

DATE OF ISSUE : 2007. 06. 18

SPECIFICATION

MODEL : SLSNNWW825TS

WARM WHITE LED

CUSTOMER : _____

SAMSUNG ELECTRO-MECHANICS CO, .LTD.

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

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■ Product Outline

1) Feature

1. Lead Frame Type LED Package (5.2 * 5.2 * t 1.3mm)
2. Beam Angle ($\Delta\theta$: 120 °)
3. GaN/Al₂O₃ Chip & Long Time Reliability

2) Applications

- Channel letter, General lighting, Architectural lighting.....

■ Absolute Maximum Rating

- Operation Forward Current Per Chip..... 25 mA
- Peak Pulsed Forward Current Per Chip..... 80 mA
(Duty 1/10 Pulse Width 10msec)
- Operating Temperature Range (T_{opr}) -35°C ~ 85°C
- Storage Temperature Range (T_{stg}) -40°C ~ 100°C

■ Characteristics

(Ta : 25°C)

	Rank	Symbol	Min.	Typ.	Max.	Unit	Conditions
Forward Voltage	S	V _F	2.9	-	3.8	V	I _F = 40mA
Reverse Voltage	-	V _R	0.5	1.0	1.5	V	I _R = 10mA

Luminous Intensity

Rank	Symbol	Min.	Typ.	Max.	Unit	Conditions
T	IV	3.0	3.5	3.9	cd	I _F = 40mA
U		2.5	3.1	3.4		
V		1.9	2.5	2.8		

* Tolerance : V_F:±0.1, IV:±10%

* Luminous intensity measuring equipment : CAS140 B

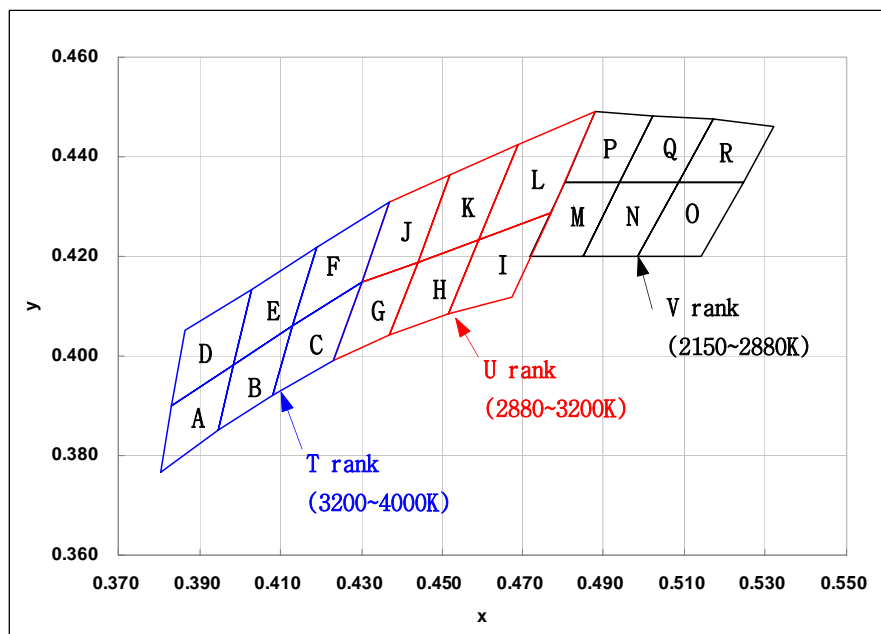
Chromaticity Coordinate

Rank		x				y				Condition
T (3200K ~ 4000K)	A	0.3804	0.3945	0.3983	0.3830	0.3767	0.3851	0.3980	0.3900	IF = 40mA
	B	0.3945	0.4080	0.4130	0.3983	0.3851	0.3921	0.4060	0.3980	
	C	0.4080	0.4232	0.4300	0.4130	0.3921	0.3989	0.4150	0.4060	
	D	0.3830	0.3983	0.4030	0.3863	0.3900	0.3980	0.4135	0.4050	
	E	0.3983	0.4130	0.4190	0.4030	0.3980	0.4060	0.4220	0.4135	
	F	0.4130	0.4300	0.4370	0.4190	0.4060	0.4150	0.4310	0.4220	
U (2880K ~ 3200K)	G	0.4232	0.4368	0.4440	0.4300	0.3989	0.4040	0.4190	0.4150	
	H	0.4368	0.4517	0.4594	0.4440	0.4040	0.4086	0.4235	0.4190	
	I	0.4517	0.4675	0.4770	0.4594	0.4086	0.4120	0.4290	0.4235	
	J	0.4300	0.4440	0.4523	0.4370	0.4150	0.4190	0.4365	0.4310	
	K	0.4440	0.4594	0.4690	0.4523	0.4190	0.4235	0.4425	0.4365	
	L	0.4594	0.4770	0.4880	0.4690	0.4235	0.4290	0.4490	0.4425	
V (2150K ~ 2880K)	M	0.4720	0.4850	0.4941	0.4805	0.4200	0.4200	0.4350	0.4350	
	N	0.4850	0.4985	0.5086	0.4941	0.4200	0.4200	0.4350	0.4350	
	O	0.4985	0.5140	0.5245	0.5086	0.4200	0.4200	0.4350	0.4350	
	P	0.4805	0.4941	0.5022	0.4880	0.4350	0.4350	0.4483	0.4490	
	Q	0.4941	0.5086	0.5170	0.5022	0.4350	0.4350	0.4475	0.4483	
	R	0.5086	0.5245	0.5321	0.5170	0.4350	0.4350	0.4462	0.4475	

* Tolerance : x,y:±0.01

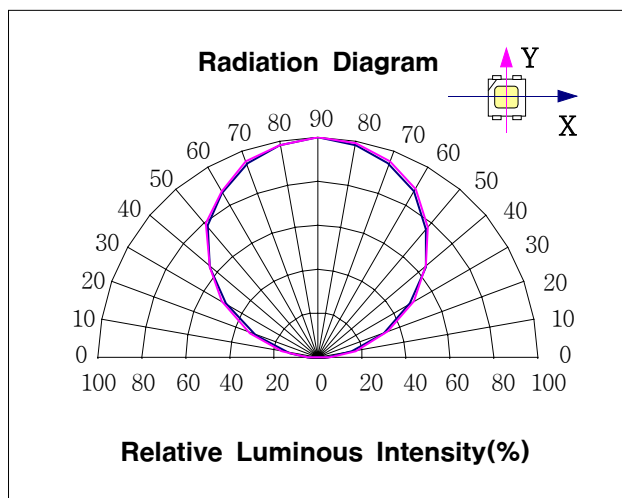
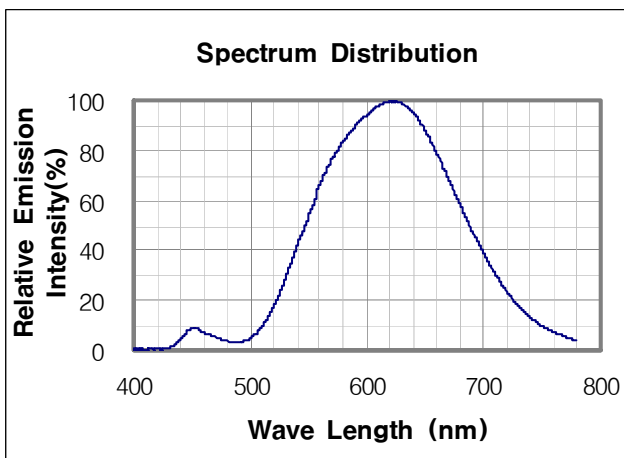
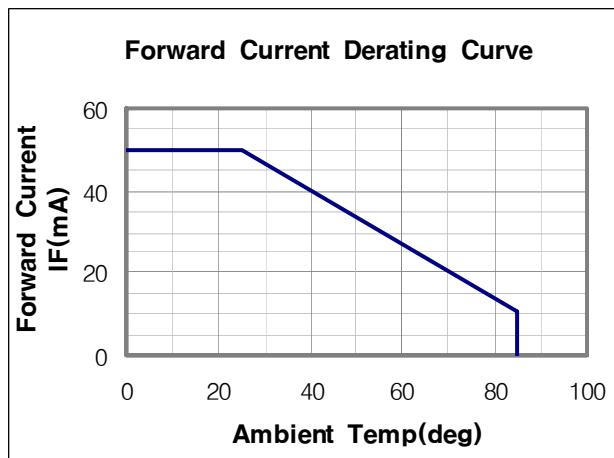
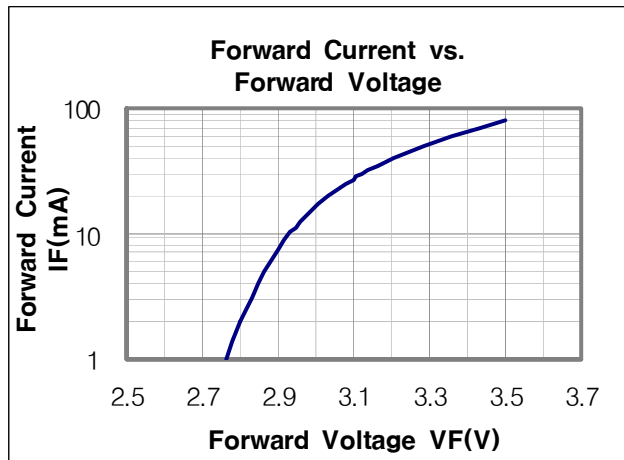
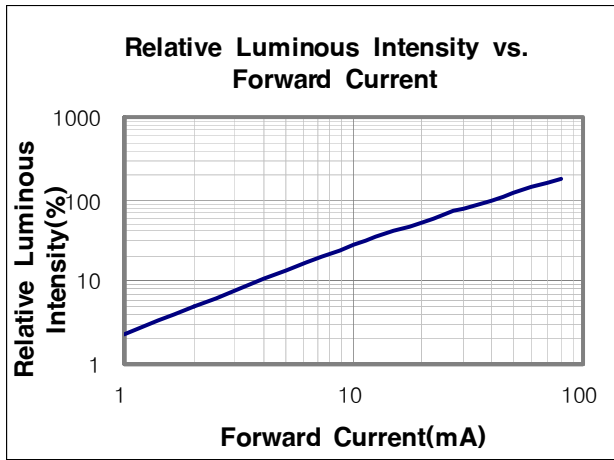
* Luminous intensity measuring equipment : CAS140 B

■ Chromaticity Diagram

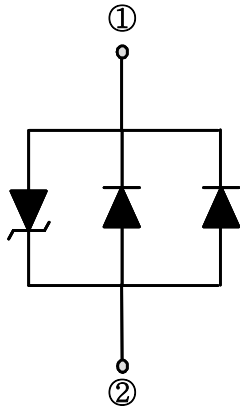
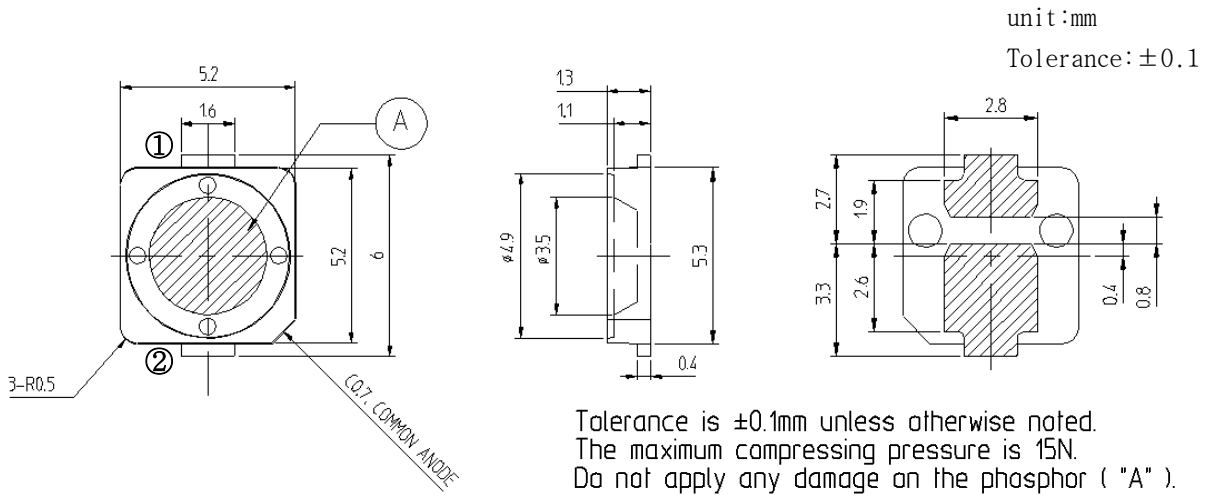


Typical Characteristics Graph

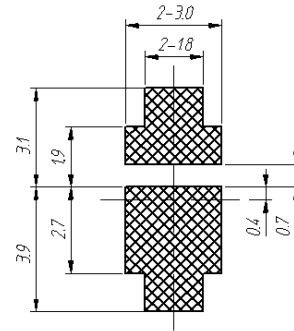
(Ta : 25°C)



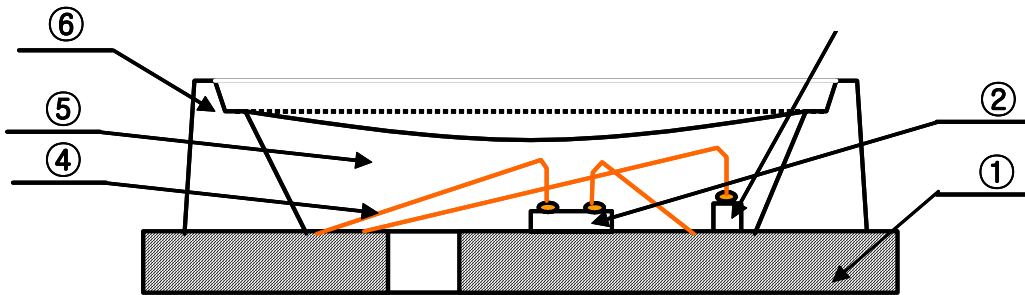
LED Package Outline Dimensions



Circuit Diagram



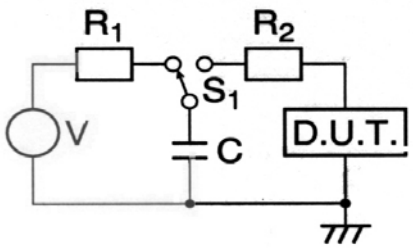
PCB PATTERN



NUMBER	ITEM	MATERIAL
①	FRAME	Copper Frame(Silver Plated)
②	LED CHIP	GaN/Al ₂ O ₃
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, DC50 mA	500 h	50
High Temperature humidity life test	60°C±3°C, 95%±2%RH, DC30 mA	500 h	50
High Temperature life test	85°C±3°C, DC12.5mA	500 h	50
Low Temperature life test	-30°C±3°C, DC50 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	22
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, DC50 mA, On/2sec, Off/2sec	108000 cycles	50

2) Criteria for Judging the Damage

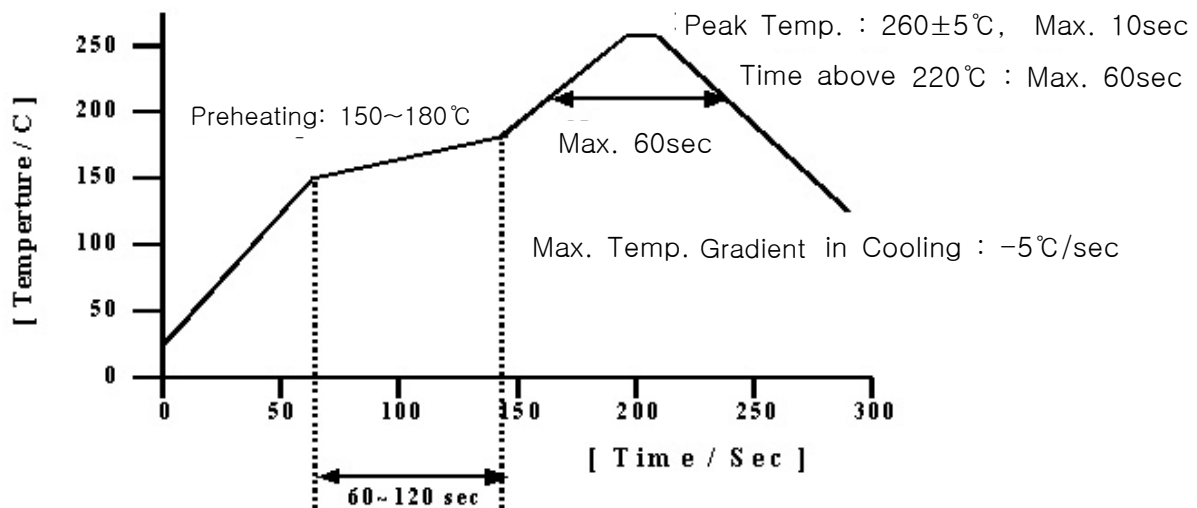
Item	Symbol	Test Condition	Limit	
			Min	Max
Forward Voltage	V_F	$I_F = 40\text{mA}$	-	U.S.L.*1.2
Luminous Intensity	I_V	$I_F = 40\text{mA}$	L.S.L.*0.5	-
Reverse Voltage	V_R	$I_R = 10\text{mA}$	-	U.S.L.*1.2

* USL : Upper Standard Level LSL : Lower Standard Level

■ Solder Conditions

1) Reflow Conditions (Pb Free)

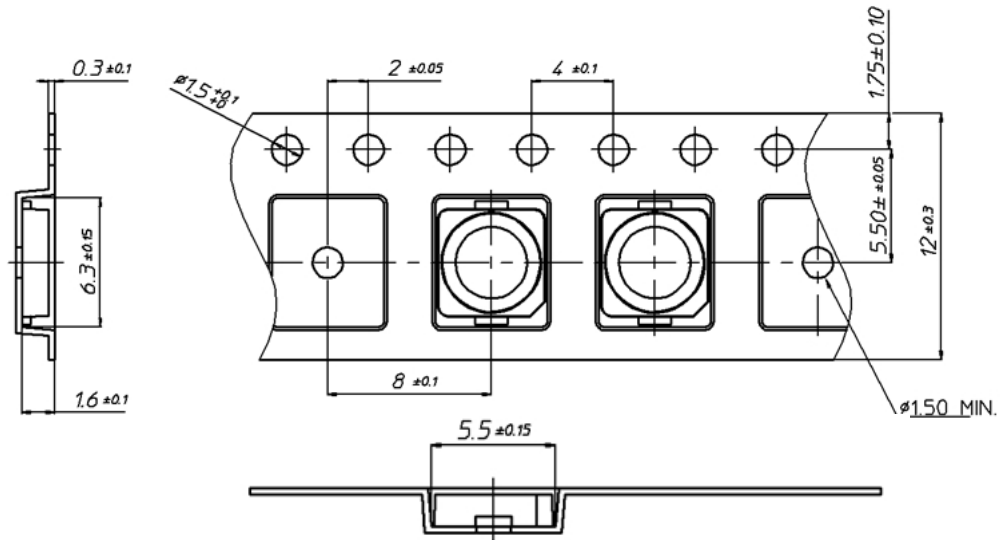
Reflow Frequency : 2 times max.



2) For Manual Soldering

Not more than 5 seconds @MAX 300°C , under soldering iron.

■ Taping Dimension



End

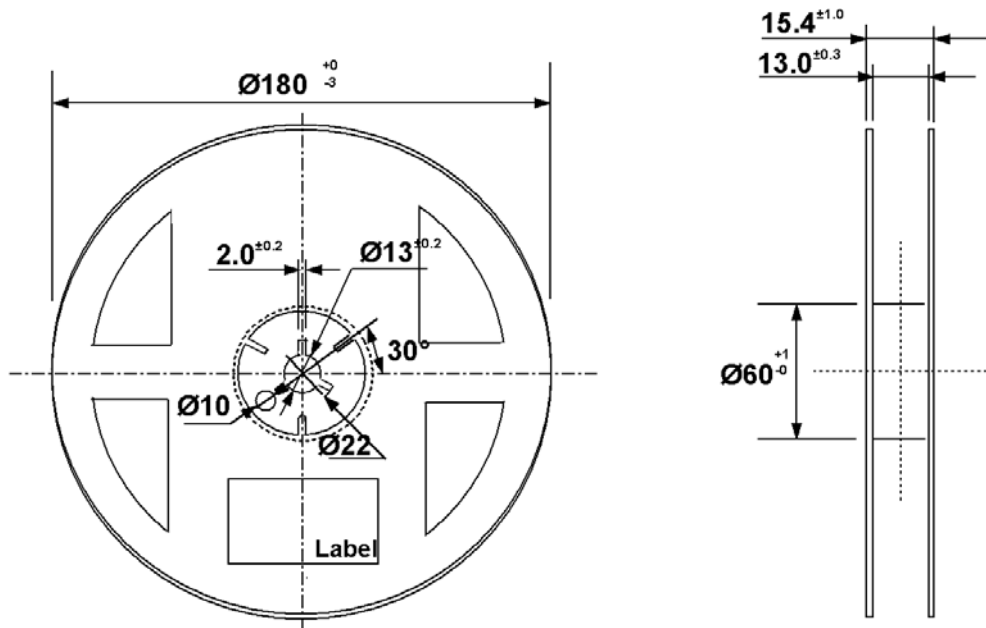
Start

More than 40 mm
Unloaded tape

Mounted with
Flash LED

More than (100~200)mm
Unloaded tape

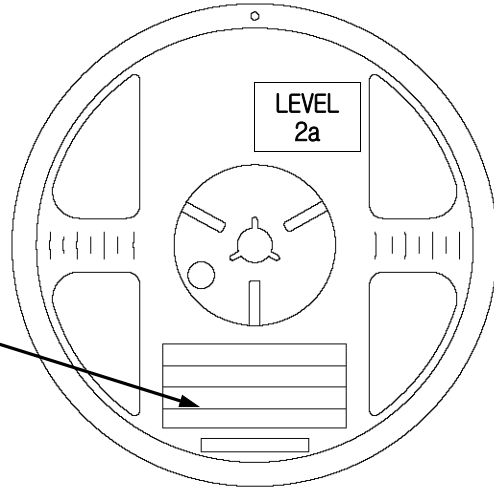
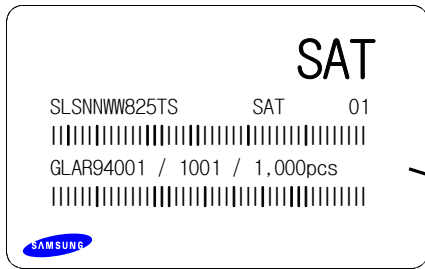
Leading part more than
(200~400)mm



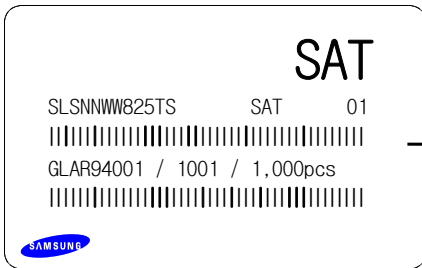
Tolerance ± 0.2 , Unit:mm

- (1) Quantity : The quantity/reel to be 1000pcs.
- (2) Cumulative Tolerance : Cumulative tolerance/10 pitches to be ± 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° 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



Aluminum Vinyl Bag



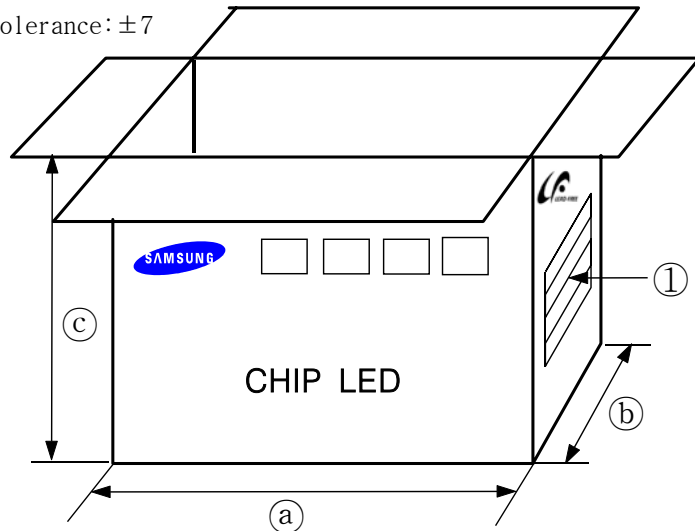
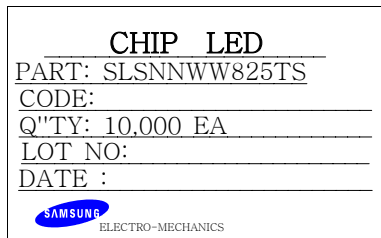
Outer Box Structure

Material : Paper(SW3B(B))

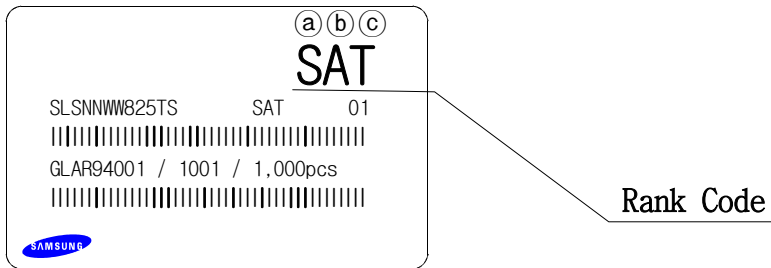
TYPE	SIZE(mm)		
	a	b	c
7inch	245	220	182

Unit : mm
Tolerance : ±7

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

●◎◇◆□■△△△ / |▲▲▲ / 1000PCS

● : 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)



CAUTION

This bag contains
MOISTURE SENSITIVE DEVICES

LEVEL
2a

1. Shelf life in sealed bag: 12 months at <40°C and <90% 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 <10% 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

SAT

SLSNNWW825TS SAT 01

|||||

GLAR94001 / 1001 / 1.000pcs

|||||



■ 주의 사항

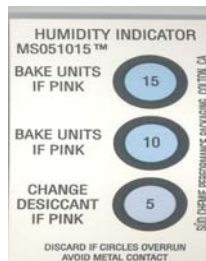
이 알루미늄 지퍼 백은 습기 및 정전기로부터 제품을 보호하기 위하여 제작되었습니다. 개봉 후에는 즉시 솔더 작업을 실시하는 것을 권장합니다.

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



Test Report No. F690501/LF-CTSGP06-29173

Date: November 23, 2006

Page 1 of 3

To: **SAMSUNG ELECTRO-MECHANICS CO., LTD.**
314, Maetan3-dong
Yeongtong-gu
Suwon-city
GYEONGGI-DO 442-373
Korea

The following merchandise was submitted and identified by the client as :

Commodity : 5252PKG-Warm white

SGS File No. : GP06-29173

Received Date : November 16, 2006

Test Performing Date : November 17, 2006

Test Performed : SGS Testing Korea tested the sample(s) selected by applicant with following results

Test Results : For further details, please refer to following page(s)

Pluto Kim
Monet Jeong
Jully Oh
Jerry Jung
/Testing Person

SGS Testing Korea Co. Ltd.

Jeff Jang / Chemical Lab Mgr

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1002-2, Hwasan-ri, Onsan-eub, Uiju-gun, Ulsan, Korea 689-690 t +82 (0)52 239 6908-10 f +82 (0)52 239 6913

LAB 100

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Test Report No. F690501/LF-CTSGP06-29173

Date: November 23, 2006

Page 2 of 3

Sample No. : GP06-29173.001
Sample Description : 5252PKG-Warm white
Item No./Part No. : N/A

Heavy Metals

Test Items	Unit	Test Method	MDL	Results
Cadmium (Cd)	mg/kg	US EPA 3050B(1996), US EPA 6010B(1996), ICP	0.5	N.D.
Lead (Pb)	mg/kg	US EPA 3050B(1996), US EPA 6010B(1996), ICP	5	N.D.
Mercury (Hg)	mg/kg	US EPA 3052(1996), US EPA 6010B(1996), ICP	2	N.D.
Hexavalent Chromium (Cr VI)	mg/kg	US EPA 3060A(1996), US EPA 7196A(1992), UV	1	N.D.

Flame Retardants-PBBs/PBDEs

Test Items	Unit	Test Method	MDL	Results
Monobromobiphenyl	mg/kg	US EPA 3540C, GC/MS	5	N.D.
Dibromobiphenyl	mg/kg	US EPA 3540C, GC/MS	5	N.D.
Tribromobiphenyl	mg/kg	US EPA 3540C, GC/MS	5	N.D.
Tetrabromobiphenyl	mg/kg	US EPA 3540C, GC/MS	5	N.D.
Pentabromobiphenyl	mg/kg	US EPA 3540C, GC/MS	5	N.D.
Hexabromobiphenyl	mg/kg	US EPA 3540C, GC/MS	5	N.D.
Heptabromobiphenyl	mg/kg	US EPA 3540C, GC/MS	5	N.D.
Octabromobiphenyl	mg/kg	US EPA 3540C, GC/MS	5	N.D.
Nonabromobiphenyl	mg/kg	US EPA 3540C, GC/MS	5	N.D.
Decabromobiphenyl	mg/kg	US EPA 3540C, GC/MS	5	N.D.
Monobromodiphenyl ether	mg/kg	US EPA 3540C, GC/MS	5	N.D.
Dibromodiphenyl ether	mg/kg	US EPA 3540C, GC/MS	5	N.D.
Tribromodiphenyl ether	mg/kg	US EPA 3540C, GC/MS	5	N.D.
Tetrabromodiphenyl ether	mg/kg	US EPA 3540C, GC/MS	5	N.D.
Pentabromodiphenyl ether	mg/kg	US EPA 3540C, GC/MS	5	N.D.
Hexabromodiphenyl ether	mg/kg	US EPA 3540C, GC/MS	5	N.D.
Heptabromodiphenyl ether	mg/kg	US EPA 3540C, GC/MS	5	N.D.
Octabromodiphenyl ether	mg/kg	US EPA 3540C, GC/MS	5	N.D.
Nonabromodiphenyl ether	mg/kg	US EPA 3540C, GC/MS	5	N.D.
Decabromodiphenyl ether	mg/kg	US EPA 3540C, GC/MS	5	N.D.

- NOTE: (1) N.D. = Not detected.(<MDL)
(2) ppm = mg/kg
(3) MDL = Method Detection Limit
(4) - = No regulation
(5) ** = Qualitative analysis (No Unit)
(6) Negative = Undetectable / Positive = Detectable

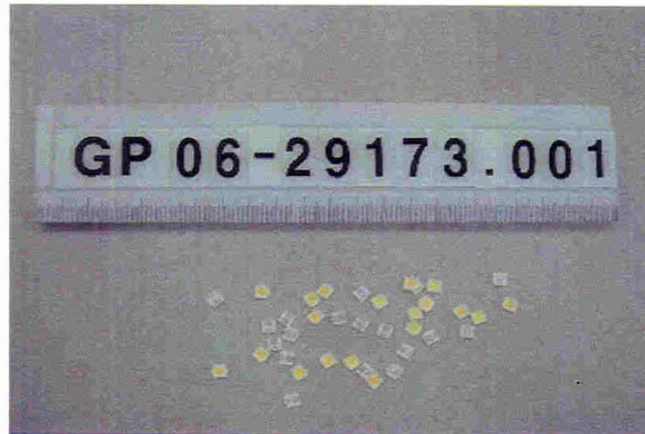
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LAB 100

Member of SGS Group (Société Générale de Surveillance)

Picture of Sample as Received:



*** End ***

- NOTE: (1) N.D. = Not detected.(<MDL)
(2) ppm = mg/kg
(3) MDL = Method Detection Limit
(4) - = No regulation
(5) ** = Qualitative analysis (No Unit)
(6) Negative = Undetectable / Positive = Detectable

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