



SAMPLE APPROVAL SHEET

DESCRIPTIONS:

- 3.5x2.8x1.9mm SMD LED
- Emitting Color:Red
- Lens Color:Water Clear

CUSTOMER: _____

MASON P/N: MS-A3528MRAC

CUSTOMER P/N: _____

CUSTOMER APPROVED SIGNATURES

APPROVED BY	CHECKED BY



SHENZHEN MASON TECHNOLOGIES CO., LTD

MASON OPTO CO., LIMITED

PRELIMINARY SPEC

3.5x2.8mm SMD CHIP LED

PART NO: MS-A3528MRAC RED

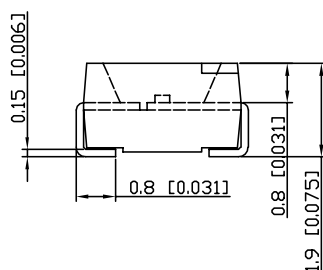
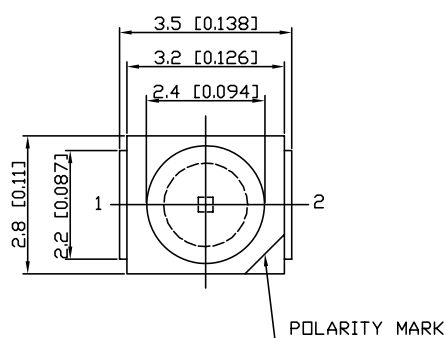
Features

- 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 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-A3528MRAC	Material	Emitted color	Water clear
	(InGaAlP)	RED	

◆ Absolute Maximum Ratings at T_A=25°C

Parameter	Symbol	Value	Unit
Power Dissipation	P _D	62	mW
Forward Current	I _F	25	mA
Peak Forward Current*1	I _{FP}	100	mA
Reverse Voltage	V _R	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 cycles≤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
Reverse Current	I _R	—	—	10	μA	V _R =5V
Dominate Wavelength	λ _D	637	—	645	nm	I _F =20mA
Luminous Intensity	I _v	62	—	130	mcd	I _F =20mA
Viewing Angle	2θ1/2	—	120	—	Deg.	I _F =20mA

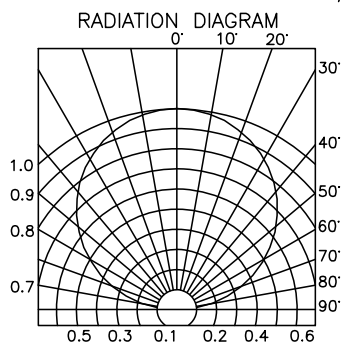
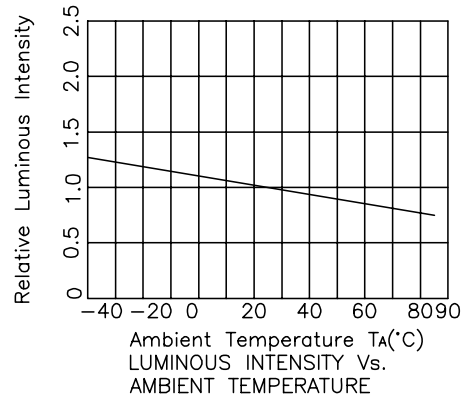
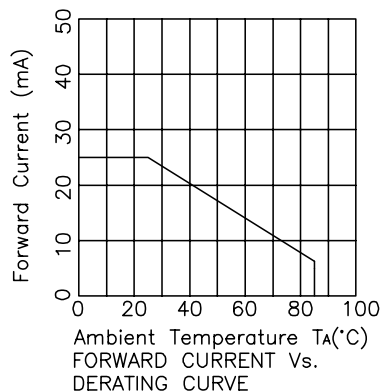
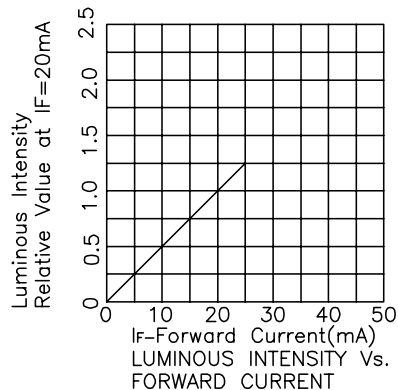
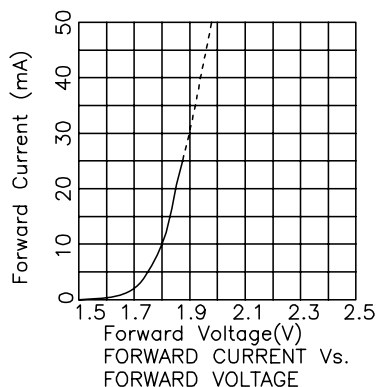
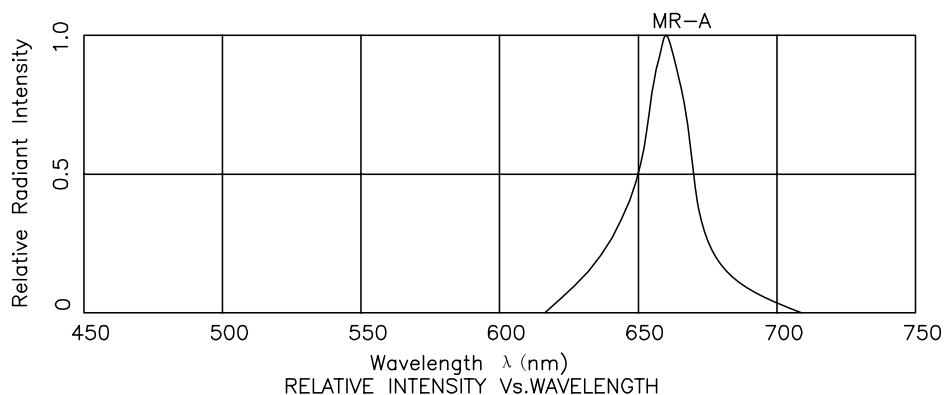
Remarks:

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



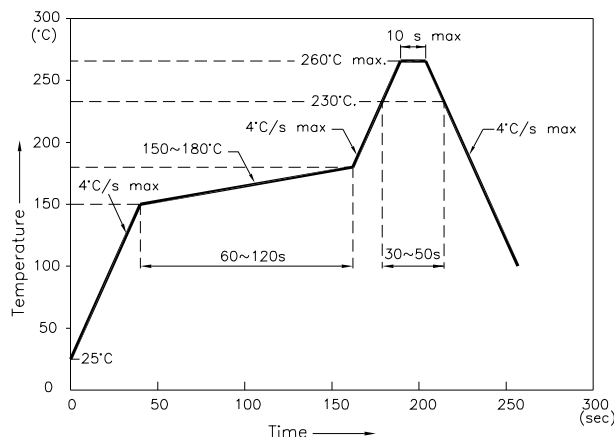
◆ Typical Electrical/Optical Characteristics Curves





◆ Soldering Profile

Reflow Soldering Profile For Lead-free SMT Process.

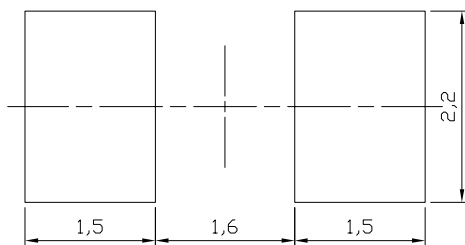


NOTES:

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.

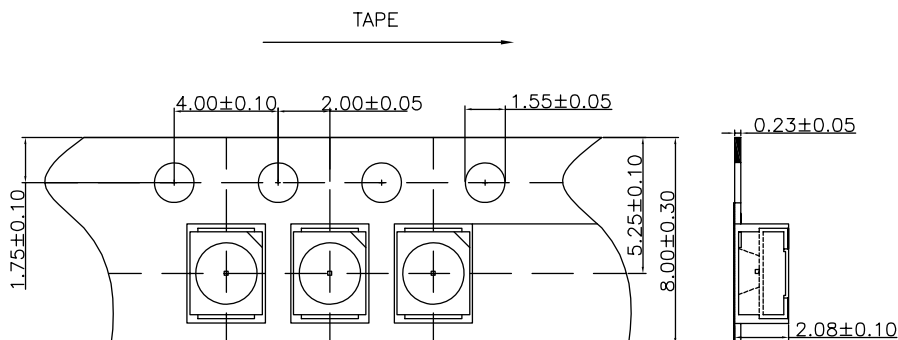
◆ Recommended soldering pattern

(Units:mm)



◆ Tape specifications

(Units:mm)





◆ 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	
1A	637	641	IF=20mA
2A	641	645	

Tolerance:±1nm

◆ IV Rank

Rank	IV(mcd)		Condition
	Min	Max	
L	62	80	IF=20mA
M	80	100	
N	100	130	

Tolerance:±15%



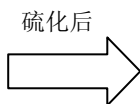
Cautions

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

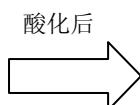
b. Control the concentration of sulfide ions in the external environment, such as the content of the raw materials of sulfide sulfur ions in the air content
控制外界环境中硫离子浓度，如原材料、空气中硫离子的含量

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

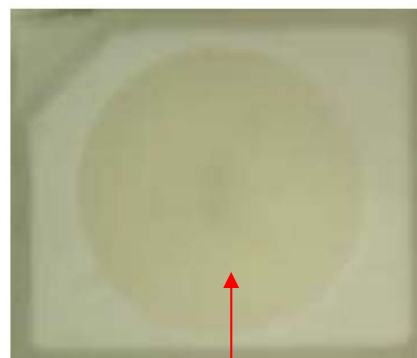
1. The acidification bad picture 酸化后的不良图示:



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.

◆ **Revision History:**

Rev. No.	Change description	Date	Prepared by	Checked by	Approved by
A/0	New-made specification	2010/1/18			
A/1	Increased attention	2012/04/29			