

## PRELIMINARY SPEC

3.2x1.6mm SMD CHIP LED

PART NO: MS-PT3216ZGSC GREEN



**ATTENTION**  
OBSERVE PRECAUTIONS  
FOR HANDLING  
ELECTROSTATIC  
DISCHARGE  
SENSITIVE  
DEVICES

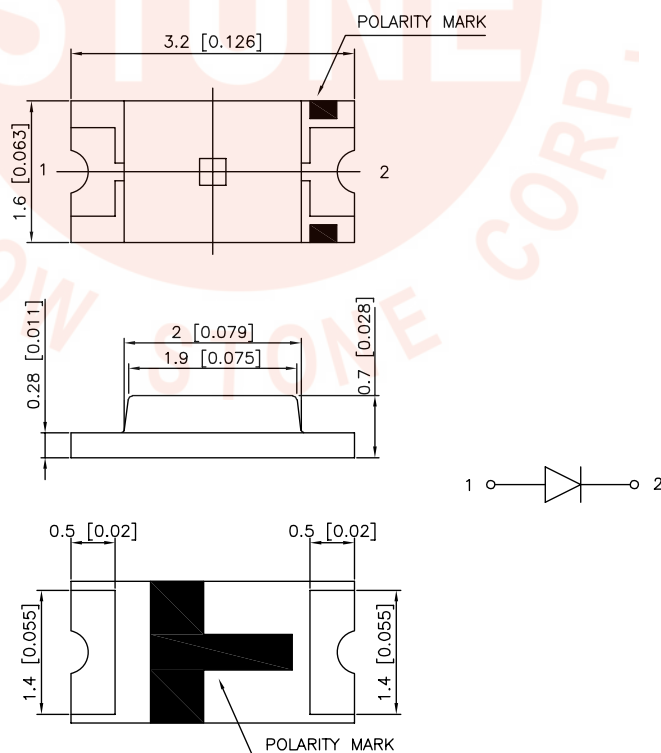
### Features

- 3.2mmx1.6mm SMT LED, 0.7mm THICKNESS.
- WIDE VIEWING ANGLE.
- IDEAL FOR BACKLIGHT AND INDICATOR.
- VARIOUS COLORS AND LENS TYPES AVAILABLE.
- PACKAGE : 4000PCS / 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  $\pm 0.15$  unless otherwise noted.
3. Specifications are subject to change without notice.

### ◆ Device Selection Guide

| Part No.      | Chip     |               | Lens color  |
|---------------|----------|---------------|-------------|
| MS-PT3216ZGSC | Material | Emitted color | Water clear |
|               | (InGaN)  | GREEN         |             |

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

| Parameter              | Symbol           | Value          | Unit |
|------------------------|------------------|----------------|------|
| Power Dissipation      | P <sub>D</sub>   | 100            | 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 cycle≤1/10

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

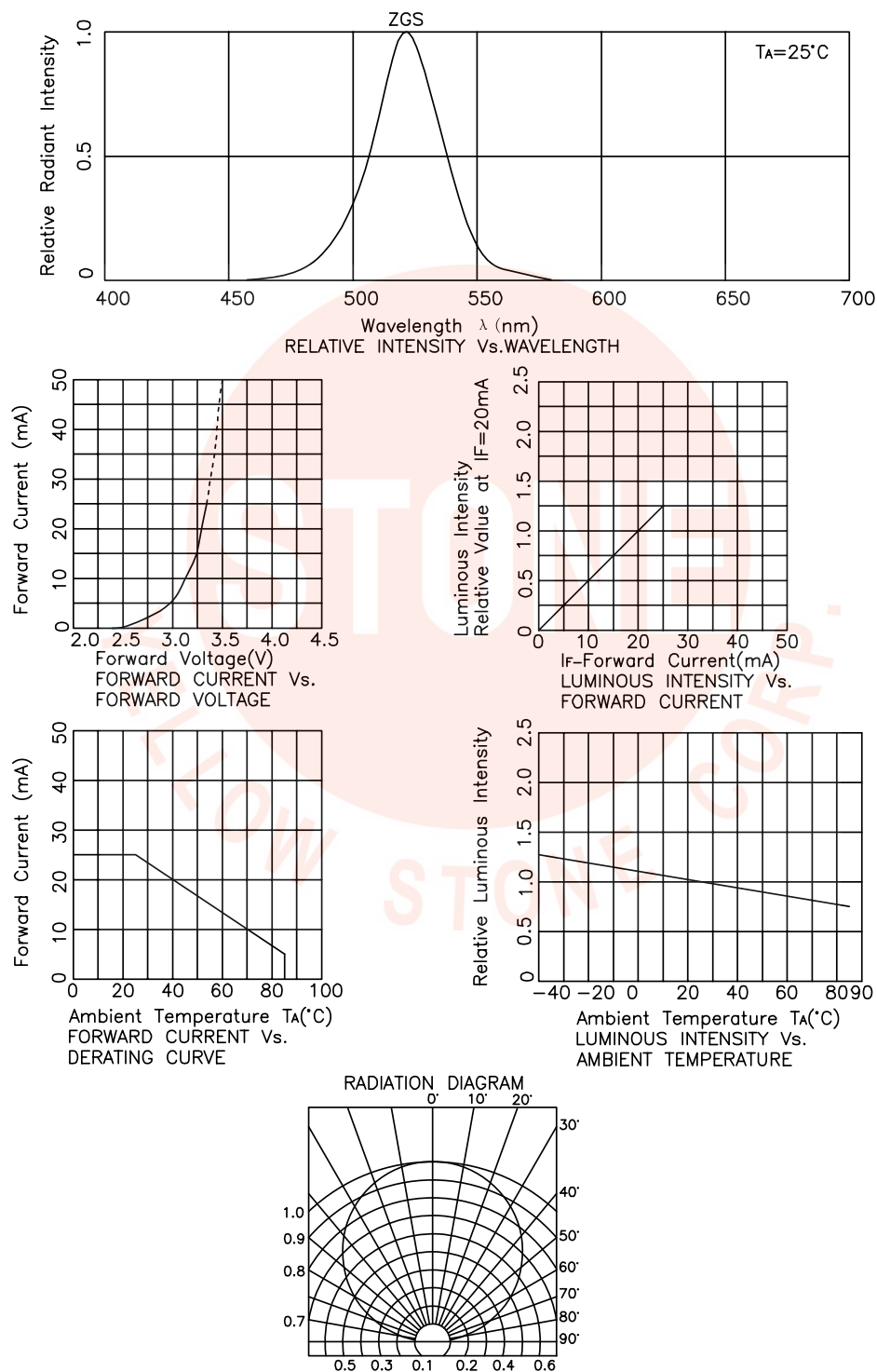
| Parameter           | Symbol         | Min. | Typ. | Max  | Unit | Test Conditions      |
|---------------------|----------------|------|------|------|------|----------------------|
| Forward Voltage     | V <sub>F</sub> | 2.8  | —    | 3.6  | V    | I <sub>F</sub> =20mA |
| Reverse Current     | I <sub>R</sub> | —    | —    | 10   | μA   | V <sub>R</sub> =5V   |
| Dominate Wavelength | λ <sub>D</sub> | 518  | —    | 530  | nm   | I <sub>F</sub> =20mA |
| Luminous Intensity  | I <sub>v</sub> | 650  | —    | 1400 | 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:

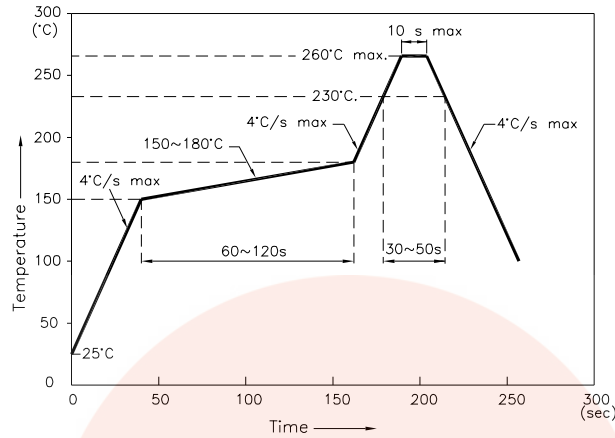
1. wavelength: ±1nm
2. Luminous Intensity: ±15%
3. Forward Voltage: ±0.1V

◆ Typical Electrical/Optical Characteristics Curves



## ◆ Soldering Profile

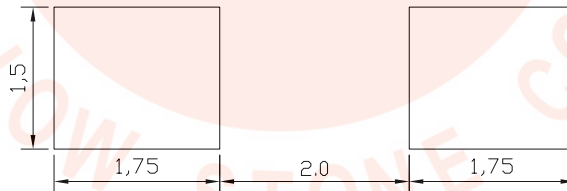
Reflow Soldering Profile For Lead-free SMT Process.



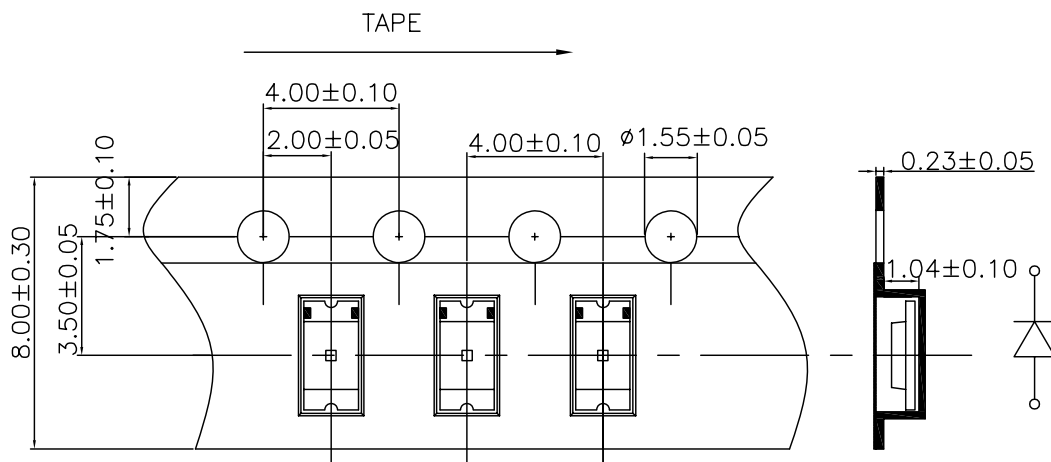
### NOTES:

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)



### ◆ Label Explanation

CODE: XX      XX      XX  
          ↓            ↓            ↓  
          IV        X/Y (WL)    VF  
          亮度      坐标 (波长)   电压

Part NO. : xxxxxxxxxxxxxxxx  
 QTY: xxx PCS                      CODE: xx xx xx  
 Lot NO: xxxxxxxxxxxxxxxx  
 ERP NO. : xxxxxxxxxxxxxxxx  
 Date: xxxxxxxxxxxxxxxx



### ◆ VF Rank

| Rank | VF(V) |     | Condition |
|------|-------|-----|-----------|
|      | Min   | Max |           |
| G    | 2.8   | 3.0 | IF=20mA   |
| H    | 3.0   | 3.2 |           |
| J    | 3.2   | 3.4 |           |
| K    | 3.4   | 3.6 |           |

Tolerance:±0.1V

### ◆ λD Rank

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

Tolerance:±1nm

### ◆ IV Rank

| Rank | IV(mcd) |      | Condition |
|------|---------|------|-----------|
|      | Min     | Max  |           |
| V    | 650     | 845  | IF=20mA   |
| W    | 845     | 1100 |           |
| X    | 1100    | 1400 |           |

Tolerance:±15%



## ◆ CAUTIONS:

### 1.Storage

#### 储存

- Storage condition before opening the package: 5°C~30°C, the largest percentage relative humidity is 60% and the storage period is six month. The LEDs beyond the storage period just can be used after dealing as step 4.
- After opening the package, If the LEDs will be Infrared reflow soldering, Oxygen phase reflow soldering or any other welding.
  - a. must be welding within 24 hours.
  - b. the storage humidity must be below 30% .
- If the situation does not satisfy 2a or 2b, the LEDs must be roasted.
- If the LEDs need to be roasted, the roast temperature should be 60°C +/-3 and the roast time should be 24 hours.
- 未拆封前的储存条件: 5°C~30°C, 最大相对湿度60%, 储存时间6个月, 超过6个月的LED按步骤4处理后才能正常使用。
- 袋子开封后, 元件若将进行红外线回焊、氧相回焊或类似的焊接处理, 必须在
  - a. 24小时内完成焊接工作。
  - b. 储存湿度低于30% 。
- 假如不符合2a或2b的条件, 则元件必须烘烤。
- 若元件须烘烤, 烘烤条件为: 60°C ±3, 24小时。

### 2.ESD ( Electrostatic Discharge)

#### 静电

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.

静电和电涌会对LED造成损毁。

下列方式有减少静电危害的可能性。

- 所有生产机械和测试设备必须接地。
- 操作LED灯时, 需佩戴防静电手环或防静电手套。
- 在生产车间维持湿度等级在50%或以上。
- 运输和储存需用抗静电袋包装。

### 3.Cleaning

#### 清洗

- Led should be cleaned in a normal temperature and the time for cleaning should be less than 3 minutes ; please use Alcohol as cleaner ,before you use other cleaning solvent ,please make sure that the cleaner will not make any damage to the LED performance or the appearance .
- Ultrasonic Cleaning is also commonly used for cleaning LED , please verify the Ultrasonic cleaning 's Power and time to avoid any damage to the LED .
- The recommended solvent for cleaning:
- LED的清洗推荐在常温下进行且清洗时间不超过3分钟, 建议优先选用酒精做为清洗剂, 在选用其他溶剂清洗前请先确认不会对LED封装性能或外观造成损伤。
- 超声波清洗也是常用的有效方法, 在进行大批量清洗前请先验证超声波清洗的功率及时间是否会对LED造成损伤。



• 推荐的溶剂:

| Common cleaning solvent<br>常用清洁溶剂 | Disable cleaning solvent<br>禁用清洁溶剂                                           |
|-----------------------------------|------------------------------------------------------------------------------|
| Alcohol<br>酒精                     | Thinner、Acetone、Two fluorine resin 、<br>Acetone b dilute<br>稀释剂、丙酮、 二氟脂、三氯乙稀 |

