

Datasheet

MODEL	CRI	CCT	SEC CODE
Standard Back-lit H.E Static White 2ft	80	30/35/40/5000K	SI-B8X041500WW
	90	30/35/40/5000K	SI-B9X041500WW
Standard Back-lit H.E Static White 4ft	80	30/35/40/5000K	SI-B8X081B00WW
	90	30/35/40/5000K	SI-B9X081B00WW

SAMSUNG				CUSTOMER
DEVELOP.	PRODUCT MANAGER	QA(DQA)	SALES	

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LED Module

Standard Back-lit H.E



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1. Product Code Information

- Static White 2ft

CRI	Nominal CCT(K)	Product Code
80	3000	SI-B8V041500WW
	3500	SI-B8U041500WW
	4000	SI-B8T041500WW
	5000	SI-B8R041500WW
90	3000	SI-B9V041500WW
	3500	SI-B9U041500WW
	4000	SI-B9T041500WW
	5000	SI-B9R041500WW

- Static White 4ft

CRI	Nominal CCT(K)	Product Code
80	3000	SI-B8V081B00WW
	3500	SI-B8U081B00WW
	4000	SI-B8T081B00WW
	5000	SI-B8R081B00WW
90	3000	SI-B9V081B00WW
	3500	SI-B9U081B00WW
	4000	SI-B9T081B00WW
	5000	SI-B9R081B00WW

2. Characteristics (Static 2ft $I_F=110\text{mA}$, Static 4ft $I_F=220\text{mA}$, $t_p=40^\circ\text{C}$)

a) Basic Information

Item	Unit	Rating	Remark
Rated Lifetime	Hour	>50,000	L70B50 @Static 2ft, $t_p < 60^\circ\text{C}$, $I_F=110\text{mA}$ L70B50 @Static 4ft, $t_p < 60^\circ\text{C}$, $I_F=220\text{mA}$
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	725	780	-	$I_F = 110\text{mA}$ $t_p = 40^\circ\text{C}$
	3500		750	805	-	
	4000		770	830	-	
	5000		770	830	-	
Luminous Efficacy	3000	lm/W	162	174	-	
	3500		167	179	-	
	4000		172	185	-	
	5000		172	185	-	
Color Rendering Index (Ra)	-	-	80			
Operating Current (I_t)	-	mA		110	300	
Operating Voltage (V_t)	-	Vdc	38.7	40.8	43.0	$I_F = 110\text{mA}$ $t_p = 40^\circ\text{C}$
Power Consumption	-	W	4.3	4.5	4.7	

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: $\pm 5\%$

- Static White 2ft CRI90

Item	Nom.CCT (K)	Unit	Rating			Remark
			Min	Typ.	Max	
Luminous Flux (Φ_v)	3000	lm	600	650	-	$I_F = 110\text{mA}$ $t_p = 40^\circ\text{C}$
	3500		620	670	-	
	4000		640	700	-	
	5000		640	700	-	
Luminous Efficacy	3000	lm/W	134	145	-	
	3500		138	149	-	
	4000		143	156	-	
	5000		143	156	-	
Color Rendering Index (Ra)	-	-	90			-
Operating Current (I_t)	-	mA		110	300	-
Operating Voltage (V_t)	-	Vdc	38.7	40.8	43.0	$I_F = 110\text{mA}$ $t_p = 40^\circ\text{C}$
Power Consumption	-	W	4.3	4.5	4.7	

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: $\pm 5\%$

- Static White 4ft CRI80

Item	Nom.CCT (K)	Unit	Rating			Remark
			Min	Typ.	Max	
Luminous Flux (Φ_v)	3000	lm	1450	1560	-	$I_F = 220\text{mA}$ $t_p = 40^\circ\text{C}$
	3500		1500	1610	-	
	4000		1540	1660	-	
	5000		1540	1660	-	
Luminous Efficacy	3000	lm/W	162	174	-	
	3500		167	179	-	
	4000		172	185	-	
	5000		172	185	-	
Color Rendering Index (Ra)	-	-	80			-
Operating Current (I_t)	-	mA		220	600	-
Operating Voltage (V_t)	-	Vdc	38.7	40.8	43.0	$I_F = 220\text{mA}$ $t_p = 40^\circ\text{C}$
Power Consumption	-	W	8.5	9.0	9.5	

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 CRI90

Item	Nom.CCT (K)	Unit	Rating			Remark
			Min	Typ.	Max	
Luminous Flux (Φ_v)	3000	lm	1200	1300	-	$I_F = 220\text{mA}$ $t_p = 40^\circ\text{C}$
	3500		1240	1340	-	
	4000		1280	1400	-	
	5000		1280	1400	-	
Luminous Efficacy	3000	lm/W	134	145	-	
	3500		138	149	-	
	4000		143	156	-	
	5000		143	156	-	
Color Rendering Index (Ra)	-	-	90			-
Operating Current (I_t)	-	mA		220	600	-
Operating Voltage (V_t)	-	Vdc	38.7	40.8	43.0	$I_F = 220\text{mA}$ $t_p = 40^\circ\text{C}$
Power Consumption	-	W	8.5	9.0	9.5	

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-B8V041500WW SI-B8V081B00WW	3000	CIE x	0.4268	0.4390	0.4465	0.4337	Static 2ft : I _F =110mA Static 4ft : I _F =220mA t _p = 25°C
		CIE y	0.3900	0.3942	0.4095	0.4051	
		Center	0.4365		0.3997		
SI-B8U041500WW SI-B8U081B00WW	3500	CIE x	0.4009	0.4137	0.4203	0.4070	
		CIE y	0.3774	0.3835	0.4001	0.3936	
		Center	0.4105		0.3887		
SI-B8T041500WW SI-B8T081B00WW	4000	CIE x	0.3767	0.3896	0.3941	0.3807	
		CIE y	0.3660	0.3738	0.3892	0.3810	
		Center	0.3853		0.3775		
SI-B8R041500WW SI-B8R081B00WW	5000	CIE x	0.3417	0.3427	0.3534	0.3521	
		CIE y	0.3428	0.3556	0.3641	0.3512	
		Center	0.3475		0.3534		

Notes:

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

- Static White 2ft, 4ft CRI90

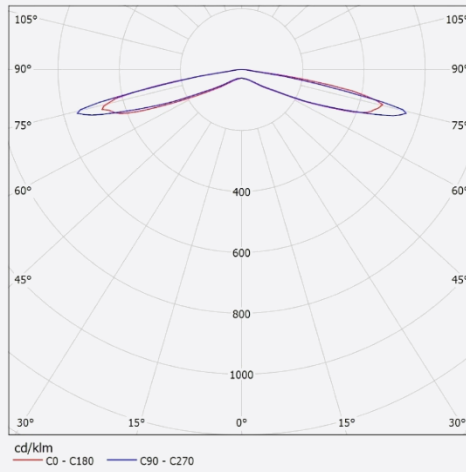
Model Code	Nom. CCT (K)	CIE 1931 Chromaticity Coordinates				Remark	
SI-B9V041500WW SI-B9V081B00WW	3000	CIE x	0.4199	0.4321	0.4396	0.4269	Static 2ft : I _F =110mA Static 4ft : I _F =220mA t _p = 25°C
		CIE y	0.3837	0.3879	0.4032	0.3988	
		Center	0.4296		0.3934		
SI-B9U041500WW SI-B9U081B00WW	3500	CIE x	0.3946	0.4074	0.4140	0.4007	
		CIE y	0.3707	0.3769	0.3935	0.3869	
		Center	0.4042		0.3820		
SI-B9T041500WW SI-B9T081B00WW	4000	CIE x	0.3724	0.3852	0.3897	0.3763	
		CIE y	0.3627	0.3705	0.3858	0.3776	
		Center	0.3809		0.3742		
SI-B9R041500WW SI-B9R081B00WW	5000	CIE x	0.3353	0.3363	0.3470	0.3457	
		CIE y	0.3344	0.3471	0.3556	0.3427	
		Center	0.3411		0.3449		

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

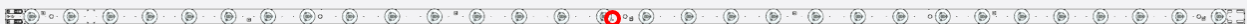
Item	Nominal(t_p)*	Life**	Max(t_c)***	Unit
Temperature	40	60	85	°C

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 9)
 Please use heat-sink(or heat dissipation solution) with proper thermal capacity(operating wattage).

f) Thermal Measurement

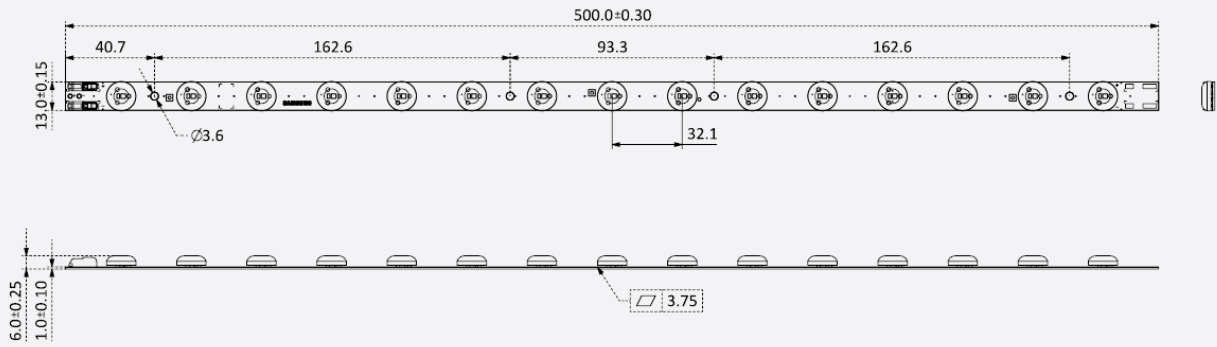
Performance temperatures are measured on "Tc point" as indicated on the module.



3. Structure and Assembly

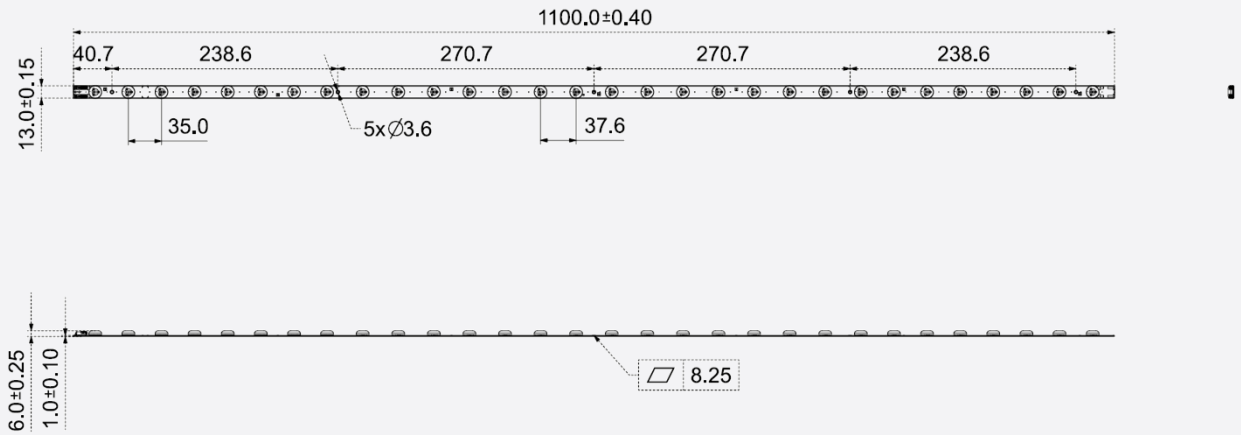
a) Appearance & Dimension

- 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	22.8	±1.14

- 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	48.4	±2.42


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

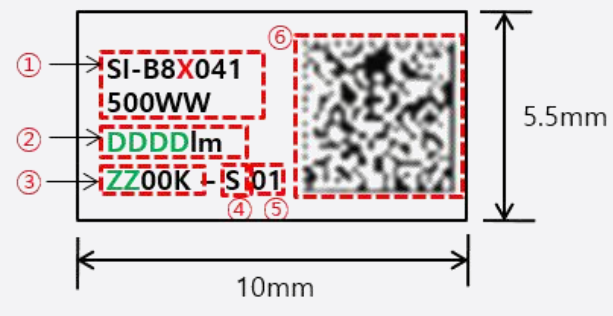
- Static White 2ft : 5S x 3P
- Static White 4ft : 5S x 6P

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



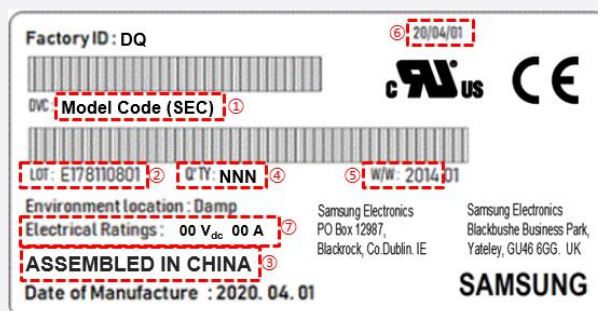
Number	Item	Remark
①	Model code	Refer to page 3
②	Lumen	
③	Color temperature	ZZ = 30, 35, 40, 50
④	LED maker	-S (Samsung)
⑤	Bin rank	00-ZZ
⑥	QR Code	2ft : SI-BXX041500WW_U321100001ZZ00K-S01 4ft : SI-BXX081B00WW_U321100001ZZ00K-S01

b) Tray & MBB Bag Label



Number	Item	Remark
①	Model Code	Refer to page 3
②	LOT ID	
③	Quantity	Refer to page 15
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 15
⑤	Describe production week	
⑥	Date of Issue	
⑦	Electrical Ratings	2ft : 49 V _{dc} , 0.3A 4ft : 49 V _{dc} , 0.6A

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.

Legal and additional information.

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