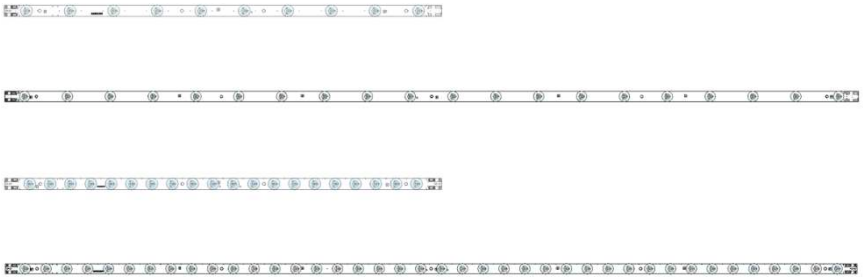
LED Module

Standard Back-lit S.E



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1. Product Code Information

- Static White 2ft

Nominal CCT(K)	Product Code
3000	SI-B8V031500WW
3500	SI-B8U031500WW
4000	SI-B8T031500WW
5000	SI-B8R031500WW

- Static White 4ft

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

- Tunable white 2ft

Nominal CCT(K)	Product Code
2700K+6500K	SI-B8A031500WW

- Tunable white 4ft

Nominal CCT(K)	Product Code
2700K+6500K	SI-B8A071B00WW

2. Characteristics

(Static 2ft I_F=88mA, Static 4ft I_F=176mA,

Tunable 2ft I_F=88mA/Ch, Tunable 4ft I_F=176mA/Ch, t_p=40ºC)

a) Basic Information

Item	Unit	Rating	Remark
Rated Lifetime	Hour	>50,000	L70B50 @Static 2ft, t_p <60℃,I_F=88mA L70B50 @Static 4ft, t_p <60℃,I_F=176mA L70B50 @Tunable 2ft, t_p <60℃,I_F=88mA/Ch L70B50 @Tunable 4ft, t_p <60℃,I_F=176mA/Ch
Ingress Protection (IP)	-	no rating	
Ambient / Operating Temperature (t_{amb})	ºC	-20 ~ +50	
Storage Temperature	ºC	-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

Item	Nom.CCT (K)	Unit	Rating			Remark
			Min	Typ.	Max	
Luminous Flux (Φ_v)	3000	lm	565	610	-	I_F = 88mA t_p = 40ºC
	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_f)	-	mA		88	200	-
Operating Voltage (V_f)	-	Vdc	39.4	41.5	43.7	I_F = 88mA t_p = 40ºC
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: ±7 %, CRI: ±3.0, Voltage: ±0.3 V, Power Consumption: ±0.3W

- Static White 4ft

Item	Nom.CCT (K)	Unit	Rating			Remark
			Min	Typ.	Max	
Luminous Flux (Φ_v)	3000	lm	1130	1220	-	I_F = 176mA t_p = 40ºC
	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_f)	-	mA		176	400	-
Operating Voltage (V_f)	-	Vdc	39.4	41.5	43.7	I_F = 176mA t_p = 40ºC
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: ±7 %, CRI: ±3.0, Voltage: ±0.3 V, Power Consumption: ±0.3W

- Tunable White 2ft

Item	Nom.CCT (K)	Unit	Rating			Remark
			Min	Typ.	Max	
Luminous Flux (Φ_v)	2700	lm	540	580	-	I_F = 88mA/Ch t_p = 40ºC
	6500		595	640	-	
Luminous Efficacy	2700	lm/W	148	159	-	
	6500		163	175	-	
Color Rendering Index (Ra)	-	-	80			-
Operating Current (I_f)	-	mA		88	200	Per Channel
Operating Voltage (V_f)	2700	Vdc	39.4	41.5	43.7	I_F = 88mA/Ch t_p = 40ºC
	6500		39.4	41.5	43.7	
Power Consumption	2700	W	3.5	3.7	3.8	
	6500		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: ±7 %, CRI: ±3.0, Voltage: ±0.3 V, Power Consumption: ±0.3W

- Tunable White 4ft

Item	Nom.CCT (K)	Unit	Rating			Remark
			Min	Typ.	Max	
Luminous Flux (Φ_v)	2700	lm	1080	1160	-	I_F = 176mA/Ch t_p = 40ºC
	6500		1190	1280	-	
Luminous Efficacy	2700	lm/W	148	159	-	
	6500		163	175	-	
Color Rendering Index (Ra)	-	-	80			-
Operating Current (I_f)	-	mA		176	400	Per Channel
Operating Voltage (V_f)	2700	Vdc	39.4	41.5	43.7	I_F = 176mA/Ch t_p = 40ºC
	6500		39.4	41.5	43.7	
Power Consumption	2700	W	6.9	7.3	7.7	
	6500		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: ±7 %, CRI: ±3.0, Voltage: ±0.3 V, Power Consumption: ±0.3W

c) Color Coordinate

- Static White 2ft, 4ft

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 = 25ºC
		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

- Tunable White 2ft, 4ft

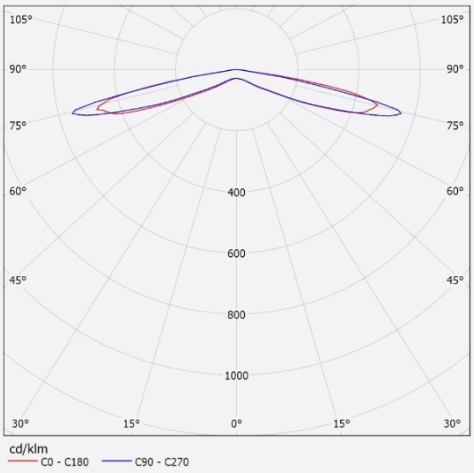
Model Code	Nom. CCT (K)	CIE 1931 Chromaticity Coordinates					Remark
SI-B8A031500WW SI-B8A071B00WW	2700	CIE x	0.4516	0.4633	0.4717	0.4597	Tunable 2ft : I_F=88mA/Ch Tunable 4ft : I_F=176mA/Ch t_p = 25ºC
		CIE y	0.3995	0.4023	0.4173	0.4145	
		Center	0.4616		0.4084		
	6500	CIE x	0.3120	0.3206	0.3195	0.3107	
		CIE y	0.3185	0.3270	0.3355	0.3267	
		Center	0.3157		0.3269		

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	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).

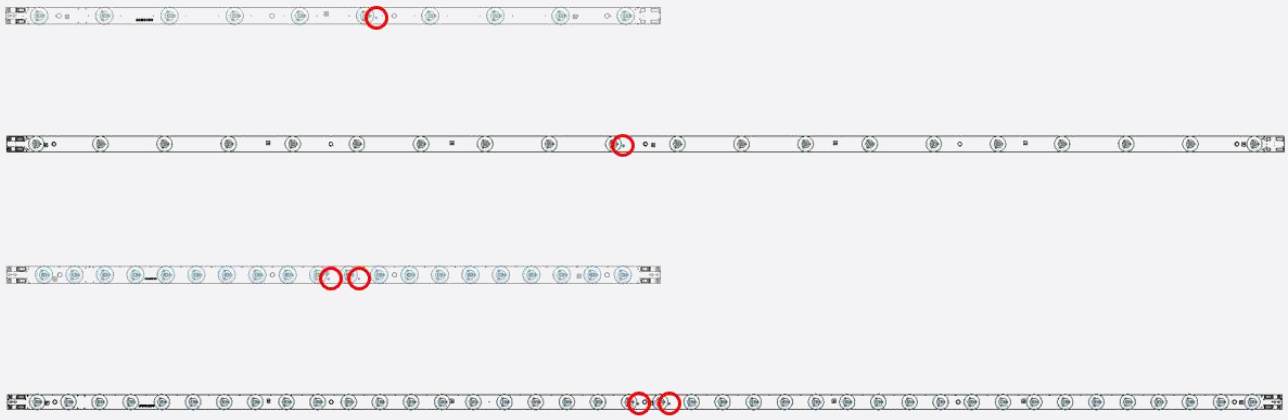
*** Rated maximum temperature, highest permissible temperature to avoid safety risk (t_c).

All temperatures are measured at the designated “Tc point” as indicated on the module. (See page 9)

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

f) Thermal Measurement

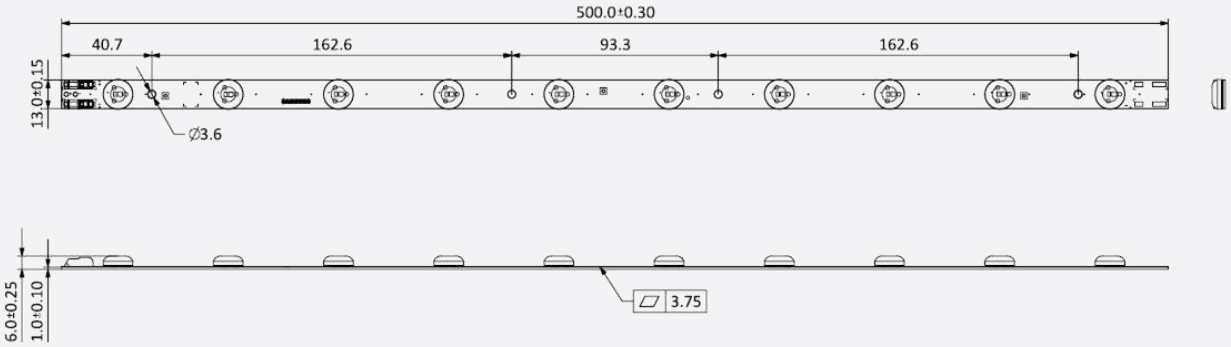
Performance temperatures are measured on “Tc point” as indicated on the module.



3. Structure and Assembly

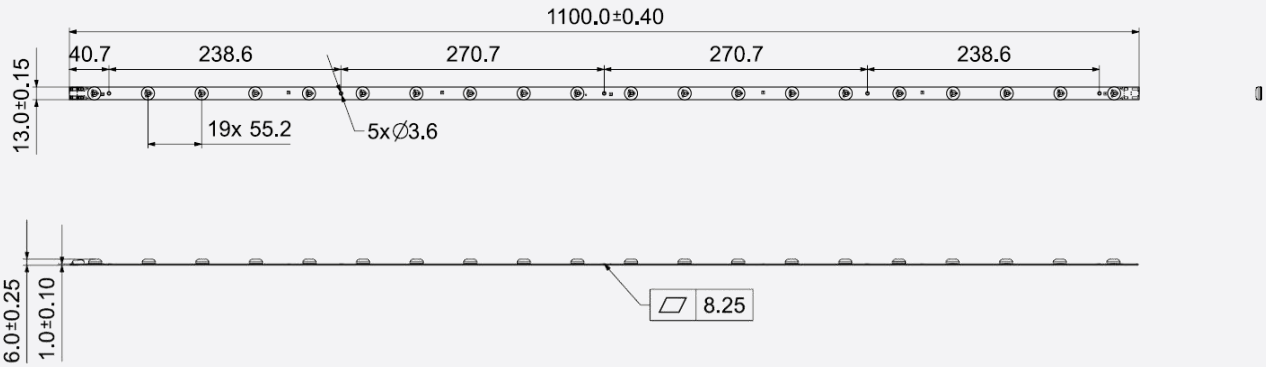
a) Appearance & Dimension

- Static White 2ft



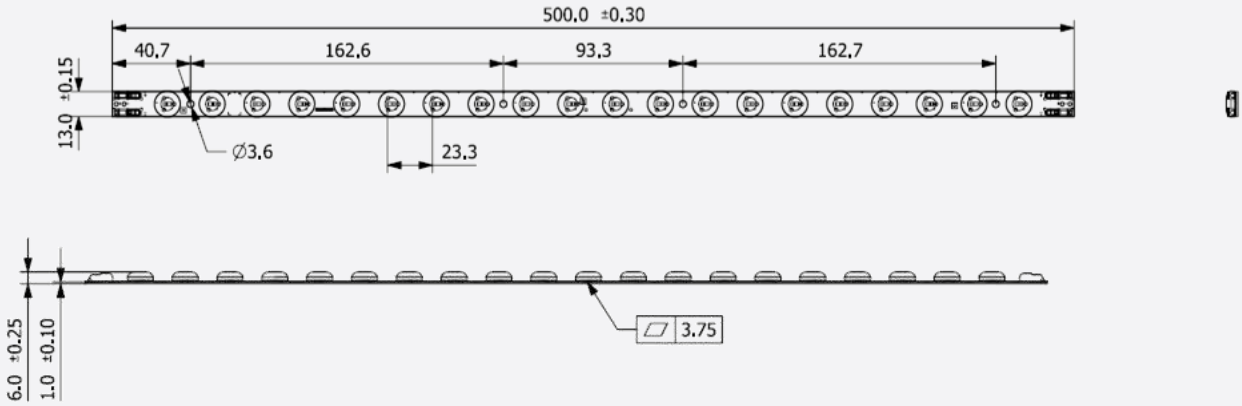
Dimension	Unit	Specification	Tolerance
Module Length	mm	500.0	±0.30
Module Width	mm	13.0	±0.15
Module Height	mm	6.0	±0.25
PCB Thickness	mm	1.0	±0.10
Module Weight	g	20.0	±1.0

- Static White 4ft



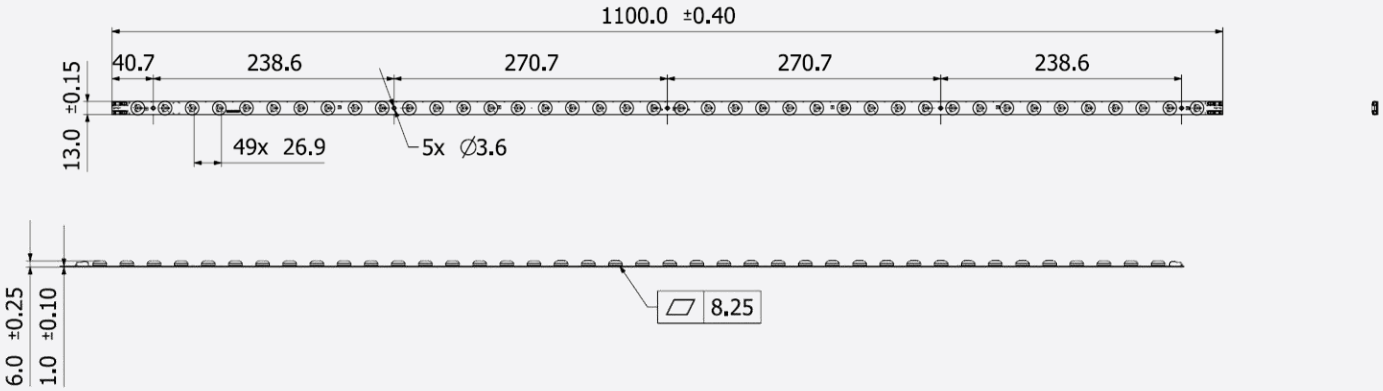
Dimension	Unit	Specification	Tolerance
Module Length	mm	1100.0	±0.40
Module Width	mm	13.0	±0.15
Module Height	mm	6.0	±0.25
PCB Thickness	mm	1.0	±0.10
Module Weight	g	42.7	±2.14

- Tunable 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	26.5	±1.33

- Tunable 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	55.0	±2.75

b) Structure

Item	Specification
LED	LM283B Plus Middle Power LED
PCB	Material : copper, solder mask, epoxy
Connector	Reworkable poke-in connector type
Wire	24~18 AWG ; terminal strip length of 7.5~8.5mm (Appendix 1)

c) Schematic Circuit

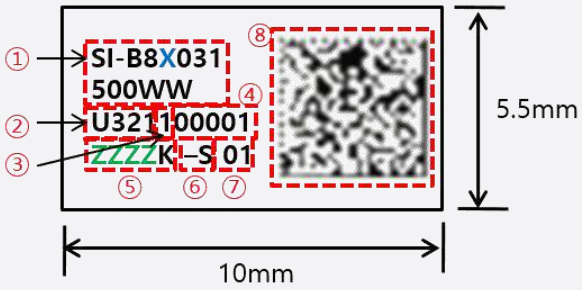
- Static White 2ft : 5S x 2P
- Static White 4ft : 5S x 4P
- Tunable White 2ft : 5S x 2P/Ch
- Tunable White 4ft : 5S x 4P/Ch

4. Certification and Declaration

Item	Compliant to	Remark
Declaration	RoHS	Hazardous Substance & Material

5. Label Structure

a) Module Label

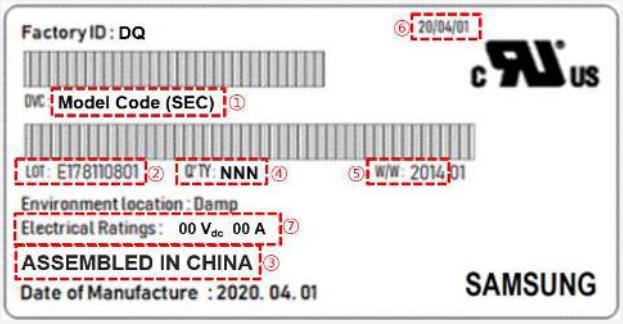


Number	Item	Remark
①	Model code	Refer to page 3
②	SMT date	U321 (2020-March-21th)
③	SMT Line No.	1~9, A(10), B(11), C(12), D(13), E(14), F(15)
④	Serial No.	00001~99999; Setting "00001" every working day
⑤	Color temperature	Static : ZZZZ = 3000, 3500, 4000, 5000 Tunable : ZZZZ = 2765
⑥	LED maker	-S (Samsung)
⑦	Bin rank	00~ZZ
⑧	QR Code	2ft : SI-B8X031500WW_U321100001ZZZZK-S01 4ft : SI-B8X071B00WW_U321100001ZZZZK-S01

b) Tray & MBB Bag Label

Number	Item	Remark
①	Model Code	Refer to page 3
②	LOT ID	
③	Quantity	Refer to page 17
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 17
⑤	Describe production week	
⑥	Date of Issue	
⑦	Electrical Ratings	Static 2ft : 49Vdc, 0.2A Static 4ft : 49Vdc, 0.4A Tunable 2ft : 49Vdc, 0.4A Tunable 4ft : 49Vdc, 0.8A

6. Packing Structure

a) Quantity

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

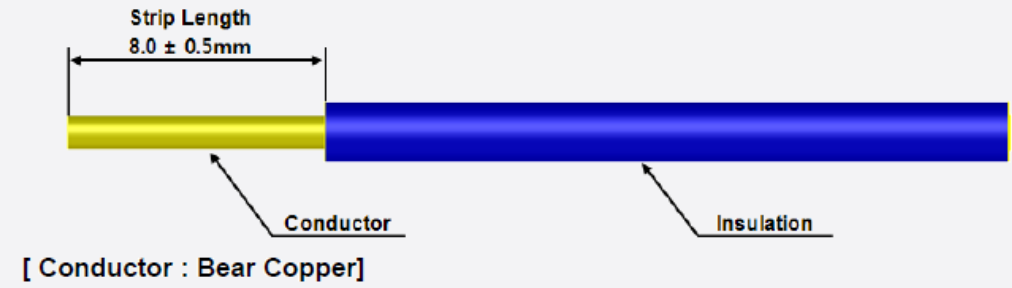
1. Applicable Solid Wires

a) Applicable solid wires only

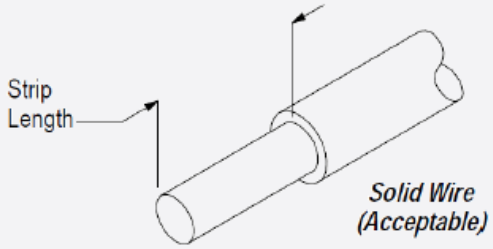
Wire Range AWG NO.	Number of Conductors / Diameter of a conductors (NO. / mm)	Insulation Diameter (mm)	Conductor Type
24	1 / 0.51	1.35	Solid
22	1 / 0.64	1.48	
20	1 / 0.81	1.65	
18	1 / 1.02	1.86	

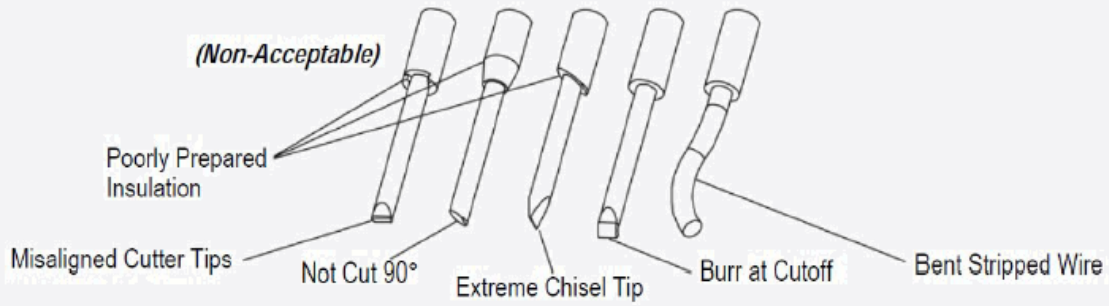
※ outside insulation diameter Φ2.1mm Max.

b) Wire strip length



[Conductor : Bear Copper]





Appendix

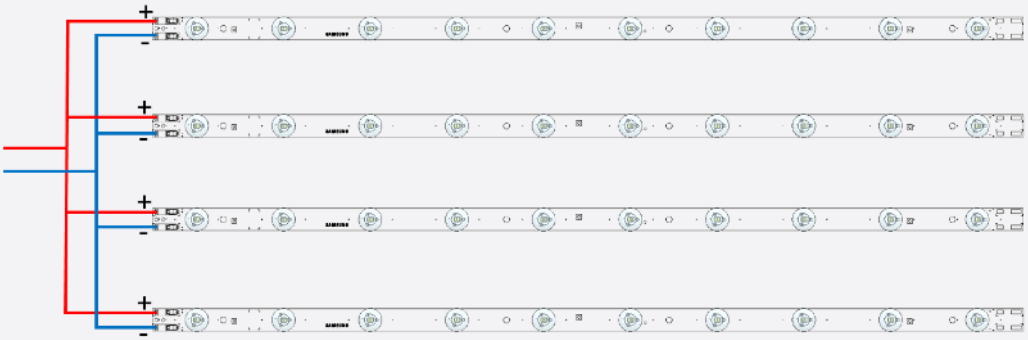
2. Connection

a) Max configuration

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

b) Condition of parallel connection

- Allowed condition



- Not allowed condition

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Legal and additional information.

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