

## PRELIMINARY SPEC

3.5x2.8mm SMD CHIP LED

PART NO: MS-PA3528ZYEC YELLOW

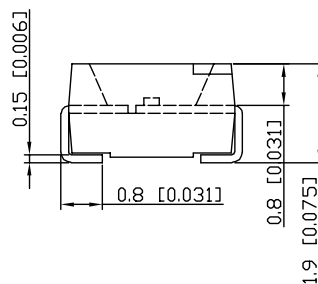
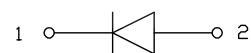
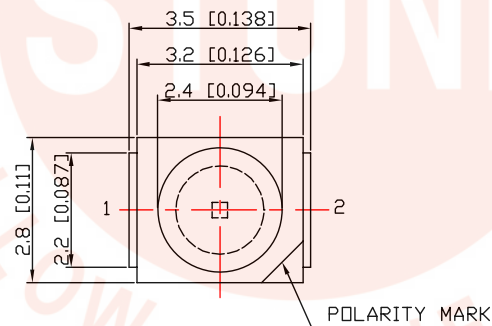
### Features

- 3.5mmx2.8mm SMT LED, 1.9mm THICKNESS.
- WIDE VIEWING ANGLE.
- IDEAL FOR BACKLIGHT AND INDICATOR.
- PACKAGE : 2000PCS / REEL.
- RoHS COMPLIANT.

### Applications

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

### Package Dimensions



### Notes:

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

### ◆ Device Selection Guide

Part No.	Chip		Lens color
MS-PA3528ZYEC	Material	Emitted color	Water clear
	(InGaAlP)	YELLOW	

### ◆ Absolute Maximum Ratings at T<sub>A</sub>=25°C

Parameter	Symbol	Value	Unit
Power Dissipation	P <sub>D</sub>	62	mW
Forward Current	I <sub>F</sub>	25	mA
Peak Forward Current*1	I <sub>FP</sub>	100	mA
Reverse Voltage	V <sub>R</sub>	5	V
Operating Temperature	T <sub>opr</sub>	-40°C To +85°C	
Storage Temperature	T <sub>stg</sub>	-40°C To +85°C	

Notes:

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

### ◆ Electrical / Optical Characteristics at T<sub>A</sub>=25°C

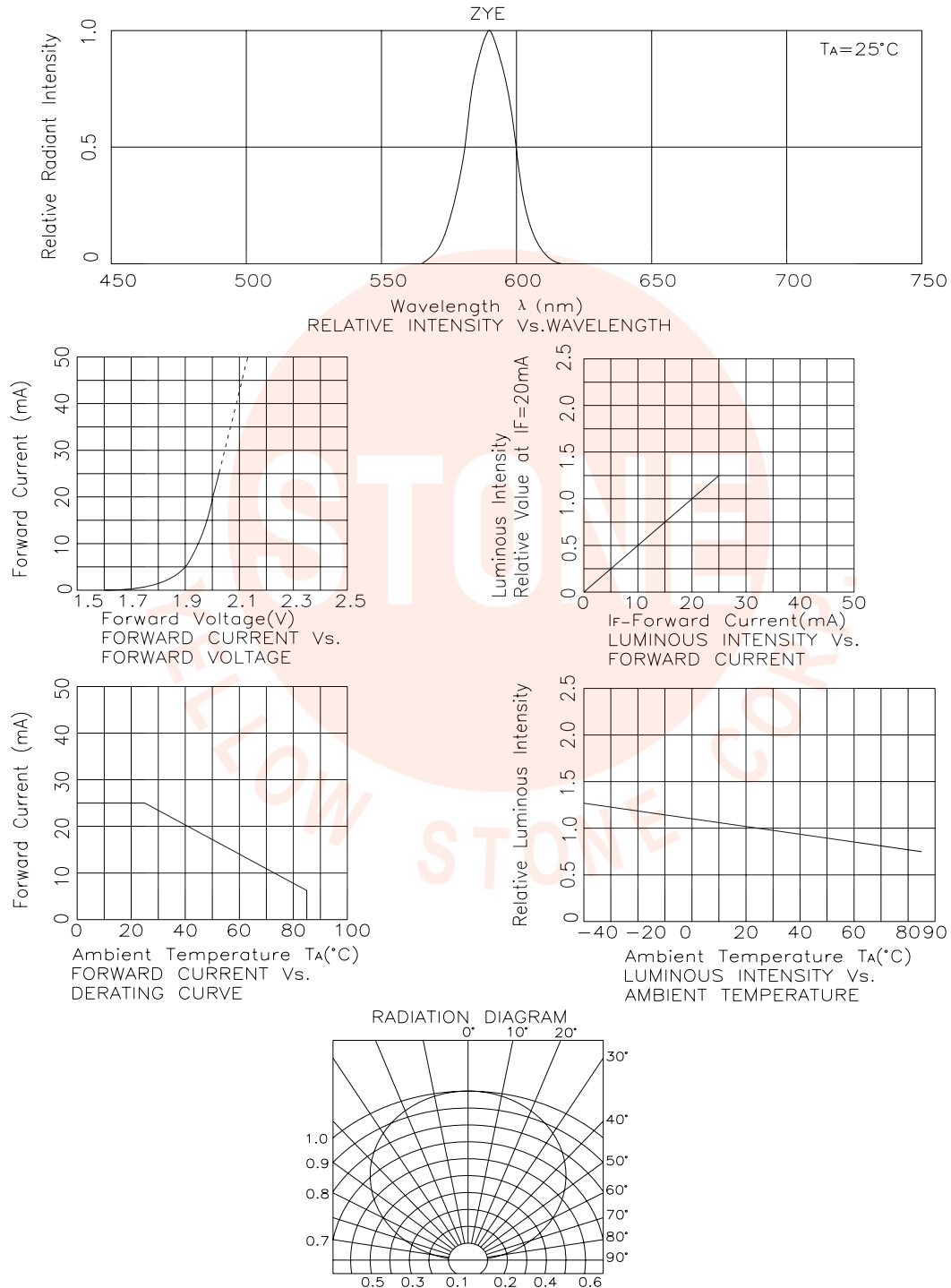
Parameter	Symbol	Min.	Typ.	Max	Unit	Test Conditions
Forward Voltage	V <sub>F</sub>	1.8	—	2.6	V	I <sub>F</sub> =20mA
Reverse Current	I <sub>R</sub>	—	—	10	μA	V <sub>R</sub> =5V
Dominate Wavelength	λ <sub>D</sub>	586	—	594	nm	I <sub>F</sub> =20mA
Luminous Intensity	I <sub>v</sub>	845	—	1800	mcd	I <sub>F</sub> =20mA
Viewing Angle	2θ1/2	—	120	—	Deg.	I <sub>F</sub> =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:

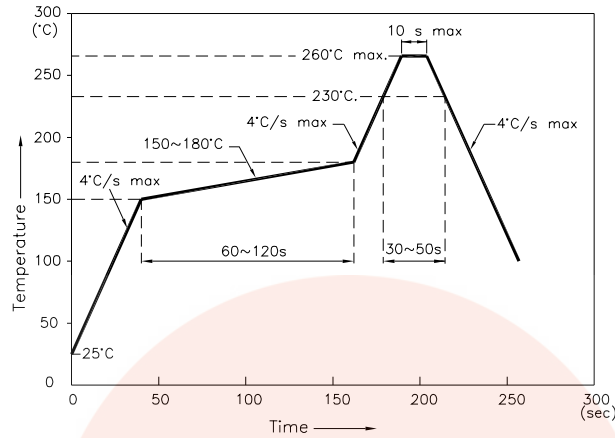
1. wavelength: ±1nm
2. Luminous Intensity: ±15%
3. Forward Voltage: ±0.1V

## Typical Electrical/Optical Characteristics Curves



## ◆ Soldering Profile

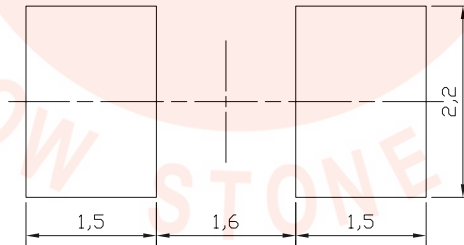
Reflow Soldering Profile For Lead-free SMT Process.



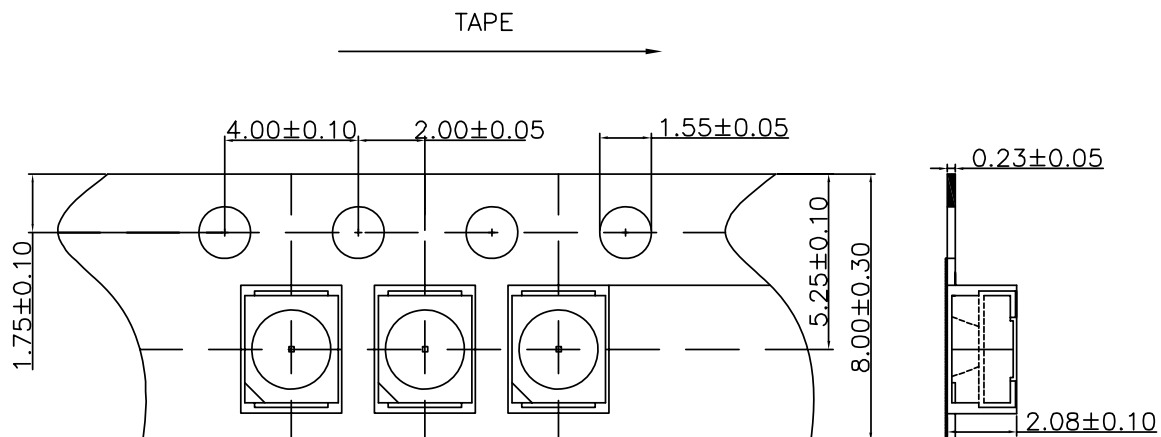
### NOTES:

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)



◆ VF Rank

Rank	VF(V)		Condition
	Min	Max	
B	1.8	2.0	IF=20mA
C	2.0	2.2	
D	2.2	2.4	
E	2.4	2.6	

Tolerance:±0.1V

◆ λD Rank

Rank	λD(nm)		Condition
	Min	Max	
4	586	588	IF=20mA
5	588	590	
6	590	592	
7	592	594	

Tolerance:±1nm

◆ IV Rank

Rank	IV(mcd)		Condition
	Min	Max	
W	845	1100	IF=20mA
X	1100	1400	
Y	1400	1800	

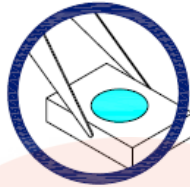
Tolerance:±15%

## Handling Precautions

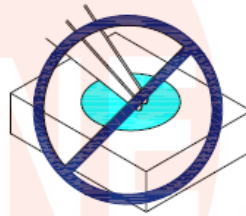
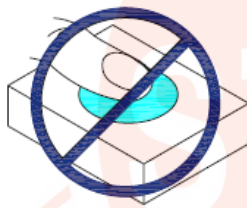
Compare to epoxy encapsulant that is hard and brittle, silicone is softer and flexible. Although its characteristic significantly reduces thermal stress, it is more susceptible to damage by external mechanical force.

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.

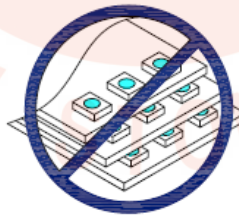
1. Handle the component along the side surfaces by using forceps or appropriate tools.



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



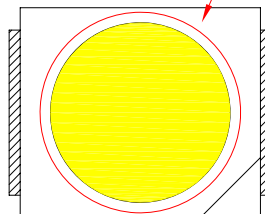
3. Do not stack together assembled PCBs containing exposed LEDs. Outside impact may scratch the silicone lens or damage the internal circuitry.



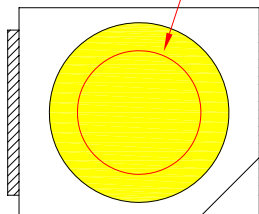
4. During surface-mounting, the pickup capillary diameter should be larger than the silicone lens to insure the capillary does not scratch or damage the lens.



Outer diameter of collet should be larger than the lighting area



Outer diameter of collet





◆ CAUTIONS:

**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.