

PRODUCT SPECIFICATION

Part Number
PLBT3528-YDCW1

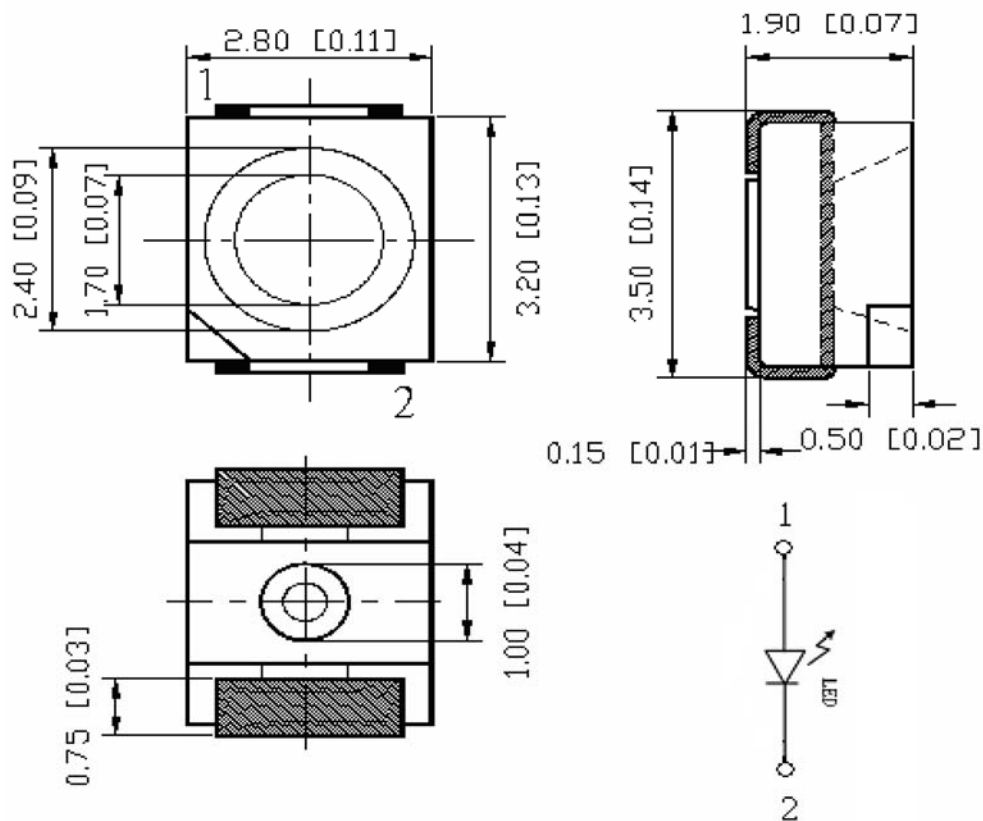
Details

- Single Color Surface Mount LED
- PLCC-2 3.5 x 2.8 x 1.9mm
- Package: 2,000pcs/Reel
- Emitting Color: Cool White
- InGaN dice used

Features

- Resin (Mold) Material: Silicone
- RoHS Compliant
- 120° Viewing Angle
- Low Power Consumption

Mechanical Dimensions



Notes:

1. Dimensions in millimeters and tolerance is ± 0.1 mm unless otherwise noted.
2. Specifications are subject to change without notice



Device Selection Guide

Model Number	Chip		Lens Type
	Material	Emitting Color	
PLBT3528-YDCW1	InGaN	Cool White	Yellow Diffused

Absolute Maximum Ratings at Ta=25 °C

Parameter	Symbol	Rating	Unit
Power Dissipation per Dice	PD	120	mW
DC Forward Current per Dice	IF	30	mA
Single Chip Pulsed Forward Current	IFP	100※	mA
Reverse Voltage	VR	5	V
Operating Temperature	Topr	-30~+80*	°C
Storage Temperature	Tstg	-40~+100	°C
Soldering Temperature	Tsol	260for5secΔ	°C

※Duty 1/10, Pulse Width 0.1ms

ΔSoldering time max 10 seconds

*Please refer to IF-Ta diagram of curves for the temperature during application

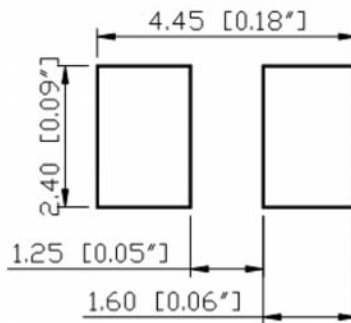
Electrical and Optical Characteristics at Ta=25 °C

Parameter	Symbol	Min.	Typ.	Max.	Unit	Condition
Forward Voltage	Vf	2.9	3.0	3.4	V	IF=10mA
Luminous Intensity	IV	250	500	--	mcd	
Wavelength	X	--	0.2756	--	--	
	Y	--	0.2703	--	--	
Reverse Current	Ir	--	--	10	μA	VR=5V
Viewing Angle	2θ1/2	--	120	--	Deg	F=10mA

Note: 1. Luminous intensity ±10%, Forward voltage (VF) ±0.1V, Wavelength(X,Y) ±0.01

2. IS Standard Testing

Recommended Pad Layout



Typical Electrical / Optical Characteristic Curves

Fig.1 IF-VF(Ta=25°C)

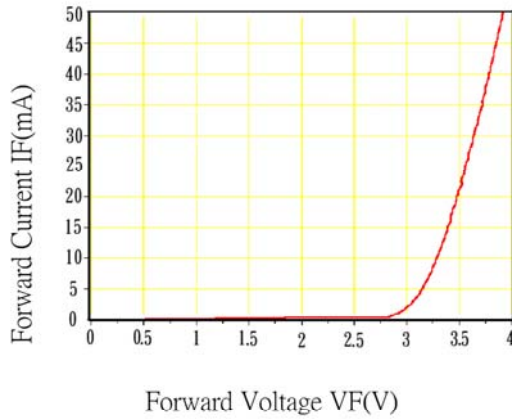


Fig.2 Relative Luminous Intensity-IF (Ta=25°C)

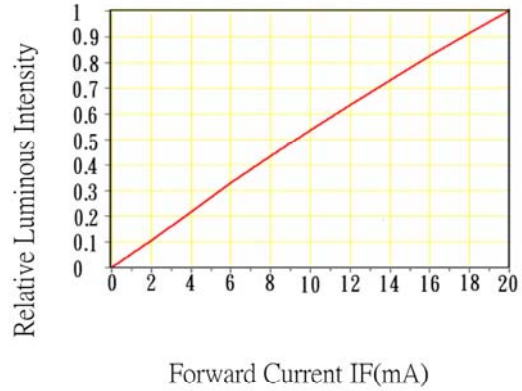


Fig.3 Wavelength Characteristics(Ta=25°C)

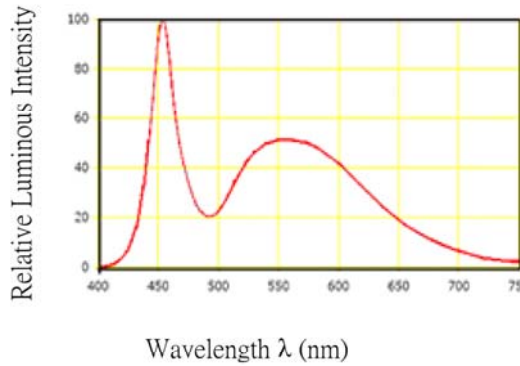


Fig.4 Relative Luminous Intensity-Ta

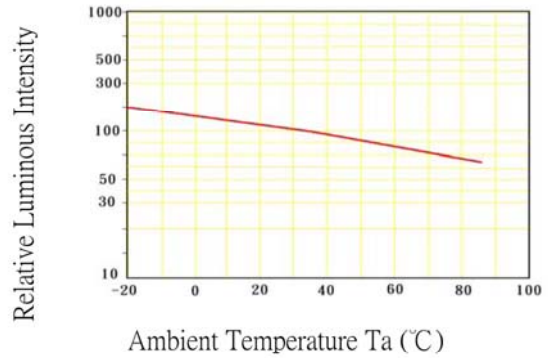
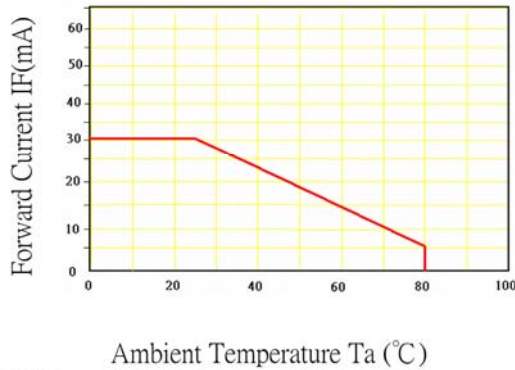
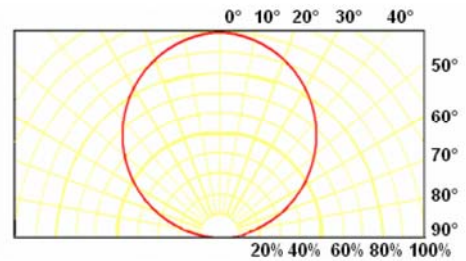


Fig.5 IF-Ta



Directive Characteristics (Ta=25)

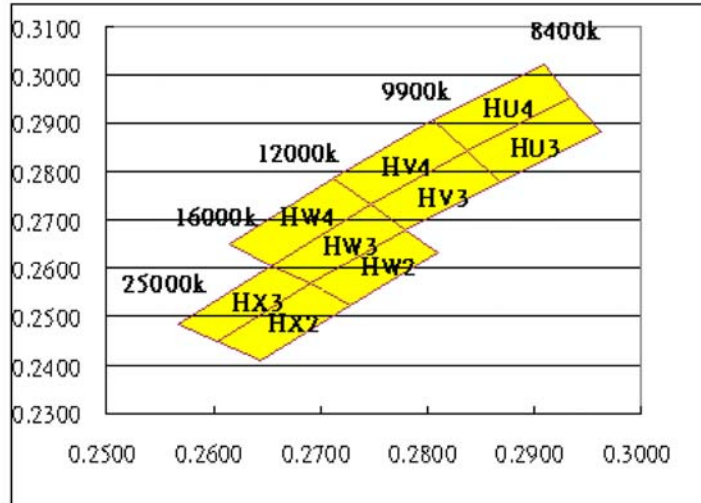


Ver : 1.0

Range of Bins

Bin	Bin1-a	Bin1-b	Bin1-c	Bin1-d	Bin1-e	Bin2	Bin3
IV(mcd)	3-6	6-9	9-13	13-20	20-30	30-40	40-55
Bin	Bin4	Bin5	Bin6	Bin7	Bin8	Bin9	Bin10
IV(mcd)	55-70	70-90	90-120	120-160	160-210	210-270	270-350
Bin	Bin11	Bin12	Bin13	Bin14	Bin15	Bin16	Bin17
IV(mcd)	350-460	460-600	600-780	780-1000	1000-1300	1300-1700	1700-2200
Bin	Bin18	Bin19	Bin20	Bin21	Bin22	Bin23	Bin24
IV(mcd)	2200-2800	2800-3600	3600-4600	4600-6000	6000-7800	7800-10100	10100-13130
Bin	Bin25	Bin26					
IV(mcd)	13130-17000	17000-22100					
Bin							
WL(nm)	HX2/3						

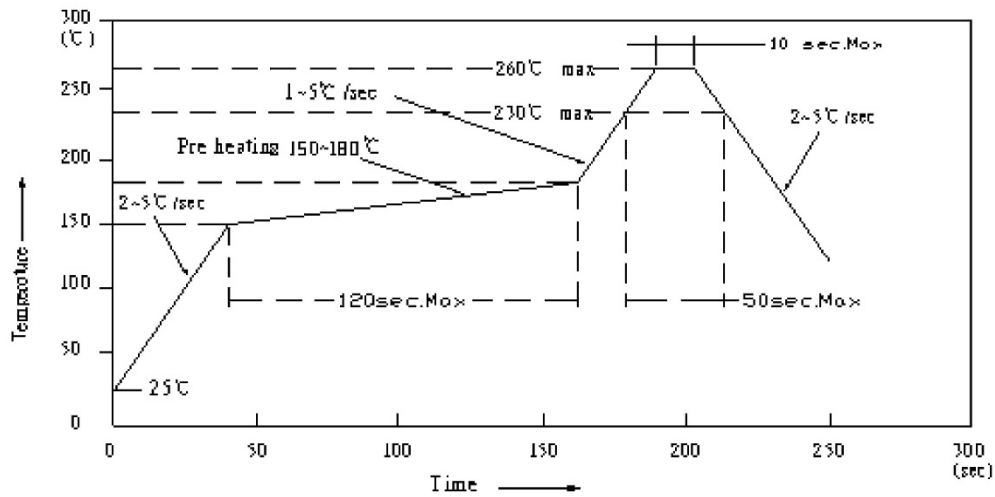
Color Coordinate Comparison



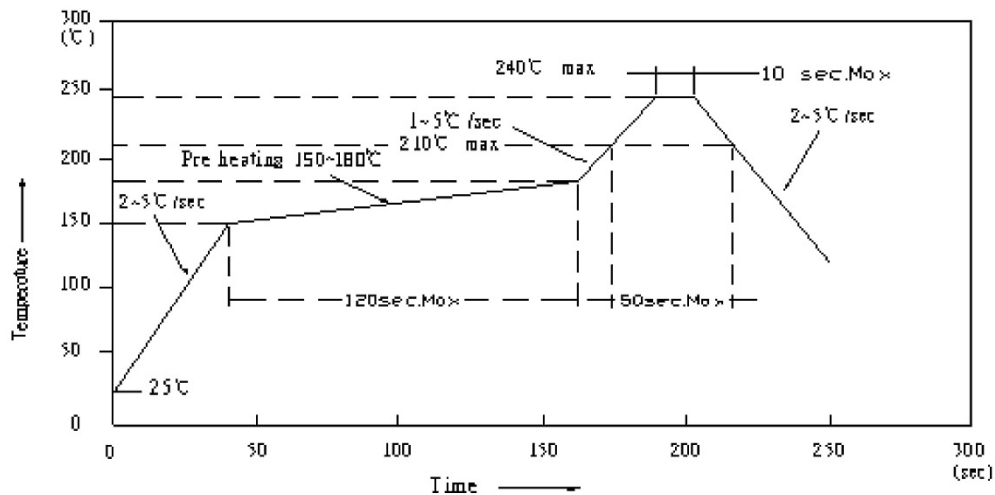
BIN 碼	X	Y	X	Y	X	Y	X	Y
HU3	0.2837	0.2845	0.2868	0.2781	0.2962	0.2884	0.2934	0.2954
HU4	0.2806	0.2908	0.2837	0.2845	0.2934	0.2954	0.2910	0.3024
HV3	0.2748	0.2732	0.2780	0.2680	0.2868	0.2781	0.2837	0.2845
HV4	0.2712	0.2788	0.2748	0.2732	0.2837	0.2845	0.2806	0.2908
HW2	0.2691	0.2568	0.2727	0.2523	0.2810	0.2634	0.2780	0.2680
HW3	0.2653	0.2605	0.2691	0.2568	0.2780	0.2680	0.2748	0.2732
HW4	0.2615	0.2653	0.2653	0.2605	0.2748	0.2732	0.2712	0.2788
HX2	0.2604	0.2446	0.2645	0.2410	0.2727	0.2523	0.2691	0.2568
HX3	0.2567	0.2485	0.2604	0.2446	0.2691	0.2568	0.2653	0.2605

 **IS Main BIN.**

IR Reflow Temperature / Time



IR Reflow Soldering Profile Lead Solder

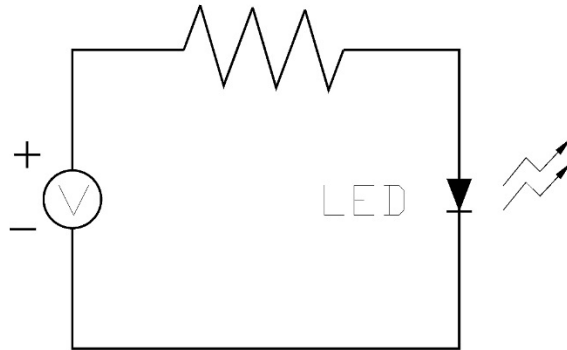


Notes:

1. We recommend reflow temp of 245°C (+/- 5°C) Maximum soldering temp should be limited to 260°C
2. Do not cause stress to the silicon resin while it is exposed to high temperatures
3. Number of reflow process shall be 1 time

Test Circuit and Handling Precautions

1. Test Circuit



2. Over-current-proof

- a. Customer must apply resistors for protection, otherwise slight voltage shift will cause big current change (burn out will happen)

3. Storage

- a. It is recommended to store the products in the following conditions
 - i. Humidity: 60% R.H. Max. | Temperature : 5°C~30°C(41°F~86°F)
 - ii. Shelf life in sealed bag: 12 month at <5°C~30°C and <30% R.H. after the package is opened, the products should be used within a week or they should be stored at ≤ 20 R.H. with zip-lock sealed.

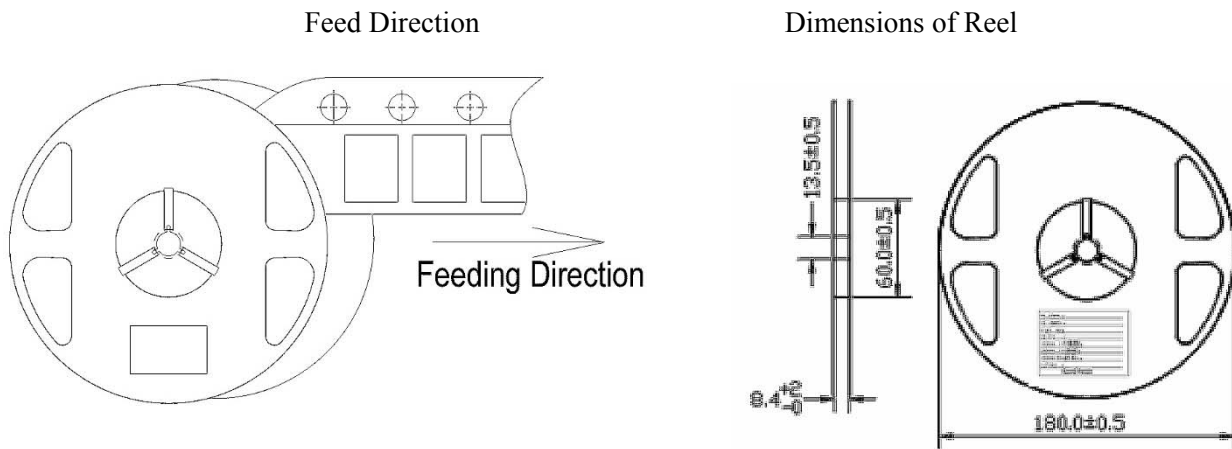
4. Baking

- a. It is recommended to bake before soldering when the pack is unsealed after 24hrs. The conditions are as follows:
 - i. 3.1 70 \pm 3°C x(12~24hrs) and <5%RH, taped reel type
 - ii. 3.2 100 \pm 3°C x(45min~1hr), bulk type
 - iii. 3.3 130 \pm 3°C x(15~30min), bulk type

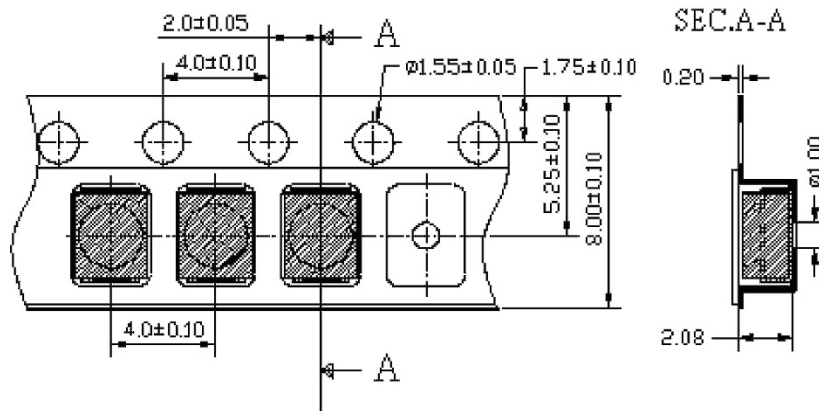
Test Items and Results of Reliability

Type	Test Item	Test Conditions	Note	Number of Damaged
Environmental Sequence	Temperature Cycle	-45°C 30min ↑ ↓ 20 min 105°C 30min	100 cycle	0/22
	Thermal Shock	-10°C 15min ↑ ↓ 5sec 100°C 15min	100 cycle	0/22
	High Humidity Heat Cycle	30°C ↔ 65°C 90%RH 24hrs/1cycle	10 cycle	0/22
	High Temperature Storage	T _a =100°C	1000 hrs	0/22
	Humidity Heat Storage	T _a =85°C RH=85%	1000 hrs	0/22
	Low Temperature Storage	T _a =-40°C	1000 hrs	0/22
Operation Sequence	Life Test	T _a =25°C I _F =60mA	1000 hrs	0/22
	High Humidity Heat Life Test	85°C RH=85% I _F =30mA	500 hrs	0/22
	Low Temperature Life Test	T _a =-20°C I _F =60mA	1000 hrs	0/22

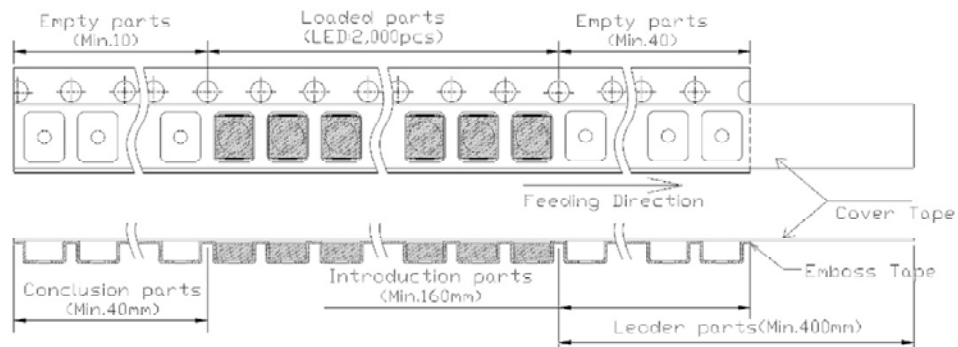
Reel and Tape Specifications



Dimensions of Tape



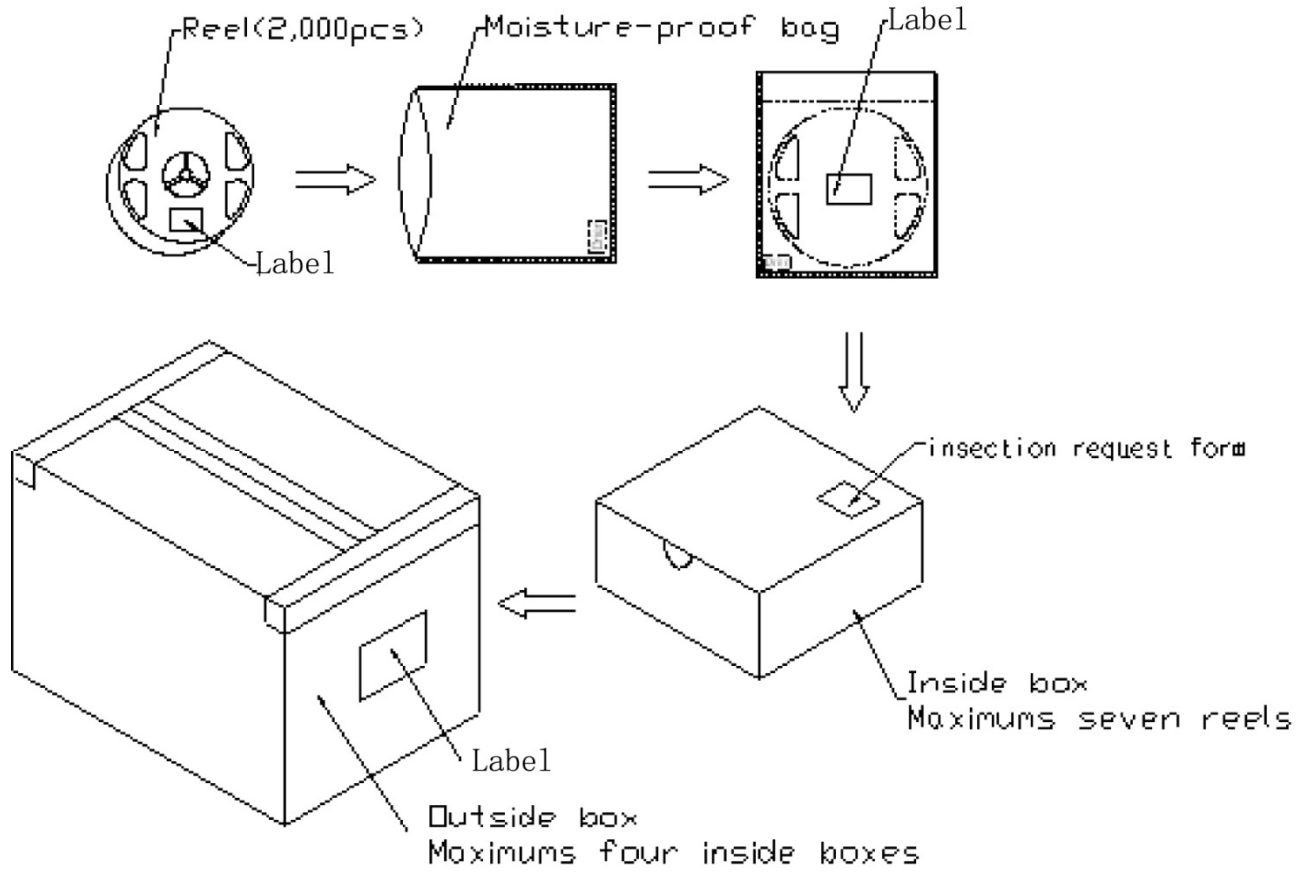
Arrangement of Tape



Notes:

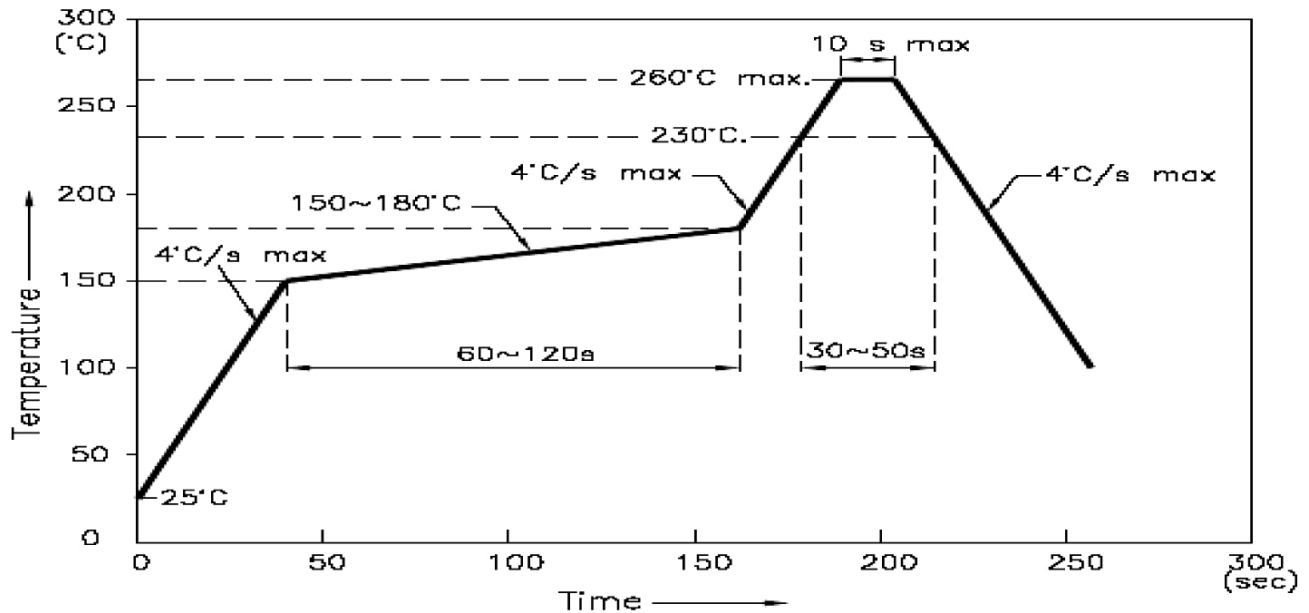
1. Empty component pockets are sealed with top cover tape
2. The maximum number of missing SMDs is two
3. The cathode is oriented towards the tap sprocket hole in accordance with ANSI/EIA RS-481 specifications
4. 2,000pcs/reel

Packaging Specifications



Soldering

- Soldering according to the following temperature chart is recommended

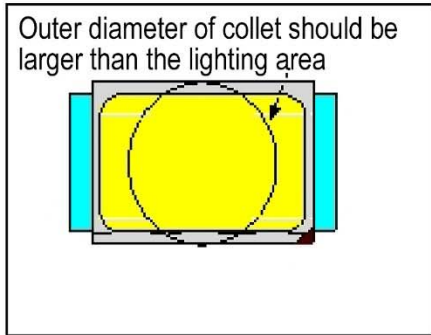


- Soldering Paste

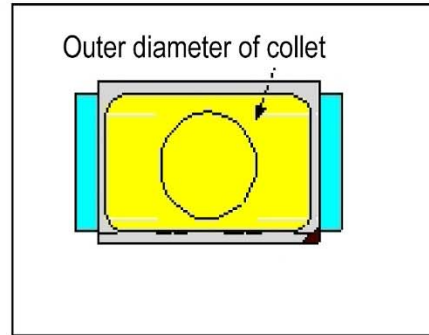
- Use soldering paste with the melting point at 230°C

Collet

- Abnormal situation caused by improper setting of collet.
 - Choosing the right collet is the key issue in improving the product's quality. LEDs are different from other electronic components, not only in terms of electrical output but also in terms of optical output. This characteristic makes LEDs more fragile in the process of SMT. If the collet's lowering down height is not well set, it will damage the gold wire at the time of collet's picking up and loading, causing the LED fail to light up.
- How to choose the collet
 - During SMT, please choose the collet that has larger outer diameter than the lighting area of lens, in case improper position of collet damages the gold wire inside the LED. Different collets fit for different products. Please refer to the following pictures

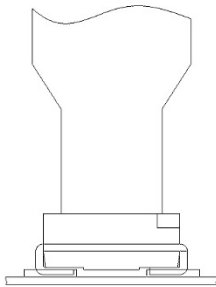


Picture 1 (✓)

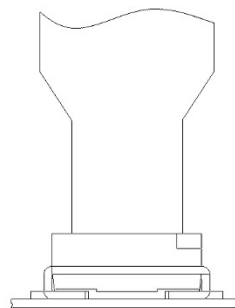


Picture 2 (✗)

3. How to set the height of collet



Picture 3 (✓)



Picture 4 (✗)

Additional Notes

- A. No pressure should be exerted onto the epoxy shell of the SMD under high temperature
- B. Do not scratch or wipe the lens.
- C. LED should be used as soon as possible when being taken out of the original package, and should be stored in anti-moisture and anti-ESD packaging



PLBT3528-YDCW1 Customer Approval Signatures	Approved By	Checked By	Prepared By

Record Of Revisions			
Rev.	Comments	Page	Date
0	Released Spec	--	06/27/14