

Datasheet

MODEL NAME	CRI	CCT	SEC CODE
M inFlux S04 301D ver.	90	30/35/40/5000K	SI-B9x251280WW
M inFlux L04 301D ver.		30/35/40/5000K	SI-B9x251560WW
M inFlux L09 301D ver.		30/35/40/5000K	SI-B9x501560WW

SAMSUNG				CUSTOMER
DEVELOP.	PRODUCT PLANNING	QA(DQA)	SALES	

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LED Module

M inFlux

S04/L04

L09

301D Ver.

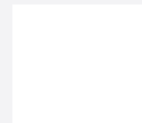


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1. Product Code Information

a) S04

Nominal CCT (K)	Product Code
3000	SI-B9V251280WW
3500	SI-B9U251280WW
4000	SI-B9T251280WW
5000	SI-B9R251280WW

b) L04

Nominal CCT (K)	Product Code
3000	SI-B9V251560WW
3500	SI-B9U251560WW
4000	SI-B9T251560WW
5000	SI-B9R251560WW

c) L09

Nominal CCT (K)	Product Code
3000	SI-B9V501560WW
3500	SI-B9U501560WW
4000	SI-B9T501560WW
5000	SI-B9R501560WW

2. Characteristics

a) Basic Information

Item	Rating	Unit	Remark
Rated Lifetime	>50,000	hour	L70B50@ $t_p \leq 85^\circ\text{C}$, Rated current
Ingress Protection (IP)	no rating	-	
Ambient / Operating Temperature (t_a)	-40 ~ +65	$^\circ\text{C}$	
Storage Temperature	-40 ~ +85	$^\circ\text{C}$	

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			Unit	Remark
		Min	Typ.	Max		
Luminous Flux	3000	3290	3570	4010	lm	$I_f = 1120\text{mA}$ $t_p = 65^\circ\text{C}$
	3500	3390	3690	4130		
	4000	3510	3800	4260		
	5000	3550	3860	4320		
Luminous Efficacy	3000	128	139	156		
	3500	132	143	160		
	4000	136	148	165		
	5000	138	150	168		
Color Rendering Index (Ra)	-	90	-	-	-	-
Operating Current (I_f)	-	-	1120	2800	mA	-
Operating Voltage (V_f)	-	21.9	23.0	24.2	Vdc	$I_f = 1120\text{mA}$ $t_p = 65^\circ\text{C}$
Power Consumption	-	24.5	25.8	27.0	W	

- L09

Item	Nom. CCT	Rating			Unit	Remark
	(K)	Min	Typ.	Max		
Luminous Flux	3000	6570	7160	8060	lm	$I_f = 1120\text{mA}$ $t_p = 65^\circ\text{C}$
	3500	6800	7400	8320		
	4000	7030	7630	8570		
	5000	7140	7760	8700		
Luminous Efficacy	3000	128	139	157		
	3500	132	144	162		
	4000	137	148	167		
	5000	139	151	169		
Color Rendering Index (Ra)	-	80	-	-	-	-
Operating Current (I_f)	-	-	1120	2800	mA	-
Operating Voltage (V_f)	-	43.6	45.9	48.2	Vdc	$I_f = 1120\text{mA}$
Power Consumption	-	48.8	51.4	54.0	W	$t_p = 65^\circ\text{C}$

Notes

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

c) Color Coordinate

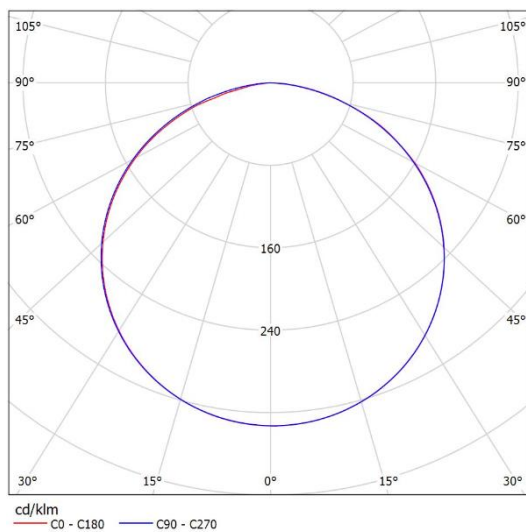
Model	Nom. CCT (K)	CIE 1931 Chromaticity Coordinates				Remark	
		CIE x	CIE y	Center	Center		
S04 / L04 / L09	3000	CIE x	0.4277	0.4398	0.4473	0.4346	$t_p = 25^\circ\text{C}$
		CIE y	0.3943	0.3985	0.4135	0.4091	
		Center	0.4374		0.4039		
	3500	CIE x	0.4016	0.4148	0.4206	0.4070	
		CIE y	0.3818	0.3880	0.4032	0.3964	
		Center	0.4110		0.3924		
	4000	CIE x	0.3777	0.3898	0.3939	0.3815	
		CIE y	0.3702	0.3776	0.3921	0.3844	
		Center	0.3857		0.3811		
	5000	CIE x	0.3434	0.3522	0.3535	0.3443	
		CIE y	0.3479	0.3552	0.3681	0.3605	
		Center	0.3484		0.3579		

Notes

- Samsung maintains a measurement tolerance of CIE_x / CIE_y ± 0.005

d) Light Distribution

Item	Unit	Nominal	Tolerance	Remark
Beam Angle (FWHM)	°(degree)	116	± 5	



e) Temperature Characteristics

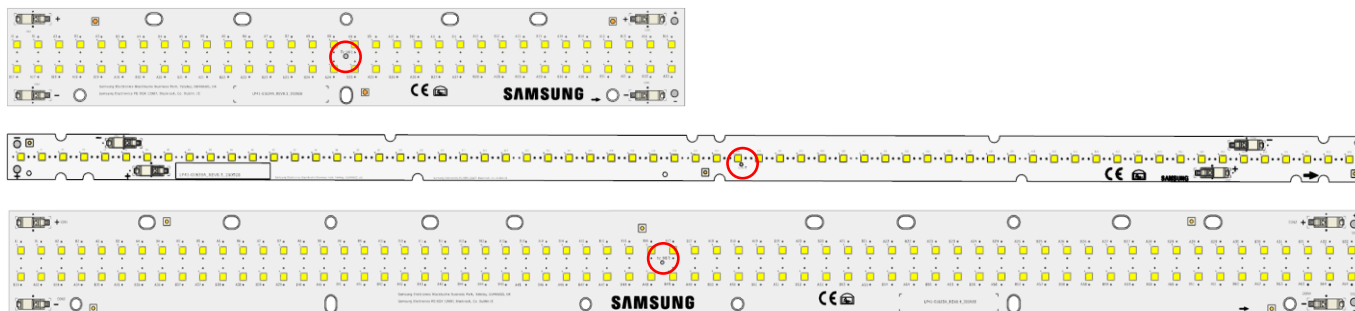
Item	Nominal(t_p)*	Life(t_L)**	Max(t_c)***	Unit
Temperature	65	85	90	°C

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

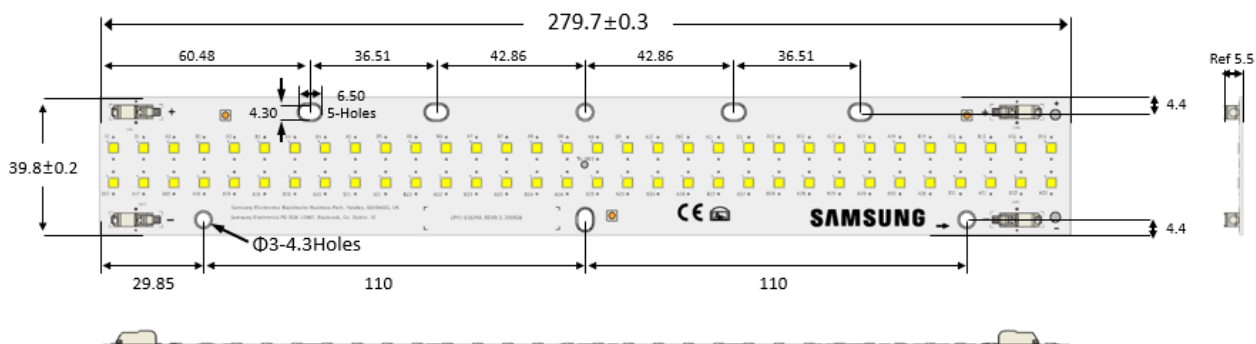
The Performance temperature is measured at “Tc point” as indicated in the module.



3. Structure and Assembly

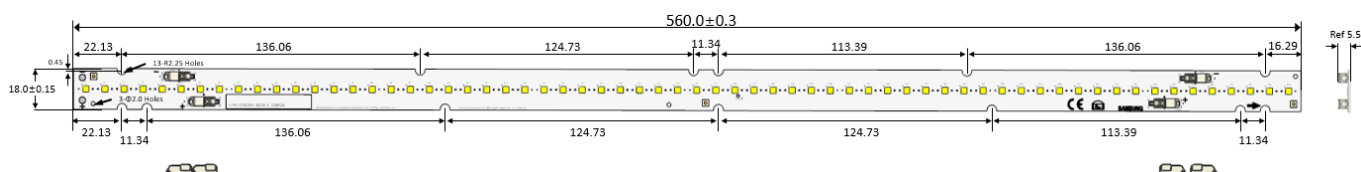
a) Appearance & Dimension

- S04



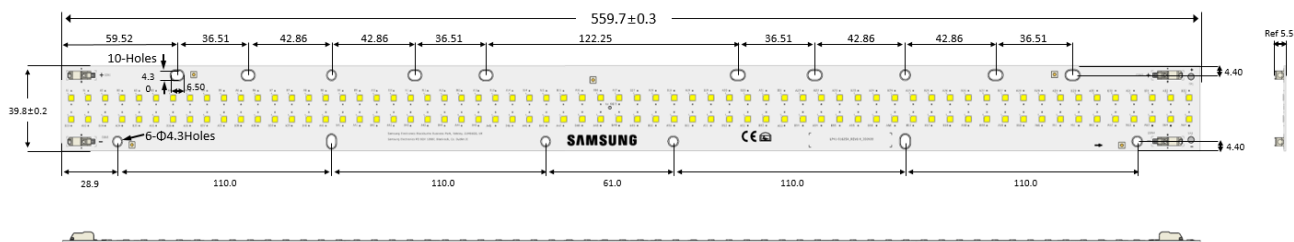
Dimension	Specification	Tolerance	Unit
Module Length	279.7	± 0.3	mm
Module Width	39.8	± 0.2	mm
Module Height	5.5	± 0.25	mm
PCB Thickness	1.0	± 0.15	mm
Module Weight	32.0	± 1.6	g

- 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

b) Structure

Item	Specification
LED	LM301D Middle Power LED
PCB	Material : copper, solder mask, aluminium
Connector	Reworkable poke-in connector type

c) Schematic Circuit

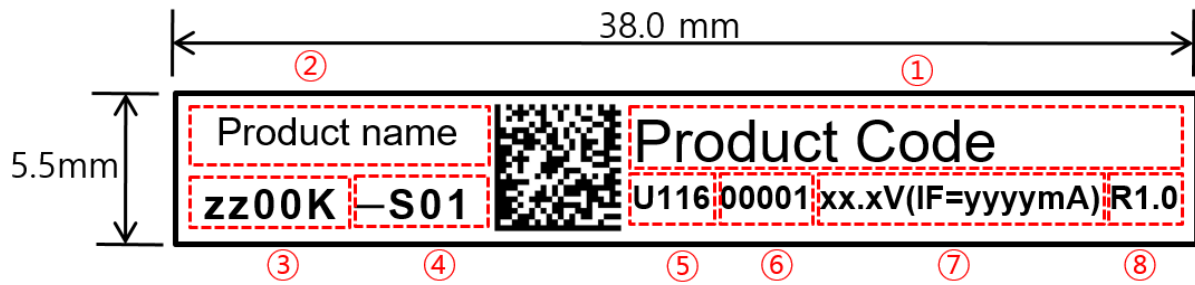
- S04: 8S x 8P
- L04: 8S x 8P
- L09: 16S x 8P

4. Certification and Declaration

Item	Compliant to	Remark
Test & Certification	CE	TBD
	Photo biological Safety	TBD
	Working voltage for insulation	TBD
	Type Classification	TBD
	UL / cUL	E344519
Declaration	RoHS	Hazardous Substance & Material
	REACH	Hazardous Substance & Material

5. Label Structure

a) Module Label



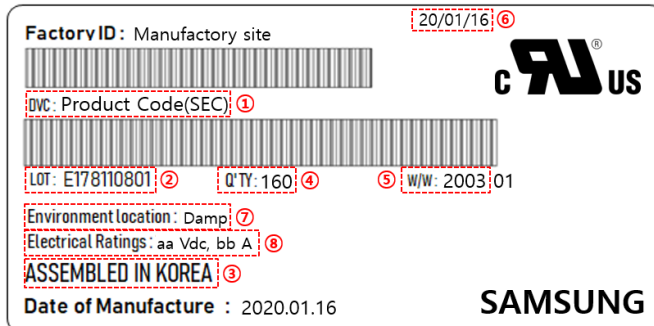
Number	Item	Remark
①	Product code	Refer to page 3
②	Product name	M inFlux S04 M inFlux L04 M inFlux L09
③	Color Temperature	zz00K zz = 30, 35, 40, 50
④	LED Maker, Group No.	-S : Samsung 01 : Binning group
⑤	SMT date	U116(2020-01-16)
⑥	Serial No.	00001~99999
⑦	Operating voltage, Operating current	M inFlux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

b) Tray & MB Bag Label



Number	Item	Remark
①	Product Code	Refer to page 3
②	LOT ID	
③	Place of origin	
④	Quantity	Refer to page 12
⑤	Describe production week	
⑥	Date of Issue	

c) Box Label



Number	Item	Remark
①	Product Code	Refer to page 3
②	LOT ID	
③	Place of origin	
④	Quantity	Refer to page 12
⑤	Describe production week	
⑥	Date of Issue	
⑦	Environment location	Damp
⑧	Electrical Ratings (voltage/current)	S04 : 28 Vdc, 2.8 A L04 : 28 Vdc, 2.8 A L09 : 55 Vdc, 2.8 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

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.

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[Appendix]

1. Applicable Solid Wires

a) Applicable solid wires only

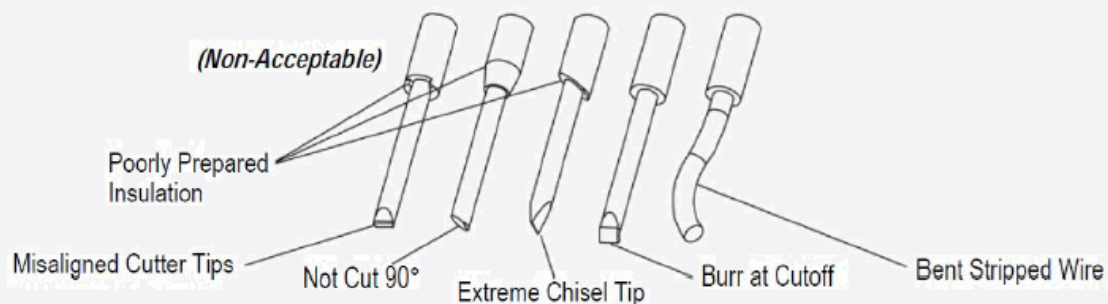
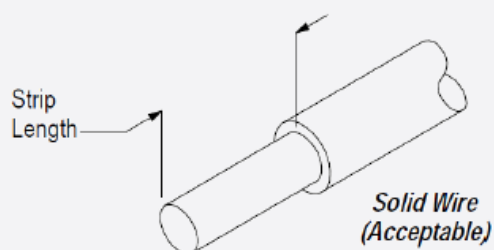
Wire Range AWG NO.	Number of Conductors / Diameter of a conductors (NO. / mm)	Insulation Diameter (mm)	Conductor Type
24	1 / 0.51	1.35	Solid
22	1 / 0.64	1.48	
20	1 / 0.81	1.65	
18	1 / 1.02	1.86	

※ Outside insulation diameter $\Phi 2.1\text{mm}$ Max.

b) Wire strip length



[Conductor : Bear Copper]



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

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