

承認書

Specification For Approval

Customer: (客戶)

Description: (產品描述) LED (SMD) 5050RGBW

Part number: (產品型號) TJ-S5050RGBW

Date: (日期)

Approved By: (客戶承認)

--

Prepared By: (我司承認)

Approval	Check	Design	Sales
----------	-------	--------	-------

核准

審核

製作

業務

Customer Service Hotline: **400-676-8616**

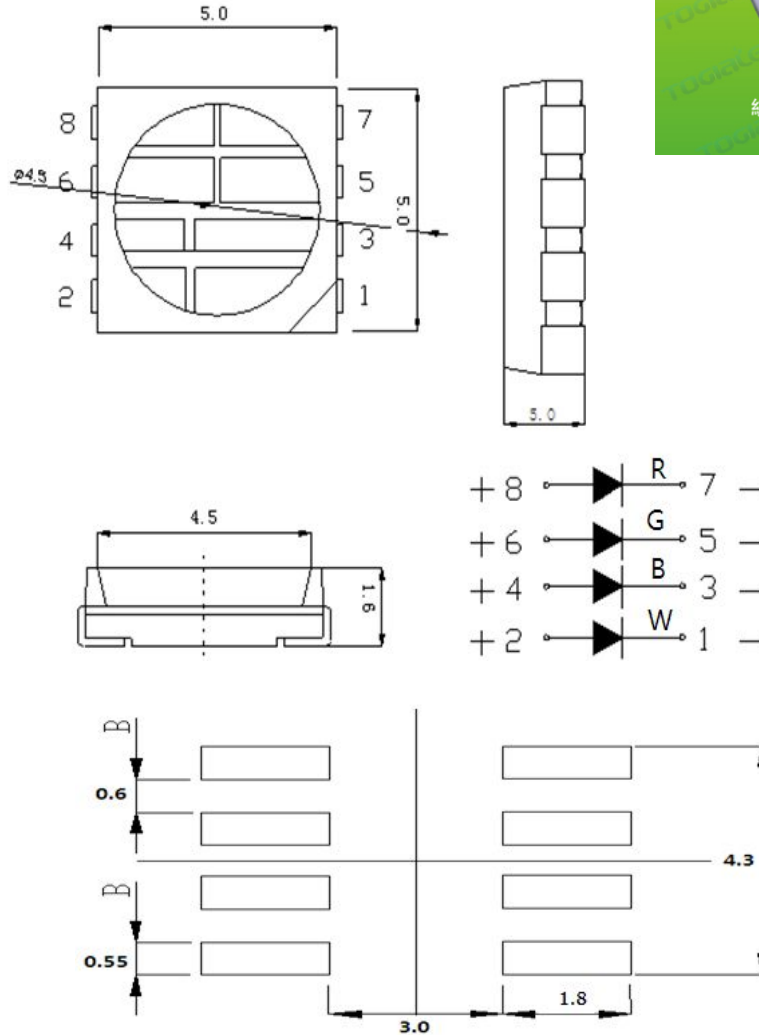
TEL: 0769-8662 5999 0769-8200 2226

E-MAIL : dg@togialed.com

FAX: 0769-8200 2227

WEB: www.togialed.com

Package Dimensions:



Notes

- 1 All dimensions are in millimeter.
- 2 Lead spacing in measured where the lead emerge from the package.
- 3 prodruded resin under flange is 1.5mm max.
- 4 specifications are subject to change without notice.
- 5 Tolerance is $\pm 0.3\text{mm}$ unless otherwise noted.
- 6 Driving LED without heat sinking device is forbidden.
- 7 It is strongly recommended that the temperature of lead be not higher than 55oC.
- 8 Proper current derating must be observed to maintain junction temperature below the maximum.
- 9 LEDs are not designed to be driven in reserve bias.
- 10 Warps the degree $\pm 0.5\text{mm}$.

Flux Characteristics at TJ = 25°C:

Color	Radiometric Power (mcd)		Radiation Pattern
	Minimal	Maximum	
Red	500	900	Lambertian
Blue	300	500	Lambertian
Green	1200	1800	Lambertian
White	2700	3500	Lambertian

Optical Characteristics at TJ = 25°C (1) :

Peak Wavelength λ_p				Spectral Half-width (nm) $\Delta \lambda 1/2$	Temperature Coefficient / Dominant Wavelength $\Delta \lambda D / \Delta T_J$ (nm/ °C)
Color	Min.	Typ.	Max.		
Red	620	~	625	~	~
Blue	460	~	465	~	~
Green	520	~	525	~	~
White	6000		7000		

● MaxLite maintains a tolerance of ± 1 nm for peak wavelength measurements.

Optical Characteristics at TJ = 25°C (2) :

Color	Radiation Pattern	Total Included Angle $\theta_{0.90V}$ (degrees)	Viewing Angle $2\theta_{1/2}$ (degrees)	Typical Candela on Axis (cd)
Red	Lambertian	140	120	-

Green	Lambertian	140	120	-
Blue	Lambertian	140	120	-
White	Lambertian	140	120	-

Electrical Characteristics at $T_J = 25^{\circ}\text{C}$:

Forward Voltage VF (V)				Dynamic Resistance (Ω)	Temperature Coefficient Of VF (mV/ $^{\circ}\text{C}$) $\Delta \text{VF} / \Delta \text{TJ}$	Thermal Resistance Junction to Slug ($^{\circ}\text{C} / \text{W}$)
Color	Min.		Max.			
Red	1.8	-	2.4	1.0	-2	5
Green	2.8	-	3.5	1.0	-2	5
Blue	2.8	-	3.5	1.0	-2	5
White	2.8	-	3.5	1.0	-2	5

Absolute Maximum Rating At Temperature=25:

Parameter	Maximum Rating
Power Dissipation	0.3W
Peak Forward Current (1/10 Duty Cycle, 0.1ms Pulse Width)	50mA
Continuous Forward Current	20mA
Derating Linear From 30 $^{\circ}\text{C}$	0.5mA/ $^{\circ}\text{C}$
Reverse Voltage	5V
Operating Temperature Range	-20 $^{\circ}\text{C}$ to + 80 $^{\circ}\text{C}$

Storage Temperature Range	-30°C to + 100°C
Lead Soldering Temperature [1.6mm(.063") From Body]	260°C for 5 Seconds

Moisture Sensitivity Level - JEDEC 2a:

Level	Floor Life		Soak Requirements			
			Standard		Accelerated Environment	
	Time	Conditions	Time(hours)	Conditions	Time(hours)	Conditions
2a	4 weeks	≤30° C / 60% RH	696 ² +5/-0	30°C / 60% RH	120 +1/-0	60°C / 60% RH

- The standard soak time includes a default value of 24 hours for semiconductor manufacture's exposure time (MET) between bake and bag and includes the maximum time allowed out of the bag at the distributor's facility.
- Table below presents the moisture sensitivity level definitions per IPC/JEDEC's J-STD-020C. 60% RH

Level	Floor Life		Soak Requirements			
			Standard		Accelerated Environment	
	Time	Conditions	Time(hours)	Conditions	Time(hours)	Conditions
1	Unlimited	≤30° C / 85% RH	168 +5/-0	85°C / 60% RH		
2	1 year	≤30° C / 60% RH	168 +5/-0	30°C / 60% RH		
2a	4 weeks	≤30° C / 60% RH	696 ² +5/-0	30°C / 60% RH	120 +1/-0	60°C / 60% RH
3	168 hours	≤30° C / 60% RH	192 ² +5/-0	30°C / 60% RH	40 +1/-0	60°C / 60% RH
4	72 hours	≤30° C / 60% RH	96 ² +5/-0	30°C / 60% RH	20+1/-0	60°C / 60% RH
5	48 hours	≤30° C / 60% RH	72 ² +5/-0	30°C / 60% RH	15 +1/-0	60°C / 60% RH
5a	24 hours	≤30° C / 60% RH	48 ² +5/-0	30°C / 60% RH	10 +1/-0	60°C / 60% RH
6	Time on Label (TOL)	≤30° C / 60% RH	Time on Label (TOL)	30°C / 60% RH		

Moisture Sensitivity Level - JEDEC 2a:

Level	Floor Life		Soak Requirements			
			Standard		Accelerated Environment	
	Time	Conditions	Time(hours)	Conditions	Time(hours)	Conditions
2a	4 weeks	≤30° C / 60% RH	696 ² +5/-0	30°C / 60% RH	120 +1/-0	60°C / 60% RH

- The standard soak time includes a default value of 24 hours for semiconductor manufacture's exposure time (MET) between bake and bag and includes the maximum time allowed out of the bag at the distributor's facility.
- Table below presents the moisture sensitivity level definitions per IPC/JEDEC's J-STD-020C. 60% RH

Level	Floor Life		Soak Requirements			
			Standard		Accelerated Environment	
	Time	Conditions	Time(hours)	Conditions	Time(hours)	Conditions
1	Unlimited	≤30° C / 85% RH	168 +5/-0	85°C / 60% RH		
2	1 year	≤30° C / 60% RH	168 +5/-0	30°C / 60% RH		
2a	4 weeks	≤30° C / 60% RH	696 ² +5/-0	30°C / 60% RH	120 +1/-0	60°C / 60% RH
3	168 hours	≤30° C / 60% RH	192 ² +5/-0	30°C / 60% RH	40 +1/-0	60°C / 60% RH
4	72 hours	≤30° C / 60% RH	96 ² +5/-0	30°C / 60% RH	20+1/-0	60°C / 60% RH
5	48 hours	≤30° C / 60% RH	72 ² +5/-0	30°C / 60% RH	15 +1/-0	60°C / 60% RH
5a	24 hours	≤30° C / 60% RH	48 ² +5/-0	30°C / 60% RH	10 +1/-0	60°C / 60% RH
6	Time on Label (TOL)	≤30° C / 60% RH	Time on Label (TOL)	30°C / 60% RH		

Qualification Reliability Testing:

Stress Test	Stress Conditions	Stress Duration	Failure Criteria
Room Temperature Operating Life (RTOL)	25°C, IF = max DC (Note 1)	1000 hours	Note 2
Wet High Temperature Operating Life (WHTOL)	85°C/60%RH, IF = max DC (Note 1)	1000 hours	Note 2
Wet High Temperature Storage Life (WHTSL)	110°C, non-operating	1000 hours	Note 2
High Temperature Storage Life (HTSL)	85°C/85%RH, non-operating	1000 hours	Note 2
Low Temperature Storage Life (LTSL)	-40°C, non-operating	1000 hours	Note 2
Non-operating Temperature Cycle (TMCL)	-40°C to 120°C, 30 min. dwell, <5 min. transfer	200 cycles	Note 2
Non-operating Thermal Shock (TMSK)	-40°C to 120°C, 20 min. dwell, <20 sec transfer	200 cycles	Note 2
Mechanical Shock	1500 G, 0.5 msec. pulse, 5 shocks each 6 axis		Note 3
Natural Drop	On concrete from 1.2 m, 3X		Note 3
Variable Vibration Frequency	10-2000-10 Hz, log or linear sweep rate, 20 G about 1 min., 1.5 mm, 3X/axis		Note 3
Solder Heat Resistance (SHR)	260°C ± 5°C, 10 sec		Note 3
Solderability	Steam age for 16 hrs., then solder dip at 260°C for 5 sec.		Solder coverage on lead

Notes:

1. Depending on the maximum derating curve.
2. Criteria for judging failure

Item	Test Condition	Criteria for Judgement	
		Min.	Max.
Forward Voltage (VF)	IF = max DC	-	Initial Level x 1.1
Luminous Flux or Radiometric Power (ΦV)	IF = max DC	Initial Level x 0.7	-
Reverse Current (IR)	VR = 5V	-	50 μA

* The test is performed after the LED is cooled down to the room temperature.

3. A failure is an LED that is open or shorted.

Precaution for Use

- Storage

Please do not open the moisture barrier bag (MBB) more than one week. This may cause the leads of LED discoloration. We recommend storing MaxLite's LEDs in a dry box after opening the MBB. The recommended storage conditions are temperature 5 to 30°C and humidity less than 40% RH. It is also recommended to return the LEDs to the MBB and to reseal the MBB.

- The slug is not electrically neutral. Therefore, we recommend to isolate the heat sink.
- The slug is to be soldered. If not, please use the heat conductive adhesive.
- Any mechanical force or any excess vibration shall not be accepted to apply during cooling process to normal temperature after soldering.
- Please avoid rapid cooling after soldering.
- Components should not be mounted on warped direction of PCB.
- Repairing should not be done after the LEDs have been soldered. When repairing is unavoidable, a heat plate should be used. It should be confirmed beforehand whether the characteristics of the LEDs will or will not be damaged by repairing.
- This device should not be used in any type of fluid such as water, oil, organic solvent and etc. When cleaning is required, isopropyl alcohol should be used.
- When the LEDs are illuminating, operating current should be decided after considering the package maximum temperature.
- The appearance and specifications of the product may be modified for improvement without notice.