Datasheet

MODEL NAME	CCT	SEC CODE
M inFlux S04 301D ver.	30/35/40/5000K	SI-B8x251280WW
M inFlux L04 301D ver.	30/35/40/5000K	SI-B8x251560WW
M inFlux L09 301D ver.	30/35/40/5000K	SI-B8x501560WW
M inFlux F09 301D ver.	30/35/40/5000K	SI-B8x501B20WW
M inFlux F18 301D ver.	30/35/40/5000K	SI-B8xA01B20WW

SAMSUNG				CUSTOMER DEVELOP.
DEVELOP.	PRODUCT MANAGER	DEVELOP.	PRODUCT MANAGER	

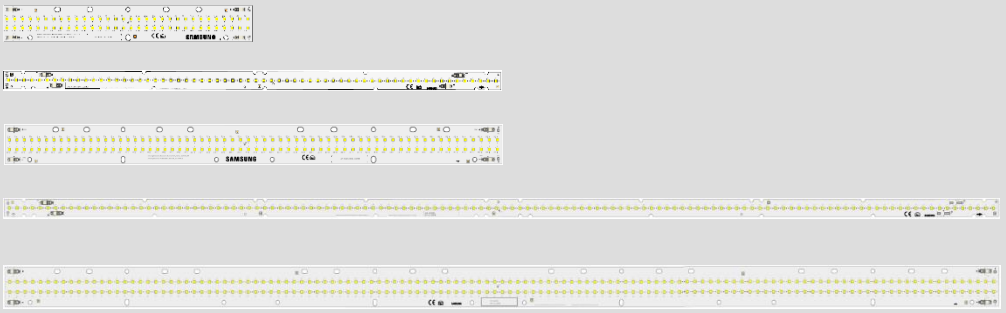
SAMSUNG ELECTRONICS CO,.LTD.
1 Samsung-ro , Giheung-gu ,
Yongin-si , Gyeonggi-do 17113 , KOREA

SAMSUNG

Rev	Remark	Page	Date	Traced
0.1	The First Specification established.	ALL	20.03.05	JK Lee
1.0	The Electro-Optical Characteristics rating updated.	7	20.06.04	JK Lee
	The Box label printing specifications changed.	14		
	The Precautions in Handling & Use contents changed.	16		
	The Connection specifications updated.	19		
1.1	The ambient temperature rating changed. (t_a : -40 ~ +65 ℃)	4	20.06.24	JK Lee
1.2	The Precautions in Handling & Use contents added.	16	20.07.16	JK Lee
1.3	The Electro-Optical Characteristics rating updated. (Max operating current: S04,L04,L09,F09-2.8A / F18-3.5A)	5,6,7	20.10.06	JK Lee
	The Certification and Declaration information updated. (CE certification acquired.)	12		
	The Product image updated.	1, 8, 9, 10		
	The Box label printing specifications changed. (Electrical Ratings)	14		
	The Electro-Optical Characteristics rating typo corrected. (F18 - Luminous Efficacy/Operating Voltage/Power Consumption)	7		
	The Connection specifications updated. (Operating current S04,L04,L09,F09-1.12A→1.4A, F18-2.24A→3.5A)	19		

LED Module

M inFlux S04 L04/L09 F09/F18 301D Ver.



SAMSUNG

Table of Contents

Appendix

1. Product Code Information

a) S04

Nominal CCT (K)	Product Code
3000	SI-B8V251280WW
3500	SI-B8U251280WW
4000	SI-B8T251280WW
5000	SI-B8R251280WW

b) L04

Nominal CCT (K)	Product Code
3000	SI-B8V251560WW
3500	SI-B8U251560WW
4000	SI-B8T251560WW
5000	SI-B8R251560WW

c) L09

Nominal CCT (K)	Product Code
3000	SI-B8V501560WW
3500	SI-B8U501560WW
4000	SI-B8T501560WW
5000	SI-B8R501560WW

d) F09

Nominal CCT (K)	Product Code
3000	SI-B8V501B20WW
3500	SI-B8U501B20WW
4000	SI-B8T501B20WW
5000	SI-B8R501B20WW

e) F18

Nominal CCT (K)	Product Code
3000	SI-B8VA01B20WW
3500	SI-B8UA01B20WW
4000	SI-B8TA01B20WW
5000	SI-B8RA01B20WW

2. Characteristics

a) Basic Information

Item	Rating	Unit	Remark
Rated Lifetime	>50,000	hour	L70B50@ t_p≤85℃, Rated current
Ingress Protection (IP)	no rating	-	
Ambient / Operating Temperature (t_a)	-40 ~ +65	ºC	
Storage Temperature	-40 ~ +85	ºC	

Notes

1) Rated current : Forward current or Operating current
2) t_p: temperature at which performance is specified measured at “Tc point”.
3) t_a: ambient temperature

b) Electro-Optical Characteristics

- S04 / L04

Item	Nom. CCT (K)	Rating Min	Rating Typ.	Rating Max	Unit	Remark
Luminous Flux	3000	4030	4300	4730	lm	I_f = 1120mA t_p = 65ºC
	3500	4090	4380	4840		
	4000	4210	4510	4990		
	5000	4250	4560	5040		
Luminous Efficacy	3000	156	167	184		
	3500	159	170	188		
	4000	163	175	194		
	5000	165	177	196		
Color Rendering Index (Ra)	-	80	-	-	-	-
Operating Current (I_f)	-	-	1120	2800	mA	-
Operating Voltage (V_f)	-	21.9	23.0	24.2	Vdc	I_f = 1120mA t_p = 65ºC
Power Consumption	-	24.5	25.8	27.0	W	

- L09 / F09

Item	Nom. CCT (K)	Rating			Unit	Remark
		Min	Typ.	Max		
Luminous Flux	3000	8030	8560	9450	lm	I_f = 1120mA t_p = 65ºC
	3500	8180	8740	9670		
	4000	8430	9030	10010		
	5000	8530	9130	10120		
Luminous Efficacy	3000	156	167	184		
	3500	159	170	188		
	4000	164	176	195		
	5000	166	178	197		
Color Rendering Index (Ra)	-	80	-	-	-	-
Operating Current (I_f)	-	-	1120	2800	mA	-
Operating Voltage (V_f)	-	43.6	45.9	48.2	Vdc	I_f = 1120mA t_p = 65ºC
Power Consumption	-	48.8	51.4	54.0	W	

- F18

Item	Nom. CCT (K)	Rating Min	Rating Typ.	Rating Max	Unit	Remark
Luminous Flux	3000	16080	17120	18930	lm	I_f = 2240mA t_p = 65ºC
	3500	16380	17480	19370		
	4000	16880	18060	20050		
	5000	16930	18100	20100		
Luminous Efficacy	3000	153	163	180		
	3500	156	166	184		
	4000	161	172	191		
	5000	161	172	191		
Color Rendering Index (Ra)	-	80	-	-	-	-
Operating Current (I_f)	-	-	2240	3500	mA	-
Operating Voltage (V_f)	-	44.6	46.9	49.2	Vdc	I_f = 2240mA t_p = 65ºC
Power Consumption	-	99.8	105.1	110.3	W	

Notes

1) t_p : 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

c) Color Coordinate

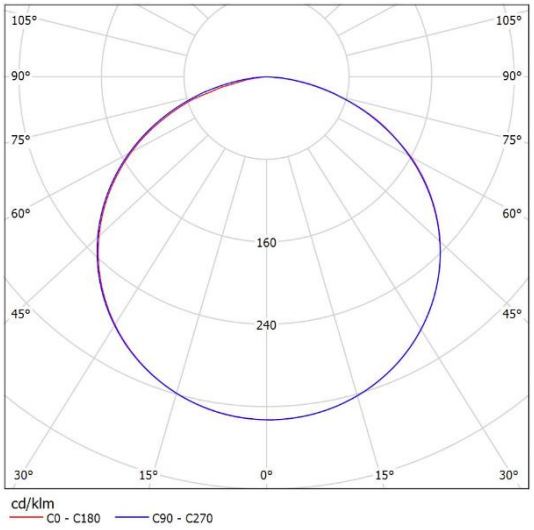
Model	Nom. CCT (K)	CIE 1931 Chromaticity Coordinates					Remark
S04 / L04 / L09 / F09 / F18	3000	CIE x	0.4282	0.4402	0.4475	0.4350	t_p = 25 ºC
		CIE y	0.3950	0.3992	0.4142	0.4098	
		Center	0.4378		0.4045		
	3500	CIE x	0.4020	0.4152	0.4210	0.4074	
		CIE y	0.3828	0.3890	0.4040	0.3974	
		Center	0.4114		0.3933		
	4000	CIE x	0.3776	0.3897	0.3938	0.3814	
		CIE y	0.3700	0.3774	0.3919	0.3842	
		Center	0.3856		0.3809		
	5000	CIE x	0.3435	0.3523	0.3536	0.3444	
		CIE y	0.3466	0.3539	0.3668	0.3592	
		Center	0.3484		0.3566		

Notes

1) Samsung maintains a measurement tolerance of CIE_x / CIE_y ± 0.005

d) Light Distribution

Item	Unit	Nominal	Tolerance	Remark
Beam Angle (FWHM)	˚(degree)	118	± 5	



e) Temperature Characteristics

Item	Nominal(t_p)*	Life(t_L)**	Max(t_c)***	Unit
Temperature	65	85	90	ºC

Notes

* Temperature used to specify performance of the module (t_p).

** Rated maximum performance temperature at which lifetime is specified in L70B50 (t_L).

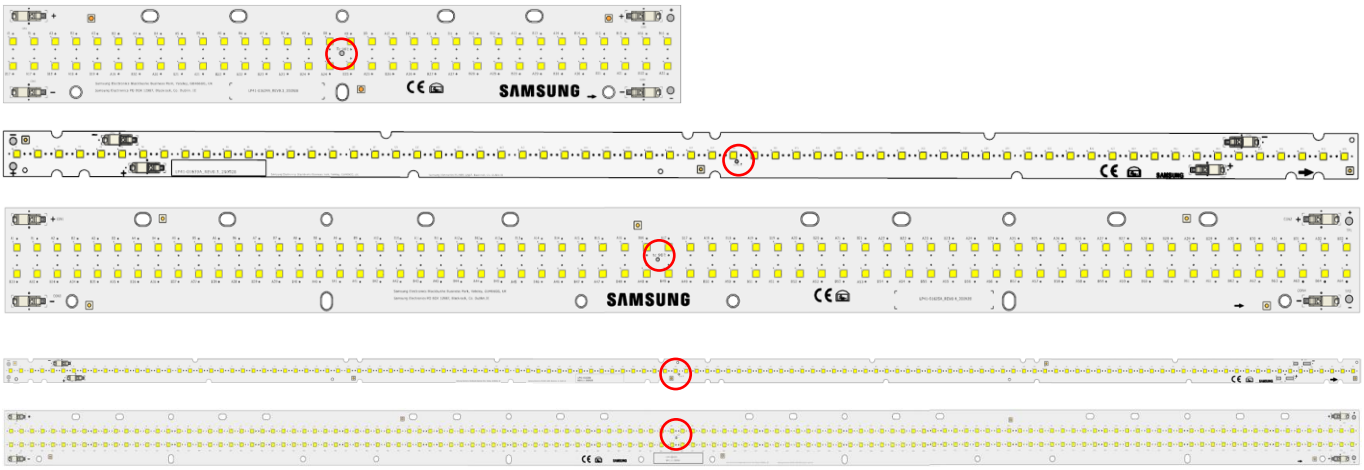
*** Rated maximum temperature, highest permissible temperature to avoid safety risk (t_c).

All temperatures are measured at the designated “Tc point” as indicated in the module. (See page 8)

Please use heat-sink(or heat dissipation solution) with proper thermal capacity(operating wattage).

f) Thermal Measurement

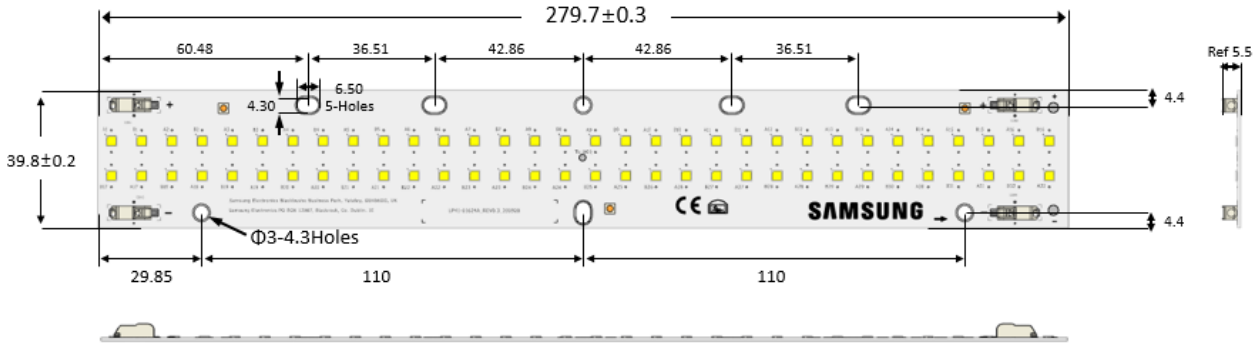
The Performance temperature is measured at “Tc point” as indicated in the module.



3. Structure and Assembly

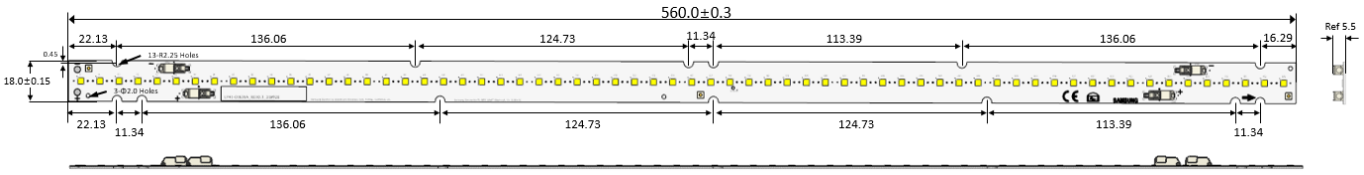
a) Appearance & Dimension

- S04



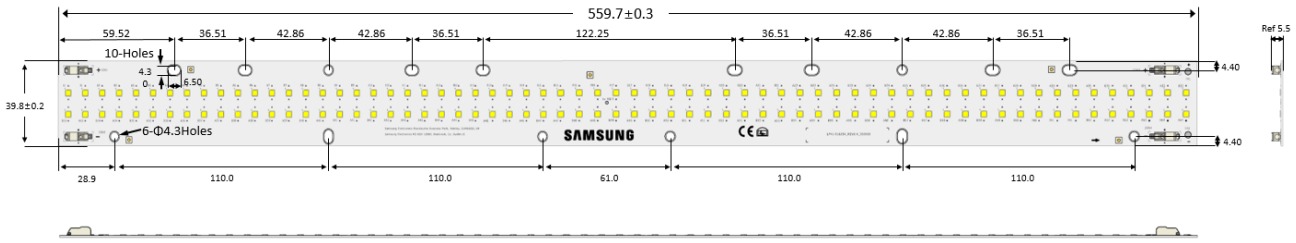
Dimension	Specification	Tolerance	Unit
Module Length	279.7	±0.3	mm
Module Width	39.8	±0.2	mm
Module Height	5.5	±0.25	mm
PCB Thickness	1.0	±0.15	mm
Module Weight	32.0	±1.6	g

- L04



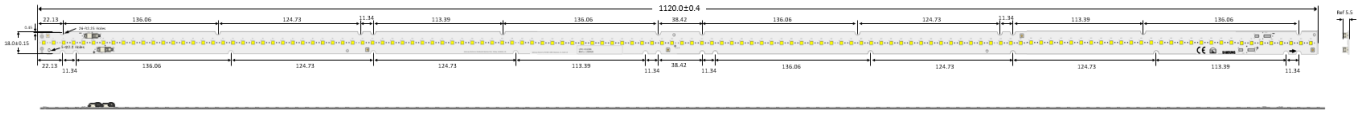
Dimension	Specification	Tolerance	Unit
Module Length	560.0	±0.3	mm
Module Width	18.0	±0.15	mm
Module Height	5.5	±0.25	mm
PCB Thickness	1.0	±0.15	mm
Module Weight	27.0	±1.4	g

- L09



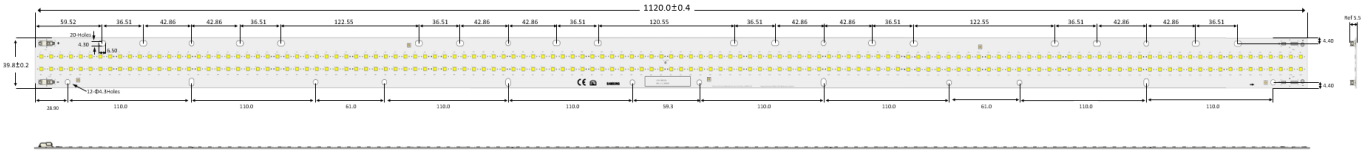
Dimension	Specification	Tolerance	Unit
Module Length	559.7	±0.3	mm
Module Width	39.8	±0.2	mm
Module Height	5.5	±0.25	mm
PCB Thickness	1.0	±0.15	mm
Module Weight	62.0	±3.1	g

- F09



Dimension	Specification	Tolerance	Unit
Module Length	1120.0	±0.4	mm
Module Width	18.0	±0.15	mm
Module Height	5.5	±0.25	mm
PCB Thickness	1.0	±0.15	mm
Module Weight	56.0	±2.8	g

- F18



Dimension	Specification	Tolerance	Unit
Module Length	1120.0	±0.4	mm
Module Width	39.8	±0.2	mm
Module Height	5.5	±0.25	mm
PCB Thickness	1.0	±0.15	mm
Module Weight	124.0	±7.0	g

b) Structure

Item	Specification
LED	LM301D Middle Power PKG
PCB	MCPCB
Connector	1-pin poke-in type

c) Schematic Circuit

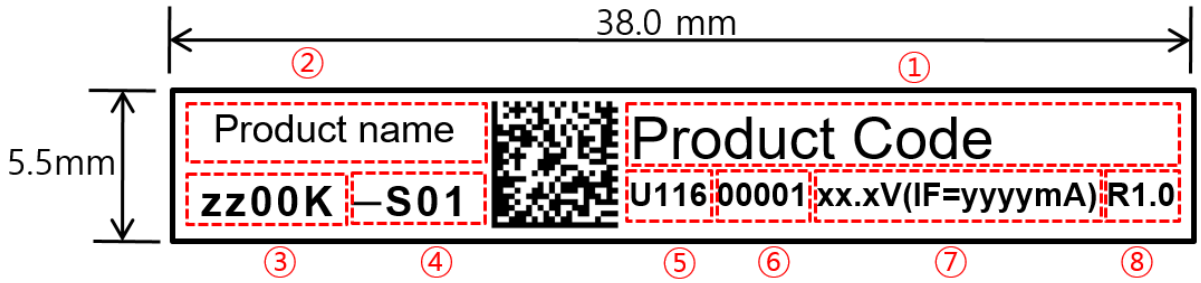
- S04: 8S x 8P
- L04: 8S x 8P
- L09: 16S x 8P
- F09: 16S x 8P
- F18: 16S x 16P

4. Certification and Declaration

Item	Compliant to	Remark
Test & Certification	CE	Declaration of Conformity
	Photo biological Safety	Risk Group 1
	Working voltage for insulation	S04 - 150V L04/L09/F09/F18 - 230V
	Type Classification	Built in module
	UL / cUL	E344519
Declaration	RoHS	Hazardous Substance & Material
	REACH	Hazardous Substance & Material

5. Label Structure

a) Module Label

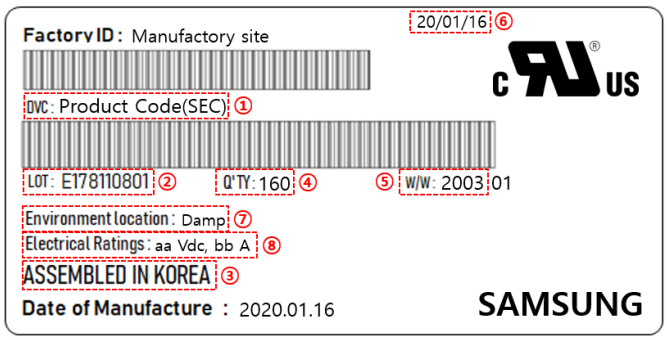


Number	Item	Remark
①	Product code	Refer to page 3, 4
②	Product name	M inFlux S04 M inFlux L04 M inFlux L09 M inFlux F09 M inFlux F18
③	Color Temperature	zz00K zz = 30, 35, 40, 50
④	LED Maker, Group No.	-S : Samsung 01 : Binning group
⑤	SMT date	U116(2020-01-16)
⑥	Serial No.	00001~99999
⑦	Operating voltage, Operating current	M inFlux S04 : 23.0V(IF=1120mA) M inFlux L04 : 23.0V(IF=1120mA) M inFlux L09 : 45.9V(IF=1120mA) M inFlux F09 : 45.9V(IF=1120mA) M inFlux F18 : 46.9V(IF=2240mA)
⑧	Model Revision	R1.0

b) Tray & MB Bag Label

Number	Item	Remark
①	Product Code	Refer to page 3, 4
②	LOT ID	
③	Place of origin	
④	Quantity	Refer to page 14
⑤	Describe production week	
⑥	Date of Issue	

c) Box Label



Number	Item	Remark
①	Product Code	Refer to page 3, 4
②	LOT ID	
③	Place of origin	
④	Quantity	Refer to page 14
⑤	Describe production week	
⑥	Date of Issue	
⑦	Environment location	Damp
⑧	Electrical Ratings (voltage/current)	S04/L04 : 28 Vdc, 2.8 A L09/F09 : 55 Vdc, 2.8 A F18 : 55 Vdc, 5.6 A

6. Packing Structure

Product	Packing	Quantity (modules)	Dimension (mm)		
			Length	Width	Height
S04	Tray	32 ea	355	380	46.5
	Outer Box	160 ea	360	385	225
	Pallet	3840 ea	1200	800	130
L04	Tray	40 ea	600	444	26
	Outer Box	280 ea	605	449	155
	Pallet	5600 ea	1100	1100	130
L09	Tray	30 ea	580	380	50.7
	Outer Box	150 ea	585	385	225
	Pallet	2400 ea	1200	800	130
F09	Tray	20 ea	1180	310	16.8
	Outer Box	200 ea	1185	315	160
	Pallet	2400 ea	1200	1000	130
F18	Tray	12 ea	1180	310	16.8
	Outer Box	96 ea	1185	315	135
	Pallet	1440 ea	1200	1000	130

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.

12) When you install products in fixture, you should not connect the product while it is powered on. It will cause damage Circuits(that LED is included) and result in emitting smoke and ignition.

Legal and additional information.

About Samsung Electronics Co., Ltd.

Samsung inspires the world and shapes the future with transformative ideas and technologies. The company is redefining the worlds of TVs, smartphones, wearable devices, tablets, digital appliances, network systems, and memory, system LSI, foundry and LED solutions. For the latest news, please visit the Samsung Newsroom at news.samsung.com.

Samsung Electronics Co., Ltd.
1, Samsung-ro, Giheung-gu,
Yongin-si, Gyeonggi-do, 17113
KOREA
www.samsung.com/led

SAMSUNG

[Appendix]

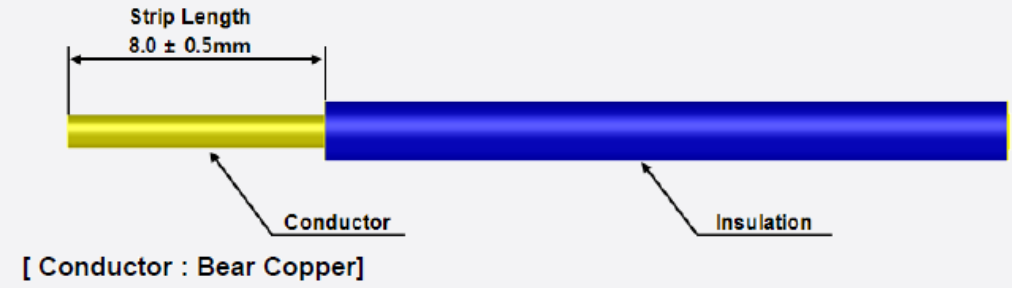
1. Applicable Solid Wires

a) Applicable solid wires only

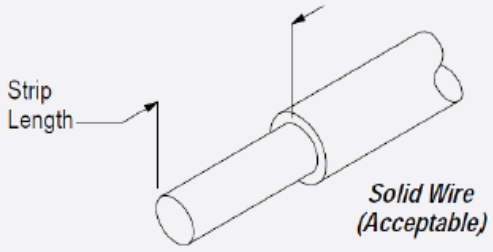
Wire Range AWG NO.	Number of Conductors / Diameter of a conductors (NO. / mm)	Insulation Diameter (mm)	Conductor Type
24	1 / 0.51	1.35	Solid
22	1 / 0.64	1.48	
20	1 / 0.81	1.65	
18	1 / 1.02	1.86	

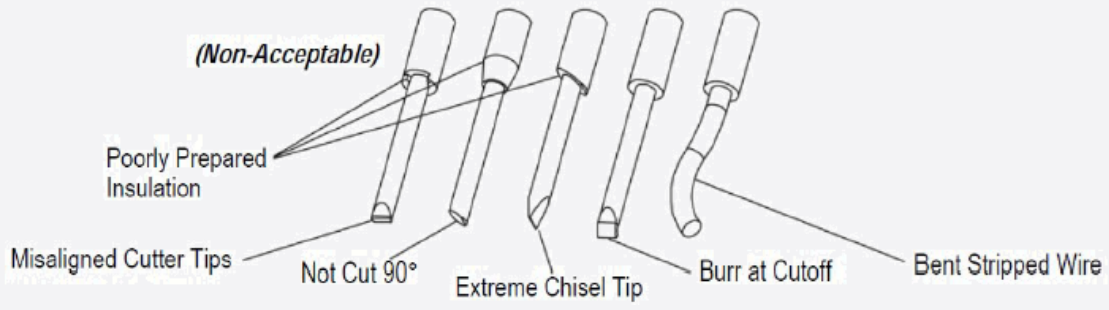
※ Outside insulation diameter Φ2.1mm Max.

b) Wire strip length



[Conductor : Bear Copper]





SAMSUNG

2. Connection

Product	Max parallel	Max series	Remark
S04	2	4	Operating current / module = 1.4A
L04	2	4	Operating current / module = 1.4A
L09	2	4	Operating current / module = 1.4A
F09	2	4	Operating current / module = 1.4A
F18	1	4	Operating current / module = 3.5A

※ The type of screw to be used is not considered.