FH-1T series

Features

- Package:14.5*8.0*5.2mm
- Viewing angle:90 ° IR LED
- High radiant intensity.
- Soldering methods: Reflow soldering/Manual soldering
- RoHS compliant
- EU REACH compliant
- Pb-free
- High Power LED

Description

- The HoneBright “FH-1T series” package has high efficacy, low power consumption and a compact form factor. These features make this package the ideal LED for all medical beauty applications.

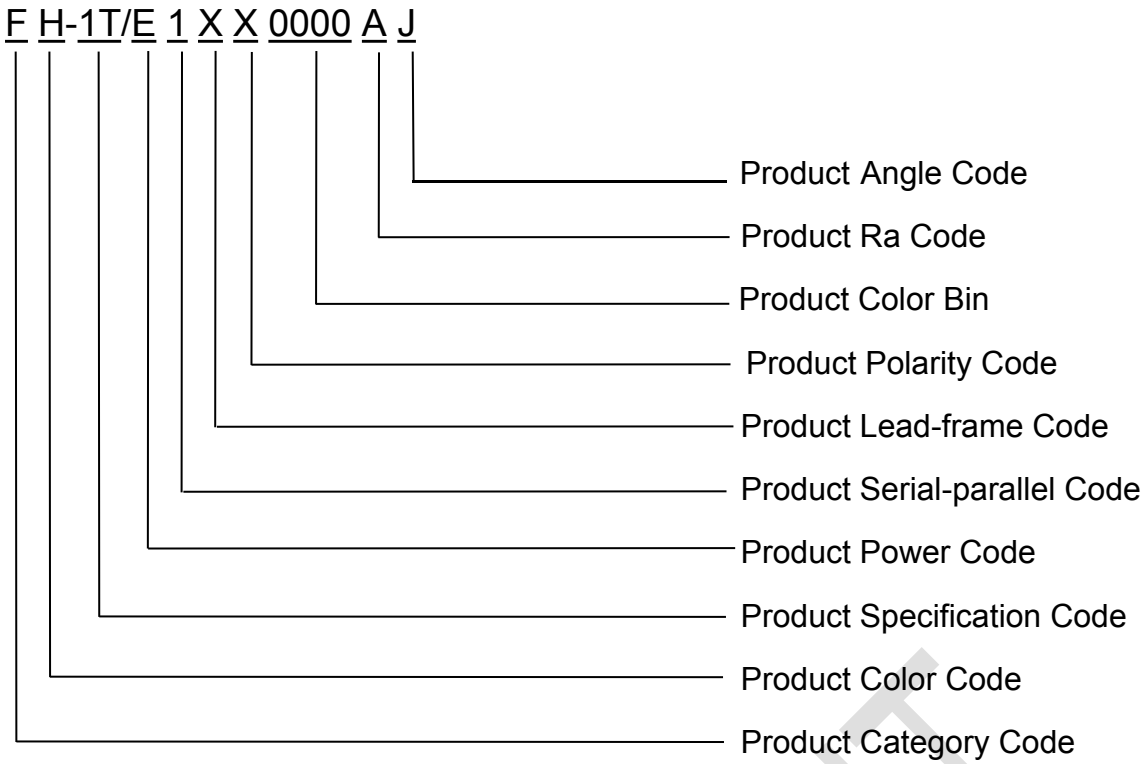
Applications

- Medical beauty
- Portable lightings
- Spot lighting
- Decorate Lighting
- Advertisement

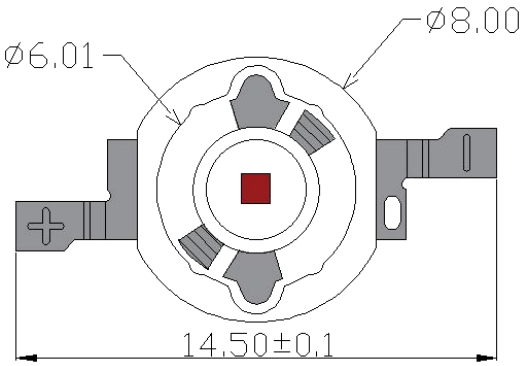
Website:www.honeled.com Tel: 0755 - 2711 3635 Email: honebright@honeled.com

Contents

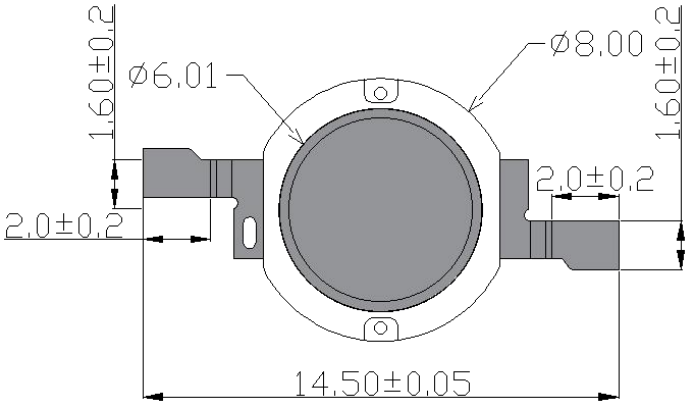
Product Code Description



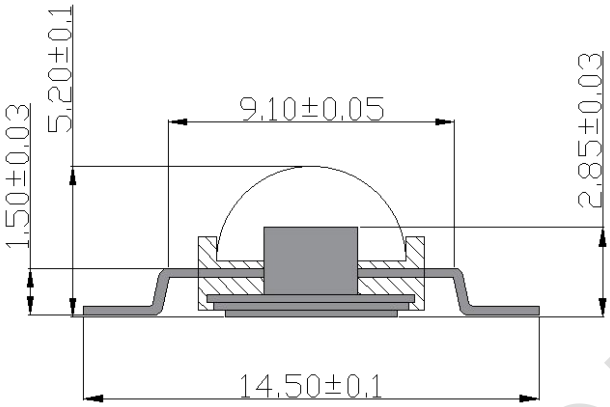
Package Dimension



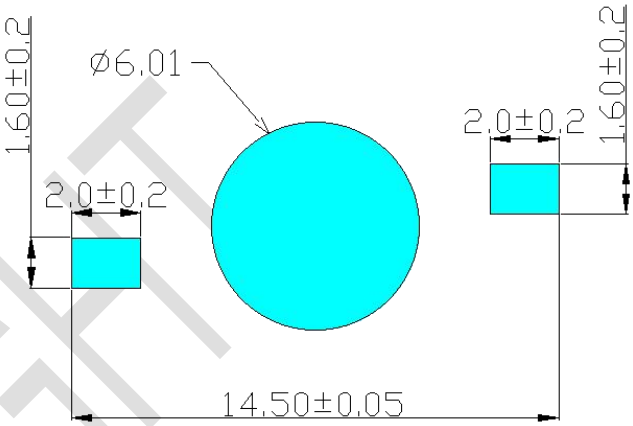
Top View



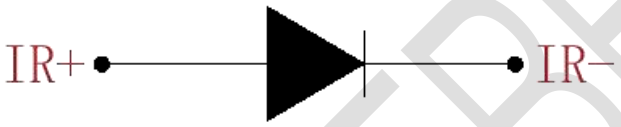
Bottom View



Side View



Recommended PCB solder PAD



Circuit diagram

Notes:

1.All dimensions are in millimeters.

2.Tolerance is±0.1 unless otherwise noted.

3.Specifications are subject to change without notice.

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Absolute Maximum Ratings (Ta=25℃)

Parameter	Symbol	Condition	Rating	Unit
Forward DC Current	IF	Ta=25℃	700	mA
Pulse Forward DC Current	IFP	Ta=25℃ Pulse width ≤10ms and duty cycle ≤10%	1050	mA
Reverse Voltage	VR	Ta=25℃	≤5	V
LED Junction Temperature	Tj	--	≤115	℃
Storage Temperature	Tstg	--	-40~+100	℃
Operating Temperature	Topr	--	-40~+85	℃
Soldering Temperatur	Tsol	Reflow Soldering:230℃ for 5-10 sec. Hand Soldering:260℃ for 3 sec.		
HBM ESD Classification	ESD	Class 2 (2000V) (ANSI/ESDA/JEDEC JS-001)		

Electro-Optical Characteristics (Ta=25℃)

Parameter	Symbol	Condition	Min.	Typ.	Max.	Unit
Radiant Flux	IR	IF=700mA	480	--	600	mw
Forward Voltage	IR	IF=700mA	1.8	--	2.2	V
Dominant Wavelength	IR	IF=700mA	845	--	855	nm
Viewing Angle	2θ1/2	IF=700mA	--	140	--	deg
Reverse Current	IF	VR=5V	--	--	10	uA
Thermal resistance,junction to solder point	Rth	IF=700mA	--	35	--	℃/W

Notes:

a. Tolerance of Luminous intensity: ±10%.

b. Tolerance of Forward Voltage: ±0.1V , Ra:±2.

c. The products are sensitive to static electricity and must be carefully taken when handling products.

Brightness Groups 700mA

Bin Code	Radiant Flux min.(mw)	Radiant Flux max.(mw)
IZ1	480	600

Forward Voltage Groups 700mA

Bin Code	Forward Voltage min.(v)	Forward Voltage max.(v)
F35	1.8	2.0
F36	2.0	2.2

Wavelength Groups 700mA

Group	Wavelength min.(nm)	Wavelength max.(nm)
I72	845	850
I81	850	855

Notes:

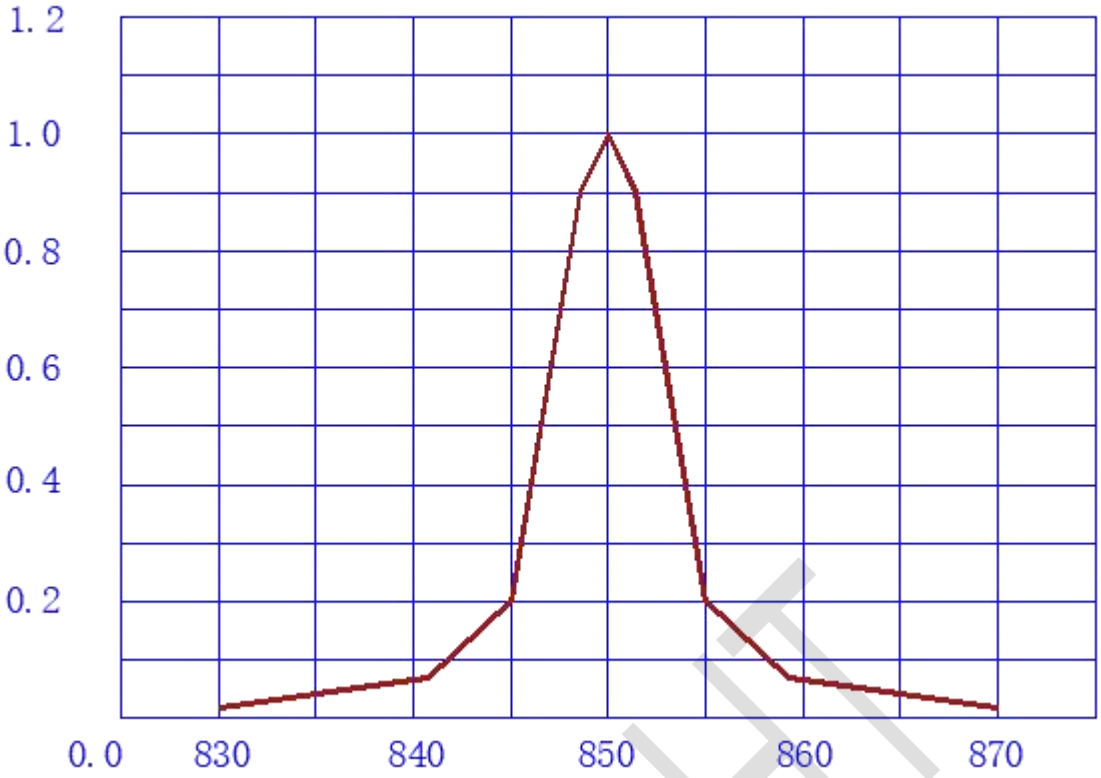
1..Tolerance of Luminous flux: ±10%.

2.Tolerance of Forward Voltage: ±0.1V.

3.Tolerance of Wavelength:±1nm

Typical Electro-Optical Characteristics Curves (Ta=25℃)

Fig.1-Spectrum Distribution



Typical Electro-Optical Characteristics Curves (Ta=25℃)

Fig.2- Forward Current vs. Ambient Temp

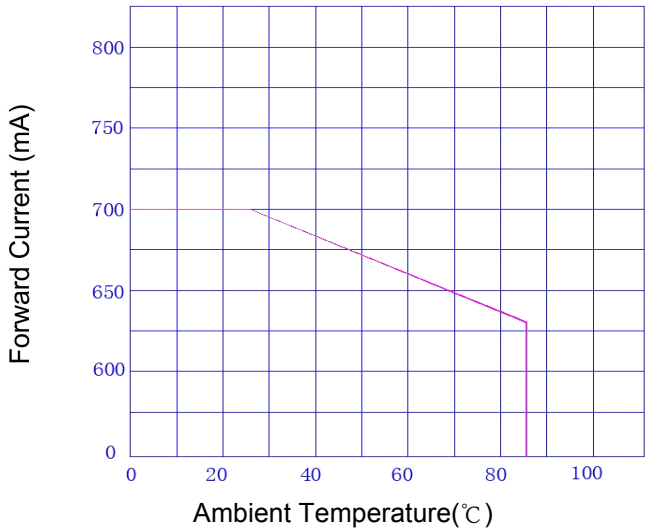


Fig.3-Forward Current vs. Forward Voltage

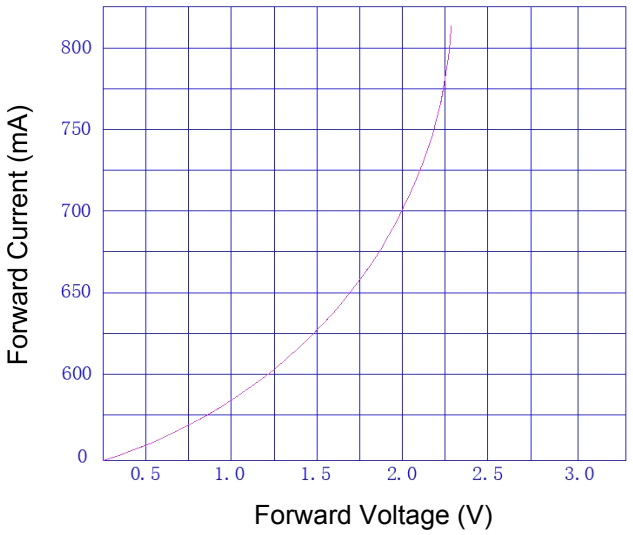


Fig.4- Relative Intensity vs. Forward Current

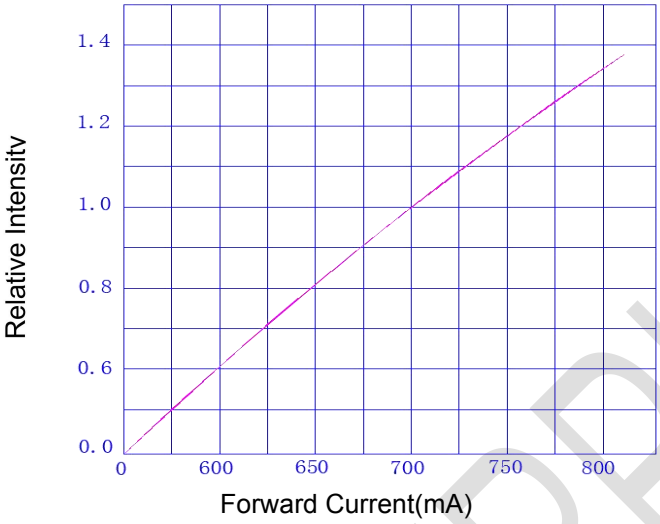


Fig.5- Relative Intensity vs. Ambient Temp.

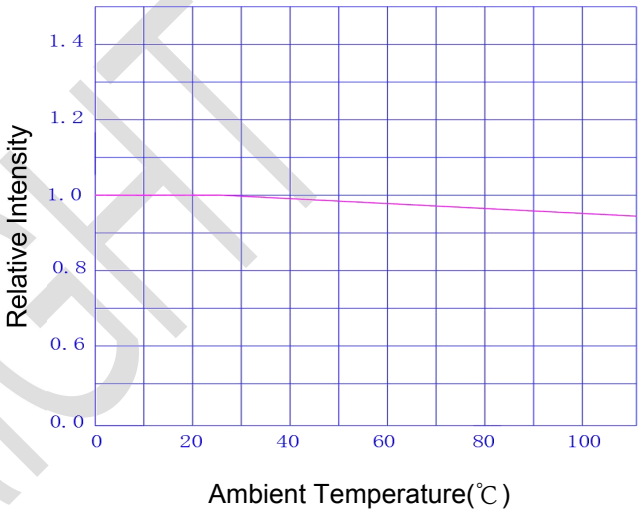


Fig.6- Relative Forward Voltage vs. Temperature

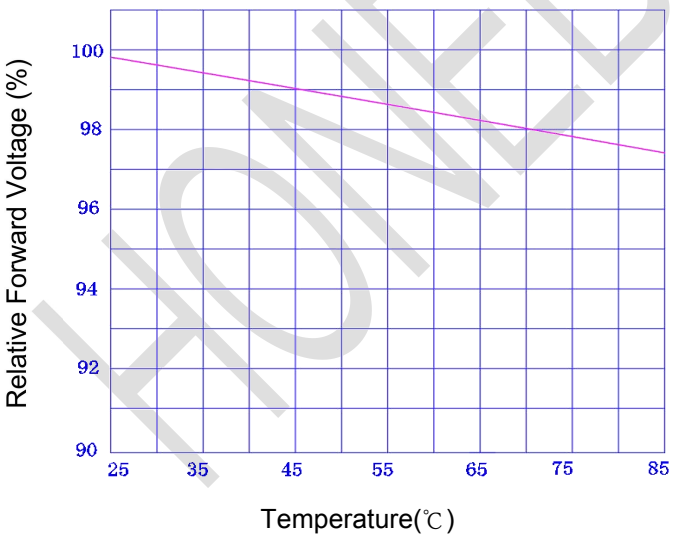
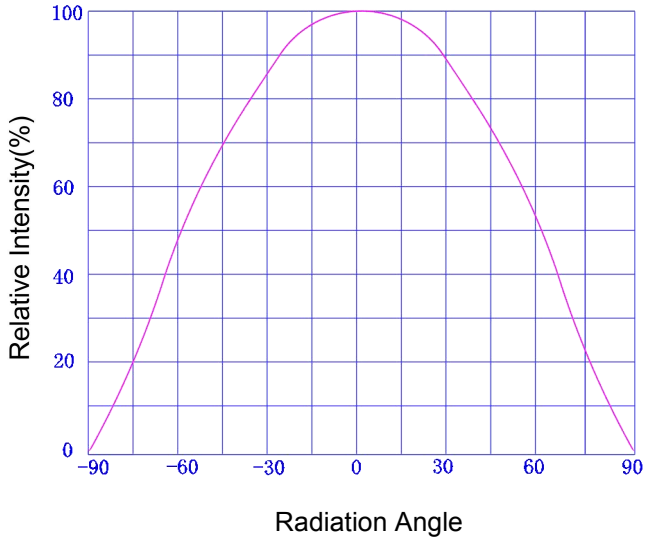
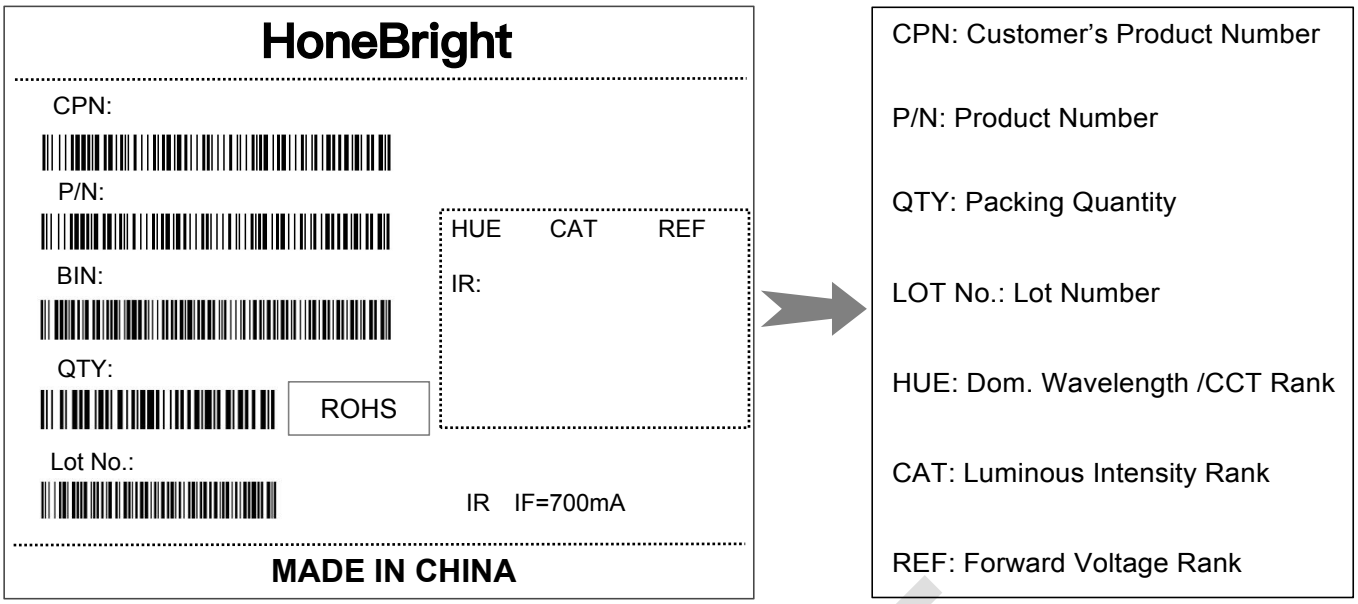


Fig.7- Directivity

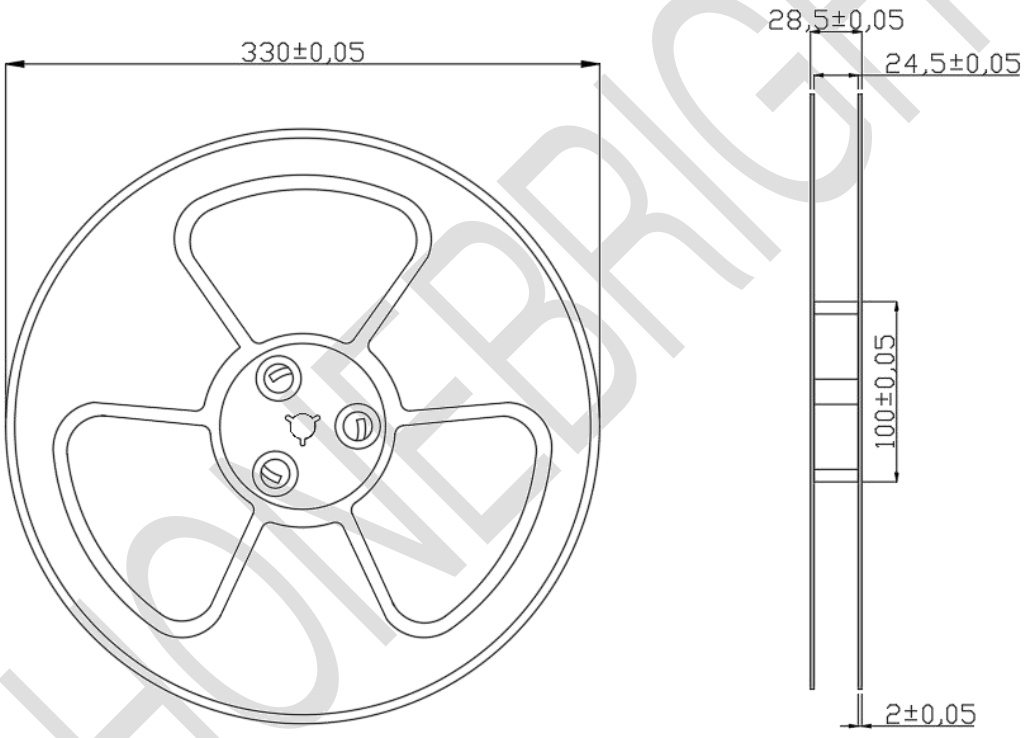


Moisture Resistant Packing

Label Explanation



Reel Dimensions

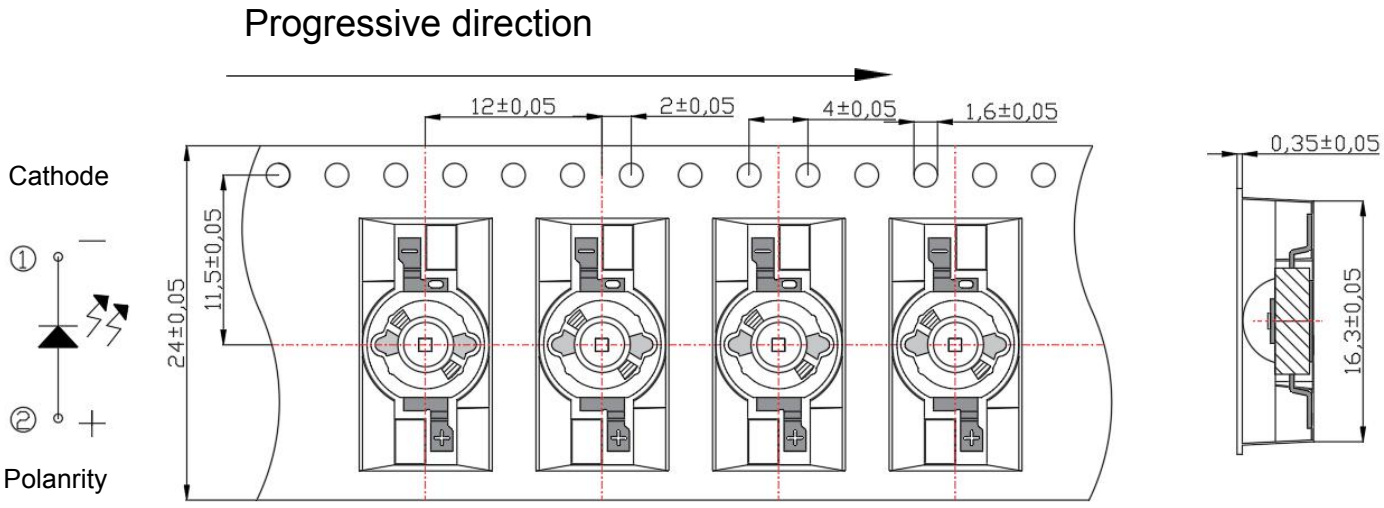


Note:

Tolerances unless mentioned ±0.1mm. Unit = mm

Carrier Tape Dimensions:

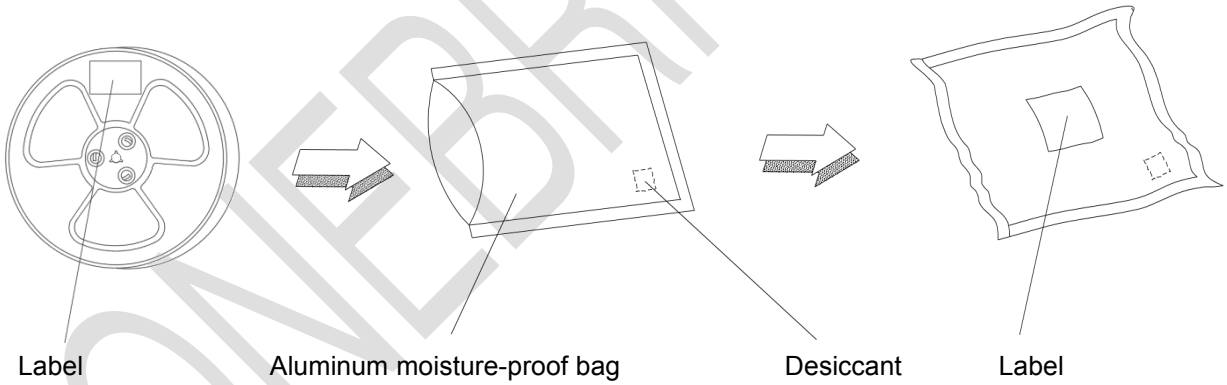
Loaded Quantity : 1000 pcs Per Reel



Note:

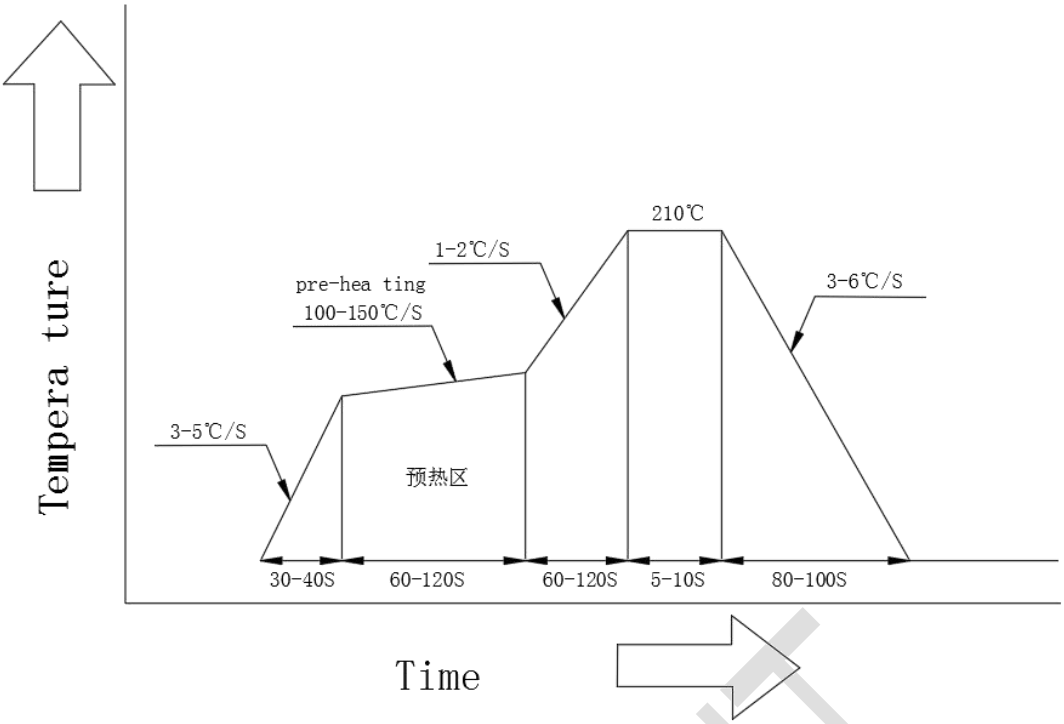
1. Tolerance unless mentioned is ±0.1mm; Unit = mm.

Moisture Resistant Packing Process



Recommend Reflow Soldering Profile

Lead Free Solder



Profile Feature Profil-Charakteristik	symbol	Pb-Free(SnAgCu) Assembly			Unit Einheit
		Minimum	Recommendation	Maximum	
Ramp-up rate to preheat 25℃ to 150℃			3	5	k/s
Time ts Ts min to Ts max	ts	60	100	120	s
Ramp-up rate to peak Ts max to Tp			1	2	k/s
Liquidus temperature	tL		183		℃
Time above liquidus temperature	tL		80	100	s
Peak temperature	Tp		210	210	℃
Time within 5℃ of the specified peak temperature Tp		10	20	30	s
Ramp-down rate Tp to 100℃			3	6	k/s
Time 25℃ to Tp				480	s

Notes:

1. All temperatures refer to the center of the package, measured on the top of the component.
2. When soldering,do not put stress on the LEDs during heating.
3. After soldering ,do not warp the circuit board.
4. Reflow soldering should not be done more than two times.

Reliability Test Items and Conditions

① The products shall be satisfied tests as listed below.

② Confidence level：90%.

③ LTPD：10%.

NO.	Test Item	Test Condition	Reference Standard	Note	Number of Damaged
1	Solderability (Reflow Soldering)	Tsld=245±5℃, 5sec. (Lead Free Solder)	JEITA ED-4701 300 303	3 times	0/22
2	Thermal Shock	-40℃ ~ 100℃ 30min~ 30min.	JEITA ED-4701 300 307	50 cycles	0/22
3	Temperature Cycle	-40℃ ~ 25℃ ~ 105℃ ~ 25℃ 30min~5min~ 30min~ 5min.	JEITA ED-4701 100 105	100 cycles	0/22
4	High Temperature Storage	Ta=100℃	JEITA ED-4701 200 201	1000 hrs.	0/22
5	Temperature Humidity Storage	Ta=60℃, RH=90%	JEITA ED-4701 100 103	1000 hrs.	0/22
6	Low Temperature Storage	Ta=-40℃	JEITA ED-4701 200 202	1000 hrs.	0/22
7	Steady State Operating Life Condition	Ta=25℃, IF=700mA		1000 hrs.	0/22
8	Steady State Operating Life of High Temperature	Ta=85℃, IF=700mA		1000 hrs.	0/22
9	Steady State Operating Life of High Humidity Heat	60℃, RH=90% , IF=700mA		1000 hrs.	0/22
10	Steady State Operating Life of low Temperature	Ta=-30℃, IF=700mA		1000 hrs.	0/22

LED Precautions for use

1.Handling with care for this product

① Because of the LED lens is composed of resin materials. Please avoid the resin area from being pressed, stressed, rubbed, come into contact with sharp metal nail because the function, performance and reliability of this product are negatively impacted.

② Please be aware that this product should not come into contact with any other parts while incorporating in your lighting apparatus or your other products.

2.Countermeasure against static electricity

① Handling of this product needs countermeasures against static electricity because this is a semiconductor product.

② Please take adequate measures to prevent any static electricity being produced such as the wearing of a wristband or anti-static gloves when handling this product.

③ Every manufacturing facility in regard to the product (plant, equipment, machine, carrier machine and conveyance unit) should be connected to ground and please avoid the product to be electric-charged.

④ ESD sensitivity of this product is over 1000V (HBM, based on JEITA ED-4701/304).

⑤ After assembling the LEDs into your final product(s), it is recommended to check whether the assembled LEDs are damaged by static electricity (electrical leak phenomenon) or not.

⑥ It is easy to find static damaged LED dies by a light-on test with the minimum current value.

3.Caution of product assembly

① Roughness, unevenness and burr of surface negatively impact thermal bonding between the product and heat sink and increase heat thermal resistance between them.
Confidence of thermally and mechanical coupling between the product and heat sink are confirmed by checking the mounting surface and measuring the case temperature of the product.

② In order to reduce the thermal resistance at assembly, it might be good to use TIM (Thermal Interface Material) on whole contact surface of the product.

③ In case of using thermal grease for the TIM, it might be good to apply uniformly on the contact surface of the product.

④ It might be good to make sure that the product heat sink is NOT strained by stress after solid for assembly to PCB.

4.Thermal Design

① The thermal design to draw heat away from the LED junction is most critical parameter for an LED illumination system. High operating temperatures at the LED junction adversely affect the performance of LED's light output and lifetime. Therefore the LED junction temperature should not exceed the absolute maximum rating in LED illumination system. -The LED junction temperature while operation of LED illumination system depends upon thermal resistance of internal

② LED package (Rj-c), outer thermal resistances of LED package, power loss and ambient temperature. Please take both of the thermal design specifications and ambient temperature conditions into consideration for the setting of driving conditions.

5.Driving Current

① A constant current is recommended as an applying driving current to this product.
-In the case of constant voltage driving, please connect current-limiting resistor to each products in series and control the driving current to keep under the absolute maximum rating forward current value.

② Electrical transient might apply excess voltage, excess current and reverse voltage to the product(s).They also affect negative impact on the product(s) therefore please make sure that no excess voltage, no excess current and no reverse voltage is applied to the product(s) when the LED driver is turn-on and/or turn-off.

6.Recommended soldering Condition

Soldering shall be implemented using a soldering bit at a temperature lower than 350℃, and shall be finished within 3 seconds for one land.

No external force shall be applied to resin part while soldering is implemented.

Next process of soldering should be carried out after the product has return to ambient temperature. Contacts number of soldering bit should be within twice for each terminal.