

DATE OF ISSUE : 2007. 06. 18

# SPECIFICATION

MODEL : SLSNNWH815TS

WHITE LED

CUSTOMER : \_\_\_\_\_

*SAMSUNG ELECTRO-MECHANICS CO, .LTD.*

314. MAETAN3-DONG, YEONGTONG-KU,  
SUWON-SI, KYUNGKI-DO, KOREA, 442-743

## Contents

1. Product Outline	-----	3
2. Absolute Maximum Rating	-----	3
3. Characteristics	-----	3~4
4. Chromaticity Diagram	-----	4
5. Typical Characteristic Graph	-----	5
6. LED Package Outline Dimensions	-----	6
7. Reliability Test Items and Conditions	-----	7~8
8. Solder Conditions	-----	8
9. Taping Dimension	-----	9
10. Reel Packing Structure	-----	10
11. Label Structure	-----	11
12. Lot Number	-----	11
13. Aluminum Vinyl Bag	-----	12
14. Precaution for Use	-----	13
15. Hazard Substance Analysis	-----	14~16
16. Revision History	-----	17

## ■ Product Outline

### 1) Feature

1. Lead Frame Type LED Package ( 5.2 \* 6.0 \* t 1.3mm )
2. Beam Angle (  $\Delta\theta$  : 120 ° )
3. GaN/Al<sub>2</sub>O<sub>3</sub> Chip & Long Time Reliability

### 2) Applications

- Mobile Camera Phone, Flashlight for Camera.....
- Channel letter, General lighting, Architectural lighting.....

## ■ Absolute Maximum Rating

- Operation Forward Current Per Chip..... 30 mA
- Peak Pulsed Forward Current Per Chip..... 100 mA  
(Duty 1/10 Pulse Width 10msec)
- Operating Temperature Range ( T<sub>opr</sub> ) ..... -30°C ~ 85°C
- Storage Temperature Range ( T<sub>stg</sub> ) ..... -40°C ~ 100°C

## ■ Characteristics

( Ta : 25°C )

	Symbol	Rank	Min.	Typ.	Max.	Unit	Conditions
Forward Voltage	V <sub>F</sub>	S	2.9	-	3.6	V	I <sub>F</sub> = 60mA
<b>Luminous Intensity</b>	I <sub>V</sub>	S	4	5.2	-	cd	I <sub>F</sub> = 60mA
Reverse Voltage(**)	V <sub>R</sub>	-	0.6	-	2.0	V	I <sub>R</sub> = 10mA

\* Tolerance : V<sub>F</sub>:±0.1, I<sub>V</sub>:±10%

\* Luminous intensity measuring equipment : CAS140 B

(\*\*) Value for one zener

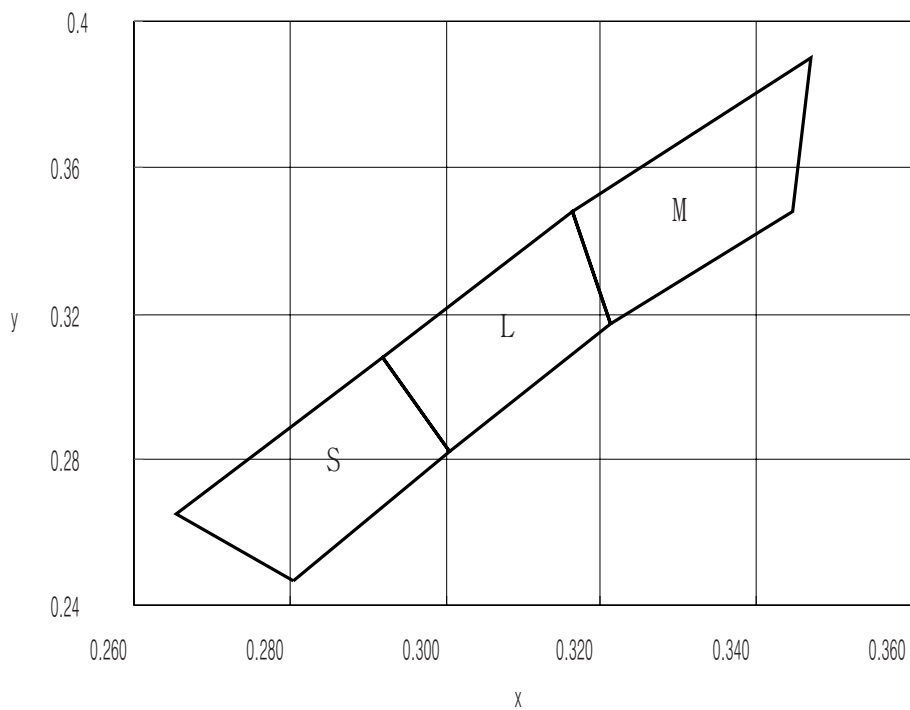
Chromaticity Coordinate

Rank	x				y				Condition
S	0.2805	0.3005	0.2919	0.2655	0.2465	0.2820	0.3077	0.2650	IF = 60mA
L	0.3005	0.3213	0.3165	0.2919	0.2820	0.3175	0.3480	0.3077	
M	0.3213	0.3447	0.3469	0.3165	0.3175	0.3480	0.3900	0.3480	

\* Tolerance :  $x,y:\pm 0.01$

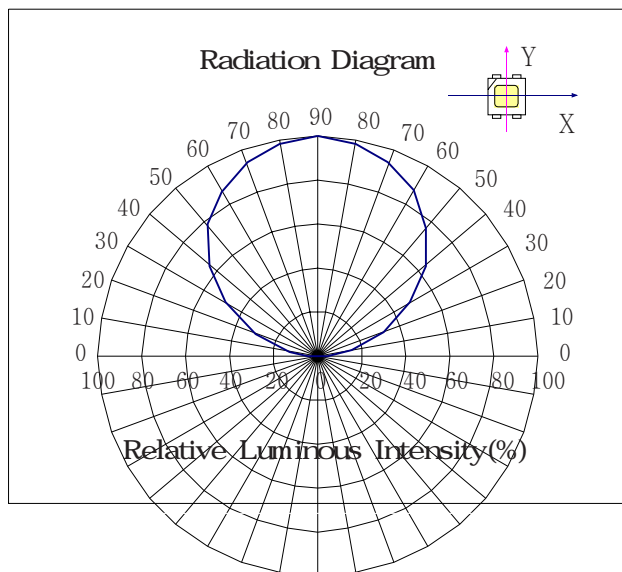
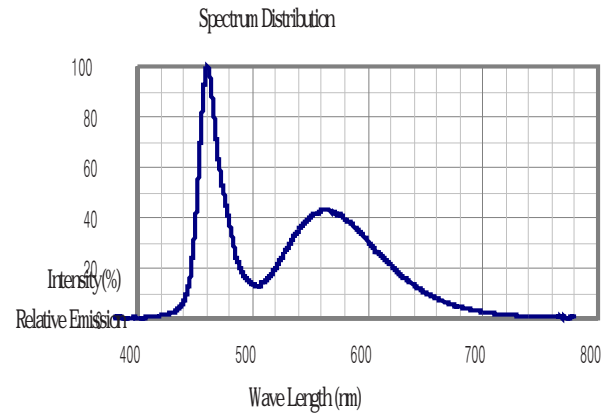
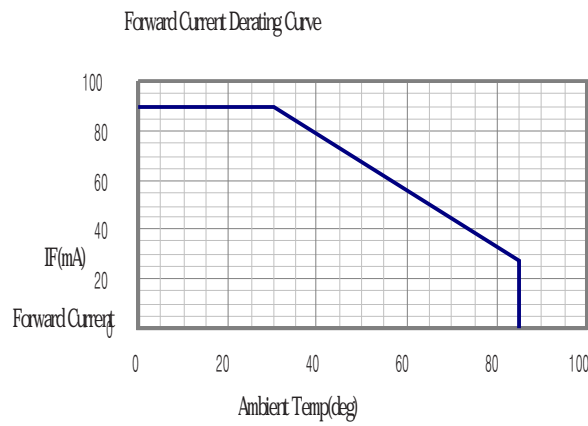
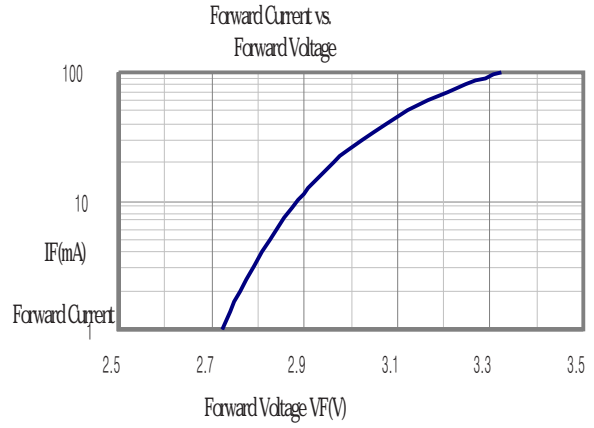
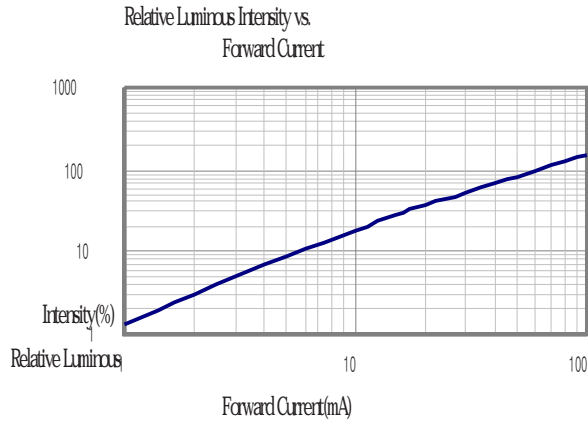
\* Luminous intensity measuring equipment : CAS140 B

■ Chromaticity Diagram



# Typical Characteristics Graph

( Ta : 25°C )



# LED Package Outline Dimensions

unit:mm  
Tolerance: ±0.1

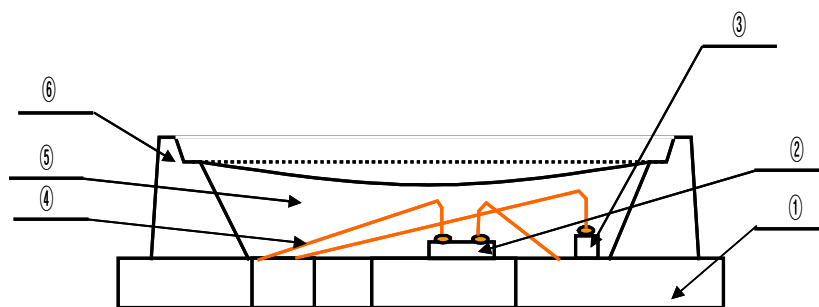
Common Cathode

Anode

Cathode

Circuit Diagram

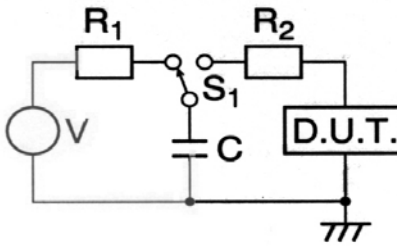
Pattern



NUMBER	ITEM	MATERIAL
①	FRAME	Copper Frame(Silver Plated)
②	LED CHIP	GaN/Al <sub>2</sub> O <sub>3</sub>
③	Zener Diode	Si
④	WIRE	Gold Wire
⑤	RESIN	Resin
⑥	PACKAGE	Heat-resistant Polymer

## ■ Reliability Test Items and Conditions

### 1) Test Items

Test Item	Test Conditions	Test Hours/Cycles	Sample No
Room Temperature life test	25°C±3°C, DC90 mA	500 h	50
High Temperature humidity life test	60°C±3°C, 95%±2%RH, DC55 mA	500 h	50
High Temperature life test	85°C±3°C, DC30mA	500 h	50
Low Temperature life test	-30°C±3°C, DC90 mA	500 h	50
High Temperature Storage	Ta=100°C±3°C	500 h	22
Low Temperature Storage	Ta=-40°C±3°C	500 h	22
High Temperature humidity Storage	60°C±3°C, 95%±2%RH	500 h	22
Thermal Shock	-40°C ~ 100°C 0.5 h      0.5 h	100 cycles	50
Temperature humidity Cycle	25°C ~ 65°C ~ -10°C 24hrs/1cycle, 95%RH	10 cycles	22
Reflow (Pb-Free)	Peak 260±5°C for 10sec	3 times	22
ESD(HBM)	 <p>-R1:10MΩ , R2:1.5KΩ , C:100pF</p>	5 times	5
On/Off test	50°C±3°C, 95%±2%RH, DC90 mA, On/2sec, Off/2sec	108000 cycles	50

## 2) Criteria for Judging the Damage

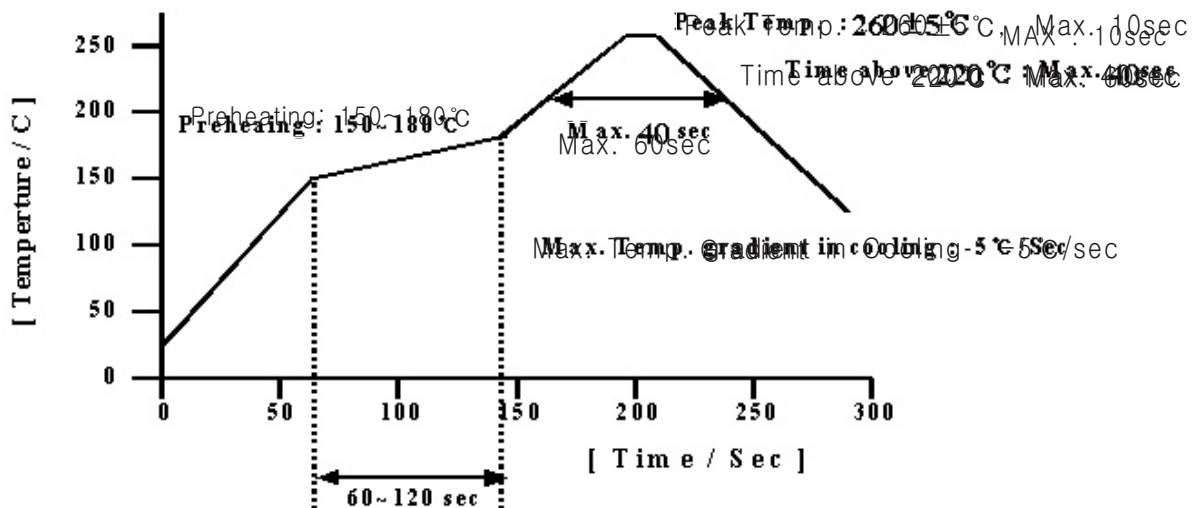
Item	Symbol	Test Condition	Limit	
			Min	Max
Forward Voltage	V <sub>F</sub>	I <sub>F</sub> = 60mA	-	U.S.L.*1.2
Luminous Intensity	I <sub>v</sub>	I <sub>F</sub> = 60mA	L.S.L.*0.5	-

\* USL : Upper Standard Level    LSL : Lower Standard Level

## ■ Solder Conditions

### 1) Reflow Conditions ( Pb Free )

Reflow Frequency : 2 times max.

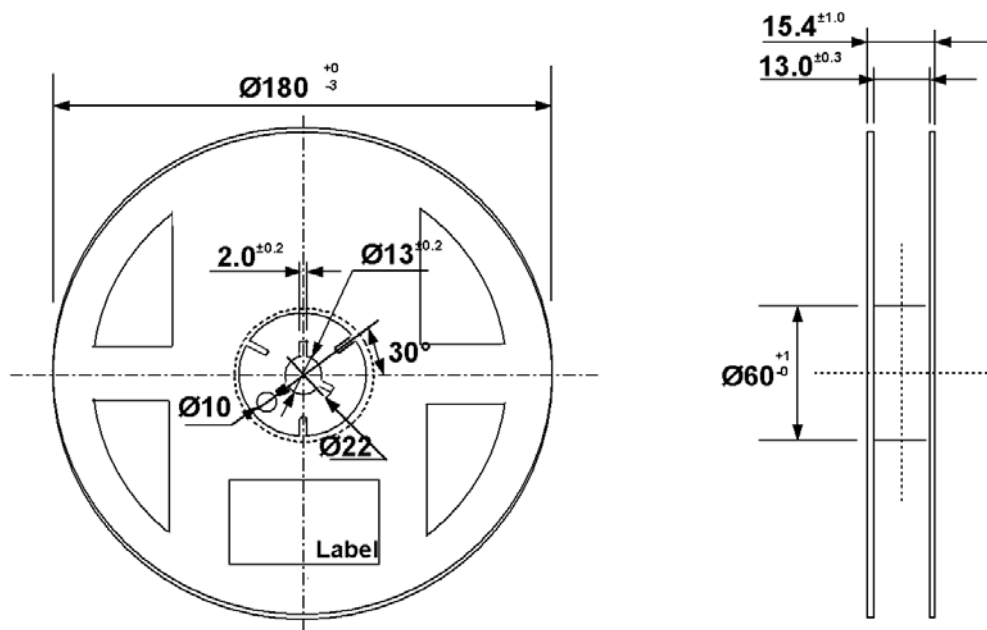


### 2) For Manual Soldering

Not more than 5 seconds @MAX300°C, under soldering iron.

## ■ Taping Dimension

End			Start
More than 40 mm Unloaded tape	Mounted with Flash LED	More than (100~200)mm Unloaded tape	Leading part more than (200~400)mm

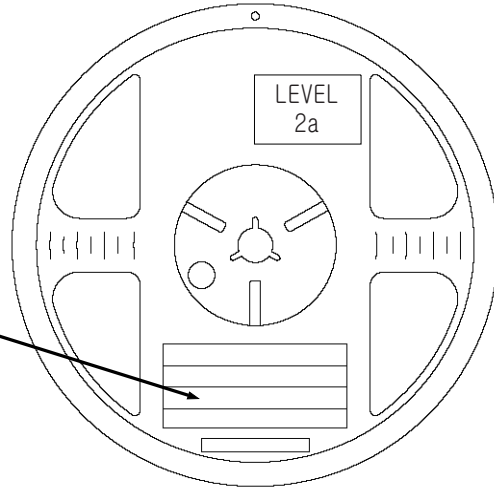
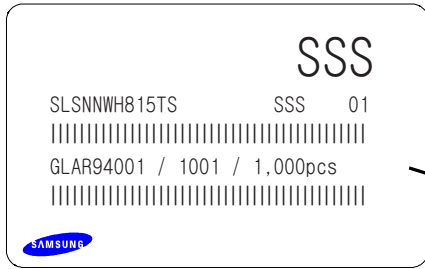


**Tolerance  $\pm 0.2$  , Unit:mm**

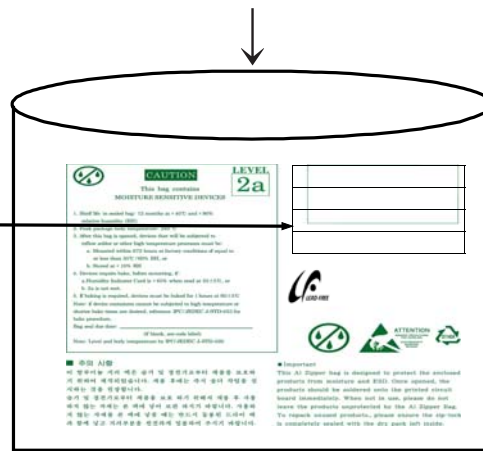
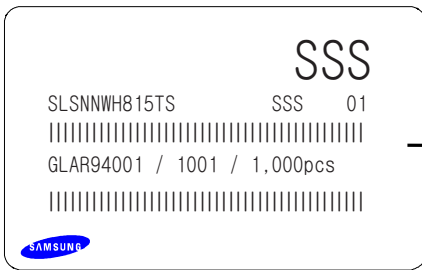
- (1) Quantity : The quantity/reel to be 1000pcs.
- (2) Cumulative Tolerance : Cumulative tolerance/10 pitches to be  $\pm 0.2$  mm
- (3) Adhesion Strength of Cover Tape : Adhesion strength to be 0.1–0.7N when the cover tape is turned off from the carrier tape at 10°C angle to be the carrier tape.
- (4) Packaging : P/N, Manufacturing data code no. and quantity to be indicated on a damp proof package.

# Reel Packing Structure

## Reel



## Aluminum Vinyl Bag



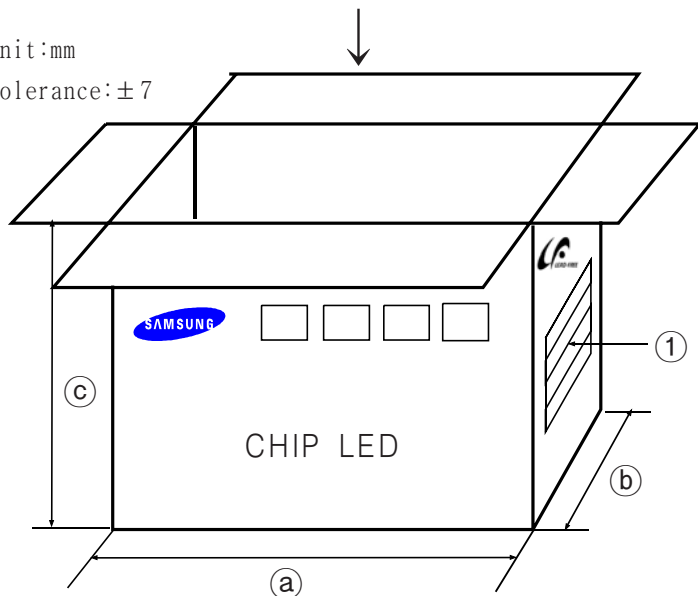
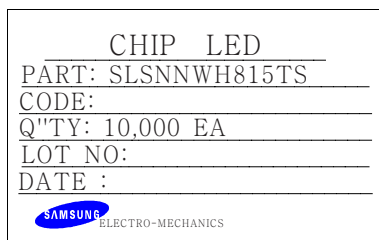
Material : Paper(SW3B(B))

Unit:mm

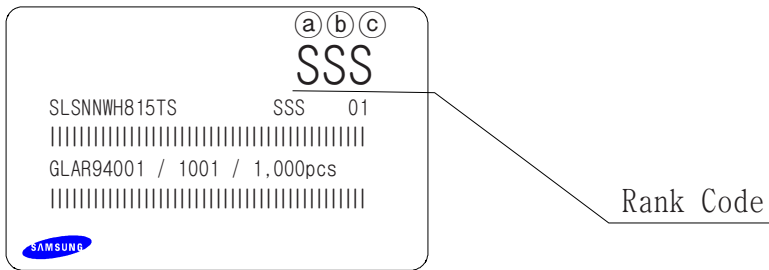
Tolerance: ± 7

TYPE	SIZE(mm)		
	(a)	(b)	(c)
7inch	245	220	182

### ① SIDE



## ■ Label Structure



## Rank Code

- (a) : VF Rank
- (b) : Chromaticity Coordinate Rank
- (c) : IV Rank

## ■ Lot Number

The Lot number is composed of the following characters

●◎◇◆□■△△△ / |▲▲▲ / 100PCS

● : Production Site (S:SEMCO, G:Gosin China)

◎ : L (LED)

◇ : Product State (A:Normality, B: Bulk, C:First Production, R:reproduction, S:Sample)

◆ : Year (Q:2006, R:2007, S:2008...)

□ : Month (1 ~ 9, A, B)

■ : Day (1 ~ 9, A, B ~ V)

△ : SEMCO. Product number (1 ~ 999)

▲ : Reel Number (1 ~ 999)

# Aluminum Vinyl Bag



**CAUTION**

This bag contains  
**MOISTURE SENSITIVE DEVICES**

**LEVEL**  
**2a**

1. Shelf life in sealed bag: 12 months at <math>< 40^{\circ}\text{C}</math> and <math>< 90\%</math> relative humidity (RH)
  2. Peak package body temperature: 240 °C
  3. After this bag is opened, devices that will be subjected to reflow solder or other high temperature processes must be:
    - a. Mounted within 672 hours at factory conditions of equal to or less than 30°C / 60% RH, or
    - b. Stored at <math>< 10\%</math> RH
  4. Devices require bake, before mounting, if:
    - a. Humidity Indicator Card is > 65% when read at 23±5°C, or
    - b. 2a is not met.
  5. If baking is required, devices must be baked for 1 hours at 60±5°C
- Note: if device containers cannot be subjected to high temperature or shorter bake times are desired, reference IPC/JEDEC J-STD-033 for bake procedure,
- Bag seal due date: \_\_\_\_\_  
(if blank, see code label)
- Note: Level and body temperature by IPC/JEDEC J-STD-020

**SSS**

SLSNNWH815TS      SSS      01

|||||

GLAR94001 / 1001 / 1,000pcs

|||||



## 주의 사항

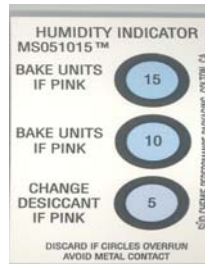
이 알루미늄 지퍼 백은 습기 및 정전기로부터 제품을 보호하기 위하여 제작되었습니다. 개봉 후에는 즉시 솔더 작업을 실시하는 것을 권장합니다.

습기 및 정전기로부터 제품을 보호 하기 위해서 개봉 후 사용하지 않는 자재는 본 팩에 넣어 보관 하시기 바랍니다. 사용하지 않는 자재를 본 팩에 넣을 때는 반드시 동봉된 드라이 팩과 함께 넣고 지퍼부분을 완전하게 밀봉하여 주시기 바랍니다.

## Important

This Al Zipper bag is designed to protect the enclosed products from moisture and ESD. Once opened, the products should be soldered onto the printed circuit board immediately. When not in use, please do not leave the products unprotected by the Al Zipper Bag. To repack unused products., please ensure the zip-lock is completely sealed with the dry pack left inside.

## Silica gel & Humidity Indicator Card in Aluminum Vinyl Bag



## ■ Precaution for Use

1. This device should not be used in any type of fluid such as water, oil, organic solvent, etc.  
When washing is required, IPA should be used.
2. When the LEDs are illuminating, operating current should be decided after considering the ambient maximum temperature.
3. LEDs must be stored to maintain a clean atmosphere.  
If the LEDs are stored for 3 months or more after being shipped from Samsung Electro-Mechanics, a sealed container with a nitrogen atmosphere should be used for storage.
4. The LEDs must be used within seven days after opening the moisture proof packing. Repack unused Products with anti-moisture packing, fold to close any opening and then store in a dry place.
5. The appearance and specifications of the product may be modified for improvement without notice.
6. This LEDs is sensitive to the static electricity and surge. It is recommended to use a wrist band or anti-electrostatic glove when handling the LEDs. If over voltage which exceeds the absolute maximum rating is applied to LEDs, it will cause damage LEDs and result in destruction.

Damaged LEDs will show some unusual characteristics such as leak current remarkably increase, turn-on voltage becomes lower and the LEDs get unlighted at low current.

## ■ Hazard Substance Analysis





