

Data Sheet

Customer: _____

Part No: **CL-SP2106DBW-02(5mA)**

Sample No: _____

Description: _____

Item No: _____

Customer			
Check	Inspection	Approval	Date



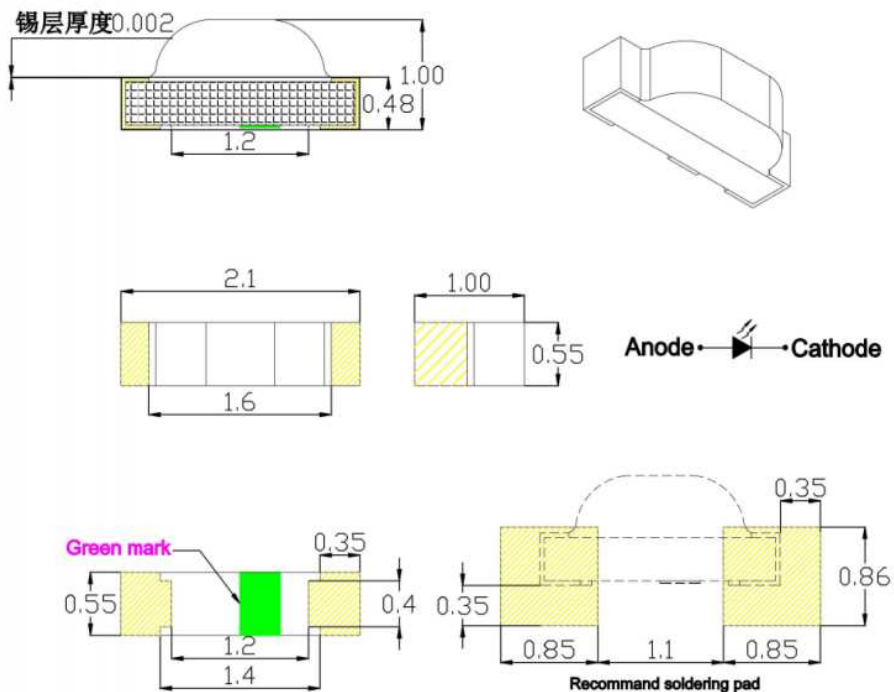
Features

- _2.1mmX0.55mm SMT LED, 1.0 mm THICKNESS.
- _LOW POWER CONSUMPTION.
- _WIDE VIEWING ANGLE.
- _IDEAL FOR BACKLIGHT AND INDICATOR.
- _VARIOUS COLORS AND LENS TYPES AVAILABLE.
- _PACKAGE: 4000 PCS / REEL.
- _RoHS COMPLIANT.

Description

The Yellow source color devices are made with
Gallium
Arsenide Phosphide on Gallium Phosphide
Yellow Light

Package Dimensions



Notes:

1. All dimensions are in millimeters (inches).
2. Tolerance is ± 0.1 (0.004") unless otherwise noted.
3. Specifications are subject to change without notice.

Selection Guide

Part No.	Dice	Lens Type	Iv (mcd) @ 20mA		Viewing Angle
			Min.	MAX.	2 θ 1/2
CL-SP2106DBW-02(5mA)	WHITE (GaN)	Yellow Diffused	140	361	120

Note:

1. θ1/2 is the angle from optical centerline where the luminous intensity is 1/2 the optical centerline value.

Electrical / Optical Characteristics at TA=25°C

Symbol	Parameter	Device	Typ.	Max.	Units	Test Conditions
λ _{peak}	Peak Wavelength	White			nm	IF=5mA
λ _D	Dominant Wavelength	White			nm	IF=5mA
Δλ _{1/2}	Spectral Line Half-width	White			nm	IF=5mA
C	Capacitance	White			pF	VF=0V;f=1MHz
VF	Forward Voltage	White	2.6	3.1	V	IF=5mA
IR	Reverse Current	White		2	uA	VR = 5V

Remarks:

If special sorting is required (e.g. binning based on forward voltage, luminous intensity, or wavelength), the typical accuracy of the sorting process is as follows:

1. Wavelength: +/-1nm
2. Luminous Intensity: +/-15%
3. Forward Voltage: +/-0.1V

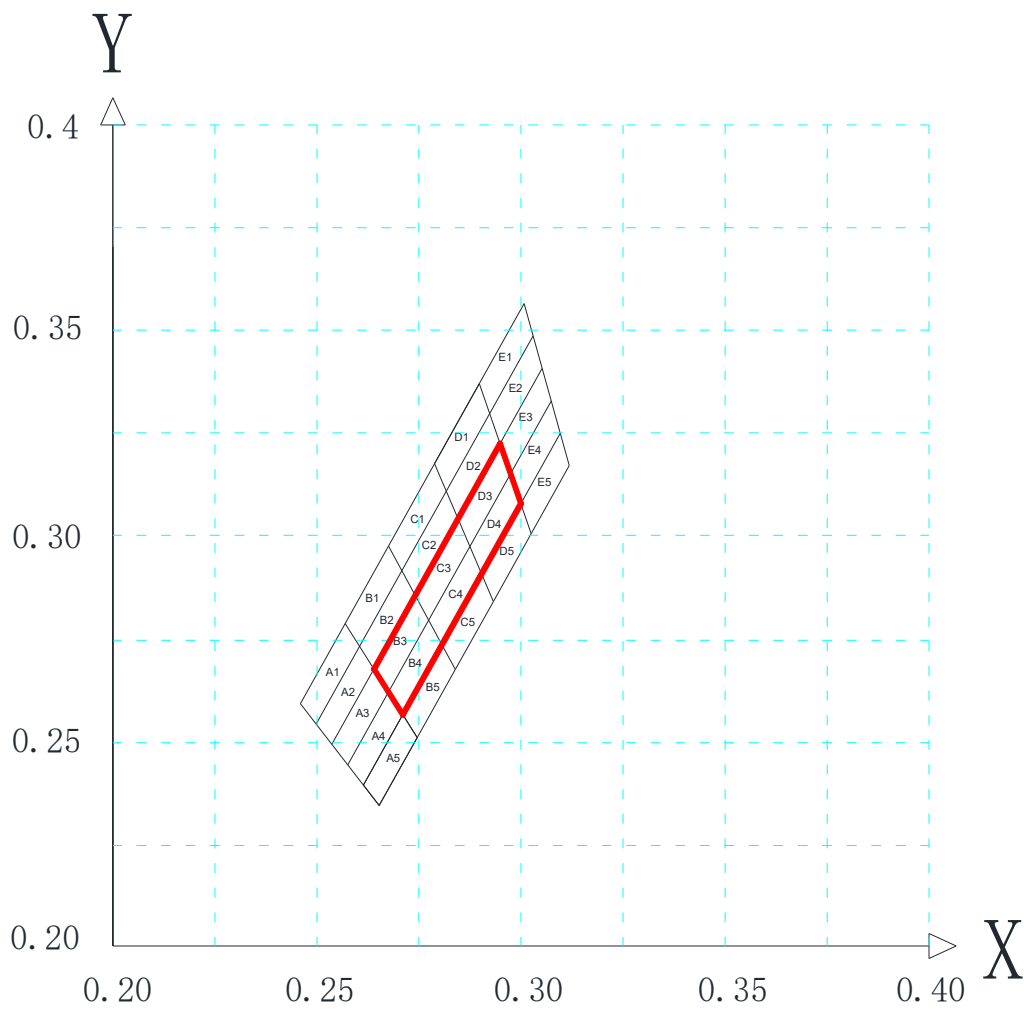
Note: Accuracy may depend on the sorting parameters

Absolute Maximum Ratings at TA=25°C

Parameter	White	Units
Power dissipation	80	mW
DC Forward Current	25	mA
Peak Forward Current [1]	100	mA
Reverse Voltage	5	V
Operating/Storage Temperature	-40°C To +85°C	

Note:

1. 1/10 Duty Cycle, 0.1ms Pulse Width.



Bin Code	CIE-X	CIE-Y	Bin Code	CIE-X	CIE-Y	Bin Code	CIE-X	CIE-Y
A1	0.2459	0.259	B1	0.2569	0.2785	C1	0.2675	0.2974
	0.2569	0.2785		0.2675	0.2974		0.2788	0.3175
	0.2604	0.273		0.2708	0.2914		0.2817	0.3108
	0.2498	0.2541		0.2604	0.273		0.2708	0.2914
	0.2459	0.259		0.2569	0.2785		0.2675	0.2974
A2	0.2498	0.2541	B2	0.2604	0.273	C2	0.2708	0.2914
	0.2604	0.273		0.2708	0.2914		0.2817	0.3108
	0.264	0.2674		0.2741	0.2854		0.2846	0.3041
	0.2537	0.2491		0.264	0.2674		0.2741	0.2854

	0.2498	0.2541		0.2604	0.273		0.2708	0.2914
A3	0.2537	0.2491	B3	0.264	0.2674	C3	0.2741	0.2854
	0.264	0.2674		0.2741	0.2854		0.2846	0.3041
	0.2675	0.2619		0.2773	0.2794		0.2874	0.2973
	0.2575	0.2441		0.2675	0.2619		0.2773	0.2794
	0.2537	0.2491		0.264	0.2674		0.2741	0.2854
A4	0.2575	0.2441	B4	0.2675	0.2619	C4	0.2773	0.2794
	0.2675	0.2619		0.2773	0.2794		0.2874	0.2973
	0.271	0.2563		0.2806	0.2734		0.2903	0.2906
	0.2614	0.2392		0.271	0.2563		0.2806	0.2734
	0.2575	0.2441		0.2675	0.2619		0.2773	0.2794
A5	0.2614	0.2392	B5	0.271	0.2563	C5	0.2806	0.2734
	0.271	0.2563		0.2806	0.2734		0.2903	0.2906
	0.2746	0.2508		0.2839	0.2673		0.2932	0.2839
	0.2653	0.2342		0.2746	0.2508		0.2839	0.2673
	0.2614	0.2392		0.271	0.2563		0.2806	0.2734

Bin Code	CIE-X	CIE-Y	Bin Code	CIE-X	CIE-Y
D1	0.2788	0.3175	E1	0.2898	0.337
	0.2898	0.337		0.3007	0.3565
	0.2923	0.3297		0.303	0.3486
	0.2817	0.3108		0.2923	0.3297
	0.2788	0.3175		0.2898	0.337
D2	0.2817	0.3108	E2	0.2923	0.3297
	0.2923	0.3297		0.303	0.3486
	0.2949	0.3224		0.3052	0.3407

	0.2846	0.3041		0.2949	0.3224
	0.2817	0.3108		0.2923	0.3297
D3	0.2846	0.3041	E3	0.2949	0.3224
	0.2949	0.3224		0.3052	0.3407
	0.2974	0.3151		0.3074	0.3328
	0.2874	0.2973		0.2974	0.3151
	0.2846	0.3041		0.2949	0.3224
D4	0.2874	0.2973	E4	0.2974	0.3151
	0.2974	0.3151		0.3074	0.3328
	0.3	0.3078		0.3096	0.3249
	0.2903	0.2906		0.3	0.3078
	0.2874	0.2973		0.2974	0.3151
D5	0.2903	0.2906	E5	0.3	0.3078
	0.3	0.3078		0.3096	0.3249
	0.3025	0.3005		0.3118	0.317
	0.2932	0.2839		0.3025	0.3005
	0.2903	0.2906		0.3	0.3078

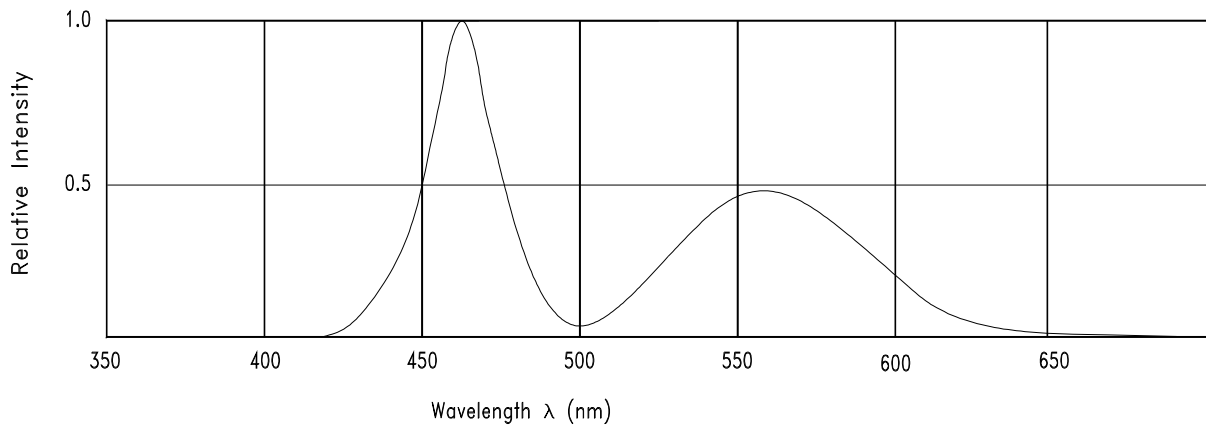


Fig.1 Relative Intensity vs. Wavelength

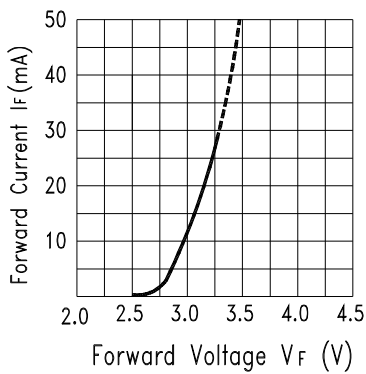


Fig.2 Forward Current vs.
Forward Voltage

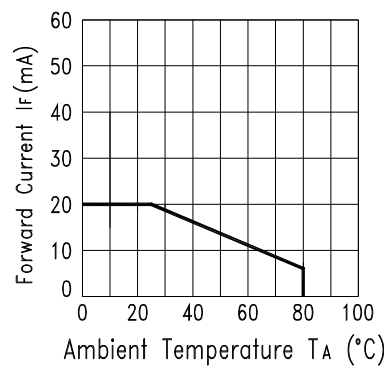


Fig.3 Forward Current
Derating Curve

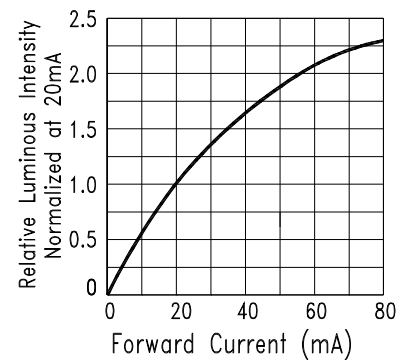


Fig.4 Relative Luminous Intensity
vs. Forward Current

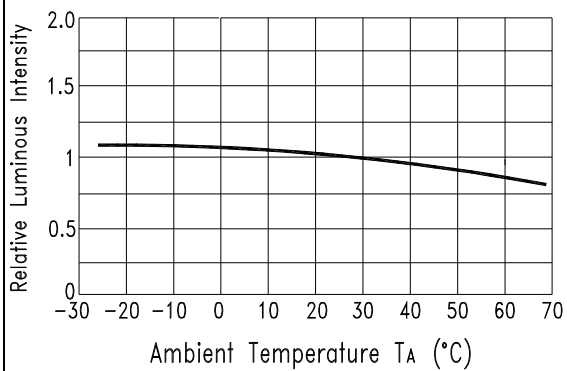


Fig.5 Luminous Intensity vs. Ambient Temperature

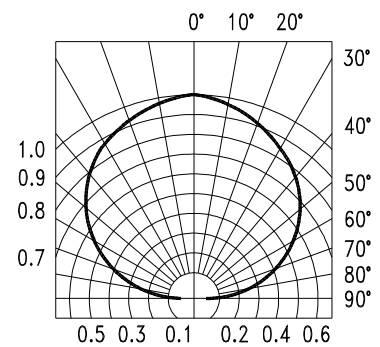


Fig.6 Spatial Distribution

4. RELIABILITY

(1) Test Items and Results

NO.	Test Item	Reference Standard	Test Conditions	(Hours/ Cycles)	Sample	Number of Damaged
1	Temperature Cycle	JEITA ED-4701	-40 °C - 25 °C - 100 °C - 25 °C 30min 5min 30min 5min	100 Cycles	20	0/20
2	Thermal shock	MIL-STD-202G	-40°C ~ 100°C 15min 15min	500 Cycles	20	0/20
3	High Temperature Storage	JEITA ED-4701 200 201	Ta=100°C	1000 Hours	20	0/20
4	Low Temperature Storage	JEITA ED-4701 200 201	Ta=-40°C	1000 Hours	20	0/20
5	Room Temperature Life Test		Ta=25±5°C IF=20mA	1000 Hours	20	0/20
6	High Temperature High Humidity Life Test		Ta=60°C RH=85% IF=20mA	1000 Hours	20	0/20
7	Solderability (Reflow Soldering)	JEITA ED-4701 300 303	Tsol=235°C ± 5°C, 5sec (Using Flux, Lead Solder)	1 time, 5sec	10	0/10
8	Resistance to Soldering Heat (Reflow Soldering)	JEITA ED-4701 300 301	Tsol=260°C, 10 sec Pre Treatment: 35 °C 95% RH96 Hrs	2 time, 10sec	10	0/10

The above test items such as differences or special customer specific requirements according to the actual situation in accordance with the requirements of customers to try the requirements with the customer, the customer is not required by our test standard test. Different products using different current test

5. Cautions

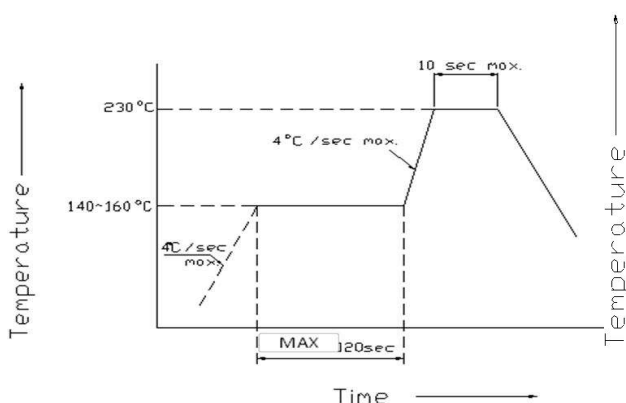
(1) Soldering Conditions

Number of reflow process shall be less than 2 times and cooling process to normal temperature is required between first and Second soldering process.

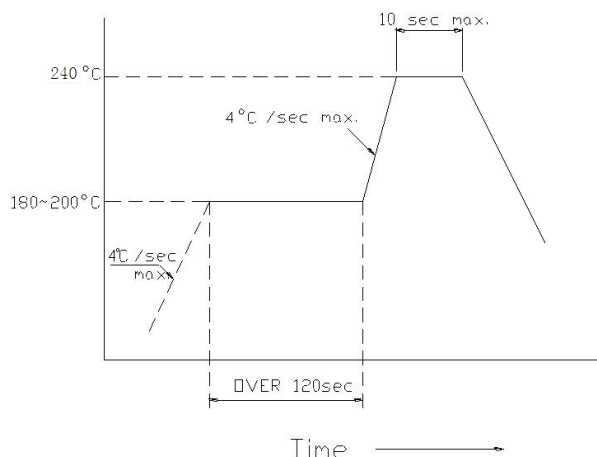
(Recommended soldering conditions)

Reflow Soldering			Manual Soldering	
	Lead Solder	Lead-free Solder	Temperature	350° C Max.
Pre-heat			Soldering	3 sec. Max.
Pre-heat	140 ~ 160° C	180 ~ 200° C	time	(one time only)
time	120 sec. Max.	120 sec. Max.		
Peak	230° C Max.	240° C Max.		
temperature	10 sec. Max.	10 sec. Max.		
Soldering				
time				
Condition				

(Lead Solder)



(Lead-Free Solder)



(2) Static Electricity

It is recommended that a wrist band or an anti-electrostatic glove be used when handling the LEDs.

All devices, equipment and machinery must be properly grounded.

Damaged LEDs will show some unusual characteristics such as the forward voltage becomes lower, or the LEDs do not light at the low current. Criteria : ($V_F > 2.0V$ at $I_F=0.5mA$)

(3) Moisture Proof Package

It is recommended that moisture proof package be used .

(4)Cautions:

4.1.Please check if there is air leak before opening the package, if so, please return the goods back to take drying process for later using.

4.2 Products can be used within 15days after packaging, after that, they must be:

4.2.1 Soldered within 24 hrs

4.2.2 Used in the condition: $30^{\circ}C$ within and 60%RH below

4.2.3 Stored in 30%RH for moisture below.

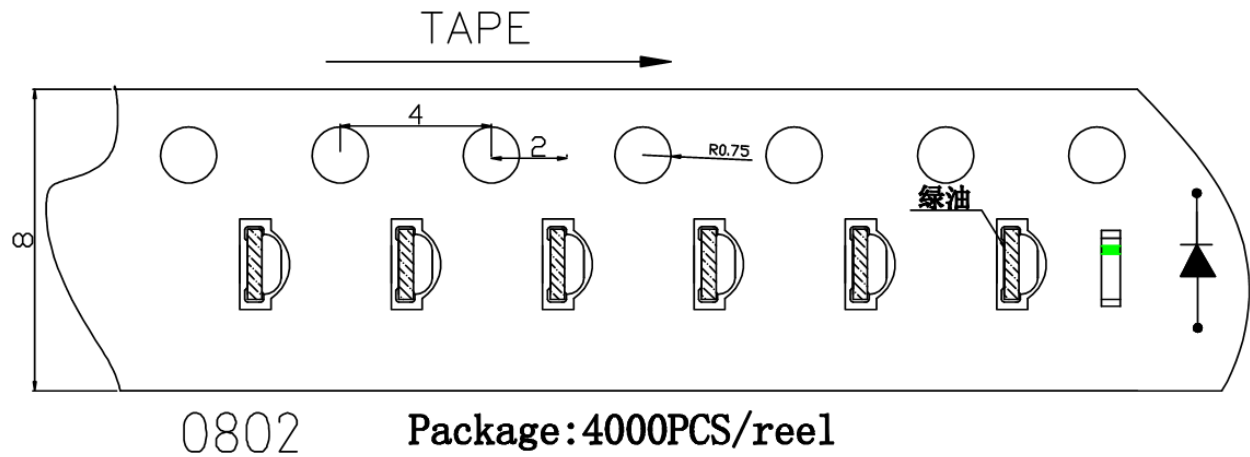
4.3.Products cannot be used for and over 15days after being packaged unless opening the package and take drying our process in $85^{\circ}C/6H$.

4.4.Products not be used for or over 60days after being packaged please return back to take drying out and packaging process for forward using.

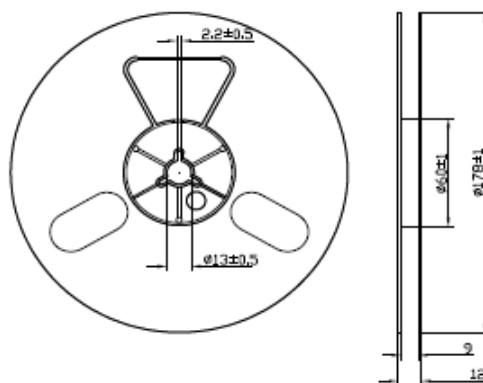
4.5.Products not be used after opening the package need to be dried out for $85^{\circ}C/6H$

PACKAGING

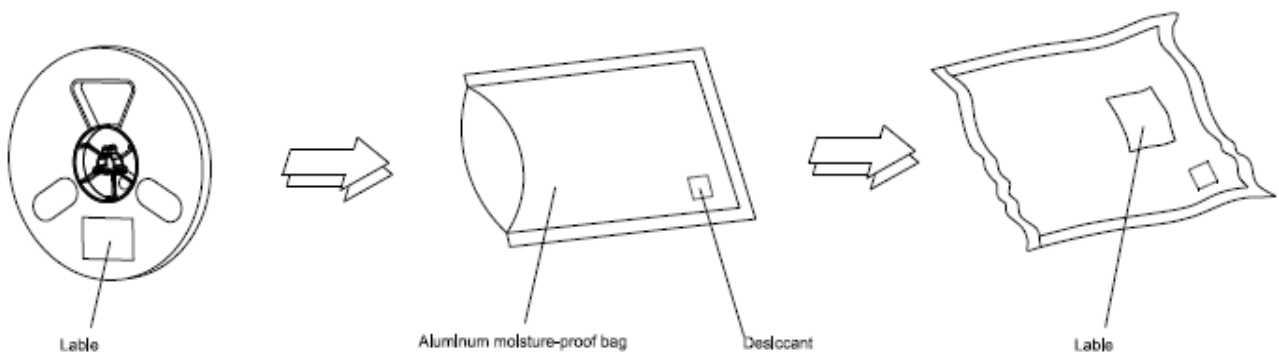
The LEDs are packed in cardboard boxes after taping.



Reel Dimensions



Moisture Resistant Packaging



Note: The tolerances unless mentioned is $\pm 0.1\text{mm}$, Unit: mm