
SAMPLE APPROVAL SHEET

DESCRIPTIONS:

- 5.0x5.0x1.6mm SMD LED
- Emitting Color: Blue/Red/Green
- Lens Color: Water Clear

CUSTOMER: _____

P/N: **L5050RGB** _____

CUSTOMER P/N: _____

CUSTOMER APPROVED SIGNATURES

APPROVED BY	CHECKED BY

◆ Device Selection Guide

Part No.	Chip		Lens color
L5050RGB	Material	Emitted color	Water clear
	(InGaN)	BLUE	
	(InGaAlP)	RED	
	(InGaN)	GREEN	

◆ Absolute Maximum Ratings at T_A=25°C

Parameter	Symbol	BLUE	RED	GREEN	Unit
Power Dissipation	P _D	100	62	100	mW
Forward Current	I _F	25	25	25	mA
Peak Forward Current*1	I _{FP}	100	100	100	mA
Reverse Voltage	V _R	5	5	5	V
Operating Temperature	T _{opr}	-40°C To +85°C			
Storage Temperature	T _{stg}	-40°C To +85°C			

Notes:

*1: Pulse width≤0.1ms, Duty cycle≤1/10

◆ Electrical / Optical Characteristics at T_A=25°C

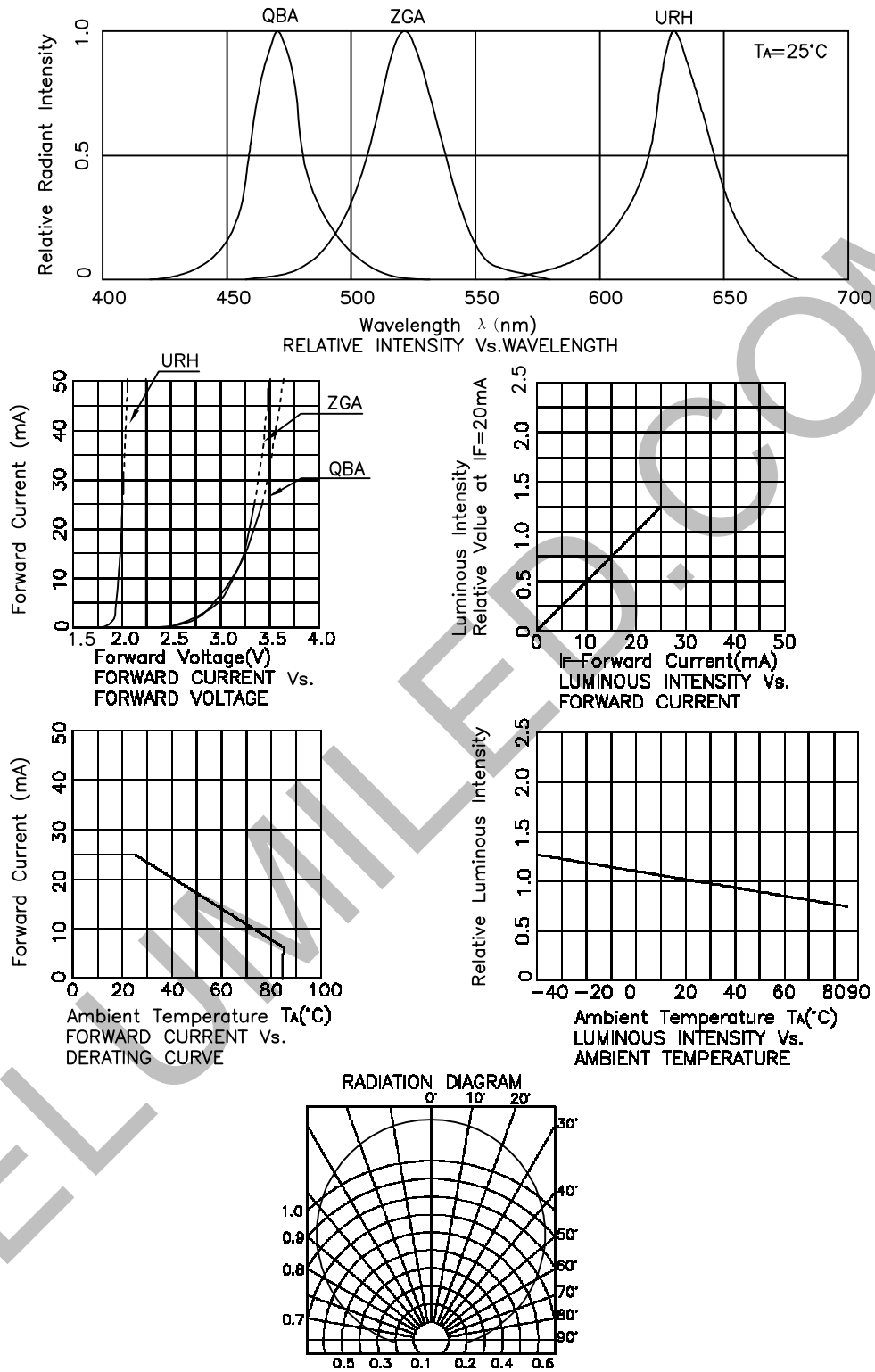
Parameter	Symbol	Device	Min.	Typ.	Max	Unit	Test Conditions
Forward Voltage	V _F	BLUE RED GREEN	2.8 1.8 2.8	—	3.6 2.6 3.6	V	I _F =20mA
Reverse Current	I _R	BLUE RED GREEN	—	—	10	μA	V _R =5V
Dominate Wavelength	λ _D	BLUE RED GREEN	464 617 518	—	473 629 530	nm	I _F =20mA
Luminous Intensity	I _v	BLUE RED GREEN	295 385 1100	—	500 650 1800	mcd	I _F =20mA
Viewing Angle	2θ1/2	BLUE RED GREEN	—	120 120 120	—	Deg.	I _F =20mA

Remarks:

If special sorting is required (e.g. binning based on forward voltage, luminous intensity, or chromaticity), the typical accuracy of the sorting process is as follows:

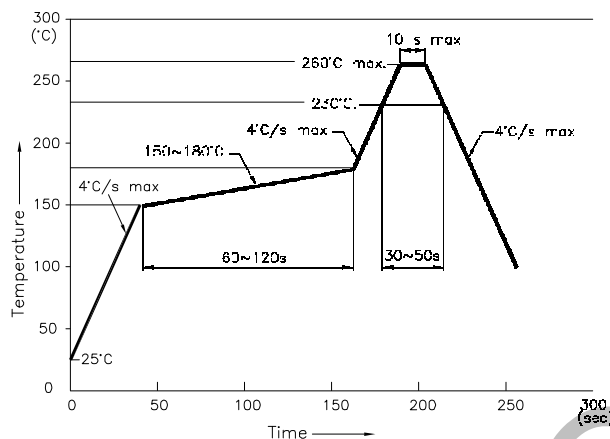
1. wavelength: ±1nm
2. Luminous Intensity: ±15%
3. Forward Voltage: ±0.1V

◆ Typical Electrical/Optical Characteristics Curves



◆ Soldering Profile

Reflow Soldering Profile For Lead-free SMT Process.

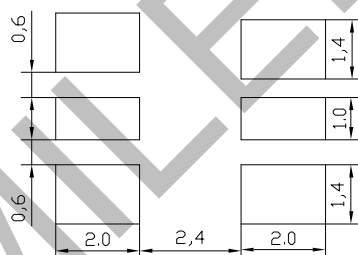


NOTES:

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.

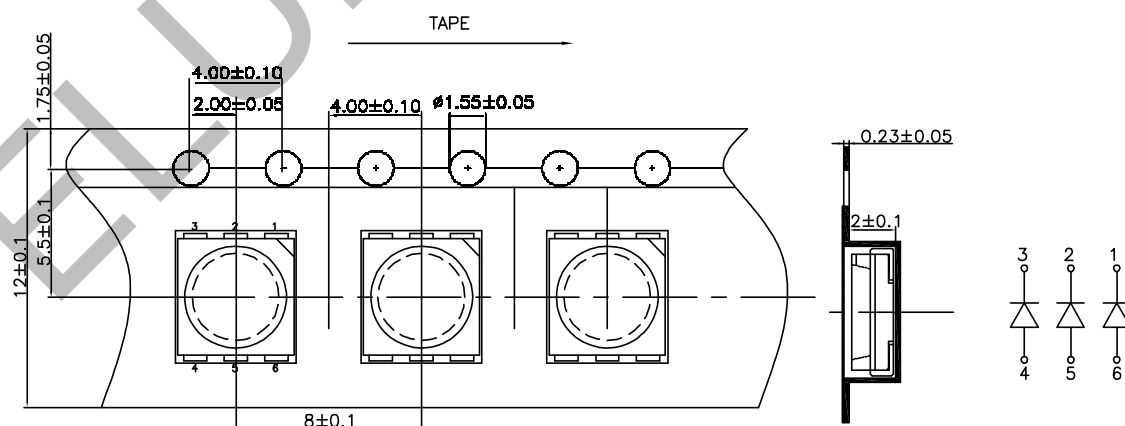
◆ Recommended soldering pattern

(Units:mm)



◆ Tape specifications

(Units:mm)



◆ λ_D Rank

BLUE

Rank	$\lambda_D(\text{nm})$		Condition
	Min	Max	
4	464	467	IF=20 mA
5	467	470	
6	470	473	

RED

Rank	$\lambda_D(\text{nm})$		Condition
	Min	Max	
5	617	621	IF=20 mA
6	621	625	
7	625	629	

GREEN

Rank	$\lambda_D(\text{nm})$		Condition
	Min	Max	
7	518	521	IF=20 mA
8	521	524	
9	524	527	
1A	527	530	

Tolerance: $\pm 1 \text{ nm}$

◆ IV Rank

BLUE

Rank	IV(mcd)		Condition
	Min	Max	
S	295	385	IF=20 mA
T	385	500	

RED

Rank	IV(mcd)		Condition
	Min	Max	
T	385	500	IF=20 mA
U	500	650	

GREEN

Rank	IV(mcd)		Condition
	Min	Max	
X	1100	1400	IF=20 mA
Y	1400	1800	

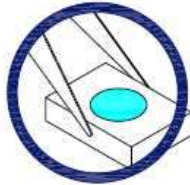
Tolerance: $\pm 15\%$

Handling Precautions

Compare to epoxy encapsulant that is hard and brittle, silicone is softer and flexible. Although its characteristic significantly reduces thermal stress, it is more susceptible to damage by external mechanical force.

As a result, special handling precautions need to be observed during assembly using silicone encapsulated LED products. Failure to comply might leads to damage and premature failure of the LED.

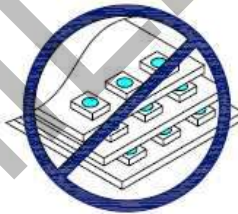
1. Handle the component along the side surfaces by using forceps or appropriate tools.



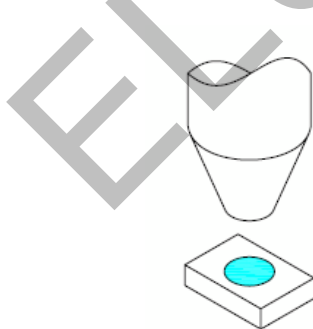
2. Do not directly touch or handle the silicone lens surface. It may damage the internal circuitry.



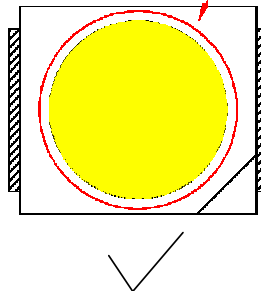
3. Do not stack together assembled PCBs containing exposed LEDs. Outside impact may scratch the silicone lens or damage the internal circuitry.



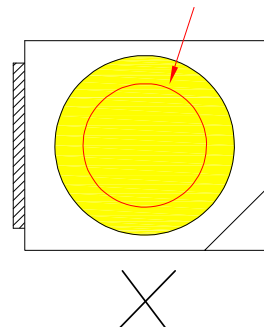
4. During surface-mounting, the pickup capillary diameter should be larger than the silicone lens to insure the capillary does not scratch or damage the lens.



Outer diameter of collet should be larger than the lighting area



Outer diameter of collet



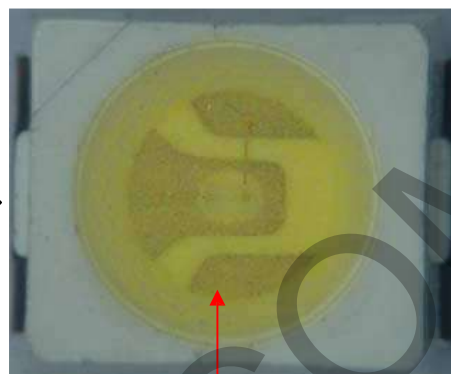
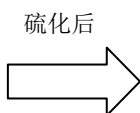
Cautions

一. This product is not anti-sulfide此产品不防硫化

1.The sulfide bad picture硫化后的不良图示:



Normal material
正常材料



Sulfide materials, stent Bowl Cup silver layer black
硫化后支架碗杯银层变黑

2.Anti-sulfide method防止LED硫化的方法:

a. Selection of anti-vulcanization of LED products选用防硫化的LED产品

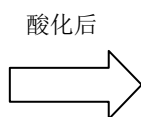
b. Control the concentration of sulfide ions in the external environment, such as the content of the raw materials of sulfide sulfur ions in the air content 控制外界环境中硫离子浓度，如原材料、空气中硫离子的含量

二. This product is not anti-acidification此产品不防酸化

1. The acidification bad picture酸化后的不良图示:



Normal material
正常材料



The acidification materials, bleached phosphor
酸化后产品出现漂白现象

2. Anti-acidification method防止LED酸化的方法:

Using the process, put an end to use with acidic glass glue, such as coated LED colloid or fixed LED application products 使用过程中，杜绝使用带酸性的玻璃胶水，如涂覆LED胶体或固定LED应用产品

◆ CAUTIONS:

1. Storage

- In order to avoid the absorption of moisture, it is recommended to store in the dry box (or desiccator) with a desiccant. Otherwise, to store them in the following environment is recommended.

Temperature: 5°C~30°C

Humidity: 60%HR max.

- Attention after opened

However LED is corresponded SMD, when LED be soldered dip, interfacial separation may affect the light transmission efficiency, causing the light intensity to drop. Attention in followed. a.

After opened and mounted, the soldering shall be quickly.

- b. Keeping of a fraction

Temperature: 5°C~40°C

Humidity: less than 30%

- In case or more than 1 week passed after opening or change color of indicator on desiccant components shall be dried 10-12hr. at 60°C±3°C.
- In case of supposed the components is humid, shall not be dried dip-solder just before.
100Hr at 80°C±3°C or 12Hr at 100°C±3°C

2. ESD (Electrostatic Discharge)

Static Electricity or power surge will damage the LED.

The following procedures may decrease the possibility of ESD damage.

- All production machinery and test instruments must be electrically grounded.
- Use a conductive wrist band or anti-electrostatic glove when handling these LEDs.
- Maintain humidity level of 50% or higher in production areas.
- Use anti-static packaging for transport and storage.

◆ Revision History:

Rev. No.	Change description	Date	Prepared by	Checked by	Approved by
A/0	New-made specification	2008/8/13			
A/1	Revision code	2009/11/23			
A/2	Revision intensity rank	2011/03/07			
A/3	Increased attention	2012/04/29			