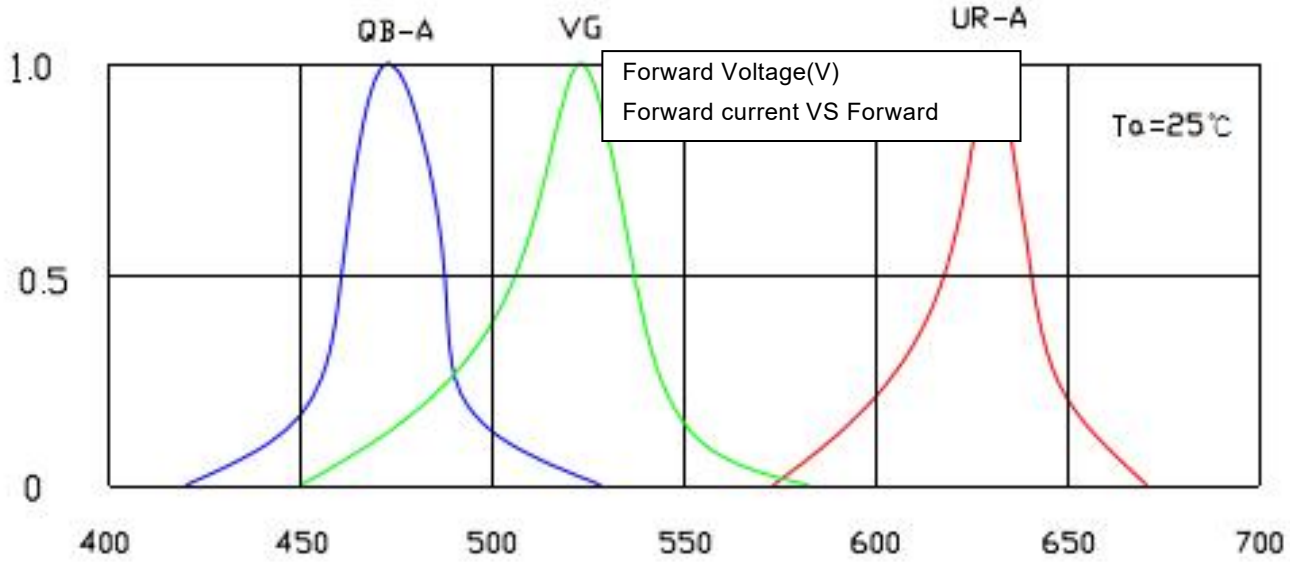
Parameter	Color	Symbol	Maximum Value	Unit
Power Dissipation	GB	Pd	100	mw
	R		75	
Forward Current	RGB	IF	20	mA
Pulse Current	R	IFP	50	mA
	GB		100	
Reverse Voltage	RGB	VR	5	V
Soldering Temperature	RGB	tsol	245	℃
Operating Temperature	RGB	Topr	-40～65	℃
Storage Temperature	RGB	Tstg	-20～80	℃

IFP Condition: Pulse current<"1/10 Cyc, 0.1ms width"

Opto-Electronical Specification（TA=25℃）

Parameter	Color	Unit	Min.	Typ.	Max.	Unit	Condition
Forward Voltage	GB	Vf	----	3.2	----	V	IF=20mA
	R		----	2.0	----		
Brightness	R	Iv	----	700	750	mcd	
	G		----	1400	1500		
	B		----	320	350		
Lighting Angle	RGB	$\theta_{1/2}$	----	120	----	deg	
Current Intensity Reverse	RGB	IR	----		10	uA	VR=5V
Main Wavelength	R	λd	----	621	----	nm	IF=20mA
	G		----	518	----		
	B		----	471	----		

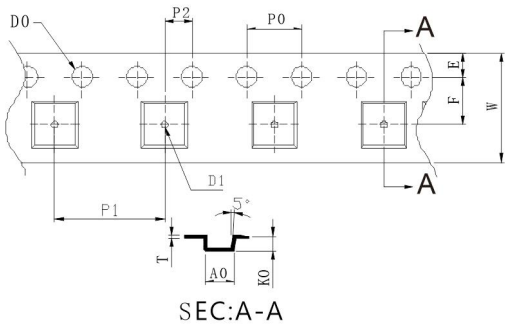
Typical photoelectric parameter curves



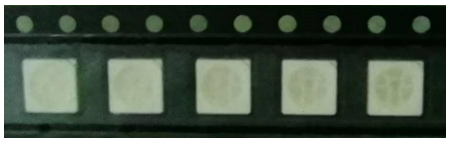
Packing Standard

Carrier tape

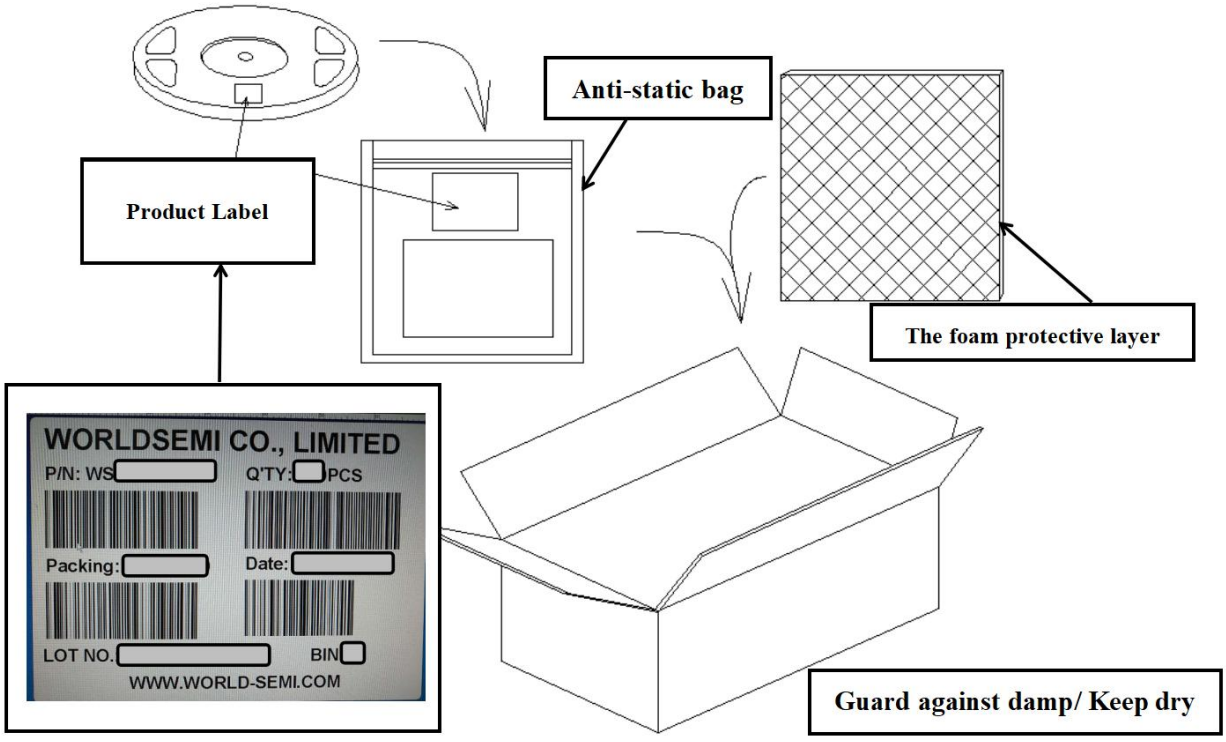
SYMBOL	SPEC
W	12.00±0.20
T	0.25±0.02
A0	5.35±0.10
B0	5.75±0.10
K0	1.85±0.10
E	1.75±0.10
F	5.50±0.10
D0	1.60±0.10
D1	1.60±0.10
P1	8.00±0.10
P2	2.00±0.05
10*P0	40.00±0.20



Braiding direction: the missing edge is on the round hole of the carrier



Packing: 1K/Reel: 167*12mm
4.5K/Reel: 327*12mm



Top SMD LED Using Instructions

1. Summary

To make the best use of WORLDSEMI's LED, please refer to the below precautions, they are of same usage method as other electronic components.

2. Cautions

2.1. Dust & Cleaning

The surface of the LED is encapsulated with modified epoxy resin because it plays a very good role in protecting the optical performance and aging resistance. The modified epoxy resin is easy to stick with dust and must be kept clean. When there's a certain amount of dust on the surface of the LED, it won't affect brightness, but dust proof should be taken care of. Promoting the use of unsealed package in preference to others and the assembled LEDs should be placed in a clean container. Avoid using the organic solvents to clean the dust on the LED surface and it's necessary to confirm whether the cleaning fluid will dissolve the LED.Do not clean the LEDs by the ultrasonic. Some parameters affecting the LED performance must be evaluated if have no alternative but to the ultrasonic cleaning method, such as ultrasonic power, baking time and assembly conditions, etc.

2.2. Moisture-proof packaging

TOP SMD LEDs are moisture sensitive components. LEDs are packaged in aluminum foil bag to prevent the LED from absorbing moisture during transport and storage. desiccant is placed in the bags to absorb moisture. If the LED absorbs moisture, then it evaporates and expands when in reflow process, which may break the colloid from the bracket and damage the optical performance of LED. For this reason, moisture-proof packaging is to prevent the from absorbing moisture during transport and storage. But usually the protection time can only maintain 1 ~ 2 months. During SMT, please refer to the definition of material moisture-proof Grade (MSL) stipulated by IPC/JEDECJ-STD-020 for MSL control. The moisture resistance rating of WORLDSEMI's LED is: **LEVEL 5a.**

Tabel I - IPC/JEDEC J-STD-020 Moisture/Reflow Sensitivity Classification

MSL Level	Workshop Life	
	Time	Conditions
LEVEL1	Unlimited	≤30°C/85%RH
LEVEL2	1 Year	≤30°C/60%RH
LEVEL2a	4 Weeks	≤30°C/60%RH
LEVEL3	168 Hours	≤30°C/60%RH
LEVEL4	72 Hours	≤30°C160%RH
LEVEL5	48 Hours	≤30°C/60%RH
LEVEL5a	**24 Hours**	**≤30°C/60%RH**
LEVEL6	Take-out and Use immediately	≤30°C/60%RH

2.3 SMT Instruction:

2.3.1 It is recommended that opening the Vacuum plastic bag before SMT, and put the whole reel into the oven for dehumidification and drying (Bake at 70 ~ 75℃ ≧24H);

2.3.2 From the led taken out of the oven to the completion of high temperature welding (including multiple reflow welding, tin immersion, wave soldering, heating maintenance and other high temperature operations/operations), the time period shall be controlled within 24Hours (Under condition of T<30℃, RH<60%);

2.3.3 After the LED paste is printed on the PCBA, SMT process should be completed as soon as possible, it is recommended not to exceed 1H;

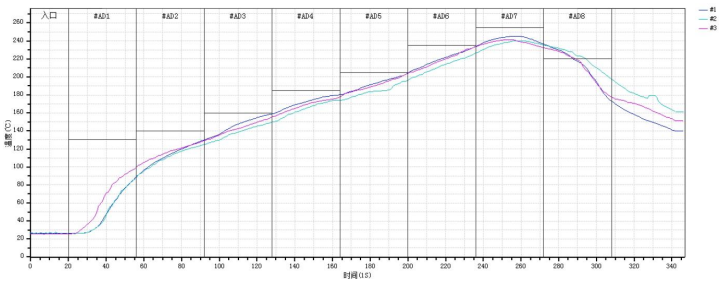
2.3.4 Bulk material LED, such as production surplus, machine material, maintenance material, can not be used directly if exposed to the air for a long time. It is recommended to be dehumidified and dried before being used.

Whole reel baking: 70 ~ 75℃* ≧24H or bulk led baking: 120℃*4H.

3. SMT Reflow

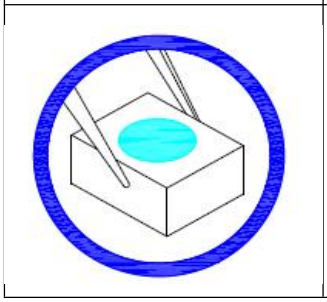
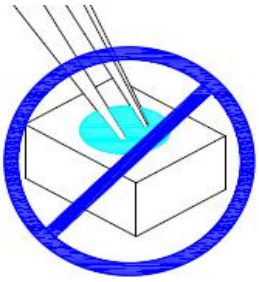
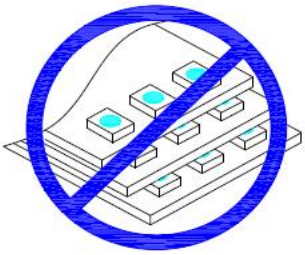
Refer to the parameters listed below, the experimental results prove that the TOP SMD LED meets the JEDEC J-STD-020C standards. As a general guideline, it is recommended to follow the SMT reflow temperature curve recommended by the solder paste manufacturer.

Curve Description	Lead-free
30℃ ~ 150℃ preheating slope	1～4 ℃/s
30℃ ~ 150℃ preheating time	60～120 s
150℃ to 200℃ constant temperature slope	0～3 ℃/s
150℃ ~ 200℃ constant temperature time	60～120 s
LIQUID REGION temperature (TL)	217℃
Peak Temperature (Tp)	245℃
Reflow slopeTime (tp)	0～3 ℃/s
Reflow soldering time	45-90 s
Cooling Rate	-4～0 ℃/s
Room Temperature to Peak Holding Time	<6 min



Remarks: 1. All the above temperatures refer to the temperatures measured on the surface of the package body

4. Assembly Precautions

1. Clip the LED from its side.	2. Neither directly touch the gel surface with the hand or sharp instrument, it may damage its internal circuit.	3. Not to be double stacked, it may damage its internal circuit.	4. Can not be stored in or applied in the acidic sites of PH<7.
			

Modify Record

Version №	Status Bar	Modify Content Summary	Date	Reviser	Approved
V1.0	N	New	20171010	Shen JinGuo	Yin HuaPing
V1.2	M	Modify Precautions Section	20180719	Shen JinGuo	Yin HuaPing
V1.3	M	Detail Description Update	20220307	Yu XingHui	Yin HuaPing

Remarks: Initial version: V1.0； Version number plus "0.1" after each revision;

Status bar: N--New, A--Add, M--Modify, D--Delete.