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DATA SHEET

PART NO.: LT2835WDT-WW1-HX-U1

REV: A/0

CUSTOMER'S APPROVAL : \_\_\_\_\_

DCC : \_\_\_\_\_

DRAWING NO. : DS-31P-18-0202

DATE :2018-10-31

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# SURFACE MOUNT DEVICE LED

Part No. : LT2835WDT-WW1-HX-U1

REV: A/0

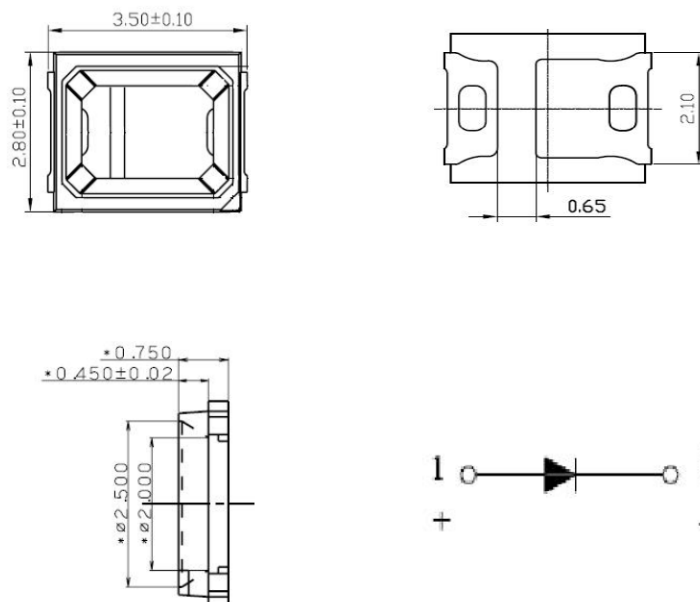
## ● Features

- \* Low power consumption
- \* Available in various colors
- \* Long life span (up to 30000hours)
- \* Soldering methods: IR reflow soldering and Hand soldering
- \* high brightness surface mount technology, for safe touch
- \* 120°C Emitting viewing angle 120°C
- \* ROHS standard.

## ● Application

- \* Automotive
- \* Backlighting
- \* Decorative light
- \* Appliance light
- \* Sign and Channel Letter
- \* indicators 、Comsumer 、industrial 、electronics.

## ● Package Outline Dimensions



### Notes:

1. All dimensions are in millimeters.
2. Tolerance is  $\pm 0.1$ mm unless otherwise noted.
3. Specifications are subject to change without notice.



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● Maximum Ratings( $T_a=25^{\circ}\text{C}$ )

Parameter	Symbol	Rating	Unit
Power Dissipation	PD	200	mW
Forward Current *1	IF	40	mA
Operating Temperature Range	Topr	-40~+80	oC
Storage Temperature Range	Tstg	-40~+100	°C
Reverse Voltage	VR	5	V
Soldering Temperature (T=5 sec)	Tsol	260 ± 5	°C

\*1Proper current derating must be followed to keep LED junction temperature ( $T_J$ ) below the maximum.

\*2 Condition for IFP is pulse of 1/10 duty and 3 msec width.

● Electrical - Optical Characteristics ( $T_a = 25^{\circ}\text{C}$ )

PARAMETER	SYMBOL	CONDITION	MIN.	TYP.	MAX.	UNIT
Forward Voltage	VF	IF = 60mA	3.0		3.2	V
Total Flux for white	$\Phi$	IF = 60mA	11		12	Lm
Color Temperature for white	CCT	IF = 60mA	1700		1800	K
CIE-X/Y white Bin Information	CIE x	IF = 60mA	0.56		0.575	
	CIE y	IF = 60mA	0.42		0.43	
Reverse Current	IR	VR=5V	0		10	$\mu\text{A}$
View Angle	2 $\theta$ 1/2	IF = 60mA		120		degree
CIR	Ra	IF = 60mA	50			%



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## ● Bin Intensity Bin Limits (At 60mA)

BIN CODE	Min(lm)	Max(lm)
H	11	12

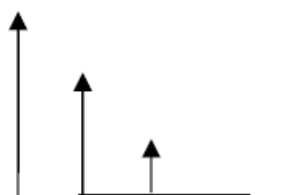
## ● Bin VF Bin Limits (At 60mA)

BIN CODE	Min(v)	Max(v)
H1	3.0	3.1
H2	3.1	3.2

## ● Bin Color Temperature for white (At 60mA)

BIN CODE	Min(K)	Max(K)
BY1	1700K	1800K

BIN : H BY1 H1



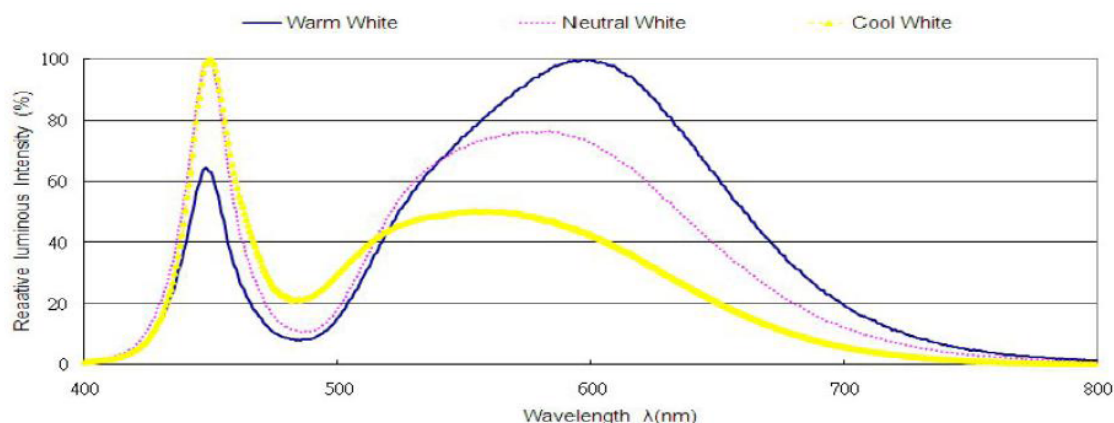
VF BIN CODE  
Color BIN CODE  
Intensity BIN CODE

## Notes:

- 1.Iv: Tolerance for each Bin limit is  $\pm 5\%$
- 2.X/Y: Tolerance for each Bin limit is  $\pm 0.005$
- 3.VF: Tolerance for each Bin limit is  $\pm 0.05V$

● Typical Electro-Optical Curves :( at T<sub>Ambient</sub> Temperature=25° C)

Spectrum Distribution





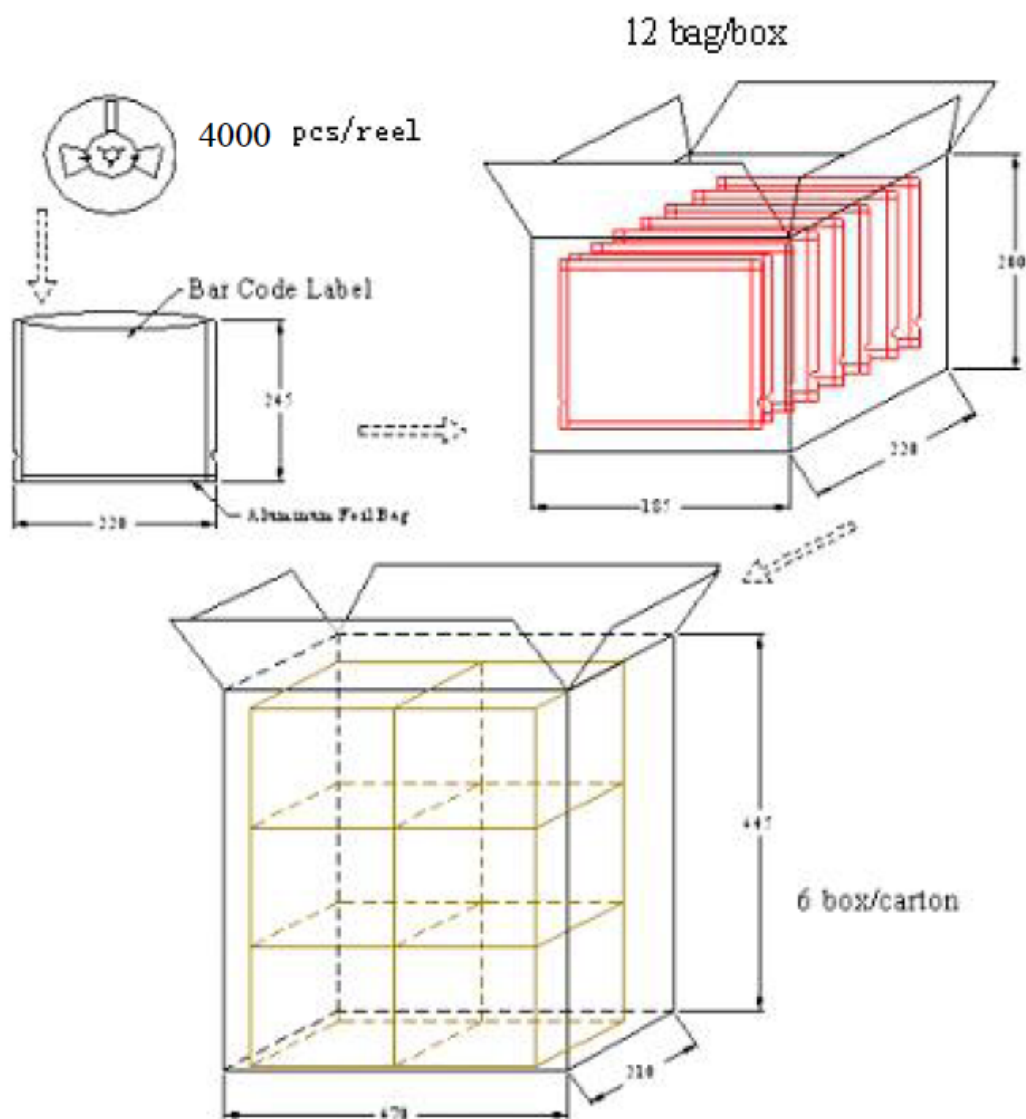


## SURFACE MOUNT DEVICE LED

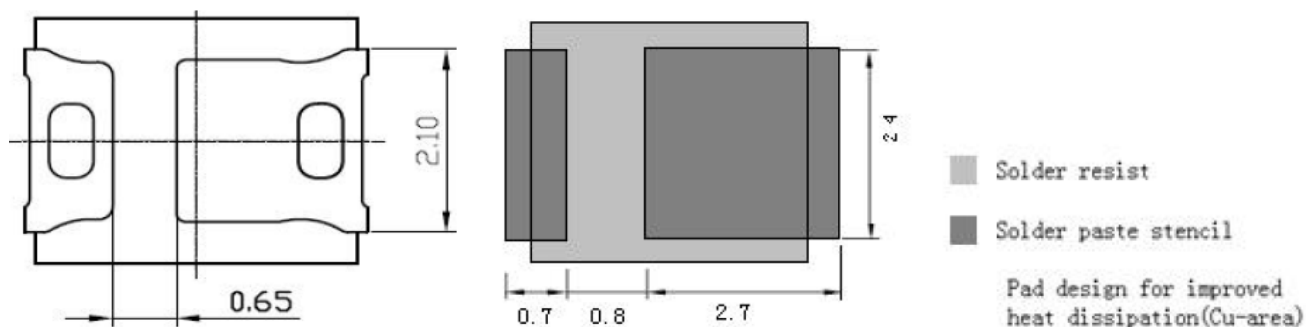
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## ● Package Method : (unit:mm)



## ● Front View







## SURFACE MOUNT DEVICE LED

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## ● Reliability Test

Classification	Test Item	Reference Standard	Test Conditions	Result
Endurance Test	Operation Life	MIL-STD-750:1026 MIL-STD-883:1005 JIS-C-7021 :B-1	$I_F=150\text{mA}$ $T_a=\text{Under room temperature}$ Test time=1,000hrs	0/20
	High Temperature High Humidity Storage	MIL-STD-202:103B JIS-C-7021 :B-11	$T_a=+65^{\circ}\text{C}\pm 5^{\circ}\text{C}$ RH=90%-95% Test time=168hrs	0/20
	High Temperature Storage	MIL-STD-883:1008 JIS-C-7021 :B-10	High $T_a=+85^{\circ}\text{C}\pm 5^{\circ}\text{C}$ Test time=1,000hrs	0/20
	Low Temperature Storage	JIS-C-7021 :B-12	Low $T_a=-35^{\circ}\text{C}\pm 5^{\circ}\text{C}$ Test time=1,000hrs	0/20
Environmental Test	Temperature Cycling	MIL-STD-202:107D MIL-STD-750:1051 MIL-STD-883:1010 JIS-C-7021 :A-4	$-35^{\circ}\text{C} \sim +25^{\circ}\text{C} \sim +85^{\circ}\text{C} \sim +25^{\circ}\text{C}$ 60min 20min 60min 20min Test Time=5cycle	0/20
	Thermal Shock	MIL-STD-202:107D MIL-STD-750:1051 MIL-STD-883:1011	$-35^{\circ}\text{C}\pm 5^{\circ}\text{C} \sim +85^{\circ}\text{C}\pm 5^{\circ}\text{C}$ 20min 20min Test Time=10cycle	0/20
	Solder Resistance	MIL-STD-202:201A MIL-STD-750:2031 JIS-C-7021 :A-1	Preheating : $140^{\circ}\text{C}-160^{\circ}\text{C}$ , within 2 minutes. Operation heating : $260^{\circ}\text{C}(\text{Max.})$ , within 10seconds. (Max.)	0/20



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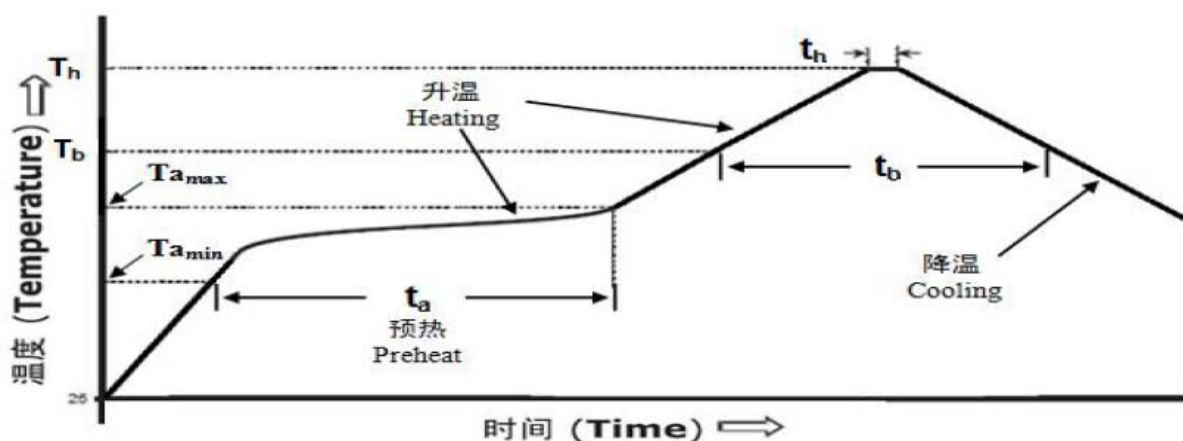
REV: A/0

## ● Soldering

### 1. Manual Soldering

The temperature of the iron tip should not be higher than 350℃ and Soldering time to be within 3 seconds per solder-pad.

### 2. Reflow Soldering Temp/Time



Temperature curve Parameters	Lead solder paste	Lead -free s older paste
The rate of temperature	4℃/SEC.MAX	4℃/SEC.MAX
Preheat: Min temperature (Tamin)	100℃	120℃
Preheat: Max temperature (Tamax)	150℃	180℃
Preheat time (tamin to tamax )	60~100 SEC	60~120 SEC
Soldering temperature (Tb)	180℃	217℃
Soldering time (tb)	60~120 SEC	60~120 SEC
Peak temperature	215℃	260℃
Peak temperature time	10 ~15 SEC	5~10 SEC
Cooling speed	6℃/SEC.MAX	6℃/SEC.MAX





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● Judgment criteria of failure for the reliability

Measuring items	Symbol	Measuring conditions	Judgement criteria for failure
Forward voltage	$V_F$ ( V )	$I_F=40\text{mA}$	Over $U^1 \times 1.2$
Reverse current	$I_R(\mu\text{A})$	$V_R=5\text{V}$	Over $U^1 \times 2$
Luminous intensity	$I_v$ ( mcd )	$I_F=40\text{mA}$	Below $S^1 \times 0.5$

Note:

- 1.U means the upper limit of specified characteristics. S means initial value.
2. After each test, remove test pieces, wait for 2 hours and test pieces have returned to ambient temperature, then take next measurement

● storage

1. recommended storage condition: At  $5^\circ\text{C}$ - $30^\circ\text{C}$  and relative humidity 60 % RH Max.
2. After this bag is opened, devices that will be applied to infrared reflow,vapor-phase reflow, or equivalent oldering process must be:
  - a. ompleted within 24 hours
  - b. 30%RHStored at less than 30% RH.
3. Devices require baking before mounting, if: 2a or 2b is not met.
4. If baking is required, devices must be baked under below conditions: 12 hours at  $60^\circ\text{C} \pm 3^\circ\text{C}$

● Note:

1. Care must be taken not to damage LED's silicone resin while exposing to high temperature or contact LED's esilicone resin with hard or sharp objects, such as metal hook, tweezer or sand blasting..
2. Current limiting resistor must be used in the circuit to drive Grand LEDs within the rated figures and not to overload Grand LEDs with instantaneous voltage at the turning ON and OFF cycles. When using pulse driving, the average current must be within the rated figures. And the circuit should be designed to avoid reverse voltage when turning off the Grand LEDs.

● Package and Label of Products :

Package: Products are packed in one bag of 4000 pcs (one taping reel) and a label is attached to each bag. >