



Technical Data Sheet

Specification

CMH268A0V114Z6-S2P2

(405nm)



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
2017.08.18	2017.08.18	2017.08.18
XIONG	CHEN	TANG



Under Development	
Mass Production	●



ATTENTION
OBSERVE PRECAUTIONS
FOR HANDLING
ELECTROSTATIC
DISCHARGE
SENSITIVE
DEVICES



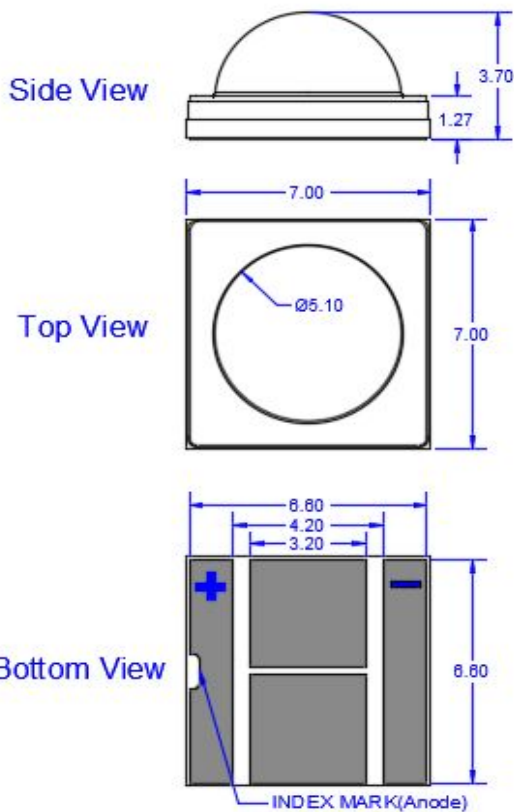
Features

- 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

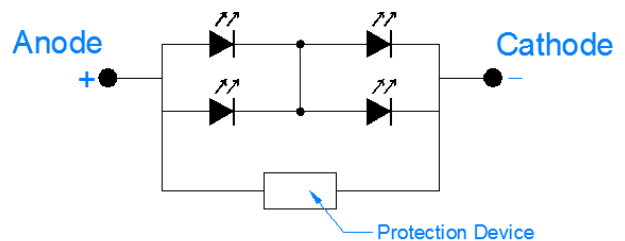
Package Dimensions (Unit: mm)



Product ID:

405nm: CMH268A0V114Z6-S2P2

Circuit:



Tolerance : ± 0.20mm



Characteristics of UV LED

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

Parameter	Symbol	Units	CMH268A0V114Z6-S2P2 (IF=2000mA)
Peak Wavelength [1]	λ_p	nm	400-410
Radiant Flux [2]	Φ_e [3]	mW	8000-9000
Forward Voltage [4]	VF	V	7.0-8.6
Thermal Resistance [5]	R _{th}	°C/W	1-2
Spectrum Half Width	$\Delta\lambda$	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 (Ta=25°C,RH=40%)

Parameter	Symbol	Units	CMH268A0V114Z6-S2P2
Maximum Rating Forward Current	I _{Fmax}	mA	3000
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=2000mA, Ta=25°C,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	7.0-7.2	A0101	A0102	A0103	A0104	A0105	A0106
	7.2-7.4	A0107	A0108	A0109	A0110	A0111	A0112
	7.4-7.6	A0113	A0114	A0115	A0116	A0117	A0118
	7.6-7.8	A0119	A0120	A0121	A0122	A0123	A0124
	7.8-8.0	A0125	A0126	A0127	A0128	A0129	A0130
	8.0-8.2	A0131	A0132	A0133	A0134	A0135	A0136
	8.2-8.4	A0137	A0138	A0139	A0140	A0141	A0142
	8.4-8.6	A0143	A0144	A0145	A0146	A0147	A0148
	8.6-8.8	A0149	A0150	A0151	A0152	A0153	A0154
	8.8-9.0	A0155	A0156	A0157	A0158	A0159	A0160
405-410	7.0-7.2	A0299	A0300	A0301	A0302	A0303	A0304
	7.2-7.4	A0305	A0306	A0307	A0308	A0309	A0310
	7.4-7.6	A0311	A0312	A0313	A0314	A0315	A0316
	7.6-7.8	A0317	A0318	A0319	A0320	A0321	A0322
	7.8-8.0	A0323	A0324	A0325	A0326	A0327	A0328
	8.0-8.2	A0329	A0330	A0331	A0332	A0333	A0334
	8.2-8.4	A0335	A0336	A0337	A0338	A0339	A0340
	8.4-8.6	A0341	A0342	A0343	A0344	A0345	A0346
	8.6-8.8	A0347	A0348	A0349	A0350	A0351	A0352
	8.8-9.0	A0353	A0354	A0355	A0356	A0357	A0358

Notes:

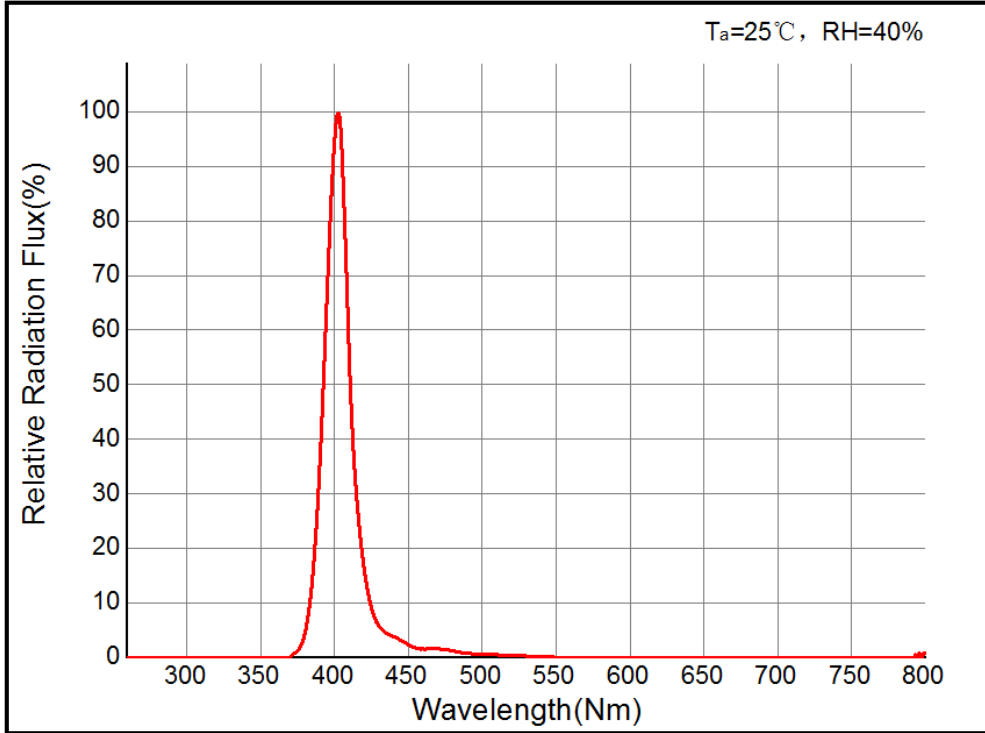
- *Forward voltage measurement tolerance:±3%
- *Radiant flux measurement tolerance:±10%
- *Φ_e is the total radiant Flux as measured with an integrated sphere
- *LEDs from the above ranks will be shipped.
- *The rank combination ratio per shipment will be decided by Bytech.
- *Peak wavelength measurement tolerance:±3nm



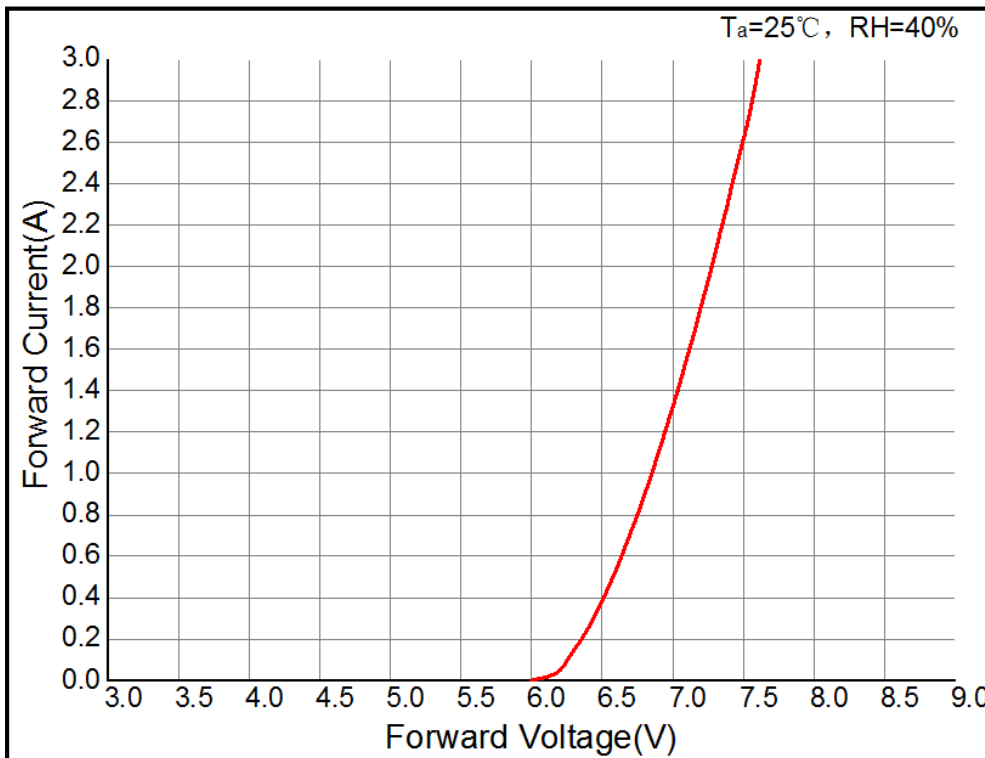
Under Development	
Mass Production	●

Characteristics Diagrams

1. Relative Spectrum Power Distribution



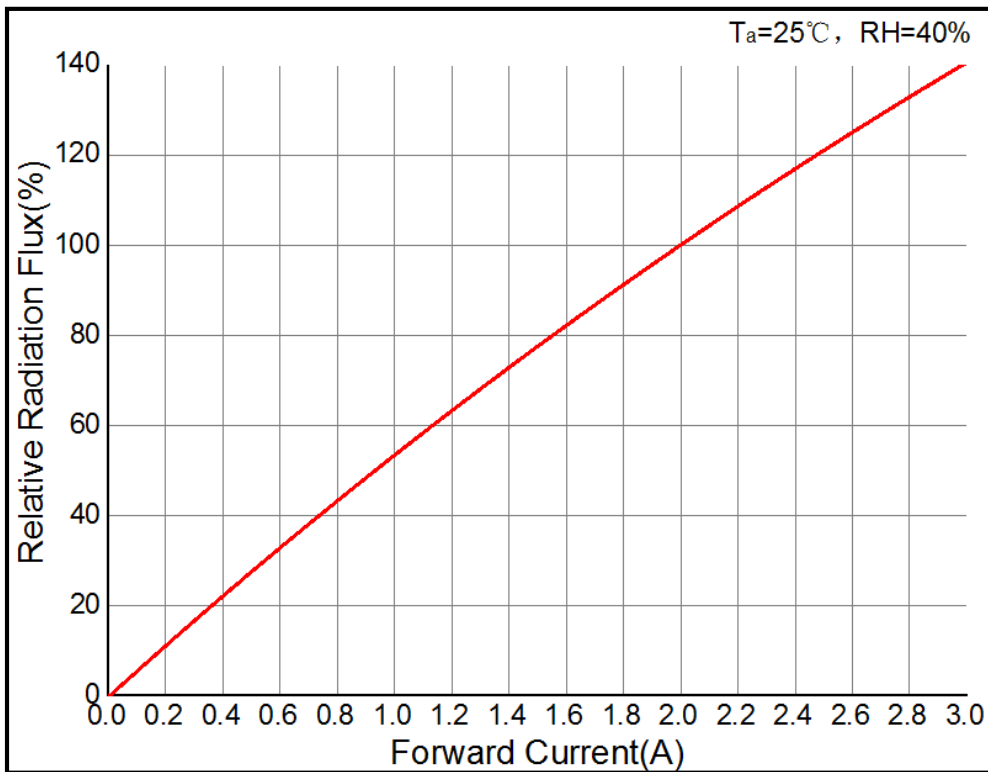
2. Forward Voltage vs Forward Current



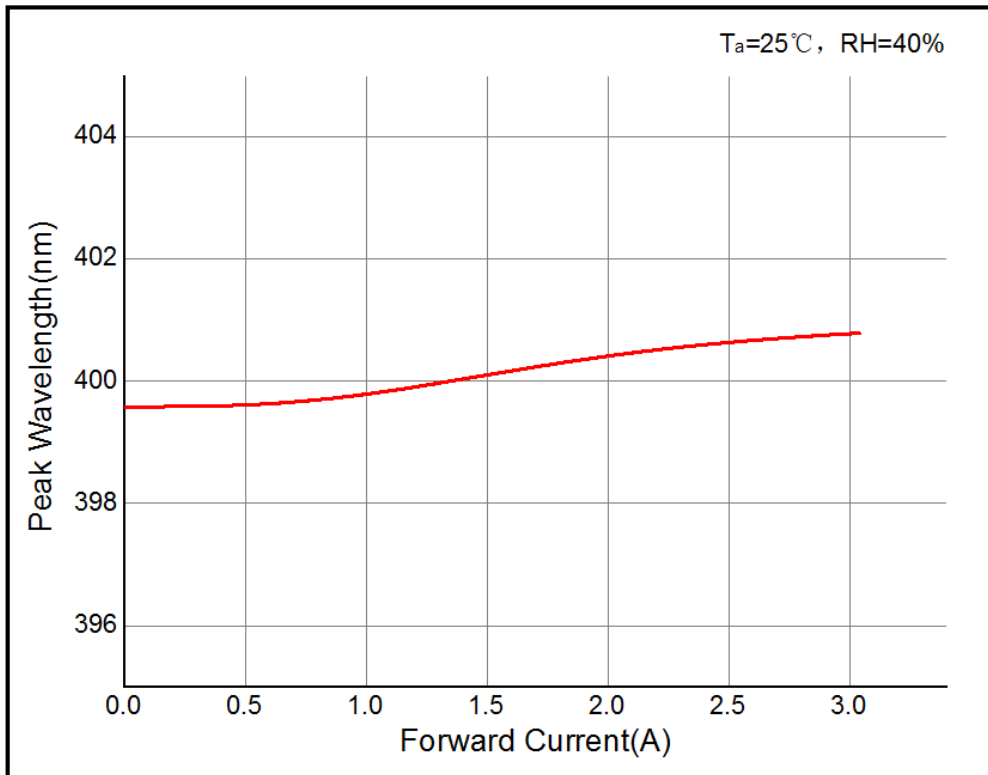


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3. Relative Radiation Flux vs Forward Current



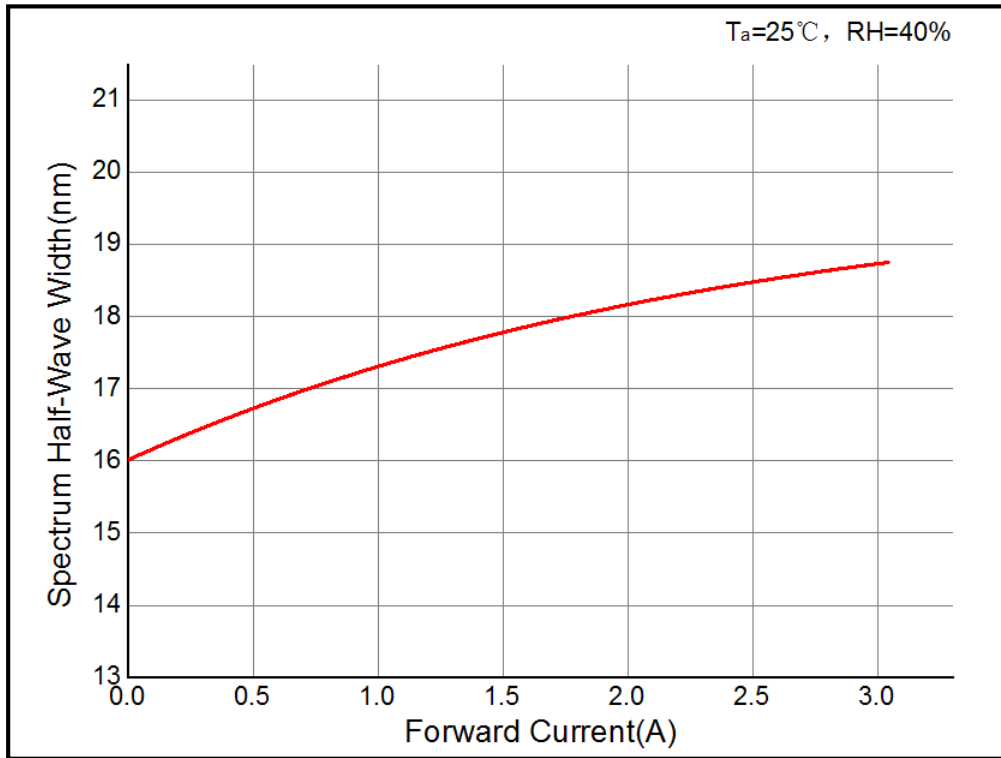
4. Peak Wavelength vs Forward Current



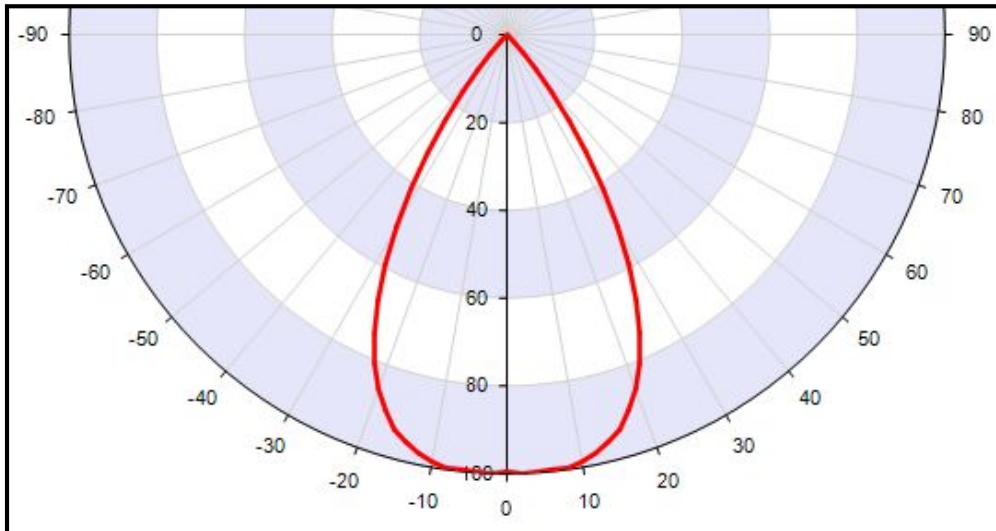


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5. Spectrum Half-Wave Width vs Forward Current



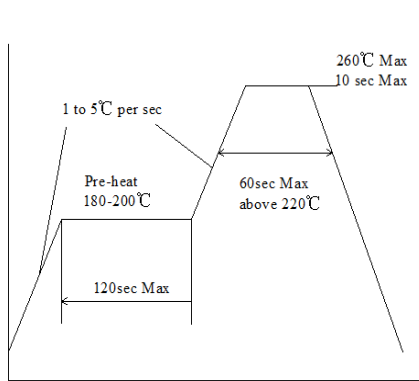
6. Spatial Distribution Graph



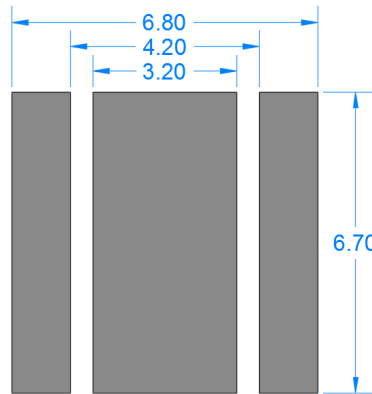


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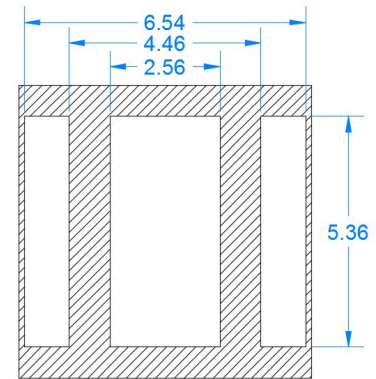
Product Application Information



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.

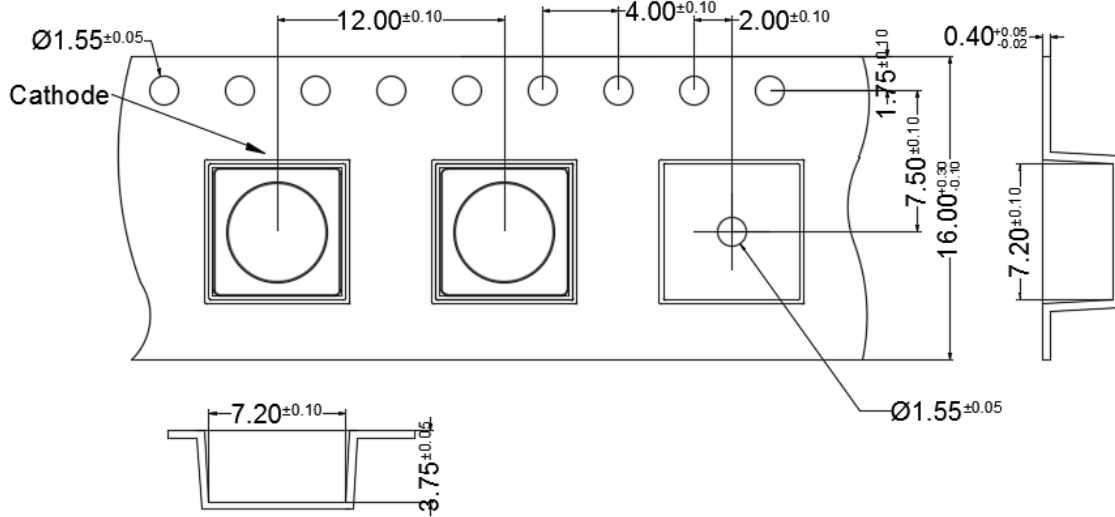


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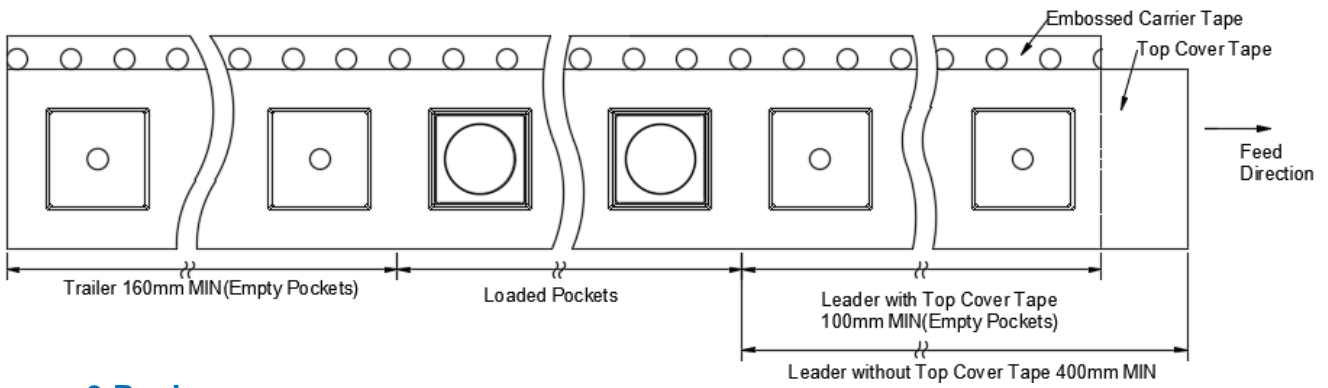
Packing Information

Unit : mm

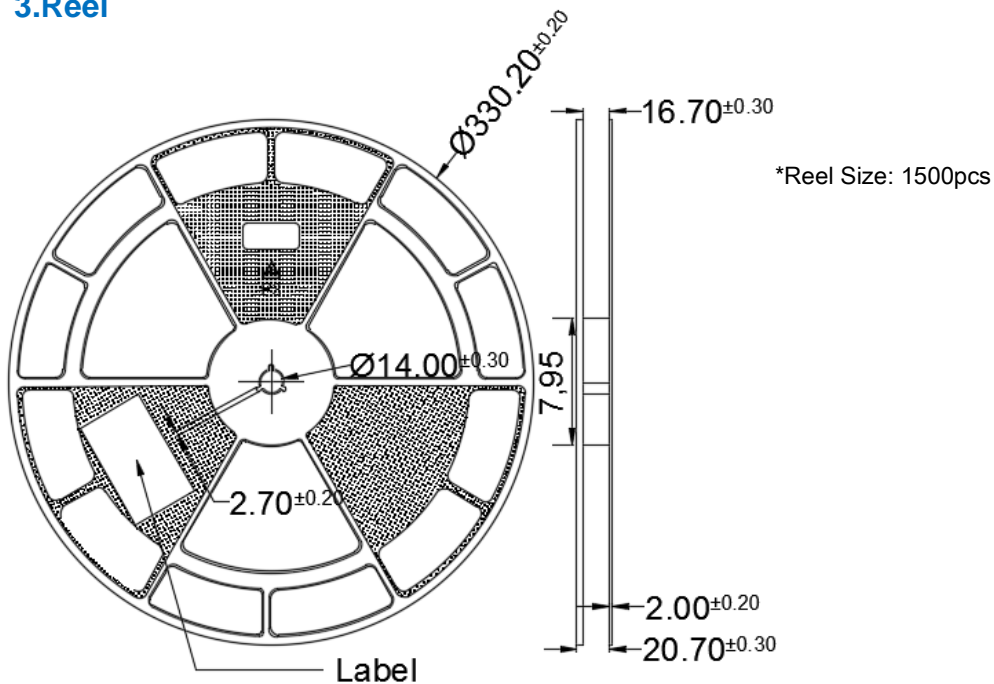
1. Tape



2. Trailer and Leader



3. Reel

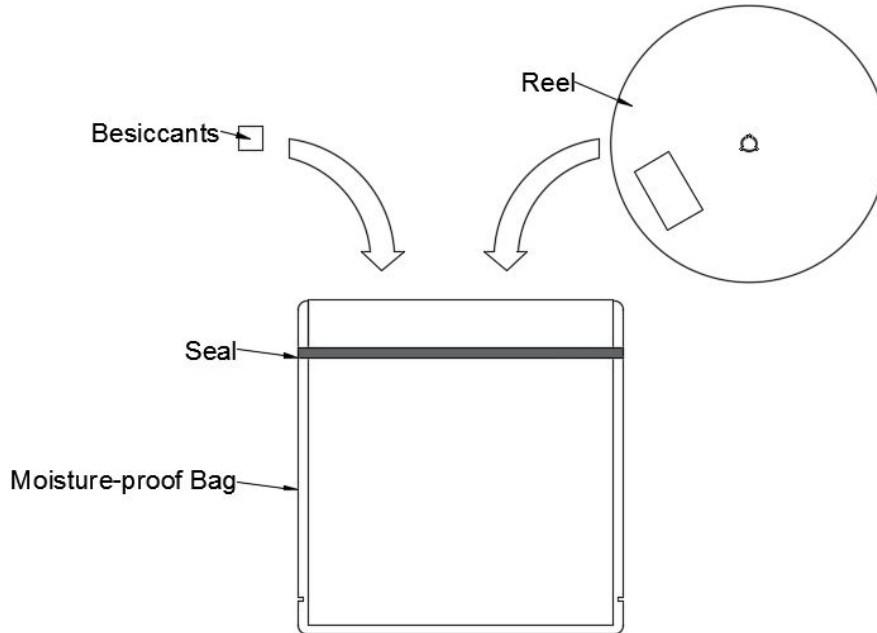




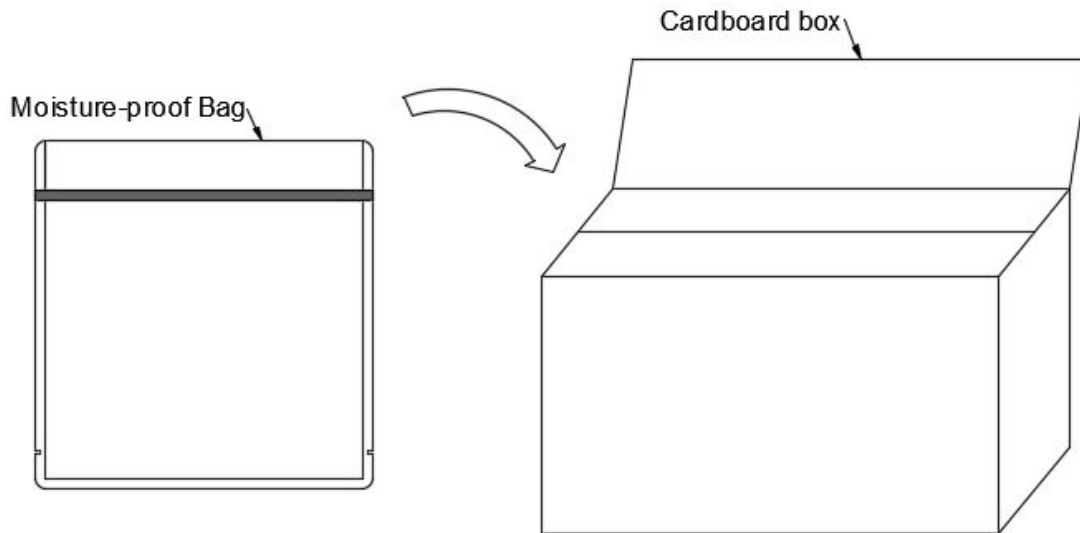
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Packing Information

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



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





Under Development	
Mass Production	●

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.



