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DATA SHEET

PART NO.:L-T3014XWDT

REV: A / 0

CUSTOMER'S APPROVAL : _____

DCC : _____

DRAWING NO. : DS-31P-12-0005

DATE : 2012-3-2 PAGE

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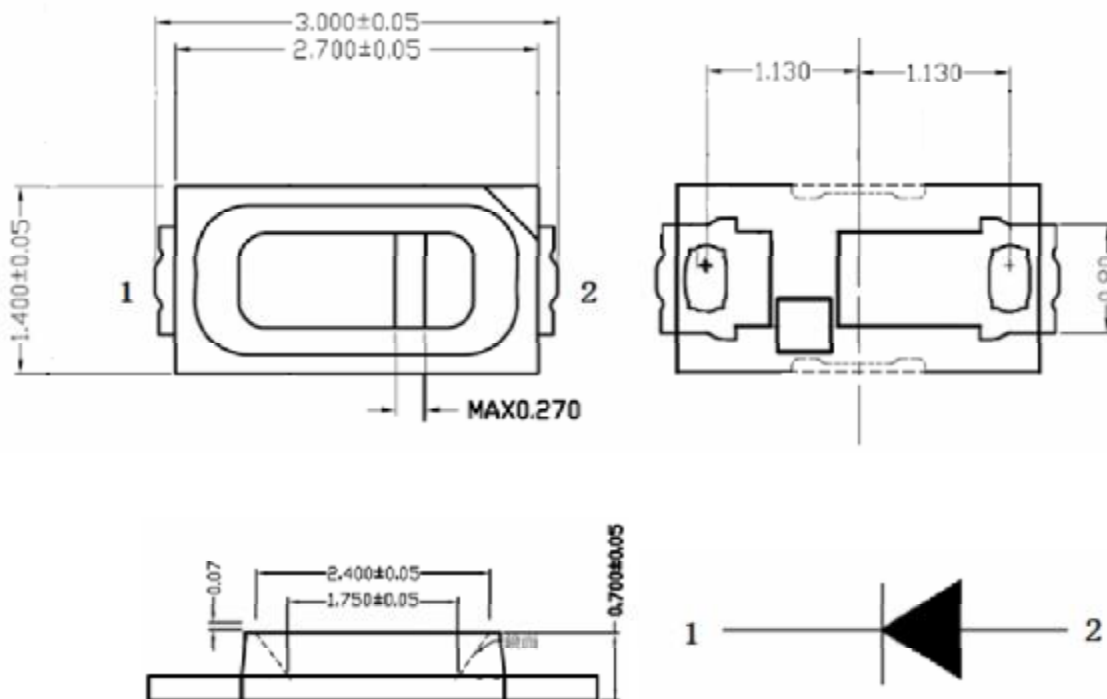
I Features

- Ū Top view, Wide view angle, White color PLCC 2 package SMD LED .
- Ū EIA STD package, packing in 8mm tape on 7" diameter reels (ANSI/EIA-481-B-2001).
- Ū Compatible with automatic Pick & Place equipment.
- Ū Compatible with IR Reflow soldering and TTW soldering.
- Ū Pb free product and acceptable lead-free process.
- Ū Meet RoHS Green Product

I Application

- Ū Backlighting (LCD, Switches, keys, displays, illuminated advertising)
- Ū lighting / Signal and symbol luminaries.

I Package Outline Dimensions



Notes:

1. All dimensions are in millimeters.
2. Tolerance is ± 0.10 mm (.004") unless otherwise noted.



SURFACE MOUNT DEVICE LED

Part No. :L-T3014XWDT

REV: A / 0

Chip Materials

- Ū Dice Material : InGaN
- Ū Light Color : White
- Ū Lens Color : Light Yellow Diffused

Absolute Maximum Ratings(Ta=25°C)

Symbol	Parameter	Rating	Unit
P _D	Power Dissipation	120	mW
I _{PF}	Peak Forward Current (1/10 Duty Cycle, 0.1ms Pulse Width)	100	mA
I _F	Continuous Forward Current	35	mA
V _R	Reverse Voltage	5	V
ESD	Electrostatic Discharge Threshold (HBM) ^{Note A}	1000	V
T _{opr}	Operating Temperature Range	-30 ~ + 85	°C
T _{stg}	Storage Temperature Range	-40 ~ + 100	°C
T _j	LED Junction Temperature	125	°C

*Duty1/10 @1KHZ

Electro-Optical Characteristics (Ta=25°C)

Parameter	Symbol	Min.	Typ.	Max.	Unit	Test Condition
Luminous flux	φ _v	8		12	lm	IF=30mA
Luminous Intensity	I _v	2500		3800	mcd	IF=30mA
Color temperature	CCT	2550		7000	K	IF=30mA
Viewing Angle	2θ _{1/2}	/	120	/	Deg	/
Forward Voltage	V _F	3.1		3.6	V	IF = 30mA
Reverse Current	I _R	/	/	10	μA	VR = 5V
Color Rendering Index	CRI	65		80	Ra	IF=30mA

*Forward voltage measurement allowance is±0.1V.

* Luminous intensity is measured with a light sensor and filter combination that approximates the CIE eye-response curve.

*Luminous Intensity Measurement Allowance is±10%.

*Dominant Wavelength measurement allowance is±1nm.

*2θ_{1/2} is the off-axis angle at which the luminous intensity is half the axial luminous intensity.

*Please see attachments for BIN classifications..

● Typical Electro-Optical Characteristics Curves

(25°C Ambient Temperature Unless Otherwise Noted)

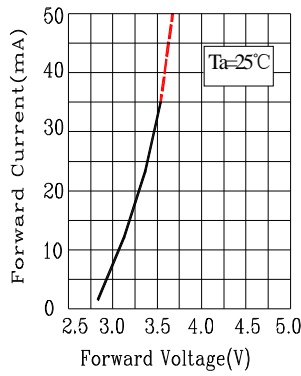


Fig.1 Forward Current vs. Forward Voltage

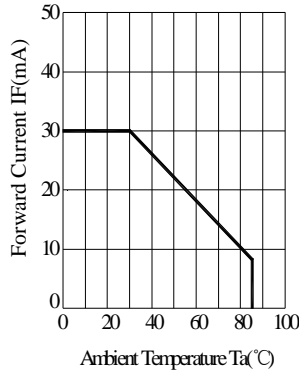


Fig.2 Forward Current Derating Curve

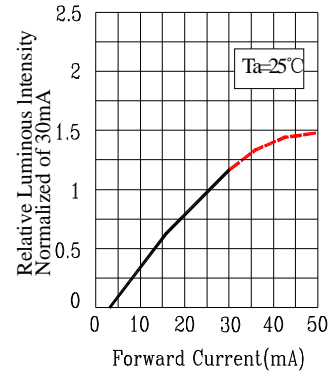


Fig.3 Relative Luminous Intensity vs. Forward Current

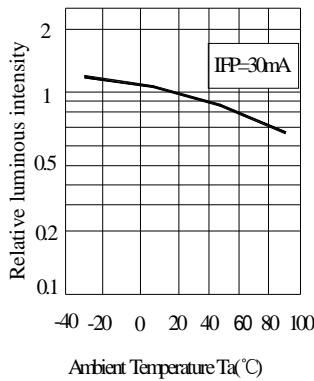


Fig.4 Luminous Intensity vs. Ambient Temperature

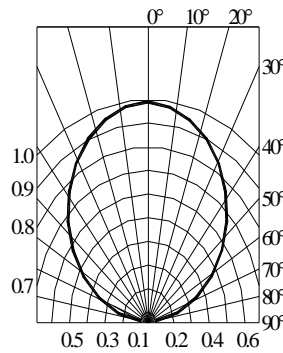


Fig.5 Spatial Distribution

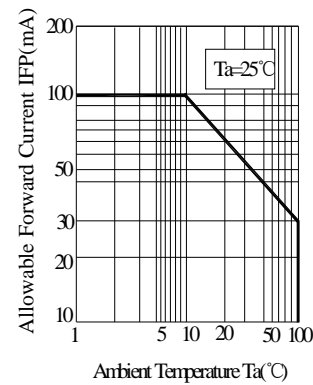


Fig.6 Forward Current Derating Curve

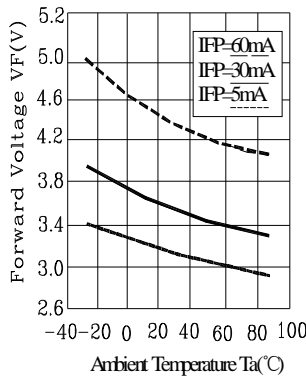


Fig.7 Ambient Temperature vs. Forward Voltage

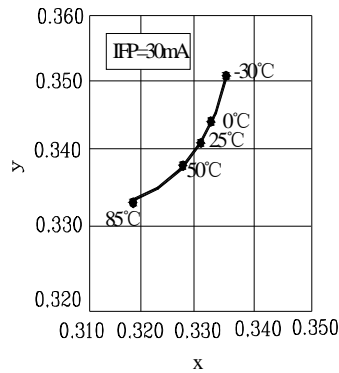


Fig.8 Ambient Temperature vs. Chromaticity Coordinate

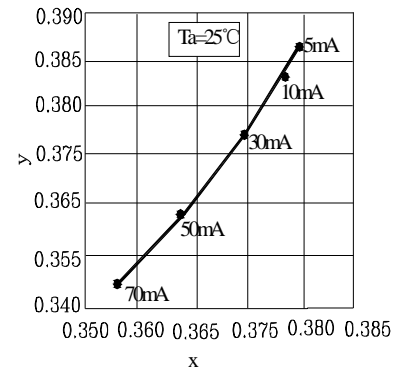


Fig.9 Forward Current vs. Chromaticity Coordinate

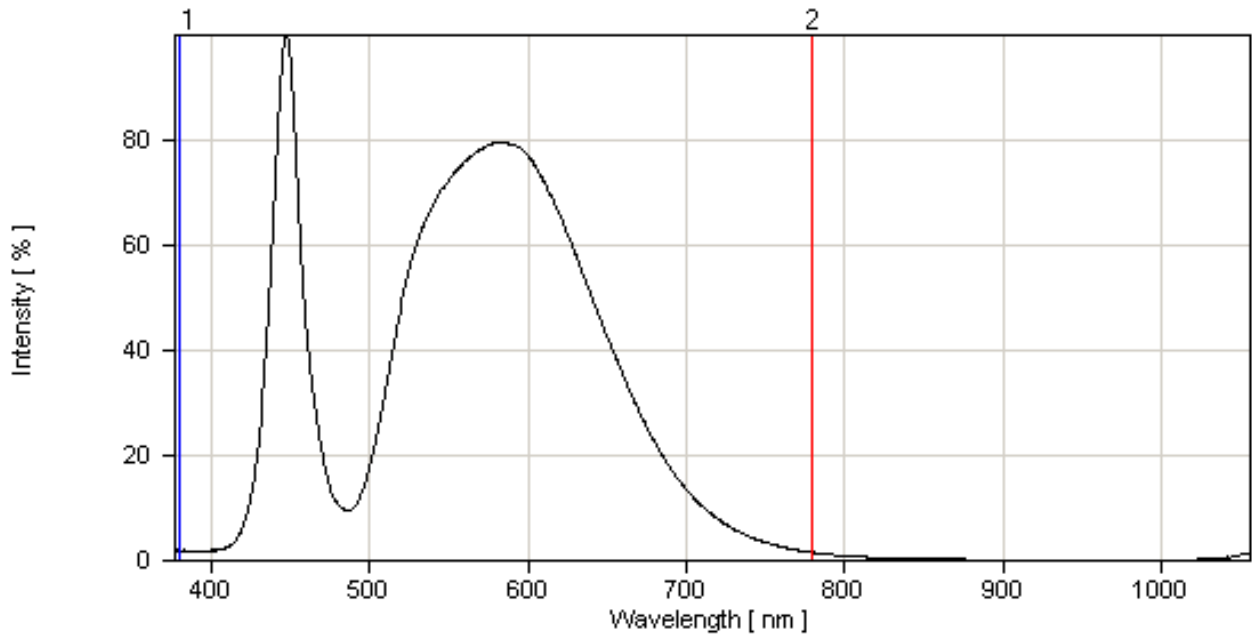


Fig.1 Relative Intensity vs. Wavelength

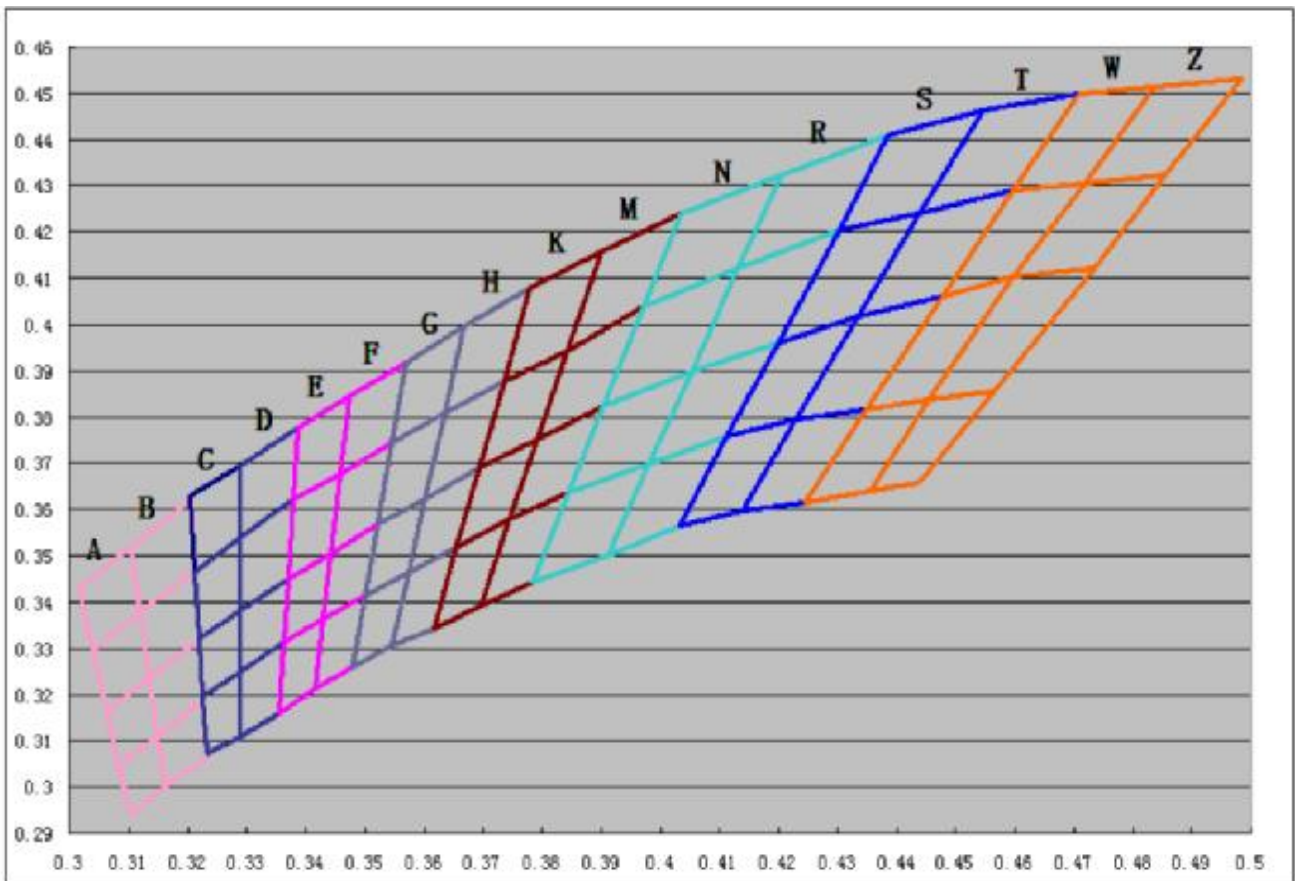
I IV Bin Code List

Luminous Flux(IV), Unit:lm@30mA		
L7	8	9
L8	9	10
L9	10	11
La	11	12

I VF Bin Code List

Forward Voltage(VF),, Unit:V@30mA		
BINCODE	MIN	MAX
V3	3.10	3.20
V4	3.20	3.30
V5	3.30	3.40
V6	3.40	3.50
V7	3.50	3.60

• Bin Range of Chromaticity Coordinates @ 30Ma





SURFACE MOUNT DEVICE LED

Part No. :L-T3014XWDT

REV: A / 0

● Bin Range of Chromaticity Coordinates @ 30Ma

色温范围	BIN	色坐标						
			左下	左上	右上	右下	左下	
6500-7000	A1	X	0.3039	0.3016	0.3102	0.3118	0.3039	
		Y	0.3297	0.3428	0.3519	0.3379	0.3297	
	A2	X	0.3063	0.3039	0.3118	0.3134	0.3063	
		Y	0.3161	0.3297	0.3379	0.3239	0.3161	
	A3	X	0.3083	0.3063	0.3134	0.3149	0.3083	
		Y	0.3047	0.3161	0.3239	0.3107	0.3047	
	A4	X	0.3102	0.3083	0.3149	0.3161	0.3102	
		Y	0.2939	0.3047	0.3107	0.3002	0.2939	
	6000-6500	B1	X	0.3118	0.3102	0.3206	0.3213	0.3118
			Y	0.3379	0.3519	0.3621	0.3468	0.3379
B2		X	0.3134	0.3118	0.3213	0.322	0.3134	
		Y	0.3239	0.3379	0.3468	0.332	0.3239	
B3		X	0.3149	0.3134	0.322	0.3226	0.3149	
		Y	0.3107	0.3239	0.332	0.3189	0.3107	
B4		X	0.3161	0.3149	0.3226	0.3232	0.3161	
		Y	0.3002	0.3107	0.3189	0.3065	0.3	
6000-5650	C1	X	0.3213	0.3205	0.329	0.329	0.3213	
		Y	0.3465	0.363	0.3696	0.354	0.3465	
	C2	X	0.322	0.3213	0.329	0.329	0.322	
		Y	0.3322	0.3465	0.354	0.338	0.3322	
	C3	X	0.3226	0.322	0.329	0.329	0.3226	
		Y	0.3195	0.3322	0.338	0.3248	0.3195	
	C4	X	0.3232	0.3226	0.329	0.329	0.3232	
		Y	0.3072	0.3195	0.3248	0.311	0.3072	



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REV: A / 0

色温范围	BIN	色坐标						
			左下	左上	右上	右下	左下	
5650-5300	D1	X	0.329	0.329	0.3388	0.338	0.329	
		Y	0.354	0.3696	0.3778	0.3623	0.354	
	D2	X	0.329	0.329	0.338	0.3371	0.329	
		Y	0.338	0.354	0.3623	0.345	0.3382	
	D3	X	0.329	0.329	0.3371	0.3364	0.329	
		Y	0.3248	0.338	0.345	0.3315	0.3248	
	D4	X	0.329	0.329	0.3364	0.3356	0.329	
		Y	0.311	0.3248	0.3315	0.316	0.311	
	5300-5025	E1	X	0.338	0.3388	0.3474	0.3458	0.338
			Y	0.3621	0.3778	0.3847	0.3675	0.3621
		E2	X	0.3371	0.338	0.3458	0.3442	0.3371
			Y	0.345	0.3621	0.3675	0.3505	0.345
E3		X	0.3364	0.3371	0.3442	0.3429	0.3364	
		Y	0.3315	0.345	0.3505	0.3364	0.3315	
E4		X	0.3356	0.3364	0.3429	0.3415	0.3356	
		Y	0.316	0.3315	0.3364	0.3214	0.316	
5025-4750		F1	X	0.3458	0.3474	0.357	0.3546	0.3458
			Y	0.3675	0.3847	0.3918	0.3743	0.3675
		F2	X	0.3442	0.3458	0.3546	0.3522	0.3442
			Y	0.3505	0.3675	0.3743	0.3568	0.3505
	F3	X	0.3429	0.3442	0.3522	0.3501	0.3429	
		Y	0.3364	0.3505	0.3568	0.3414	0.3364	
	F4	X	0.3415	0.3429	0.3501	0.348	0.3415	
		Y	0.3214	0.3364	0.3414	0.3261	0.3214	

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SURFACE MOUNT DEVICE LED

Part No. :L-T3014XWDT

REV: A / 0

色温范围	BIN	色坐标						
			左下	左上	右上	右下	左下	
4750-4500	G1	X	0.3546	0.357	0.3668	0.3635	0.3546	
		Y	0.3743	0.3918	0.3997	0.3808	0.3743	
	G2	X	0.3522	0.3546	0.3635	0.3602	0.3522	
		Y	0.3568	0.3743	0.3808	0.3621	0.3568	
	G3	X	0.3501	0.3522	0.3602	0.3574	0.3501	
		Y	0.3414	0.3568	0.3621	0.3463	0.3414	
	G4	X	0.348	0.3501	0.3574	0.3546	0.348	
		Y	0.3261	0.3414	0.3463	0.3305	0.3261	
	4500-4250	H1	X	0.3635	0.3668	0.3779	0.3736	0.3635
			Y	0.3808	0.3997	0.4079	0.3879	0.3808
		H2	X	0.3602	0.3635	0.3736	0.3693	0.3602
			Y	0.3621	0.3808	0.3879	0.3691	0.3621
H3		X	0.3574	0.3602	0.3693	0.3655	0.3574	
		Y	0.3463	0.3621	0.3691	0.3519	0.3463	
H4		X	0.3546	0.3574	0.3655	0.3616	0.3546	
		Y	0.3305	0.3463	0.3519	0.3343	0.3305	
4250-4000		K1	X	0.3736	0.3779	0.39	0.3843	0.3736
			Y	0.3879	0.4079	0.4157	0.3943	0.3879
	K2	X	0.3693	0.3736	0.3843	0.3792	0.3693	
		Y	0.3691	0.3879	0.3943	0.3752	0.3691	
	K3	X	0.3655	0.3693	0.3792	0.3744	0.3655	
		Y	0.3519	0.3691	0.3752	0.3579	0.3519	
	K4	X	0.3616	0.3655	0.3744	0.3696	0.3616	
		Y	0.3343	0.3519	0.3579	0.3392	0.3343	



SURFACE MOUNT DEVICE LED

Part No. :L-T3014XWDT

REV: A / 0

色温范围	BIN	色坐标						
			左下	左上	右上	右下	左下	
4000-3750	M1	X	0.3843	0.39	0.4035	0.3972	0.3843	
		Y	0.3943	0.4157	0.4239	0.4038	0.3943	
	M2	X	0.3792	0.3843	0.3972	0.3904	0.3792	
		Y	0.3752	0.3943	0.4038	0.3822	0.3752	
	M3	X	0.3744	0.3792	0.3904	0.3846	0.3744	
		Y	0.3579	0.3752	0.3822	0.3638	0.3579	
	M4	X	0.3696	0.3744	0.3846	0.3785	0.3696	
		Y	0.3392	0.3579	0.3638	0.3444	0.3392	
	3750-3500	N1	X	0.3972	0.4035	0.4205	0.4131	0.3972
			Y	0.4038	0.4239	0.4325	0.4121	0.4038
		N2	X	0.3904	0.3972	0.4131	0.4053	0.3904
			Y	0.3822	0.4038	0.4121	0.39	0.3822
N3		X	0.3846	0.3904	0.4053	0.398	0.3846	
		Y	0.3638	0.3822	0.39	0.3697	0.3638	
N4		X	0.3785	0.3846	0.398	0.391	0.3785	
		Y	0.3444	0.3638	0.3697	0.3502	0.3444	
3500-3250		R1	X	0.4131	0.4205	0.4386	0.4302	0.4131
			Y	0.4121	0.4325	0.4409	0.4206	0.4121
		R2	X	0.4053	0.4131	0.4302	0.4199	0.4053
			Y	0.39	0.4121	0.4206	0.3962	0.39
	R3	X	0.398	0.4053	0.4199	0.4113	0.398	
		Y	0.3697	0.39	0.3962	0.3758	0.3697	
	R4	X	0.391	0.398	0.4113	0.4033	0.391	
		Y	0.3502	0.3697	0.3758	0.3564	0.3502	



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REV: A / 0

色温范围	BIN	色坐标						
			左下	左上	右上	右下	左下	
3250-3050	S1	X	0.4302	0.4386	0.4546	0.4438	0.4302	
		Y	0.4206	0.4409	0.4464	0.4241	0.4206	
	S2	X	0.4199	0.4302	0.4438	0.4336	0.4199	
		Y	0.3962	0.4206	0.4241	0.4019	0.3962	
	S3	X	0.4113	0.4199	0.4336	0.4229	0.4113	
		Y	0.3758	0.3962	0.4019	0.3794	0.3758	
	S4	X	0.4033	0.4113	0.4229	0.414	0.4033	
		Y	0.3564	0.3758	0.3794	0.3597	0.3564	
	3050-2850	T1	X	0.4438	0.4546	0.4709	0.4598	0.4438
			Y	0.4241	0.4464	0.45	0.4292	0.4241
		T2	X	0.4336	0.4438	0.4598	0.4479	0.4336
			Y	0.4019	0.4241	0.4292	0.4061	0.4019
T3		X	0.4229	0.4336	0.4479	0.4348	0.4229	
		Y	0.3794	0.4019	0.4061	0.3815	0.3794	
T4		X	0.414	0.4229	0.4348	0.4244	0.414	
		Y	0.3597	0.3794	0.3815	0.3617	0.3597	
2850-2700		W1	X	0.4598	0.4709	0.4835	0.472	0.4598
			Y	0.4292	0.45	0.4513	0.4304	0.4292
	W2	X	0.4479	0.4598	0.472	0.4598	0.4479	
		Y	0.4061	0.4292	0.4304	0.4103	0.4061	
	W3	X	0.4348	0.4479	0.4598	0.4455	0.4348	
		Y	0.3815	0.4061	0.4103	0.3837	0.3815	
	W4	X	0.4244	0.4348	0.4455	0.4355	0.4244	
		Y	0.3617	0.3815	0.3837	0.364	0.3617	
	2700-2550	Z1	X	0.472	0.4835	0.4985	0.4855	0.472
			Y	0.4304	0.4513	0.4533	0.4324	0.4304
Z2		X	0.4598	0.472	0.4855	0.4735	0.4598	
		Y	0.4103	0.4304	0.4324	0.4123	0.4103	
Z3		X	0.4455	0.4598	0.4735	0.4565	0.4455	
		Y	0.3837	0.4103	0.4123	0.3857	0.3837	
Z4		X	0.4355	0.4455	0.4565	0.4439	0.4355	
		Y	0.364	0.3837	0.3857	0.366	0.364	



SURFACE MOUNT DEVICE LED

Part No. :L-T3014XWDT

REV: A / 0

Label Explanation



CUS. PART NO: To be denominated.

CUSTOMER: To be denominated.

PART NO: Refer to P15

IV--- Luminous Intensity Code

VF--- Forward Voltage Code

CIE--- Color Rank Code

LOT NO: E L P 7 8 0001
 A B C D E F

A---E: For series number

B---L: Local F: Foreign

C---P: PLCC SMD

D---Year

E---Month

F---SPEC.

PACKING QUANTITY OF BAG :

2000pcs max for T670 series

2000pcs max for T650 series

2000pcs max for S020 series

3000pcs max for T3014 series

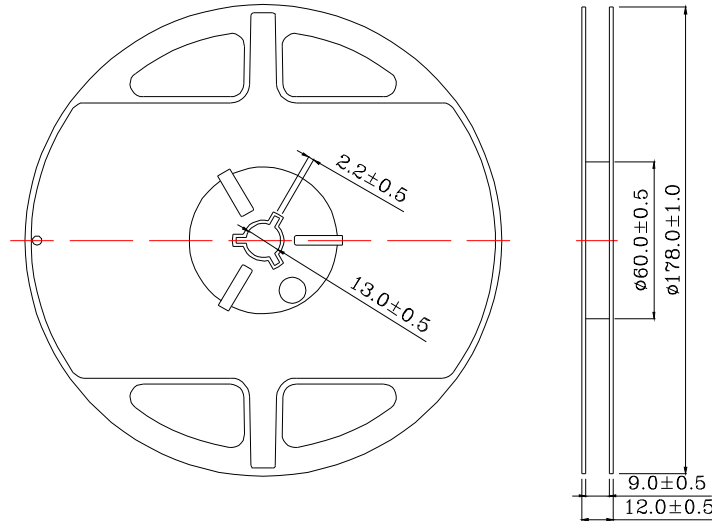
DATE CODE: 2011 02 15
 G H I

G--- Year

H--- Month

I --- Day

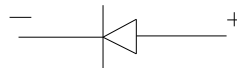
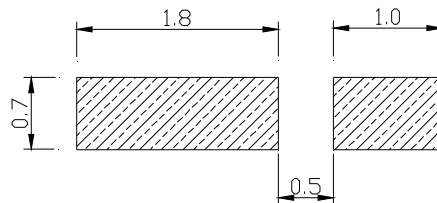
I Reel Dimensions



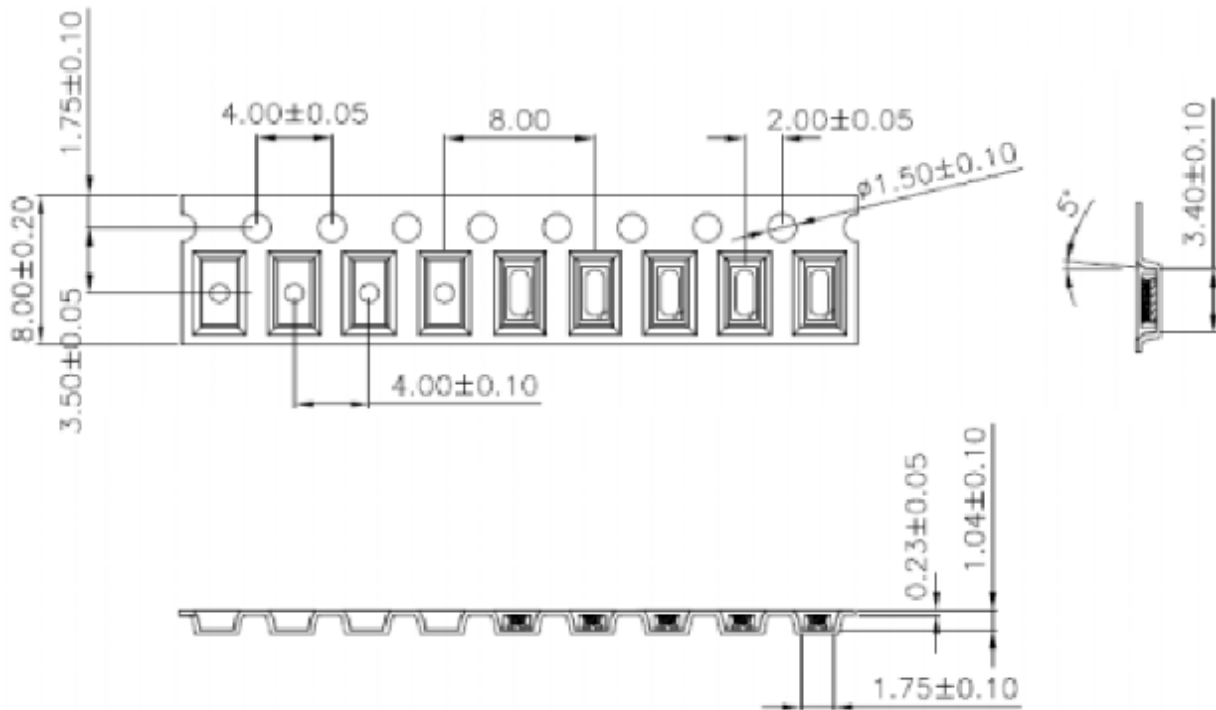
Notes:

1. Taping Quantity : 3000pcs/reel、 2000pcs/reel
2. The tolerances unless noted is $\pm 0.1\text{mm}$, Angle $\pm 0.5^\circ$, Unit: mm.

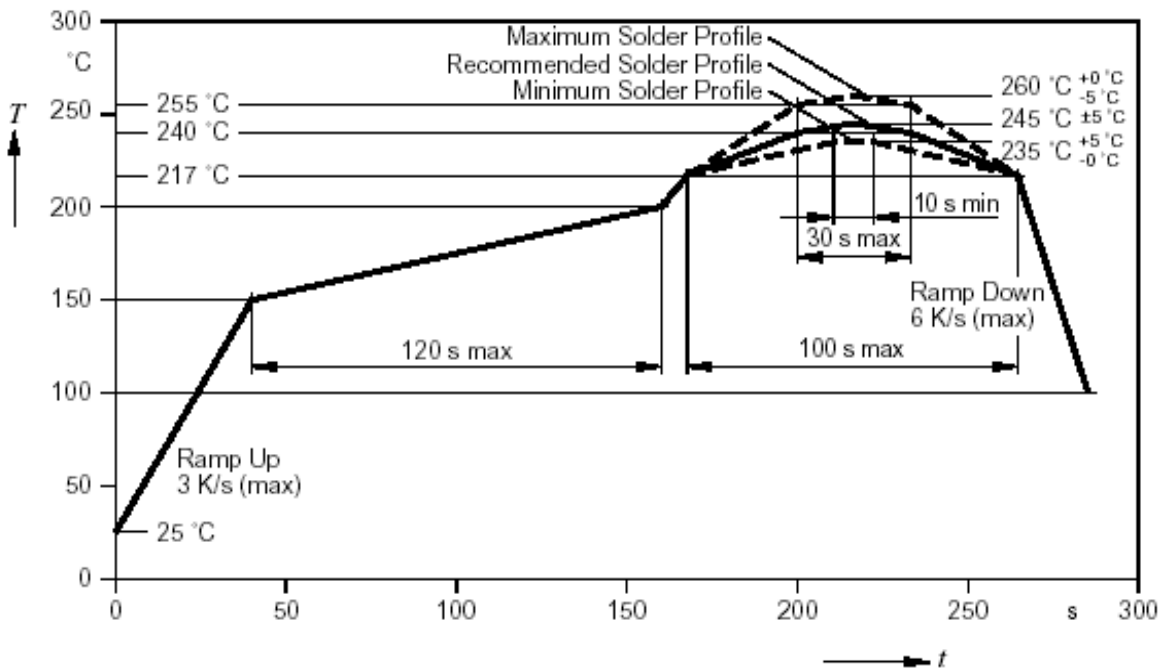
I Suggest Soldering Pad Dimensions(unit=mm)



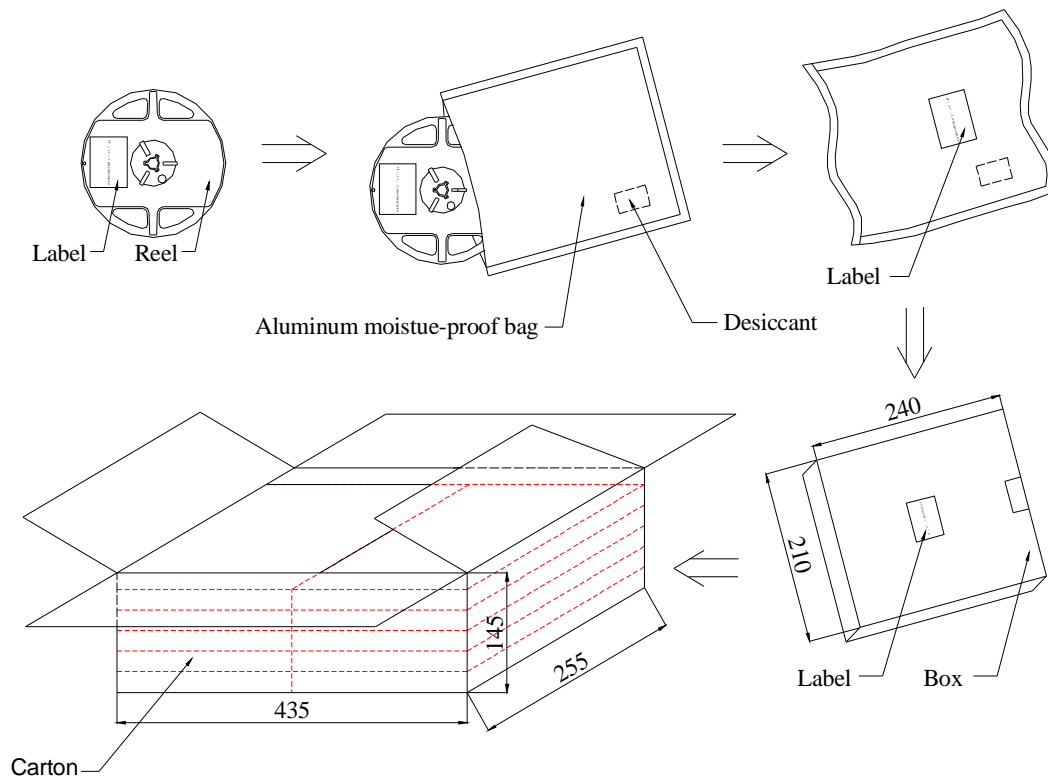
Package Dimensions Of Tape And Reel



● Suggest reflow Soldering temperature profile:



I Moisture Resistant Packaging



Notes : One reel in a bag, one bag in a inner box, ten inner boxes in a carton. Unit : mm.

I Cleaning

- ⊖ If cleaning is required , use the following solutions for less than 1 minute and less than 40°C .
- ⊖ Appropriate chemicals: isopropyl alcohol. (When using other solvents, it should be confirmed beforehand whether the solvents will dissolve the package and the resin or not.)
- ⊖ Effect of ultrasonic cleaning on the LED resin body differs depending on such factors as ultrasonic power and the assembled condition. Before cleaning, a pre-test should be confirm whether any damage to the LEDS will occur.



SURFACE MOUNT DEVICE LED

Part No. :L-T3014XWDT

REV: A / 0

● CAUTIONS

1. Static Electricity:

- * Static electricity or surge voltage damages the LEDs.

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.

It is recommended that measures be taken against surge voltage to the equipment that mounts the LEDs.

- * When inspecting the final products in which LEDs were assembled, it is recommended to check whether the assembled LEDs are damaged by static electricity or not. It is easy to find static-damaged LEDs by a light-on test or a VF test at a lower current (blew 1mA is recommended).

* Damaged LEDs will show some unusual characteristics such as the leak current remarkably increases, the forward voltage becomes lower, or the LEDs do not light at the low current.

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

2. Storage :

- * Before opening the package :

The LEDs should be kept at 30°C or less and 85%RH or less. When storing the LEDs, moisture proof packaging with absorbent material (silica gel) is recommended.

- * After opening the package :

The LEDs should be kept at 30°C or less and 70%RH or less. The LEDs should be soldered within 168 hours (7 days) 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). It is also recommended to return the LEDs to the original moisture proof bag and to reseal the moisture proof bag again.

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 24hours at 65±5°C.

- * Please avoid rapid transitions in ambient temperature in high humidity environments where condensation may occur.

3. Soldering:

Do not apply any stress to the LED lens during soldering while the LED is at high temperature.

Recommended soldering condition.

- * Soldering Iron : (Not recommended)

Temperature 350°C Max., Soldering time : 3 sec. Max.(one time only), power dissipation of iron :

20W Max. use SN60 solder of solder with silver content and don't touch LED lens when soldering.

4. Lead-Free Soldering

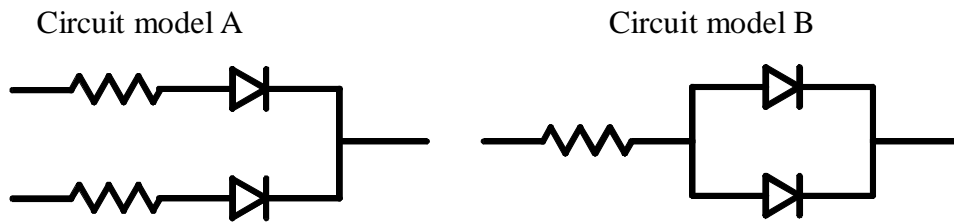
For Reflow Soldering :

- 1、Pre-Heat Temp: 150-180°C ,120sec.Max.
- 2、Soldering Temp: Temperature Of Soldering Pot Over 240°C ,30sec.Max.
- 3、Peak Temperature: 260°C , 10sec.
- 4、Reflow Repetition: 2 Times Max.
- 5、Suggest Solder Paste Formula : 93.3 Sn/3.1 Ag/3.1 Bi/0.5 Cu

For Soldering Iron (Not Recommended) :

- 1、Iron Tip Temp: 350°C Max.
- 2、Soldering Iron: 30w Max.
- 3、Soldering Time: 3 Sec. Max. One Time.

5. Drive Method



(A)Recommended circuit.

(B)The difference of brightness between LED`s could be found due to the Vf-If characteristics of LED.

6. Reliability

1、Criteria For Judging The Damage

Item	Symbol	Test Conditions	Criteria for Judgement	
			MIN.	Max.
Forward Voltage	VF	IF=30mA	-	U.S.L.*)×1.2
Reverse Current	IR	VR=5V	-	U.S.L.*)×2.0
Luminous Intensity	IV	IF=30mA	L.S.L**)×0.7	-

*) U.S.L.: Upper Standard Level

***) L.S.L: Lower Standard Level



SURFACE MOUNT DEVICE LED

Part No. :L-T3014XWDT

REV: A / 0

2、 Test Items And Results

Test Item	Reference Standard	Test Condition	Note	Number of Damaged
Resistance to Soldering Heat (Reflow Soldering)	JEITA ED-4701300 301	Tsld=260°C,10sec. (Pre treatment 30 °C,70%,168hrs)	2times	0/50
Solder ability (Reflow Soldering)	JEITA ED-4701300 303	Tsld=215°C,3sec. (Lead Solder)	1time over 95%	0/50
Thermal Shock	JEITA ED-4701300 307	-40°C ~ 100°C 30min. 30min.	100cycles	0/50
Temperature Cycle	JEITA ED-4701100 105	-40°C ~ 25°C~100°C~25°C 30min. 5min. 30min. 5min	100cycles	0/50
High Temperature Storage	JEITA ED-4701200- 201	Ta=100°C	1000hrs.	0/50
Temperature Humidity Storage	JEITA ED-4701100 103	Ta=60°C,RH=90%	1000hrs.	0/50
Low Temperature Storage	JEITA ED-4701200 202	Ta=-40°C	1000hrs.	0/50
Steady State Operating Life Condition		Ta=25°C,IF=30mA	1000hrs.	0/50
Steady State Operating Life of High Humidity Heat		Ta=85°C,RH=85%,IF=30mA	500hrs.	0/50

7.Others:

The appearance and specifications of the product may be modified for improvement without notice.



SURFACE MOUNT DEVICE LED

Part No. :L-T3014XWDT

REV: A /0

I PART NO. SYSTEM :

L - T 67 0 W D T (Z) - X X X X

XXXX : Special Code
(Such as CCT、 Luminous or others)

Z: With zener
(It not be showed if with no zener)

T : Taping for 7 inch reel

Lens color
C : Water Clear
W : White Diffused
D : Color Diffused

KY : 9mil AlInGap 590nm Super Yellow
KR : 9mil AlInGap 630 nm Super Red
TE(HE) : 14mil AlInGap 624 nm Super Red
TY(HY): 14mil AlInGap590 nm Super Yellow
LB : InGaN ITO rough 470nm Blue
LG(SG) : InGaN ITO rough520nm Green
W : InGaN + YAG White color
.....

0 : Single chip
1/2 : Super thin single chip
5/6 : Dual chip
F : Three chip(Full color)

650 : 3020 1.3T TYPE
670 : 3528 1.9T TYPE
020 : 3812 0.6T TYPE
680: 5630 0.9T TYPE
690: 5050 1.5T TYPE
3014: 3014 0.8T TYPE

T :PLCC Top View Type
S : Side View Type