Data Sheet

Customer: _____

Part No: CL-SP1615GRB-02(6PIN)

Sample No: _____

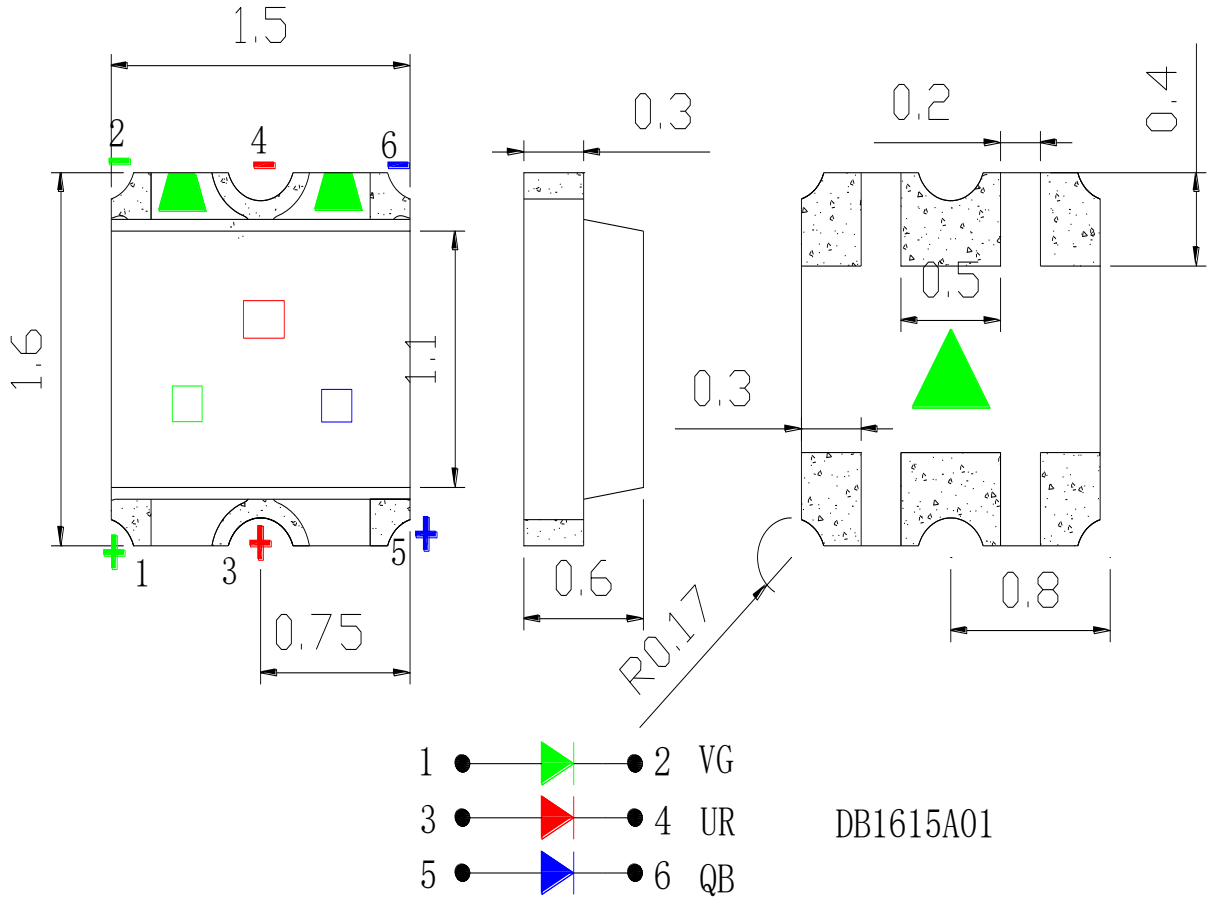
Description: _____

Item No: _____

Customer			
Check	Inspection	Approval	Date

1. Dimensions

(Units):(mm)



All dimensions area in mm tolerance is ±0.05mm unless otherwise noted. tes:

2. Electrical / Optical characteristics

(1) Absolute Maximum Ratings (TA=25°C)

tem	Symbol	Absolute Maximum Rating			Unit
		Blue	Green	Red	
Forward Current	IF	25	25	25	mA
Pulse Forward Current	IFP	90	90	60	mA
Reverse Voltage	VR	5			V
Power Dissipation	PD	135			mW
Operating Temperature	Topr	-40°C To +85°C			° C
Storage Temperature	Topr	-40°C To +85°C			° C
Soldering Temperature	Tsld	Reflow Soldering:240°C			for 10sec.
		Hand Soldering :350°C			for 3sec

IFP Conditions : 1/10 Duty Cycle, 0.1 msec Pulse Width

(2) Initial Electrical/Optical Characteristics (TA=25°C)

Symbol	Item	Units	Device	Min	Typ.	Max.	Test Conditions
VF	Forward Voltage	V	Blue	2.8	3.0	3.3	IF=20mA
			Green	2.8	3.0	3.3	IF=20mA
			Red	1.8	1.9	2.2	IF=20mA
IR	Reverse Current	uA	-	-	-	2	VR=7V
Δ λ1/2	Viewing Angle	°	-	-	120	-	IF=5mA
C	Capacitance	PF	Blue	-	100	-	VF=0V f=1MHz
			Green	-	40	-	
			Red	-	25	-	
Iv	LuminousIntensity	Mcd	Blue	100	150	200	IF=20mA
			Green	500	650	800	IF=20mA
			Red	100	150	200	IF=20mA
λD	Doninant Wavelength	Nm	Blue	466	469	474	IF=20mA

	DominateWavelength		Green	518	522	526	IF=20mA
			Red	618	620	625	IF=20mA

Tolerance of measurement of Vf is ±0.05 V..
Luminous Intensity Measurement allowance is ± 10%.

Item	EmittingColor	Symbol	TestConditions	Min.	Max.	Units
Luminous Intensity	R	Iv	IF=20mA	100	200	Mcd
	G	Iv	IF=20mA	500	800	Mcd
	B	Iv	IF=20mA	100	200	Mcd

Color Coordinates Measurement allowance is ± 1nm.

(3)Luminous Intensity Ranking (TA=25°C)

Luminous Intensity Measurement allowance is ± 10%.

Above are the reference for minimum and maximum of luminous intensity which rank in the rate of 1:1.35 in the process of light splitting when manufacturing massively

(4) Color Coordinates Ranking (TA=25°C)

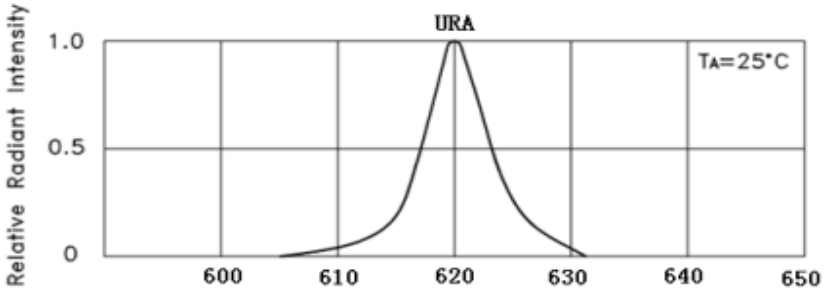
Item	EmittingColor	Symbol	Test Conditions	Min.	Max.	Units
Dominate Wavelength	R	λD	IF=20mA	618	625	nm
	G	λD	IF=20mA	518	526	nm
	B	λD	IF=20mA	466	474	nm

Color Coordinates Measurement allowance is ± 0.5nm.

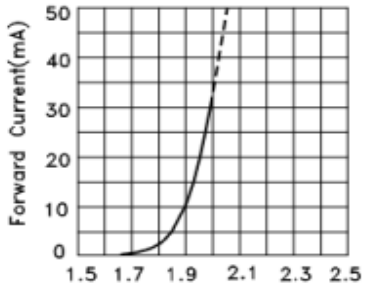
Above are the reference for minimum and maximum of wavelength, while it ranks as:R:5nm/G:2.5nm/B:2.5nm,when light splitting in mass manufacturing.

3. Characteristic curve

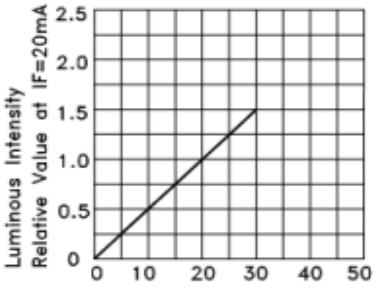
Red



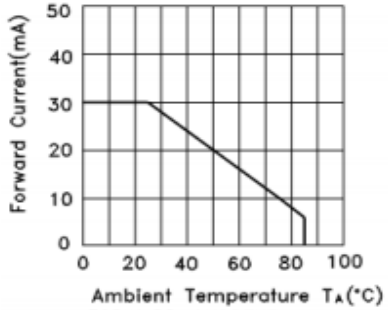
RELATIVE INTENSITY Vs. WAVELENGTH



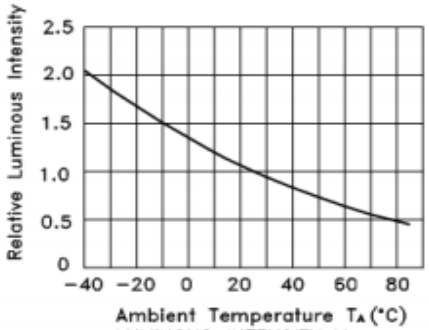
FORWARD CURRENT Vs.
FORWARD VOLTAGE



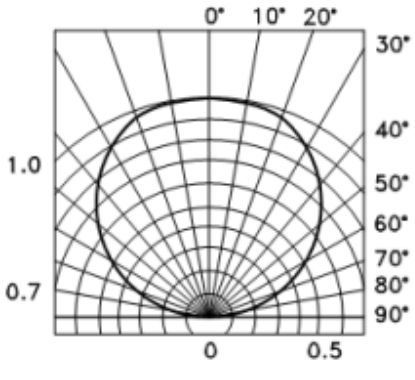
LUMINOUS INTENSITY Vs.
FORWARD CURRENT



FORWARD CURRENT
DERATING CURVE

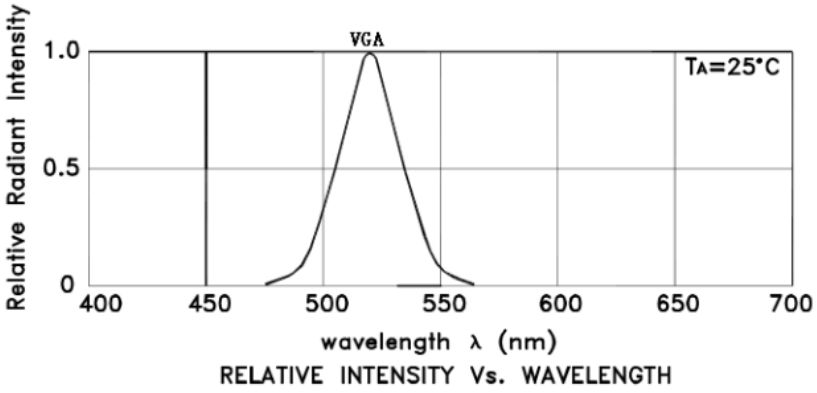


LUMINOUS INTENSITY Vs.
AMBIENT TEMPERATURE

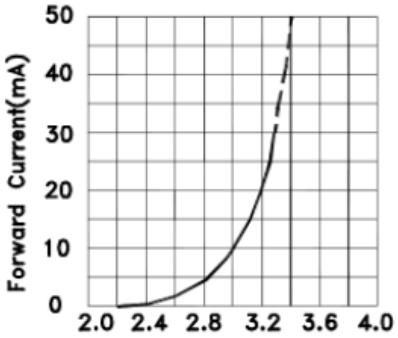


SPATIAL DISTRIBUTION

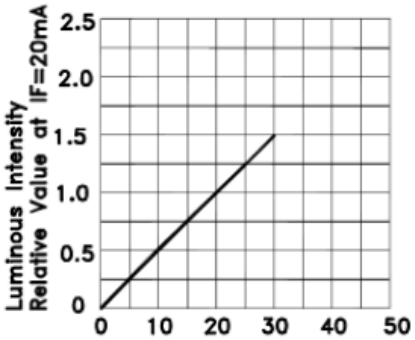
Green



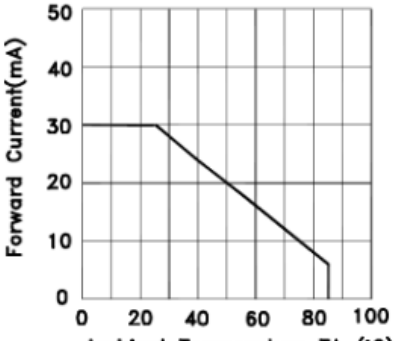
RELATIVE INTENSITY Vs. WAVELENGTH



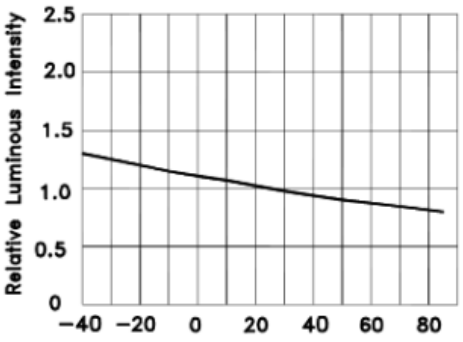
FORWARD CURRENT Vs. FORWARD VOLTAGE



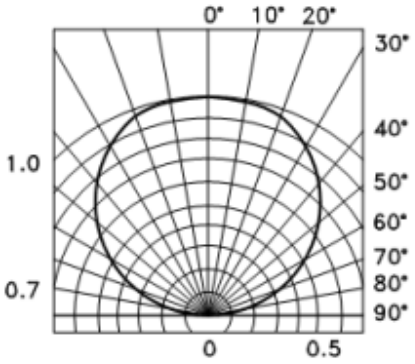
LUMINOUS INTENSITY Vs. FORWARD CURRENT



FORWARD CURRENT DERATING CURVE

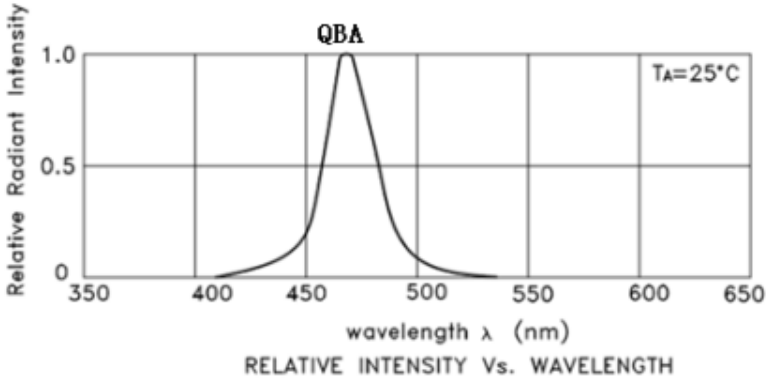


LUMINOUS INTENSITY Vs. AMBIENT TEMPERATURE

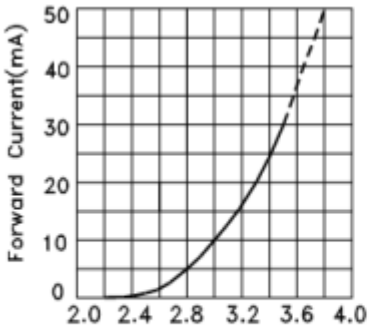


SPATIAL DISTRIBUTION

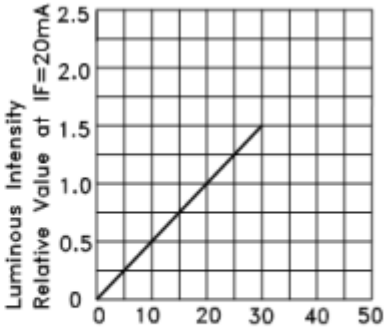
Blue



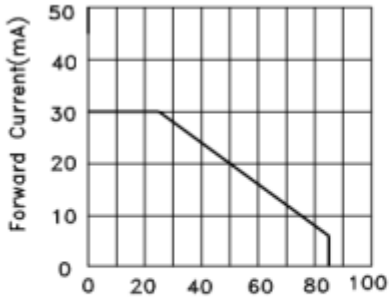
RELATIVE INTENSITY Vs. WAVELENGTH



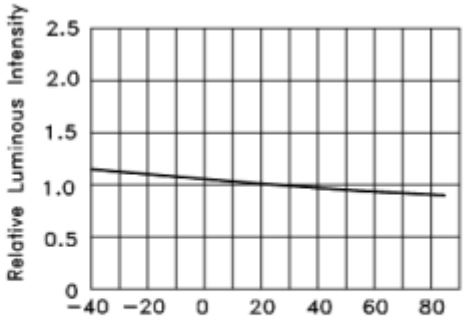
FORWARD CURRENT Vs.
FORWARD VOLTAGE



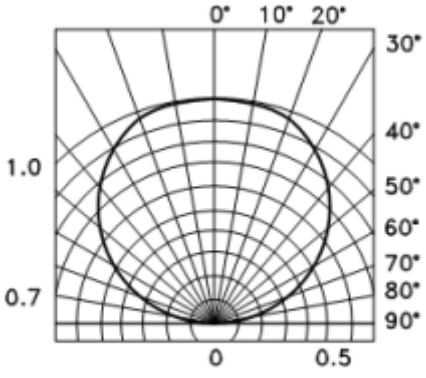
LUMINOUS INTENSITY Vs.
FORWARD CURRENT



FORWARD CURRENT
DERATING CURVE



LUMINOUS INTENSITY Vs.
AMBIENT TEMPERATURE



SPATIAL DISTRIBUTION

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	50	0/20
2	Thermal shock	MIL-STD-202G	-40℃～100℃ 15min 15min	500 Cycles	50	0/20
3	High Temperature Storage	JEITA ED-4701 200 201	Ta=100℃	1000 Hours	50	0/20
4	Low Temperature Storage	JEITA ED-4701 200 201	Ta=-40℃	1000 Hours	50	0/20
5	Room Temperature Life Test		Ta=25±5℃ IF=20mA	1000 Hours	50	0/20
6	High Temperature High Humidity Life Test		Ta=60℃ RH=85% IF=20mA	1000 Hours	50	0/20
7	Solderability (Reflow Soldering)	JEITA ED-4701 300 303	Tsol=235℃±5℃, 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℃, 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

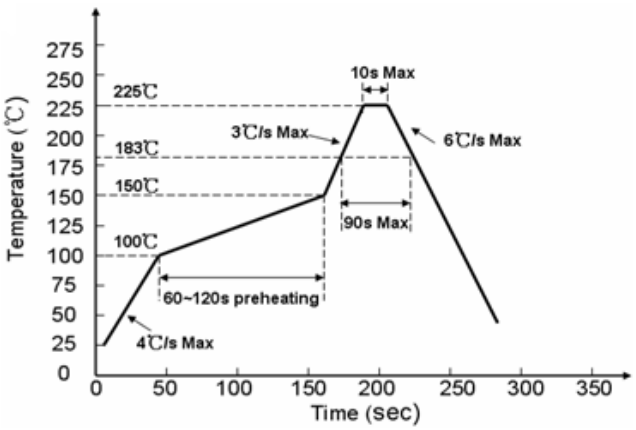
(1) Soldering Conditions

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

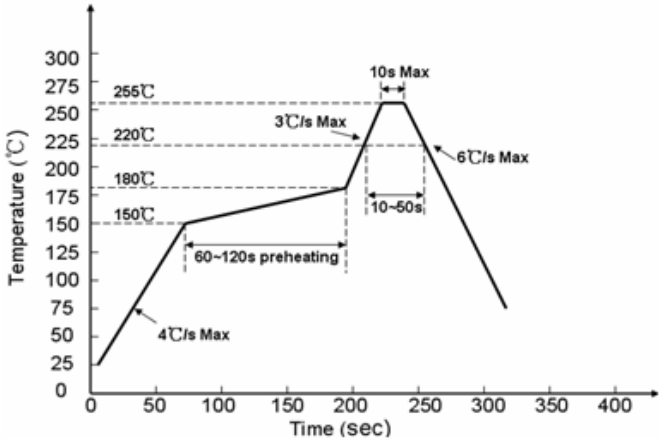
(Recommended soldering conditions)

Reflow soldering			Hand welding	
	Lead Solder	Lead-free Solder	Temperature	350° C Max.
Pre-heat	140 ~ 160° C	180 ~ 200° C	Soldering time	3 sec. Max. (onetime only)
Pre-heat time	120 sec. Max.	120 sec. Max.		
Peak temperature	230° C Max.	250° C Max.		
Soldering time	10 sec. Max.	10 sec. Max.		
Condition	参考下图	参考下图		

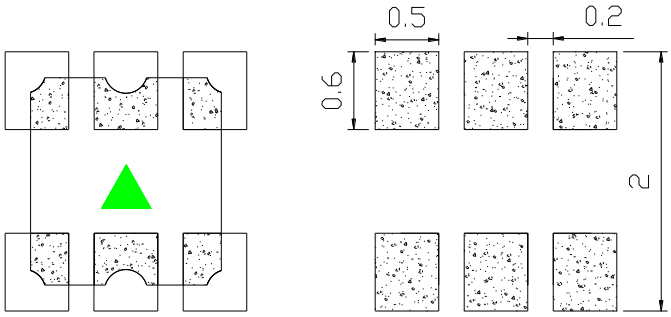
（Lead Solder）



(Lead-Free Solder)



(Recommended Soldering Pattern) (Units:mm)



(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 : (VF > 2.0V at IF=0.5mA)

(3) Moisture Proof Package
It is recommended that moisture proof package be used .

(4) Storage

Before opening the package ,The LEDs should be kept at 30° C or less and 70%RH or less.
The LEDs should be used within a year.

(5) After opening the package, The LEDs should be soldered within 24 hours (1days) after opening the package. If unused LEDs remain, they should be stored in moisture proof packages , such as sealed containers with packages of moisture absorbent material (silica gel).

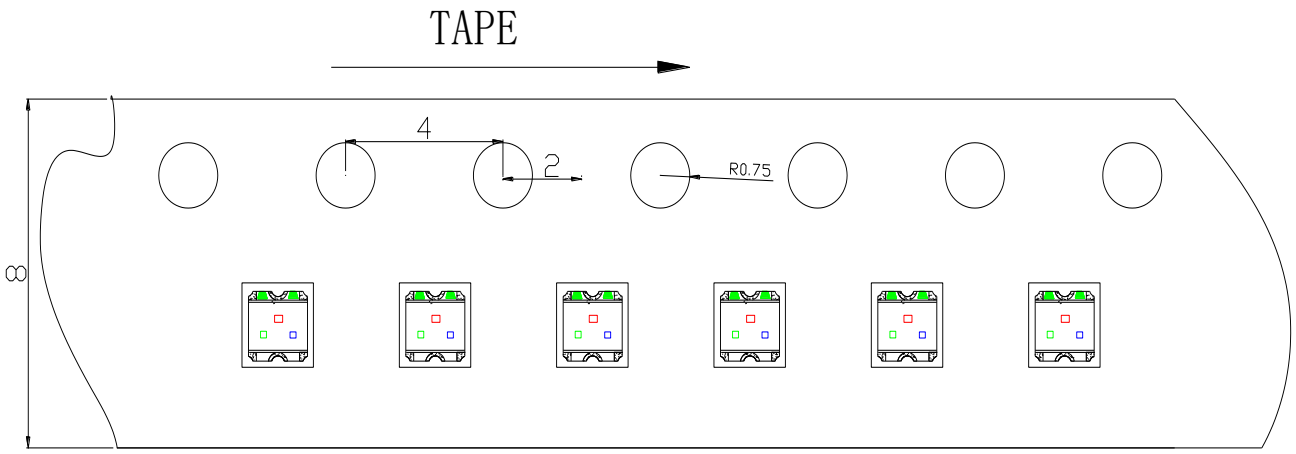
If the moisture absorbent material (silica gel) has faded away or the LEDs have exceeded the storage time, baking treatment should be performed using the following conditions Baking treatment : more than 12 hours at 60 ± 5° C.

6. PACKAGING

(1)The LEDs are packed in cardboard boxes after taping.

(2)Taping Specifications (Units:mm)

(3)Manner of packing



(4)

Reel Dimensions

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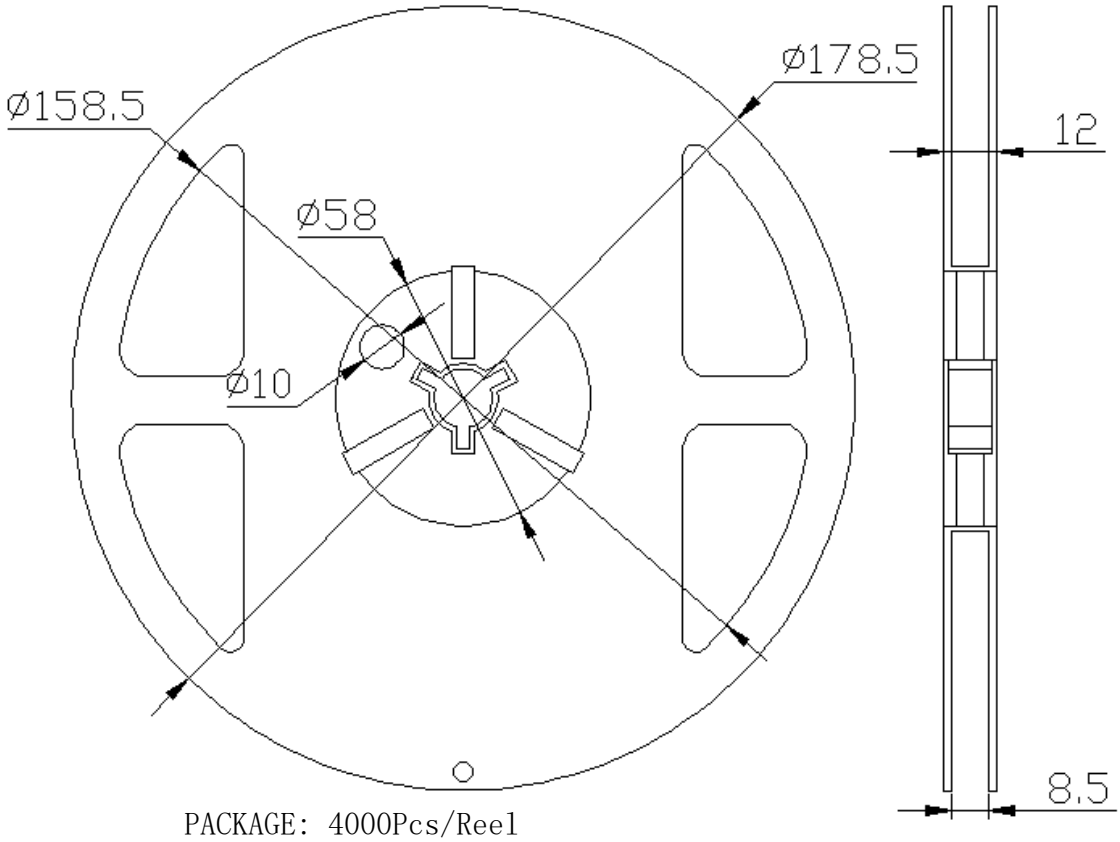


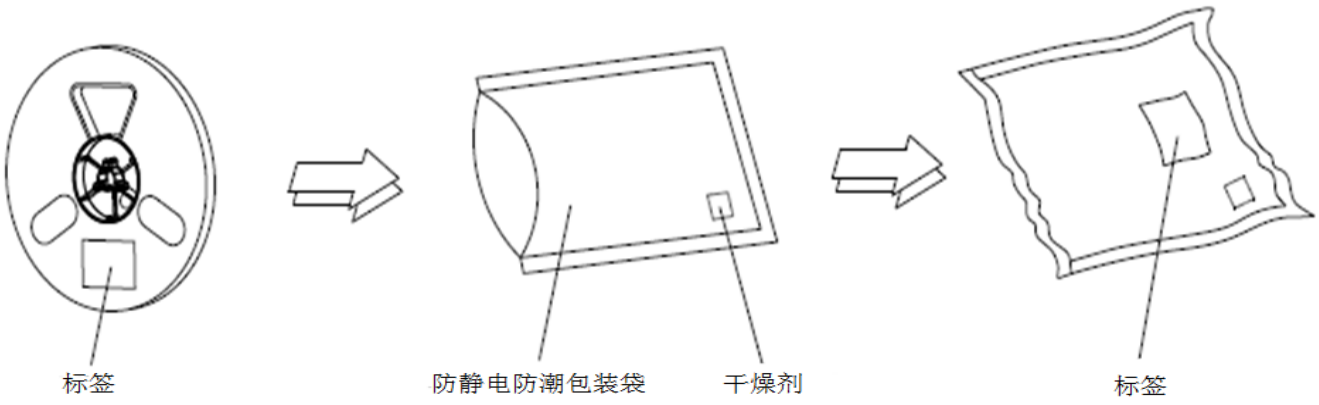
PACKAGE: 4000Pcs/Reel

(5) The label on the minimum packing unit shows ; Part Number, Lot Number, Ranking, Quantity.

(6) Keep away from water, moisture in order to protect the LEDs.

(7) The LEDS may be damaged if the boxes are dropped or receive a strong impact against them. so precautions must be taken to prevent any damage.

7.Moisture Resistant Packaging



Note:The tolerances unless mentioned is ±0.1mm,Unit:mm

Surface mount LED is packed in reels, LED is packed in plain or antistatic bags and then packed in cartons. Cartons are used to protect the LED from mechanical shocks during shipping. Cartons are not waterproof, so please be waterproof