

# LED Handling Guide



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## **Notice !**

**This document is designated for helping designing LED lightings. However,**

**† The readers should know that this document is made just for reference.**

**‡ The technical contents in this document are subject to change without notice.**

# 1. Common Handling Guide

- 1) For over-current-proof function, customers are recommended to apply resistors to prevent sudden change of the current caused by slight shift of the voltage.
- 2) This device should not be used in any type of fluid such as water, oil, organic solvent, etc. When washing is required, IPA is recommended to use.
- 3) When the LEDs illuminate, operating current should be decided after considering the ambient maximum temperature.
- 4) LEDs must be stored in a clean environment. If the LEDs are to be stored for 3 months or more after being shipped from Samsung Electronics, they should be packed by a sealed container with nitrogen gas injected. (Shelf life of sealed bags : 12 months, temp.  $\sim 40^{\circ}\text{C}$ ,  $\sim 90\% \text{ RH}$ ).
- 5) After storage bag is open, device subjected to soldering, solder reflow, or other high temperature processes must be.
  - a. Mounted within 672 hours(28 days) at an assembly line with a condition of no more than  $30^{\circ}\text{C}/60\% \text{ RH}$
  - b. Stored at  $<10\% \text{ RH}$
- 6) Repack unused Products with anti-moisture packing, fold to close any opening and then store in a dry place.

# 1. Common Handling Guide

- 7) Devices require baking before mounting, if humidity card reading is  $>60\%$  at  $23\pm 5^{\circ}\text{C}$
- 8) Devices must be baked for 10~24 hours at  $60\pm 5^{\circ}\text{C}$ , if baking is required.
- 9) The LEDs are sensitive to the static electricity and surge. It is recommended to use a wrist band or anti-electrostatic glove when handling the LEDs. If voltage exceeding the absolute maximum rating is applied to LEDs, it may cause damage or even destruction to LED devices. Damaged LEDs may show some unusual characteristics such as increase in leak current, lowered turn-on voltage, or abnormal lighting of LEDs at low current
- 10) VOCs (volatile organic compounds) can be generated from adhesives, flux, hardener or organic additives used in luminaires (fixtures). Transparent LED silicone encapsulant is permeable to those chemicals and they may lead a discoloration of encapsulant when they expose to heat or light. This phenomenon can cause a significant loss of light emitted(output) from the luminaires(fixture). In order to prevent these problems, we recommend you to know the physical properties of the materials used in luminaires, They must be selected carefully.

# 1. Common Handling Guide

## 11) Risk of Sulfurization (or Tarnishing)

The LED from Samsung Electronics uses a silver-plated lead frame and its surface color may change to black(or dark colored) when it is exposed to sulfur(S), chlorine (Cl) or other halogen compound.

Sulfurization of lead frame may cause intensity degradation, change of chromaticity coordinates and, in extreme cases, open circuit.

It requires caution. Due to possible sulfurization of lead frame, LED should not be used and stored together with oxidizing substances made of materials in a following list,

: Rubber, plain paper, lead solder cream and so on.

# 2. COB

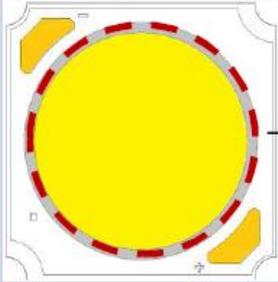
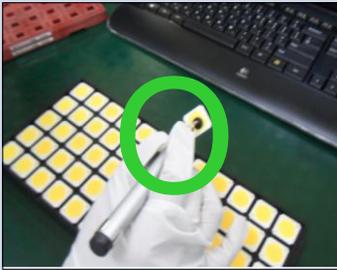
## General Handling method

### 1) Box conveyance

- Do not open except for approved protective work station
- It is recommended surface mount products should be assembled after opening this moisture barrier bag, under 30°C/60% R.H within 28 days
- Deliver the products with specified packing(SEC packing specification)  
do not change packing material or shape
- Do not to strike the box materials with hard objects or step on them
- DO not re - packing the box during transfer to user without SEC's approval
- Do not drop the box higher than 70cm otherwise inside products will be damaged
- Do not fill up more than 6 stack (large size box)

# 2. COB

## 2) Handling Guidelines (Tray)

Picture	Description
	<ul style="list-style-type: none"><li>• Users have not to touch the lighting emitting surface(LES) in any cases</li><li>☞ At LES (Lighting Emitting Surface), the resin and phosphor cannot protect the bonding wire from deformation or disconnection by an external force</li></ul>
	<ul style="list-style-type: none"><li>• During COB handling, use of metallic material (especially tweezers ) is prohibited.</li><li>• A single COB must be handled one by one.</li><li>• When handling COB, be sure to put on the anti-static wrist strap or glove.</li></ul>
	<ul style="list-style-type: none"><li>• Be sure to use vacuum pad in COB handling.</li><li>• One by One handling</li></ul>
	<ul style="list-style-type: none"><li>• Tools or other things should not be on the product.</li><li>☞ Otherwise, COB may be damaged.</li></ul>

# 2. COB

## 2) Handling Guidelines (Tray)

Picture	Description
	<ul style="list-style-type: none"><li>• Be sure to use vacuum pad instead of the hands when inserting or pulling COB into or from tray.</li><li>• A single COB must be handled one by one.</li><li>• Be sure to put on the wrist strap</li></ul>
	<ul style="list-style-type: none"><li>• Tray containing COB is susceptible to damage with a slight shock and the secondary damage by dislocation inside tray is possible.</li><li>• One by One Handling</li></ul>
	<ul style="list-style-type: none"><li>• COB dislocated inside tray must be moved to its proper position with using vacuum pad.</li><li>• Loading of tray with COB dislocated inside tray can cause COB damaged.</li></ul>
	<ul style="list-style-type: none"><li>• Keep COB at a designated location (Tray) and do not deposit a number of COB in an overlapping way.</li><li>• Holding or storing COB in an overlapping way is prohibited.</li></ul>

# 2. COB

## 2) Handling Guidelines (Tray)

Picture	Description
	<ul style="list-style-type: none"><li>Once handling a tray, must check 4 faces of stacked tray.</li></ul>
	<ul style="list-style-type: none"><li>Once moving stacked tray, it should be banded by strap or band. (minimum 2 side or cross banding)</li></ul>
	<ul style="list-style-type: none"><li>Inner box always should be lay on with right side up</li></ul>
	<ul style="list-style-type: none"><li>Outbox always should be lay on with right side up, too.</li></ul>

# 3. Revision History

Date	Revision History	Writer	
		Drawn	Approved
2015.06.18	New Version	CS	I.H.Choi

This chemical test kit user guide is subject to change without notice.