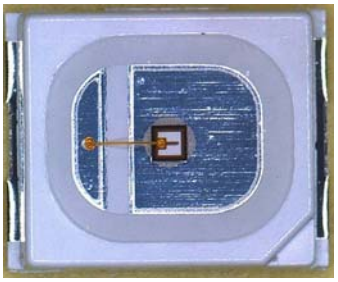
台宙晶體科技股份有限公司
Top Crystal Technology Inc.,

Power Light Source

Introduction：

TMSB-BFU is one the highest flux LEDs in the world. Due to the special design of chip and package, the TMSB-BFU is designed by particular package for high power LED.

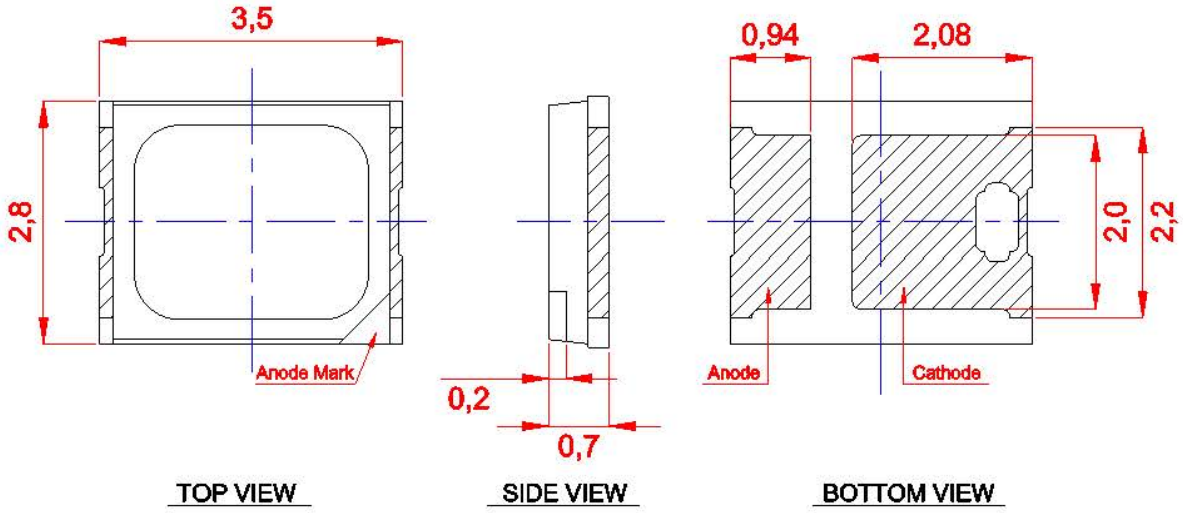


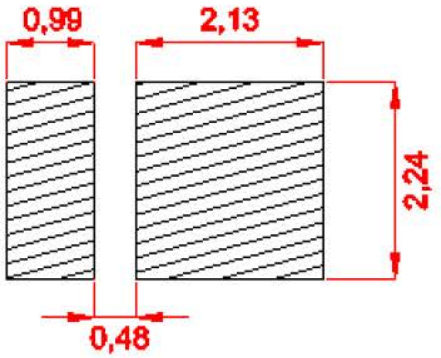
Feature：

- Long operating life
- Energy efficiency
- Low thermal resistance
- Compact design
- Instant light
- Fully dimmable
- No UV
- Superior ESD protection
- ROHS compatibility

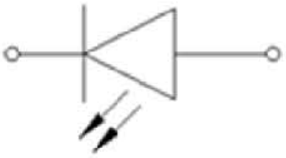
Typical Applications:

- Plant Lighting
- Industrial Lighting
- Special Lighting





Recommended Solder Pad



Circuit Diagram

Notes：

1. All dimensions are in millimeters.
2. Tolerance is ±0.25mm.

Absolute Maximum Ratings

Parameter			Conditions
DC Forward Current	UV	365-375nm	150mA
Peak Pulse Current (mA)	UV	365-375nm	200mA
LED Junction Temperature (℃)			120℃
Operating Temperature (℃)			-30~100
Storage Temperature (℃)			-40~120
Soldering Temperature			Manual 240℃(max) 5 seconds
Reverse Voltage			Not design to be driven in reverse bias

Notes：

1. Proper current derating must be observed to maintain junction temperature below the maximum at all time.
2. Allowable reflow cycles are 3 times for each LED

Optical Characteristics (Tj=25℃)

Color	Peak Wavelength λp		Viewing Angle Degree
	Min.	Max.	$2\theta_{1/2}$
UV	365nm	375nm	125

Notes :

1. CCT (Wavelength) ±5% tester tolerance.
2. Wavelength is measured with an accuracy of ±0.5nm.

Flux Characteristics (Tj=25℃)

Color	Part Number	Peak Wavelength	Forward current	Minimum Radiant Flux (mW)	Typical Radiant Flux (mW)	Maximum Radiant Flux (mW)
Crimson	TMSB-BFU	365~375nm	150mA	45mW	60mW	--

Electrical Characteristics (Tj=25℃)

Color	Part Number	Peak Wavelength	Forward current	Forward Voltage V_F(V)		
				Min.	Typ.	Max.
Crimson	TMSB-BFU	365~375nm	150mA	3.0		3.6

Notes:

1. V_F ±0.1V tester tolerance.

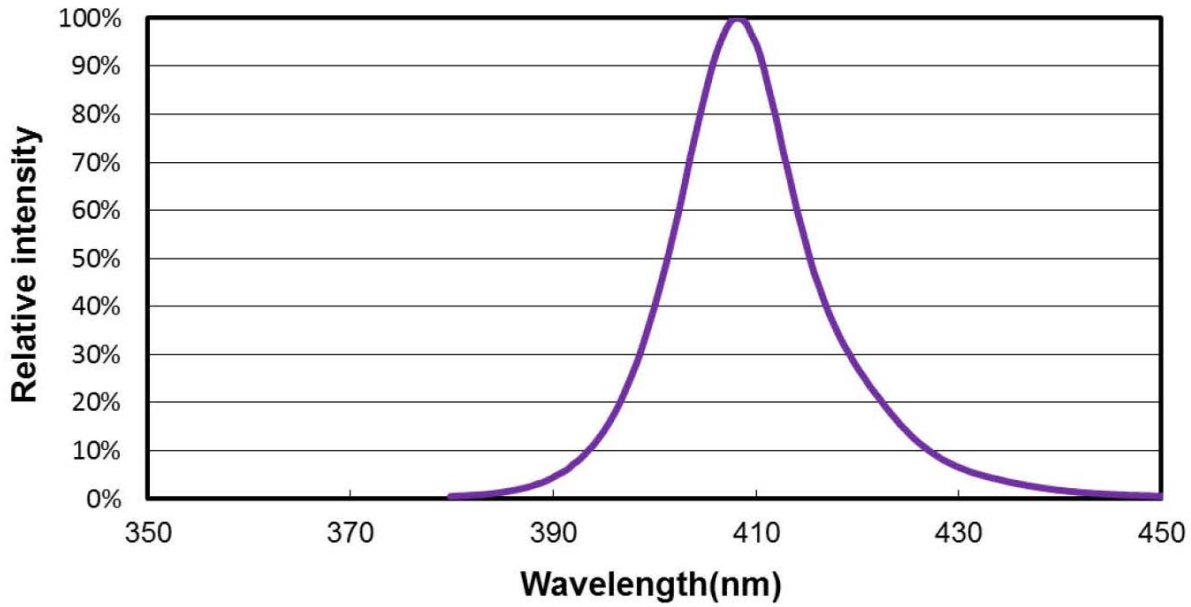
RELIABILITY ITEMS and SPECTIONS

No	Test Item	Test Conditions	Remark
1	Room Temperature Operating Life	25℃	1000 hrs
2	High Temperature Storage	Temperature：110℃	1000 hrs
3	Thermal shock	-40°C to 120°C, 20 min. dwell, <20 sec. transfer	200 cycles
4	High Temperature，High Humidity Storage	85°C/85%RH	1000 hrs
5	Low Temperature Storage	- 40℃	1000 hrs
6	Solderability	Tp = 240°C for 5 sec	3 times
7	Drop test	120 cm height，fall freely onto stainless board	3 times
8	Temperature Cycle (TMCL)	-40°C to 120°C, 30 min. dwell, <5 min. transfer	200 cycles

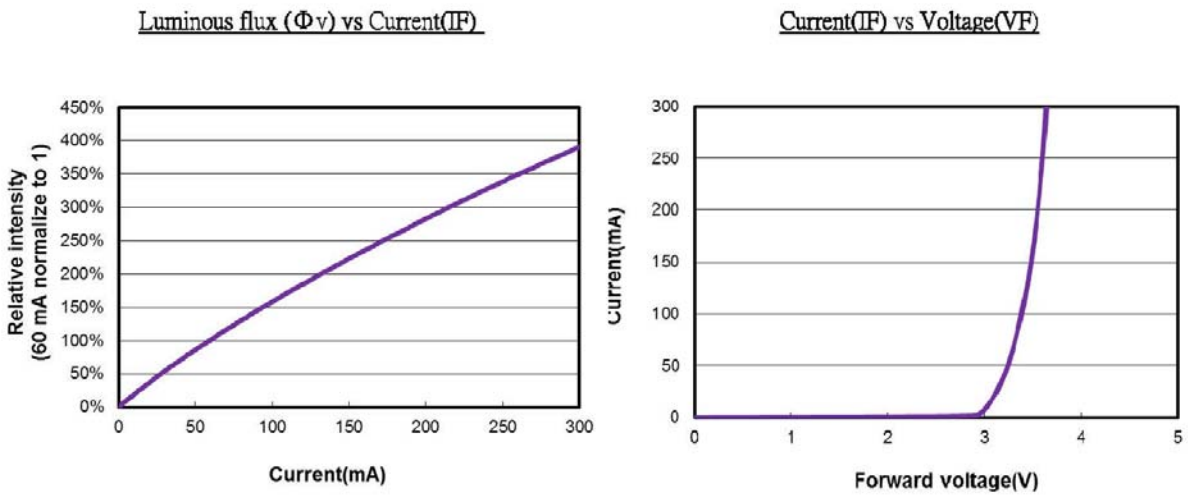
Failure Criteria：

1. Forward Voltage (VF) ≧ Initial Level x 1.1
2. Luminous Flux or Radiometric Power (ΦV) ≦ Initial Level x 0.7
3. Reverse Current (IR) ≧ 10μA
4. Resistance to Soldering Heat：No deaqd lamps or visual damage.

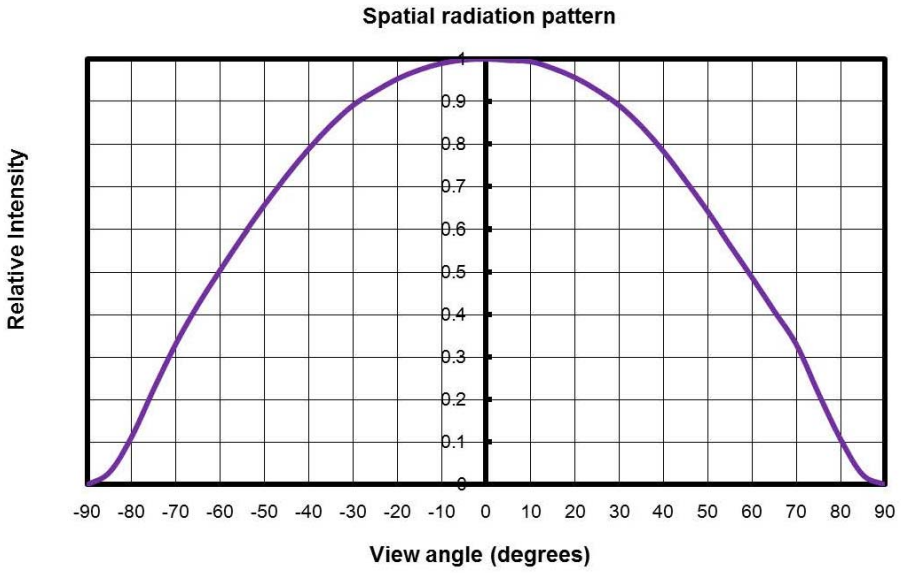
Wavelength Spectrum, Ta=25 ℃

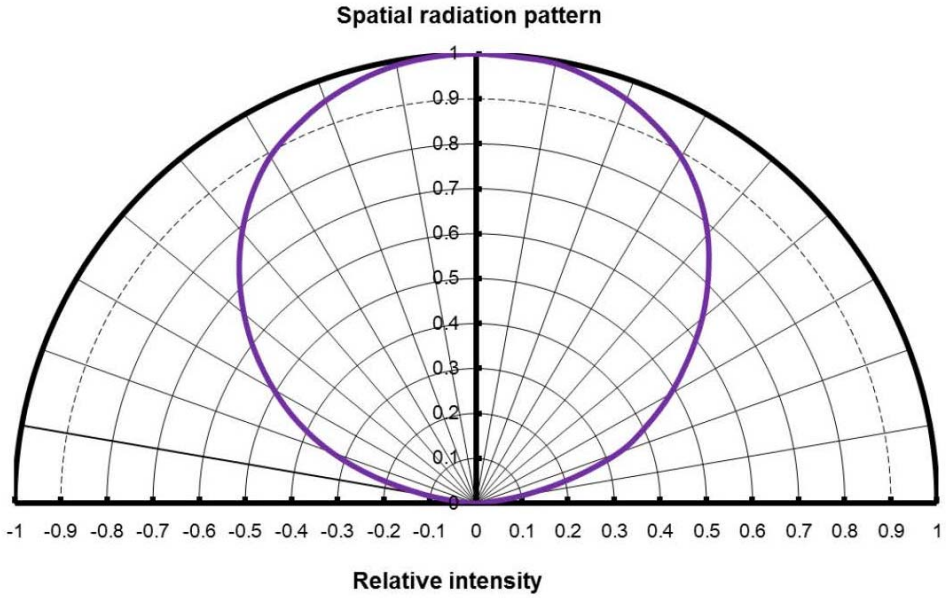


Characteristic curves

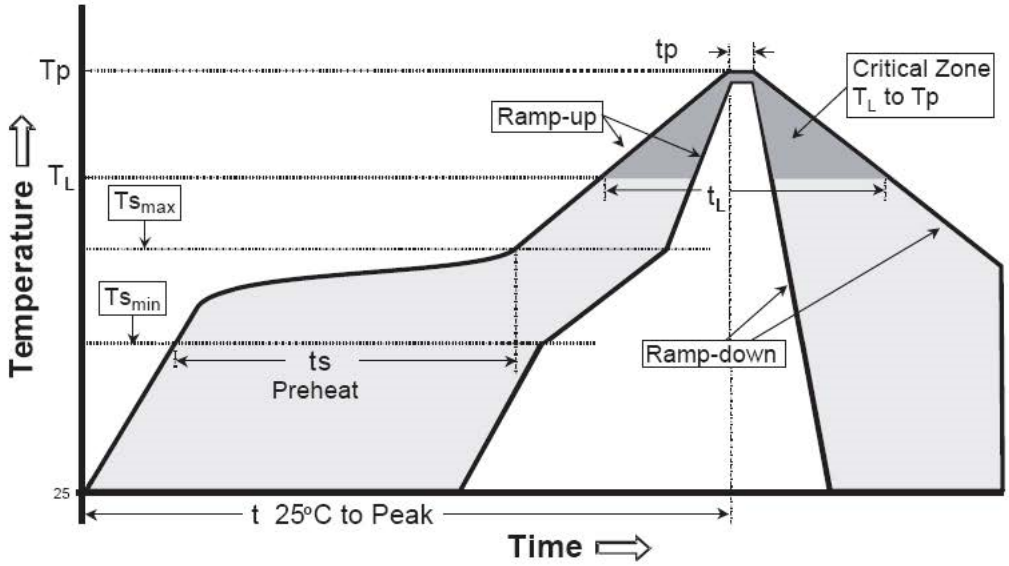


Typical Spatial Radiation Pattern



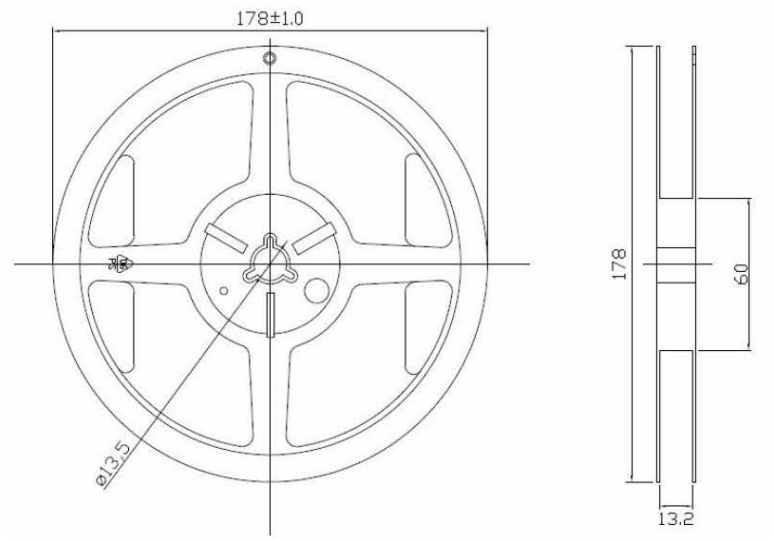


Recommended Soldering Profile

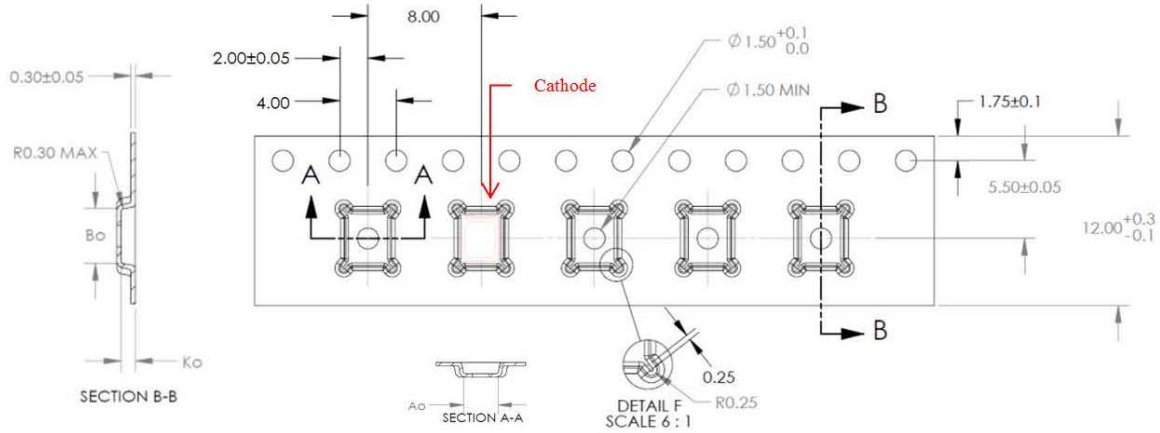


Profile Feature	Typical parameters
Average Ramp-Up Rate (Ts_{max} to Tp)	3 ℃/second max.
Preheat Temperature Min (Ts_{min})	150 ℃
Preheat Temperature Max (Ts_{max})	200 ℃
Time (Ts_{min} to Ts_{max})	60-180 seconds
Time maintained above Temperature (TL)	217 ℃
Time maintained above Time (TL)	60-150 seconds
Peak/Classification Temperature (Tp)	240 ℃
Time within 5 ℃ of Actual Peak Temperature (Tp)	5 seconds
Ramp-Down Rate	6 ℃/second max.
Time 25 ℃ to Peak Temperature	8 minutes max.

Tape and Reel Packaging Specifications



Carrier tape dimensions



Notes :

1. All dimensions are in millimeters

Notice

1. In order to avoid absorption of moisture, it is recommended that the products are stored in the dry box (or desiccators) with a desiccants. Alternatively the following environment is recommended: Storage temperature : 5°C~30°C Humidity:60% HR max.
2. If the storage conditions are of high humidity the product should be dried before use. Recommended drying conditions: 12 hours at 60°C±5°C.
3. Any mechanical force or any excess vibration should be avoid during the cooling process after soldering.
4. Reflow rapidly cooling should be avoided.
5. Components should not be mounted on distorted Printed Circuit Boards.
6. Devices should not contact with any types of fluid, such as water , oil , organic solvents…. etc.
7. The maximum ambient temperature should be taken into consideration when determining the operating current.
8. Devices should be soldered within 7 days after opening the moisture-proof packing.
9. Repack unused product in anti-moisture packing, fold to close any opening and store in a dry place.
10. The appearance and specifications of devices may be modified for improvement without notice.
11. ESD Precautions Static Electricity and surge damages LEDs. It is recommended that wrist bands or anti-electrostatic gloves be used when handing the LEDs . All devices, equipment and machinery should be properly grounded.
12. This product must be driven by constant power supplier.