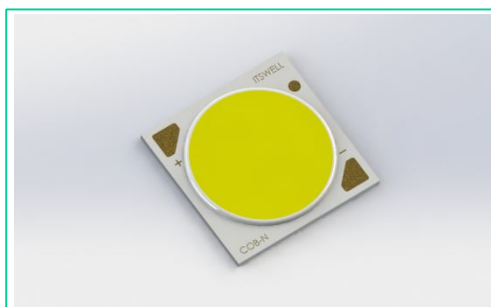


SPEC SHEET



Product : Multi Chip Array LED (27W)

Part No. : IWC-B27R2-XX-N1206

Date : 2015. 01. 05 (Ver. 0.1)

Proposed By	Checked By	Checked By	Checked By	Approval

Comment

--

ITSWELL 

Incheon Company :
58B-4L, 193 Namdongseo-ro, Namdong-gu, Incheon 405-817 KOREA
TEL:+82-32-813-2002, FAX:+82+32-816-1900
URL: <http://www.itswell.com>

Contents

1. Product Outline		3
2. Outline Drawing and Dimension		4
3. Absolute Maximum Rating		5
4. Electrical & Optical Characteristics		5
5. Rank (Luminous Flux, Forward Voltage, Color Coordinates)		6
6. Typical Characteristic Curve		8
7. Dimension of Tray		9
8. Packing Dimension		10
9. Precaution in Use		11
10. Reliability		15
11. Part Name Description		16
12. Laser Making Description		16
13. Attention : Electric Static Discharge(ESD) Protection		16
14. Revision History		17

1. Product Outline

1. 1 Features

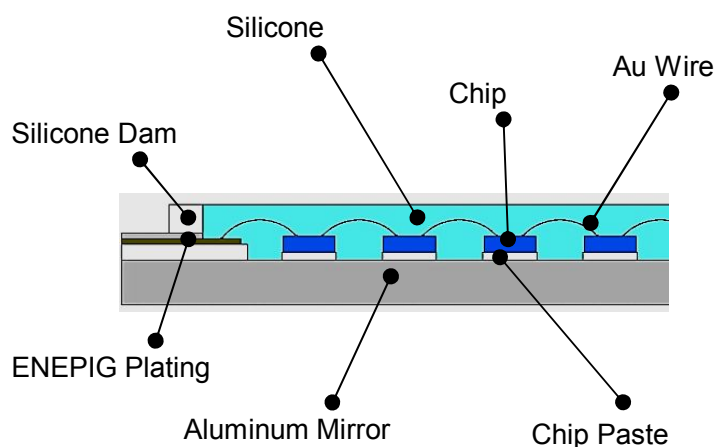
- Chip on Board Type Multi Chip Array
- High Power and High Efficiency Package
- Higher Energy Efficient than Incandescent, Halogen and Some Fluorescent Lamps
- Don't need Reflow Process
- Long Operating Life
- Low Thermal Resistance
- ESD Protection 4KV

1. 2 Applications

- Light (Lamp, Down Light, Street Light)
Residential , Architectural, Consumer Portable , Pathway
- Automotive (Lamp)
Head Lamp, Fog Lighting, Interior Illumination, Exterior Illumination
- Sign Display (Lamp, Down light)
Out Door , 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



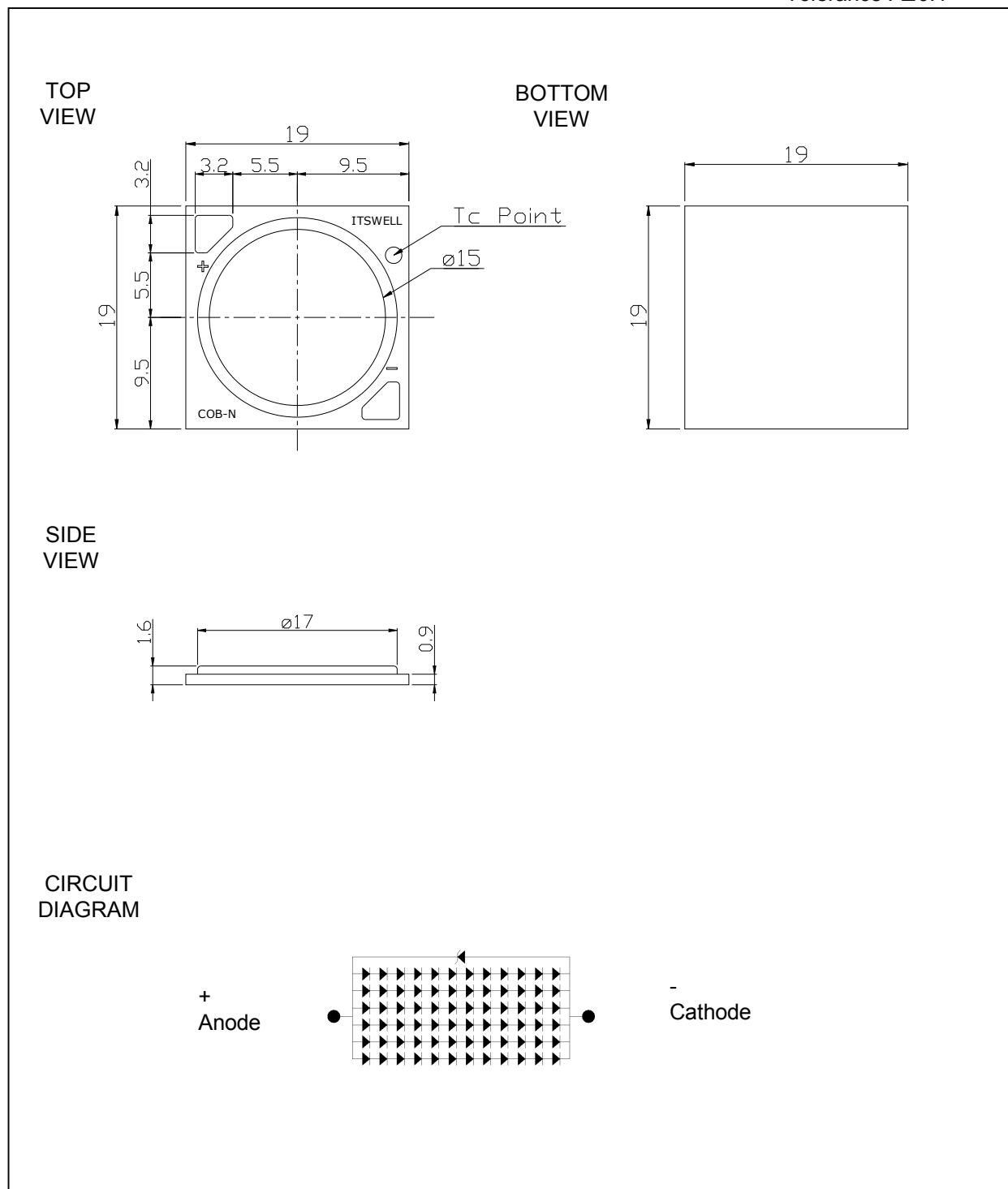
Multi Chip Array LED

IWC-B27R2-XX-N1206



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
		Min.	Typ.	Max.	
Power Dissipation	P _d	-	26.6	42	W
Continuous Forward Current	I _F	-	720	1080	mA
Peak Forward Current ^{*1}	I _{FP}	-	-	2160	mA
Operating Temperature	T _{opr}	-40	-	85	°C
Storage Temperature	T _{stg}	-40	-	100	°C
Case Temperature	T _c	-	100	95	°C
Junction Temperature ^{*2}	T _j	-	-	125	°C
Thermal Resistance	R _{th (J-C)}	-	0.71	-	°C/W

^{*1} Duty ratio = 1/10, Pulse width = 10ms

^{*2} D.C. Current : T_j = T_c + R_{j-c} x P_d

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

Part Number	CCT (K)	CRI ^{*3} Ra	Luminous Flux ^{*4} Φ _v (lm)		Forward Voltage ^{*5} V _F (V)		View Angle ^{*6} 2θ _{1/2} (deg.)
	Typ.	Min.	540mA	720mA	540mA	720mA	Typ.
IWC-B27R2-P8-N1206 (5700K)	5700K	80	2660	3400	36	37	120
IWC-B27R2-P8-N1206 (5000K)	5000K	80	2680	3430	36	37	120
IWC-B27R2-N8-N1206 (4000K)	4000K	80	2640	3380	36	37	120
IWC-B27R2-W8-N1206 (3000K)	3000K	80	2580	3290	36	37	120

^{*3} Tolerance is ±2 on CRI measurements.

^{*4} Luminous Flux is measured with an integrating sphere and has an accuracy of ±7%

^{*5} Tolerance is ±3% on forward voltage measurements.

^{*6} Viewing angle is the angle until 50% of brightness measured from the front part of LED.

* Color Coordinates : Refer to Color Coordinates Rank

Multi Chip Array LED

IWC-B27R2-XX-N1206



5. Rank (IF = 720mA, Ta = 25℃)

5.1 Luminous Flux Rank

Rank	Luminous Flux (lm)
K2	2700 ~ 3100
L1	3100 ~ 3600
L2	3600 ~ 4100

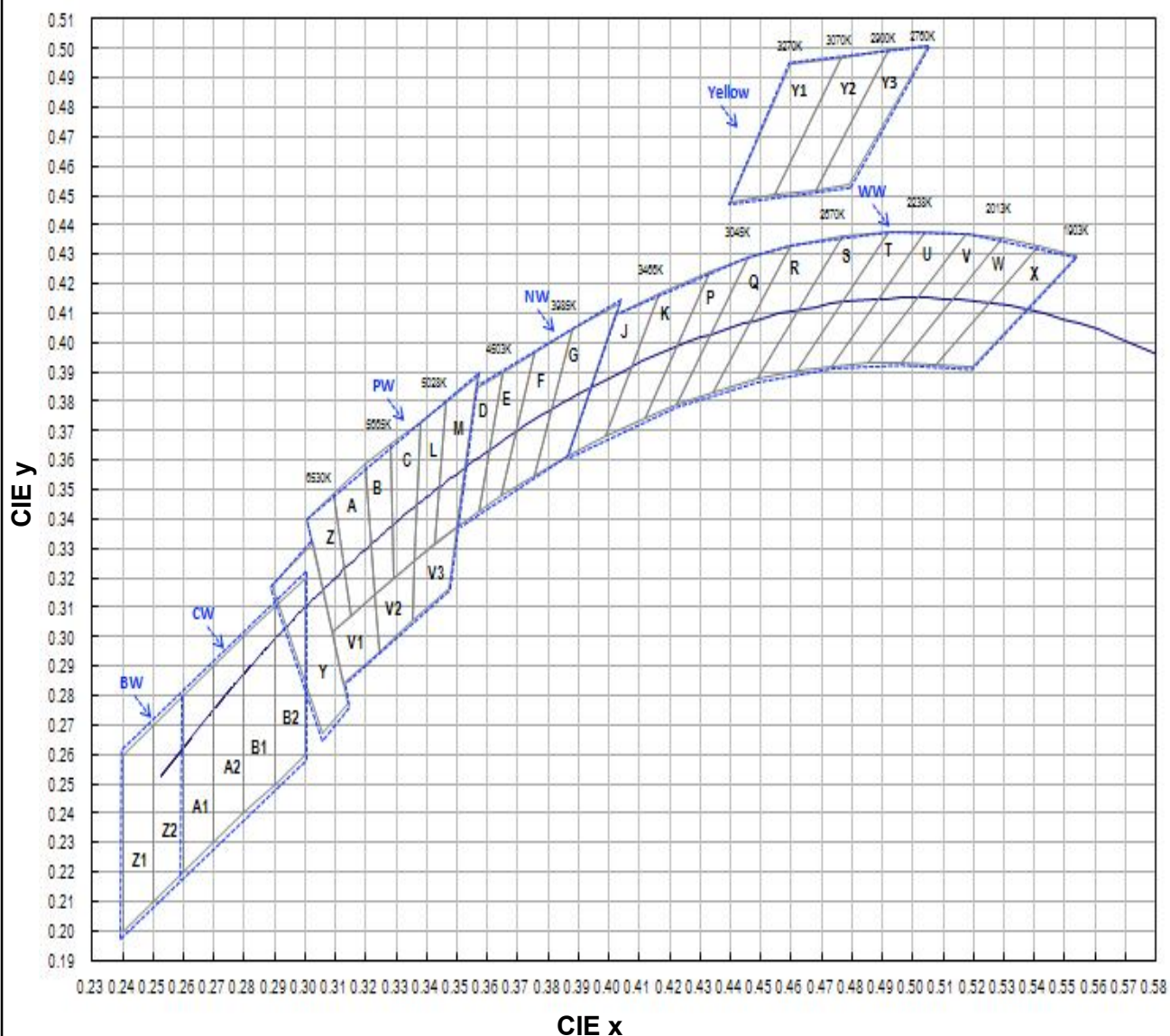
5.2 Forward Voltage Rank

Rank	Forward Voltage (V)
G	35.0 ~ 40.0

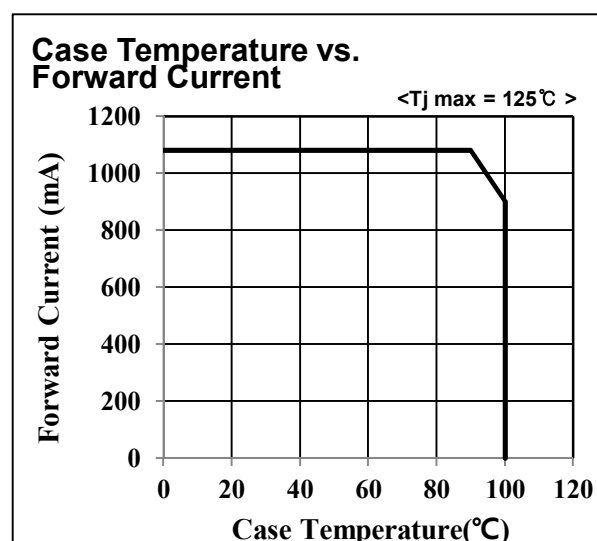
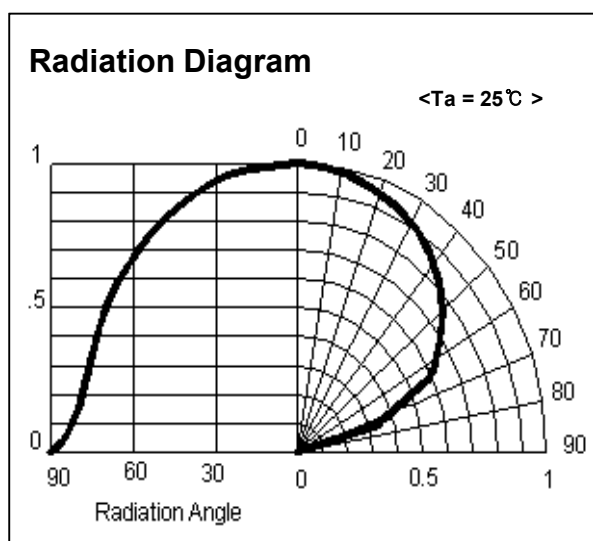
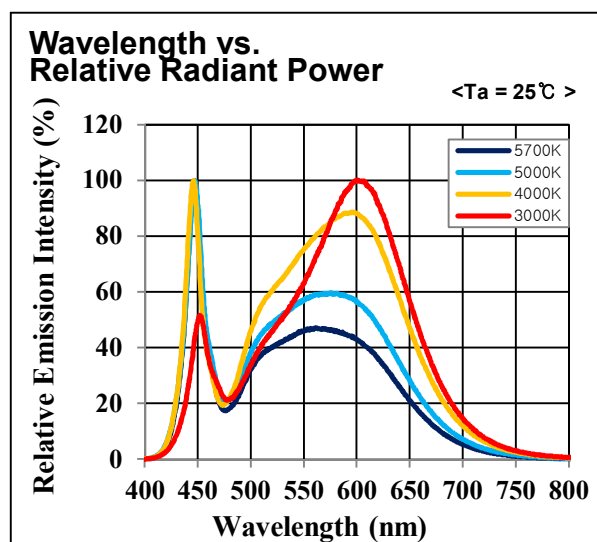
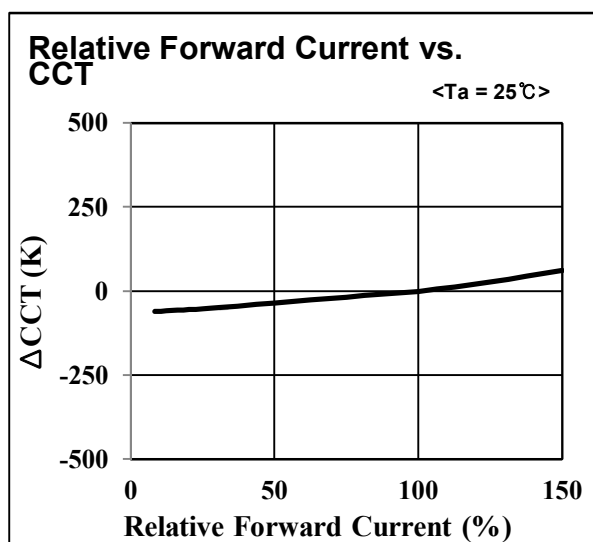
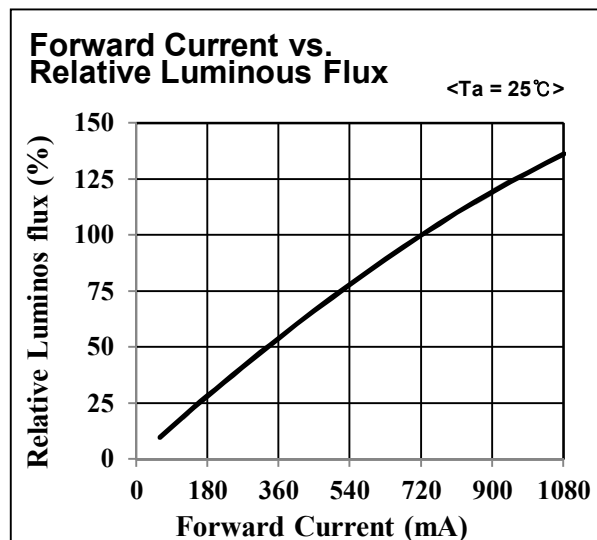
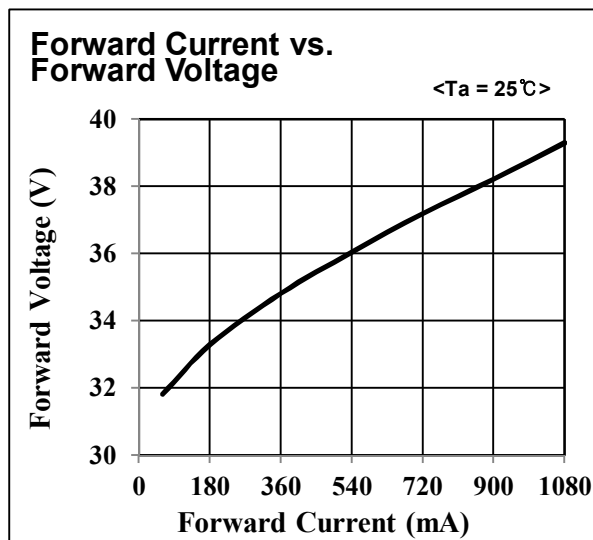
5.3 Color Coordinates Rank

CW								PW			
A1		A2		B1		B2		7500K		6700K	
								8145-7040K		7040K-6530K	
								Y		Z	
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	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



Technical drawing of a 72EA tray. The drawing shows a top view of the tray with a grid of 72 cells (6 rows by 12 columns). The overall dimensions are 310.00 (width) by 370.00 (height). The tray has a 10X10 hole in the top-left corner, highlighted in yellow. The dimensions are as follows:

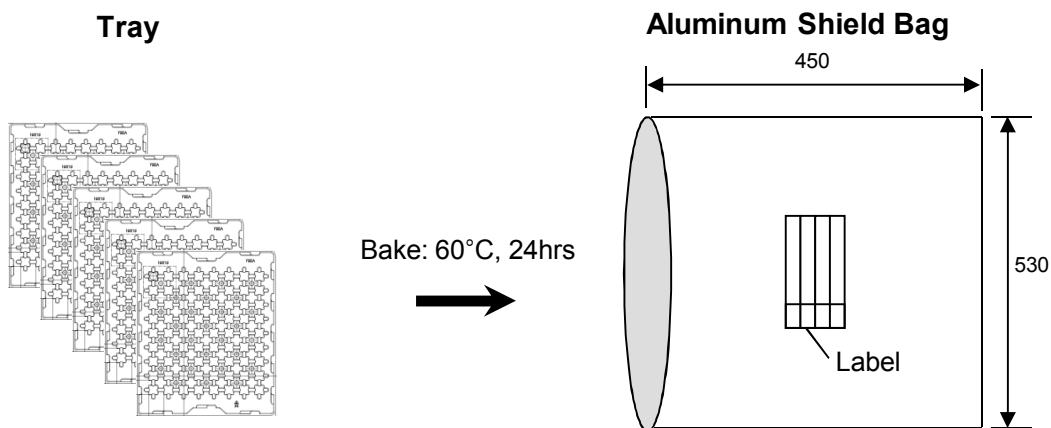
- Overall width: 310.00
- Overall height: 370.00
- Tray width (excluding side flaps): 34.00
- Tray height (excluding top and bottom flaps): 32.00
- Side flaps: 0.80 (top), 4.00 (bottom)
- Tray width (excluding side flaps): 34.00
- Tray height (excluding top and bottom flaps): 32.00

Multi Chip Array LED IWC-B27R2-XX-N1206



8. Packing Dimension

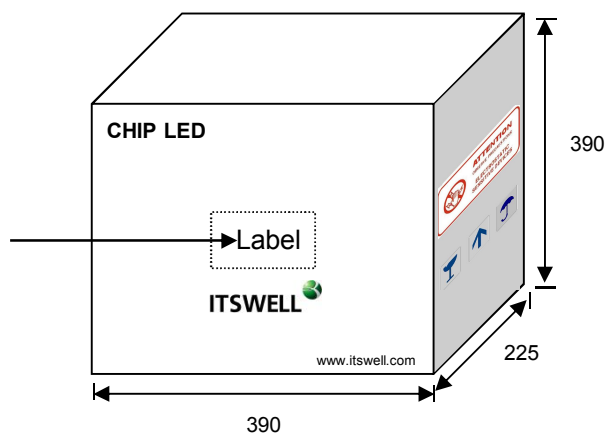
< Unit : mm / Tolerance : $\pm 0.1\text{mm}$ >



Shield Bag(Polyester/Al/LDPE)
10 Tray/Bag (T = 0.1 mm) with Silica gel 1ea
720ea /1 Bag

Al Pack Label, Tray Label (70 × 37)

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

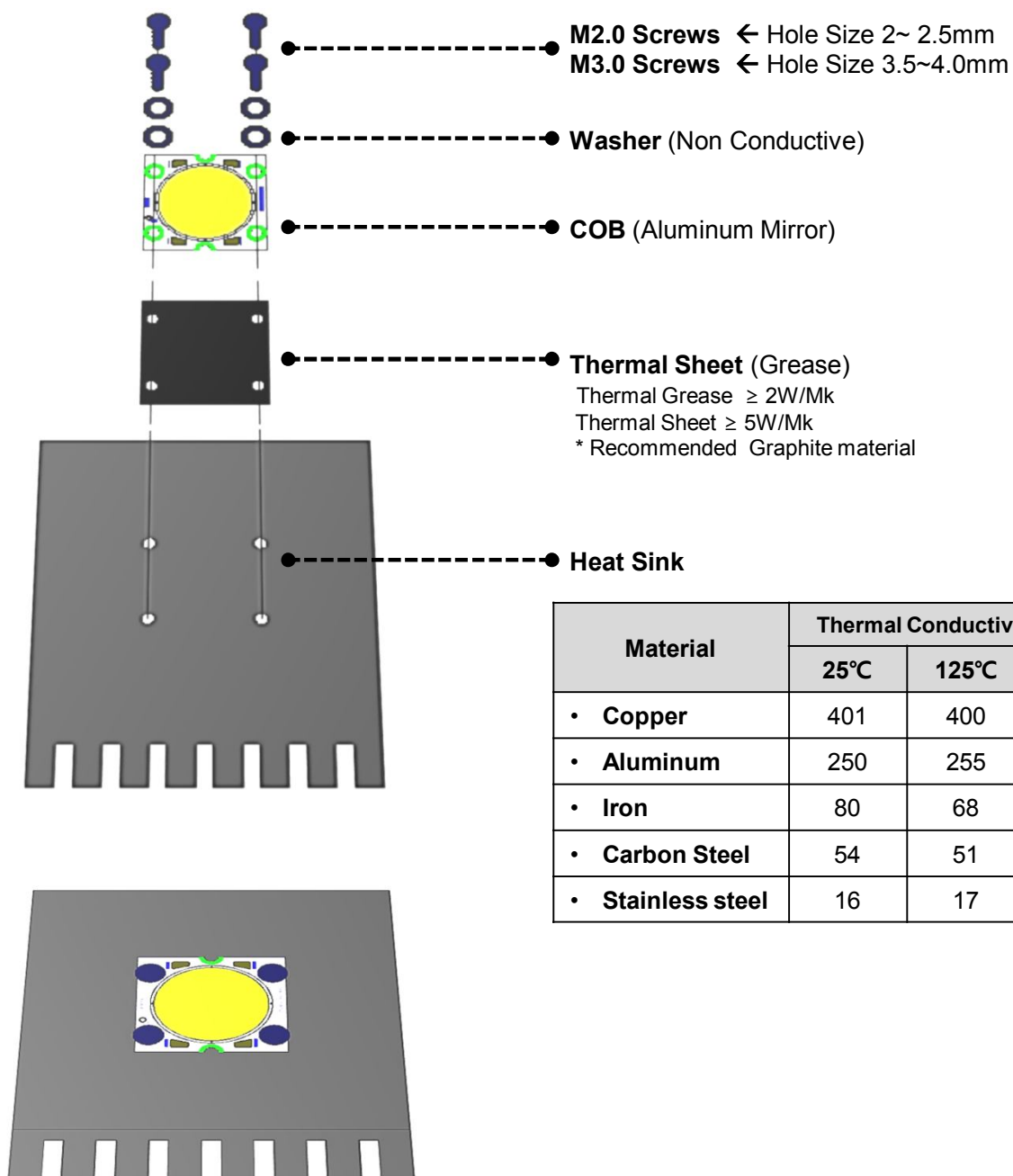


Item	Dimensions (mm)	Tray / Box	Q'ty / Box(ea)
Tray	370 x 310	—	72
Al Shield Bag	450 x 540	—	720
Outer Box	390 x 225 x 390	3 Max	2160 Max

9. Precaution in use

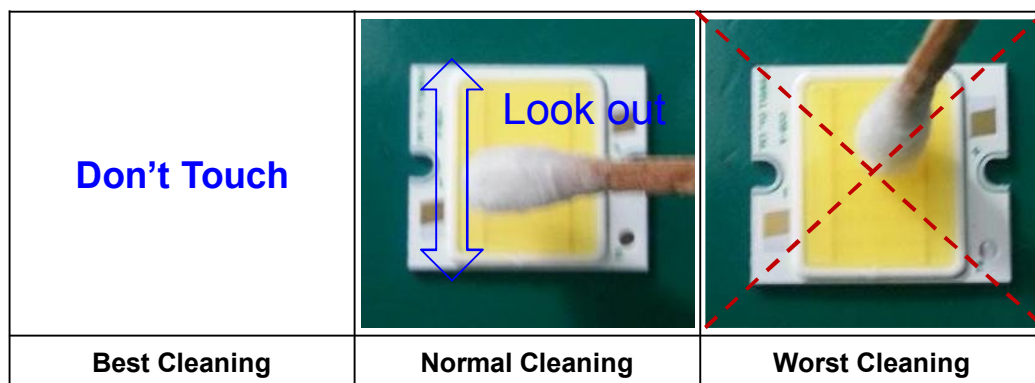
9.1 Assembly Method

- 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**



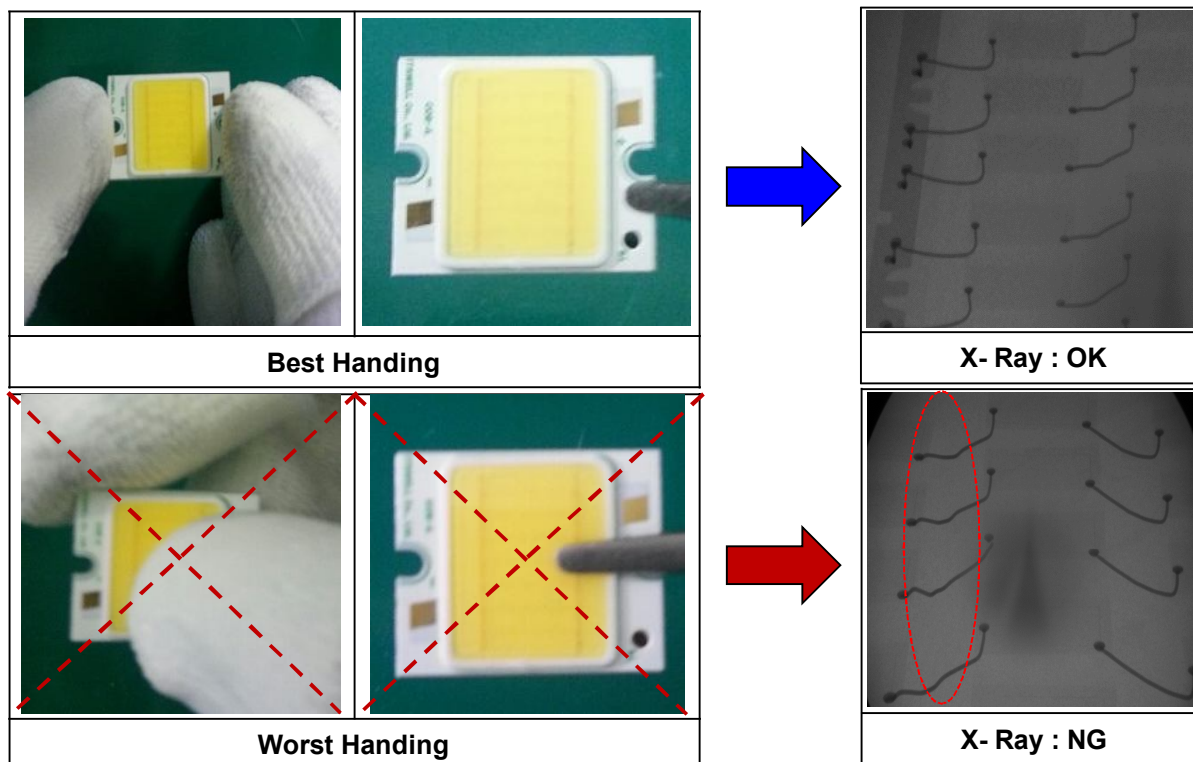
9. 2 Cleaning

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



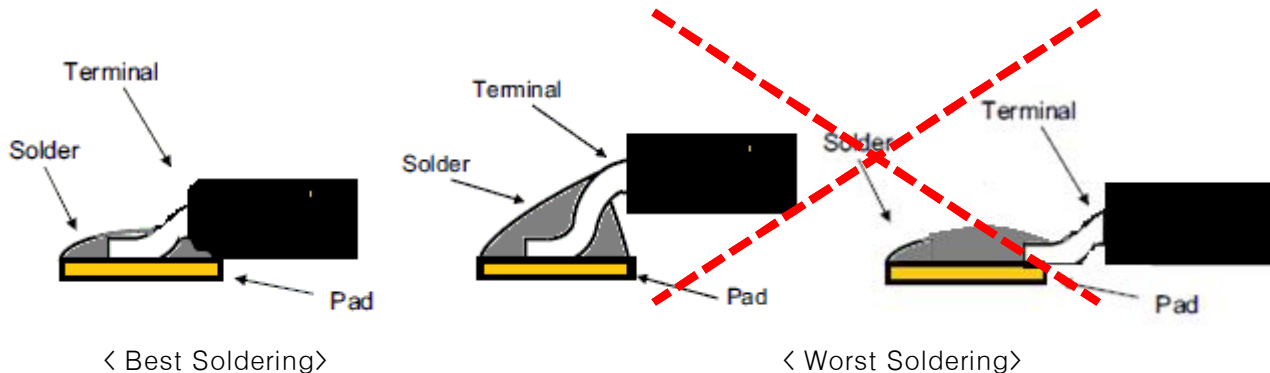
9. 3 Handing

- 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		
					0.40~0.48eV	0.40~0.48eV	condition
	Time	Condition	Time (hrs)	condition	Time (hrs)	Time (hrs)	
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

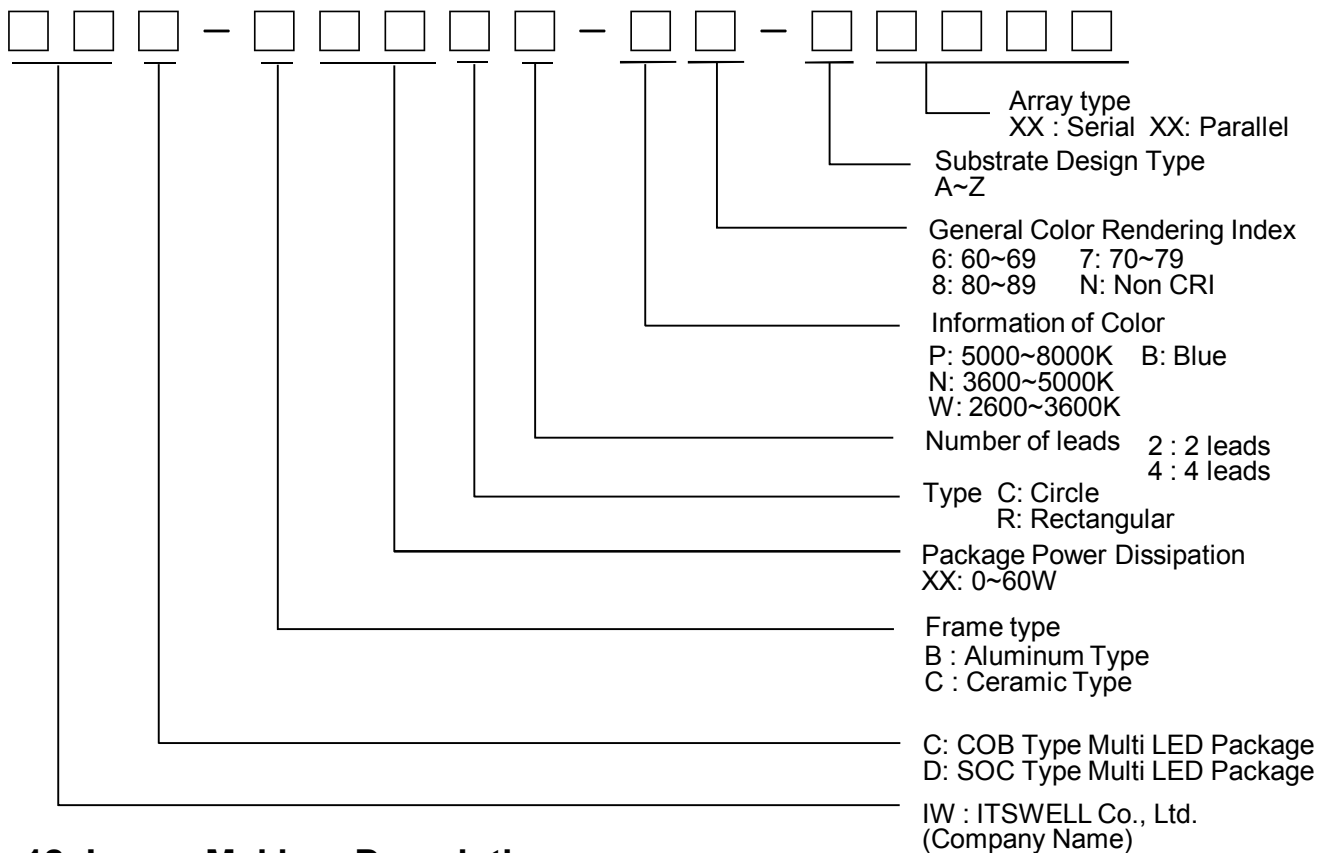
Items	Test Conditions	Note
High Temperature Storage	100℃, 1,000hr	0/5
Low Temperature Storage	-40℃, 1,000hr	0/5
Temp. Humidity Storage	85℃, 85% RH, 1,000hr	0/5
Steady State Operating life	25℃, 720mA, Tj=max, 1,000hr	0/5
High Temperature Operating Life	85℃, 720mA, Tj=max, 1,000hr	0/5
Low Temperature Operating Life	-40℃, 720mA, Tj=max, 1,000hr	0/5
Steady State Operating life Of High Humidity Heat	85℃, 85% RH, 720mA, Tj=max, 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

10.2 Criteria for Judging the Damage

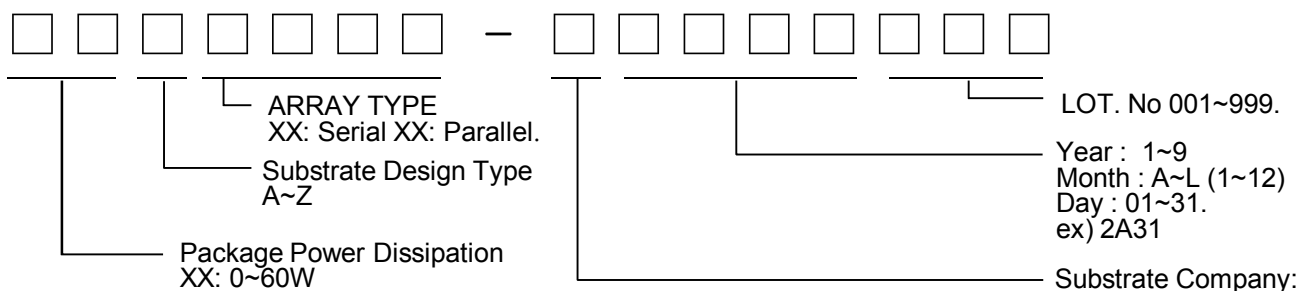
Items	Test Conditions	Criteria for judgment
Luminous Flux (Φ_V)	$I_F=720mA$	> 70% of S
Forward Voltage (V_F)	$I_F=720mA$	Less than 110% of U

* 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 is 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 considered and taken in the initial design stage. If manual work/process is needed, please ensure the device is well protective from ESD during all the process.

[illegible]