



Technical Data Sheet

Specification

CMH268A1V113Z1-S4P1

(395nm)

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.

DESIGN	CHECKED	APPROVED
2017.06.03	2017.06.03	2017.06.03
CHEN	研发专用章	TANG



Under Development	
Mass Production	●



ATTENTION
OBSERVE PRECAUTIONS
FOR HANDLING
ELECTROSTATIC
DISCHARGE
SENSITIVE
DEVICES



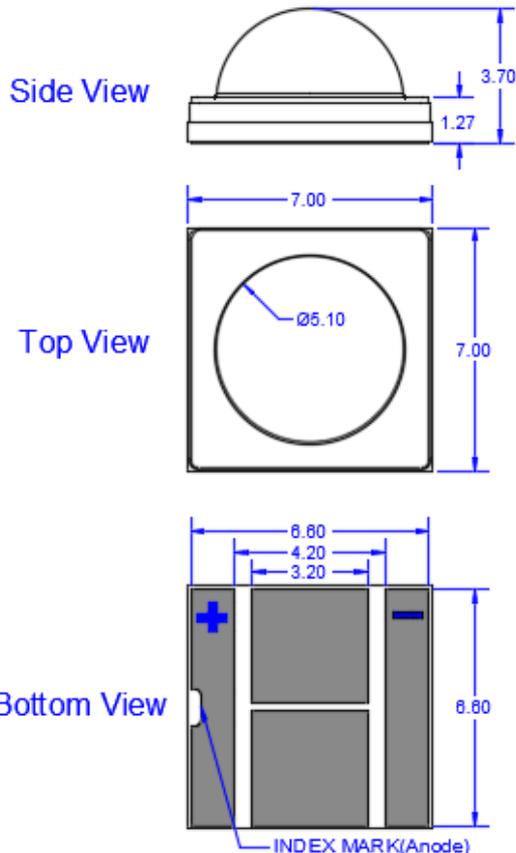
Features

- 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

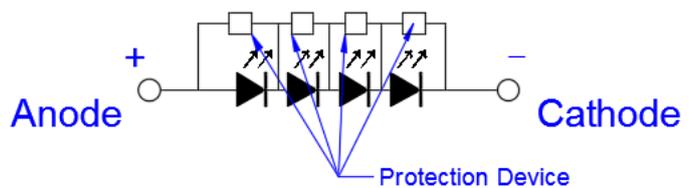
Package Dimensions (Unit: mm)



Product ID:

395nm: CMH268A1V113Z1-S4P1

Circuit:



Tolerance : ± 0.20 mm



Characteristics of UV LED

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

Parameter	Symbol	Units	CMH268A1V113Z1-S4P1 (IF=1000mA)
Peak Wavelength [1]	λ_p	nm	390-400
Radiant Flux [2]	Φ_e [3]	mW	8000-9000
Forward Voltage [4]	VF	V	13.6-16
Thermal Resistance [5]	R_{th}	°C/W	1-2
Spectrum Half Width	$\Delta\lambda$	nm	15
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 (Ta=25°C,RH=40%)

Parameter	Symbol	Units	CMH268A1V113Z1-S4P1
Maximum Rating Forward Current	I_{Fmax}	mA	1500
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.



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3.Ranks (Ta=25°C,RH=40%)

Item	Rank	Min	Max	Unit
Forward Voltage	H6	15.6	16	V
	H5	15.2	15.6	
	H4	14.8	14.2	
	H3	14.4	14.8	
	H2	14	14.4	
	H1	13.6	14	
Radiant Fulx	G2	8500	9000	mW
	G1	8000	8500	

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.

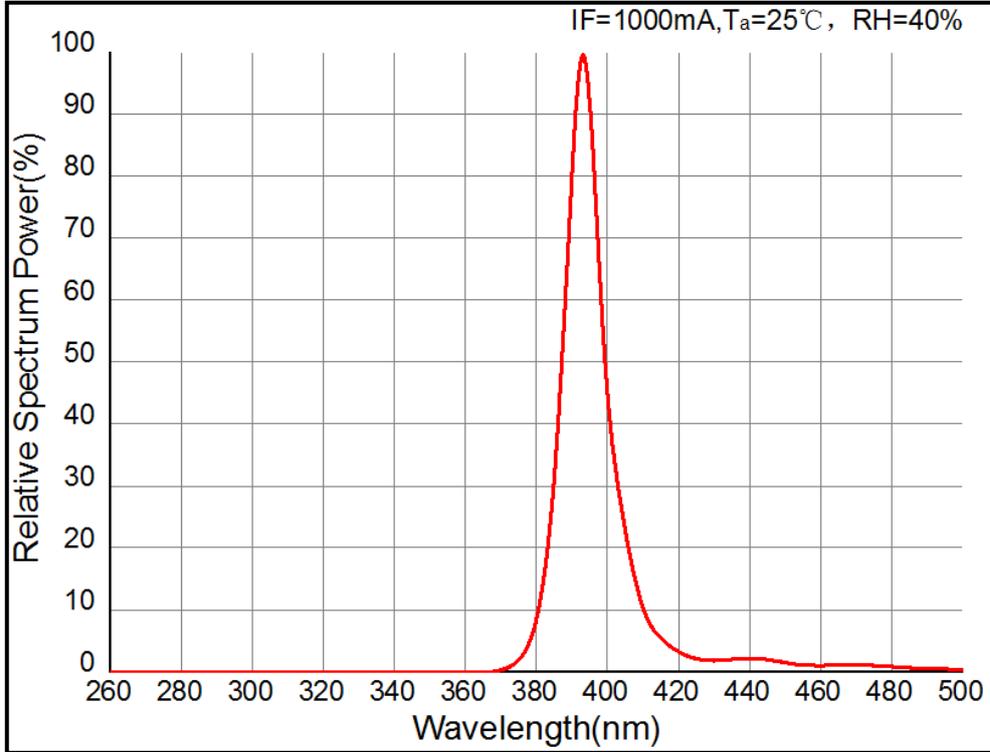
The rank combination ratio per shipment will be decided by Bytech.



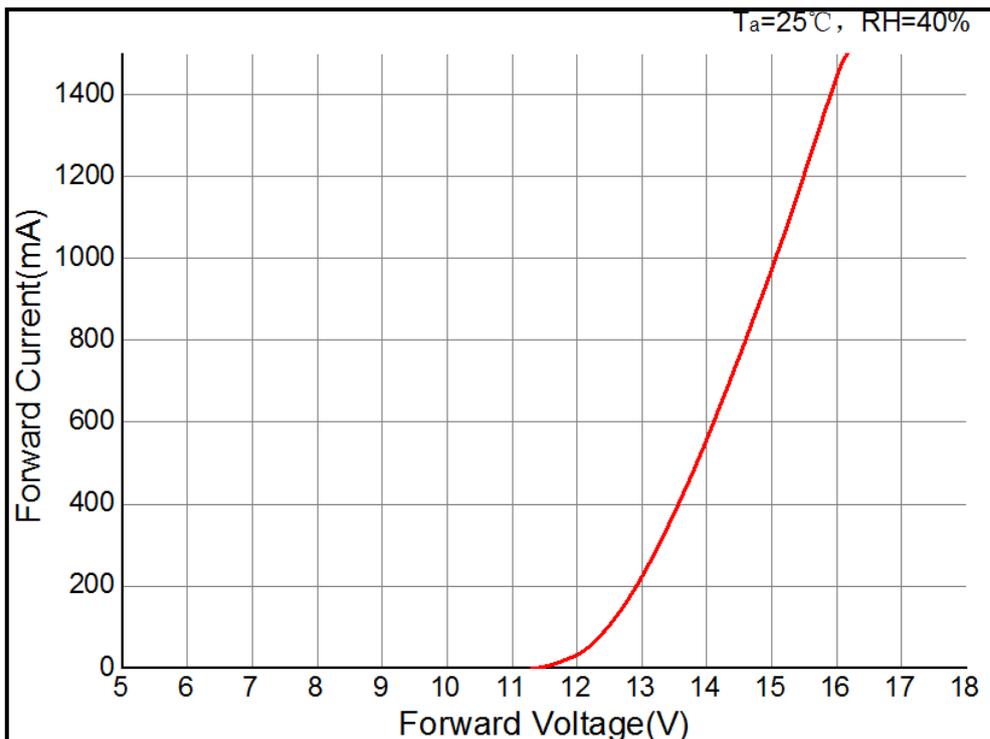
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Characteristics Diagrams

1. Relative Spectrum Power Distribution



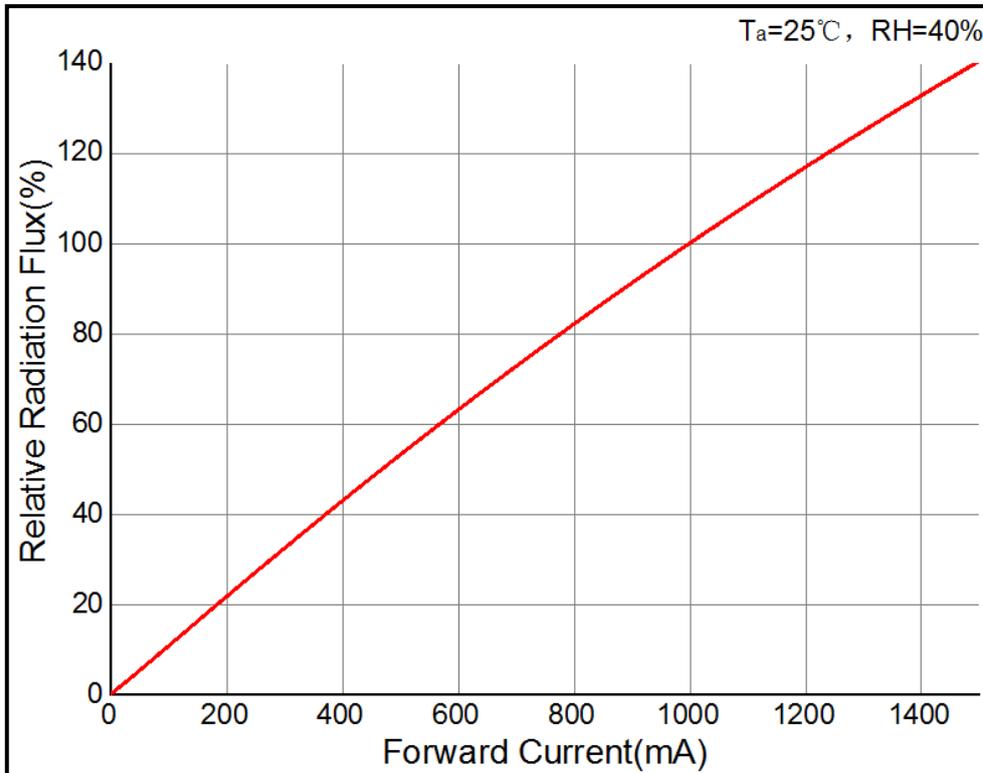
2. Forward Voltage vs Forward Current



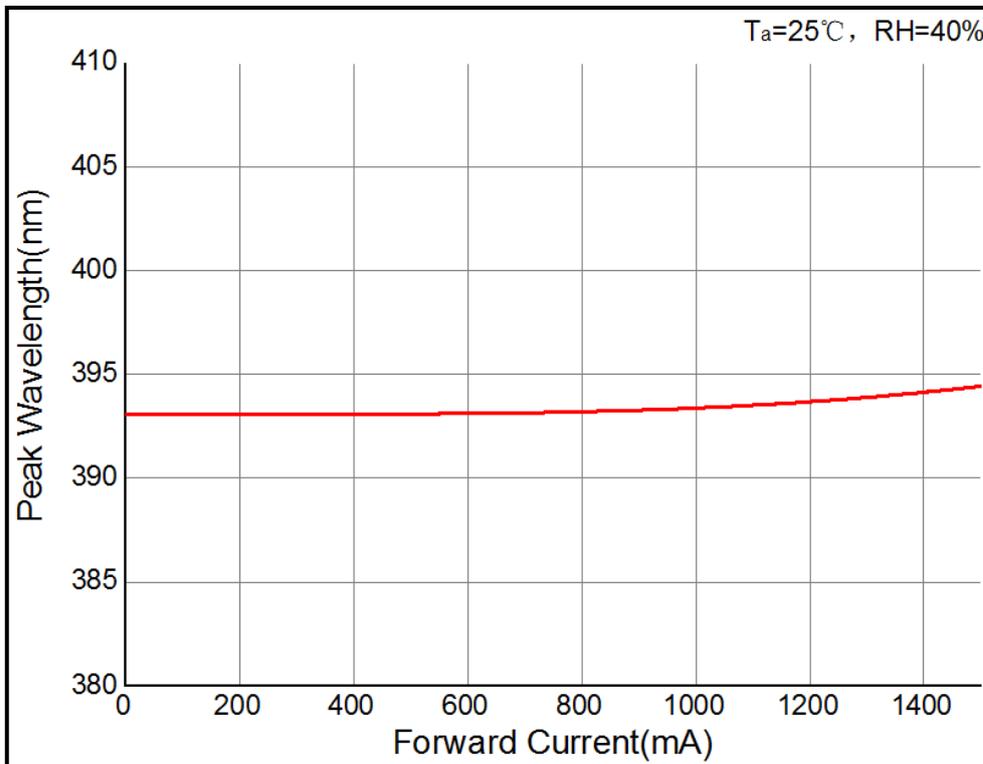


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3. Relative Radiation Flux vs Forward Current



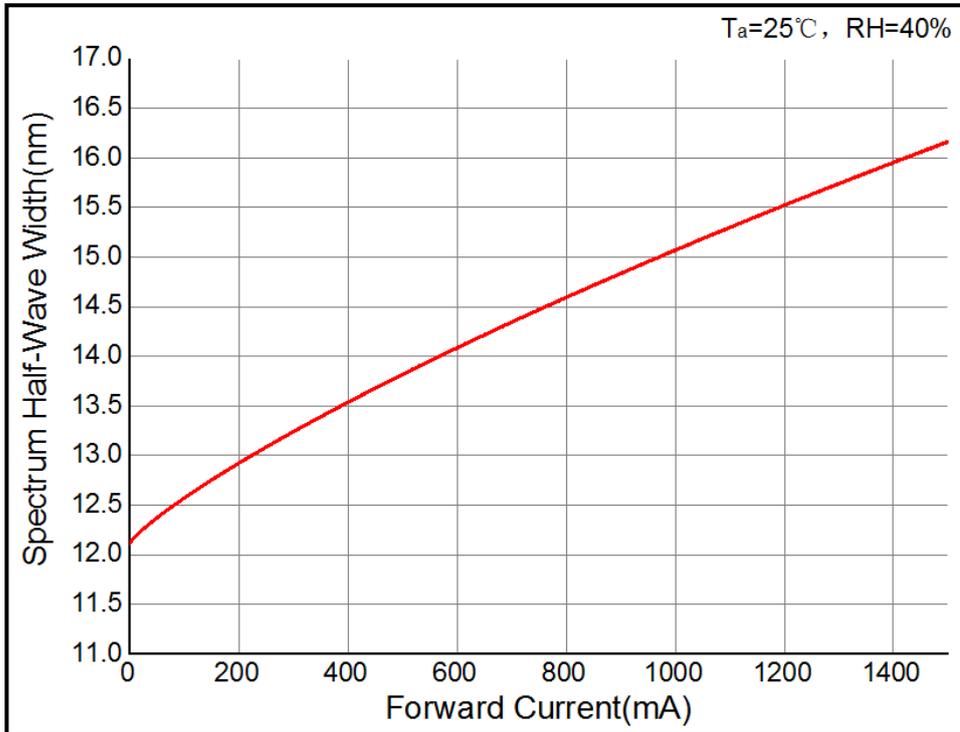
4. Peak Wavelength vs Forward Current



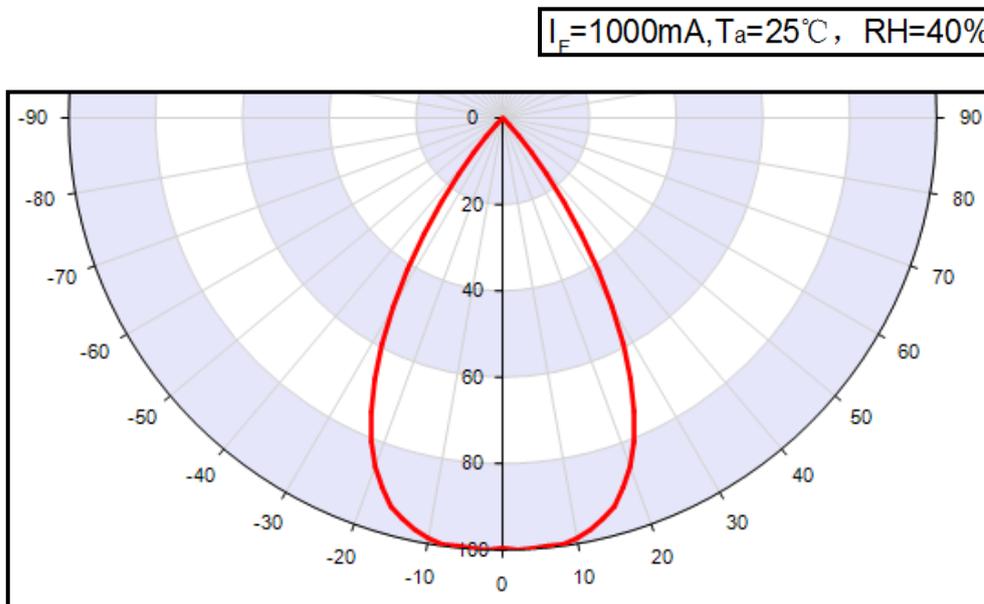


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5. Spectrum Half-Wave Width vs Forward Current



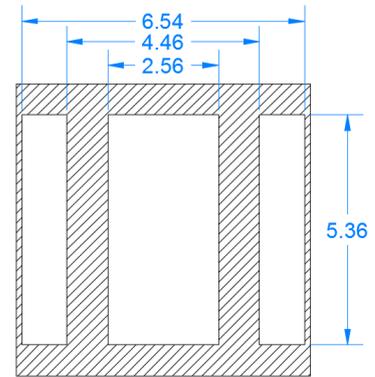
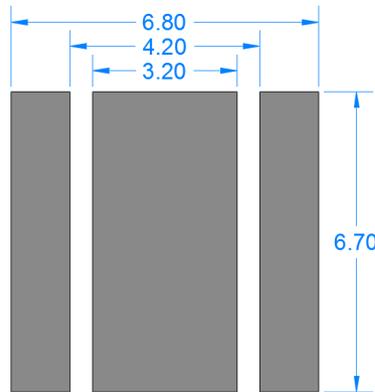
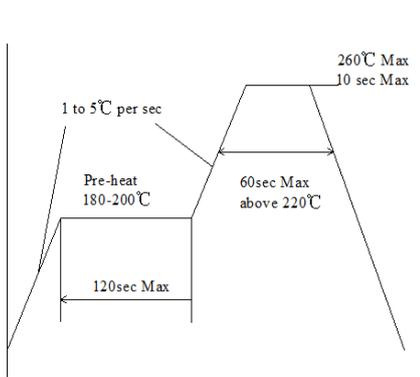
6. Spatial Distribution Graph





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Product Application Information



Recommended Reflow Soldering Condition
(Lead-free solder)

Recommended Soldering pad Layout
(Unit: mm)

Recommended Soldering Mask Layout
(Unit: mm)

Notes:

- *This LED is designed to be reflow soldered on to a PCB. If dip soldered or hand soldered, 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.
- *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.
- *The recommended soldering pad pattern is designed for attachment of the LED without problems.
When precise mounting accuracy is required, such as high-density mounting, ensure that the size and shape of the pad are suitable for the circuit design.
- *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.

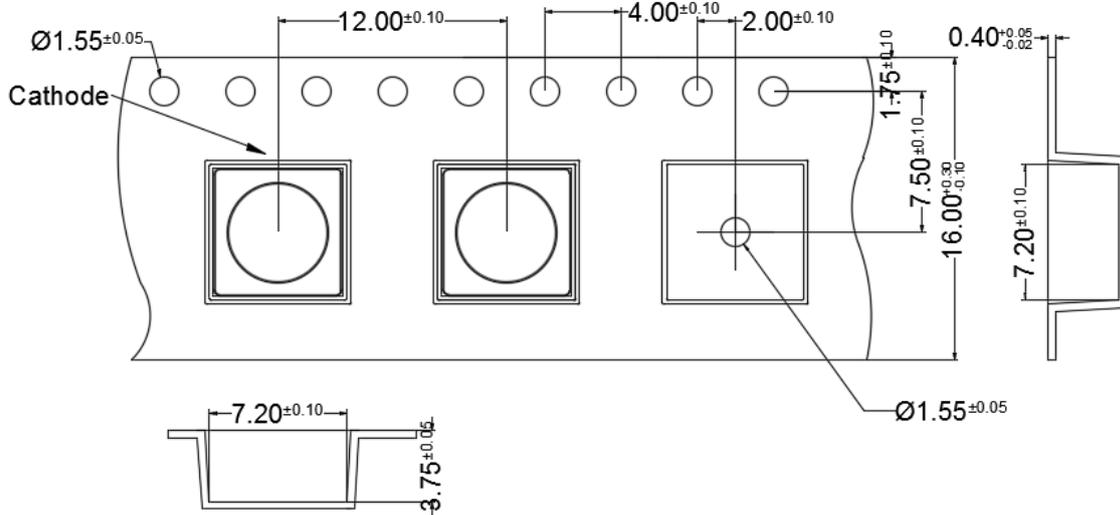


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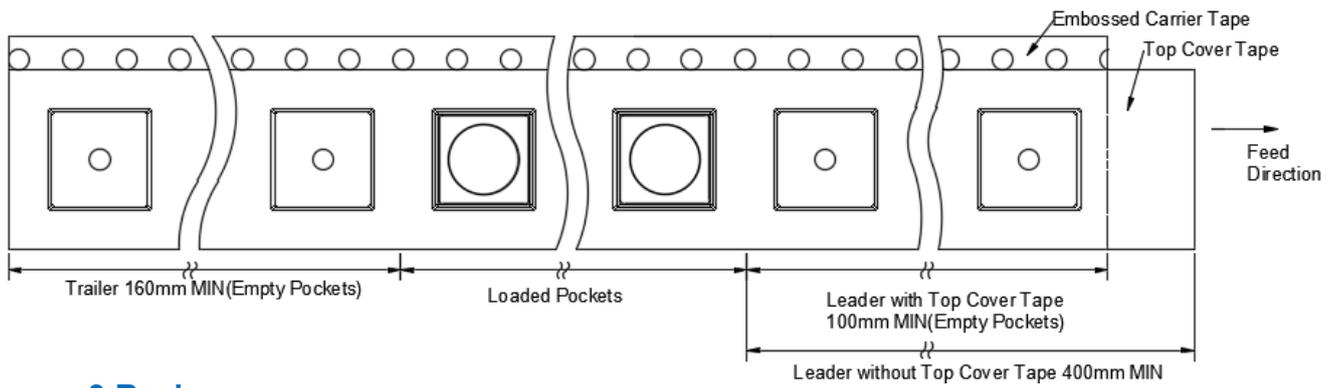
Packing Information

Unit : mm

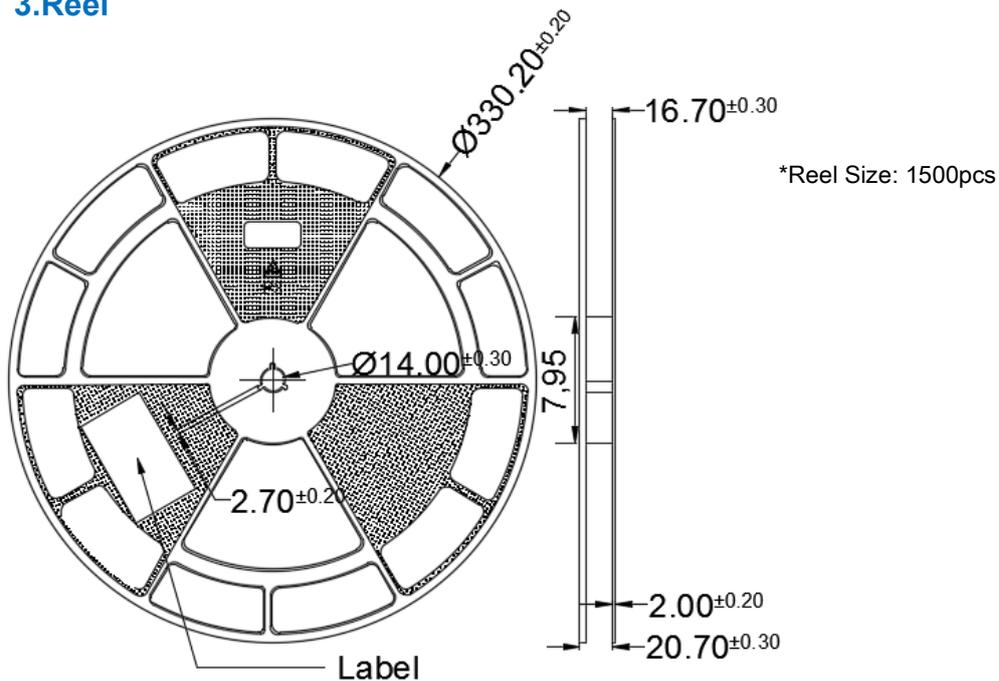
1. Tape



2. Trailer and Leader



3. Reel

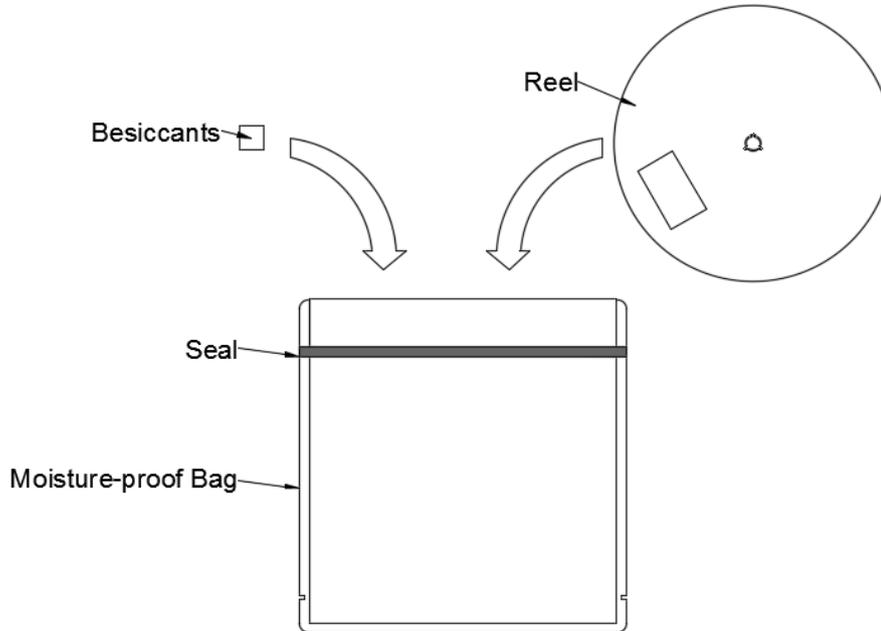




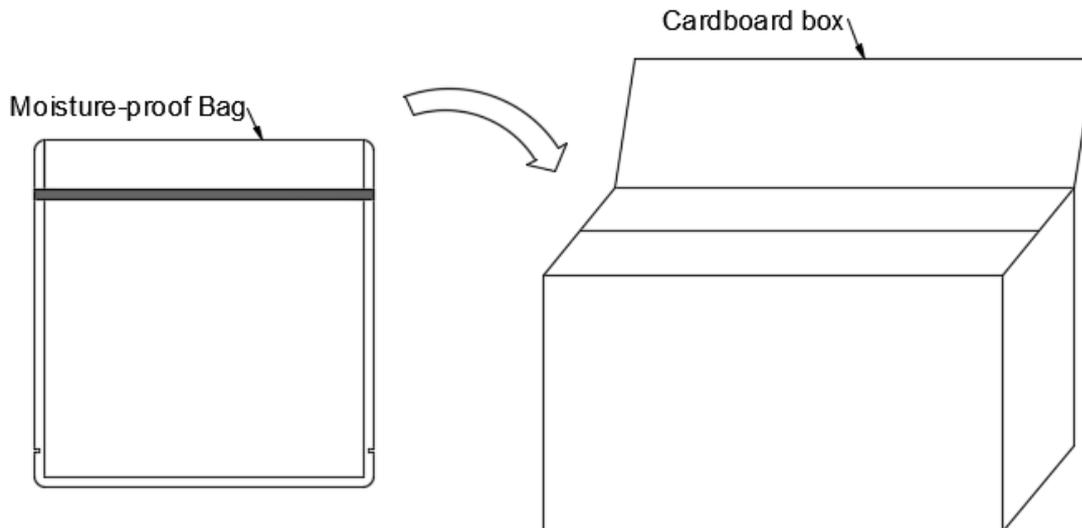
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Packing Information

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.



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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($\leq 1\text{mA}$).

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.

