

PRELIMINARY SPEC

5.0x5.0mm SMD CHIP LED

PART NO: MS-AF5550QBAZGAURHC

BLUE
GREEN
RED



ATTENTION
OBSERVE PRECAUTIONS
FOR HANDLING
ELECTROSTATIC
DISCHARGE
SENSITIVE
DEVICES

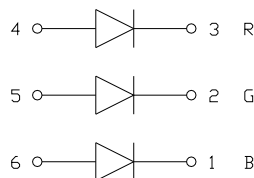
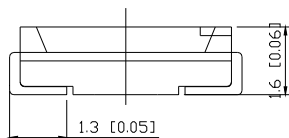
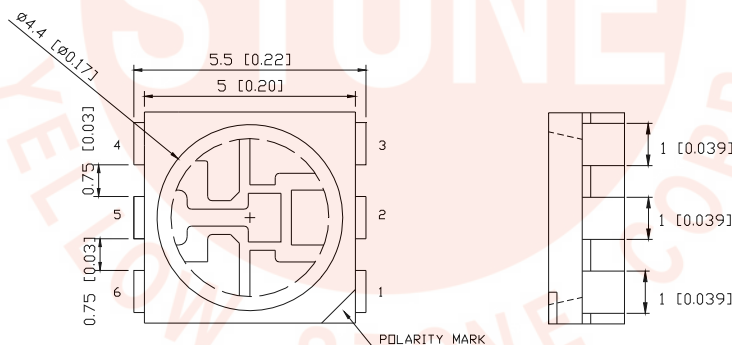
Features

- 5.0mmx5.0mm SMT LED, 1.6mm THICKNESS.
- WIDE VIEWING ANGLE.
- IDEAL FOR BACKLIGHT AND INDICATOR.
- PACKAGE : 1000PCS / REEL.
- RoHS COMPLIANT.

Applications

- Automotive: backlighting in dashboard and switch.
- Telecommunication: indicator and back-lighting in telephone and fax.
- Flat backlight for LCD switch and symbol.

Package Dimensions



Notes:

1. All dimensions are in millimeters.
2. Tolerance is ± 0.25 unless otherwise noted.
3. Specifications are subject to change without notice.

◆ Device Selection Guide

Part No.	Chip		Lens color
MS-AF5550QBAZGAURHC	Material	Emitted color	Water clear
	(InGaN)	BLUE	
	(InGaN)	GREEN	
	(InGaAlP)	RED	

◆ Absolute Maximum Ratings at T_A=25°C

Parameter	Symbol	BLUE	GREEN	RED	Unit
Power Dissipation	P _D	100	100	62	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

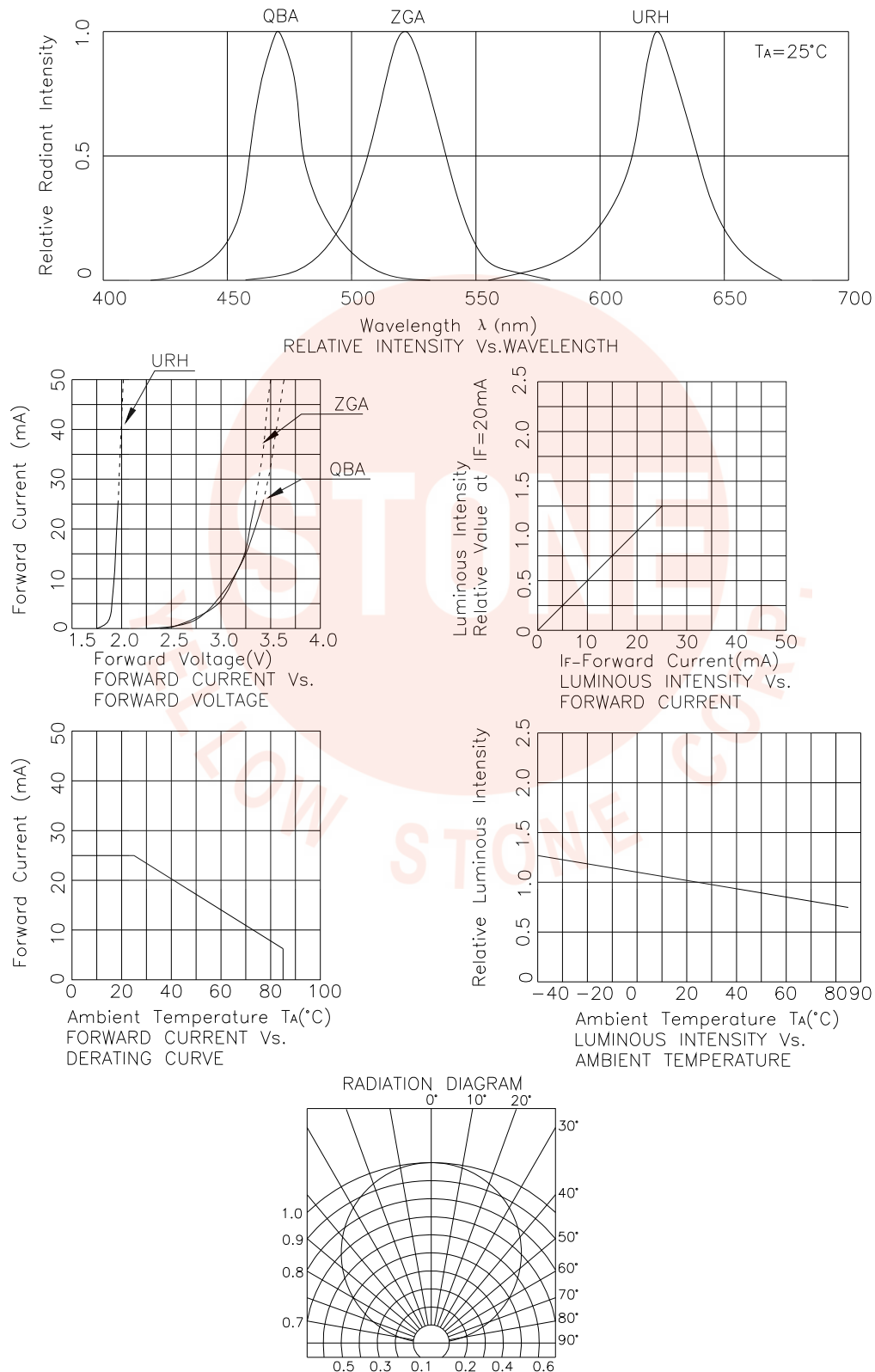
Parameter	Symbol	Device	Min.	Typ.	Max	Unit	Test Conditions
Forward Voltage	V _F	BLUE GREEN RED	2.8 2.8 1.8	—	3.6 3.6 2.6	V	I _F =20mA
Reverse Current	I _R	BLUE GREEN RED	—	—	10	μA	V _R =5V
Dominate Wavelength	λ _D	BLUE GREEN RED	464 518 617	—	473 530 629	nm	I _F =20mA
Luminous Intensity	I _v	BLUE GREEN RED	385 2300 500	—	845 3500 845	mcd	I _F =20mA
Viewing Angle	2θ _{1/2}	BLUE GREEN RED	—	120 120 120	—	Deg.	I _F =20mA

Remarks:

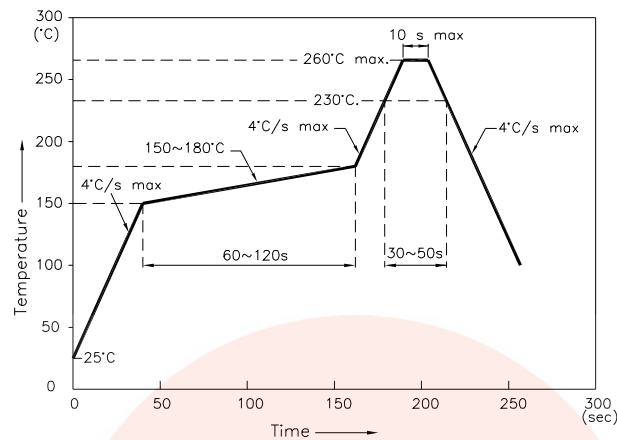
If special sorting is required (e.g. binning based on forward voltage, luminous intensity, or chromaticity), the typical accuracy of the sorting process is as follows:

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

Typical Electrical/Optical Characteristics Curves

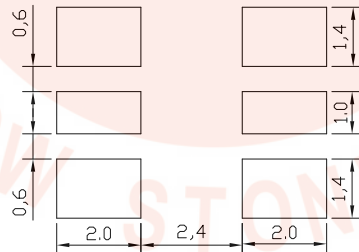


◆ Soldering Profile

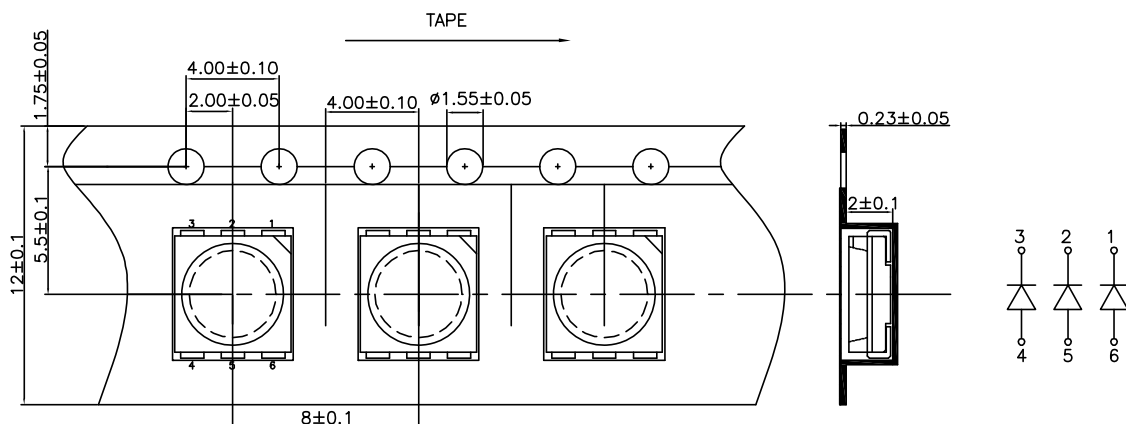


- We recommend the reflow temperature $245^{\circ}\text{C} (\pm 5^{\circ}\text{C})$. The maximum soldering temperature should be limited to 260°C .
- Reflow soldering should not be done more than one times.
- Stress on the LEDs should be avoided during heating in soldering process.
- After soldering, do not deal with the product before its temperature drop down to room temperature.

◆ Recommended soldering pattern (Units:mm)



◆ Tape specifications (Units:mm)



◆ λ_D Rank

BLUE

Rank	λ_D (nm)		Condition
	Min	Max	
4	464	467	IF=20 mA
5	467	470	
6	470	473	

GREEN

Rank	λ_D (nm)		Condition
	Min	Max	
7	518	521	IF=20 mA
8	521	524	
9	524	527	
1A	527	530	

RED

Rank	λ_D (nm)		Condition
	Min	Max	
5	617	621	IF=20 mA
6	621	625	
7	625	629	

Tolerance: ± 1 nm

◆ IV Rank

BLUE

Rank	IV(mcd)		Condition
	Min	Max	
T	385	500	IF=20 mA
U	500	650	
V	650	845	

GREEN

Rank	IV(mcd)		Condition
	Min	Max	
ZA	2300	2900	IF=20 mA
ZB	2900	3500	

RED

Rank	IV(mcd)		Condition
	Min	Max	
U	500	650	IF=20 mA
V	650	845	

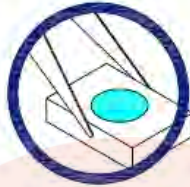
Tolerance: $\pm 15\%$

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.

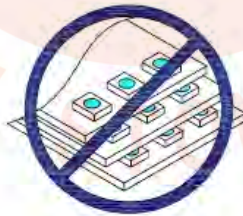
1. Handle the component along the side surfaces by using forceps or appropriate tools.



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



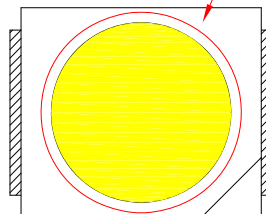
3. Do not stack together assembled PCBs containing exposed LEDs. Outside impact may scratch the silicone lens or damage the internal circuitry.



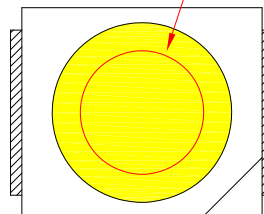
4. During surface-mounting, the pickup capillary diameter should be larger than the silicone lens to insure the capillary does not scratch or damage the lens.



Outer diameter of collet should be larger than the lighting area



Outer diameter of collet



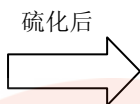
Cautions

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

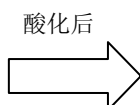
b. Control the concentration of sulfide ions in the external environment, such as the content of the raw materials of sulfide sulfur ions in the air content
控制外界环境中硫离子浓度，如原材料、空气中硫离子的含量

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 a humidity level of 50% or higher in production areas.
 - Use anti-static packaging for transport and storage.