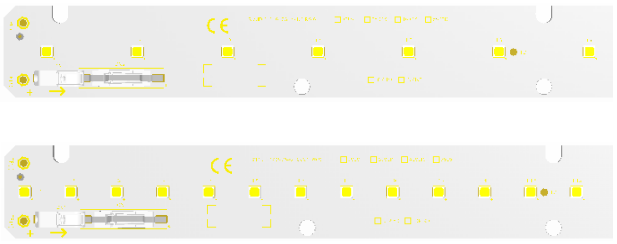
Reference Module

The Linear HE series utilizes Seoul's high performing and cost effective 3030C LEDs to deliver efficacies up to 203 Lm/W at typical driving currents. This solution features uniformity of light and color and enables easy installation with a Zhaga compatible mounting pattern.



Applications:

Features:

- High efficacy, long life
- Optimized for the Book 7 of ZHAGA standard
- Flexible scalability with 560mm HE series
- 3 SDCM
- ROHS Compliant

Key Applications:

- Troffer Retrofit
- High Bay
- LED Panel
- Channel

Product Selection: SMJD-1103012G-XXN1 I_F = 275mA, T_c = 25ºC

CCT	CRI	Flux		Dimension	Connector	Order Code
		Min.	Typ.			
3000	80	520	550	279.0 x 23.6	Normal Reverse	SMJD-1103012G-XXN100A55G038All SMJD-1103012G-XXN101A55G038All
4000		580	610		Normal Reverse	SMJD-1103012G-XXN100A61E038All SMJD-1103012G-XXN101A61E038All
5000					Normal Reverse	SMJD-1103012G-XXN100A61C038All SMJD-1103012G-XXN101A61C038All

Product Selection: SMJD-2206024G-XXN1 I_F = 275mA, T_c = 25ºC

CCT	CRI	Flux		Dimension	Connector	Order Code
		Min.	Typ.			
3000	80	1040	1120	279.0 x 23.6	Normal Reverse	SMJD-2206024G-XXN100B12G038All SMJD-2206024G-XXN101B12G038All
4000		1160	1220		Normal Reverse	SMJD-2206024G-XXN100B22E038All SMJD-2206024G-XXN101B22E038All
5000					Normal Reverse	SMJD-2206024G-XXN100B22C038All SMJD-2206024G-XXN101B22C038All

Electro Optical Characteristics: SMJD-1103012G-XXN1 I_F = 275mA, T_c = 25ºC

Parameter	Symbol	Value			Unit	Remark
		Min.	Typ.	Max.		
Luminous Flux	Φ_V [2]	520	550	-	lm	G
		580	610	-		C,E
Correlated Color Temperature [3]	CCT	4745	5028	5311	K	C
		3710	3985	4260		E
		2870	3045	3220		G
CRI	Ra	80	-	-	-	-
Input Voltage	VF	10.5	10.9	11.3	VDC	@275mA
Power Consumption	P	2.9	3.0	3.1	W	
Efficiency	LPW	-	183	-	Lm/W	G
		-	203	-		C,E

Electro Optical Characteristics: SMJD-2206024G-XXN1 I_F = 275mA, T_c = 25ºC

Parameter	Symbol	Value			Unit	Remark
		Min.	Typ.	Max.		
Luminous Flux	Φ_V [2]	1040	1120	-	lm	G
		1160	1220	-		C,E
Correlated Color Temperature [3]	CCT	4745	5028	5311	K	C
		3710	3985	4260		E
		2870	3045	3220		G
CRI	Ra	80	-	-	-	-
Input Voltage	VF	21.0	21.8	22.6	VDC	@275mA
Power Consumption	P	5.8	6.0	6.2	W	
Efficiency	LPW	-	183	-	Lm/W	G
		-	203	-		C,E

Notes:

1 *Above data tested with constant typical current at T_c=25ºC.*

2 *Φ_V is the total luminous flux output measured with an integrated sphere.*

3 *Correlated Color Temperature is derived from the CIE 1931 Chromaticity diagram.*

4 *To use the module properly, recommend to drive the module by a Constant Current Source (CCS). But the Maximum output voltage of the CCS should be limited by referring this sheet.*

Absolute Maximum Operating Specification: T_c= 25ºC

Model	Parameter	Symbol	Unit	Value	Remark
SMJD-1103012G-XXN1	Power Consumption	P	W	6.9	
	Forward Voltage	V_F	V	11.6	
	Driving Current (2)	I_F	mA	600	
SMJD-2206024G-XXN1	Power Consumption	P	W	13.9	
	Forward Voltage	V_F	V	23.2	
	Driving Current (2)	I_F	mA	600	
All	Operating Temperature (3)	T_C	ºC	- 40 ~ 85	Reference point
	Storage Temperature	T_{stg}	ºC	- 40 ~ 100	With no power
	ESD Sensitivity	-	KV	±8	IEC Air
				±4	HBM

Notes:

1 *Above data tested with constant typical current at T_c=25ºC.*

2 *Φ_V is the total luminous flux output measured with an integrated sphere.*

3 *Correlated Color Temperature is derived from the CIE 1931 Chromaticity diagram.*

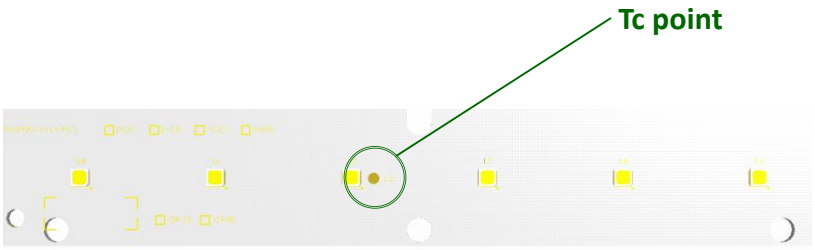
4 *To use the module properly, recommend to drive the module by a Constant Current Source (CCS). But the Maximum output voltage of the CCS should be limited by referring this sheet.*

Notes:

**Colors fully compliant with the CIE requested color temperatures on the following table:*

Correlated Color Temperature	Nominal CCT	CCT (K)
C	5000 K	5028 ± 283
E	4000 K	3985 ± 275
G	3000 K	3045 ± 175

Illustration: How to predict components temperature



* Recommended Tc Testing point

Notes:

1 *The modules must be operated within the operating conditions stated in the Absolute Maximum Operating Specifications.*

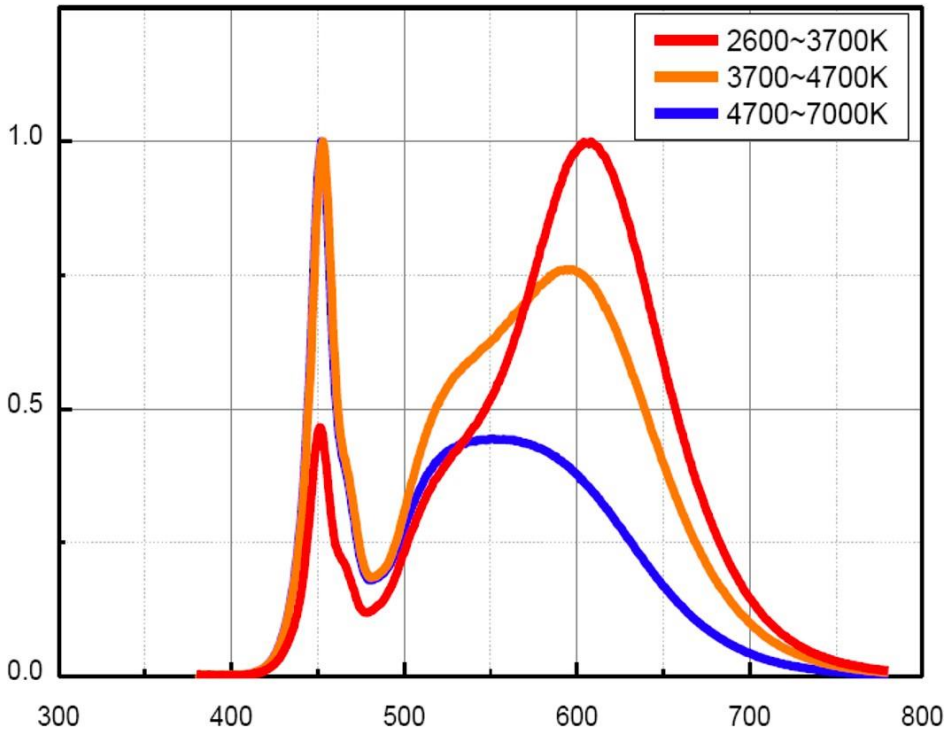
2 *Please use a Constant Current Source (CCS) to drive the module.*

3 *Operating temperature was tested at the assigned Tc point on the PCB.*

4 *To ensure the module works properly, T_C should refer to "Absolute Maximum Operating Specification".*

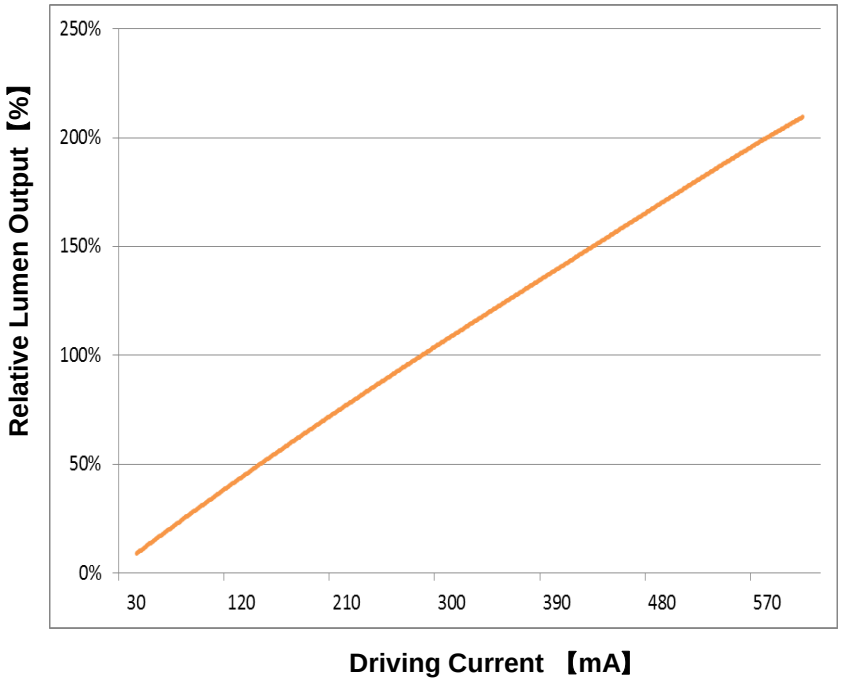
Relative Spectral Distribution

• Relative Spectral Distribution vs. Wavelength

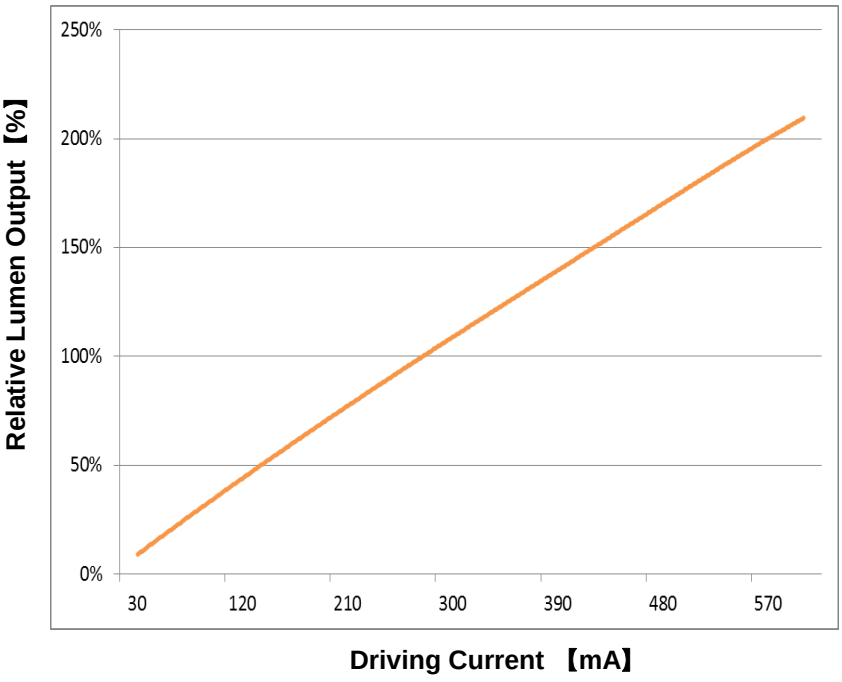


• Scale ratio curve for related lumen output VS driving current, T_c = 25 ºC

SMJD-1103012G-XXN1

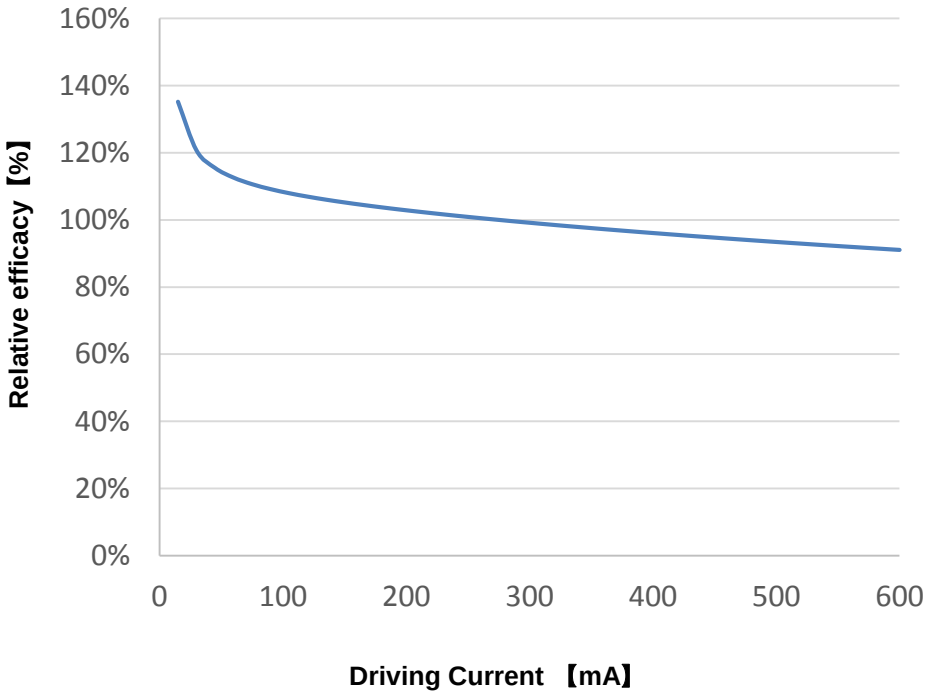


SMJD-2206024G-XXN1

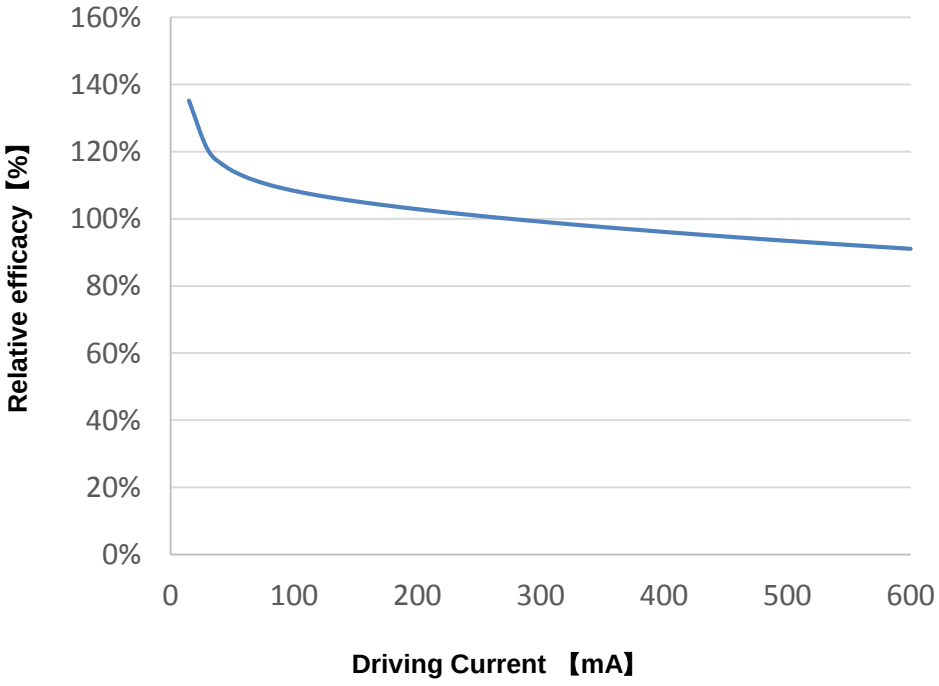


• Scale ratio curve for related efficacy VS driving current, T_c = 25 ºC

SMJD-**1103012G**-XXN1

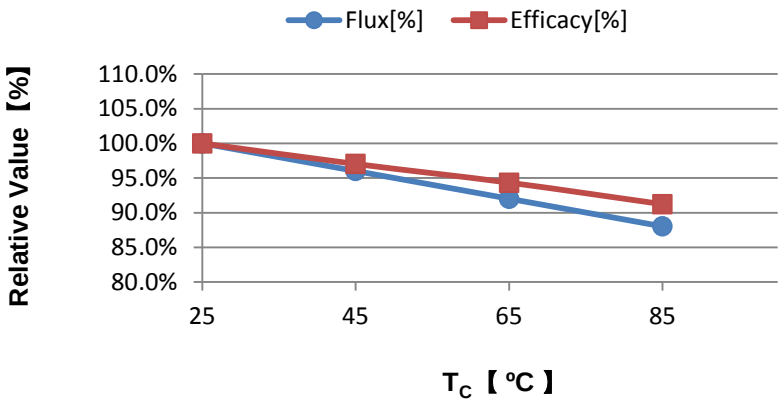


SMJD-**2206024G**-XXN1



Flux and Efficacy Versus Temperature at T_C(at I_F nominal)

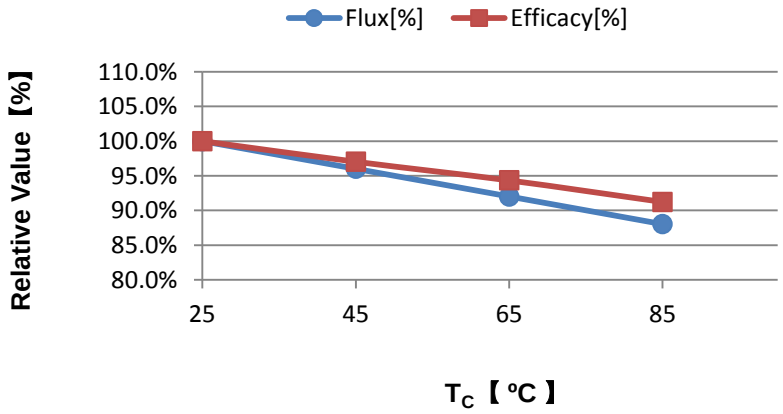
SMJD-1103012G-XXN1, I_F = 275mA



T_C [ºC]	Flux[%]	Efficacy[%]
25	100	100
45	96.0	97.0
65	92.0	94.3
85	88.0	91.2

Flux and Efficacy Versus Temperature at T_C(at I_F nominal)

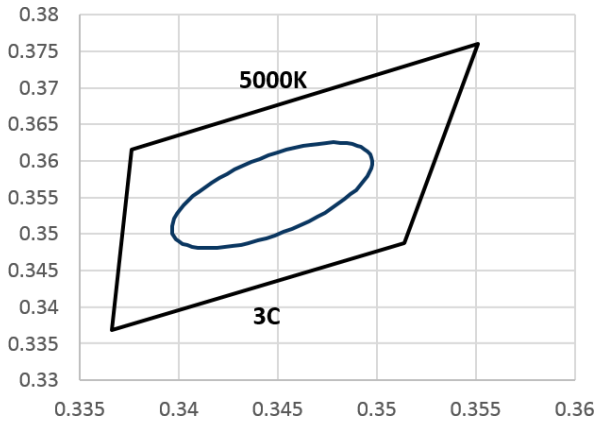
SMJD-2206024G-XXN1, I_F = 275mA



T_C [ºC]	Flux[%]	Efficacy[%]
25	100	100
45	96.0	97.0
65	92.0	94.3
85	88.0	91.2

Color Bin Structure

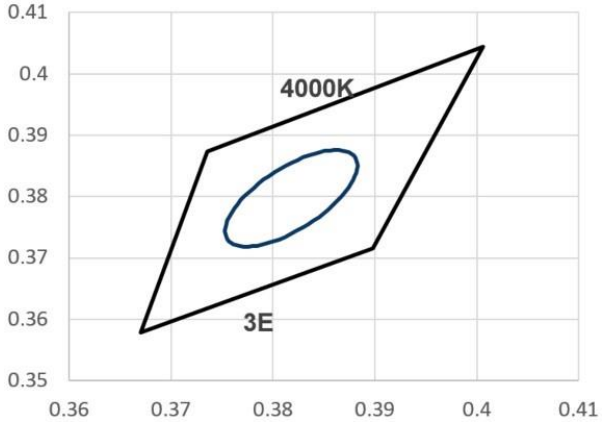
CIE Chromaticity Diagram (Cool white), T_c = 25 ºC



5000K 3 Step Ellipse

3C				
x	y	a	b	theta
0.3447	0.3553	0.0081	0.0035	60

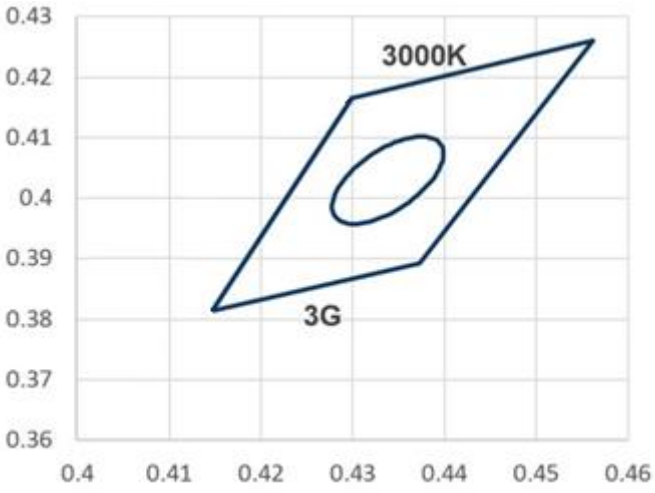
CIE Chromaticity Diagram (Nature white), T_c = 25 ºC



4000K 3 Step Ellipse

3E				
x	y	a	b	theta
0.3818	0.3797	0.0094	0.004	53

CIE Chromaticity Diagram (Warm white), T_c = 25 ºC

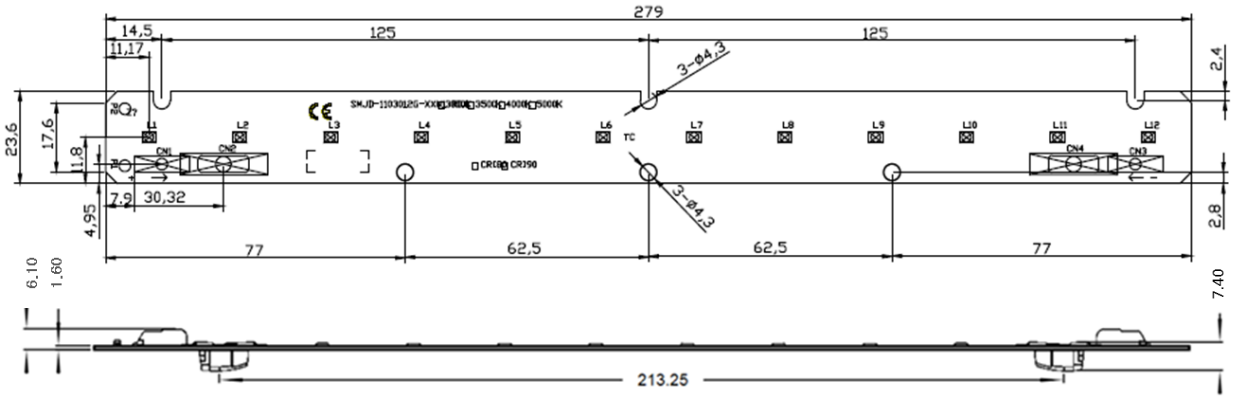


3000K 3 Step Ellipse

3G				
x	y	a	b	theta
0.4338	0.4030	0.0085	0.0041	53

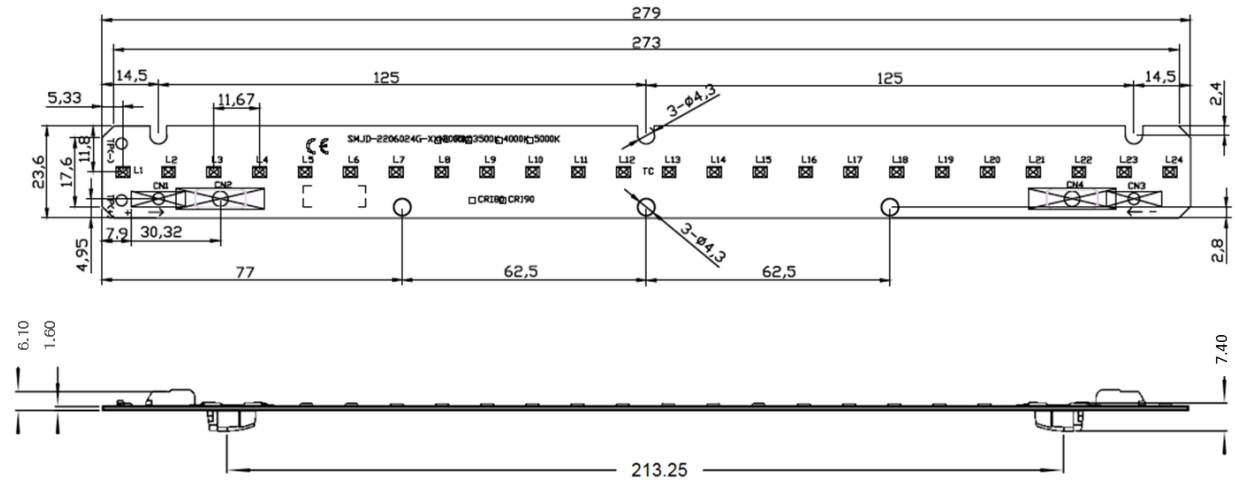
Mechanical Dimensions

SMJD-1103012G-XXN1



Dimension		Specification	Tolerance	Unit
Module Length		279.0	±0.3	mm
Module Width		23.6	±0.3	
Module Height	Normal	6.1	±0.3	
	Reverse	7.4	±0.3	
PCB Thickness		1.6	±0.1	

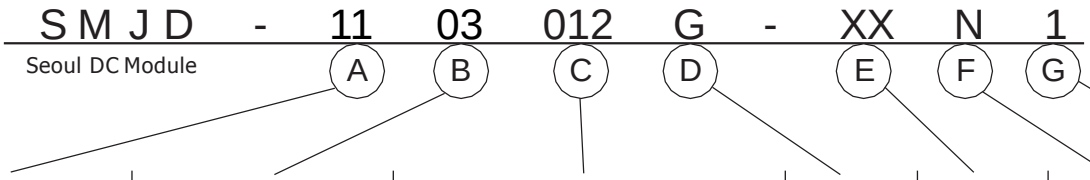
SMJD-2206024G-XXN1



Dimension		Specification	Tolerance	Unit
Module Length		279.0	±0.3	mm
Module Width		23.6	±0.3	
Module Height	Normal	6.1	±0.3	
	Reverse	7.4	±0.3	
PCB Thickness		1.6	±0.1	

Product Nomenclature:

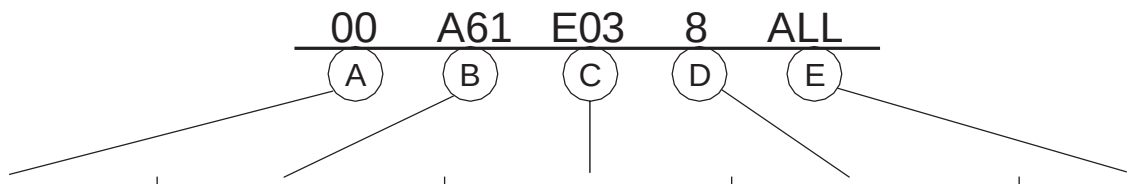
**Please refer to the following chart*



Voltage		Power		LED Qty			Type	Custom	Dimming	Etc
1	1	0	3	0	1	2	G	XX	N	1
0 *0V*	0 *0V*	0 *0W*	0 *0W*	0 *0ea*	0 *0ea*	0 *0ea*	G *3030*	XX *ref*	N *Norm*	1 *vers*
1 *10V*	1 *1V*	1 *10W*	1 *1W*	1 *100ea*	1 *10ea*	1 *1ea*			D *Dim*	
2 *20V*	2 *2V*	2 *20W*	2 *2W*	2 *200ea*	2 *20ea*	2 *2ea*			E *etc*	
3 *30V*	3 *3V*	3 *30W*	3 *3W*	3 *300ea*	3 *30ea*	3 *3ea*				
-	-	-	-	-	-	-				
9 *90V*	9 *9V*	9 *90W*	9 *9W*	9 *900ea*	9 *90ea*	9 *9ea*				
A *100V*		A *100W*		A *1000ea*						
B *110V*		B *110W*		B *1100ea*						
-		-		-						
Z *350V*		Z *350W*		Z *3500ea*						

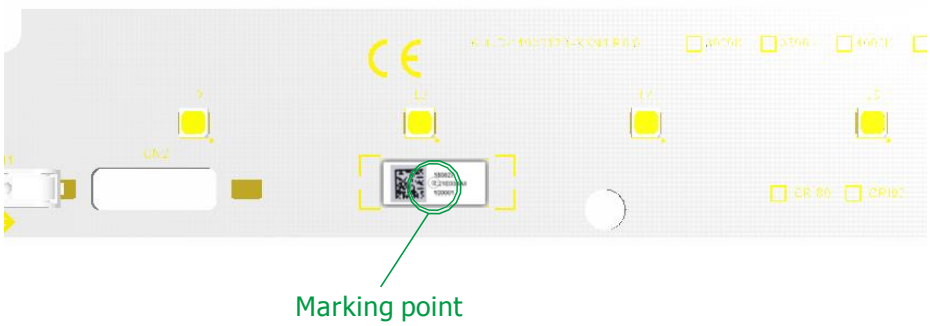
Product Nomenclature: Binning

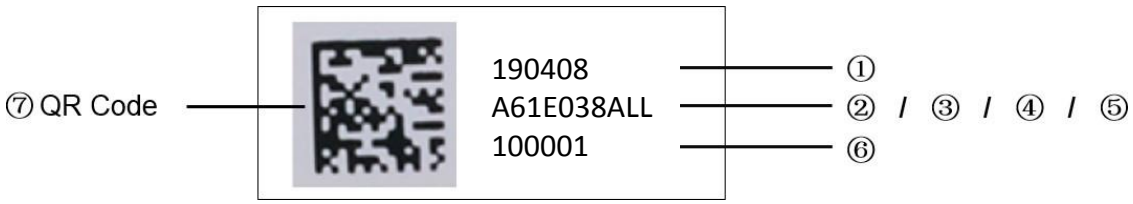
**Please refer to the following chart*



Connector Type	Flux Bin	CCT Bin	CRI Bin	VF Bin
00	A55	E03	8	ALL
00 *Normal*	**A55** *550 lm*	**G03** *3000k - 3 step*	**8** *CRI 80*	**All** *10.5 ~ 11.3V$_{DC}$*
01 *Reverse*	**A61** *610 lm*	**E03** *4000k - 3 step*		*21.0 ~ 22.6V$_{DC}$*
	B12 *1120lm*	**C03** *5000k - 3 step*		
	B22 *1220lm*			

Marking Information





No.	Item	Information	Digits	Remark
①	Date	YYMMDD	6 Digit	SMT date
②	Flux(1)	A61	3 Digit	A61=610lm
③	CCT	X03 | 3-step Mixing	3 Digit	X=C,E,G
④	CRI	8	1 Digit	CRI=80
⑤	V_F	ALL	3 Digit	
⑥	Lot No.	1	1 Digit	0~9,A~Z
	Sequence No.	00001	5 Digit	00001 ~ 99999
⑦	QR Code	QR Code	-	Please refer to below table

Note:

**Flux Bin - please refer to following chart for definitions:*

Flux Bin Definitions

Symbol	lm	Symbol	lm	Symbol	lm	Symbol	lm
A50	500	D50	3500	G50	6500	J50	9500
B50	1500	E50	4500	H50	7500	K20	10200
C50	2500	F50	5500	I50	8500	L00	11000

Module QR Code Information

QR Code Information								
Items	Factory	SAP Code	SMT Date	MP Information	Line No.	Lot No.	Product	Note
Digits	1 Digit	7 Digits	6 Digits	10 Digits	1 Digit	1 Digit	5 Digits	In Total 31 Digits
Information	*	*******	YYMMDD	A61E03 8ALL	1~9, A~Z	1~9, A~Z	00001	

Notes:

1 *QR coded information shall include the fields described in the table above.*

2 *Minimum size of QR code shall be 4.5 mm x 4.5 mm and a minimum QR code grade of 'C'.*
**'A' grading is preferred.*

3 *If the component is small to have a full label, it is acceptable to have only the QR code in minimum size of 6 mm by 6 mm printed on a label.*

4 *QR Code Example: ********190408A61E038ALL11100001*

Label Information

PO Number	**XXXXXX(1)**
Supplier Part Number	**SMJD-1103012G-XXN100A61E038ALL(2)**
Bin Code	**A61E038ALL(3)**
Quantity	**XX**
Country of Origin	**XX(4)**
Date Code	**YYYYWW(5)**
Lot Code	**YYMDDXXXXX- XXXXXXX(6)**
SEOUL	**SEOUL SEMICONDUCTOR CO.,LTD.**

Notes:
[1] This is customer's PO Number
[2] Please refer to SPEC page 10 (30 digit code)
[3] Please refer to SPEC page 10
[4] Country of Origin: 2 digit code . For example : Chinese Code: CN
[5] Date Code : YYYYWW : Packing Date: Year + Week
[6] Lot Code :
Initial of manufacture is refer to the 2D code rule.
YYMDD : Packing Date (Oct. : A, Nov. : B, Dec. : C)
X : Initial of Manufacturer
XXXX : Sealing Pack No.
XXXXXXX : SSC SAP Code
[7] It is attached to the top left corner of the box.

TOTAL Quantity

XX

SEOUL **SEOUL SEMICONDUCTOR CO.,LTD.**

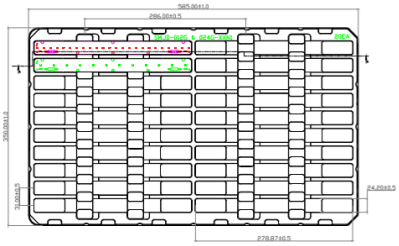
Notes:

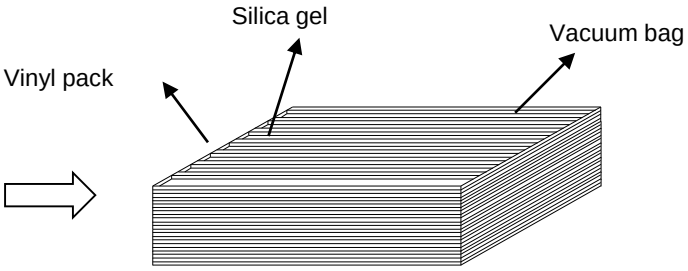
[1] Attached to the bottom right corner of the carton box.

Packaging Specification

Model	Tray		Box		Pallet	
	Size (mm)	Q'ty per tray (ea)	Size (mm)	Q'ty per box (ea)	Saze (mm)	Q'ty per pallet (ea)
SMJD-1103012G-XXN1	585 x 350 x 25.4	20	605 x 370 x 253	240	1200 x 1000	4800
SMJD-2206024G-XXN1						

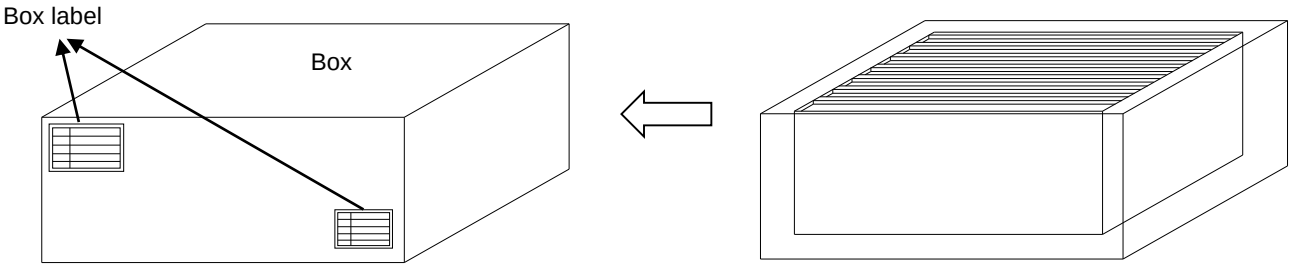
Note:
1pallet= 4boxes * 5lyaer=20boxes=4800ea





Vinyl pack = 12(13) Trays = 240bars(MAX)

(Top tray is used as a rid.)



1 Box = 12(13) Trays = 240bars (MAX)

Revision History

Revision	Date	Page	Remarks
Rev0.1	2020-03-13	All	Preliminary data sheet
Rev0.2	2020-03-24	13	Update the package information
Rev0.3	2020-12-29	7	Add efficacy vs driving current cure

Storage before use

1. When storing devices for a long period of time before usage, please following these guidelines.
   - *The devices should be stored in the anti-static bag that it was shipped in from Seoul-Semiconductor with opening*
   - *If the anti-static bag has been opened, re-seal preventing air and moisture from being present in the bag.*

SEOUL SEMICONDUCTOR

Company Information

Seoul Semiconductor (SeoulSemicon.com) manufacturers and packages a wide selection of light emitting diodes (LEDs) for the automotice, general illumination/ lighting, appliance, signage and back lighting markets. The company is the world's fifth largest LED supplier, holding more than 10,000 patents globally, while offering a wide range of LED technology and production capacity in areas such as "nPola", deep UV LEDs, "Acrich", the world's first commercially produced AC LED, and "Acrich MJT - Multi-Junction Technology", a proprietary family of high-voltage LEDs. The company's broad product portfolio includes a wide array of package and device choices such as Acrich, high-brightness LEDs, mid-power LEDs, side-view LEDs, through-hole type LED lamps, custom displays, and sensors. The company is vertically integrated from epitaxial growth and chip manufacture in it's fully owned subsidary, Seoul Viosys, through packaged LEDs and LED modules in three Seoul Semiconductor manufacturing facilities. Seoul Viosys also manufactures a wide range of unique deep-UV wavelength devices.

Legal Disclaimer

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