

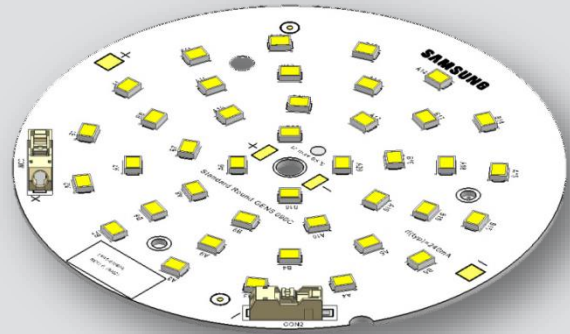


**THE DATASHEET OF  
SI-N8V1856B0WW**



## LED Module DC Operating Module

CM 90mm G5  
CM 110mm G5  
CM 130mm G5



Down-Light Modules enable 4inch to 8inch down light design with better uniformity and high reliability

### Features & Benefits

- High efficacy down-light modules with latest LED technology from Samsung
- Suitable for various application including general flood, spot and ceiling light
- Best color consistency derived from Samsung's extensive binning expertise

### Applications

Indoor Lighting

- Down-light



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## 1. Product Code Information

### a) CM 90mm 1000lm 8xx G5

Nominal CCT(K)	Product Code
3000	SI-N8V0754B0WW
3500	SI-N8U0754B0WW
4000	SI-N8T0754B0WW
5000	SI-N8R0754B0WW
5700	SI-N8Q0754B0WW

### b) CM 110mm 2000lm 8xx G5

Nominal CCT(K)	Product Code
3000	SI-N8V1254B0WW
3500	SI-N8U1254B0WW
4000	SI-N8T1254B0WW
5000	SI-N8R1254B0WW
5700	SI-N8Q1254B0WW

### c) CM 130mm 3000lm 8xx G5

Nominal CCT(K)	Product Code
3000	SI-N8V1856B0WW
3500	SI-N8U1856B0WW
4000	SI-N8T1856B0WW
5000	SI-N8R1856B0WW
5700	SI-N8Q1856B0WW

## 2. Characteristics ( $t_p = 25^\circ\text{C}$ )

### a) Basic Information

Item	Unit	Rating	Remark
Rated Lifetime	Hour	>50,000	L70B50@ $t_p < 75^\circ\text{C}$ , Rated current
Ingress Protection (IP)	-	no rating	
Ambient / Operating Temperature ( $t_a$ )	$^\circ\text{C}$	-20 ~ +50	
Storage Temperature	C	-30 ~ +80	

#### Notes

- \* Rated current : Forward current or Operating current
- \*  $t_p$ : temperature at which performance is specified measured at "Tc point".
- \*  $t_a$ : ambient temperature

## b) Electro-Optical Characteristics

### - CM 90mm 1000lm 8xx G5

Item	Nom. CCT (K)	Unit	Rating			Remark
			min	typ	max	
Luminous Flux	3000	lm	1110	1190	-	$I_f = 240\text{mA}$ $t_p = 25^\circ\text{C}$
	3500		1120	1210	-	
	4000		1150	1240	-	
	5000		1170	1250	-	
	5700		1160	1250	-	
Luminous Efficacy	3000	lm/W	166	178	-	
	3500		168	181	-	
	4000		172	186	-	
	5000		175	187	-	
	5700		174	187	-	
Color Rendering Index (Ra)		-	80	-	-	
Operating Current ( $I_f$ )		mA	-	240	-	
Operating Voltage ( $V_{IN}$ )		Vdc	25.7	27.5	29.9	$I_f = 240\text{mA}$
Power Consumption		W	6.2	6.7	7.2	$t_p = 25^\circ\text{C}$

#### Notes:

- 1)  $t_p$ : temperature at which performance is specified; measured at "Tc point".
- 2) Samsung maintains a measurement tolerance of : Luminous flux:  $\pm 7\%$ , CRI:  $\pm 3.0$ , Voltage:  $\pm 0.3\text{ V}$ , Power Consumption:  $\pm 0.3\text{W}$

## - CM 110mm 2000lm 8xx G5

Item	Nom. CCT (K)	Unit	Rating			Remark
			min	typ	max	
Luminous Flux	3000	lm	1990	2130	-	I <sub>f</sub> = 430mA t <sub>p</sub> = 25°C
	3500		2010	2150	-	
	4000		2070	2210	-	
	5000		2090	2240	-	
	5700		2080	2230	-	
Luminous Efficacy	3000	lm/W	166	178	-	
	3500		168	180	-	
	4000		173	185	-	
	5000		175	187	-	
	5700		174	186	-	
Color Rendering Index (Ra)	-	-	80	-	-	
Operating Current (I <sub>F</sub> )	-	mA	-	430	-	
Operating Voltage (V <sub>IN</sub> )	-	Vdc	25.7	27.8	29.9	
Power Consumption	-	W	11.1	12.0	12.9	

**Notes:**

- 1) t<sub>p</sub> : temperature at which performance is specified; measured at "Tc point".
- 2) Samsung maintains a measurement tolerance of : Luminous flux: ±7 %, CRI: ±3.0, Voltage: ±0.3 V, Power Consumption: ±0.3W

## - CM 130mm 3000lm 8xx G5

Item	Nom. CCT (K)	Unit	Rating			Remark
			min	typ	max	
Luminous Flux	3000	lm	2960	3170	-	$I_f = 640\text{mA}$ $t_p = 25^\circ\text{C}$
	3500		3000	3210	-	
	4000		3090	3310	-	
	5000		3130	3350	-	
	5700		3110	3330	-	
Luminous Efficacy	3000	lm/W	166	178	-	$I_f = 640\text{mA}$ $t_p = 25^\circ\text{C}$
	3500		168	180	-	
	4000		173	185	-	
	5000		175	188	-	
	5700		174	186	-	
Color Rendering Index (Ra)		-	80	-	-	
Operating Current ( $I_f$ )		mA	-	640	-	
Operating Voltage ( $V_{IN}$ )		Vdc	25.8	27.9	30.0	$I_f = 640\text{mA}$ $t_p = 25^\circ\text{C}$
Power Consumption		W	16.5	17.9	19.2	$t_p = 25^\circ\text{C}$

**Notes:**

- 3)  $t_p$ : temperature at which performance is specified; measured at "Tc point".
- 4) Samsung maintains a measurement tolerance of : Luminous flux:  $\pm 7\%$ , CRI:  $\pm 3.0$ , Voltage:  $\pm 0.3\text{ V}$ , Power Consumption:  $\pm 0.3\text{W}$

## c) Color Coordinate

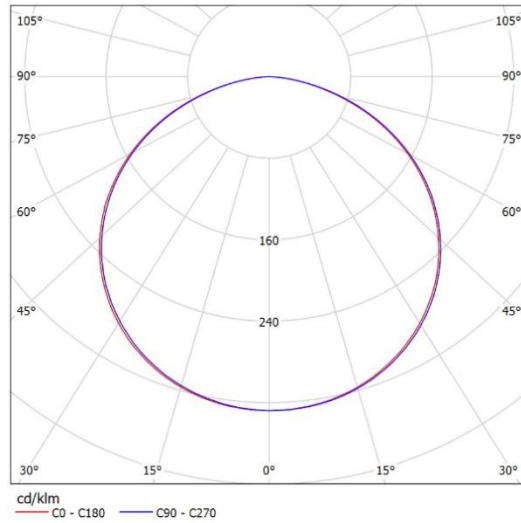
Model	Nom. CCT (K)	CIE 1931 Chromaticity Coordinates				Remark	
CM 90mm 1000lm CM 110mm 2000lm CM 130mm 3000lm	3000	CIE x	0.4266	0.4387	0.4460	0.4335	$t_p = 25\text{ }^\circ\text{C}$
		CIE y	0.3907	0.3949	0.4099	0.4055	
		Center	0.4362		0.4003		
	3500	CIE x	0.4000	0.4131	0.4190	0.4054	
		CIE y	0.3788	0.3850	0.4000	0.3933	
		Center	0.4094		0.3893		
	4000	CIE x	0.3752	0.3871	0.3912	0.3788	
		CIE y	0.3665	0.3739	0.3882	0.3805	
		Center	0.3831		0.3773		
	5000	CIE x	0.3413	0.3501	0.3513	0.3421	
		CIE y	0.3455	0.3525	0.3654	0.3579	
		Center	0.3462		0.3553		
	5700	CIE x	0.3262	0.3346	0.3346	0.3259	
		CIE y	0.3339	0.3414	0.3532	0.3454	
		Center	0.3303		0.3435		

## Notes

※ Samsung maintains a measurement tolerance of CIE\_x / CIE\_y  $\pm$  0.005

### d) Light Distribution

Item	Unit	Nominal	Tolerance	Remark
Beam Angle (FWHM)	°(degree)	120	± 5	



### e) Temperature Characteristics

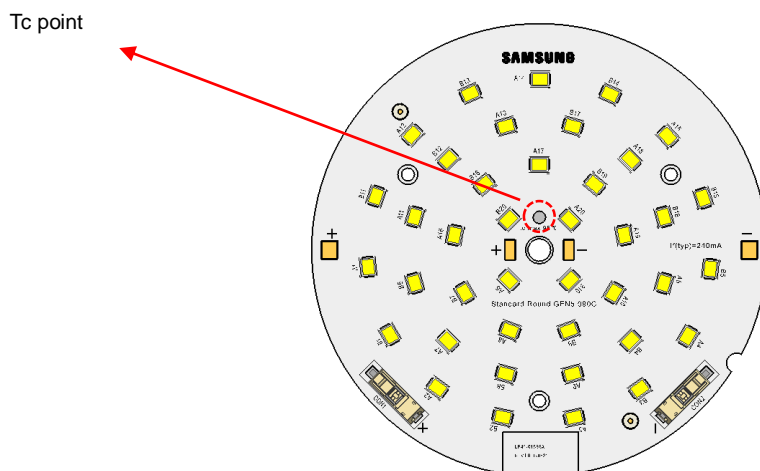
Item	Unit	Nominal* ( $t_p$ )	Life** ( $t_L$ )	Max*** ( $t_c$ )
Temperature Case (Tc)	°C	25	75	95

Notes:

- \* Temperature used to specify performance of the module ( $t_p$ ).
  - \*\* Rated maximum performance temperature at which lifetime is specified in L70B50 ( $t_L$ ).
  - \*\*\* Rated maximum temperature, highest permissible temperature to avoid safety risk ( $t_c$ ).
- All temperatures are measured at the designated "Tc point" as indicated on the module.  
 Please use heat-sink(or heat dissipation solution) with proper thermal capacity(operating wattage).

### f) Thermal Measurement

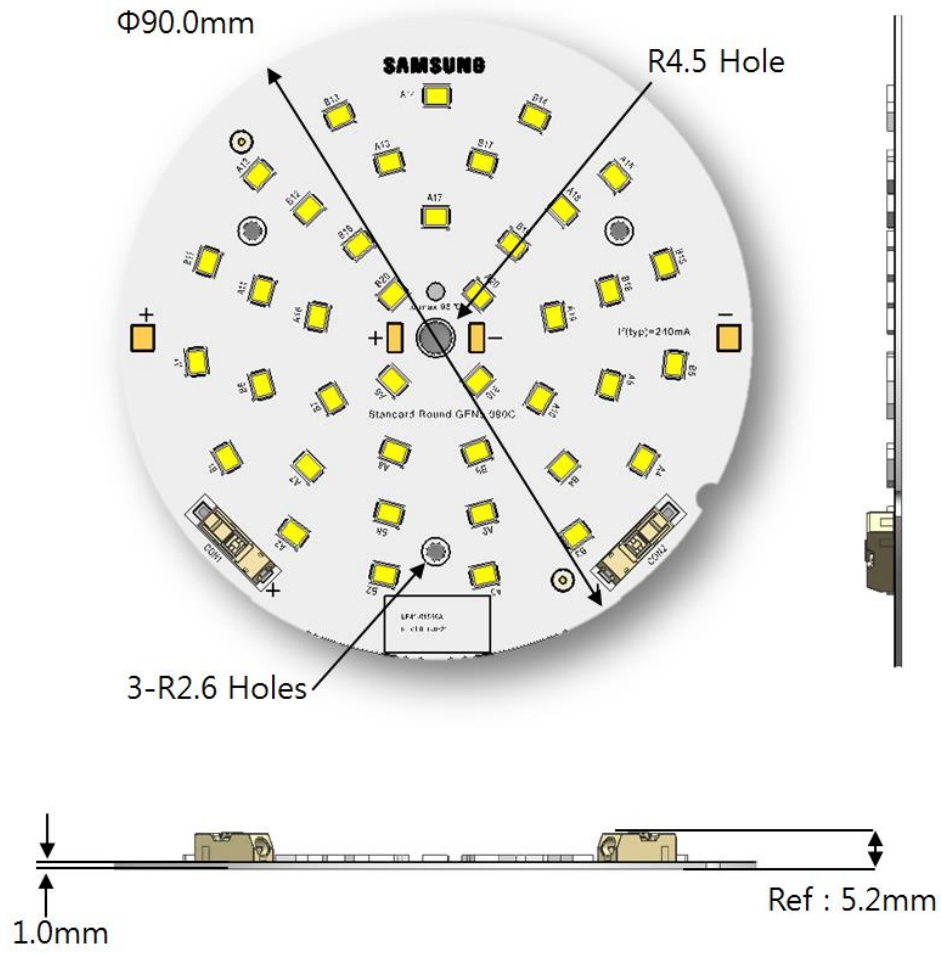
Performance temperatures are measured on "Tc point" as indicated on the module.



### 3. Appearance and Structure

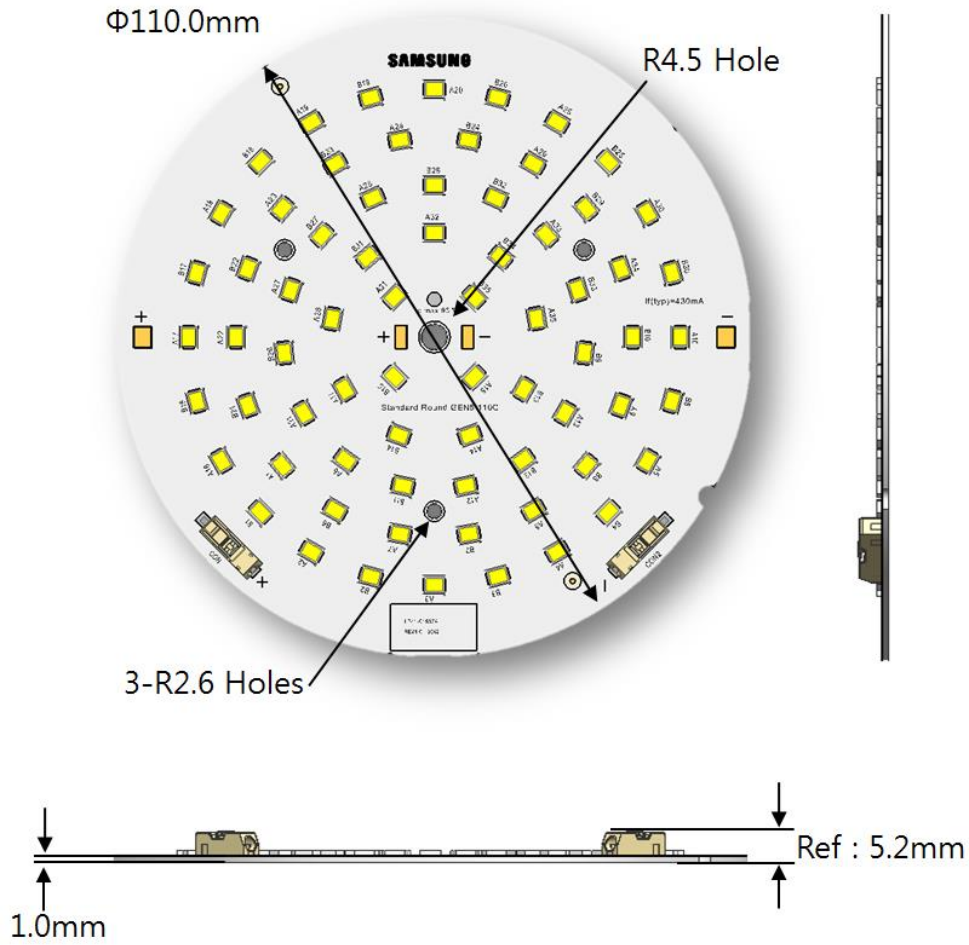
#### a) Appearance and Dimension

- CM 90mm 1000lm 8xx G5



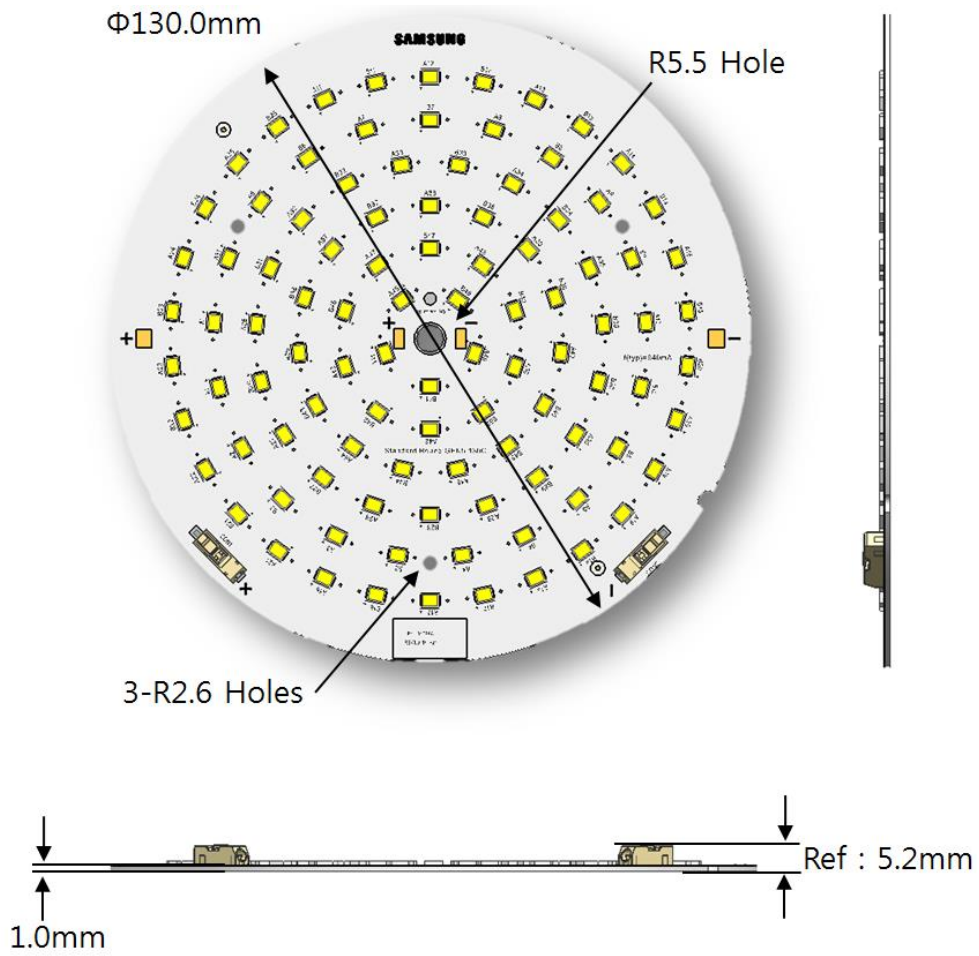
Item	Unit	Dimension	Tolerance
Module Diameter	mm	90	$\pm 0.5$
Module Height	mm	Ref. 5.2	-
PCB Thickness	mm	1.0	$\pm 0.15$
Module Weight	g	15.0	$\pm 0.8$

- CM 110mm 2000lm 8xx G5



Item	Unit	Dimension	Tolerance
Module Diameter	mm	110	±0.5
Module Height	mm	Ref. 5.2	-
PCB Thickness	mm	1.0	±0.15
Module Weight	g	22.5	±1.2

- CM 130mm 3000lm 8xx G5



Item	Unit	Dimension	Tolerance
Module Diameter	mm	130	±0.5
Module Height	mm	Ref. 5.2	-
PCB Thickness	mm	1.0	±0.15
Module Weight	g	31.5	±1.6

## b) Structure

Item	Specification
LED	LM281B+ Middle power LED
PCB	Material : copper, solder mask, epoxy
Connector	Reworkable poke-in connector type

## 4. Certification and Declaration

Item	Compliant to	Remark
Test & Certification	UL / cUL	E344519
Declaration	RoHS	Hazardous Substance & Material

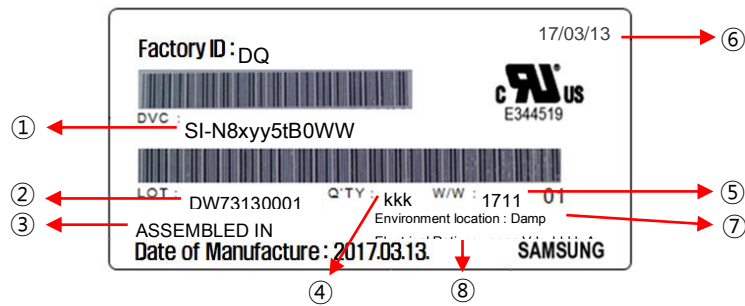
## 5. Label Structure

### a) Module Label



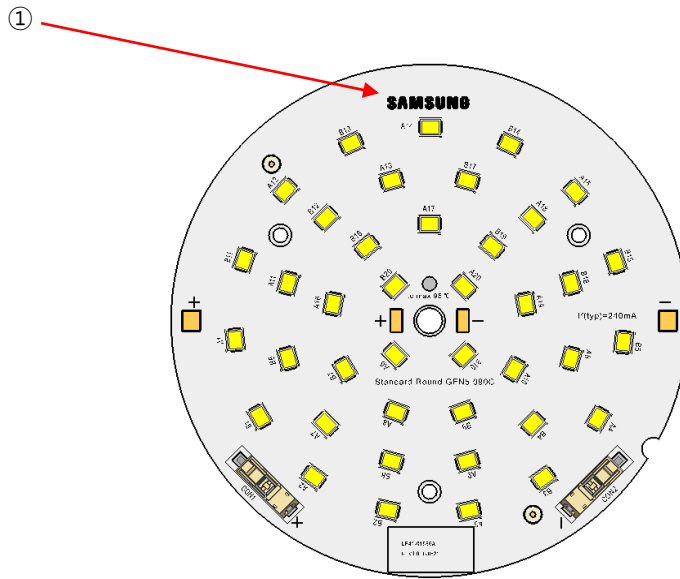
Number	Item	Remark
①	2D Barcode (QR)	-
②	Product code	

### b) Box Label



Number	Item	Remark
①	Model Number (Product Code)	SI-N8xyy5tB0WW
②	Lot No.	DW73130001
③	Country of Origin	ASSEMBLED IN CHINA
④	Packing Quantity	kkk
⑤	Product Date (year & week)	yyww
⑥	Product Date (year/month/date)	yy/mm/dd
⑦	Environment location	Damp
⑧	Electrical Ratings (voltage/current)	aaaa Vdc, bbbb A

c) Certification Label and Logo



Number	Item	Remark
①	Samsung logo	-

## 6. Packing Structure

### a) Quantity

#### - CM 90mm 1000lm 8xx G5

Product	Packing	Quantity (ea)	Weight (kg)	Remark
CM 90mm 1000lm 8xx G5	Tray	12	8	Weight (includes Modules, Trays and a Box)
	Outer Box	180		
	Pallet	5400	-	

#### - CM 110mm 2000lm 8xx G5

Product	Packing	Quantity (ea)	Weight (kg)	Remark
CM 110mm 2000lm 8xx G5	Tray	8	8	Weight (includes Modules, Trays and a Box)
	Outer Box	120		
	Pallet	3600	-	

#### - CM 130mm 3000lm 8xx G5

Product	Packing	Quantity (ea)	Weight (kg)	Remark
CM 130mm 3000lm 8xx G5	Tray	6	8	Weight (includes Modules, Trays and a Box)
	Outer Box	90		
	Pallet	2700	-	

## 7. Precautions in Handling & Use

- 1) This LED Module 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. When using other solvents it should be confirmed beforehand whether the solvents may react with the Module material. The banned Freon solvents should not be used. Do not clean using ultrasonic cleaner.
- 2) 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 LED Modules. 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.
- 3) 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 exposed to heat or light. This phenomenon can cause a significant loss of light emitted (output) from the luminaires (fixtures). In order to prevent these problems, we recommend users to know the physical properties of the materials used in luminaires, and they must be selected carefully.
- 4) Risk of sulfurization (or tarnishing)  
The LED 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, the LED Modules should not be used and stored together with oxidizing substances made of materials such as rubber, plain paper, lead solder cream, etc.
- 5) The resin area is very sensitive, please do not handle, press, touch or rub it.
- 6) Do not drop the Module or give shocks.
- 7) Do not store the Module in a dusty place or humid location.
- 8) Do not disassemble the Module.
- 9) Do not directly look into the lighted LED with naked eyes for a long period of time.
- 10) Please consider the creepage and clearance distance at the end product.
- 11) Solder ball  
There might be solder ball and/or residue on the surface of module as long as they do NOT affect performance and safety.

# Legal and additional information.

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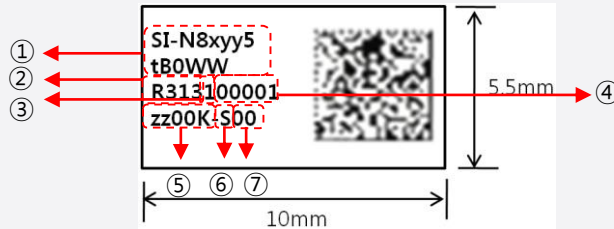
Samsung Electronics Co., Ltd.  
1, Samsung-ro, Giheung-gu,  
Yongin-si, Gyeonggi-do, 17113  
KOREA  
[www.samsung.com/led](http://www.samsung.com/led)

# [Appendix]

## 1. Label Information

### a-1) Information of Printed Label

Label Image

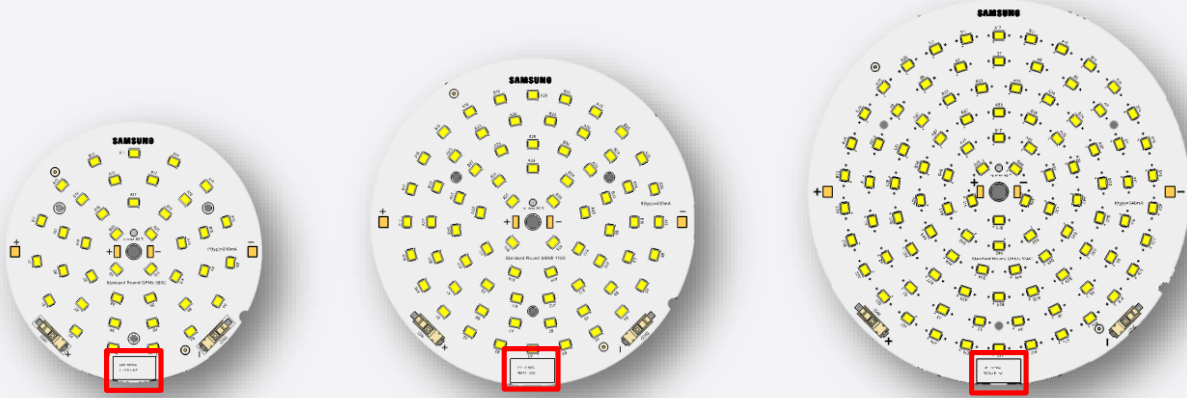


No	Item	Remark
1	Product code	SI-N8xyy5tB0WW
2	SMT date	R313
3	SMT line No.	1
4	Serial No.	00001
5	CCT	zz00K
6	LED Maker	-S
7	Bin Group No.	00

### a-2) QR code Information

QR code	No	Item	Remark
SI-N8xyy5tB0WW_R313100001zz00K-S00	1	Product code	SI-N8xyy5tB0WW
	2	Space	-
	3	SMT date	R313
	4	SMT line No.	1
	5	Serial No	00001
	6	CCT	zz00K
	7	LED Maker	-S
	8	Bin Group No	00

### a-3) Label position



## 2. Applicable Wire Information

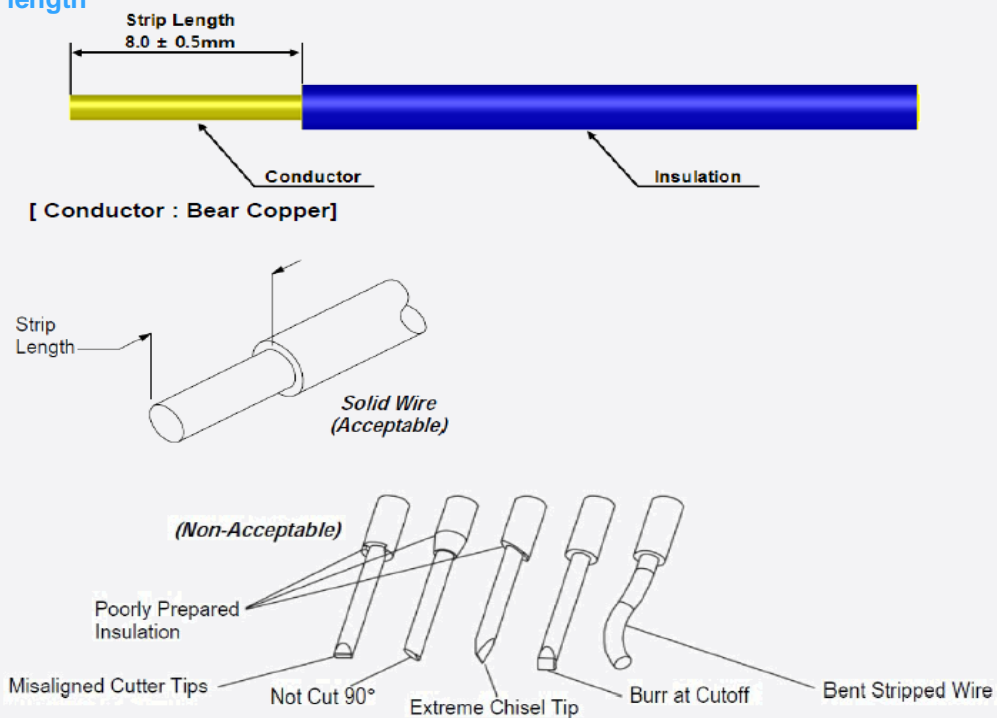
### a) Applicable wire

Wire Range AWG No.	Number of Conductors/ Diameter of a conductors (No./mm)	Insulation Diameter (mm)	Conductor Type
24	1 / 0.51 (0.2mm <sup>2</sup> )	1.35	Solid
22	1 / 0.64 (0.3mm <sup>2</sup> )	1.48	
20	1 / 0.81 (0.5mm <sup>2</sup> )	1.65	
18	1 / 1.02 (0.8mm <sup>2</sup> )	1.86	
22	17 / 0.76 (Reference) After soldering : $\Phi$ 0.9mm Max	1.6	Strand
20	21 / 0.95 (Reference) After soldering : $\Phi$ 1.1mm Max	1.78	
18	23 / 1.1 (Reference) After soldering : $\Phi$ 1.25mm Max	2.1	

#### Notes

- ※ Outside insulation diameter  $\Phi$ 2.1mm Max
- ※ Regarding strand conductor wire, strictly recommend that Pre bond wire type which is dipping into soldering after twisting

### b) Wire Strip length



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