

Datasheet

MODEL	CRI	CCT	SEC CODE
Standard Back-lit S.E Static White 2ft	80	3000K	SI-B8V031500WW
		3500K	SI-B8U031500WW
		4000K	SI-B8T031500WW
		5000K	SI-B8R031500WW
	90	3000K	SI-B9V031500WW
		3500K	SI-B9U031500WW
		4000K	SI-B9T031500WW
		5000K	SI-B9R031500WW
Standard Back-lit S.E Static White 4ft	80	3000K	SI-B8V071B00WW
		3500K	SI-B8U071B00WW
		4000K	SI-B8T071B00WW
		5000K	SI-B8R071B00WW

SAMSUNG				CUSTOMER
DEVELOP.	PRODUCT MANAGER	QA(DQA)	SALES	

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

LED Module

Standard Back-lit S.E



Table of Contents

1.	Product Code Information	-----	3
2.	Characteristics	-----	4
3.	Structure and Assembly	-----	9
4.	Certification and Declaration	-----	11
5.	Label Structure	-----	13
6.	Packing Structure	-----	14
7.	Precautions in Handling & Use	-----	15
Appendix 1.	Applicable Solid Wires	-----	16
Appendix 2.	Connection	-----	17

1. Product Code Information

- Static White 2ft

CRI	Nominal CCT(K)	Product Code
80	3000	SI-B8V031500WW
	3500	SI-B8U031500WW
	4000	SI-B8T031500WW
	5000	SI-B8R031500WW
90	3000	SI-B9V031500WW
	3500	SI-B9U031500WW
	4000	SI-B9T031500WW
	5000	SI-B9R031500WW

- Static White 4ft

CRI	Nominal CCT(K)	Product Code
80	3000	SI-B8V071B00WW
	3500	SI-B8U071B00WW
	4000	SI-B8T071B00WW
	5000	SI-B8R071B00WW

2. Characteristics (Static 2ft $I_F=88\text{mA}$, Static 4ft $I_F=176\text{mA}$, $t_p=40^\circ\text{C}$)

a) Basic Information

Item	Unit	Rating	Remark
Rated Lifetime	Hour	>50,000	L70B50 @Static 2ft, $t_p < 60^\circ\text{C}$, $I_F=88\text{mA}$ L70B50 @Static 4ft, $t_p < 60^\circ\text{C}$, $I_F=176\text{mA}$
Ingress Protection (IP)	-	no rating	
Ambient / Operating Temperature (t_{amb})	$^\circ\text{C}$	-20 ~ +50	
Storage Temperature	$^\circ\text{C}$	-30 ~ +80	

Notes:

- ※ I_F : 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

- Static White 2ft CRI80

Item	Nom.CCT (K)	Unit	Rating			Remark
			Min	Typ.	Max	
Luminous Flux (Φ_v)	3000	lm	565	610	-	$I_F = 88\text{mA}$ $t_p = 40^\circ\text{C}$
	3500		575	620	-	
	4000		595	640	-	
	5000		605	650	-	
Luminous Efficacy	3000	lm/W	155	167	-	
	3500		157	170	-	
	4000		163	175	-	
	5000		166	178	-	
Color Rendering Index (Ra)	-	-	80			
Operating Current (I_t)	-	mA		88	200	
Operating Voltage (V_t)	-	Vdc	39.4	41.5	43.7	$I_F = 88\text{mA}$ $t_p = 40^\circ\text{C}$
Power Consumption	-	W	3.5	3.7	3.8	

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: $\pm 5\%$

- Static White 2ft CRI90

Item	Nom.CCT (K)	Unit	Rating			Remark
			Min	Typ.	Max	
Luminous Flux (Φ_v)	3000	lm	490	525	-	$I_F = 88\text{mA}$ $t_p = 40^\circ\text{C}$
	3500		510	550	-	
	4000		515	555	-	
	5000		525	565	-	
Luminous Efficacy	3000	lm/W	134	144	-	
	3500		140	151	-	
	4000		141	152	-	
	5000		144	155	-	
Color Rendering Index (Ra)	-	-	90			-
Operating Current (I_t)	-	mA		88	200	-
Operating Voltage (V_t)	-	Vdc	39.4	41.5	43.7	$I_F = 88\text{mA}$ $t_p = 40^\circ\text{C}$
Power Consumption	-	W	3.5	3.7	3.8	

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: $\pm 5\%$

- Static White 4ft

Item	Nom.CCT (K)	Unit	Rating			Remark
			Min	Typ.	Max	
Luminous Flux (Φ_v)	3000	lm	1130	1220	-	$I_F = 176\text{mA}$ $t_p = 40^\circ\text{C}$
	3500		1150	1240	-	
	4000		1190	1280	-	
	5000		1210	1300	-	
Luminous Efficacy	3000	lm/W	155	167	-	
	3500		157	170	-	
	4000		163	175	-	
	5000		166	178	-	
Color Rendering Index (Ra)	-	-	80			-
Operating Current (I_t)	-	mA		176	400	-
Operating Voltage (V_t)	-	Vdc	39.4	41.5	43.7	$I_F = 176\text{mA}$ $t_p = 40^\circ\text{C}$
Power Consumption	-	W	6.9	7.3	7.7	

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: $\pm 5\%$

c) Color Coordinate

- Static White 2ft, 4ft CRI80

Model Code	Nom. CCT (K)	CIE 1931 Chromaticity Coordinates				Remark	
SI-B8V031500WW SI-B8V071B00WW	3000	CIE x	0.4277	0.4399	0.4474	0.4347	Static 2ft : I _F =88mA Static 4ft : I _F =176mA t _p = 25°C
		CIE y	0.3922	0.3964	0.4118	0.4073	
		Center	0.4374		0.4019		
SI-B8U031500WW SI-B8U071B00WW	3500	CIE x	0.4017	0.4145	0.4211	0.4078	
		CIE y	0.3788	0.3850	0.4015	0.3950	
		Center	0.4113		0.3901		
SI-B8T031500WW SI-B8T071B00WW	4000	CIE x	0.3771	0.3899	0.3944	0.3811	
		CIE y	0.3668	0.3746	0.3900	0.3818	
		Center	0.3856		0.3783		
SI-B8R031500WW SI-B8R071B00WW	5000	CIE x	0.3418	0.3428	0.3535	0.3522	
		CIE y	0.3433	0.3561	0.3646	0.3517	
		Center	0.3476		0.3539		

Notes:

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

- Static White 2ft CRI90

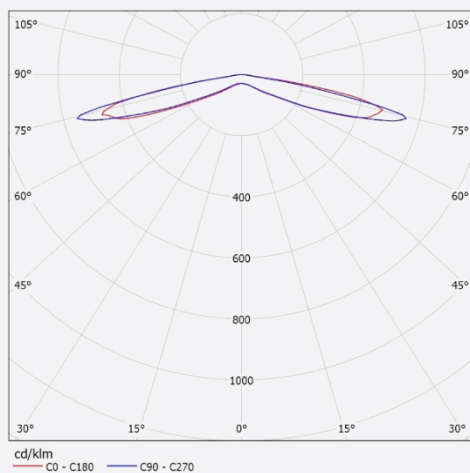
Model Code	Nom. CCT (K)	CIE 1931 Chromaticity Coordinates				Remark	
SI-B9V031500WW	3000	CIE x	0.4247	0.4369	0.4444	0.4317	I _F =88mA t _p = 25°C
		CIE y	0.3890	0.3932	0.4086	0.4041	
		Center	0.4345		0.3987		
SI-B9U031500WW	3500	CIE x	0.3982	0.4110	0.4176	0.4043	
		CIE y	0.3726	0.3788	0.3953	0.3888	
		Center	0.4078		0.3839		
SI-B9T031500WW	4000	CIE x	0.3733	0.3862	0.3907	0.3773	
		CIE y	0.3640	0.3718	0.3872	0.3790	
		Center	0.3819		0.3755		
SI-B9R031500WW	5000	CIE x	0.3390	0.3400	0.3507	0.3495	
		CIE y	0.3396	0.3524	0.3609	0.3480	
		Center	0.3448		0.3502		

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)	160	± 5	



e) Temperature Characteristics

Item	Nominal(t_p)*	Life**	Max(t_c)***	Unit
Temperature	40	60	85	°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 on the module. (See page 8)
 Please use heat-sink(or heat dissipation solution) with proper thermal capacity(operating wattage).

f) Thermal Measurement

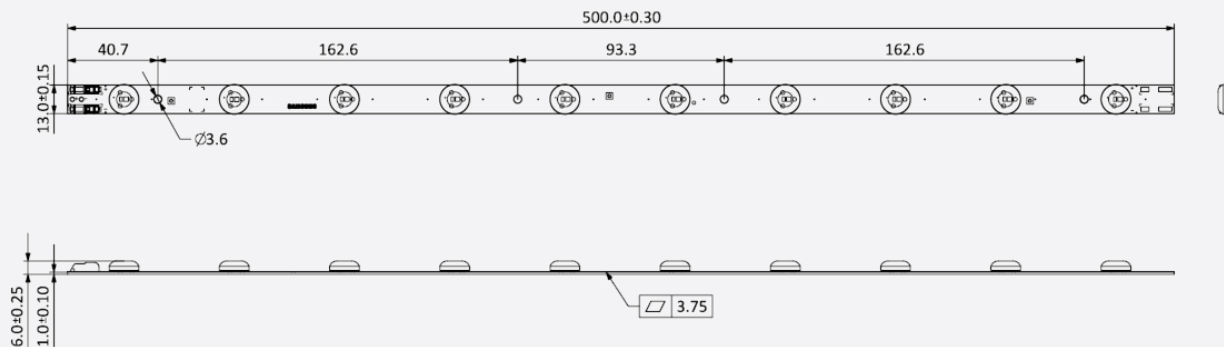
Performance temperatures are measured on "Tc point" as indicated on the module.



3. Structure and Assembly

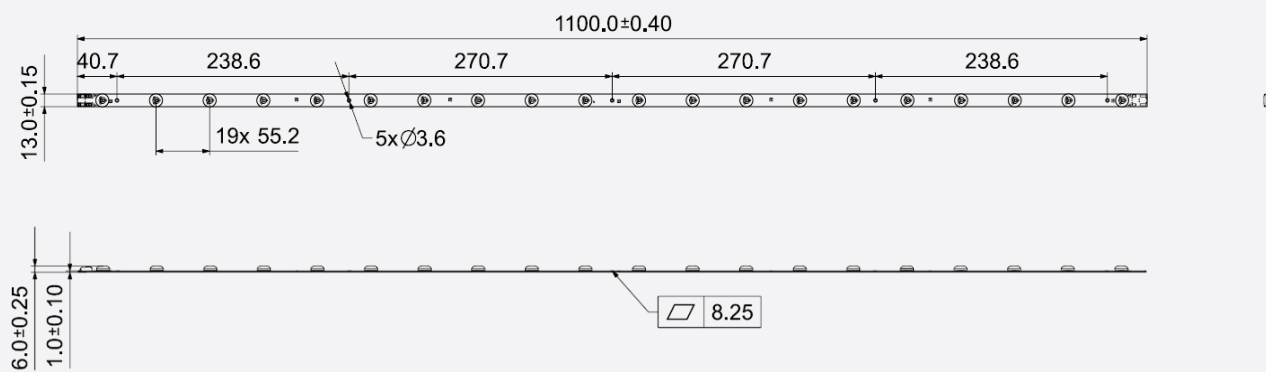
a) Appearance & Dimension

- Static White 2ft



Dimension	Unit	Specification	Tolerance
Module Length	mm	500.0	±0.30
Module Width	mm	13.0	±0.15
Module Height	mm	6.0	±0.25
PCB Thickness	mm	1.0	±0.10
Module Weight	g	20.0	±1.0

- Static White 4ft



Dimension	Unit	Specification	Tolerance
Module Length	mm	1100.0	±0.40
Module Width	mm	13.0	±0.15
Module Height	mm	6.0	±0.25
PCB Thickness	mm	1.0	±0.10
Module Weight	g	42.7	±2.14


b) Structure

Item	Specification
LED	LM283B Plus Middle Power LED
PCB	Material : copper, solder mask, epoxy
Connector	Wago 2060-451 (24~18 AWG ; terminal strip length of 7.0~9.0mm) (Appendix 1)

c) Schematic Circuit

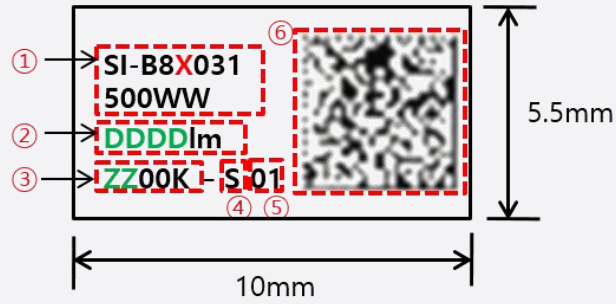
- Static White 2ft : 5S x 2P
- Static White 4ft : 5S x 4P

4. Certification and Declaration

Item	Compliant to	Remark
Certification	UL / cUL	E344519
	CE	Declaration of Conformity
	Type Classification	Built in module 
Declaration	RoHS	Hazardous Substance & Material

5. Label Structure

a) Module Label



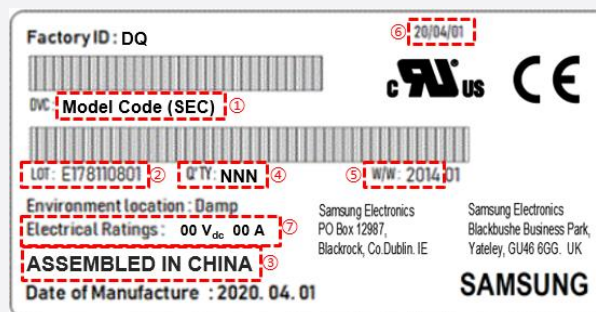
Number	Item	Remark
①	Model code	Refer to page 3
②	Lumen	
③	Color temperature	ZZ = 30, 35, 40, 50
④	LED maker	-S (Samsung)
⑤	Bin rank	00~ZZ
⑥	QR Code	2ft : SI-B8X031500WW_U321100001ZZ00K-S01 4ft : SI-B8X071B00WW_U321100001ZZ00K-S01

b) Tray & MBB Bag Label



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

c) Box Label



Number	Item	Remark
①	Model Code	Refer to page 3
②	LOT ID	
③	Place of origin	
④	Quantity	Refer to page 14
⑤	Describe production week	
⑥	Date of Issue	
⑦	Electrical Ratings	Static 2ft : 49Vdc, 0.2A Static 4ft : 49Vdc, 0.4A

6. Packing Structure

a) Quantity

Product	Packing	Quantity (ea)	Weight (kg)	Remark
Static White 2ft	Tray	15	12.0	Weight (includes Modules, Trays and a Box)
	Outer Box	300		
	Pallet	7200	-	
Static White 4ft	Tray	15	12.9	Weight (includes Modules, Trays and a Box)
	Outer Box	150		
	Pallet	2250	-	

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 cleaning is required, IPA is recommended as the cleaning agent. Some solvent-based cleaning agent may damage the silicone resins used in the product.
- 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 carefully selected.
- 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.

Appendix

1. Applicable Solid Wires

a) Strip details

Wiring method	Push In
Cross section [solid]	0.2-0.75mm ²
Cross Section [AWG]	24-18
Strip length	8.0 ±1mm
Conductor entry angle to the PCB	0°

※ outside insulation diameter Φ2.1mm Max.

b) Material details

Temperature stability	-40°C ~ +105°C
Flammability category, based on UL94	V0
Insulating material group	I
Insulating material	PPA-GF

c) Important processing notes

Depending on the SMD soldering process and associated parameters a minor discoloration might occur. However, this will not influence the functionality.

Appendix

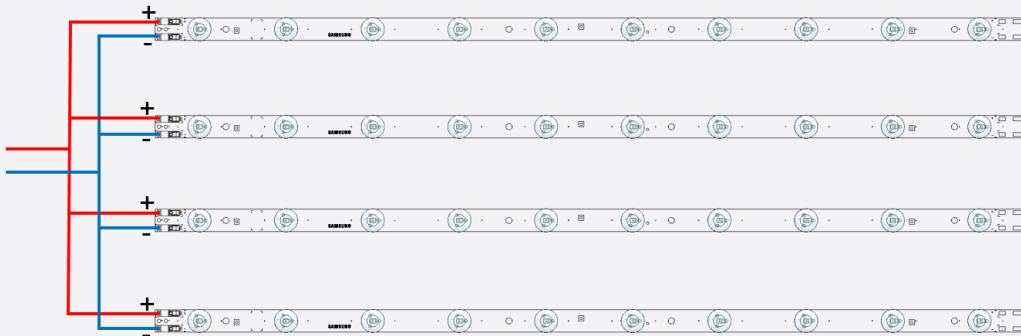
2. Connection

a) Max configuration

Product	Max parallel	Max series	Remark
Static White 2ft	10 bar	4 bar	Operating current / module = 88mA
Static White 4ft	10 bar	4 bar	Operating current / module = 176mA

b) Condition of parallel connection

- Allowed condition



- Not allowed condition



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 semiconductor and LED solutions. For the latest news, please visit the Samsung Newsroom at news.samsung.com

Copyright © 2019 Samsung Electronics Co., Ltd. All rights reserved.
Samsung Electronics reserves the right to modify, at its sole discretion, the design, packaging, specifications, and features shown herein without notice at any time.

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