

Instructions for using WORLDSEMI surface mounted LED

1. Description

LED is usually used in the same way as other electronic components. In order to let customers better use the LED products of WORLDSEMI, please refer to the following LED protection and prevention measures.

2. Attention

2.1 Dust and cleaning

LED's surface adopt the modified epoxy glue, epoxy can protect LED optical system and anti - aging performance.

But it is easy to stick dust, please keep the working environment clean..When there is a certain amount of dust on the LED surface, the luminance will not be affected, but we should still avoid dust falling on the LED surface.It is preferred to use the products whose packaging bag opened first, The PCBA should be stored in a clean container.

If the LED surface needs to clean,If triaminoethylene or acetone are used, the LED surface will be dissolved and so on,It is not allowed to clean LED with solvent solution. The LED can be cleaned with a solution of isopropyl.Before using any cleaning solution, confirm whether the LED will dissolve in advance.

Please do not use ultrasonic method to clean LED, if the product must use ultrasonic wave, then some parameters that affect LED, such as ultrasonic power, baking time and assembly conditions, must be evaluated before cleaning, to confirm whether LED will be affected

2.2 Moisture proof packaging

The TOP SMD LED is a wet sensor components,the LED is packaged in an aluminium film bag to prevent the LED from absorbing moisture during transportation and storage. A desiccant is placed in the bag to absorb moisture.If the LED absorbs water vapor, the water vapor will evaporate and expand when the LED is reflow soldered, potentially detaching the glue from the support and damaging the LED's optical system.For this reason, moisture-proof packaging is designed to keep moisture out of the package.

The Moisture Sensitivity Level of this product is: **LEVEL6**

Sheet 1:IPC/JEDEC J-STD-020 defined the material's Moisture Sensitivity Level(MSL)

Moisture Sensitivity Level	Lifespan at Workshop after opening packages	
	Time	Conditions
LEVEL1	Unlimited	≤30°C /85%RH
LEVEL2	1 Year	≤30°C /60%RH
LEVEL2a	4 Weeks	≤30°C /60%RH
LEVEL3	168 Hours	≤30°C /60%RH
LEVEL4	72 Hours	≤30°C 160%RH
LEVEL5	48 Hours	≤30°C /60%RH
LEVEL5a	24 Hours	≤30°C /60%RH
LEVEL6	Take out and use immediately	≤30°C /60%RH

2.3 Control method after products opening

After opening the moisture-proof bag,please arrange SMT soon;

After SMT mounting, the reflow soldering shall be completed within 4 hours;

For the rest of the LED, should be sealing packing and do moisture-proof processing again (place in the moister buster cabinet, next time before using please put in the oven under temperature 70°C-75°C for 48 hours baking);

3.Baking conditions before SMT(No leakage in the package):Baking temperature:70°C-75°C

a.Products' Data Code within 2 weeks:baking 24 hours;

b.Products' Data Code more than 2 weeks:baking 48 hours;

4.Two times SMT or Two times high temperature's anti-moisture control

After completing a SMT,before second high temperature , should prepare the necessary moisture-proof processing, for exposure (< 30 °C / 60% RH) conditions, the longest do not exceed 2 hours,

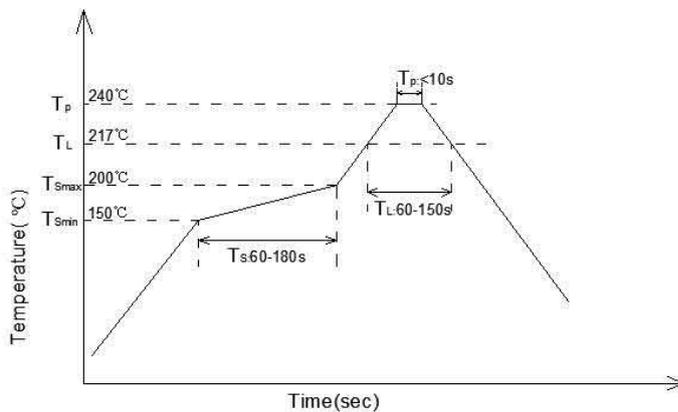
If the second high temperature needs to wait for a long time (within 12 hours), after first SMT, it is necessary to do the dehumidification, placing the product assembly after welding in the drying oven or with desiccant containers ;

Or before second high temperature,do the desiccant (70°C-75°C temperature baking for 12 hours)

5. Reflow Soldering

It has been proved by testing with the parameters listed below, TOP SMD LED meet JEDEC J-STD-020C standard;

As a general guideline, it is recommended to follow the reflow soldering temperature curve recommended by the manufacturer of the solder paste used.

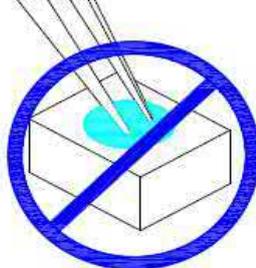
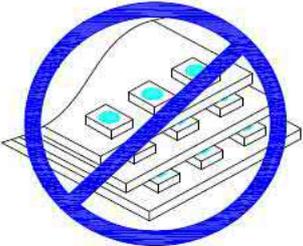


Temperature Curve Description	Lead-free Reflow Solder/ SMT
The lowest preheat temperature(Tsmin)	150°C
The highest preheat temperature (Tsmáx)	200°C
Preheating time (Tsmin to Tsmáx) (ts)	60-180 S
Average rate of temperature rise (Tsmáx to Tp)	<3°C/S
LIQUID REGION temperature (TL)	217°C
LIQUID REGION Holding Time (tL)	60-150 S
Peak Temperature (Tp)	240°C
High Temperature Region(Tp=-5°C) Holding Time(tp)	<10 S
Cooling Rate	<6°C/S
Room Temperature to Peak Holding Time	<6 min

Tips:

1. The above general guidelines may not apply to all PCB design and reflow soldering configurations
2. All temperature refers to the temperature measured on the surface of the package body.

6. Assembly process attentions

1.Clip the LED from its side.	2.Neither directly touch the gel surface with the hand or sharp instrument, it may damage its internal circuit.
	
3.Not to be double stacked, it may damage its internal circuit.	4.Can not be stored in or applied in the acidic sites of PH<7.
	

7. Modify Records

Version №	Status Bar	Modify Content Summary	Date	Reviser	Approved
V1.0	N	New	20180719	Shen JinGuo	Yin HuaPing

Remarks: Initial version: V1.0; Version number plus "0.1" after each revision;

Status bar: N--New, A--Add, M--Modify, D--Delete.