HONGLIZHIHUI 鸿利智汇 BYTECH

Technical Data Sheet

Specification

CMH268A0V114Z1-S4P1

（405nm)

RoHS

BYTECH

Bytech Electronics CO., Ltd is the first company in China to launch the real inorganic package UV LED devices and core components for application based on CMH technology.

CMH technology platform is a kind of package technology which adopts ceramic, metal, hard glass as package materials. CMH technology platform originates independent intellectual property owned by Bytech Electronics CO., LTD, which is suitable for vacuum encapsulation, especially suitable for ensuring reliability of deep UV products.

广州市鸿利秉一光电科技有限公司 研发专用章

DESIGN	CHECKED	APPROVED
2017.08.18	2017.08.18	2017.08.18
XIONG	CHEN	TANG

High Power UV LED
CMH268A0V114Z1-S4P1

Under Development	
Mass Production	●

ATTENTION
OBSERVE PRECAUTIONS
FOR HANDLING
ELECTROSTATIC
DISCHARGE
SENSITIVE
DEVICES

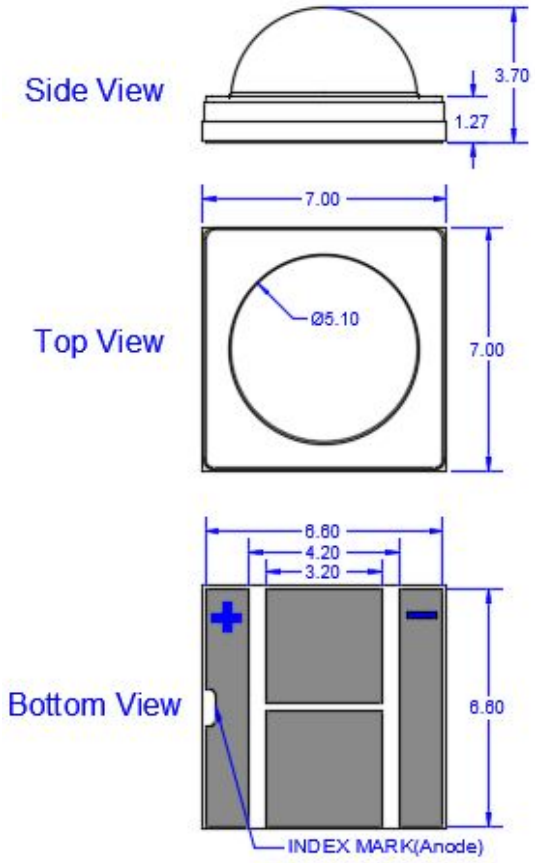
Features

- CMH real inorganic package
- Hermetic package
- Dimension 7.0mm×7.0mm×3.7mm
- Long operating life
- High reliability
- Superior ESD protection
- RoHS compliant

Applications

- Fluorescent spectroscopy
- Sensors and monitors
- Bio-analysis/detection
- Phototherapy
- UV curing

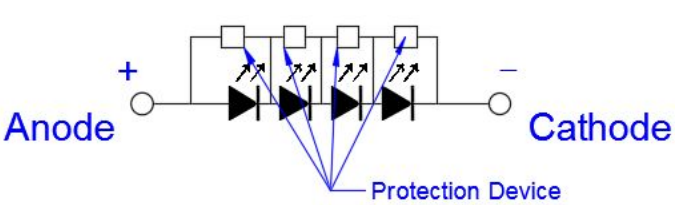
Package Dimensions（Unit: mm）



Product ID:

405nm:CMH268A0V114Z1—S4P1

Circuit:



Tolerance： ± 0.20mm

Characteristics of UV LED

1. Electrical / Optical Characteristics（Ta=25℃,RH=40%）

Parameter	Symbol	Units	CMH268A1V114Z1 (IF=1000mA)
Peak Wavelength [1]	λ_p	nm	400-410
Radiant Flux [2]	Φ_e [3]	mW	7000-8000
Forward Voltage [4]	VF	V	13.8-16.2
Thermal Resistance [5]	R_{th}	°C/W	1-2
Spectrum Half Width	Δλ	nm	18
View Angle	$2\theta_{1/2}$	deg	60

Notes:

[1].Peak wavelength measurement tolerance:±3nm

[2].Radiant flux measurement tolerance:±10%

[3].Φ_e is the total radiant Flux as measured with an integrated sphere

[4].Forward voltage measurement tolerance:±3%

[5].R_{th} is the thermal resistance between chip junction to PCB board bottom

2. Absolute Maximum Ratings (T_a=25°C,RH=40%)

Parameter	Symbol	Units	CMH268A0V114Z1-S4P1
Maximum Rating Forward Current	I_{Fmax}	mA	1200
Maximum Rating Junction Temperature	T_{jmax}	°C	125
Operating Temperature Range	T_{opr}	°C	-40 ~ +85
Storage Temperature Range	T_{stg}	°C	-40 ~ +100

Notes:

Operating the LED beyond the listed maximum ratings may affect device reliability and cause permanent damage.

These or any other conditions beyond those indicated under recommended operating conditions are not implied.

The exposure to the absolute maximum rated conditions may affect device reliability.

3.Ranks（ IF=1000mA, Ta=25℃,RH=40%)

波长(nm)	电压(V)	光功率(mw)					
		5000-6000	6000-7000	7000-8000	8000-9000	9000-10000	10000-11000
400-405	13.6-13.8	A0161	A0162	A0163	A0164	A0165	A0166
	13.8-14.0	A0167	A0168	A0169	A0170	A0171	A0172
	14.0-14.2	A0173	A0174	A0175	A0176	A0177	A0178
	14.2-14.4	A0179	A0180	A0181	A0182	A0183	A0184
	14.4-14.6	A0185	A0186	A0187	A0188	A0189	A0190
	14.6-14.8	A0191	A0192	A0193	A0194	A0195	A0196
	14.8-15.0	A0197	A0198	A0199	A0200	A0201	A0202
	15.0-15.2	A0203	A0204	A0205	A0206	A0207	A0208
	15.2-15.4	A0209	A0210	A0211	A0212	A0213	A0214
	15.4-15.6	A0215	A0216	A0217	A0218	A0219	A0220
	15.6-15.8	A0221	A0222	A0223	A0224	A0225	A0226
	15.8-16.0	A0227	A0228	A0229	A0230	A0231	A0232
	16.0-16.2	A0233	A0234	A0235	A0236	A0237	A0238
405-410	13.6-13.8	A0359	A0360	A0361	A0362	A0363	A0364
	13.8-14.0	A0365	A0366	A0367	A0368	A0369	A0370
	14.0-14.2	A0371	A0372	A0373	A0374	A0375	A0376
	14.2-14.4	A0377	A0378	A0379	A0380	A0381	A0382
	14.4-14.6	A0383	A0384	A0385	A0386	A0387	A0388
	14.6-14.8	A0389	A0390	A0391	A0392	A0393	A0394
	14.8-15.0	A0395	A0396	A0397	A0398	A0399	A0400
	15.0-15.2	A0401	A0402	A0403	A0404	A0405	A0406
	15.2-15.4	A0407	A0408	A0409	A0410	A0411	A0412
	15.4-15.6	A0413	A0414	A0415	A0416	A0417	A0418
	15.6-15.8	A0419	A0420	A0421	A0422	A0423	A0424
	15.8-16.0	A0425	A0426	A0427	A0428	A0429	A0430
	16.0-16.2	A0431	A0432	A0433	A0434	A0435	A0436

Notes:

*Forward voltage measurement tolerance:±3%

*Radiant flux measurement tolerance:±10%

*Φ_e is the total radiant Flux as measured with an integrated sphere

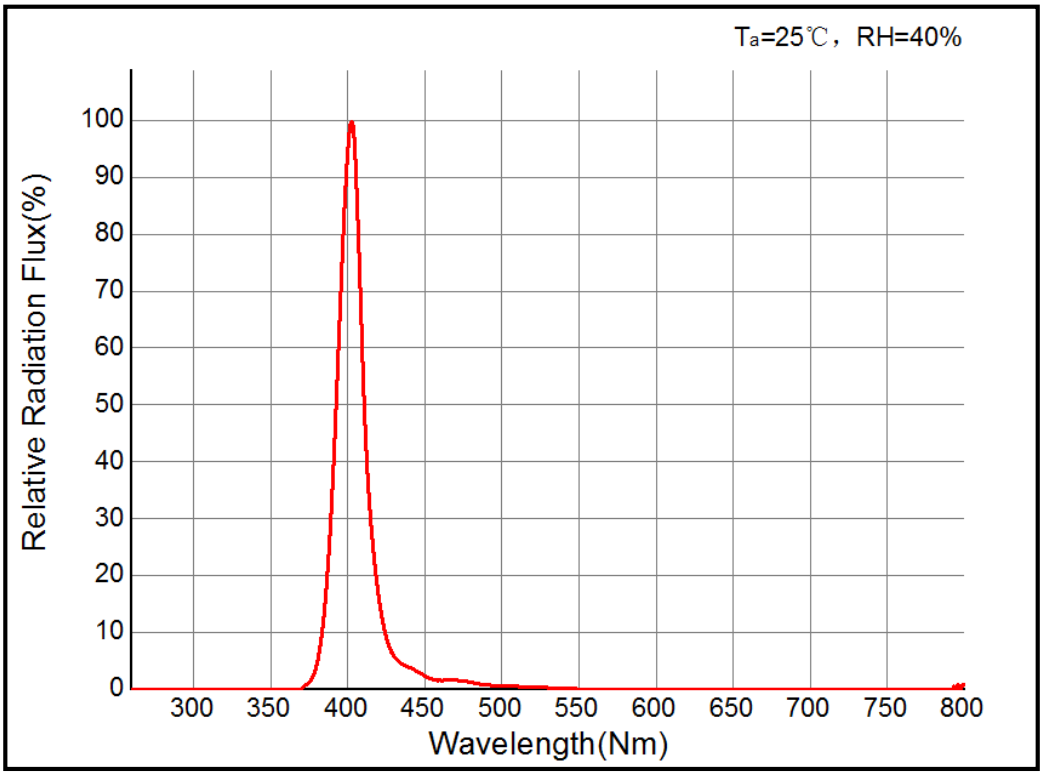
*LEDs from the above ranks will be shipped.

*The rank combination ratio per shipment will be decided by Bytech.

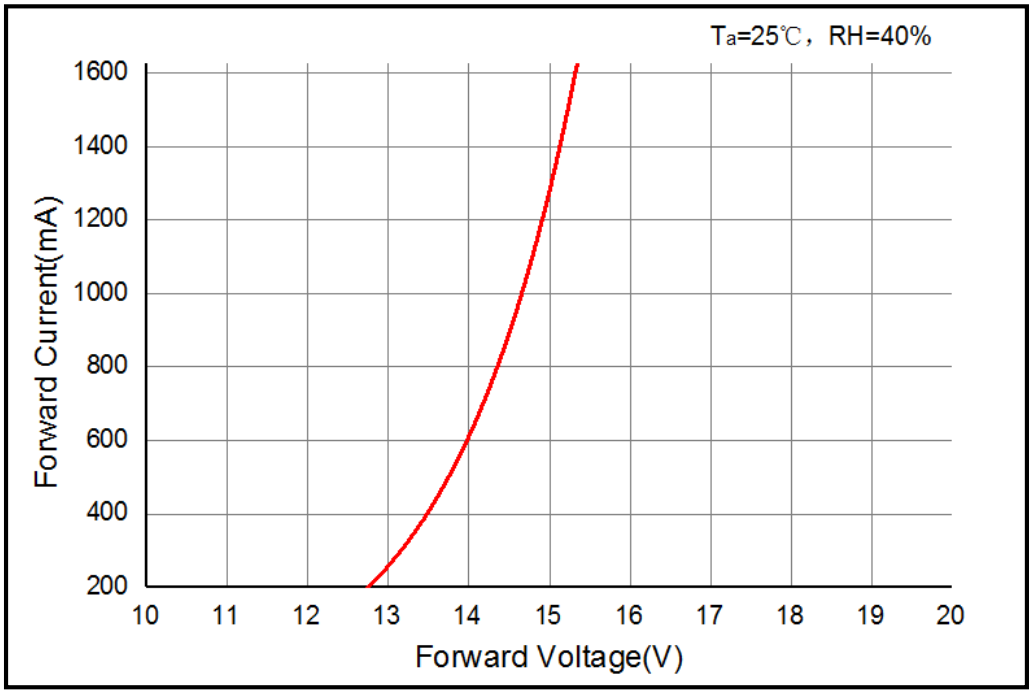
*Peak wavelength measurement tolerance:±3nm

Characteristics Diagrams

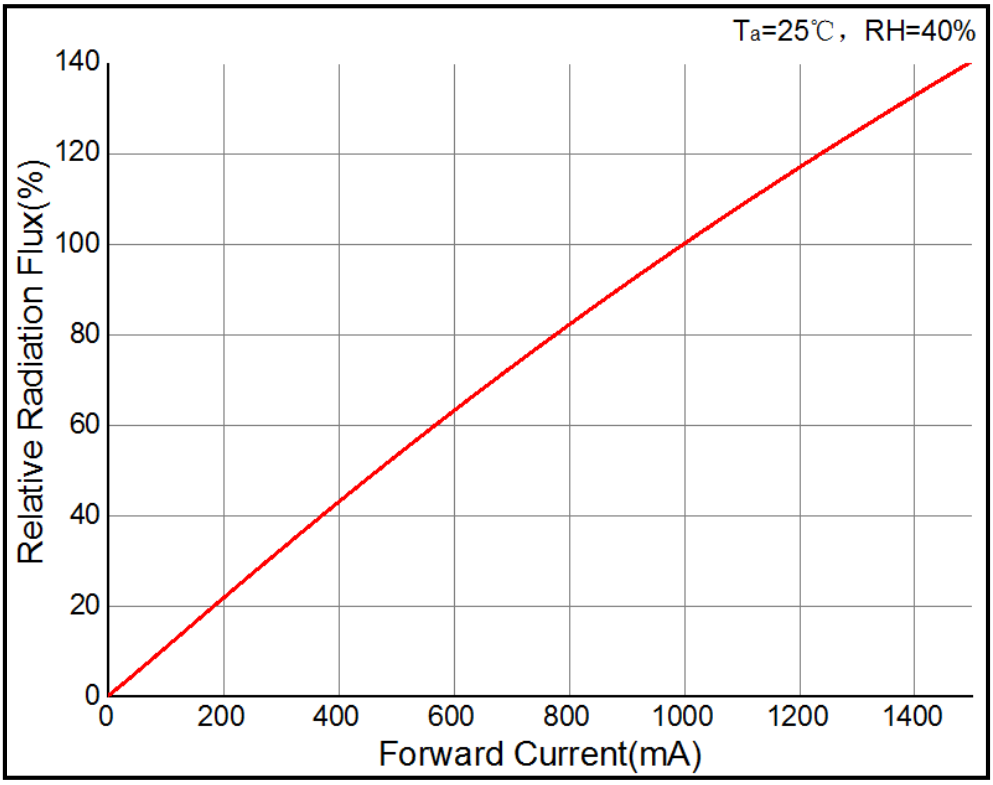
1.Relative Spectrum Power Distribution



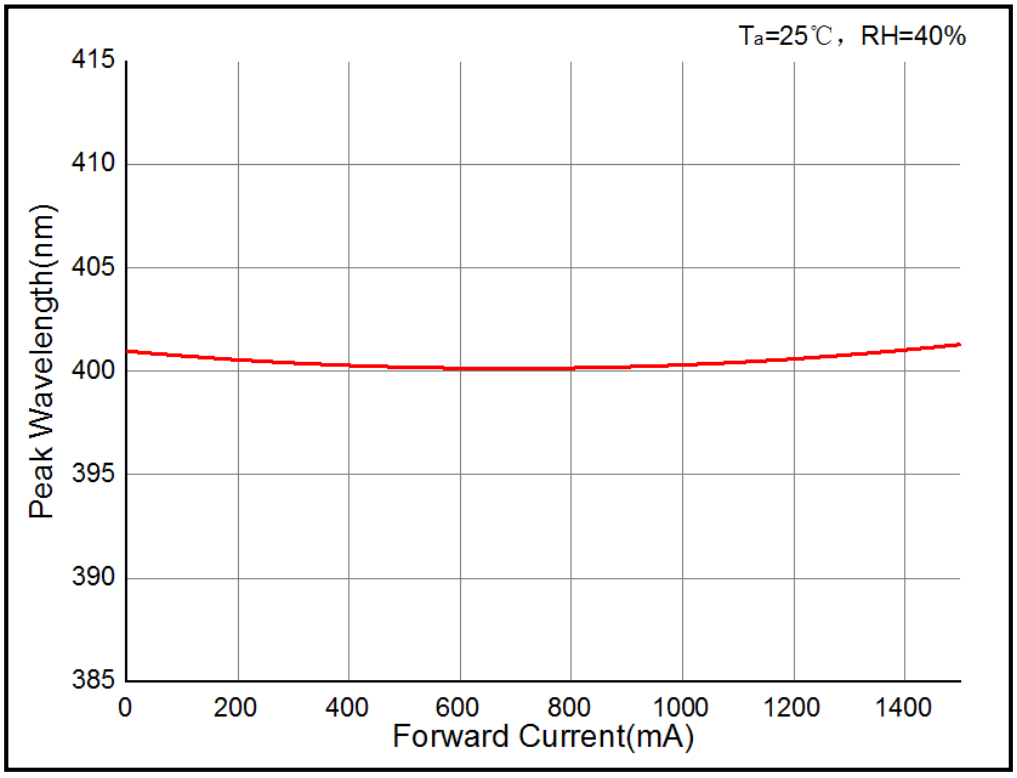
2.Forward Voltage vs Forward Current



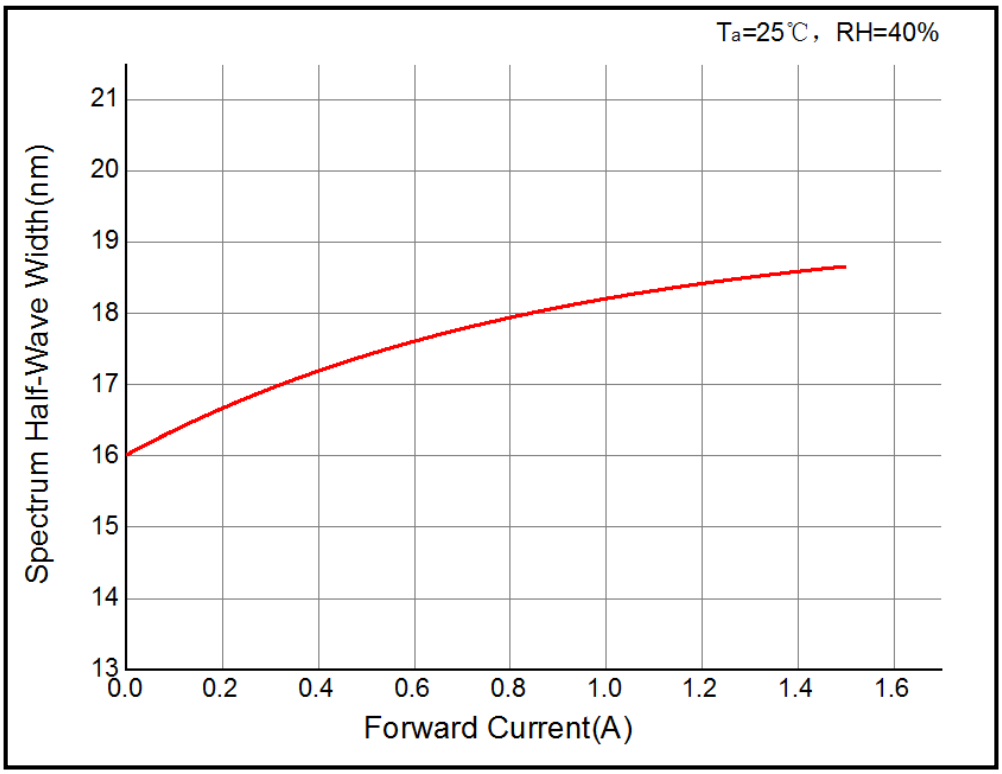
3.Relative Radiation Flux vs Forward Current



4.Peak Wavelength vs Forward Current

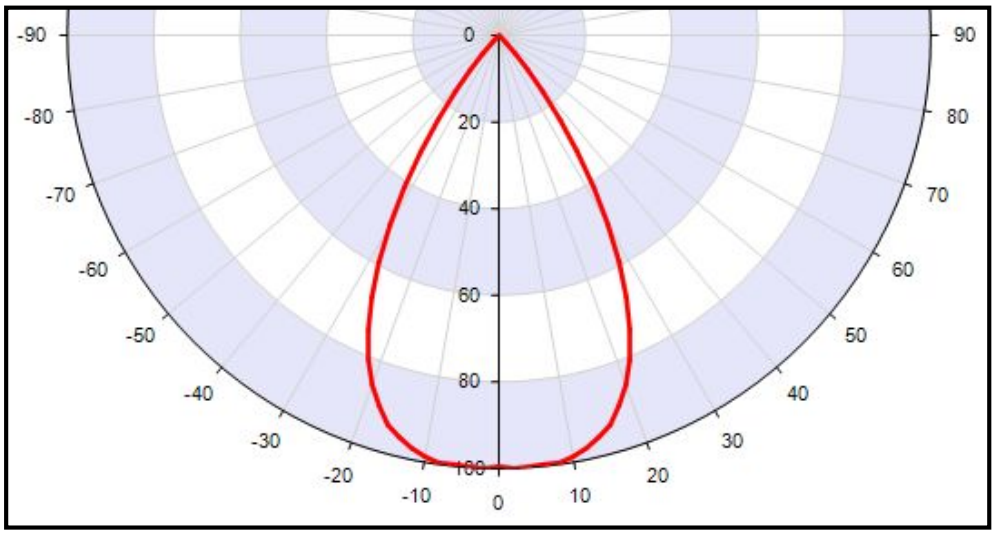


5.Spectrum Half-Wave Width vs Forward Current

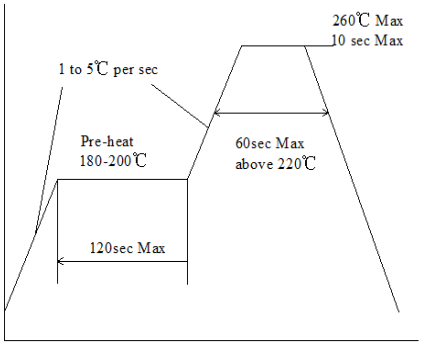


6.Spatial Distribution Graph

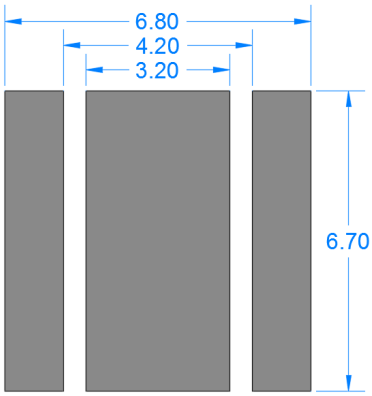
I_F=1000mA,Ta=25℃，RH=40%



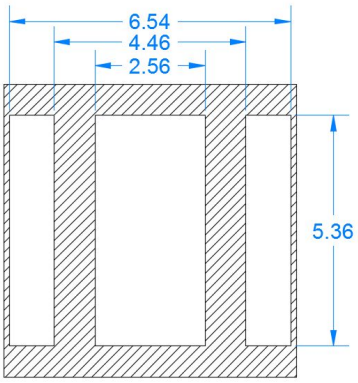
Product Application Information



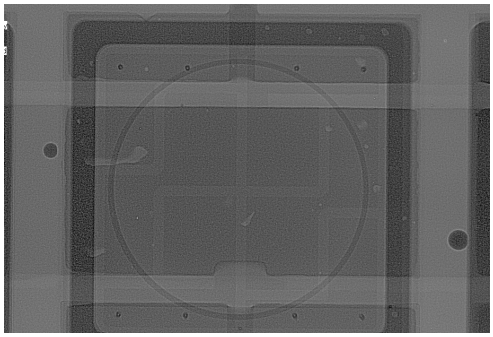
Recommended Reflow Soldering Condition
（Lead-free solder）



Recommended Soldering pad Layout
（Unit: mm）



Recommended Soldering Mask Layout
Thickness:0.12mm
（Unit: mm）



Recommended the void rate should be less than 15%;
otherwise, Bytech cannot guarantee its reliability.

Notes:

*This LED is designed to be reflow soldered on to a PCB. If dip soldered or hand soldered, Bytech cannot guarantee its reliability.

***Recommended the void rate should be less than 15%; otherwise, Bytech cannot guarantee its reliability.**

*Reflow soldering must not be performed more than twice.

*Avoid rapid cooling. Ramp down the temperature gradually from the peak temperature.

*Nitrogen reflow soldering is recommended. Air flow soldering conditions can cause optical degradation, caused by heat and/or atmosphere.

*Since the glass used in the encapsulating glass is fragile, do not press on the encapsulant glass. pressure can cause nicks, chip-outs, encapsulant delamination and deformation, and wire breaks, decreasing reliability

*Repairing should not be done after the LEDs have been soldered. It should be confirmed beforehand whether the characteristics of the LEDs will or will not be damaged by repairing.

*The Die Heat Sink should be soldered to customer PCB. If it is difficult or impossible, use high heat-dissipating adhesive.

*When soldering, do not apply stress to the LED while the LED is hot.

*When using a pick and place machine, choose an appropriate nozzle for this product.

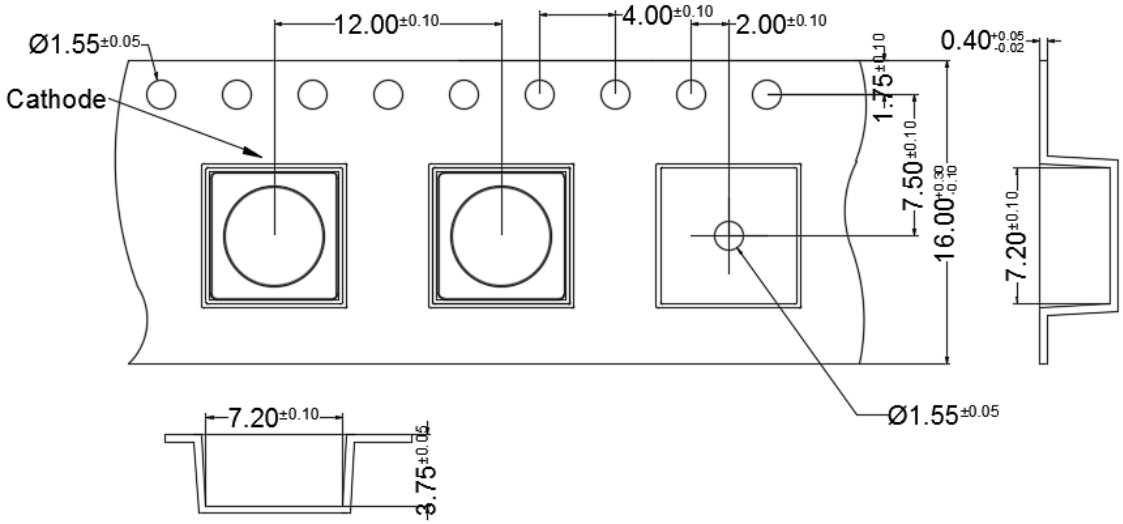
*When flux is used, it should be a halogen free flux. Ensure that the manufacturing process is not designed in a manner Where the flux will come in contact with the LEDs.

*Make sure that there are no issues with the type and amount of solder that is being used.

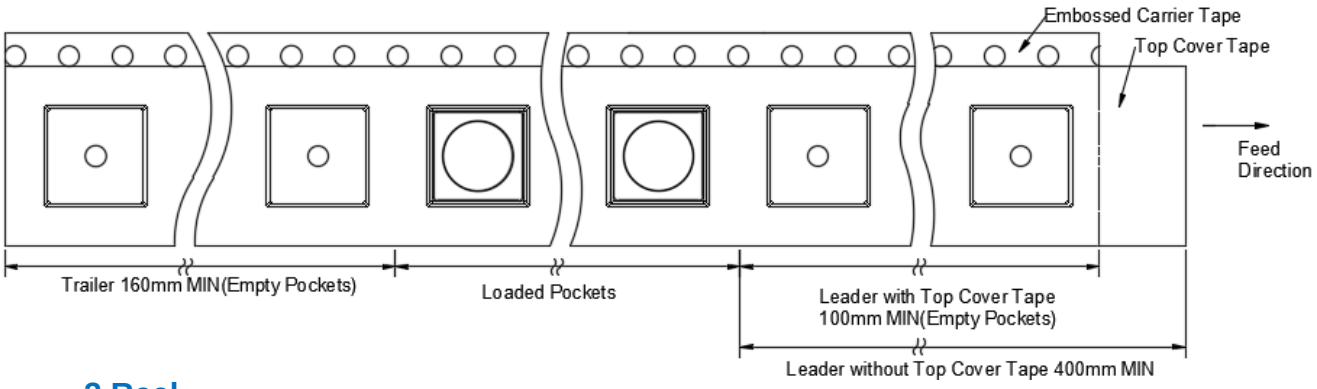
Packing Information

Unit：mm

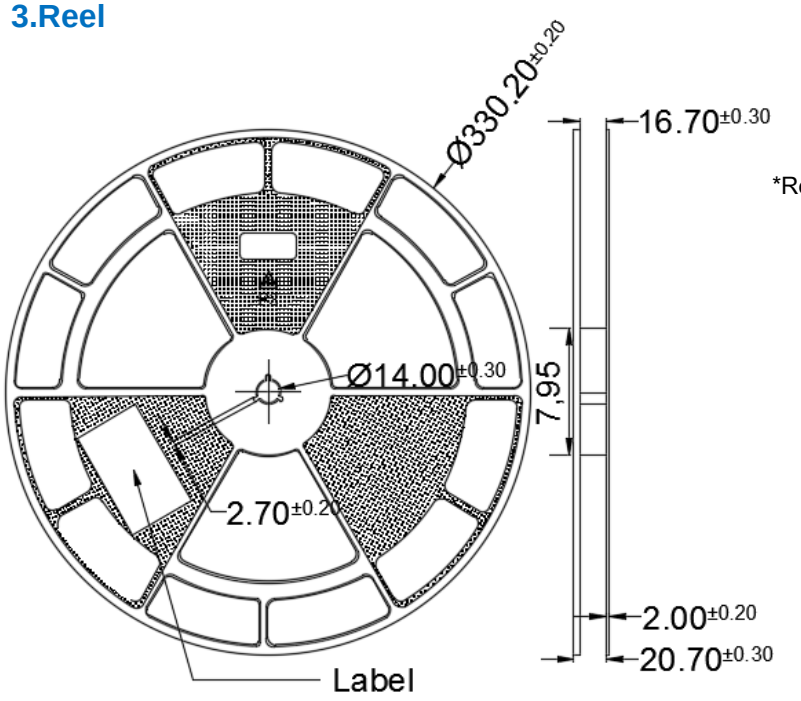
1.Tape



2.Trailer and Leader

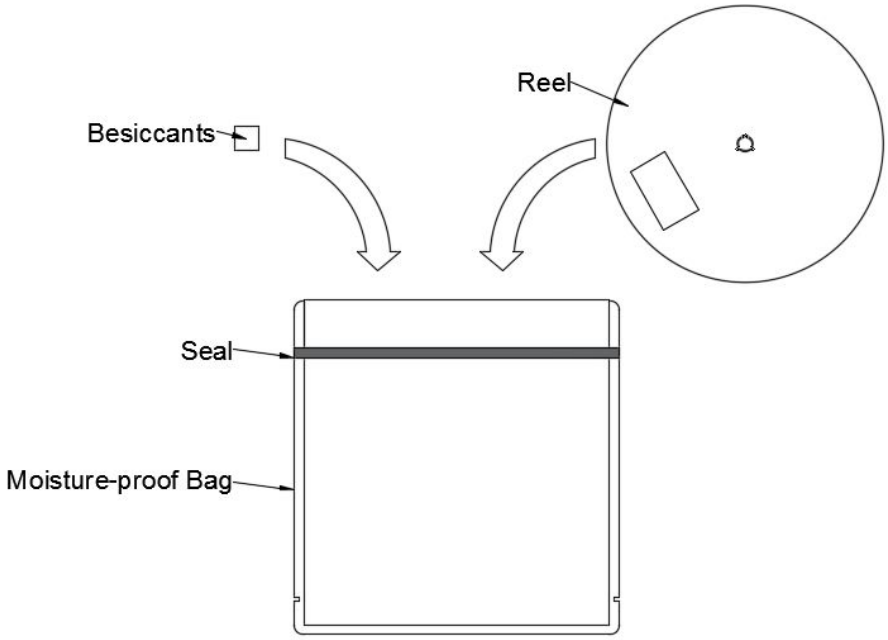


3.Reel

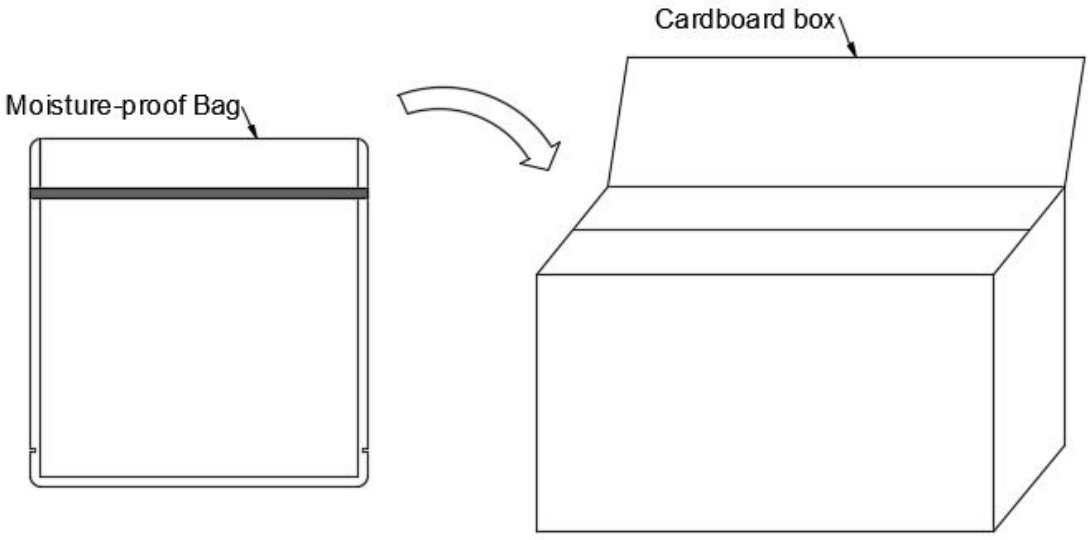


Packing Information

4.Reels are shipped with desiccants in heat-sealed moisture-proof bags.



5.Moisture-proof bags are packed in cardboard boxes.



*LEDs shipped on tape and reel are packed in a moisture-proof bag.
They are shipped in cardboard boxes to protect them from external forces during transportation.
*Do not drop or expose the box to external forces as it may damage the LEDs.
*Do not expose to water. The box is not water-resistant.
*Using the original package material or equivalent in transit is recommended.

CAUTIONS

1. Handling Precautions

● Do not handle the LEDs with bare hands as it will contaminate the LENS surface and may affect the optical characteristics.

● When handling the product with tweezers, be careful not to apply excessive force to glass LENS as it may cause the surface scratch.

● Dropping the product may cause damage.

2. Electrostatic Discharge (ESD)

● The product are sensitive to static electricity or surge voltage. ESD can damage a die and its reliability. When handling the products, the following measure against electrostatic discharge are strongly recommended:

Eliminating wrist strap, ESD footwear, clothes, and floors

Grounded workstation equipment and tools

ESD table/shelf mat made of conductive materials

● Ensure that tools, jigs and machines that are being used are properly grounded and that proper grounding techniques are used in work areas. For devices/equipment that mount the LEDs, protection against surge voltages should also be used.

● The customer is advised to check if the LEDs are damage by ESD

When performing the characteristics inspection of the LEDs in the application.

Damage can be detected with a forward voltage measurement at low current(≤1mA).

3. Eye Safety

● Please proceed with caution when handling any UVLEDs driven at low or high current.

Since UV light can be harmful to eyes, do Not look directly into the UV light, even through an optical instrument.

● UV protective glasses are required to use in order to avoid damage by UV light in case of viewing UV light directly.

History of Revision

Revision	Date	Contents of Revision Change	Remark
REV NO: 1.0	2017.08.18	New Establishment	
REV NO: 2.0	2018.04.08	Increase the ranks	