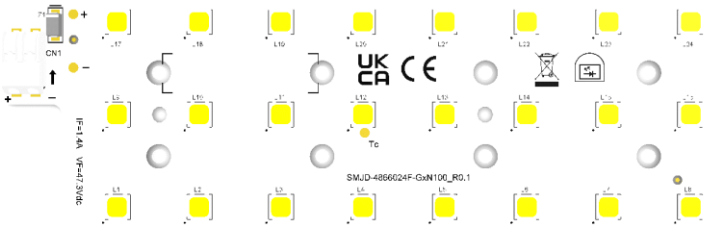
Specification

Item: LED - Module (for Lighting)	
Product Model	**SMJD-4866024F-GxN100**

	SSC			Customer
	Drawn	Checked	Approval	Approval
Signature	Wanhong. Chen	Jason.Zheng	Bright. Zhang	
Date	Sep.27, 2024	Sep.27, 2024	Sep.27, 2024	

3x8 DC Module 5050

SMJD-4866024F-GxN100



Product Brief

Description

- Based on 5050 G series LED Package
- Full CCT range from 2200K to 6500K
- 70 /80CRI

Features and Benefits

- Long life time
- High Performance & Price competitive
- High Intensity output
- High Efficacy
- Lead free & RoHS compliant

Key Applications

- Street Lighting
- Area Lighting
- Residential Lighting
- Urban Lighting

Table 1- Order Code

Nominal CCT (K)	CRI	PKG	Order Code
6500	70	G7	SMJD-4866024F-G7N100L85A057ALL
5700		G7	SMJD-4866024F-G7N100M11B057ALL
5000		G7	SMJD-4866024F-G7N100M25C057ALL
4000		G7	SMJD-4866024F-G7N100M38E057ALL
3500		G7	SMJD-4866024F-G7N100M11F057ALL
3000		G7	SMJD-4866024F-G7N100L72G057ALL
2700		G7	SMJD-4866024F-G7N100L45H057ALL
2200		G7	SMJD-4866024F-G7N100K33K057ALL
6500	80	G7	SMJD-4866024F-G7N100L12A058ALL
5700		G7	SMJD-4866024F-G7N100L39B058ALL
5000		G7	SMJD-4866024F-G7N100L52C058ALL
4000		G7	SMJD-4866024F-G7N100L65E058ALL
3500		G7	SMJD-4866024F-G7N100L39F058ALL
3000		G7	SMJD-4866024F-G7N100K99G058ALL
2700		G7	SMJD-4866024F-G7N100K72H058ALL
2200		G7	SMJD-4866024F-G7N100J67K058ALL
6500	70	G9	SMJD-4866024F-G9N100M09A057ALL
5700		G9	SMJD-4866024F-G9N100M48B057ALL
5000		G9	SMJD-4866024F-G9N100M61C057ALL
4000		G9	SMJD-4866024F-G9N100M75E057ALL
3500		G9	SMJD-4866024F-G9N100M48F057ALL
3000		G9	SMJD-4866024F-G9N100M09G057ALL
2700		G9	SMJD-4866024F-G9N100L76H057ALL
2200		G9	SMJD-4866024F-G9N100K64K057ALL
6500	80	G9	SMJD-4866024F-G9N100L37A058ALL
5700		G9	SMJD-4866024F-G9N100L76B058ALL
5000		G9	SMJD-4866024F-G9N100L89C058ALL
4000		G9	SMJD-4866024F-G9N100M02E058ALL
3500		G9	SMJD-4866024F-G9N100L76F058ALL
3000		G9	SMJD-4866024F-G9N100L37G058ALL
2700		G9	SMJD-4866024F-G9N100K97H058ALL
2200		G9	SMJD-4866024F-G9N100J92K058ALL

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Performance Characteristics

Table 2-1. Electro Optical Characteristics, Tc =25ºC, I_F= 1400mA [1] for G7 & Ra70 Version

Parameter	Symbol	Value			Unit	Remark 1	Remark2
		Min.	Typ.	Max.			
Luminous Flux	ΦV [2]	11020	11850	-	Lm	A rank	G7 & Ra70
		11260	12110	-		B rank	
		11390	12250	-		C rank	
		11510	12380	-		E rank	
		11260	12110	-		F rank	
		10900	11720	-		G rank	
		10650	11450	-		H rank	
		9610	10330	-		K rank	
Luminous Efficiency	LPW	-	179	-	Lm/W	A rank	G7 & Ra70
		-	183	-		B rank	
		-	185	-		C rank	
		-	187	-		E rank	
		-	183	-		F rank	
		-	177	-		G rank	
		-	173	-		H rank	
		-	156	-		K rank	
Correlated Color Temperature [3]	CCT	6000	6500	7000	K	A rank	
		5300	5700	6000		B rank	
		4700	5000	5300		C rank	
		3700	4000	4200		E rank	
		3200	3500	3700		F rank	
		2900	3000	3200		G rank	
		2600	2700	2900		H rank	
		2100	2200	2300		K rank	
CRI	Ra	70	-	-	-		Ra70
Color Consistency	SDCM	-	-	5	-		
Forward Voltage	Vin	45.0	47.3	49.0	Vdc		
Input Current	I_F	-	1400	-	mA		
Power Consumption	P		66.2		W		
Viewing Angle	2Θ1/2		120		deg.		

Notes :

(1) The above data were tested at Tc=25ºC.

(2) Φ_V is the total luminous flux output measured with an integrated sphere, the tolerance is 7% .

(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 datasheet.

Performance Characteristics

Table 2-2. Electro Optical Characteristics, Tc =25ºC, I_F= 1400mA [1] for G7 & Ra80 Version

Parameter	Symbol	Value			Unit	Remark 1	Remark2
		Min.	Typ.	Max.			
Luminous Flux	ΦV [2]	10340	11120	-	Lm	A rank	G7 & Ra80
		10590	11390	-		B rank	
		10710	11520	-		C rank	
		10830	11650	-		E rank	
		10590	11390	-		F rank	
		10220	10990	-		G rank	
		9970	10720	-		H rank	
		8990	9670	-		K rank	
Luminous Efficiency	LPW	-	168	-	Lm/W	A rank	G7 & Ra80
		-	172	-		B rank	
		-	174	-		C rank	
		-	176	-		E rank	
		-	172	-		F rank	
		-	166	-		G rank	
		-	162	-		H rank	
		-	146	-		K rank	
Correlated Color Temperature [3]	CCT	6000	6500	7000	K	A rank	
		5300	5700	6000		B rank	
		4700	5000	5300		C rank	
		3700	4000	4200		E rank	
		3200	3500	3700		F rank	
		2900	3000	3200		G rank	
		2600	2700	2900		H rank	
		2100	2200	2300		K rank	
CRI	Ra	80	-	-	-		Ra80
Color Consistency	SDCM	-	-	5	-		
Forward Voltage	Vin	45.0	47.3	49.0	Vdc		
Input Current	I_F	-	1400	-	mA		
Power Consumption	P		66.2		W		
Viewing Angle	2Θ1/2		120		deg.		

Notes :

(1) The above data were tested at Tc=25ºC.

(2) Φ_V is the total luminous flux output measured with an integrated sphere, the tolerance is 7% .

(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 datasheet.

Performance Characteristics

Table 2-3. Electro Optical Characteristics, Tc =25ºC, I_F= 1400mA [1] for G9 & Ra70 Version

Parameter	Symbol	Value			Unit	Remark 1	Remark2
		Min.	Typ.	Max.			
Luminous Flux	ΦV [2]	11240	12090	-	Lm	A rank	G9 & Ra70
		11610	12480	-		B rank	
		11730	12610	-		C rank	
		11860	12750	-		E rank	
		11610	12480	-		F rank	
		11240	12090	-		G rank	
		10940	11760	-		H rank	
		9900	10640	-		K rank	
Luminous Efficiency	LPW	-	184	-	Lm/W	A rank	G9 & Ra70
		-	190	-		B rank	
		-	192	-		C rank	
		-	194	-		E rank	
		-	190	-		F rank	
		-	184	-		G rank	
		-	179	-		H rank	
		-	162	-		K rank	
Correlated Color Temperature [3]	CCT	6000	6500	7000	K	A rank	
		5300	5700	6000		B rank	
		4700	5000	5300		C rank	
		3700	4000	4200		E rank	
		3200	3500	3700		F rank	
		2900	3000	3200		G rank	
		2600	2700	2900		H rank	
		2100	2200	2300		K rank	
CRI	Ra	70	-	-	-		Ra70
Color Consistency	SDCM	-	-	5	-		
Forward Voltage	Vin	45.0	46.9	48.0	Vdc		
Input Current	I_F	-	1400	-	mA		
Power Consumption	P		65.7		W		
Viewing Angle	2Θ1/2		120		deg.		

Notes :

(1) The above data were tested at Tc=25ºC.

(2) Φ_V is the total luminous flux output measured with an integrated sphere, the tolerance is 7% .

(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 datasheet.

Performance Characteristics

Table 2-4. Electro Optical Characteristics, Tc =25ºC, I_F= 1400mA [1] for G9 & Ra80 Version

Parameter	Symbol	Value			Unit	Remark 1	Remark2
		Min.	Typ.	Max.			
Luminous Flux	ΦV [2]	10570	11370	-	Lm	A rank	G9 & Ra80
		10940	11760	-		B rank	
		11060	11890	-		C rank	
		11180	12020	-		E rank	
		10940	11760	-		F rank	
		10570	11370	-		G rank	
		10200	10970	-		H rank	
		9230	9920	-		K rank	
Luminous Efficiency	LPW	-	173	-	Lm/W	A rank	G9 & Ra80
		-	179	-		B rank	
		-	181	-		C rank	
		-	183	-		E rank	
		-	179	-		F rank	
		-	173	-		G rank	
		-	167	-		H rank	
		-	151	-		K rank	
Correlated Color Temperature [3]	CCT	6000	6500	7000	K	A rank	
		5300	5700	6000		B rank	
		4700	5000	5300		C rank	
		3700	4000	4200		E rank	
		3200	3500	3700		F rank	
		2900	3000	3200		G rank	
		2600	2700	2900		H rank	
		2100	2200	2300		K rank	
CRI	Ra	80	-	-	-		Ra80
Color Consistency	SDCM	-	-	5	-		
Forward Voltage	Vin	45.0	46.9	48.0	Vdc		
Input Current	I_F	-	1400	-	mA		
Power Consumption	P		65.7		W		
Viewing Angle	2Θ1/2		120		deg.		

Notes :

(1) The above data were tested at Tc=25ºC.

(2) Φ_V is the total luminous flux output measured with an integrated sphere, the tolerance is 7% .

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

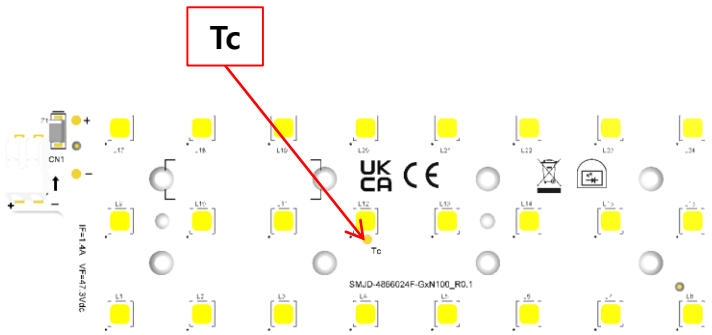
(4) To use the module properly, recommend to drive the module by a Constant Current Source(CCS).
But the Maximum output voltage of the CCS should be limited by referring this datasheet.

Absolute Maximum Ratings

Table 3. Absolute Maximum Ratings, I_F=1400mA, Tc= 25ºC (1)

Parameter	Symbol	Unit	Value	Remark
Power Consumption	P	W	102.7	$P_{\_Typ.}$= 66.2W
Driving Current(2)	I_F	mA	2100	$I_{F\_Typ.}$ = 1400mA
Operating Temperature(3)	T_c	ºC	- 40 ~ 105	Reference point
Storage Temperature	T_{stg}	ºC	- 40 ~ 100	With no power
ESD Sensitivity	-	KV	±15	IEC Air
			±8	HBM

ILLUSTRATION 1: How to predict components temperature (4)



Notes :

(1) All guarantee are based on the Absolute Maximum Ratings listed.

(2) Please use a Constant Current Source (CCS) to drive the module, the typical V_F of module is around 47.3VDC and V_{F_MAX} is around 49VDC, respectively.

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

(4) To ensure the module works properly, DO NOT let the Tc upper than 105 ºC;

Relative Spectral Distribution

Fig 1. Relative Spectral Distribution vs. Wavelength Characteristic

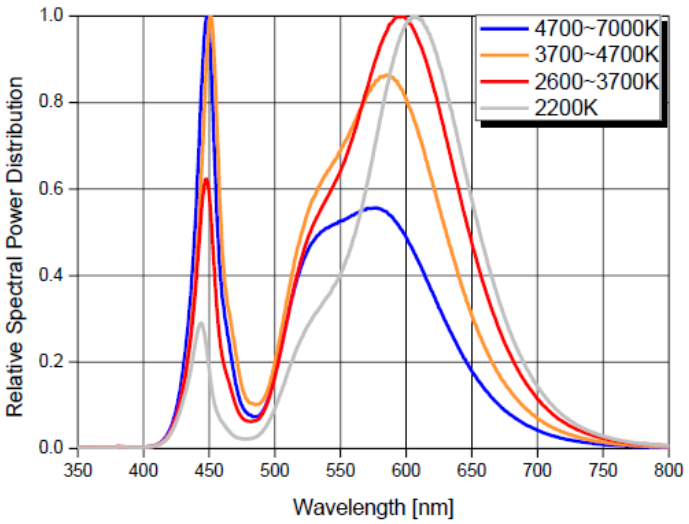
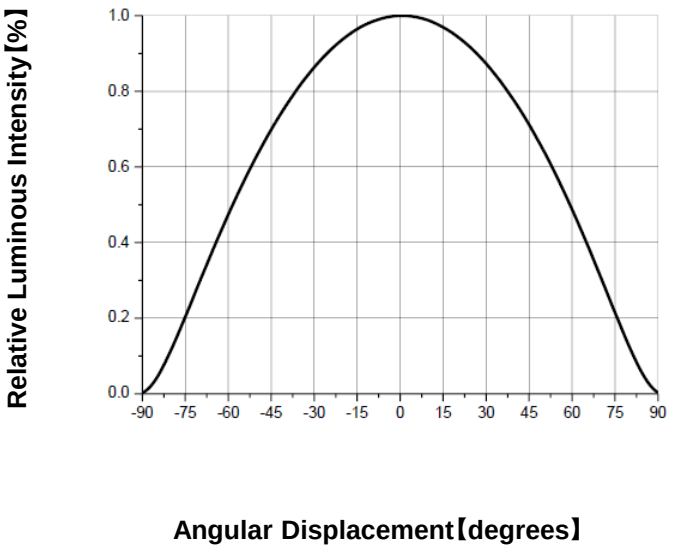


Fig 2. Typical Spatial Distribution



Relative Spectral Distribution

Fig 3. Flux and Efficacy vs. Temperature at T_C(at I_F=1400mA)

T_C [ºC]	Flux[%]	Efficacy[%]
25	100%	100%
45	98%	99%
65	96%	98%
85	94%	97%
105	92%	95%

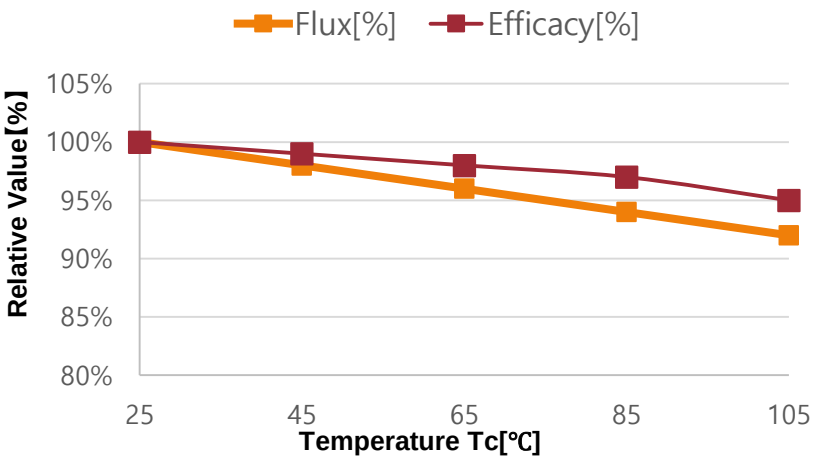
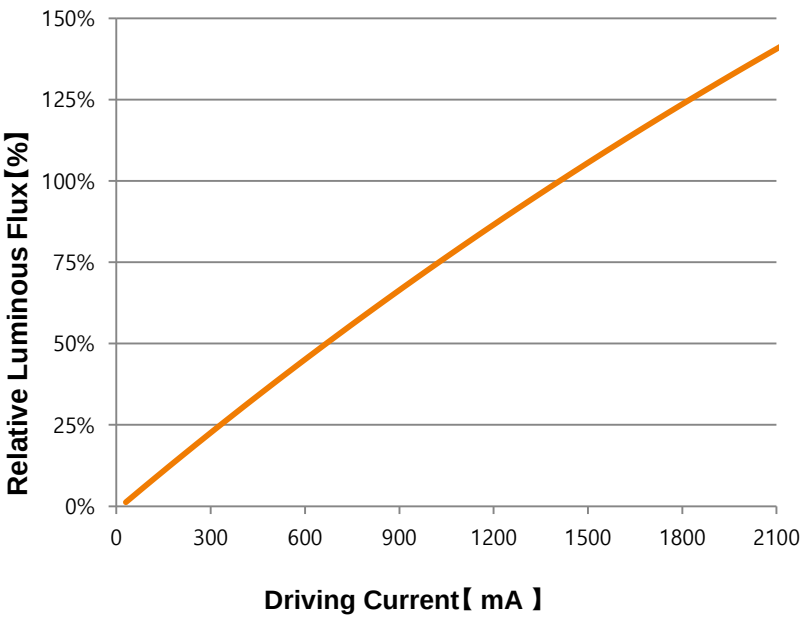
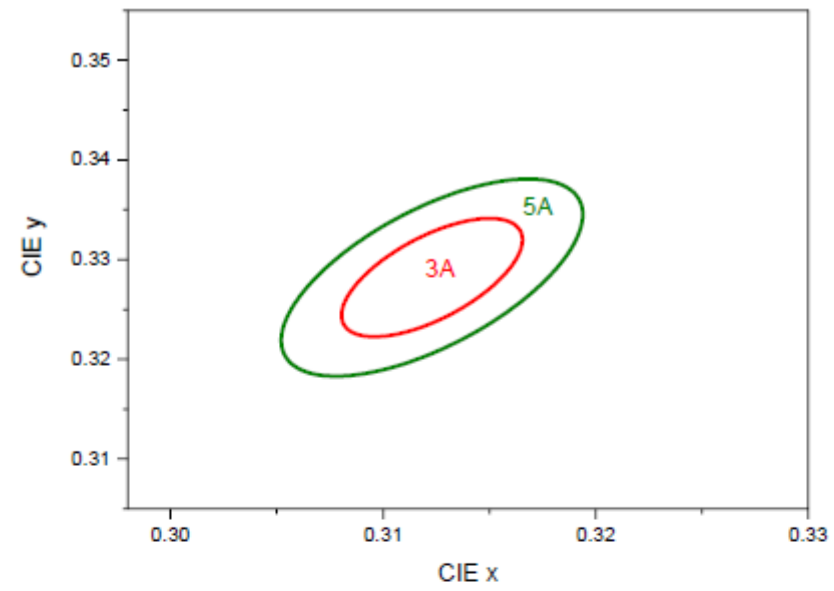


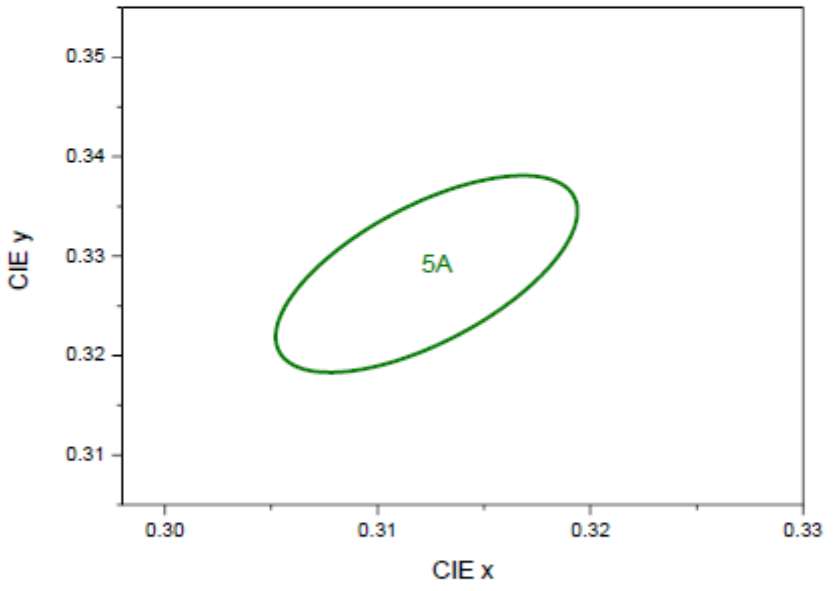
Fig 4. Forward Current vs. Relative Luminous Flux, Tc=25℃



Color Bin Structure

Fig 5. CIE Chromaticity Diagram

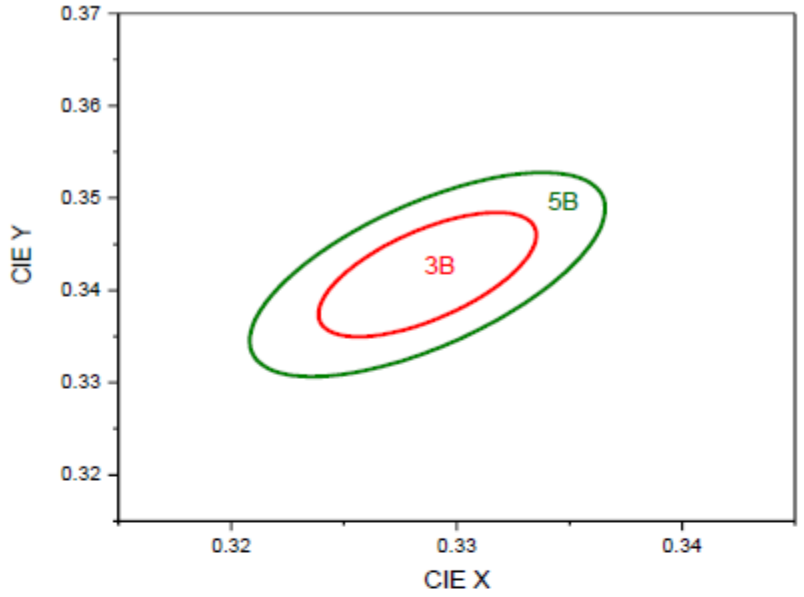


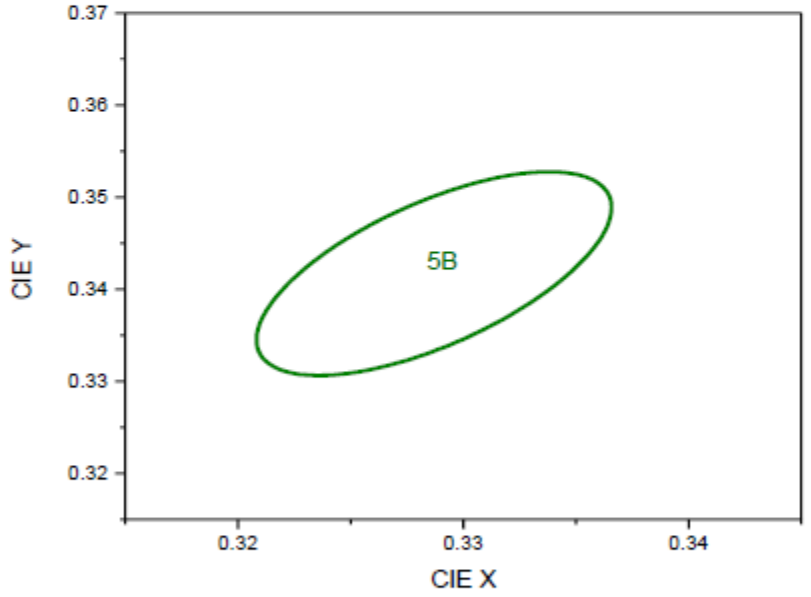


3A(3.0step)		5A (5.0Step)	
Center point	0.3123 : 0.3282	Center point	0.3123 : 0.3282
Major Axis a	0.0067	Major Axis a	0.0112
Minor Axis b	0.0029	Minor Axis b	0.0048
Ellipse Rotation Angle	59	Ellipse Rotation Angle	59

Color Bin Structure

Fig 6. CIE Chromaticity Diagram

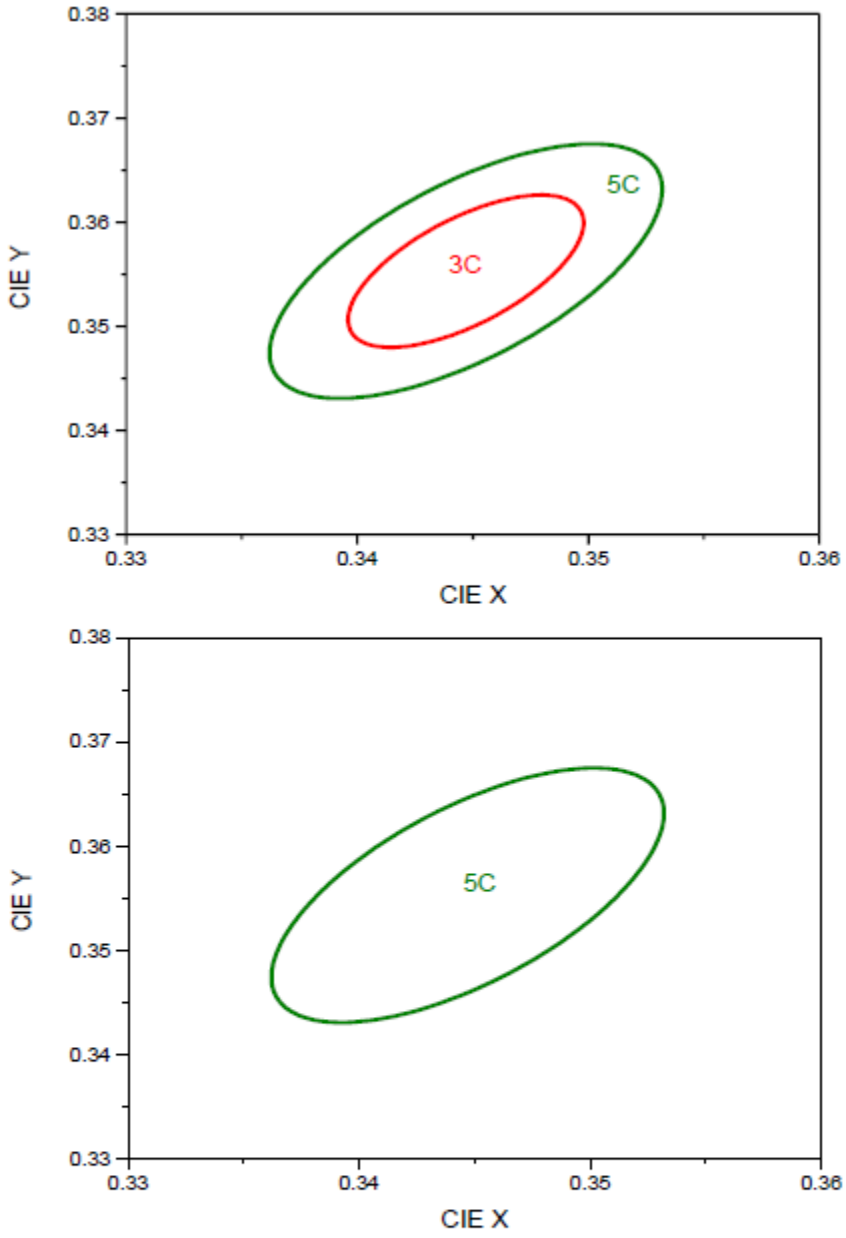




3B(3.0step)		5B (5.0Step)	
Center point	0.3287 : 0.3417	Center point	0.3287 : 0.3417
Major Axis a	0.0076	Major Axis a	0.0125
Minor Axis b	0.0033	Minor Axis b	0.0053
Ellipse Rotation Angle	59	Ellipse Rotation Angle	59

Color Bin Structure

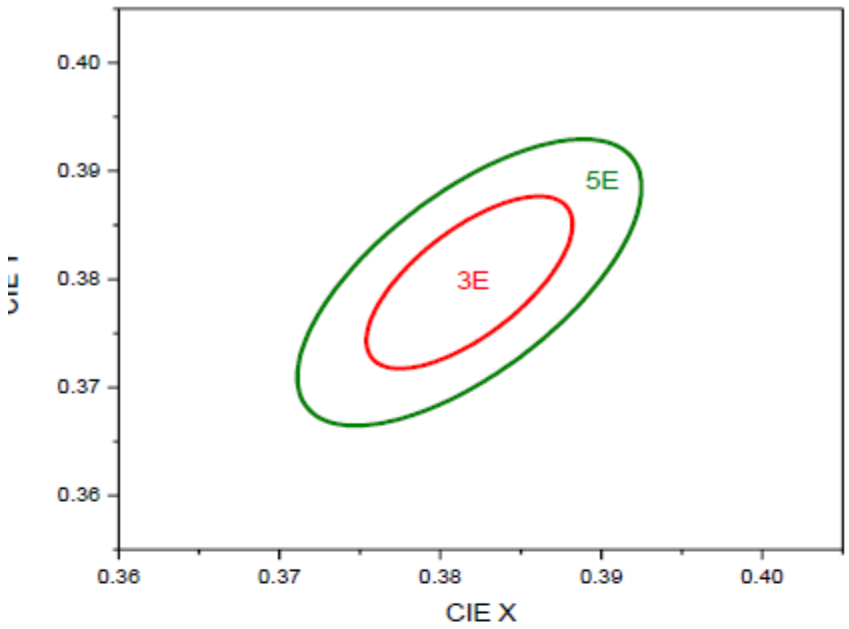
Fig 7. CIE Chromaticity Diagram

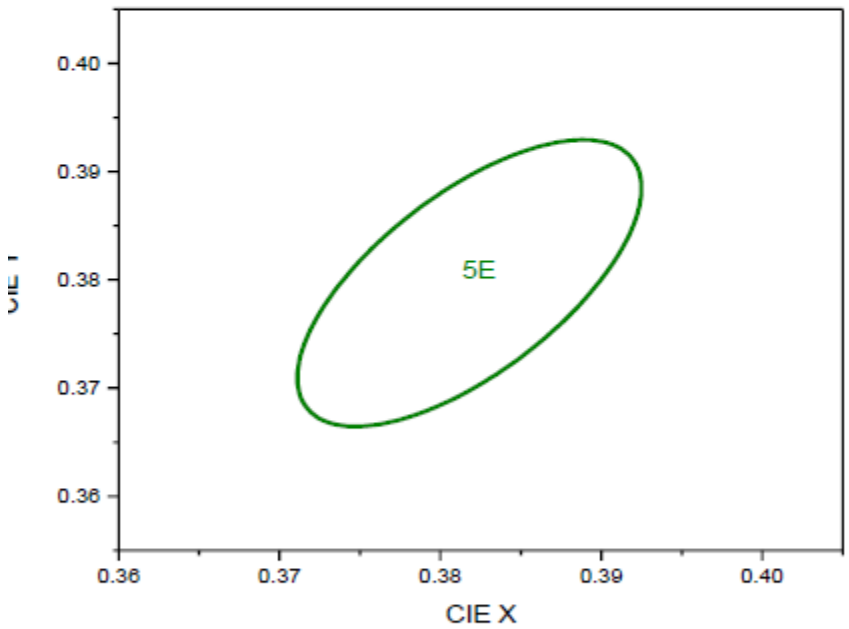


3C(3.0step)		5C (5.0Step)	
Center point	0.3447 : 0.3553	Center point	0.3447 : 0.3553
Major Axis a	0.0082	Major Axis a	0.0137
Minor Axis b	0.0035	Minor Axis b	0.0058
Ellipse Rotation Angle	60	Ellipse Rotation Angle	60

Color Bin Structure

Fig 8. CIE Chromaticity Diagram

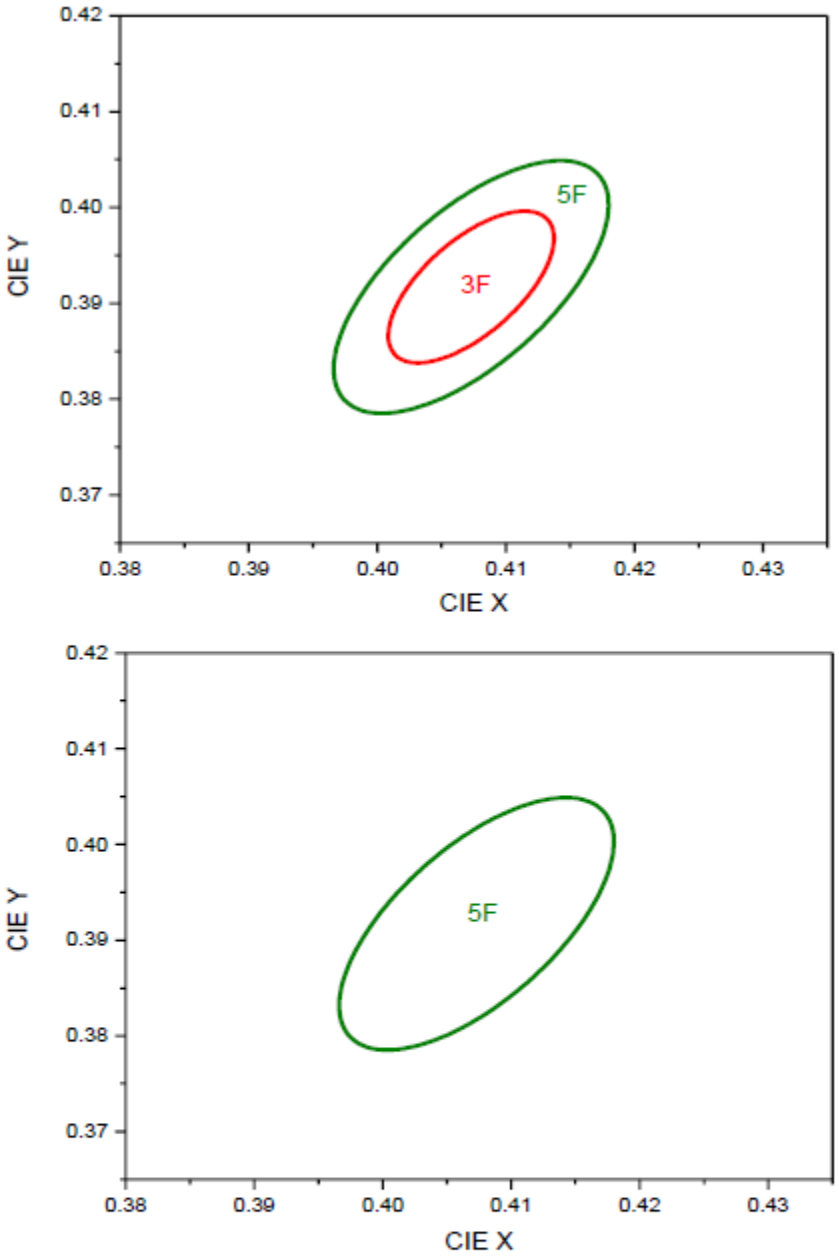




3E(3.0step)		5E (5.0Step)	
Center point	0.3818 : 0.3797	Center point	0.3818 : 0.3797
Major Axis a	0.0094	Major Axis a	0.0156
Minor Axis b	0.0040	Minor Axis b	0.0068
Ellipse Rotation Angle	54	Ellipse Rotation Angle	54

Color Bin Structure

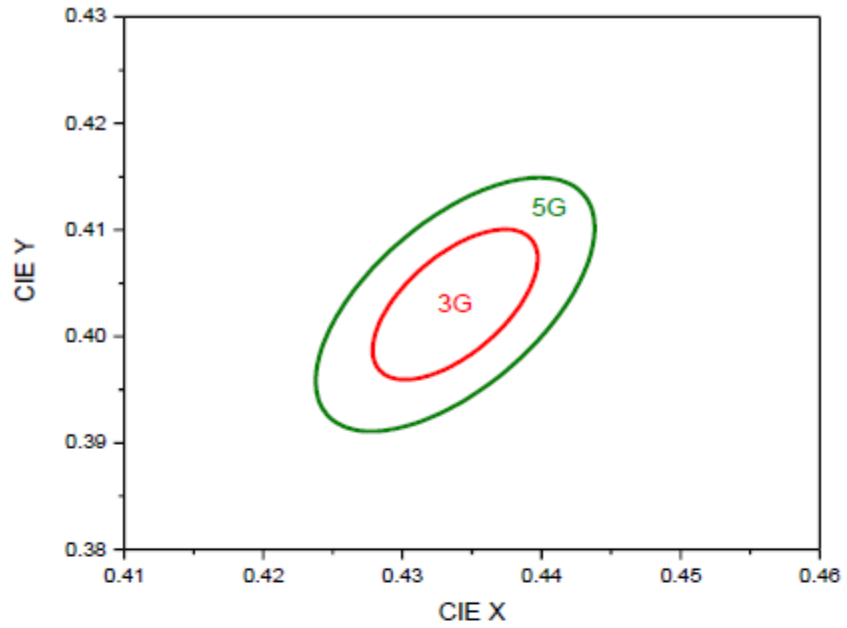
Fig 9. CIE Chromaticity Diagram

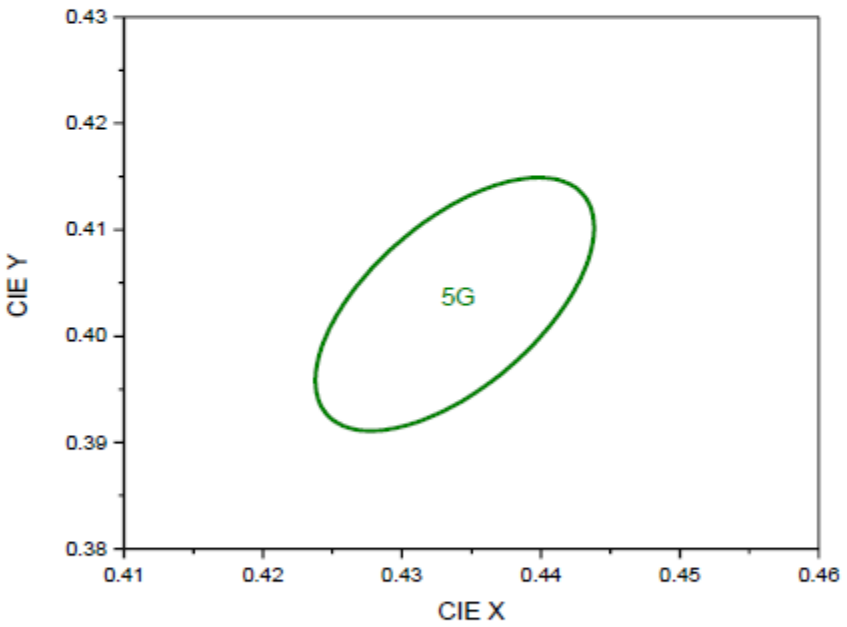


3F(3.0step)		5F (5.0Step)	
Center point	0.4073 : 0.3917	Center point	0.4073 : 0.3917
Major Axis a	0.0093	Major Axis a	0.0155
Minor Axis b	0.0042	Minor Axis b	0.0069
Ellipse Rotation Angle	54	Ellipse Rotation Angle	54

Color Bin Structure

Fig 10. CIE Chromaticity Diagram

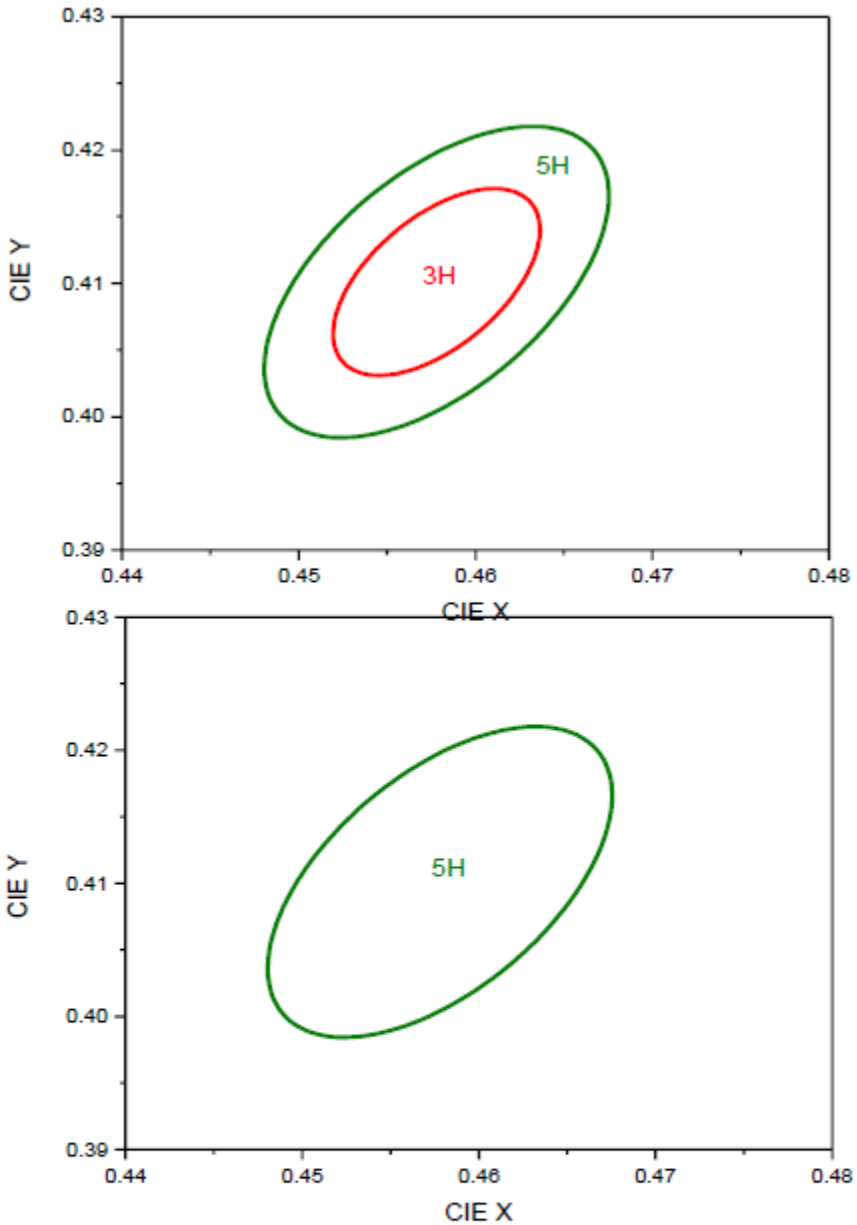




3G (3.0step)		5G (5.0Step)	
Center point	0.4338 : 0.4030	Center point	0.4338 : 0.4030
Major Axis a	0.0083	Major Axis a	0.0140
Minor Axis b	0.0040	Minor Axis b	0.0068
Ellipse Rotation Angle	53	Ellipse Rotation Angle	53

Color Bin Structure

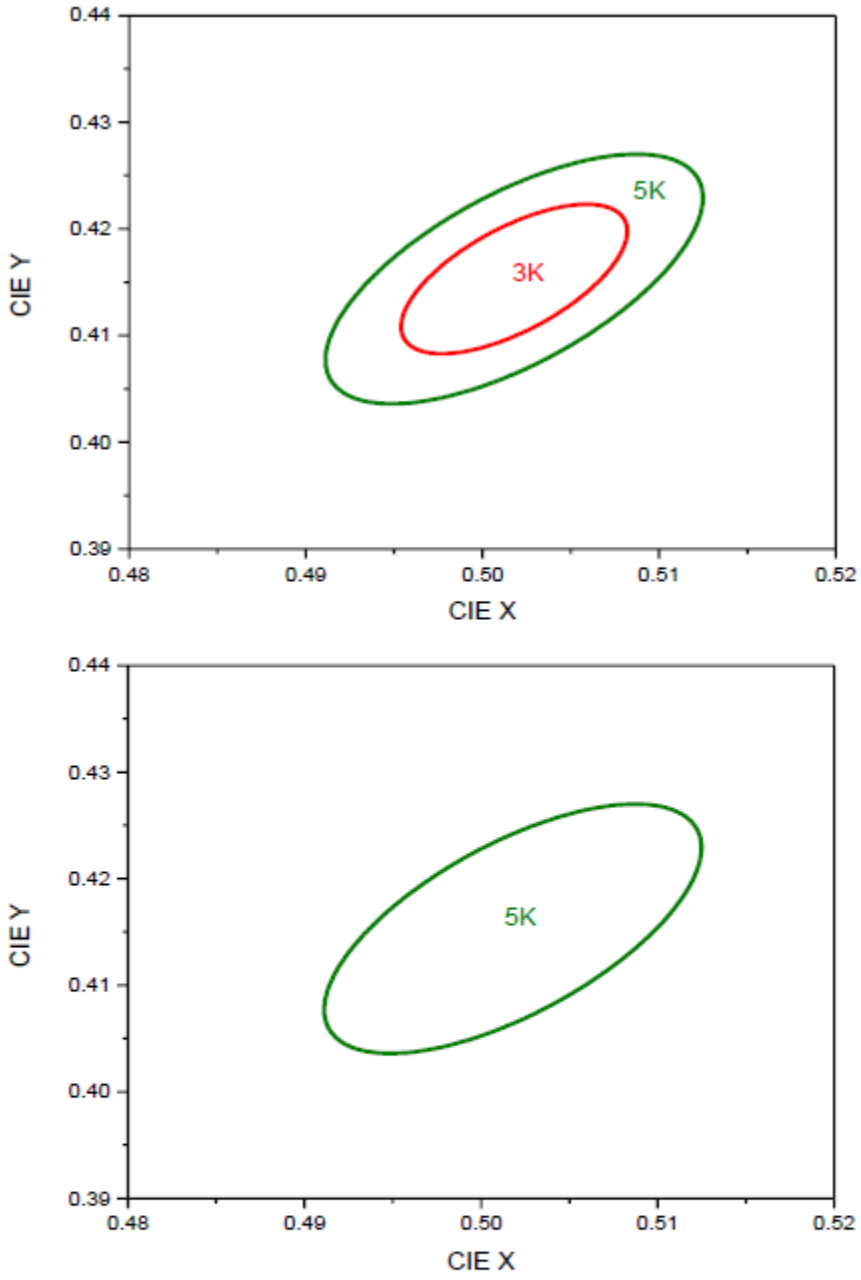
Fig 11. CIE Chromaticity Diagram



3H (3.0step)		5H (5.0Step)	
Center point	0.4578 : 0.4101	Center point	0.4578 : 0.4101
Major Axis a	0.0081	Major Axis a	0.0135
Minor Axis b	0.0042	Minor Axis b	0.0070
Ellipse Rotation Angle	54	Ellipse Rotation Angle	54

Color Bin Structure

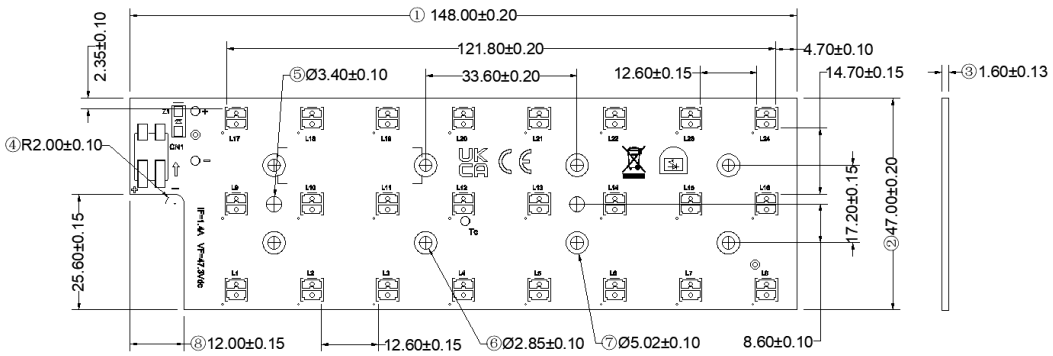
Fig 12. CIE Chromaticity Diagram

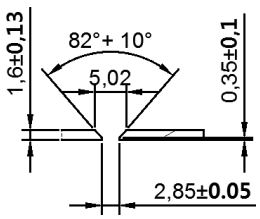


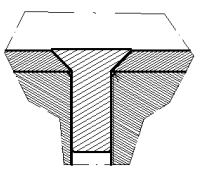
3K (3.0step)		5K (5.0Step)	
Center point	0.5018 : 0.4153	Center point	0.5018 : 0.4153
Major Axis a	0.0086	Major Axis a	0.0144
Minor Axis b	0.0040	Minor Axis b	0.0066
Ellipse Rotation Angle	49	Ellipse Rotation Angle	49

Mechanical Dimensions

Fig 13.mechanical dimensions







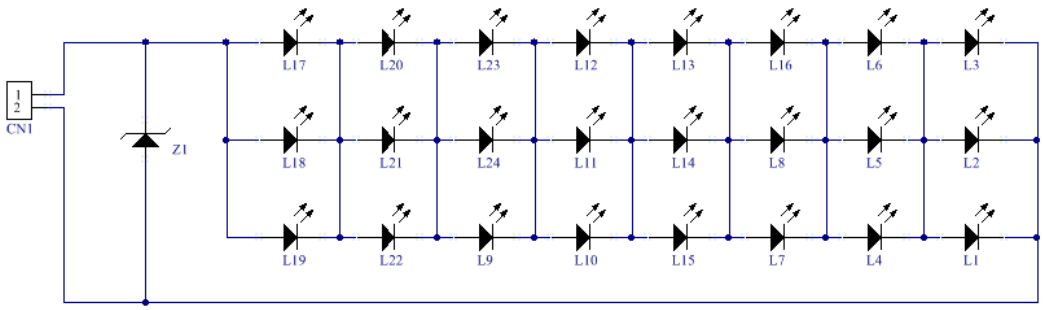
Note: Recommended to add chamfer to heatsink threaded screw holes

Notes :

(1) All dimensions are in millimeters.
(2) Scale : None
(3) PCB thickness : 1.6 ±0.13

Circuit Drawing

Fig 14. circuit drawing



Product Nomenclature

Product Name Rule:

S M J D - 48 66 024 F - G7 N1 00

① ② ③ ④ ⑤ ⑥ ⑦ ⑧

①: SMJD – Seoul DC Module
② ~ ⑧: Refer to below table

Voltage				Power				LED Qty.						LED Type		Customer (Free)		FREE		Lens	
②				③				④						⑤		⑥		⑦		⑧	
4		8		3		0		0		1		6		F		G7		N1		00	
0	0	0	0	0	0	0	0	0	0	0	0	0	0	F	5050	G7	G7 PKG	N1	Version	00	No Lens
1	10V	1	1V	1	10W	1	1W	1	100EA	1	10EA	1	1EA			G9	G9 PKG				
2	20V	2	2V	2	20W	2	2W	2	200EA	2	20EA	2	2EA								
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																
… …				… …																	
Z	350V			Z	350W																

Comments Rule:

(00 WN 70)

A B C

Lens Type		CCT		CRI	
A		B		C	
00		W0		70	
00	No lens	W0	6500K	70	CRI70
			5700K	80	CRI80
			5000K		
		WN	4000K		
		WW	3000K		
			2700K		
			2200K		

Product Nomenclature

Characteristics Rule:

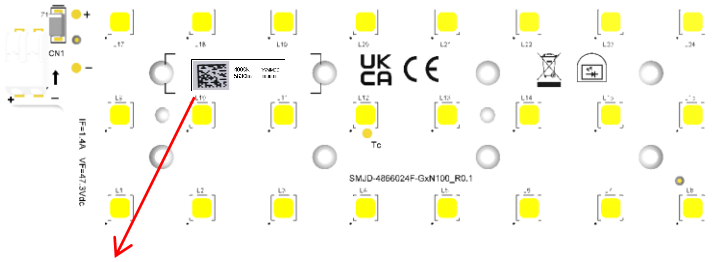
M38 E05 7 All

A B C D

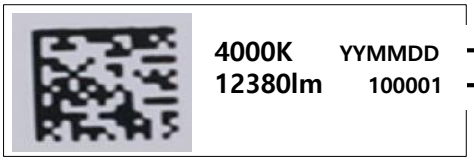
Flux bin		CCT bin		CRI bin		VF Bin(1)	
A		B		C		D	
M38		E05		7		ALL	
L85	11850 lm	A05	6500K 5-step	7	CRI70	ALL	VF: ALL
M11	12110 lm	B05	5700K 5-step	8	CRI80		
M25	12250 lm	C05	5000K 5-step				
M38	12380 lm	E05	4000K 5-step				
M11	12110 lm	F05	3500K 5-step				
L72	11720 lm	G05	3000K 5-step				
L45	11450 lm	H05	2700K 5-step				
K33	10330 lm	K05	2200K 5-step				
M09	12090 lm						
M48	12480 lm						
M61	12610 lm						
M75	12750 lm						
M48	12480 lm						
M09	12090 lm						
L76	11760 lm						
K64	10640 lm						
L12	11120 lm						
L39	11390 lm						
L52	11520 lm						
L65	11650 lm						
L39	11390 lm						
K99	10990 lm						
K72	10720 lm						
J67	9670 lm						
L37	11370 lm						
L76	11760 lm						
L89	11890 lm						
M02	12020 lm						
L76	11760 lm						
L37	11370 lm						
K97	10970 lm						
J92	9920 lm						

Marking Information

Fig 15. Marking Point



QR Code Information



	QR Code Information							
Items	Factory	SAP Code	SMT Date	Rank Information	Line No.	Lot No.	Product	Notes
Digits	1 Digit	7 Digit	6 Digit	10 Digit	1 Digit	1 Digit	5 Digit	In Total 31 Digits
Information	*	*******	YYMMDD	M38E057ALL(1)	1~9, A~Z	1~9, A~Z	00001	

Plain Code Information

No.	Item	Information	Digits	Remark
①	CCT	4000K	5Digit	Refer to Page5
	Date	YYMMDD	6Digit	SMT date
②	Flux	12380lm	7Digit	Refer to Page5
	Lot No.	1	1 Digit	0~9,A~Z
	Sequence No.	00001	5 Digit	00001 ~ 99999

Notes :

(1) Module Flux code rule as below table

Symbol	lm	Symbol	lm	Symbol	lm	Symbol	lm
D91	3910	O50	14500	R50	17500	U50	20500
M20	12200	P50	15500	S50	18500	V20	21200
N00	13000	Q50	16500	T50	19500	W00	22000

Label Information

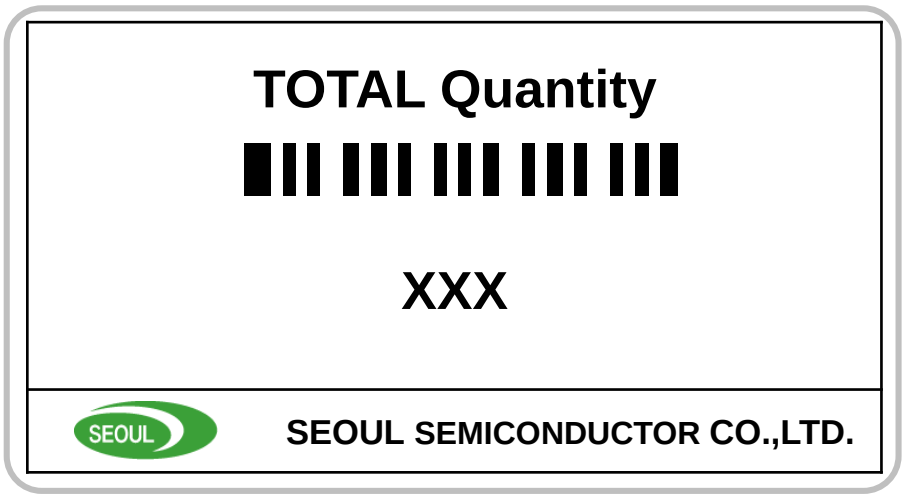
(K)PO Number	**XXXXXX** **IIIII II IIIII III**
(1P)Supplier P/N	**SMJD-4866024F-G7N100M38E057ALL(1)** **IIIII II IIIII III**
(33P)Bin Code	**M38E057ALL (2)** **IIIII II IIIII III**
(Q)Quantity	**XX** **IIIII II IIIII III**
(4L)Country of Origin	**XX (3)** **IIIII II IIIII III**
(10D)Date Code	**YYWW (4)** **IIIII II IIIII III**
(1T)Lot Code	**YYMDDXXXXX- XXXXXXX (5)** **IIIII II IIIII III**

SEOUL SEMICONDUCTOR CO.,LTD.

Notes

(1) Please refer to SPEC page22 (30 digit code)
(2) Please refer to SPEC page 23
(3) Country of Origin: 2 digit code . For example : Chinese Code: CN
(4) Date Code : YYWW : Packing Date: Year + Week
(5) 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
(6) Please refer to the font and size requirement for the label
the label must be clear , visible and scannable
(7) It is attached to the top left corner of the box.

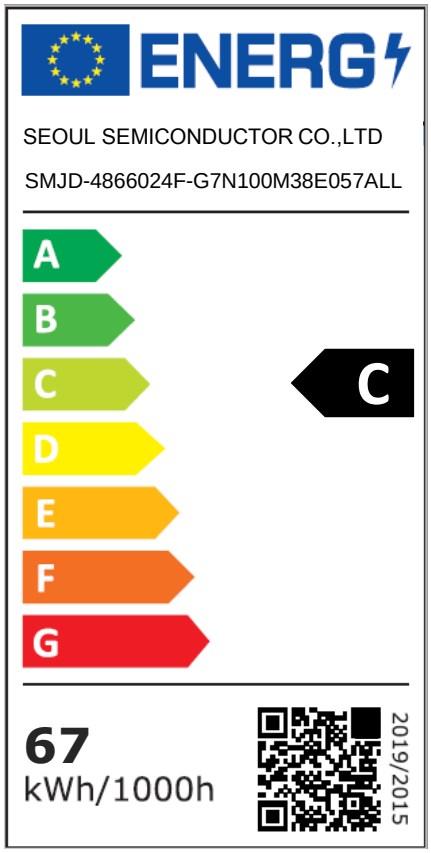
Label Information



Notes

(1) It is attached to the bottom right corner of the box.

Label Information



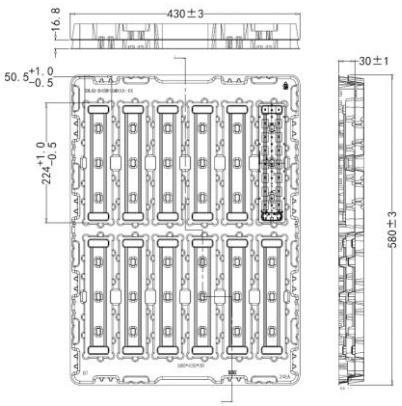
Notes

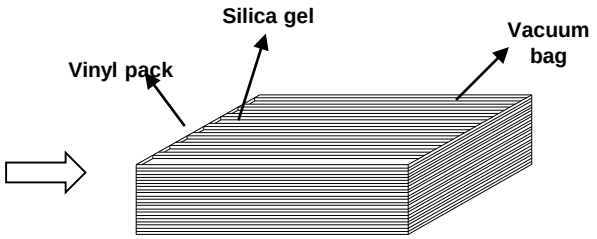
(1) The above is just an example, and the correct label must be downloaded from EPREL system
(2) The label size should be 72mm*36mm
(3) The background of the label shall be 100% white.
(4) The typefaces shall be Verdana and Calibri.
(5) Colours shall be CMYK – cyan, magenta, yellow and black,
following this example: 0-70-100-0: 0 % cyan, 70 % magenta, 100 % yellow, 0 % black.
(6) It is attached to the top right corner of the 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-4866024F-GxN100	580 x 430 x 30	24	600 x 448 x 202	216	1100 x 1100	4320

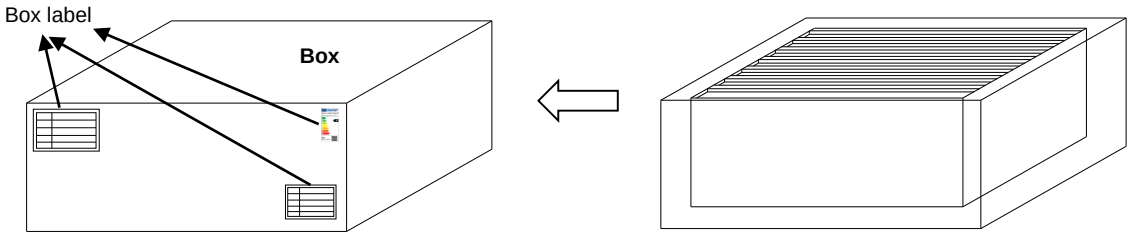
Note:
1box=9trays(+1dummy)=216ea
1pallet=20box(4box*5layer=20box)=4320ea





Vinyl pack = 9(10) Trays = 216bars(MAX)

(Top tray is used as a rid.)



1 Box = 9(10) Trays = 216bars (MAX)

Precaution for Use

(1) Please review the module Application Note for proper protective circuitry usage.
(2) DO NOT touch any of the circuit board, components or terminals with body or metal while circuit is active.
(4) Please do not add or change wires while module circuit is active.
(5) Long time exposure to sunlight or UV can cause the lens to discolor.
(6) Please do not use adhesives to attach the LED that outgas organic vapor.
(7) Please do not use together with the materials containing Sulfur.
(8) Please do not assemble in conditions of high moisture and/or oxidizing gas such as Cl, H_2S, NH_3, SO_2, NO_x, etc.
(9) Please do not make any modification on module.
(10) Please be cautious when soldering to board so as not to create a short between different trace patterns.
(11) If the LED module is not being designed for Architectural application or does not include dimming features then brightness and color consistency of the module at low drive currents can differ.
(12) Connecting multiple boards in series and parallel could affect the light output of each board. Maximum series parallel connection depends on the design of the board, the fixture and operating conditions. Customer should verify the design and operating conditions in the fixture before approval.

Precaution for Use

(13) LEDs are sensitive to Electro-Static Discharge (ESD) and Electrical Over Stress (EOS). Below is a list of suggestions that Seoul Semiconductor purposes to minimize these effects.

a. ESD (Electro Static Discharge)

Electrostatic discharge (ESD) is the defined as the release of static electricity when two objects come into contact. While most ESD events are considered harmless, it can be an expensive problem in many industrial environments during production and storage. The damage from ESD to an LEDs may cause the product to demonstrate unusual characteristics such as:

- Increase in reverse leakage current lowered turn-on voltage
- Abnormal emissions from the LED at low current

The following recommendations are suggested to help minimize the potential for an ESD event:
One or more recommended work area suggestions:

- Ionizing fan setup
- ESD table/shelf mat made of conductive materials
- ESD safe storage containers

One or more personnel suggestion options:

- Antistatic wrist-strap
- Antistatic material shoes
- Antistatic clothes

Environmental controls

- Humidity control (ESD gets worse in a dry environment)

b. EOS (Electrical Over Stress)

Electrical Over-Stress (EOS) is defined as damage that may occur when an electronic device is subjected to a current or voltage that is beyond the maximum specification limits of the device. The effects from an EOS event can be noticed through product performance like:
Changes to the performance of the LED package (If the damage is around the bond pad area and since the package is completely encapsulated the package may turn on but flicker show severe performance degradation.)
Changes to the light output of the luminaire from component failure
Components on the board not operating at determined drive power
Failure of performance from entire fixture due to changes in circuit voltage and current across total circuit causing trickle down failures
It is impossible to predict the failure mode of every LED exposed to electrical overstress as the failure modes have been investigated to vary, but there are some common signs that will indicate an EOS event has occurred.

- Damaged may be noticed to the bond wires (appearing similar to a blown fuse).
- Damage to the bond pads located on the emission surface of the LED package (shadowing can be noticed around the bond pads while viewing through a microscope).
- Anomalies noticed in the encapsulation and phosphor around the bond wires.
- This damage usually appears due to the thermal stress produced during the EOS event.

c. To help minimize the damage from an EOS event Seoul Semiconductor recommends utilizing

- qualified LED driver with no big over shoot out put
- Isolated driver that to prevent harmful peaks passed to module.
- A current limiting device

Storage before use

(1) Do not impact or place pressure on this product because even a small amount of pressure can damage the product. The product should also not be placed in high temperatures, high humidity or direct sunlight since the device is sensitive to these conditions.

(2) 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.

Guidelines for properly working with Module

(1) Discharge the lighting system a minimum of 2-3 times prior to working with the module.
(2) Use only properly rated test equipment and tools for the rated voltage and current of the product being tested.
(3) It is strongly suggested to wear rubber insulated gloves and rubber bottom shoes.
(4) Do not wear any conductive items (such as jewelry) which could accidentally contact electric circuits.
(5) Perform several tests with power off and the lighting system unplugged.
(6) Faults, lightning, or switching transients can cause voltage surges in excess of the normal ratings.
(7) Internal component failure can cause excessive voltages.
(8) Stored or residual electricity in long wire could be hazardous.
(9) Make sure proper discharge prior to starting work.

Company Information

Published by

Company Information

Seoul Semiconductor (SeoulSemicon.com) manufacturers and packages a wide selection of light emitting diodes (LEDs) for the automotive, 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 subsidiary, 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

Information in this document is provided in connection with Seoul Semiconductor products. With respect to any examples or hints given herein, any typical values stated herein and/or any information regarding the application of the device, Seoul Semiconductor hereby disclaims any and all warranties and liabilities of any kind, including without limitation, warranties of non-infringement of intellectual property rights of any third party. The appearance and specifications of the product can be changed to improve the quality and/or performance without notice.

Revision History

Revision	Date	Page	Remarks
R0.1	2024.8.20	All	Preliminary data sheet for SMJD-4866024F-GxN100
R0.2	2024.9.3	3	Update order codes
R0.3	2024.9.27	All	Add the parameters of Ra80