



PRELIMINARY SPEC

5.0x5.0mm SMD CHIP LED

PART NO: MS-AF5550SYBCX3

YELLOW



ATTENTION
OBSERVE PRECAUTIONS
FOR HANDLING
ELECTROSTATIC
DISCHARGE
SENSITIVE
DEVICES

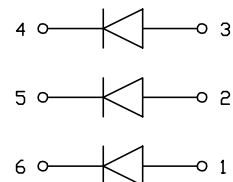
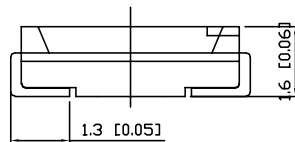
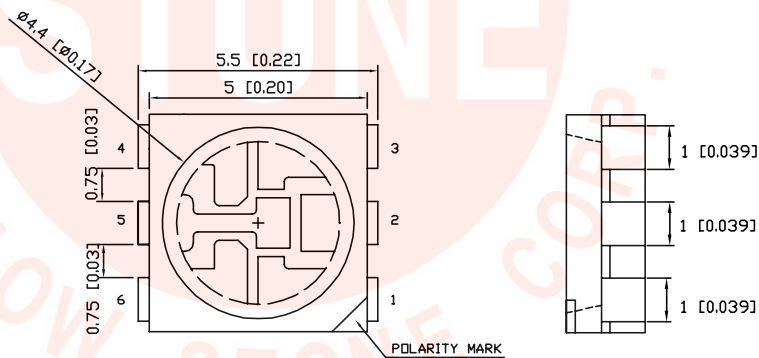
Features

- 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-AF5550SYBCX3	Material	Emitted color	Water clear
	(InGaAlP)	YELLOW	

◆ Absolute Maximum Ratings at T_A=25°C

Parameter	Symbol	Value	Unit
Power Dissipation	P _D	62	mW/per chip
Forward Current	I _F	25	mA/per chip
Peak Forward Current*1	I _{FP}	100	mA/per chip
Reverse Voltage	V _R	5	V/per chip
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

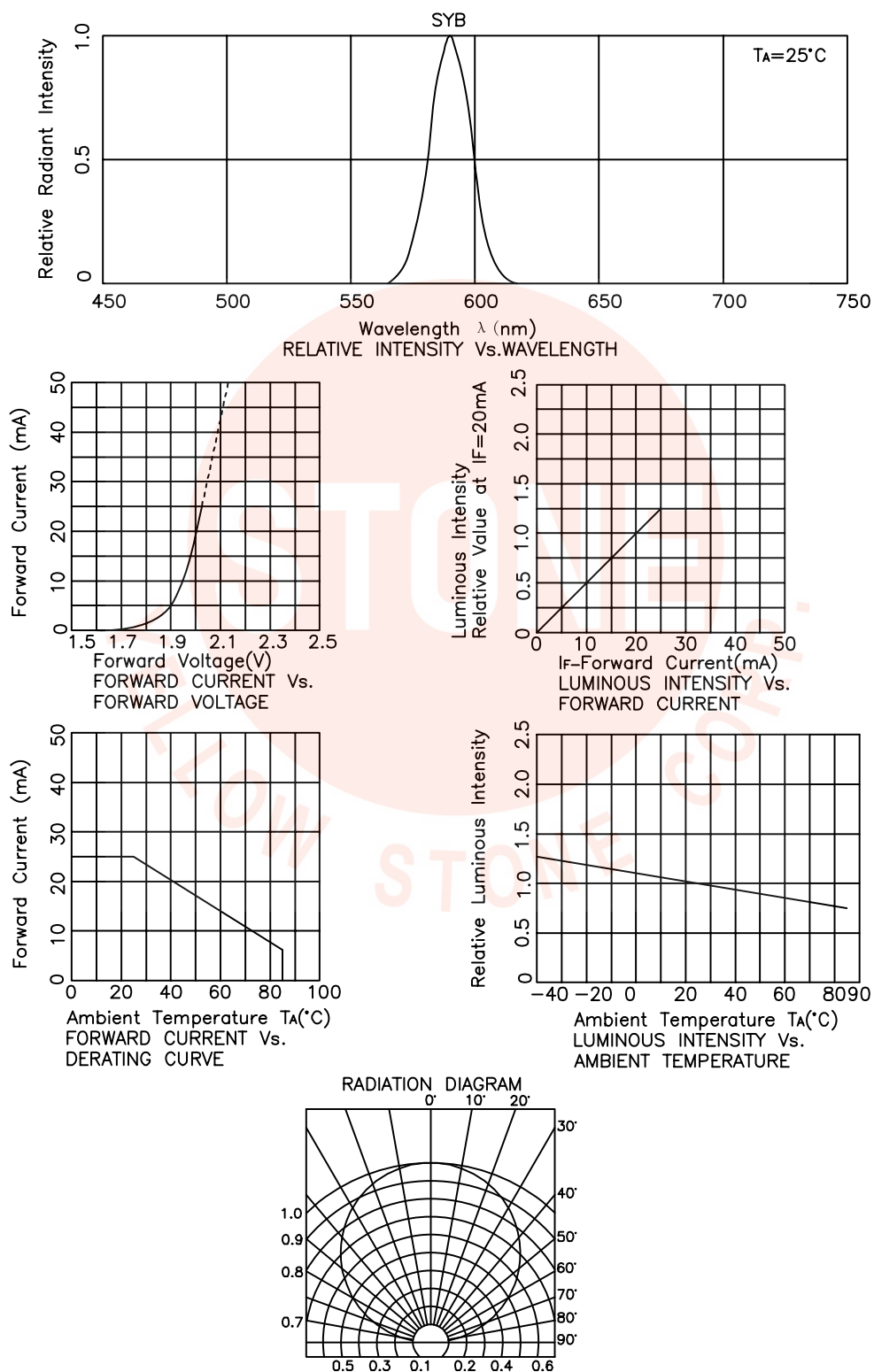
Parameter	Symbol	Min.	Typ.	Max	Unit	Test Conditions
Forward Voltage	V _F	1.8	—	2.6	V	I _F =20mA/per chip
Reverse Current	I _R	—	—	10	μA	V _R =5V/per chip
Dominate Wavelength	λ _D	586	—	594	nm	I _F =60mA/three chip
Luminous Intensity	I _v	650	—	1400	mcd	I _F =60mA/three chip
Viewing Angle	2θ _{1/2}	—	120	—	Deg.	I _F =20mA/per chip

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:

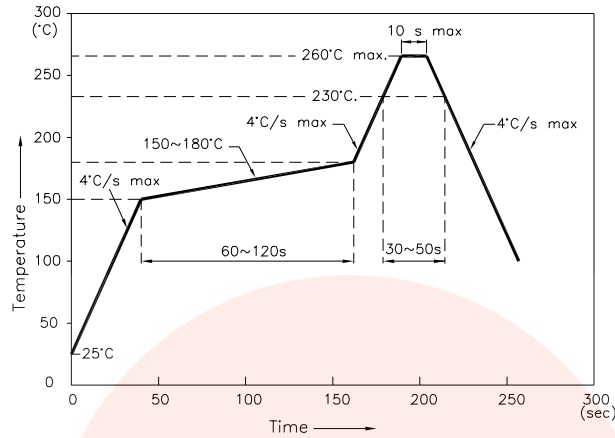
1. wavelength: ±1nm
2. Luminous Intensity: ±15%
3. Forward Voltage: ±0.1V

◆ Typical Electrical/Optical Characteristics Curves



◆ Soldering Profile

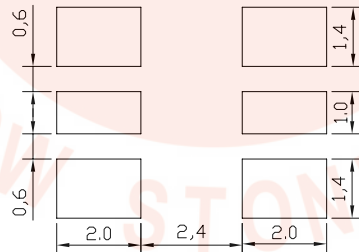
Reflow Soldering Profile For Lead-free SMT Process.



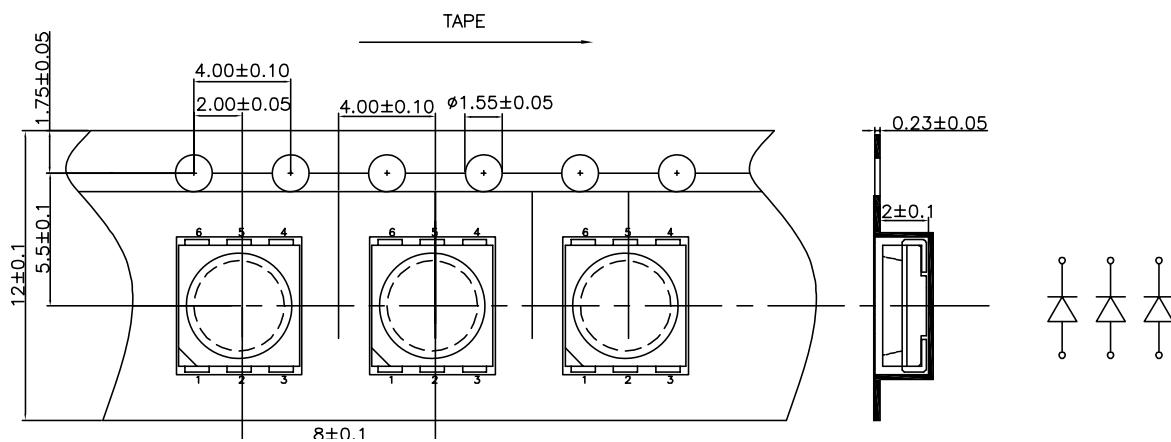
NOTES:

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

Rank	$\lambda_D(\text{nm})$		Condition
	Min	Max	
4	586	588	IF=60mA/three chips
5	588	590	
6	590	592	
7	592	594	

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

◆ IV Rank

Rank	IV(mcd)		Condition
	Min	Max	
V	650	845	IF=60mA/three chips
W	845	1100	
X	1100	1400	

Tolerance: $\pm 15\%$

◆ VF Rank

Rank	VF(V)		Condition
	Min	Max	
B	1.8	2.0	IF=60mA/three chip
C	2.0	2.2	
D	2.2	2.4	
E	2.4	2.6	

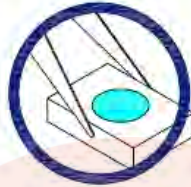
Tolerance: $\pm 0.1\text{V}$

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.

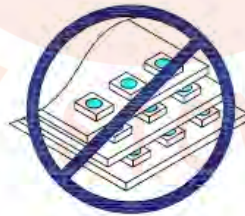
1. Handle the component along the side surfaces by using forceps or appropriate tools.



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



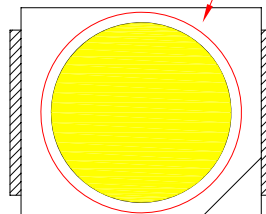
3. Do not stack together assembled PCBs containing exposed LEDs. Outside impact may scratch the silicone lens or damage the internal circuitry.



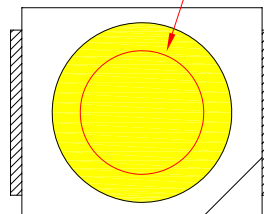
4. During surface-mounting, the pickup capillary diameter should be larger than the silicone lens to insure the capillary does not scratch or damage the lens.



Outer diameter of collet should be larger than the lighting area



Outer diameter of collet



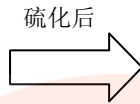
Cautions

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



硫化后



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

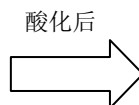
控制外界环境中硫离子浓度，如原材料、空气中硫离子的含量

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



酸化后



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.