

PRELIMINARY SPEC

3.2x1.6mm SMD CHIP LED

PART NO: MS-PTB3216URAQBAC

RED
BLUE

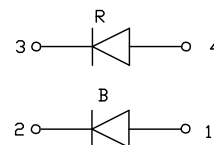
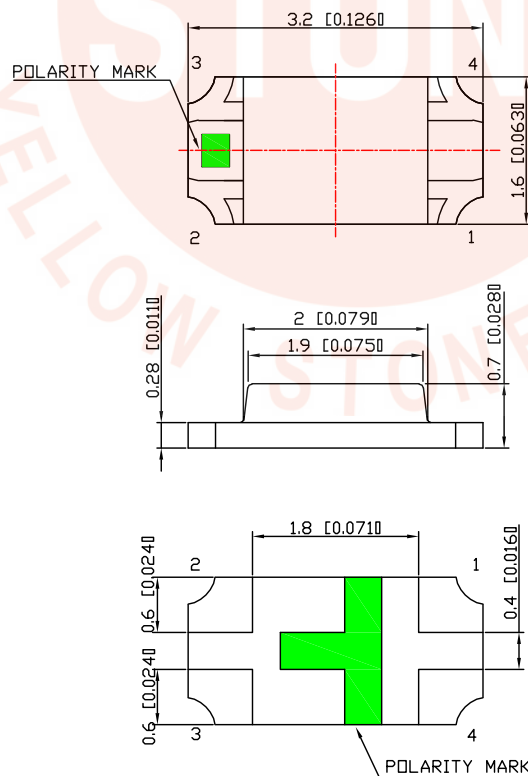
Features

- 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 ± 0.15 unless otherwise noted.
3. Specifications are subject to change without notice.

◆ Device Selection Guide

Part No.	Chip		Lens color
MS-PTB3216URAQBAC	Material	Emitted color	Water Clear
	(InGaAlP)	RED	
	(InGaN)	BLUE	

◆ Absolute Maximum Ratings at T_A=25°C

Parameter	Symbol	RED	BLUE	Unit
Power Dissipation	P _D	62	100	mW
Forward Current	I _F	25	25	mA
Peak Forward Current*1	I _{FP}	100	100	mA
Reverse Voltage	V _R	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

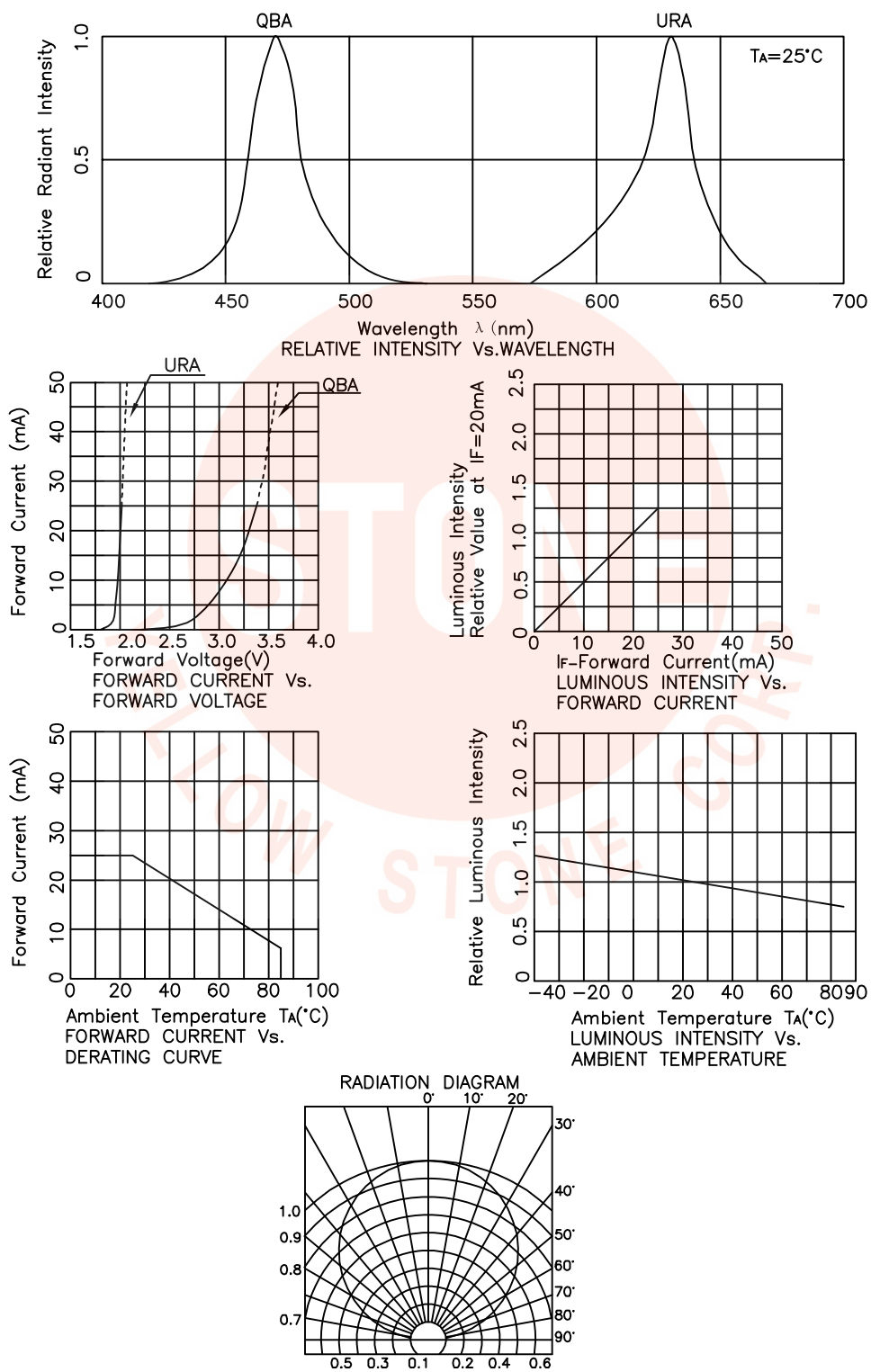
Parameter	Sym- bol	Device	Min.	Typ.	Max	Unit	Test Conditions
Forward Voltage	V _F	RED BLUE	—	2.2 3.3	2.5 3.6	V	I _F =20mA
Reverse Current	I _R	RED BLUE	—	—	10	μA	V _R =5V
Dominate Wavelength	λ _D	RED BLUE	617 464	—	629 473	nm	I _F =20mA
Luminous Intensity	I _v	RED BLUE	170 170	—	385 385	mcd	I _F =20mA
Viewing Angle	2θ _{1/2}	RED BLUE	—	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:

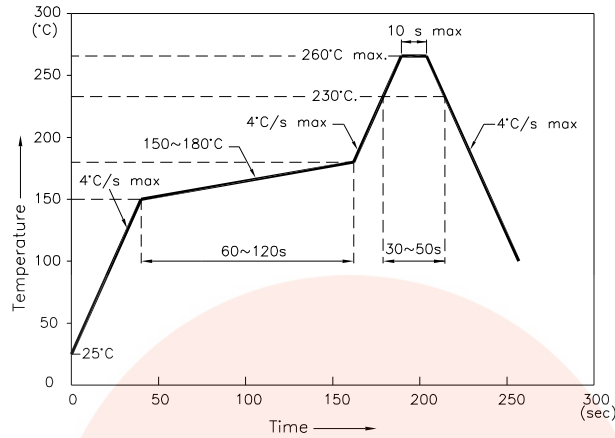
1. wavelength: ±1nm
2. Luminous Intensity: ±15%
3. Forward Voltage: ±0.1V

◆ Typical Electrical/Optical Characteristics Curves



◆ Soldering Profile

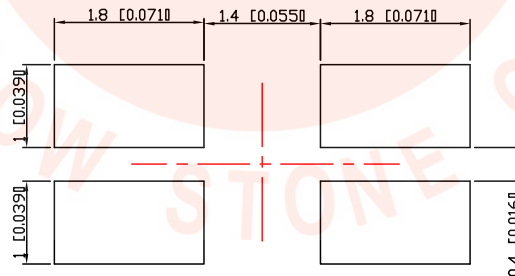
Reflow Soldering Profile For Lead-free SMT Process.



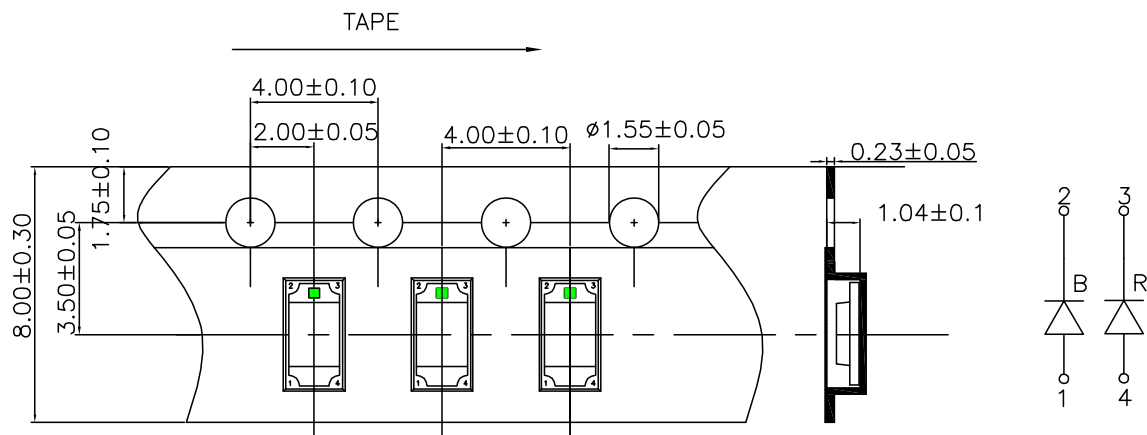
NOTES:

1. We recommend the reflow temperature $245^{\circ}\text{C} (+/-5^{\circ}\text{C})$. 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. : xxxxxxxxxxxxxx
 QTY: xxx PCS CODE: xx xx xx
 Lot NO: xxxxxxxxxxxxxx
 ERP NO. : xxxxxxxxxxxxxx
 Date: xxxxxxxxxxxxxx



◆ λD Rank

RED

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

BLUE

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

Tolerance:±1nm

◆ IV Rank

RED

Rank	IV(mcd)		Condition
	Min	Max	
Q	170	225	IF=20mA
R	225	295	
S	295	385	

BLUE

Rank	IV(mcd)		Condition
	Min	Max	
Q	170	225	IF=20mA
R	225	295	
S	295	385	

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

