



Specification for Approval

- DEVICE NUMBER: BWL-35C1A10

SAMPLES
ATTACHED AREA

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2019/4/3	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0			Initial Released

FOR CUSTOMER'S APPROVAL STAMP OR SIGNATURE

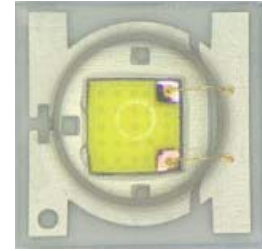
APPROVED	PURCHASE	MANUFACTURE	QUALITY	ENGINEERING

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 BRIGHT LED ELECTRONICS CORP.
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ISSUED	APPROVED	PREPARED
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● Features:

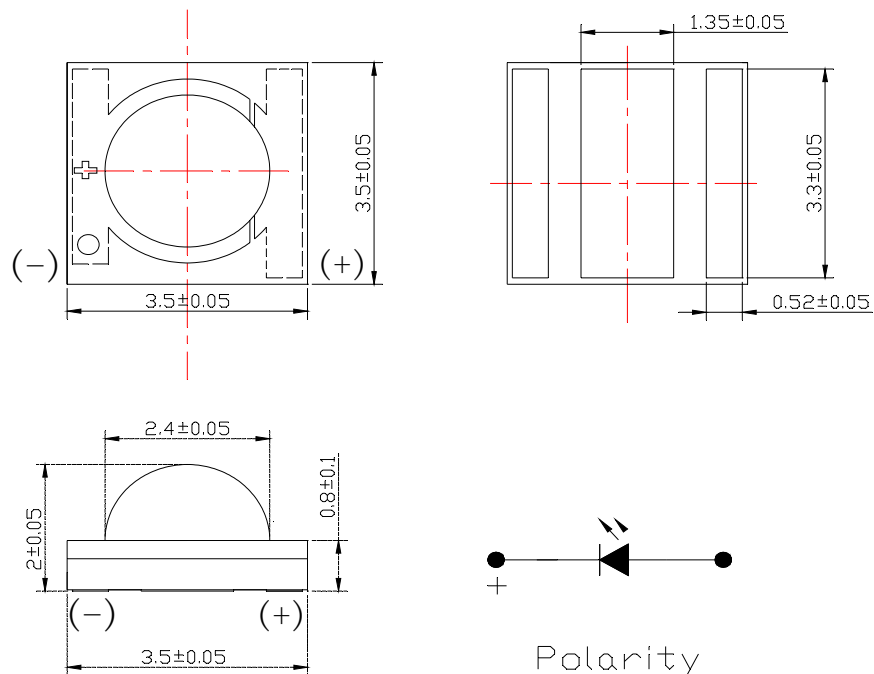
1. Input power: 1W.
2. Chip material: InGaN.
3. Emitted color: White.
4. High lumen output.
5. High flux density.
6. Low power consumption.
7. Efficient heat transfer.
8. Exterior lens is silicone.
9. Add extra heat sink is necessary.



● Applications:

1. Torch.
2. Head Light.
3. Architectural Lighting.
4. LCD Backlight.

● Package dimensions :



Notes:

1. All dimensions are in millimeters.
2. Tolerance is ± 0.25 mm unless otherwise specified.

● **Absolute maximum ratings ($T_a=25^{\circ}\text{C}$)**

Parameter	Symbol	Rating	Unit
Power Dissipation	P_D	1.0	W
DC Forward Current	I_F	350	mA
Peak Pulsed Forward Current*	I_{FP}	1.0	A
LED Junction Temperature	T_J	115	$^{\circ}\text{C}$
Operating Temperature	T_{opr}	-40~ +85	$^{\circ}\text{C}$
Storage Temperature	T_{stg}	-40~ +100	$^{\circ}\text{C}$
Reverse Voltage	V_R	5	V
Manual Soldering (T=5 sec)	T_{sol}	350 ± 5	$^{\circ}\text{C}$

*Condition for I_{FP} is pulsed with 1/10 duty and 0.1msec width.

● **Electrical & Optical Characteristics ($T_a=25^{\circ}\text{C}$)**

Parameter	Symbol	Condition	Min.	Typ.	Max.	Unit
Forward Voltage	V_F	$I_F = 350\text{mA}$	-	3.2	3.6	V
Total Flux	Φ_v	$I_F = 350\text{mA}$	121	145	-	lm
Color Temperature	CCT	$I_F = 350\text{mA}$	5660	-	7040	K
Color Rendering Index	CRI	$I_F = 350\text{mA}$	-	70	-	
Reverse Current	I_R	$V_R=5\text{V}$	-	-	5	μA
Thermal Resistance, Junction To Case	$R\theta_{J-C}$	$I_F = 350\text{mA}$	-	9	-	$^{\circ}\text{C}/\text{W}$
Viewing Angle	$2\theta_{1/2}$	$I_F = 350\text{mA}$	-	120	-	degree

● Typical electro-optical characteristics curves

Fig.1 RELATIVE INTENSITY VS. WAVELENGTH

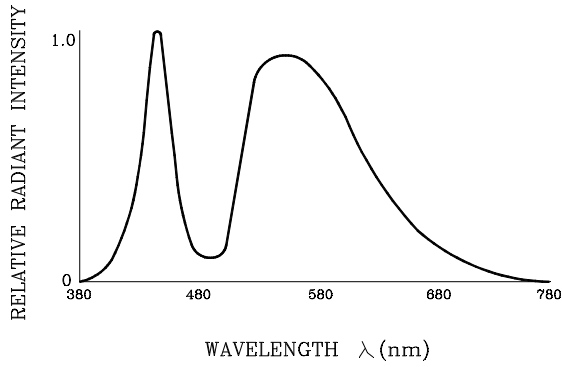


Fig.2 FORWARD CURRENT VS. AMBIENT TEMPERATURE

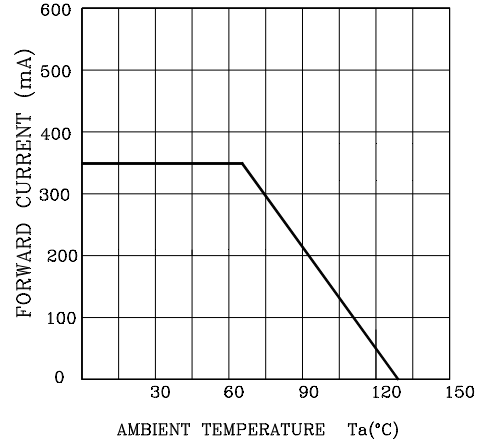


Fig.3 FORWARD CURRENT VS. FORWARD VOLTAGE

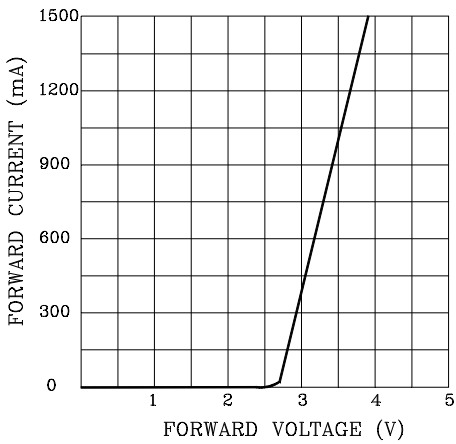


Fig.4 RELATIVE LUMINOUS INTENSITY VS. JUNCTION TEMPERATURE

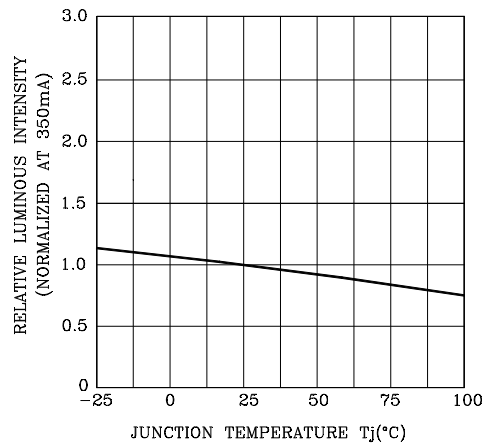


Fig.5 RELATIVE LUMINOUS INTENSITY VS. FORWARD CURRENT

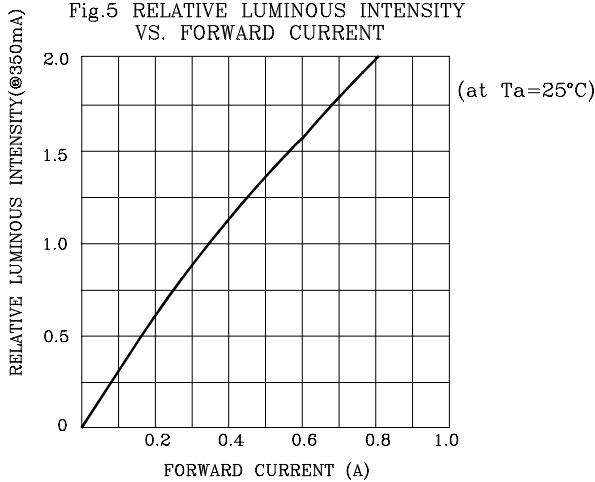
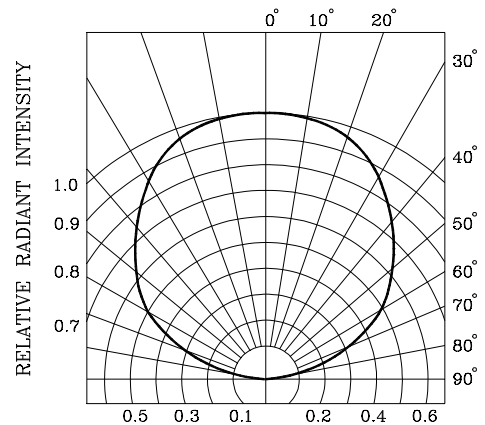


Fig.6 RADIATION DIAGRAM

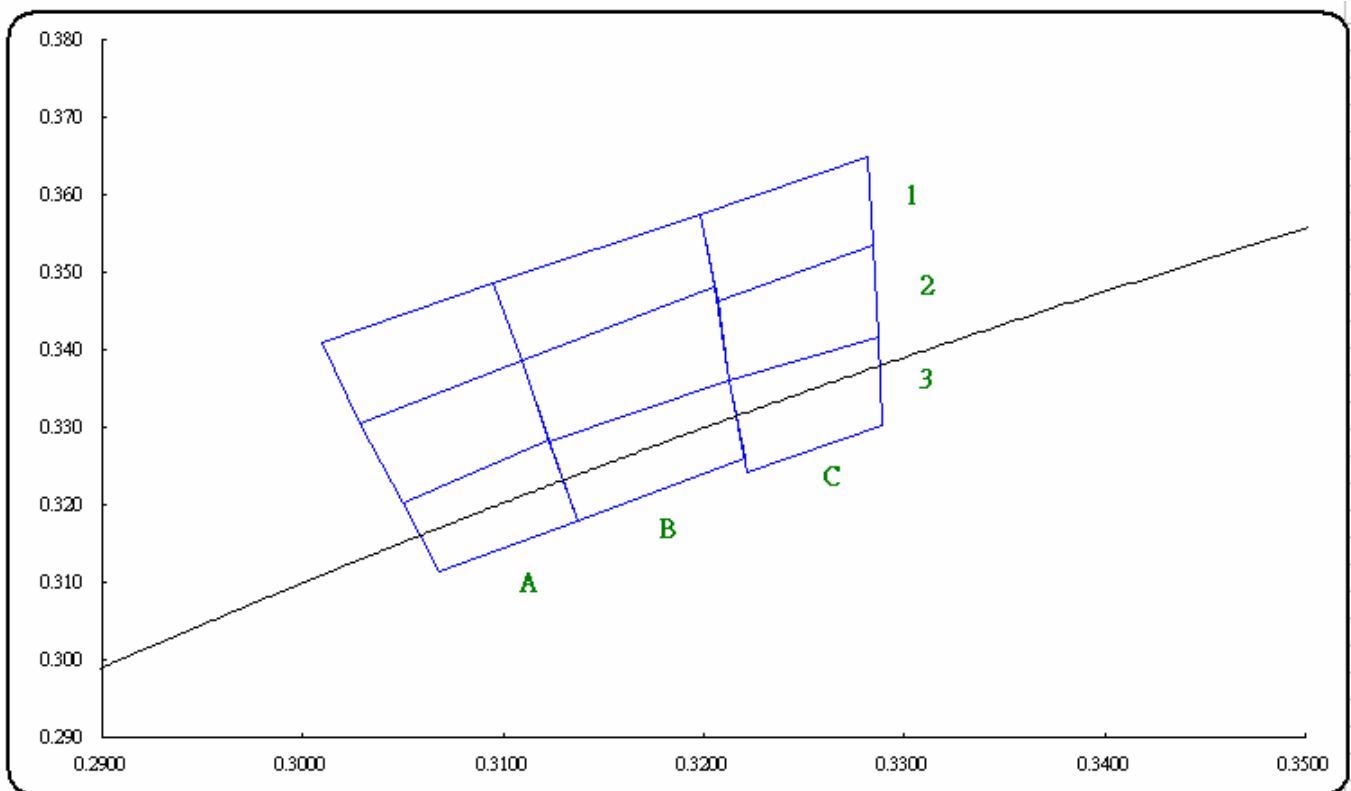


● Total Flux Bin Limits (At 350mA)

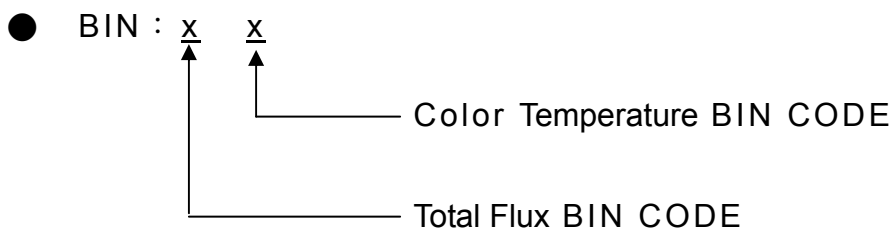
BIN CODE	Min. (lm)	Max. (lm)
R	121	157
S	157	205

Tolerance for each Bin limit is $\pm 15\%$

● Color Temperature Bin Limits(At 350mA)



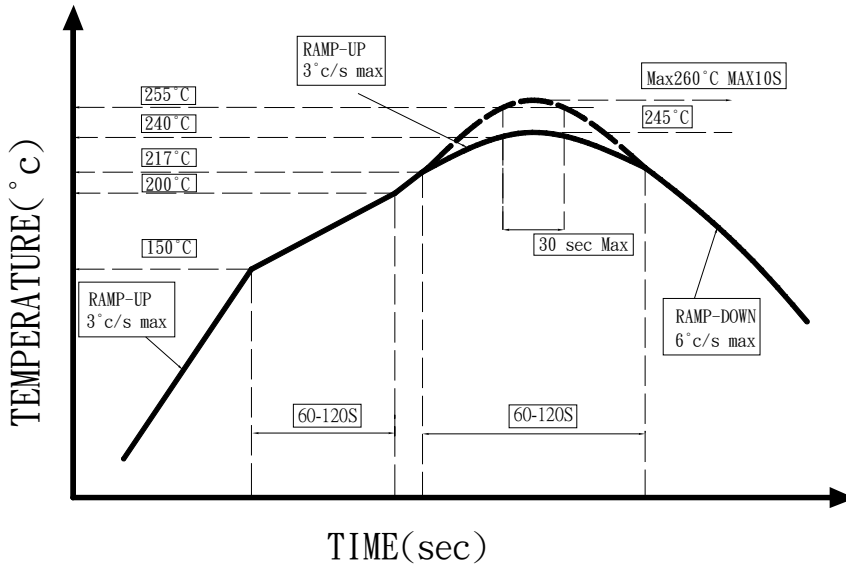
BIN	CCT(K)		Chromaticity Coordinates					
			x	y	z	u	v	
A-1	5660-7040K	6530-7040K	x	0.3109	0.3028	0.3010	0.3095	0.3109
A-2			y	0.3385	0.3304	0.3410	0.3485	0.3385
A-3			x	0.3123	0.3050	0.3028	0.3109	0.3123
			y	0.3283	0.3203	0.3304	0.3385	0.3283
B-1			x	0.3137	0.3068	0.3050	0.3123	0.3137
			y	0.3180	0.3113	0.3203	0.3283	0.3180
B-2	5660-7040K	6020-6530K	x	0.3205	0.3109	0.3095	0.3198	0.3205
B-3			y	0.3481	0.3385	0.3485	0.3575	0.3481
			x	0.3213	0.3123	0.3109	0.3205	0.3213
C-1			y	0.3360	0.3282	0.3385	0.3481	0.3360
			x	0.3221	0.3137	0.3123	0.3213	0.3221
C-2			y	0.3261	0.3180	0.3282	0.3360	0.3261
	x	0.3284	0.3207	0.3198	0.3282	0.3284		
C-3	y	0.3535	0.3462	0.3575	0.3650	0.3535		
	x	0.3287	0.3213	0.3207	0.3284	0.3287		
C-3	y	0.3417	0.3360	0.3462	0.3535	0.3417		
	x	0.3289	0.3222	0.3213	0.3287	0.3289		
C-3	y	0.3302	0.3243	0.3360	0.3417	0.3302		
	x	0.3289	0.3222	0.3213	0.3287	0.3289		



Notes:

1. Bin categories are established for classification of products.
Products may not be available in all bin categories.

● Soldering :



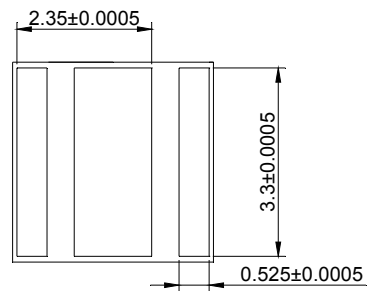
1. Avoid any external stress applied to the resin while the LEDs are at high temperature, especially during soldering .
2. Avoid rapid cooling or any excess vibration during temperature ramp-down process
3. Although the soldering condition is recommended above, soldering at the lowest possible temperature is feasible for the LEDs

● IRON Soldering

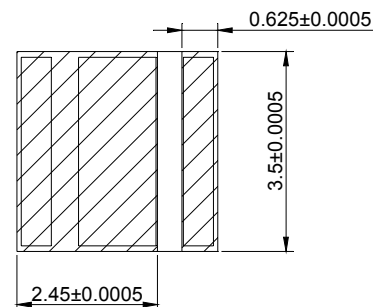
350°C Within 3 sec,one time only.

● Recommended Soldering Pattern (Unit:mm)

Front View



Solder Pad



● Handling :

Care must be taken not to damage LED's silicone while exposing to high temperature or contact LED's silicone with hard or sharp objects, such as metal hook, tweezer or sand blasting.

● Notes for designing:

Current limiting resistor or a constant current power supply must be used in the circuit to drive BRIGHT LEDs within the rated figures and not to overload BRIGHT LEDs with instantaneous voltage at the turning ON and OFF cycles.

When using pulse driving, the average current must be within the rated figures. And the circuit should be designed to avoid reverse voltage when turning off the BRIGHT LEDs.

● Storage:

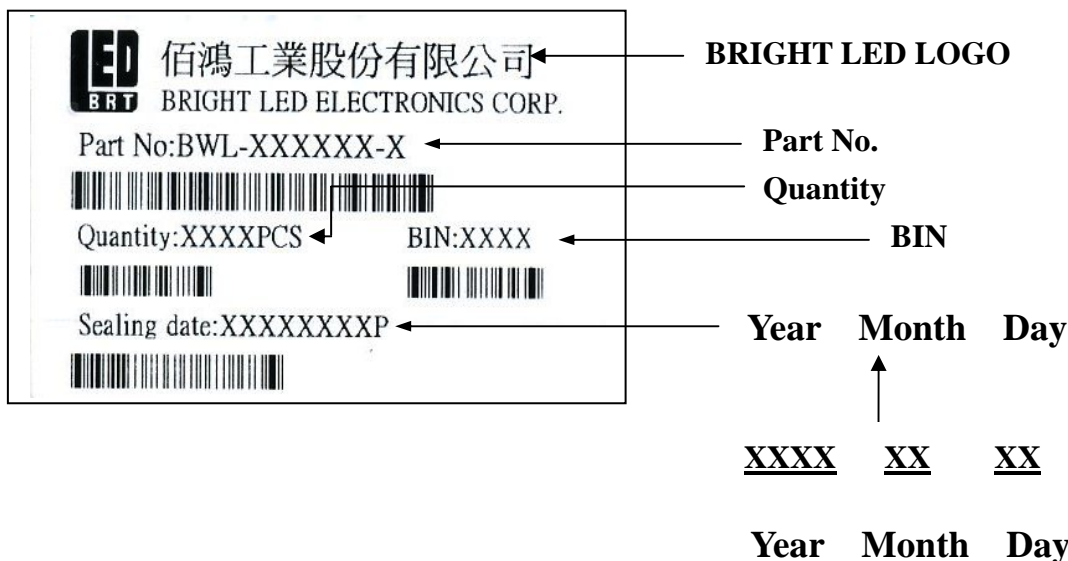
In order to avoid the absorption of moisture, it is recommended to solder BRIGHT LEDs as soon as possible after unpacking the sealed envelope.

If the envelope is still packed, to store it in the environment as following:

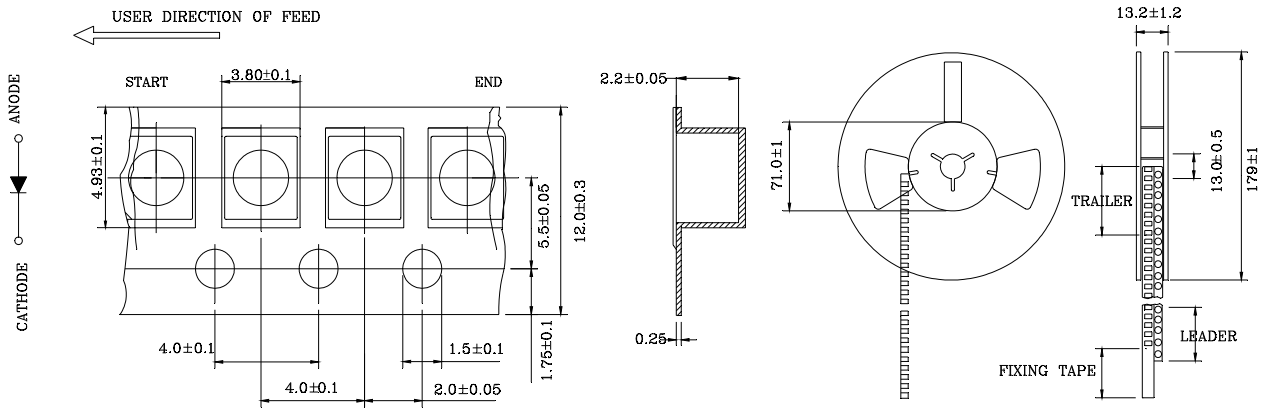
- (1) Temperature : 5°C-30°C (41°F) Humidity : RH 60% Max.
- (2) After this bag is opened, devices that will be applied to infrared reflow, vapor-phase reflow, or equivalent soldering process must be:
 - a. Completed within 24 hours.
 - b. Stored at less than 30% RH.
- (3) Devices require baking before mounting, if:
 - (2) a or (2) b is not met.
- (4) If baking is required, devices must be baked under below conditions:
 - 48 hours at 60°C±3°C.

● Package and Label of Products:

- (1) Package: Products are packed in one bag of 800 pcs (one taping reel) and a label is attached to each bag.
- (2) Label:

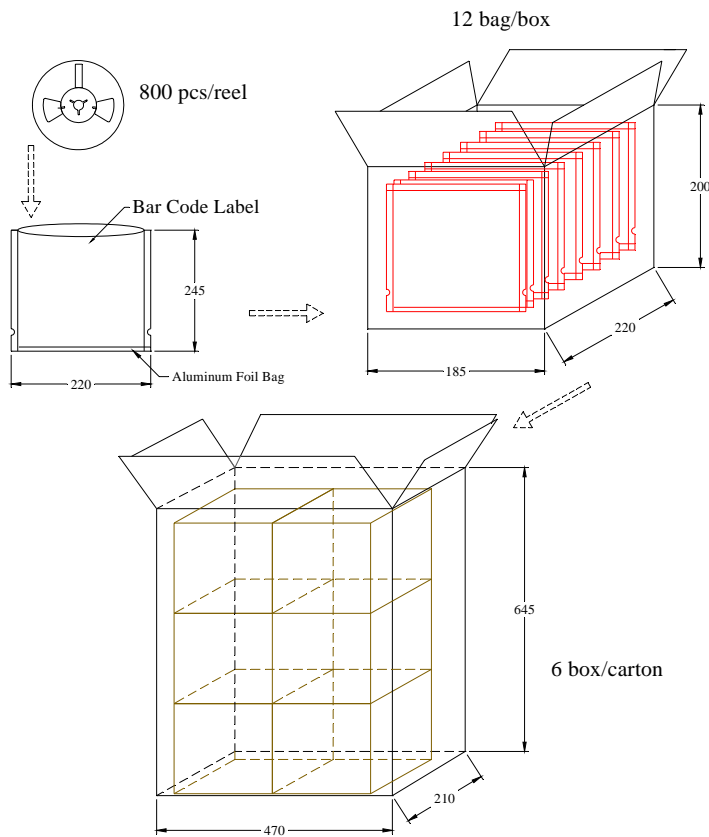


● Tapping and packaging specifications (Units: mm)



NOTE:800 PCS PER REEL

● Package Method (unit:mm)



NOTES : Bag : Tolerance is ± 5 mm unless otherwise noted.

Carton : Tolerance is ± 10 mm unless otherwise noted.