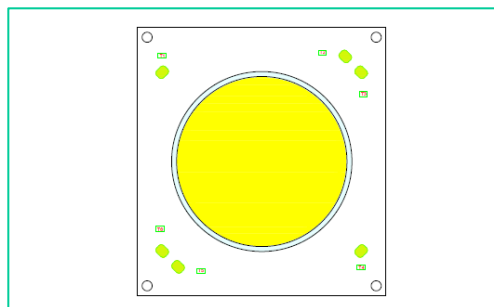


SPEC SHEET



Product : Multi Chip Array LED (120W)

Part No. : IWC-B120R2-P7-AS254F

Date : 2015. 11. 10 Ver. 02

Proposed By	Checked By	Checked By	Checked By	Approval

Comment



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1. Product Outline

1.1 Features

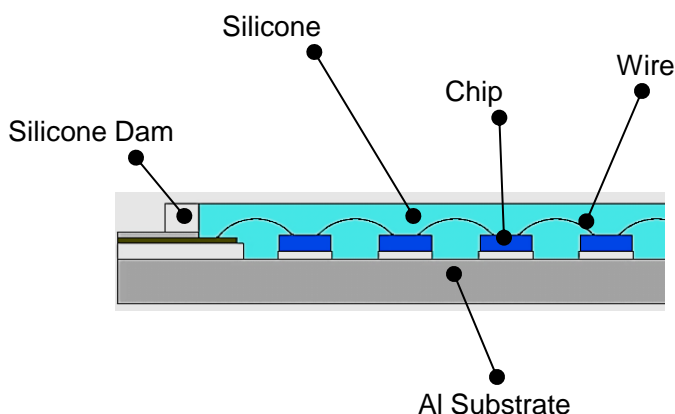
- Chip on Board Type Multi Chip Array
- Been designed for the Direct AC Driver (Free Voltage 100Vac, 220Vac)
- High Power and High Efficiency Package
- Uniform color
- Long Operating Life
- No fading in high temperature and high humidity
- Excellent thermal Conductivity : Low Thermal Resistance

1.2 Applications

- Light (Down Light, Street Light)
Residential, Architectural, Consumer Portable, Pathway
- Electronic Signs and signals
- Sign Display (Lamp, Down Light)
Outdoor, Advertising, Sports Stadium, Shopping Mall

1.3 Layout

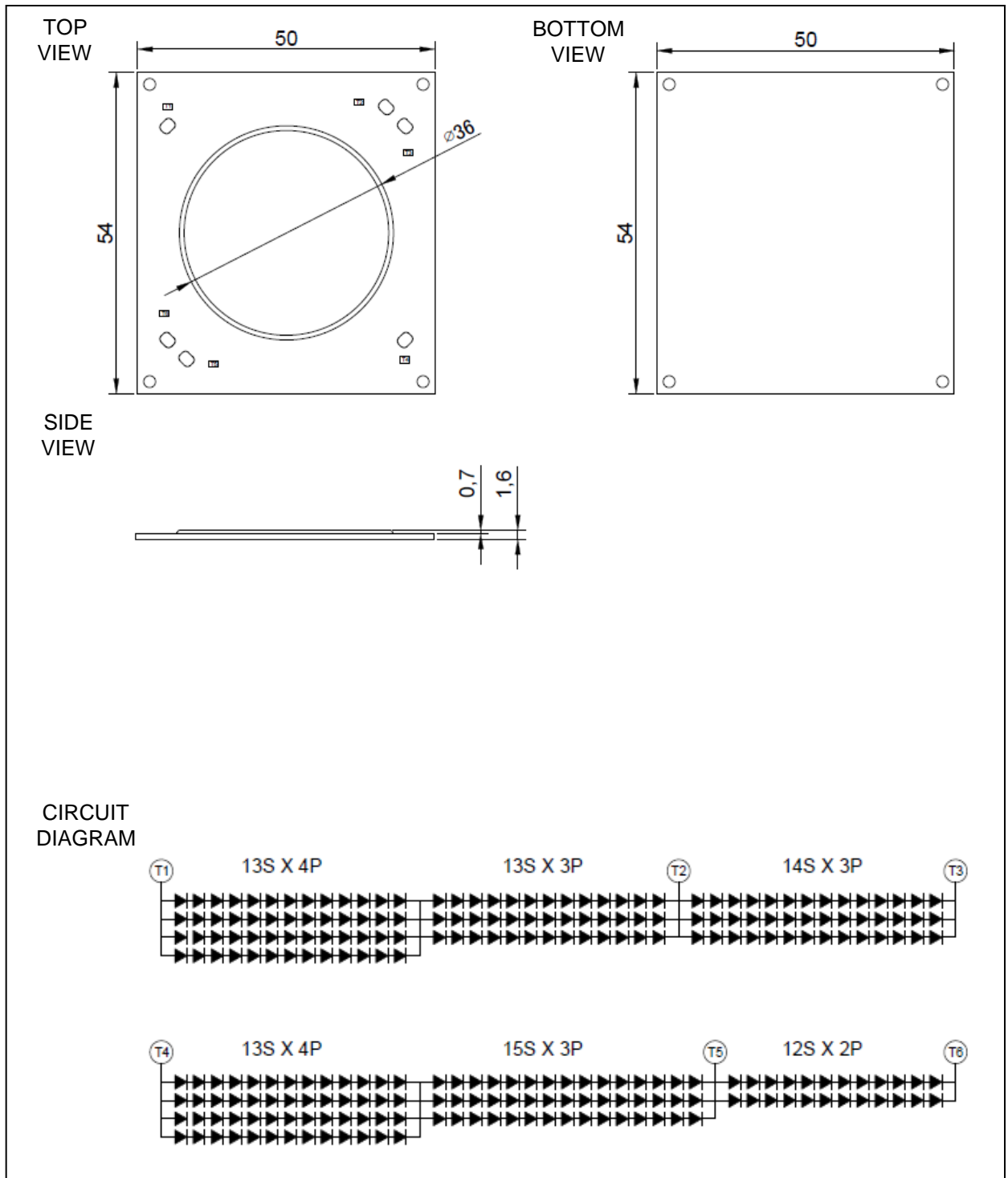
- High reflectance by Al mirror and preventing discoloration using Al
- Decreasing thermal resistance by bonding a chip on Al substrate directly



Multi Chip Array LED (120W) IWC-B120R2-P7-AS254F

2. Outline Drawing and Dimension

Unit : mm
Tolerance : ± 0.1



Note

1. All dimensions are in millimeters
2. All dimensions without tolerances are for reference only

3. Absolute Maximum Ratings (Ta : 25 °C)

Parameter	Symbol	Value	Unit
Power Dissipation	P_d	140	W
Continuous Forward Current ^{*1}	I_F	180	mA
Peak Forward Current ^{*2}	I_{FP}	360	mA
Operating Temperature	T_{opr}	-30 ~ +85	°C
Storage Temperature	T_{stg}	-40 ~ +100	°C
Case Temperature	T_c	95	°C
Junction Temperature ^{*3}	T_j	125	°C

*1 One of the applied current per LED

*2 Duty ratio = 1/10, Pulse width = 10ms

*3 D.C. Current : $T_j = T_c + R_{j-c} \times P_d$

4. Electrical & Optical Characteristics (Ta : 25 °C)

Parameter	Symbol	Condition	Min.	Typ.	Max.	Unit.	
Forward Voltage ^{*4}	V_{dc}	$I_F = 450\text{mA}$		256		V	
Forward Voltage ^{*5}		$I_F = 900\text{mA}$		130			
Reverse Voltage	V_R	$I_F = 10\mu\text{A}$	0.5	-	1.0	V	
Color Coordinates	CIE x CIE y	$I_F = 900\text{mA}$ ($V_{dc} = 130$)	Refer to Color Coordinates Rank				
General Color Rendering Index	Ra		70				
Luminous Flux ^{*6}	Φ_V		14,100	-	15,400	lm	
View Angle ^{*7}	$2\theta_{1/2}$		-	120	-	deg.	
Thermal Resistance	$R_{th(J-C)}$				0.25		°C/W

*4 Serial mode when the apply current

*5 Parallel mode when the apply current

*6 Luminous Flux is measured with an integrating sphere and has an accuracy of 10%

*7 Viewing angle is the angle until 50% of brightness measured from the front part of LED.

5. Rank (VF = 130V, Ta = 25°C)

5.1 Luminous Flux Rank

Rank	Luminous Flux (lm)
Q2	12,800 ~ 14,100
R1	14,100 ~ 15,400

5.2 Forward Voltage Rank

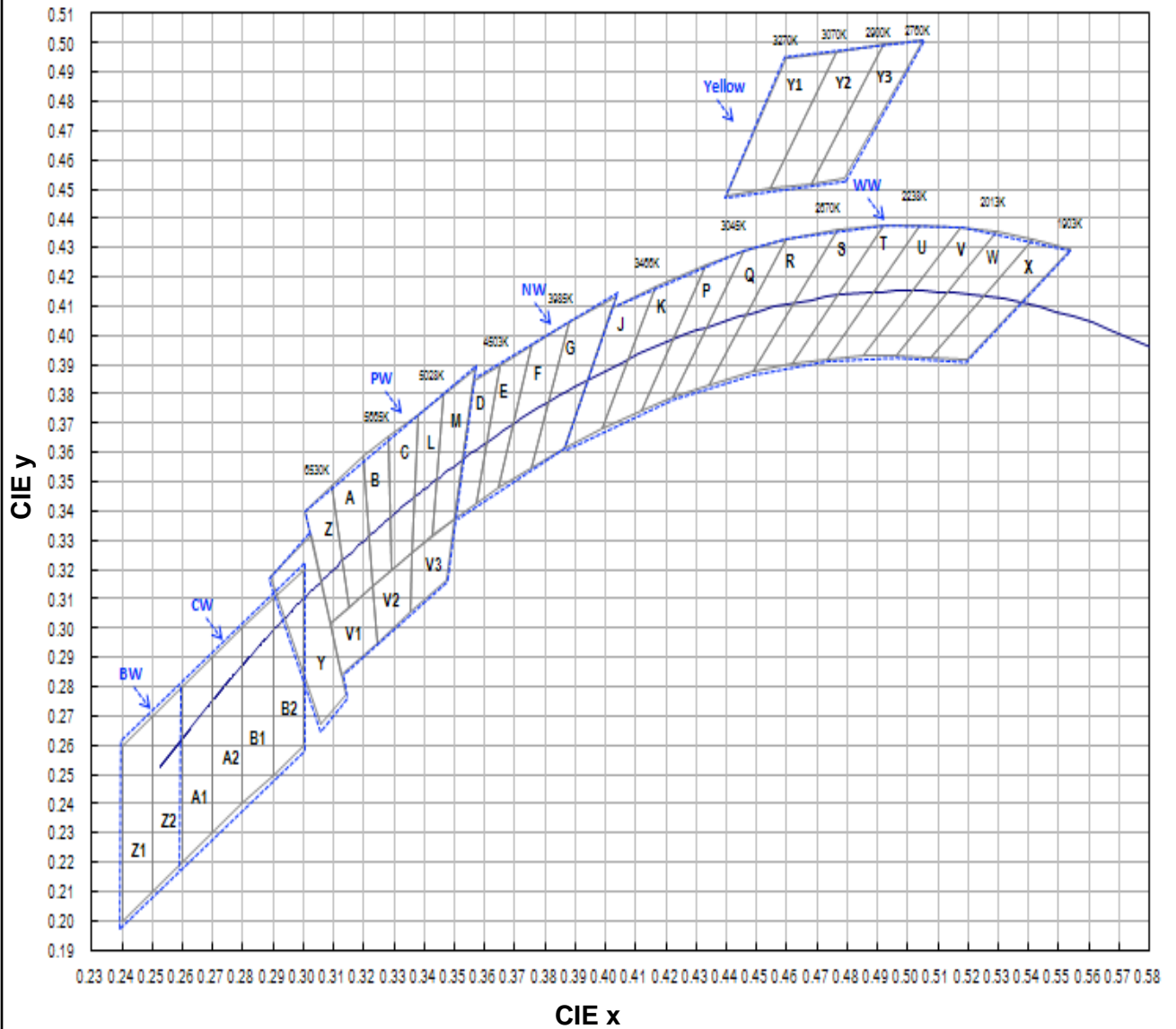
Rank	Forward Voltage(V)
V125	125 ~ 130
V130	130 ~ 135
V135	135 ~ 140

※ Measured in parallel mode

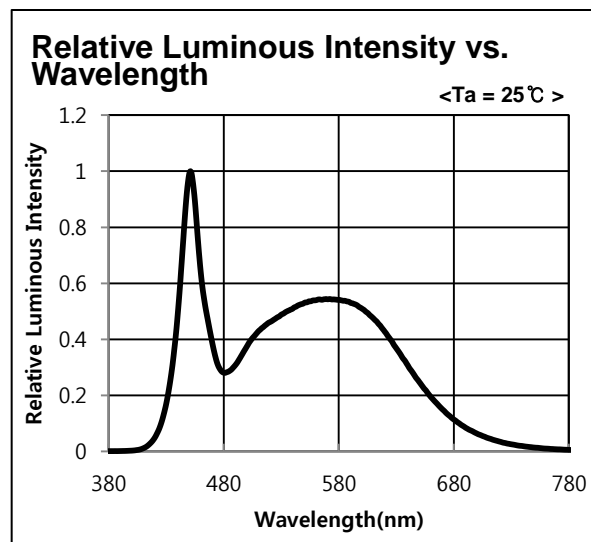
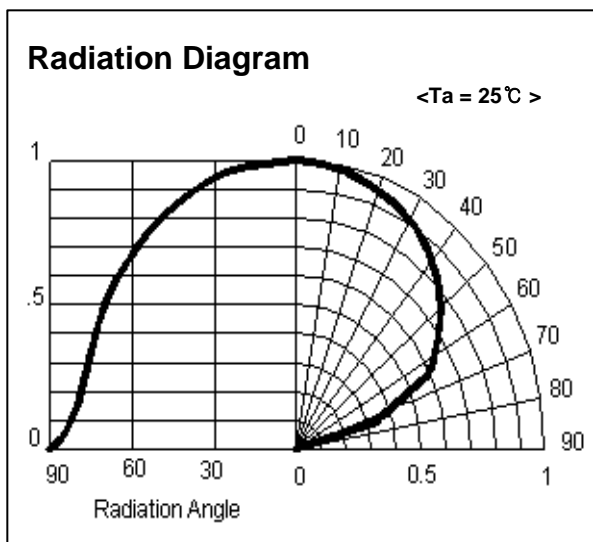
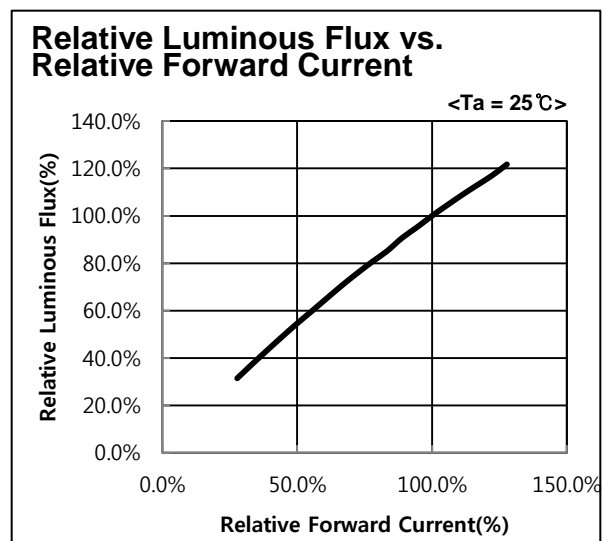
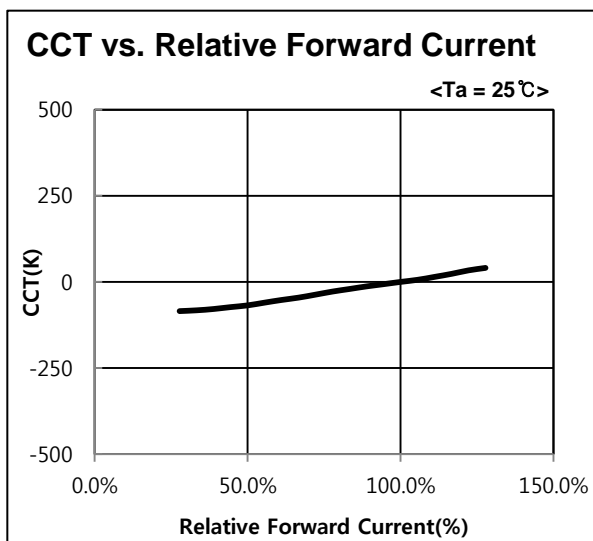
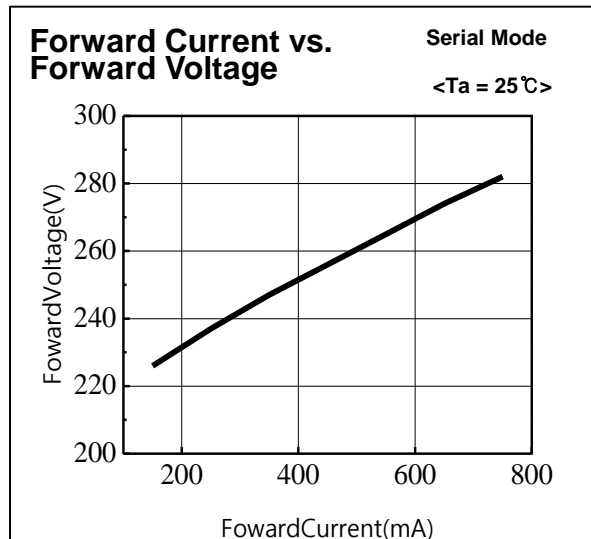
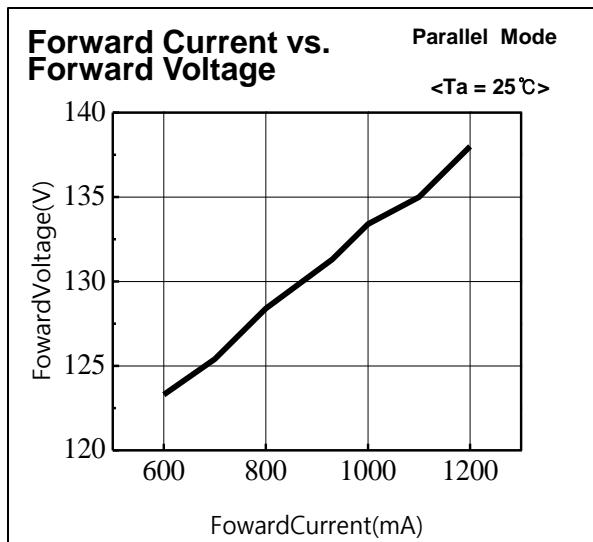
5.3 Color Coordinates Rank

CW								PW			
A1		A2		B1		B2		7500K		6700K	
x	y	x	y	x	y	x	y	x	y	x	y
0.2600	0.2200	0.2700	0.2300	0.2800	0.2400	0.2900	0.2500	0.3057	0.2671	0.3089	0.3012
0.2600	0.2800	0.2700	0.2900	0.2800	0.3000	0.2900	0.3100	0.2891	0.3175	0.3008	0.3399
0.2700	0.2900	0.2800	0.3000	0.2900	0.3100	0.3000	0.3200	0.3025	0.3321	0.3095	0.3484
0.2700	0.2300	0.2800	0.2400	0.2900	0.2500	0.3000	0.2600	0.3140	0.2770	0.3152	0.3070
PW								NW			
6200K		5800K		5500K		5100K		4900K		4600K	
6530K-6020K		6020K-5665K		5665K-5311K		5311K-5028K		5028K-4746K		4746K-4503K	
A		B		C		L		M		D	
x	y	x	y	x	y	x	y	x	y	x	y
0.3152	0.3070	0.3229	0.3142	0.3292	0.3200	0.3362	0.3259	0.3429	0.3317	0.3500	0.3371
0.3095	0.3484	0.3198	0.3585	0.3282	0.3652	0.3381	0.3732	0.3465	0.3797	0.3562	0.3843
0.3198	0.3585	0.3282	0.3652	0.3381	0.3732	0.3465	0.3797	0.3567	0.3881	0.3650	0.3899
0.3229	0.3142	0.3292	0.3200	0.3362	0.3259	0.3429	0.3317	0.3500	0.3371	0.3574	0.3428
NW						WW					
4400K		4000K				3600K		3300K		3100K	
4503K-4260K		4260K-3985K		3985K-3710K		3710K-3465K		3465K-3220K		3220K-3045K	
E		F		G		J		K		P	
x	y	x	y	x	y	x	y	x	y	x	y
0.3574	0.3428	0.3648	0.3479	0.3755	0.3550	0.3865	0.3617	0.3988	0.3684	0.4117	0.3745
0.3650	0.3899	0.3756	0.3966	0.3882	0.4044	0.4022	0.4094	0.4165	0.4169	0.4332	0.4241
0.3756	0.3966	0.3882	0.4044	0.4035	0.4134	0.4165	0.4169	0.4332	0.4241	0.4456	0.4287
0.3648	0.3479	0.3755	0.3550	0.3865	0.3617	0.3988	0.3684	0.4117	0.3745	0.4221	0.3790
WW						Yellow					
2900K		2700K				Y1		Y2		Y3	
3045K-2870K		2870K-2670K		2670K-2500K							
Q		R		S		x	y	x	y	x	y
0.4221	0.3790	0.4599	0.4329	0.4767	0.4360	0.4599	0.4949	0.4763	0.4987	0.4921	0.4994
0.4456	0.4287	0.4767	0.4360	0.4921	0.4374	0.4763	0.4970	0.4921	0.4994	0.5048	0.5007
0.4599	0.4329	0.4486	0.3875	0.4621	0.3902	0.4546	0.4502	0.4679	0.4520	0.4790	0.4536
0.4344	0.3833	0.4344	0.3833	0.4486	0.3875	0.4403	0.4474	0.4546	0.4502	0.4679	0.4520

Chromaticity Diagram

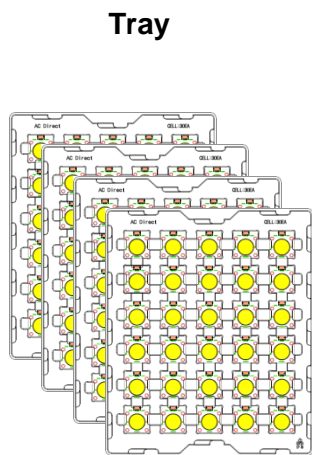


6. Typical Characteristic Curve



8. Packing Dimension

< Unit : mm / Tolerance : ±0.1mm >

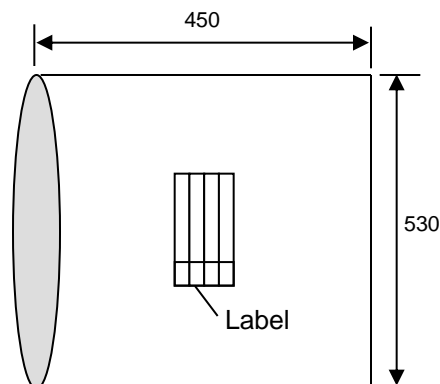


Tray

Bake: 60°C, 24hrs




Aluminum Shield Bag

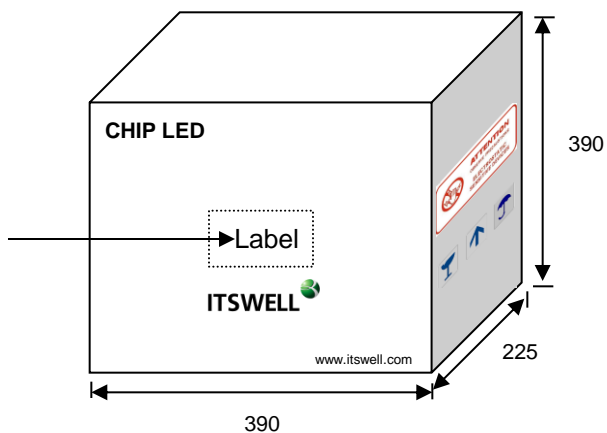


Shield Bag(Polyester/Al/LDPE)
5 Tray/Bag (T = 0.1 mm) with Silica gel 1ea
360 ea /1 Bag



Al Pack Label, Tray Label (70 × 37)

ITSWELL 				
Lot :		IWX-BXXR2-XX-XXXX		
	MIN	AVG	MAX	STD
VF				
CCT				
CRI				
Q'ty :		ea	yyyy/mm/dd	

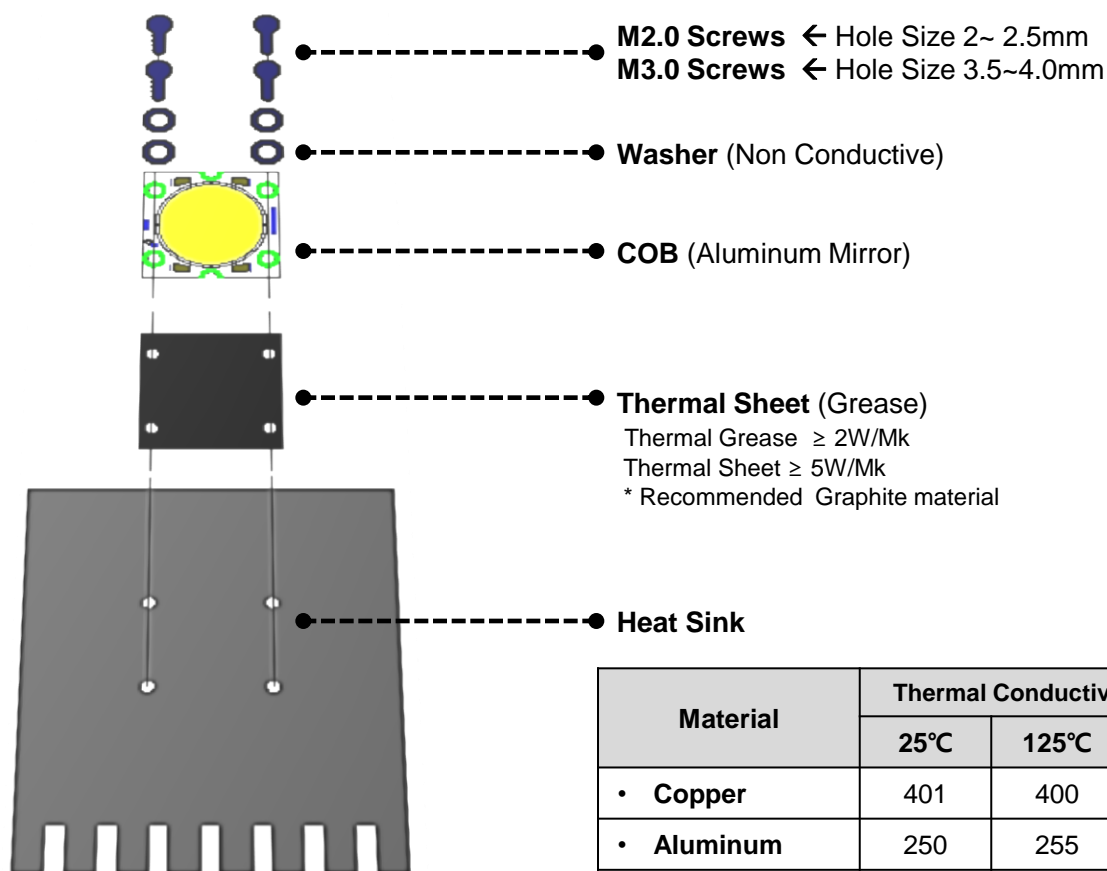


Item	Dimensions (mm)	Tray / Box	Q'ty / Box(ea)
Tray	370 x 310	–	70
Al Shield Bag	450 x 540	–	700
Outer Box	390 x 225 x 390	2 Max	1,400 Max

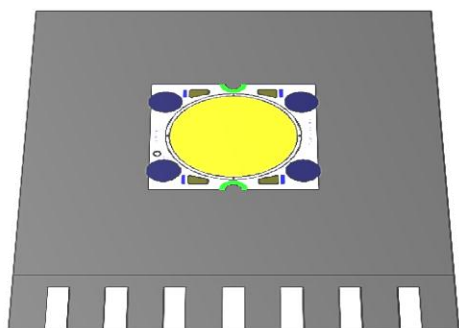
9. Precaution in use

9.1 Assembly Method

- COB should be paste a thermal sheet (grease) between COB and heat sink. and use screw to eliminate air gaps and voids
 - * **Fix COB on heat sink tightly**
- COB should be firmly secured onto appropriate heat sink by fastening screws on 2~4 positions of the product. .
 - * **Please using recommended screws because of Withstanding Voltage**

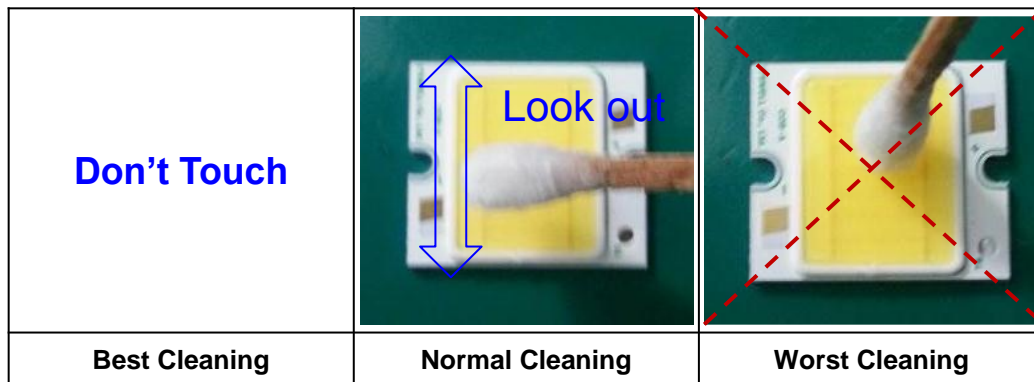


Material	Thermal Conductivity(W/mK)		
	25°C	125°C	225°C
• Copper	401	400	398
• Aluminum	250	255	250
• Iron	80	68	60
• Carbon Steel	54	51	47
• Stainless steel	16	17	19



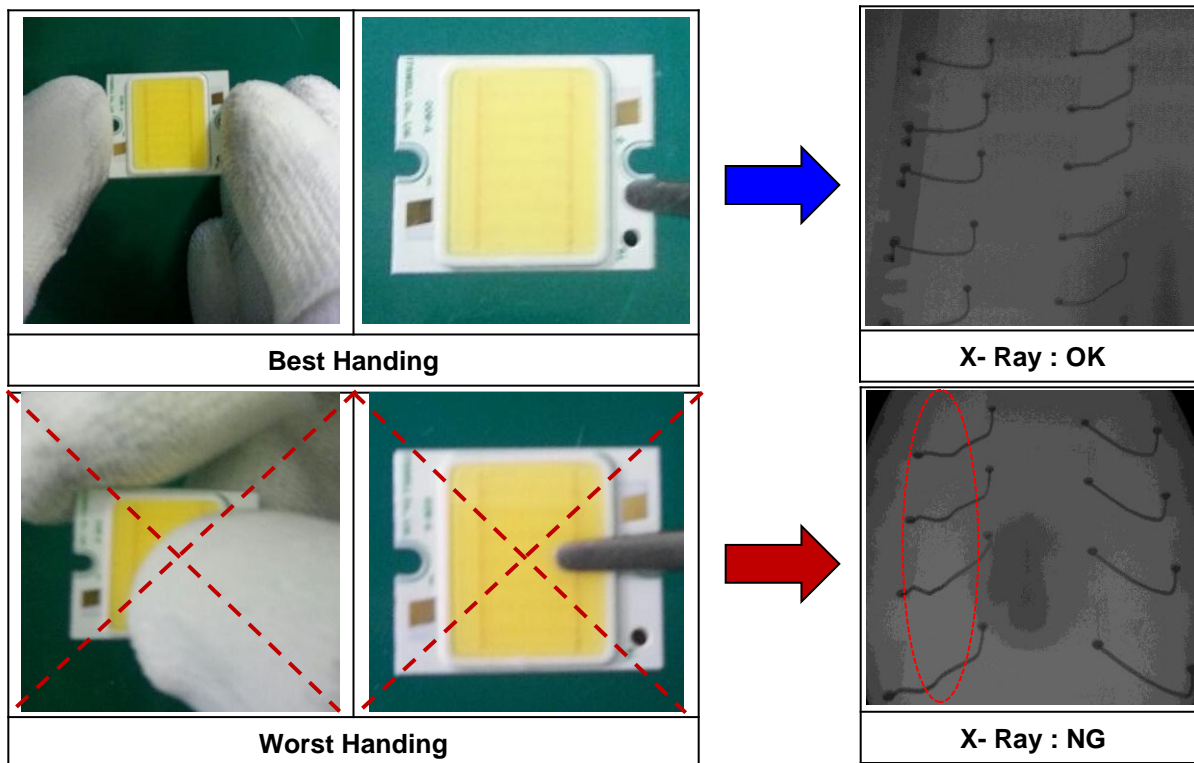
9. 2 Cleaning

- COB doesn't Clean before Using and Cleaned before Packing
- If COB needs to Clean , Alcohol (or IPA) used removes dirt



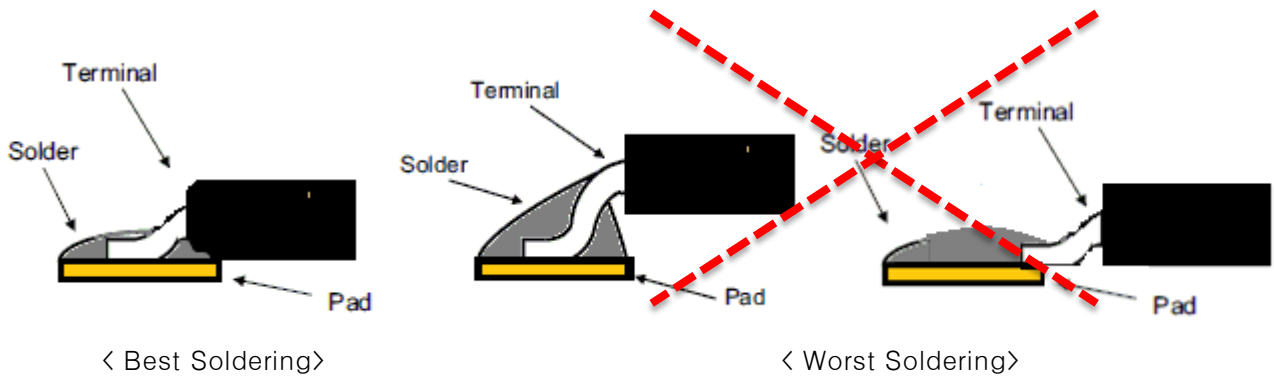
9. 3 Handing

- Do not touch the emitting area of COB
- Avoid and contact With the emitting area
- Applying stress to the emitting area can result in damage to COB



9.4 Recommend Soldering Profile

- The Assembly process enables the solder pads of the LED Arrays to reach 255 ~260°C (7~10sec) to ensure consistent melting of this solder paste.
Peak Temp Max. 260 / Peak Time Max 10sec



9.5 Storage

- Before opening the package, the LEDs should be kept at 30°C or less and 70%RH or less.
- The LEDs should be used within a year.
- After opening the package, the LEDs should be kept at 30°C or less and 30%RH or less.
- The LEDs should be used within 572 hours (4 Week) after opening the package.
- If the moisture absorbent material (silicagel) has faded away or the LED have exceeded the storage time, baking treatment should be performed using the following conditions.
Baking treatment: 60°C ±5 for 24 hours.

9.6 Static Electricity

- Static electricity or surge voltage damages the LEDs. It is recommended that a wrist band or an anti-electrostatic glove be used when handling the LEDs.
- A tip soldering iron is requested to be grounded. An ionizer should also be installed where risk of static.
- All devices, equipment and machinery must be properly grounded (via 1MΩ). It is recommended that measures be taken against surge voltage to the equipment that mounts the Power SMD.

9.7 Heat generation

- When the LEDs are illuminating, operating current should be decided after being considering the ambient maximum temperature.
- Please consider the heat generation of the LED when it is designed the PCB.
- The LED's must be mounted on MCPCB or heat sink or applied thermal pad.

9.8 JEDEC Information

JEDEC has defined a moisture sensitivity classification. So that the users can properly store and Handle the devices and to avoid subsequent thermal and mechanical damage during the assembly reflow attachment or repair operation.

The present moisture sensitivity standard contains six levels, the lower the level, the longer the devices floor life.

Level	Floor Life		Soak Requirements				
			Standard		Accelerated Equivalent		
	Time	Condition			Time (hrs)	condition	0.40~0.48eV
1	Unlimited	≤30℃/85% RH	168 +5/-0	85℃/85% RH	N/A	N/A	N/A
2	1 year	≤30℃/60% RH	168 +5/-0	85℃/60% RH	N/A	N/A	N/A
2a	4 week	≤30℃/60% RH	696 +5/-0	30℃/60% RH	120 +1/-0	168 +1/-0	60℃/60% RH
3	168 hrs	≤30℃/60% RH	192 +5/-0	30℃/60% RH	40 +1/-0	52 +5/-0	60℃/60% RH
4	72 hrs	≤30℃/60% RH	96 +5/-0	30℃/60% RH	20 +1/-0	24 +5/-0	60℃/60% RH
5	48 hrs	≤30℃/60% RH	72 +5/-0	30℃/60% RH	15 +1/-0	20 +5/-0	60℃/60% RH
5a	24 hrs	≤30℃/60% RH	48 +5/-0	30℃/60% RH	10 +1/-0	13 +5/-0	60℃/60% RH
6	Time On Level (TOL)	≤30℃/60% RH	TOL	30℃/60% RH	N/A	N/A	N/A

<Note>

1. The standard soak time includes a default value of 24 hour for semiconductor manufacture's exposure time between bake and bag, and includes the maximum time allowed out of the bag at the distributor's facility
2. Joint Electron Devices Engineering Councils (JEDEC) is the leading developer of standards for the solid-state industry. Almost 3100 participants, appointed by some 290 companies work together in 50 JEDEC committees to meet the needs of every segment of the industry, manufacturers and consumers alike. The publications and standards that they generate are accepted throughout the world. (<http://www.jedec.org>)

10. Reliability

10.1 Reliability Test Item

Items	Test Conditions	Note
High Temperature Storage	100℃, 1,000hr	0/5
Low Temperature Storage	-40℃, 1,000hr	0/5
Temp. Humidity Storage	85℃, 85% RH, 1,000hr	0/5
Steady State Operating Life	25℃, 930mA, 1,000hr	0/5
High Temperature Operating Life	85℃, 930mA, 1,000hr	0/5
Low Temperature Operating Life	-40℃, 930mA, 1,000hr	0/5
Steady State Operating Life Of High Humidity Heat	85℃, 85% RH, 180mA, 1,000hr	0/5
Thermal Shock	-40℃(30min)→100℃(30min), 100 cycle	0/5
ESD	HBM, 100 pF, 1.5 kohm, 3 times	0/5

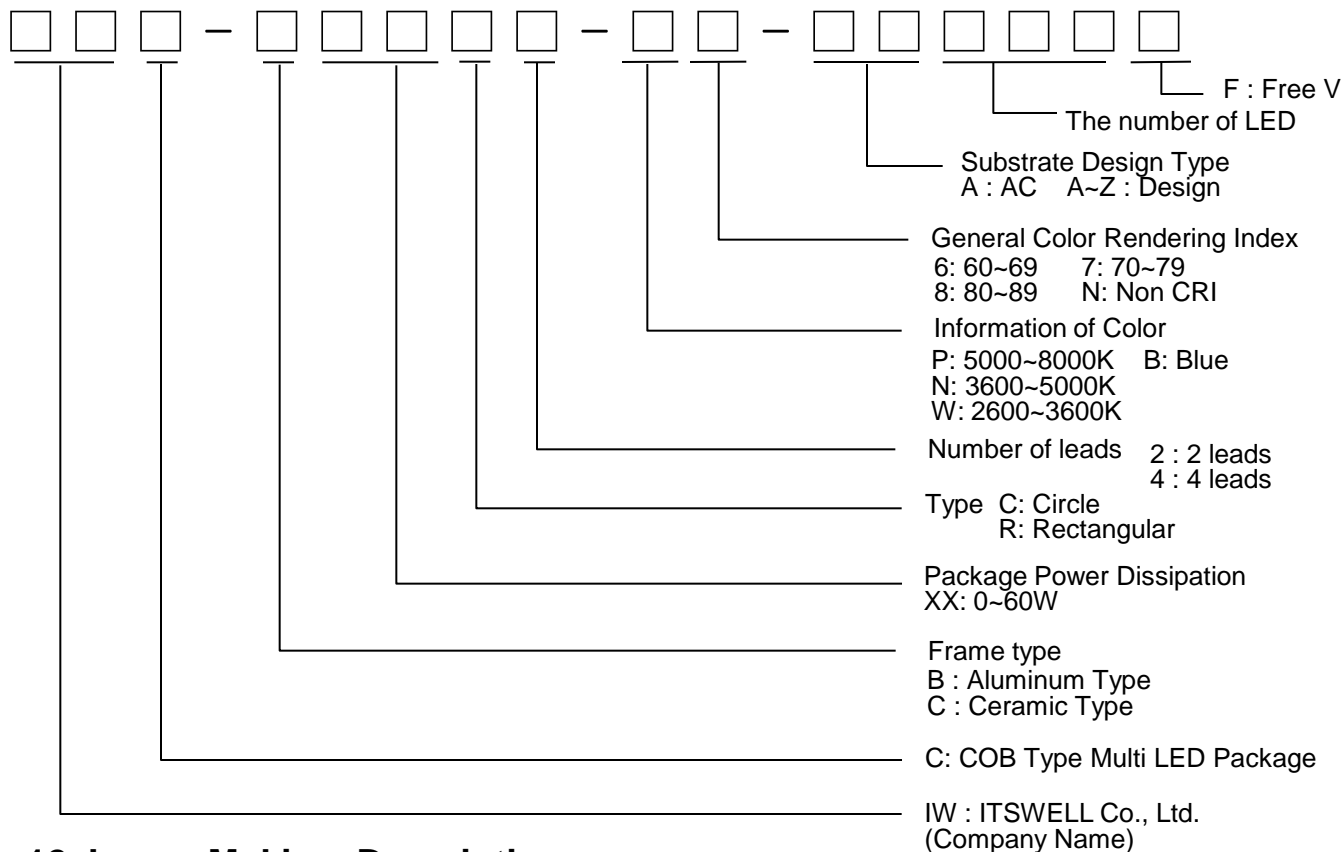
※ Measured in parallel

10.2 Criteria for Judging the Damage

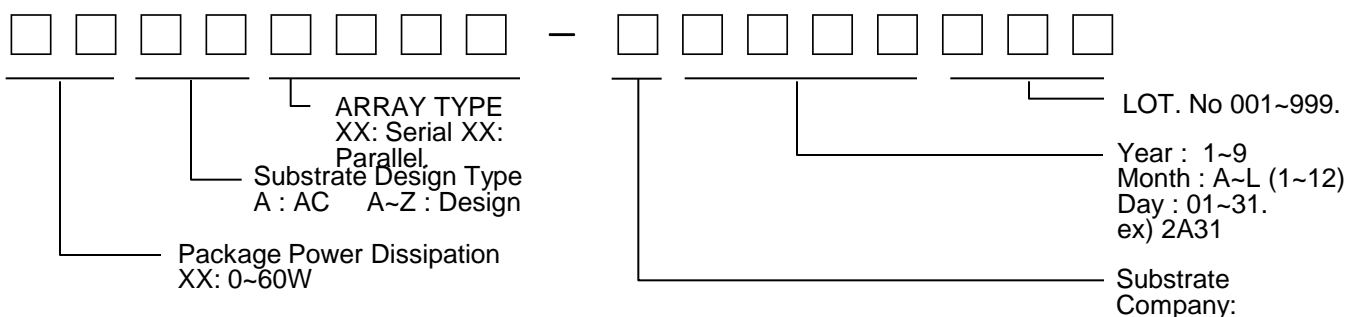
Items	Test Conditions	Criteria for judgment
Luminous Flux (ϕ_V)	$I_F=930mA$	> 70% of S
Forward Voltage (V_F)	$I_F=930mA$	Less than 110% of U

* U means the upper limit of specified characteristics, S means initial value.

11. Part Name Description



12. Laser Making Description



13. Attention : Electric Static Discharge (ESD) Protection



The symbol shown on the page herein to introduce 'Electro-Optical Characteristics'. ESD protection for GaP and AlGaAs based chips is still necessary even though they are safe in low static-electric discharge. Material in AlInGaP, GaP, or/and InGaN based chips are STATIC SENSITIVE devices. ESD protection has to be considered and taken in the initial design stage. If manual work/process is needed, please ensure the device is well protected from ESD during all the process.



