

Harvatek Surface Mount LED Data Sheet T3231JWD-A6P-211215

Official Product	HT Part No. T3231JWD-A6P-211215		
Tentative Product	*****	*****	*****
Specifications are subject to changes for improvement without advance notice. Proprietary data, drawings, company confidential all rights reserved.		03/22/2017	Version 1.0
			Page 1/17

DISCLAIMER	3
LIFE SUPPORT POLICY	3
PRODUCT SPECIFICATIONS	4
ATTENTION: ELECTROSTATIC DISCHARGE (ESD) PROTECTION	4
LABEL SPECIFICATIONS	5
SPECIFICATIONS RANGE	6
PRODUCT FEATURES	9
ELECTRO-OPTICAL CHARACTERISTICS	9
PACKAGE OUTLINE DIMENSION AND RECOMMENDED SOLDERING PATTERN FOR REFLOW	
SOLDERING	9
ABSOLUTE MAXIMUM RATINGS	9
CHARACTERISTICS OF T3231JWD	10
PRECAUTION FOR USE	11
PACKAGING	12
TAPE DIMENSION	12
REEL DIMENSION	13
PACKING	13
DRY PACK	13
BAKING	14
PRECAUTIONS	14
HANDLING OF SILICONE RESIN LEDs	15
REFLOW SOLDERING	16
REWORKING	16
CLEANING	16
CAUTIONS OF PICK AND PLACE	17
REVISE HISTORY	17

Official Product	HT Part No. T3231JWD-A6P-211215		
Tentative Product	*****	*****	*****
Specifications are subject to changes for improvement without advance notice. Proprietary data, drawings, company confidential all rights reserved.		03/22/2017	Version 1.0 Page 2/17

DISCLAIMER

HARVATEK reserves the right to make changes without further notice to any products herein to improve reliability, function or design. HARVATEK does not assume any liability arising out of the application or use of any product or circuit described herein; neither does it convey any license under its patent rights, nor the rights of others.

Life Support Policy

HARVATEK's products are not authorized for use as critical components in life support devices or systems without the express written approval of the President of HARVATEK or HARVATEK INTERNATIONAL. As used herein:

1. Life support devices or systems are devices or systems which, (a) are intended for surgical implant into the body, or (b) support or sustain life, and (c) whose failure to perform when properly used in accordance with instructions for use provided in the labeling, can be reasonably expected to result in a significant injury of the user.
2. A critical component in any component of a life support device or system whose failure to perform can be reasonably expected to cause the failure of the life support device or system, or to affect its safety or effectiveness.

Official Product	HT Part No. T3231JWD-A6P-211215		
Tentative Product	*****	*****	*****
Specifications are subject to changes for improvement without advance notice. Proprietary data, drawings, company confidential all rights reserved.		03/22/2017	Version 1.0 Page 3/17

Product Specifications

Item	Specification	Material	Quantity
IV	Min: 122 lm @350mA / T _s = 25°C;Tolerance: ± 10%		
Chromaticity Coordinate	As page 7 & 8 @350mA/ T _s = 25°C; Tolerance: ± 0.007		
Vf	2.8-3.4V (0.2V/Bin) @350mA/ T _s = 25°C;Tolerance: ± 0.1V		
Ir	< 10 µA @ V _R = 5 V		
Resin	Yellow	Silicon Resin	
CRI	CRI>80, Tolerance± 2		
Carrier tape	EIA 481-1A specs	Conductive black tape	5000pcs per reel
Reel	EIA 481-1A specs	Conductive black	
Label	HT standard	Paper	
Packing bag	220x240mm	Aluminum laminated bag/ no-zipper	One reel per bag
Carton	HT standard	Paper	Non-specified

Others:

Each immediate box consists of 5 reels. The 5 reels may not necessarily have the same lot number or the same bin combinations of Iv, CIE and Vf. Each reel has a label identifying its specification; the immediate box consists of a product label as well.

Note :This is shipped test conditions

※Remarks: This product should be operated in forward bias. If a reverse voltage is continuously applied to the product, such operation can cause migration resulting in LED damage.

ATTENTION: Electrostatic Discharge (ESD) protection



The symbol to the left denotes that ESD precaution is needed. ESD protection for GaP and AlGaAs based chips is necessary even though they are relatively safe in the presence of low static-electric discharge. Parts built with AlInGaP, GaN, or/and InGaN based chips are **STATIC SENSITIVE devices**. ESD precaution must be taken during design and assembly.

If manual work or processing is needed, please ensure the device is adequately protected from ESD during the process.

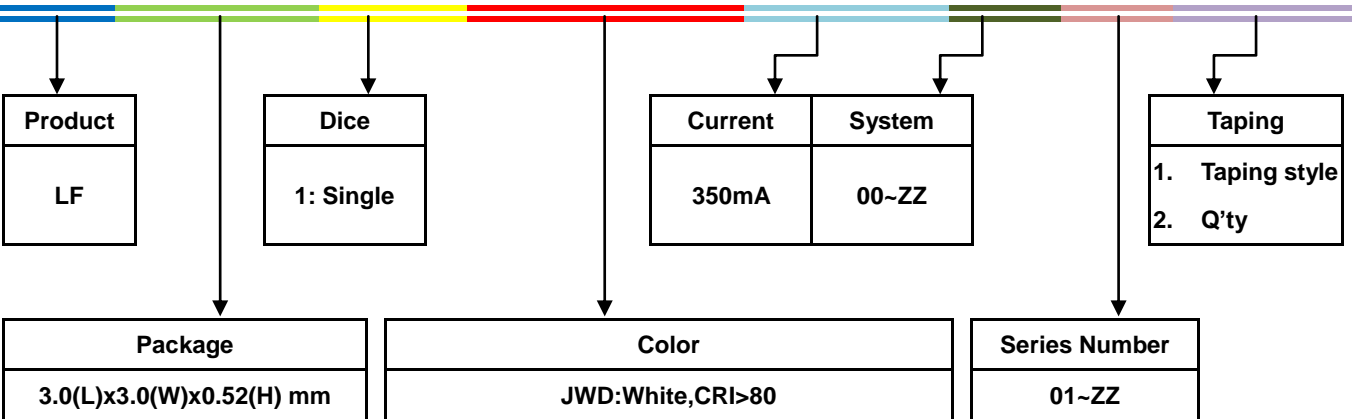
Official Product	HT Part No. T3231JWD-A6P-211215		
Tentative Product	*****	*****	*****
Specifications are subject to changes for improvement without advance notice. Proprietary data, drawings, company confidential all rights reserved.	03/22/2017	Version 1.0	Page 4/17

Label Specifications



Harvatek P/N:

T 323 1 JWD- A6P- 21 12 15



Lot No.:

1	2	3	4	5	6
N	5	B	23		Q
code 1	code 2	code 3	code 4	code 5	code 6
Ticket category	Mfg. Year	Mfg. Data	Consecutive number		Specual code
C: Business single sample N: General Order	0~9	1:1 2:2 3:3 ... 10:A 11:B 12:C	01~31		0~Z

Official Product	HT Part No. T3231JWD-A6P-211215			
Tentative Product	*****	*****		*****
Specifications are subject to changes for improvement without advance notice. Proprietary data, drawings, company confidential all rights reserved.		03/22/2017	Version 1.0	Page 5/17

Specifications Range

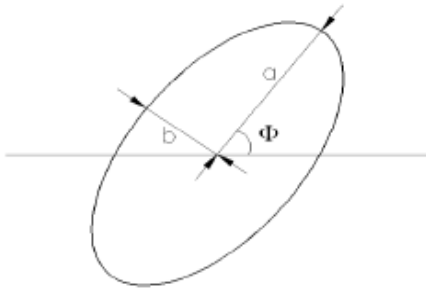
■ (Iv) Bin:

Color code	Color Rendering		Luminous Flux 光通量 (IF=350mA)		
	Min	Typ	Code 代碼	Min	Max
27F5	80	82	2E	122	130
			2F	130	139
			2G	139	148
30F5	80	82	2F	130	139
			2G	139	148
			2H	148	156
40F5	80	82	2F	130	139
			2G	139	148
			2H	148	156
50F5	80	82	2F	130	139
			2G	139	148
			2H	148	156
57F6	80	82	2F	130	139
			2G	139	148
			2H	148	156
65F6	80	82	2F	130	139
			2G	139	148
			2H	148	156

Note: It maintains a tolerance of $\pm 10\%$ on IV

Official Product	HT Part No. T3231JWD-A6P-211215		
Tentative Product	*****	*****	*****
Specifications are subject to changes for improvement without advance notice. Proprietary data, drawings, company confidential all rights reserved.		03/22/2017	Version 1.0 Page 6/17

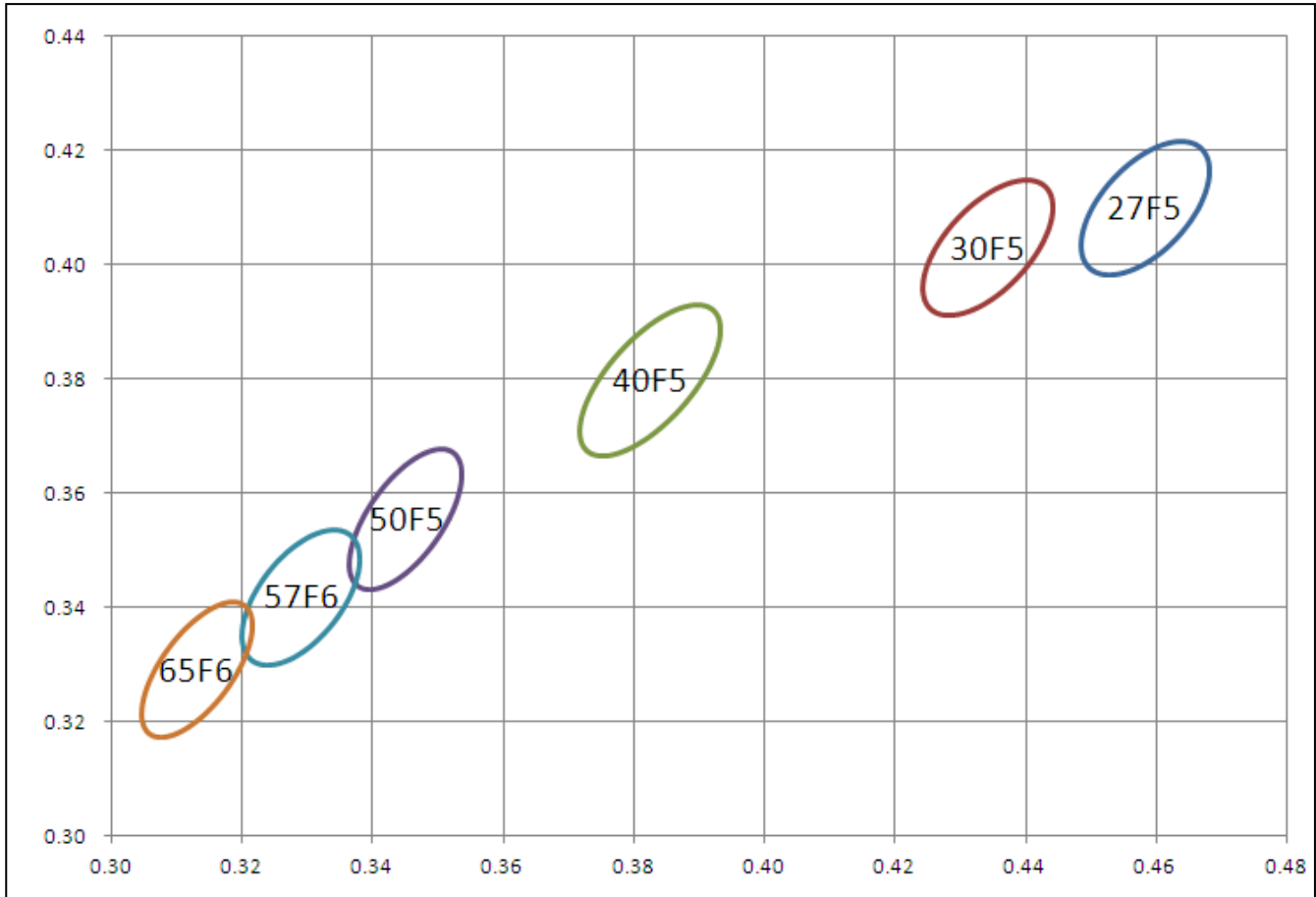
■ Color Bin:



Color Code	Center 色塊中心點		Radius		Angle
	X	Y	A	B	Φ
27F5	0.4582	0.4099	0.0135	0.007	53.42
30F5	0.4342	0.4028	0.0139	0.0068	53.13
40F5	0.3825	0.3798	0.01565	0.0067	53.43
50F5	0.3451	0.3554	0.0137	0.0059	59.37
57F6	0.329	0.3417	0.01341	0.0066	58.35
65F6	0.313	0.329	0.01338	0.0057	58.34

Official Product	HT Part No. T3231JWD-A6P-211215		
Tentative Product	*****	*****	*****
Specifications are subject to changes for improvement without advance notice. Proprietary data, drawings, company confidential all rights reserved.		03/22/2017	Version 1.0 Page 7/17

Chromaticity Coordinate



Note: It maintains a tolerance of x,y ± 0.007

Forward Voltage (Vf) Bin:

Code 代碼	Min	Max	Unit
H3	2.8	3.0	V
J3	3.0	3.2	V
K3	3.2	3.4	V

Note: It maintains a tolerance of ± 0.1 V on forward voltage measurements

Official Product	HT Part No. T3231JWD-A6P-211215		
Tentative Product	*****	*****	*****
Specifications are subject to changes for improvement without advance notice. Proprietary data, drawings, company confidential all rights reserved.		03/22/2017	Version 1.0 Page 8/17

Product Features

Electro-Optical Characteristics

Series	Emitting Color	Material	V _F (V)		Chromaticity Coordinate	I _v (Lm)	Viewing Angle
			typ	max	x,y	Typical	2θ _{1/2}
					typ		
T3231JWD-A6	Cold White	InGaN	3.2	3.4	6500K	144	120
T3231JWD-A6	Nature White	InGaN	3.2	3.4	4000K	144	120
T3231JWD-A6	Warm White	InGaN	3.2	3.4	3000K	137	120

T_{Soldering}, 25 °C

Package Outline Dimension and Recommended Soldering Pattern for Reflow Soldering

Unit: mm Tolerance: +/-0.2

Outline Dim.	Soldering Pattern
Soldering terminals may shift in the x, y direction.	

Absolute Maximum Ratings

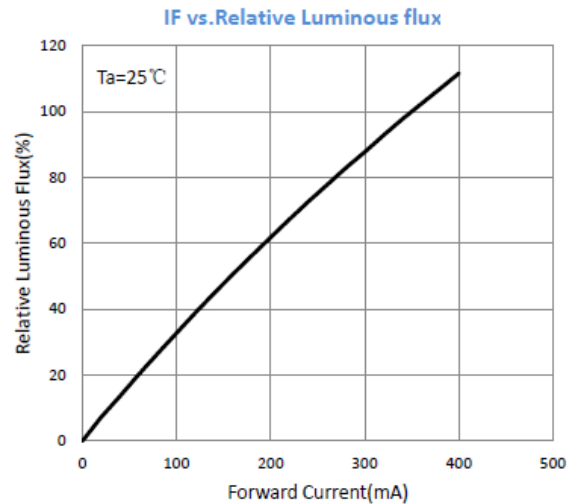
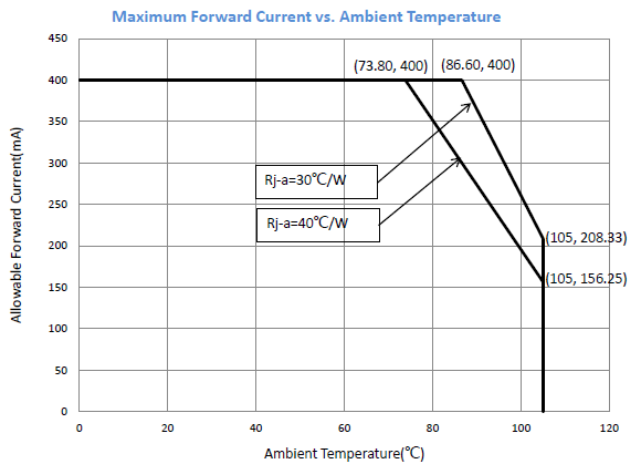
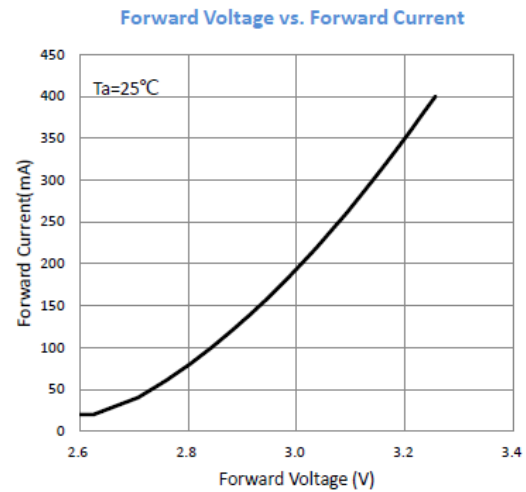
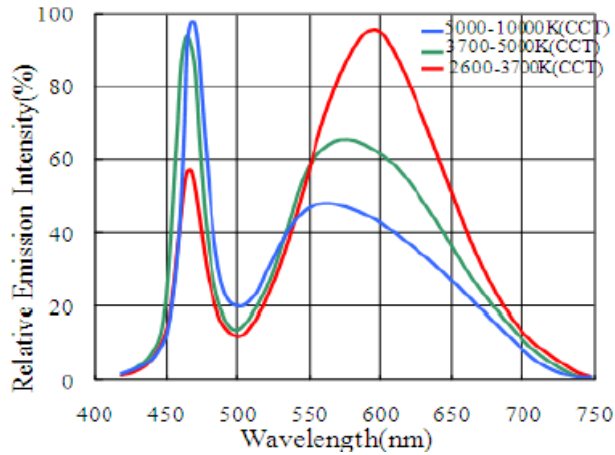
(T_{Soldering} 25 °C)

Series	P _D (W)	I _F (mA)	I _{FP} (mA)*	T _{OP} (°C)	T _{ST} (°C)
Color	Power Dissipation	Forward Current	Pulse Forward Current	Operating Temperature	Storage Temperature
White	1.36	400	600	-40~+85	-40~+100

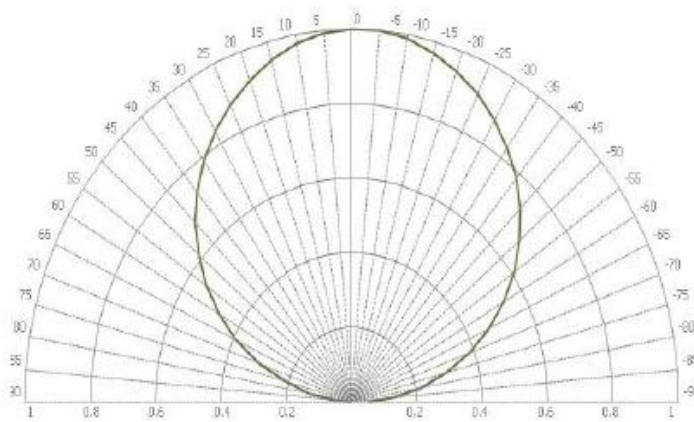
* Condition for I_{FP} is pulse of 1/10 duty and 0.1msec width

Official Product	HT Part No. T3231JWD-A6P-211215		
Tentative Product	*****	*****	*****
Specifications are subject to changes for improvement without advance notice. Proprietary data, drawings, company confidential all rights reserved.		03/22/2017	Version 1.0 Page 9/17

Characteristics of T3231JWD



Viewing Angle Distribution



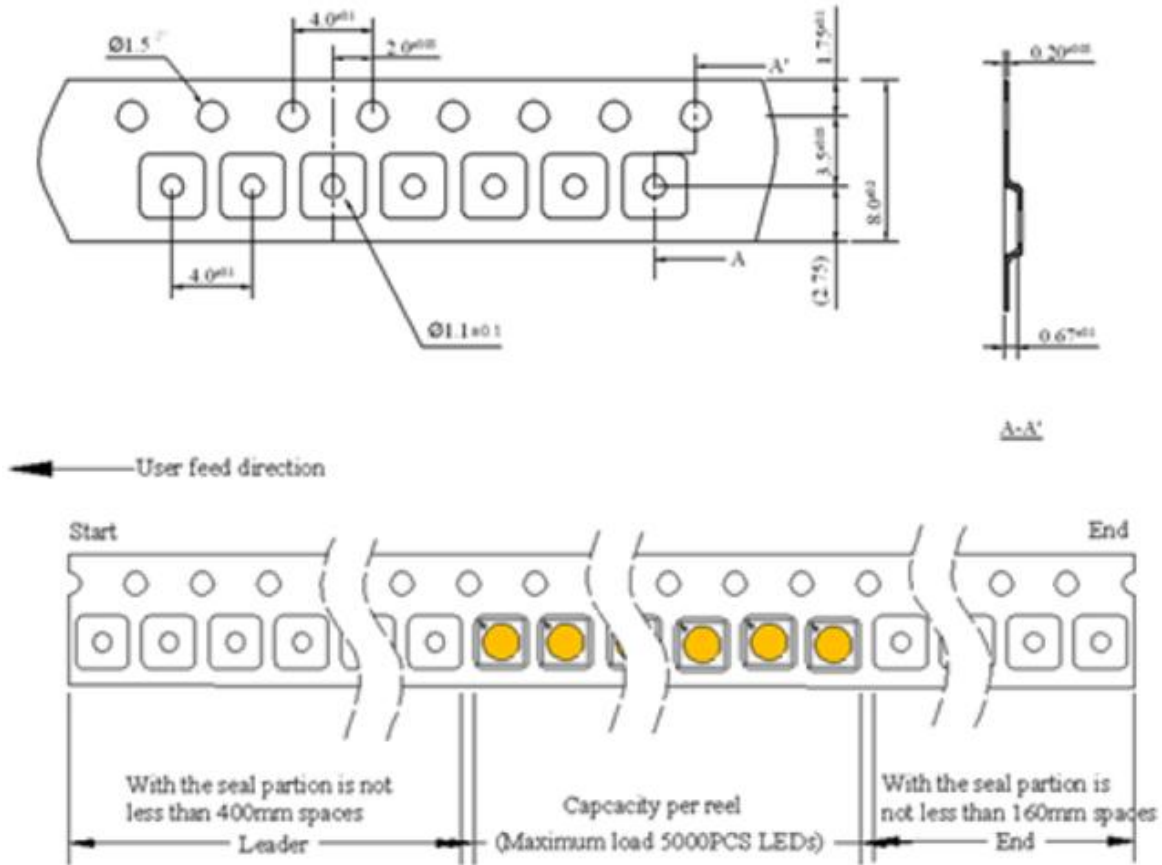
Official Product	HT Part No. T3231JWD-A6P-211215		
Tentative Product	*****	*****	*****
Specifications are subject to changes for improvement without advance notice. Proprietary data, drawings, company confidential all rights reserved.	03/22/2017	Version 1.0	Page 10/17

Precaution for Use

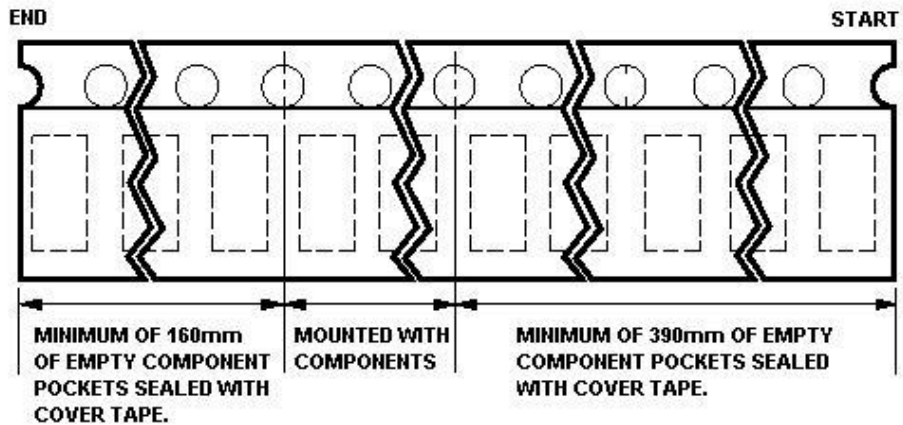
1. The chips should not be used directly in any type of fluid such as water, oil, organic solvent, etc.
2. When the LEDs are illuminating, the maximum ambient temperature should be first considered before operation.
3. LEDs must be stored in a clean environment. A sealed container with a nitrogen atmosphere is necessary if the storage period is over 3 months after shipping.
4. The LEDs must be used within 24hrs after unpacked. Unused products must be repacked in an anti-electrostatic package, folded to close any opening and then stored in a dry and cool space.
5. The appearance and specifications of the products may be modified for improvement without further notice.
6. The LEDs are sensitive to the static electricity and surge. It is strongly recommended to use a grounded wrist band and anti-electrostatic glove when handling the LEDs. If a voltage over the absolute maximum rating is applied to LEDs, it will damage LEDs. Damaged LEDs will show some abnormal characteristics such as remarkable increase of leak current, lower turn-on voltage and getting unlit at low current.

Official Product	HT Part No. T3231JWD-A6P-211215		
Tentative Product	*****	*****	*****
Specifications are subject to changes for improvement without advance notice. Proprietary data, drawings, company confidential all rights reserved.		03/22/2017	Version 1.0 Page 11/17

Packaging Tape Dimension



Q'ty/Reel
5K



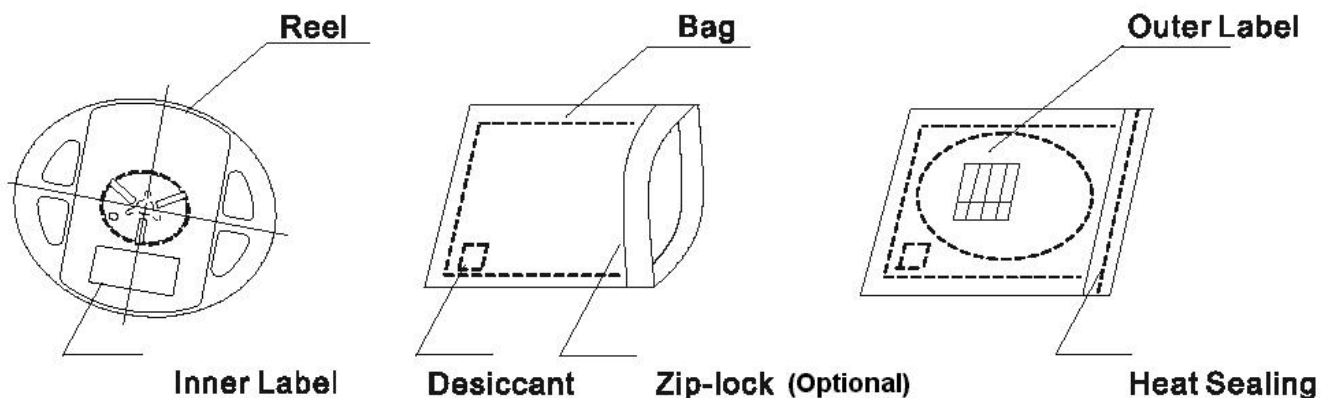
Official Product	HT Part No. T3231JWD-A6P-211215		
Tentative Product	*****	*****	*****
Specifications are subject to changes for improvement without advance notice. Proprietary data, drawings, company confidential all rights reserved.	03/22/2017	Version 1.0	Page 12/17

Dry Pack

All SMD optical devices are **MOISTURE SENSITIVE**. Avoid exposure to moisture at all times during transportation or storage. Every reel is packaged in a moisture protected anti-static bag. Each bag is properly sealed prior to shipment.

Upon request, a humidity indicator will be included in the moisture protected anti-static bag prior to shipment.

The packaging sequence is as follows:



Baking

Baking before soldering is recommended when the package has been unsealed for 24 hours.

The conditions are as followings:

1. $60\pm 3^{\circ}\text{C} \times (12\sim 24\text{hrs})$ and $<5\%RH$, taped reel type.
2. $100\pm 3^{\circ}\text{C} \times (45\text{min}\sim 1\text{hr})$, bulk type.
3. $130\pm 3^{\circ}\text{C} \times (15\text{min}\sim 30\text{min})$, bulk type.

Precautions

1. Avoid exposure to moisture at all times during transportation or storage.
2. Anti-Static precaution must be taken when handling GaN, InGaN, and AlInGaP products.
3. It is suggested to connect the unit with a current limiting resistor of the proper size. Avoid applying a reverse voltage beyond the specified limit.
4. Avoid operation beyond the limits as specified by the absolute maximum ratings.
5. Avoid direct contact with the surface through which the LED emits light.
6. If possible, assemble the unit in a clean room or dust-free environment.

Official Product	HT Part No. T3231JWD-A6P-211215		
Tentative Product	*****	*****	*****
Specifications are subject to changes for improvement without advance notice. Proprietary data, drawings, company confidential all rights reserved.		03/22/2017	Version 1.0 Page 14/17

Handling of Silicone Resin LEDs

Handling Indications

During processing, mechanical stress on the surface should be minimized as much as possible.

Sharp objects of all types should not be used to pierce the sealing compound.



Figure 1

In general, LEDs should only be handled from the side. By the way ,this also applies to LEDs without a silicone sealant, since the surface can also become scratched.

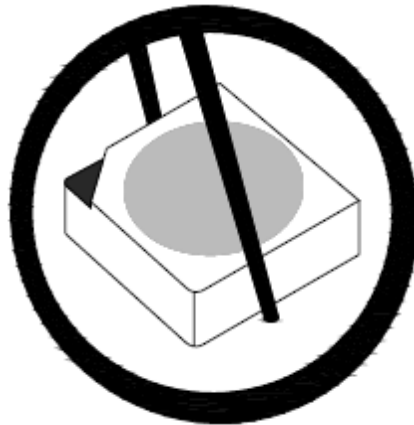


Figure 2

When populating boards in SMT production, there are basically no restrictions regarding the from of the pick and place nozzle, except that mechanical pressure on the surface of the resin must be prevented.

This is assured by choosing a pick and place nozzle which is large than LEDs reflector area.

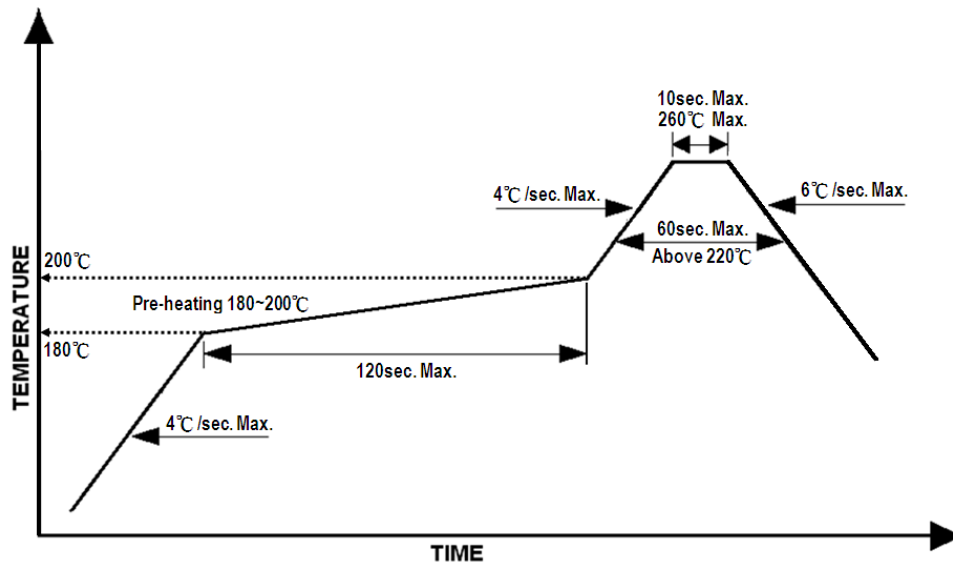
Official Product	HT Part No. T3231JWD-A6P-211215		
Tentative Product	*****	*****	*****
Specifications are subject to changes for improvement without advance notice. Proprietary data, drawings, company confidential all rights reserved.		03/22/2017	Version 1.0 Page 15/17

Reflow Soldering

Recommend soldering paste specifications:

1. Operating temp.: Above 220 °C ,60 sec.
2. Peak temp.:260 °CMax.,10sec Max.
3. Reflow soldering should not be done more than two times.
4. Never attempt next process until the component is cooled down to room temperature after reflow.
5. The recommended reflow soldering profile (measured on the surface of the LED terminal) is as following:

Lead-free Solder Profile



Reworking

- Rework should be completed within 5 seconds under 260 °C.
- The iron tip must not come in contact with the copper foil.
- Twin-head type is preferred.

Cleaning

Following are cleaning procedures after soldering:

- An alcohol-based solvent such as isopropyl alcohol (IPA) is recommended.
- Temperature x Time should be 50°C x 30sec. or <30°C x 3min
- Ultrasonic cleaning: < 15W/ bath; bath volume ≤ 1liter
- Curing: 100 °C max, <3min

Official Product	HT Part No. T3231JWD-A6P-211215		
Tentative Product	*****	*****	*****
Specifications are subject to changes for improvement without advance notice. Proprietary data, drawings, company confidential all rights reserved.		03/22/2017	Version 1.0 Page 16/17

