LUMENS

2025H2xxxxxx

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SPECIFICATION DATASHEET

2025H2

- 38.6W maximum power capability
- High brightness LED
- Dimension : 19.0 x 19.0 x 1.55 mm
- Precondition : JEDEC Level 2a
- Lead-free reflow soldering application
- RoHS compliant

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http://lumensleds.com

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1. Product description

(1) Description

- The Ergon series LED is designed for the high power operation to get the high flux output applications.
- It is ideal for the light source for general illumination applications, custom designed solutions.

(2) Features

- Maximum drive current up to 1,050mA
- Low thermal resistance as low as 1.2℃/W
- Viewing angle of 115 degrees
- Precondition JEDEC Level 2a
- RoHS compliant

(3) Applications

- Indoor lighting, Outdoor lighting, Industrial lighting

2. Absolute maximum ratings

Parameters	Symbol	Value	Unit
Power dissipated	Pd	36.8	W
Rated forward current	If	1050	mA
Maximum junction temperature capability(1)	Tj	125	℃
Maximum case temperature capability(1)	Tc	105	℃
Operating temperature	Top	- 30 ~ +100	℃
Storage temperature	Tst	- 40 ~ +100	℃

(1) Proper current derating must be observed to maintain junction temperature below the Maximum.

3. Electro-optical characteristics (Tj=85℃)

Parameters	Symbol	If(mA)	Typ.	Unit
Forward voltage	Vf	700	38.6	V
Viewing angle FWHM	2θ1/2	700	115	degrees
Thermal resistance junction to solder pad	Rthj-a		1.2	℃/W

- Lumens maintains a tolerance of ±3% on forward voltage measurements.

4. Electro-optical chart (Sorting current, If=700mA)

Product Description	CRI (Ra)	CCT (K)	If (mA)	Vf(V), typ. at Tc=65℃	Pd(W), typ at Tc=65℃	Φv(lm), typ. at Tc=25℃	lm/W, typ. at Tc=25℃	Φv(lm), typ. at Tc=65℃	lm/W, typ. at Tc=65℃
2025H2-827	80	2700	700	35.0	24.5	3910	156	3540	144
2025H2-830		3000	700	35.0	24.5	4090	164	3710	151
2025H2-835		3500	700	35.0	24.5	4140	166	3750	153
2025H2-840		4000	700	35.0	24.5	4280	171	3880	158
2025H2-850		5000	700	35.0	24.5	4370	175	3960	162
2025H2-857		5700	700	35.0	24.5	4220	169	3820	156
2025H2-927	90	2700	700	35.0	24.5	3450	138	3130	128
2025H2-930		3000	700	35.0	24.5	3640	146	3300	135
2025H2-935		3500	700	35.0	24.5	3690	148	3340	136
2025H2-940		4000	700	35.0	24.5	3770	151	3420	140
2025H2-950		5000	700	35.0	24.5	3850	154	3490	142
2025H2-S27	95	2700	700	35.0	24.5	3000	120	2720	111
2025H2-S30		3000	700	35.0	24.5	3220	129	2920	119
2025H2-S35		3500	700	35.0	24.5	3250	130	2950	120
2025H2-S40		4000	700	35.0	24.5	3400	136	3080	126

- Lumens maintains a tolerance of ±7% on flux measurements.
- Lumens maintains a tolerance of ±3% on forward voltage measurements.
- Lumens maintains a tolerance of ±2 on CRI measurements.
- Tc(Case temperature)=65℃ is equal to Tj(Junction temperature)=85℃.

5. Luminous flux characteristics (Sub current, If=500mA & 900mA & 1050mA)

Product Description	CRI (Ra)	CCT (K)	If (mA)	Vf(V), typ. at Tc=65℃	Pd(W), typ at Tc=65℃	Φv(lm), typ. at Tc=25℃	lm/W, typ. at Tc=25℃	Φv(lm), typ. at Tc=65℃	lm/W, typ. at Tc=65℃
2025H2-827	80	2700	500	33.8	16.9	2869	166	2598	154
2025H2-830		3000	500	33.8	16.9	3001	174	2722	161
2025H2-835		3500	500	33.8	16.9	3038	176	2752	163
2025H2-840		4000	500	33.8	16.9	3141	182	2847	168
2025H2-850		5000	500	33.8	16.9	3207	186	2906	172
2025H2-857		5700	500	33.8	16.9	3097	180	2803	166
2025H2-927	90	2700	500	33.8	16.9	2532	147	2297	136
2025H2-930		3000	500	33.8	16.9	2671	155	2421	143
2025H2-935		3500	500	33.8	16.9	2708	157	2451	145
2025H2-940		4000	500	33.8	16.9	2766	160	2510	148
2025H2-950		5000	500	33.8	16.9	2825	164	2561	152
2025H2-S27	95	2700	500	33.8	16.9	2201	128	1996	118
2025H2-S30		3000	500	33.8	16.9	2363	137	2143	127
2025H2-S35		3500	500	33.8	16.9	2385	138	2165	128
2025H2-S40		4000	500	33.8	16.9	2495	145	2260	134

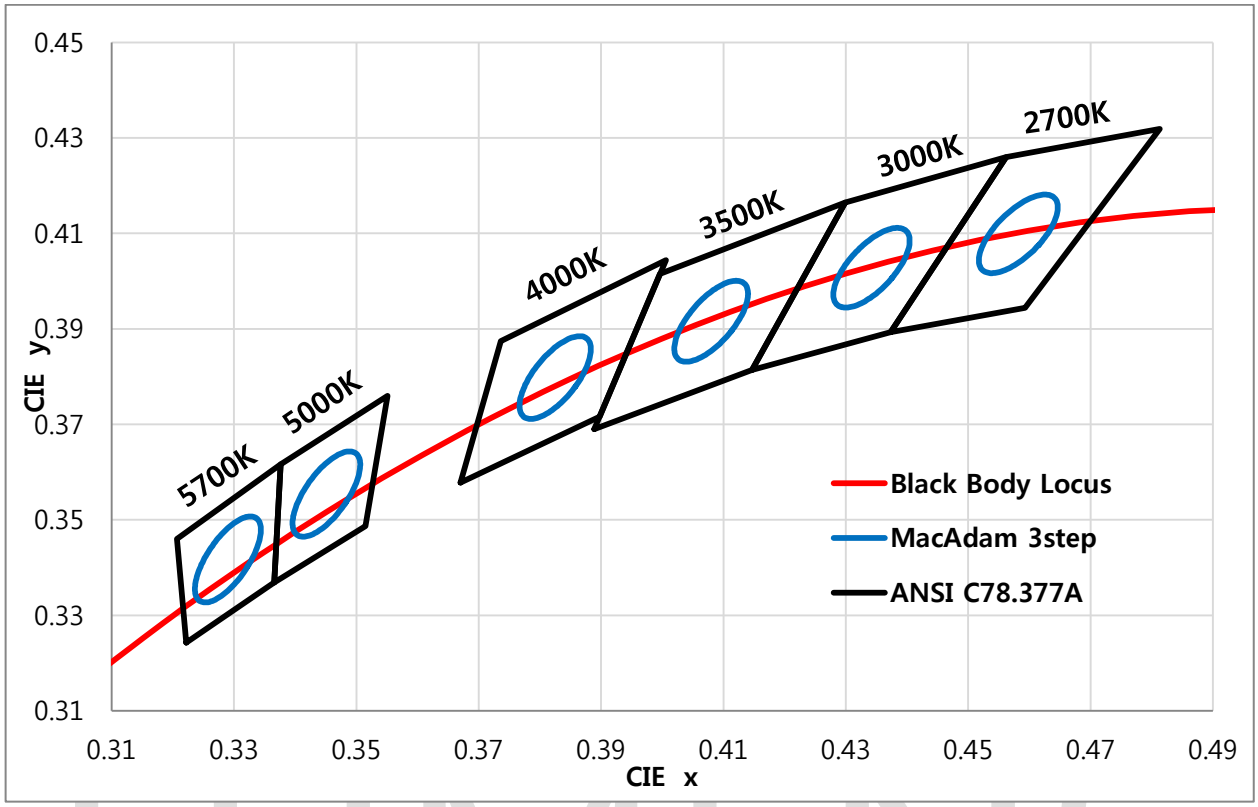
Product Description	CRI (Ra)	CCT (K)	If (mA)	Vf(V), typ. at Tc=65℃	Pd(W), typ at Tc=65℃	Φv(lm), typ. at Tc=25℃	lm/W, typ. at Tc=25℃	Φv(lm), typ. at Tc=65℃	lm/W, typ. at Tc=65℃
2025H2-827	80	2700	900	36.1	32.5	4907	148	4443	137
2025H2-830		3000	900	36.1	32.5	5133	155	4656	143
2025H2-835		3500	900	36.1	32.5	5196	157	4706	145
2025H2-840		4000	900	36.1	32.5	5372	162	4870	150
2025H2-850		5000	900	36.1	32.5	5484	166	4970	153
2025H2-857		5700	900	36.1	32.5	5296	160	4794	148
2025H2-927	90	2700	900	36.1	32.5	4330	131	3928	121
2025H2-930		3000	900	36.1	32.5	4568	138	4142	127
2025H2-935		3500	900	36.1	32.5	4631	140	4192	129
2025H2-940		4000	900	36.1	32.5	4731	143	4292	132
2025H2-950		5000	900	36.1	32.5	4832	146	4380	135
2025H2-S27	95	2700	900	36.1	32.5	3765	114	3414	105
2025H2-S30		3000	900	36.1	32.5	4041	122	3665	113
2025H2-S35		3500	900	36.1	32.5	4079	123	3702	114
2025H2-S40		4000	900	36.1	32.5	4267	129	3865	119

- Lumens maintains a tolerance of ±7% on flux measurements.
- Lumens maintains a tolerance of ±3% on forward voltage measurements.
- Lumens maintains a tolerance of ±2 on CRI measurements.
- Tc(Case temperature)=65℃ is equal to Tj(Junction temperature)=85℃.

Product Description	CRI (Ra)	CCT (K)	If (mA)	Vf(V), typ. at Tc=65℃	Pd(W), typ at Tc=65℃	Φv(lm), typ. at Tc=25℃	lm/W, typ. at Tc=25℃	Φv(lm), typ. at Tc=65℃	lm/W, typ. at Tc=65℃
2025H2-827	80	2700	1050	36.8	38.6	5376	137	4867	126
2025H2-830		3000	1050	36.8	38.6	5623	143	5101	132
2025H2-835		3500	1050	36.8	38.6	5692	145	5156	133
2025H2-840		4000	1050	36.8	38.6	5884	149	5335	138
2025H2-850		5000	1050	36.8	38.6	6008	153	5445	141
2025H2-857		5700	1050	36.8	38.6	5802	147	5252	136
2025H2-927	90	2700	1050	36.8	38.6	4743	120	4303	111
2025H2-930		3000	1050	36.8	38.6	5005	127	4537	117
2025H2-935		3500	1050	36.8	38.6	5073	129	4592	119
2025H2-940		4000	1050	36.8	38.6	5183	132	4702	122
2025H2-950		5000	1050	36.8	38.6	5293	134	4798	124
2025H2-S27	95	2700	1050	36.8	38.6	4125	105	3740	97
2025H2-S30		3000	1050	36.8	38.6	4427	112	4015	104
2025H2-S35		3500	1050	36.8	38.6	4468	113	4056	105
2025H2-S40		4000	1050	36.8	38.6	4675	119	4235	110

- Lumens maintains a tolerance of ±7% on flux measurements.
- Lumens maintains a tolerance of ±3% on forward voltage measurements.
- Lumens maintains a tolerance of ±2 on CRI measurements.
- Tc(Case temperature)=65℃ is equal to Tj(Junction temperature)=85℃.

6. Chromaticity diagram & coordinates



- Lumens maintains a tolerance of ±0.005 on chromaticity (CCx, CCy)

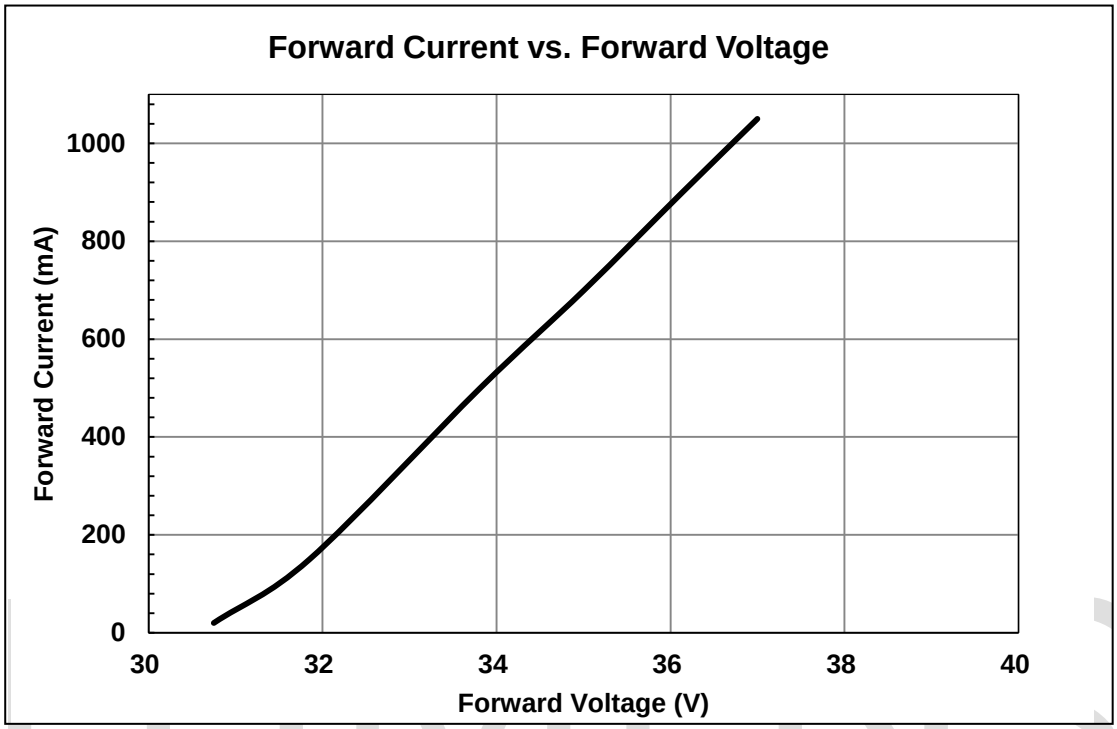
CCT(K)	x	y	CCT(K)	x	y	CCT(K)	x	y
5700K	0.3222	0.3243	4000K	0.3670	0.3578	3000K	0.4147	0.3814
	0.3207	0.3462		0.3736	0.3874		0.4299	0.4165
	0.3376	0.3616		0.4006	0.4044		0.4562	0.4260
	0.3366	0.3369		0.3898	0.3716		0.4373	0.3893
5000K	0.3366	0.3369	3500K	0.3889	0.3690	2700K	0.4373	0.3893
	0.3376	0.3616		0.3996	0.4015		0.4562	0.4260
	0.3551	0.3760		0.4299	0.4165		0.4813	0.4319
	0.3515	0.3487		0.4147	0.3814		0.4593	0.3944

*** 3-step MacAdam Ellipse Color Definition**

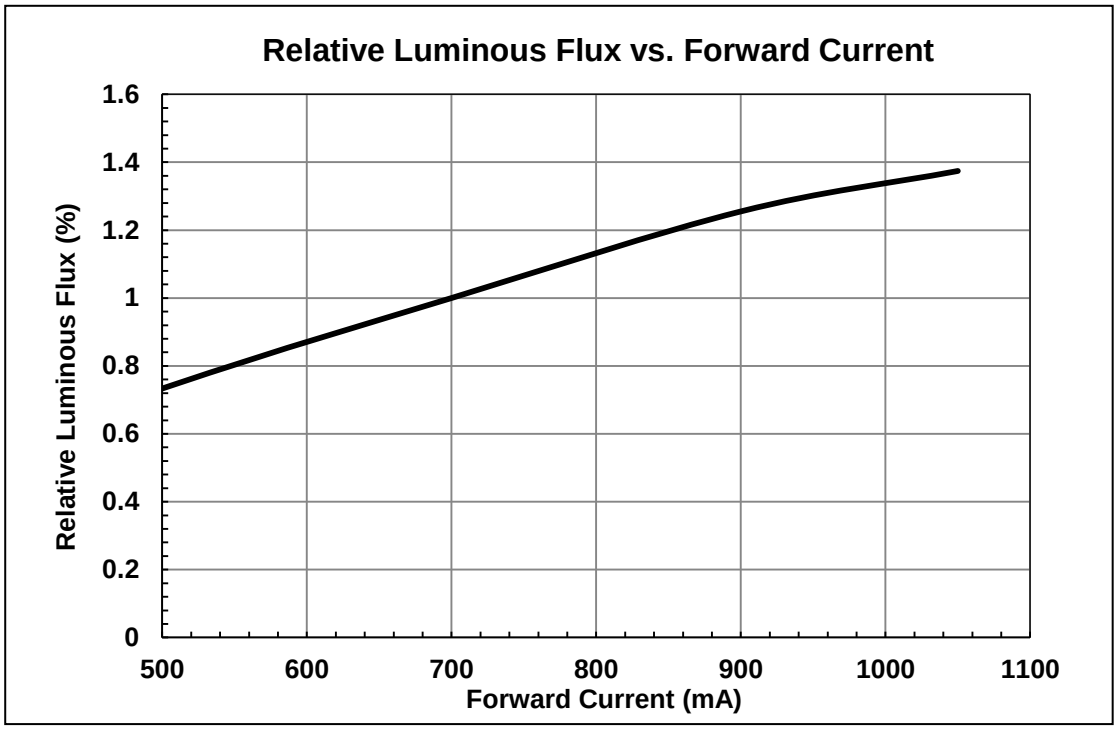
CCT(K)	Center		Ellipse Parameter		
	x	y	Axis a	Axis b	Angle(°)
5700K	0.3287	0.3417	0.00745	0.00320	59.1
5000K	0.3447	0.3553	0.00822	0.00354	59.6
4000K	0.3818	0.3797	0.00939	0.00402	53.7
3500K	0.4073	0.3917	0.00927	0.00414	54.0
3000K	0.4338	0.4030	0.00834	0.00408	53.2
2700K	0.4578	0.4101	0.00810	0.00420	53.7

7. Characteristic Graphs (Tj=85℃)

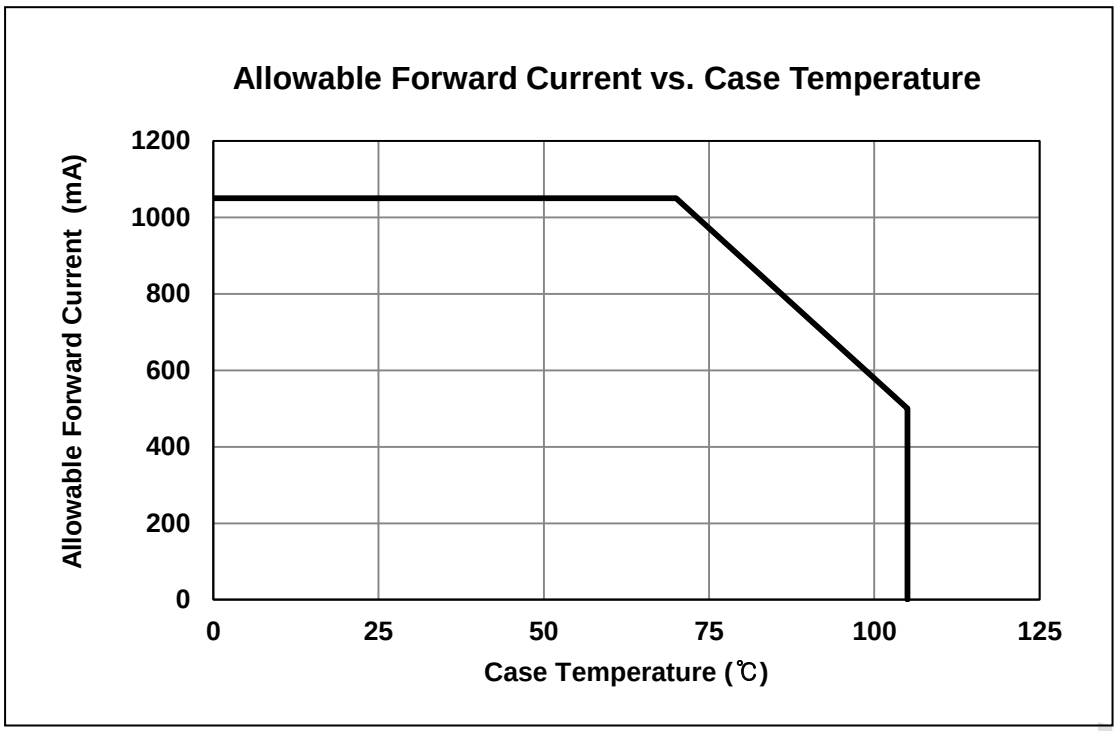
(1) Typical Forward Current vs. Forward Voltage



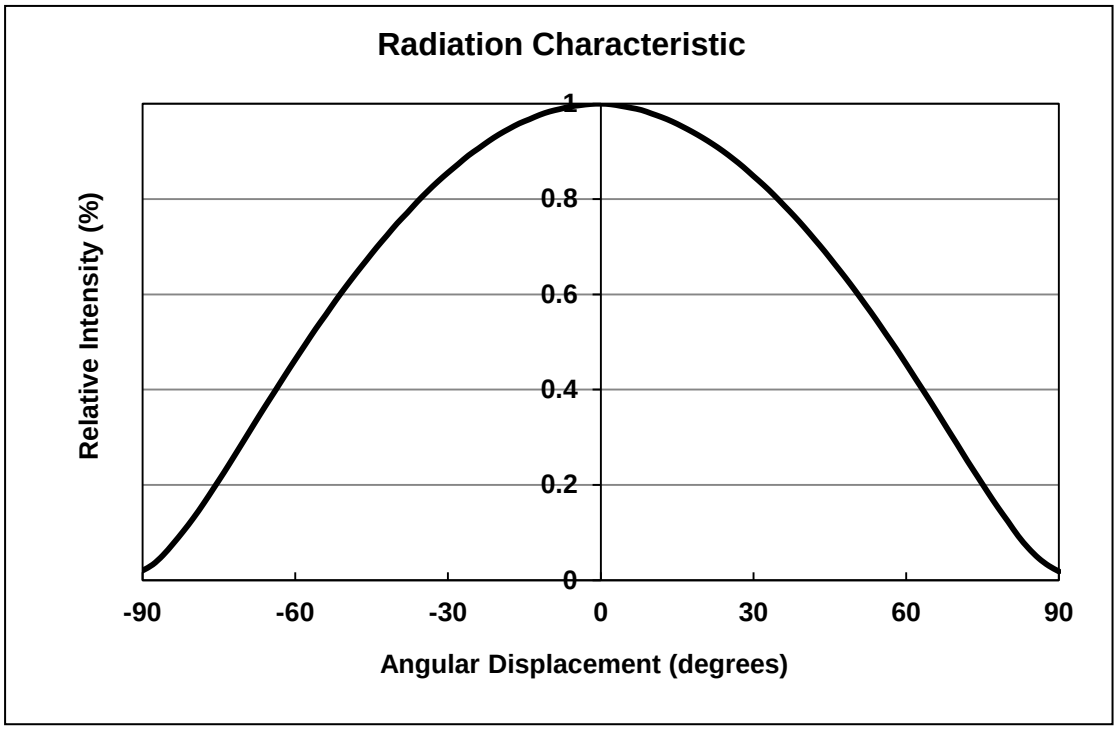
(2) Typical Relative Luminous Flux vs. Forward Current



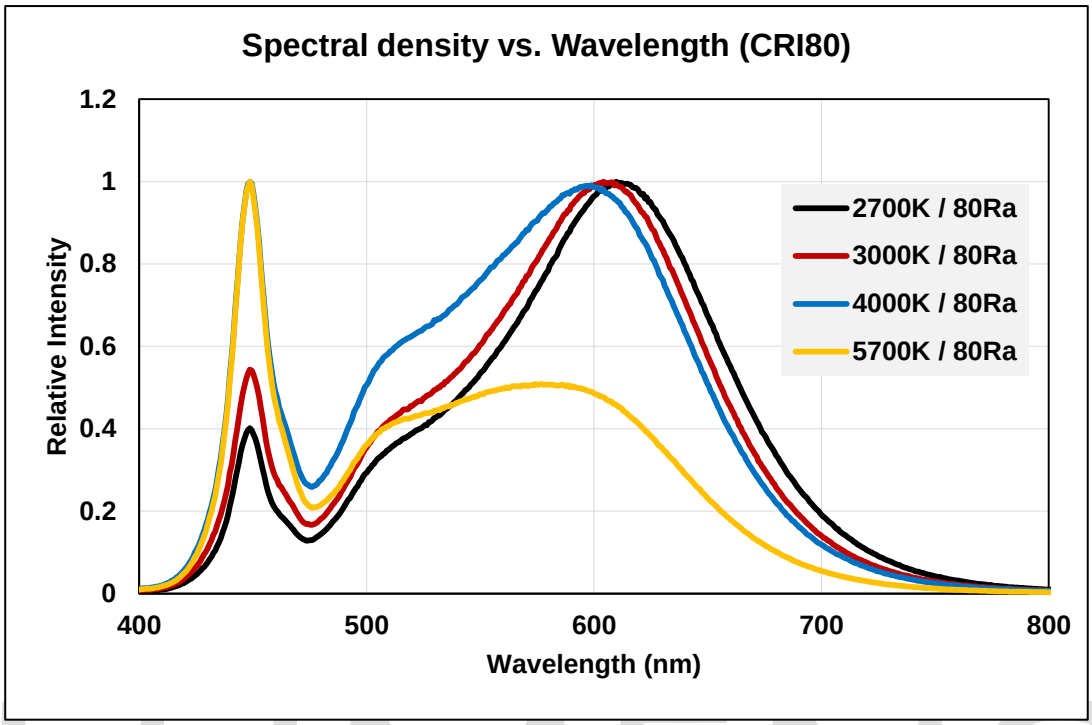
(3) Typical Allowable Forward Current with Ambient Temperature

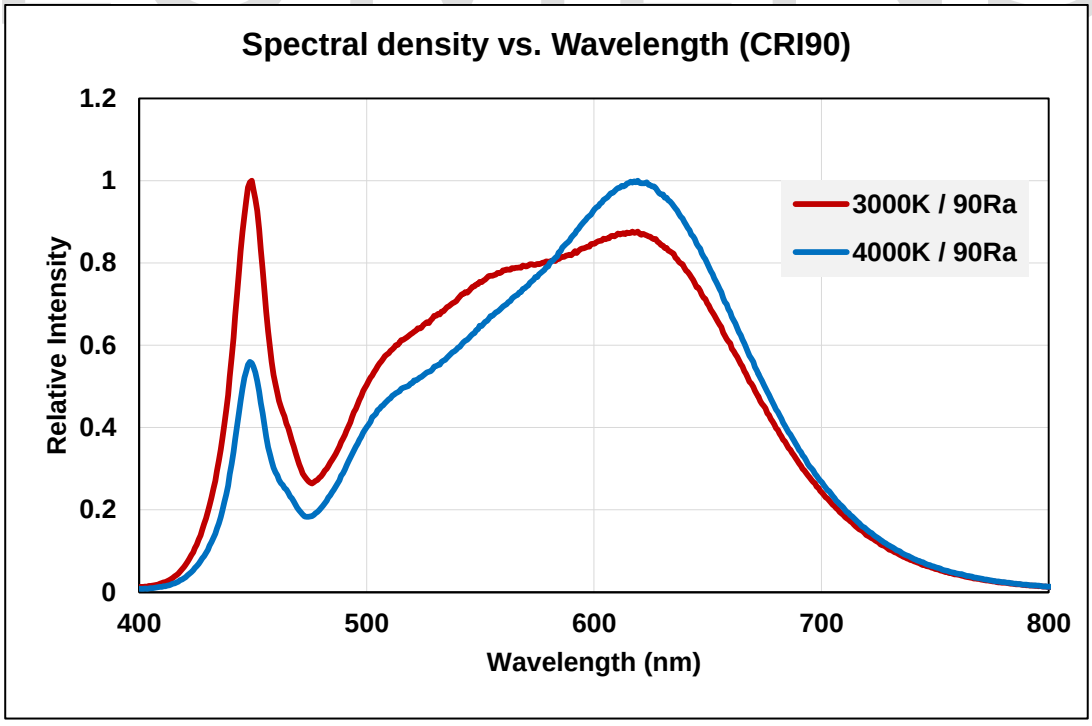


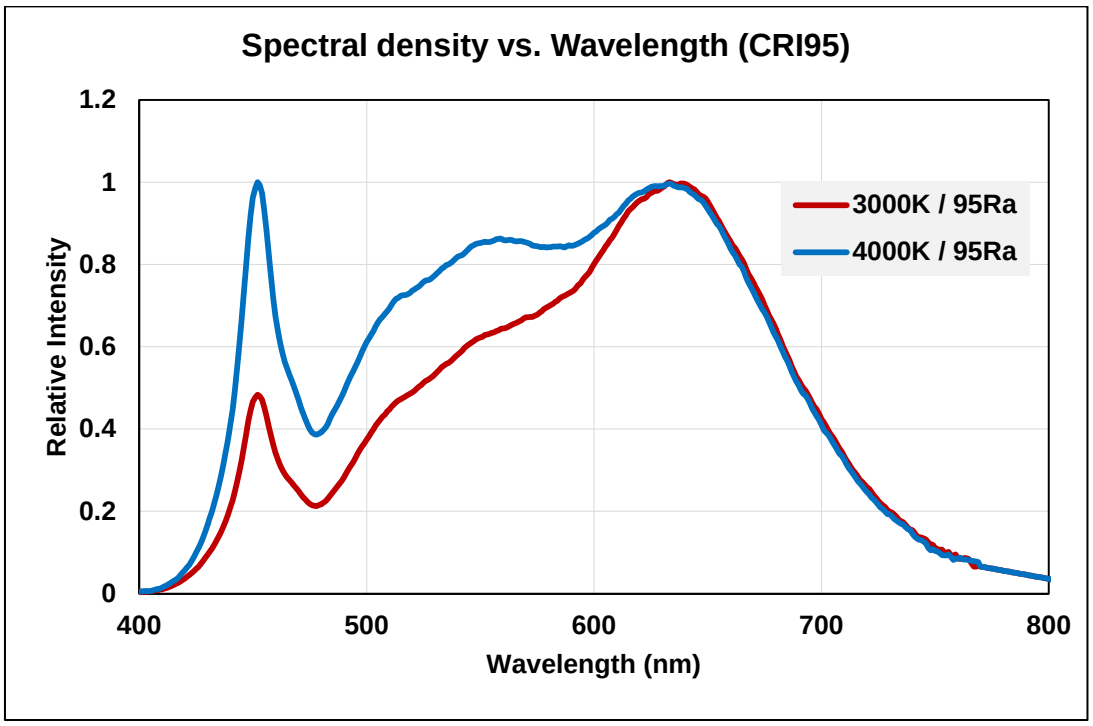
(4) Typical Spatial Radiation Characteristic



(5) Spectrum


Spectral density vs. Wavelength (CRI80)
Relative Intensity
1.2
1
0.8
0.6
0.4
0.2
0
400
500
600
700
800
Wavelength (nm)
2700K / 80Ra
3000K / 80Ra
4000K / 80Ra
5700K / 80Ra

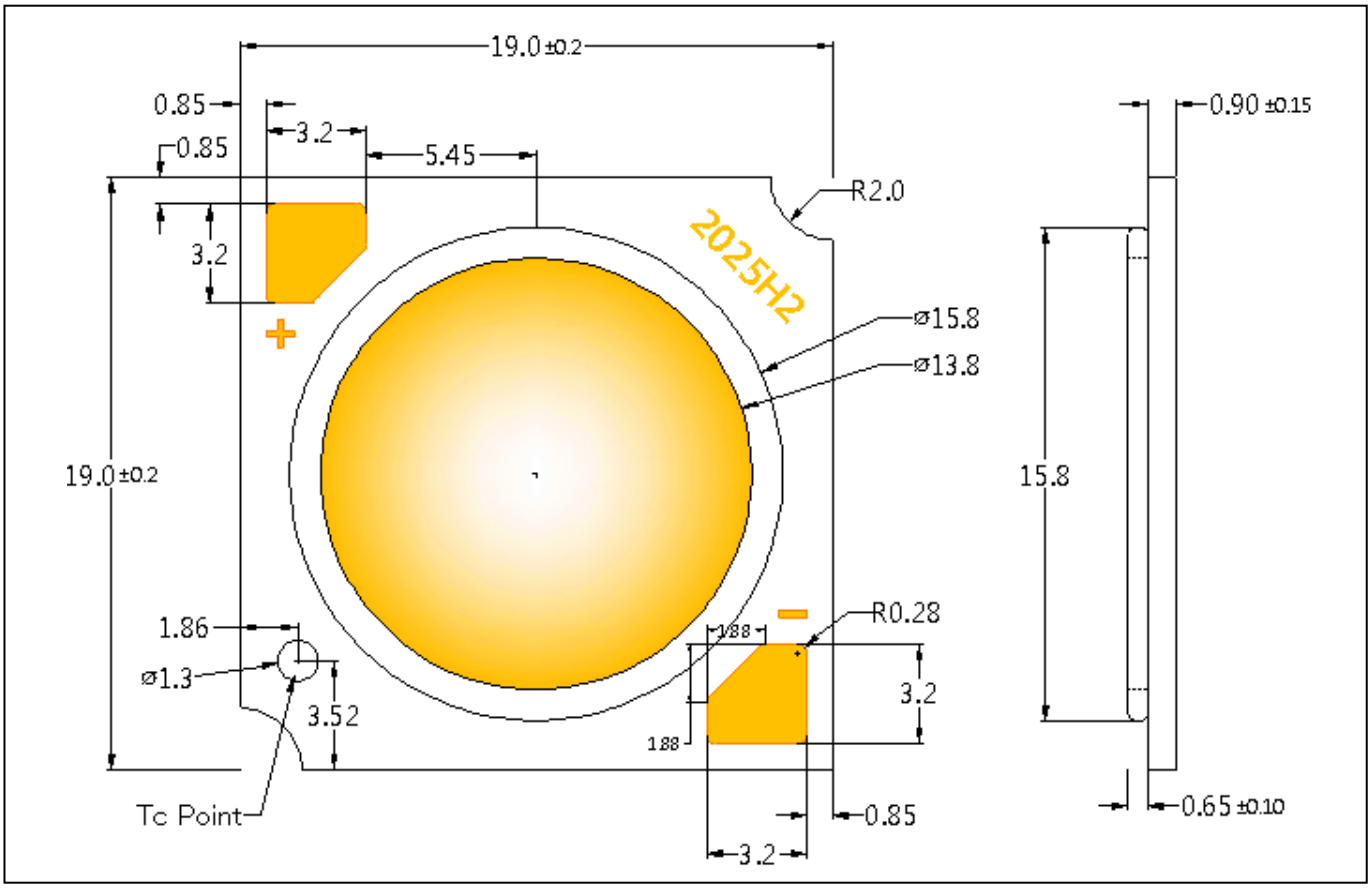

Spectral density vs. Wavelength (CRI90)
Relative Intensity
1.2
1
0.8
0.6
0.4
0.2
0
400
500
600
700
800
Wavelength (nm)
3000K / 90Ra
4000K / 90Ra


Spectral density vs. Wavelength (CRI95)
Relative Intensity
1.2
1
0.8
0.6
0.4
0.2
0
400
500
600
700
800
Wavelength (nm)
3000K / 95Ra
4000K / 95Ra

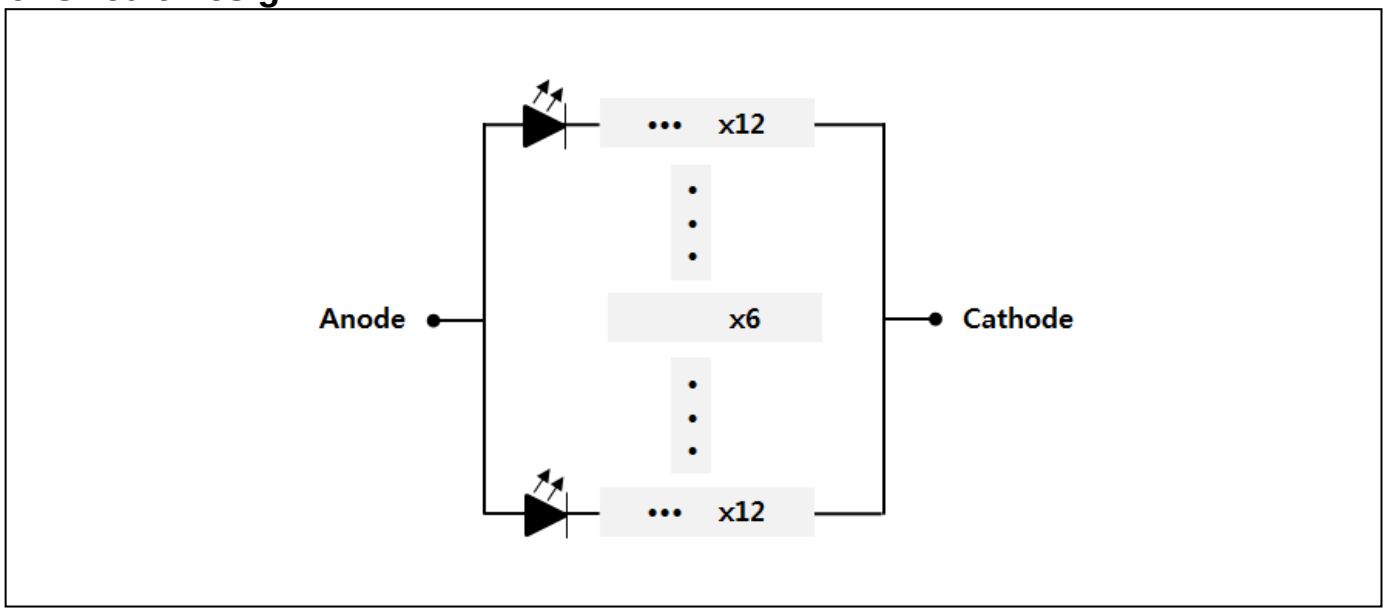
8. Outline Dimensions

- Package outline (Width x Length x Height) of 19.0 x 19.0 x 1.55mm
- Undefined tolerance is ± 0.2 mm

(Unit : mm)

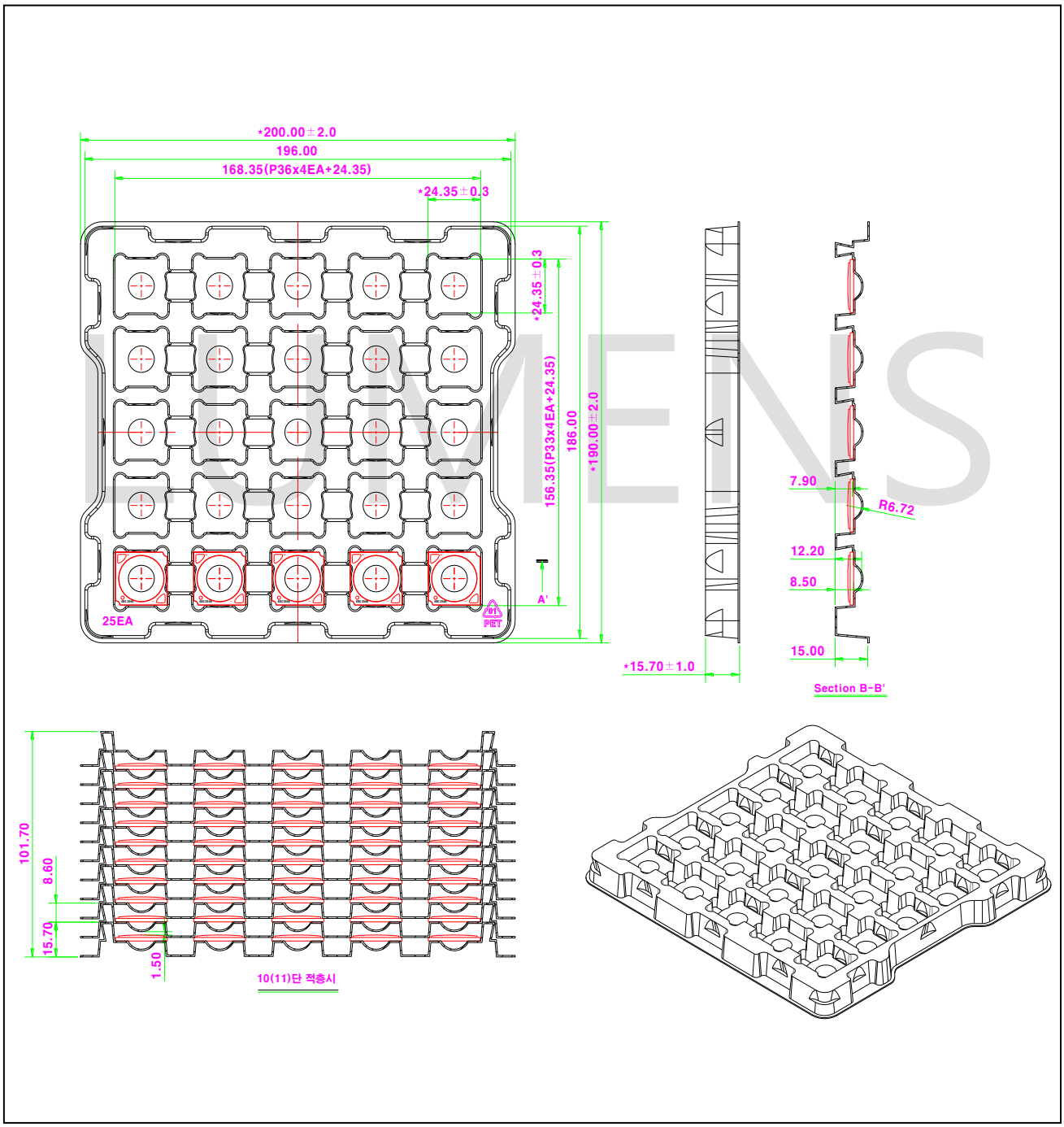


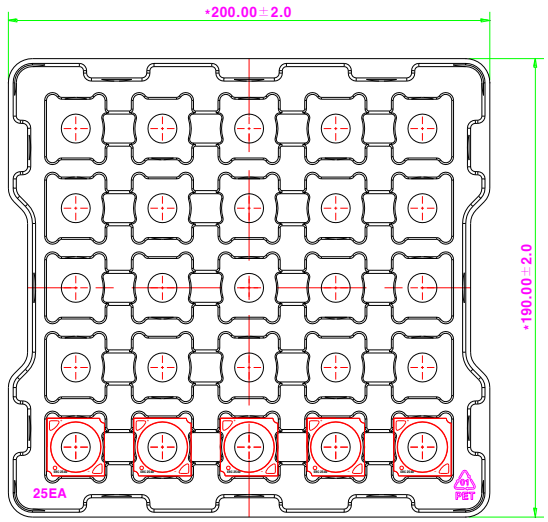
9. Circuit Design



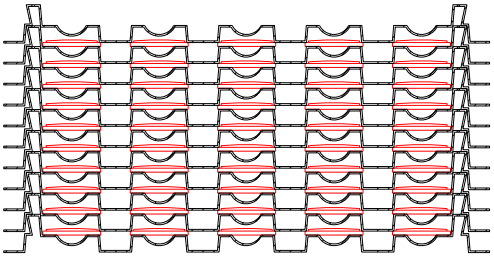
10. Packing

- 25pcs modules per tray
- 10 trays in one Carton
- Tray Size : L x W=200 x 190(mm), 5x5=25pcs
- Carton Size : 215mm x 205mm x 150mm
- Undefined tolerance is ± 2 mm

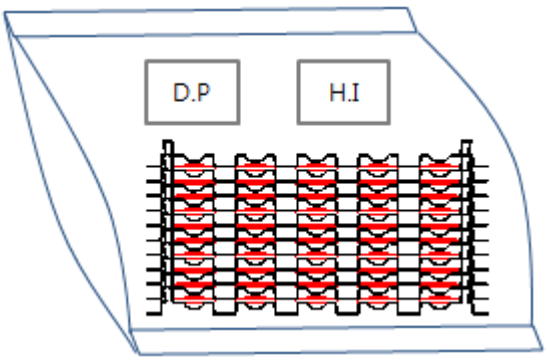




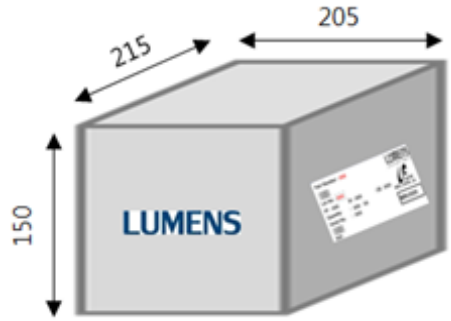
- 1Tray unit = 25pcs (5x5 Array)
- Tray Size = 200mm(L) * 190mm(W)



- 1Set = 11Tray (10Tray+1Cover)
- Total size = 200mm(L)*190mm(W)*103mm(H)
- Quantity = 25*10=250pcs

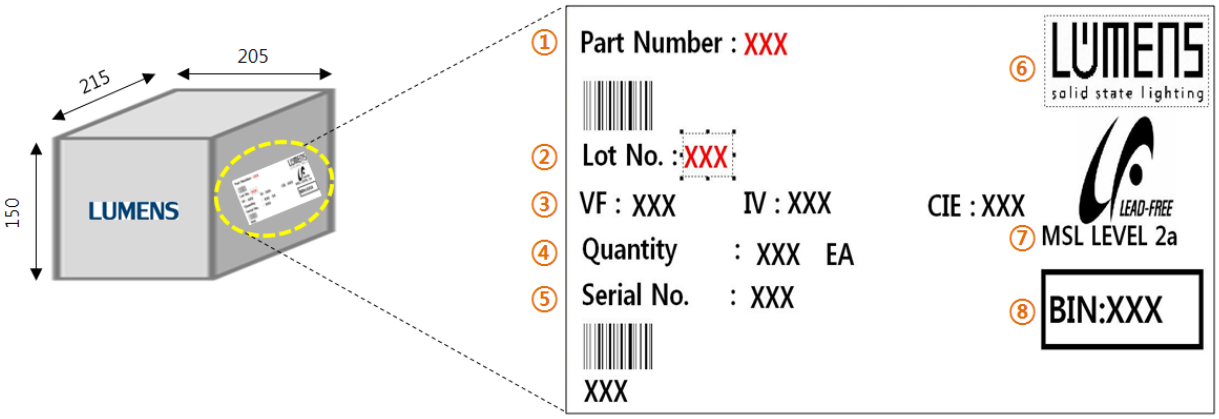


- Poly-bag size = 275*435*160mm
- 1Set + Dry-Pack + Humidity Indicator
- Quantity = 250pcs



- Box size = 215mm(L)*205mm(W)*150mm(H)
- Attached label : Production Info.
- Quantity = 250pcs

11. Label Format



No.	ITEM	REMARK	DESCRIPTION
①	PART NUMBER (Product Code)	XXXXH2xxxxxx	H2 COB (Size, Watt, Type, CRI, CCT, Version)
②	LOT NUMBER	xx-xxx – YYMMDDW -Lxxx	Production Input (Input date, Product model size, Lot no.) Y(Year), M(Month), D(Day)
③	VF / IV / CIE	VF : Forward voltage IV : Luminous flux CIE : CRI + CCT	VF : xx - xx IV : xx - xx CIE : 827 (80Ra + 2700K)
④	QUANTITY	xxx EA	Total Q'ty
⑤	SERIAL NUMBER	xxx-YYMMDD	Y(Year), M(Month), D(Day)
⑥	COMPANY LOGO	LOGO	-
⑦	MSL LEVEL	Moisture Sensitivity Level	ex) MSL1 ~ 6
⑧	BIN No.	00xx ~ 90xx	TEST Bin No.

12. Product Code

Color Code	Product Code					Remark
827	1309H2827xxx	1318H2827xxx	2025H2827xxx	2032H2827xxx	3040H2827xxx	CRI80
830	1309H2830xxx	1318H2830xxx	2025H2830xxx	2032H2830xxx	3040H2830xxx	
835	1309H2835xxx	1318H2835xxx	2025H2835xxx	2032H2835xxx	3040H2835xxx	
840	1309H2840xxx	1318H2840xxx	2025H2840xxx	2032H2840xxx	3040H2840xxx	
850	1309H2850xxx	1318H2850xxx	2025H2850xxx	2032H2850xxx	3040H2850xxx	
857	1309H2857xxx	1318H2857xxx	2025H2857xxx	2032H2857xxx	3040H2857xxx	
927	1309H2927xxx	1318H2927xxx	2025H2927xxx	2032H2927xxx	3040H2927xxx	CRI90
930	1309H2930xxx	1318H2930xxx	2025H2930xxx	2032H2930xxx	3040H2930xxx	
935	1309H2935xxx	1318H2935xxx	2025H2935xxx	2032H2935xxx	3040H2935xxx	
940	1309H2940xxx	1318H2940xxx	2025H2940xxx	2032H2940xxx	3040H2940xxx	
S27	1309H2S27xxx	1318H2S27xxx	2025H2S27xxx	2032H2S27xxx	3040H2S27xxx	CRI95
S30	1309H2S30xxx	1318H2S30xxx	2025H2S30xxx	2032H2S30xxx	3040H2S30xxx	
S35	1309H2S35xxx	1318H2S35xxx	2025H2S35xxx	2032H2S35xxx	3040H2S35xxx	
S40	1309H2S40xxx	1318H2S40xxx	2025H2S40xxx	2032H2S40xxx	3040H2S40xxx	

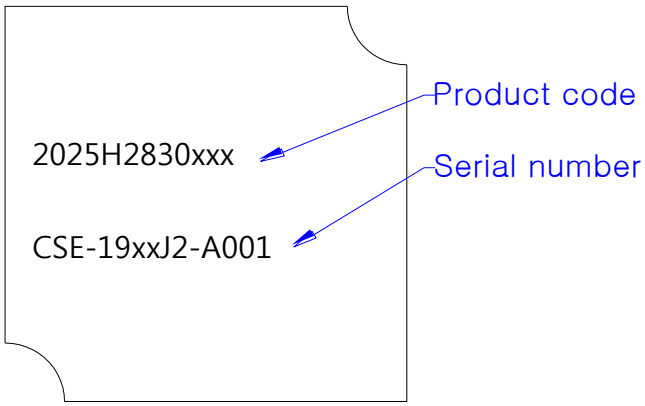
- **Product Code Nomenclature detail**

Size + Watt (2)	Type (2)	CRI (1)	CCT (2)	Version (3)
XXXX	H2	8 : 80Ra	27 : 2700K	xxx
		9 : 90Ra	30 : 3000K	
		S : 95Ra	35 : 3500K	
			40 : 4000K	
			50 : 5000K	
			57 : 5700K	

- **Serial number Nomenclature detail**

Item (1)	Product (1)	Type (1)	Date (YYMM) (4)	Input # (2)	Machine (1)	Lot number (3)
C : COB	A	A	1910	AX : A1~A9	A	001
	B	B		BX : B1~B9	B	002
	C	C		CX : C1~C9	C	003
	D	D		DX : D1~D9	D	004
	⋮	⋮		⋮	⋮	⋮
	Z	Z		ZX : Z1~Z9	Z	999

- **Marking**



13. Reliability test items and conditions

Item	Reference	Test Conditions	Duration Cycle
Thermal Shock	EIAJ ED-4701	Ta = - 40℃ (30min) ~ 100℃ (30min)	100 Cycle
Room temperature Operating Life Test	Internal Reference	Ta = 25℃, If = Maximum current	1,000 Hours
High Temperature Operating Life Test	Internal Reference	Ta = 85℃, If = Sorting current	1,000 Hours
High Temperature High Humidity Life Test	Internal Reference	Ta = 85℃, 85% RH	1,000 Hours
Low Temperature Storage Test	Internal Reference	Ta = -40℃	1,000 Hours
High Temperature Storage Test	Internal Reference	Ta = 100℃	1,000 Hours

(1) Criteria for judging the damage

Item	Symbol	Condition	Criteria for Judgment	
			MIN	MAX
Forward Voltage	Vf	If = 700mA	-	USL (1) × 1.1
Luminous Intensity	Φv	If = 700mA	LSL (2) × 0.7	-

- USL : Upper Standard Level
- LSL : Lower Standard Level

14. Cautions

(1) Moisture-Proof Package

1.1 When moisture is absorbed into the LED package it may vaporize and expand products during soldering. There is a possibility that this may cause exfoliation of the contacts and damage to the optical characteristics of the LEDs. For this reason, the moisture-proof package is used to keep moisture to a minimum in the package.

1.2 A package of a moisture-absorbent material (silica gel) is inserted into the shielding bag. The silica gel changes its color from blue to pink as it absorbs moisture.

(2) Current limiting

A resistor should be used to limit current spikes that can be caused by voltage fluctuations.
Otherwise damage could occur.

(3) Storage Conditions

3.1 Before opening the package: The LEDs should be kept at 30℃ or less and 90%RH or less. The LEDs should be used within a year. When storing the LEDs, moisture-proof packaging with moisture-absorbent material (silica gel) is recommended.

3.2 After opening the package: The LEDs should be kept at 30℃ or less and 70%RH or less. The LEDs should be soldered within 168 hours (7 days) after opening the package. If unused LEDs remain, they should be stored in moisture-proof packages, such as sealed containers with packages of moisture-absorbent material (silica gel). It is also recommended to return the LEDs to the original moisture-proof bag and to reseal the moisture-proof bag again.

3.3 If the moisture-absorbent material (silica gel) has faded away or the LEDs have exceeded the recommended storage time, baking treatment should be performed using the following conditions.
Baking treatment: more than 24 hours at 65±5℃

3.4 Lumens LED electrode sections are comprised of a silver-plated copper alloy. The silver surface may be affected by environments which contain corrosive gases and so on. Please avoid condition which may cause difficulty environments during soldering operations. It is recommended that the user uses the LEDs as soon as possible.

3.5 Please avoid rapid transitions in ambient temperature, especially in high humidity environments where condensation can occur.

(4) Handling of Silicone (Lens) LEDs

4.1 Avoid silicone resin parts especially with sharp tools such as tweezers.

4.2 Avoid leaving fingerprints on silicone lens part.

(5) Usage

5.1 Do not exceed the values given in this specification.

NOTE :

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