

产品规格书

SPECIFICATION

JOINER LED

产品型号 Model. NO: BFHL-W020-XXXX

文件编号 Document. NO:

版 次 REV NO: V1.0

富汇大宇 Joiner LED			客户承认 Client	
工程 Engingeering	品保 QA	业务 Sell	承认 Accept	盖章 Affirm

● **Features:**

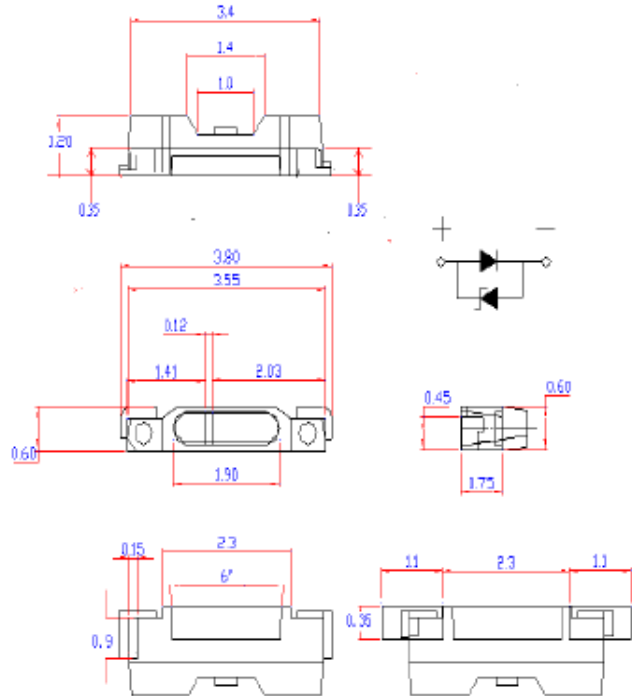
1. Emitted Color : White
2. Lens Appearance: Yellow diffuse.
3. (3.8x0.6x1.2mm) standard package
4. Suitable for all SMT assembly methods.
5. Compatible with infrared and vapor phase reflow solder process.
6. Compatible with automatic placement equipment.
7. This product doesn't contain restriction Substance, comply ROHS standard.

● **Applications:**

1. Automotive : Dashboards, stop lamps, turn signals.
2. Backlighting : LCDs.
3. Status indicators : Consumer & industrial electronics.
4. General use.

● **Part Numbering System:**

● **Package Dimensions:**



NOTES:

1. All dimensions are in millimeters (inches).
2. Tolerance is $\pm 0.10\text{mm}$ (0.004") unless otherwise specified.
3. Specifications are subject to change without notice.

<u>BR</u>	<u>P</u>	<u>02</u>	<u>W9</u>	<u>6</u>	<u>X</u>	<u>X</u>	<u>X</u>	<u>X</u>
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)

- (1) Company Name
- (2) Package type: P=PLCC
- (3) Specifications stand : 02 means 020 normal stand.
- (4) LED Color : W9 means light special color.
- (5) Color-rendering index : 6 means CRI below 70.
- (6) Interior code:
- (7) Interior code:
- (8) Shipping date
- (9) Serial Number:

● Absolute Maximum Ratings (Ta=25°C)

Item	Symbol	Value	Unit
Power Dissipation/DICE	PD	120	mW
DC Forward Current/DICE	IF	30	mA
Single Chip Pulsed Forward Current	IFP	100※	mA
Reverse Voltage	VR	5	V
Operating Temperature	Topr	-40 ~ +80■	°C
Storage Temperature	Tstg	-40 ~ +100	°C
Soldering Temperature	Tsol	260for9sec△	°C

※Duty 1/10 , Pulse Width 0.1ms.

△Soldering time max 10sec

■please refer to IF-Ta diagram of curves for the temperature during application

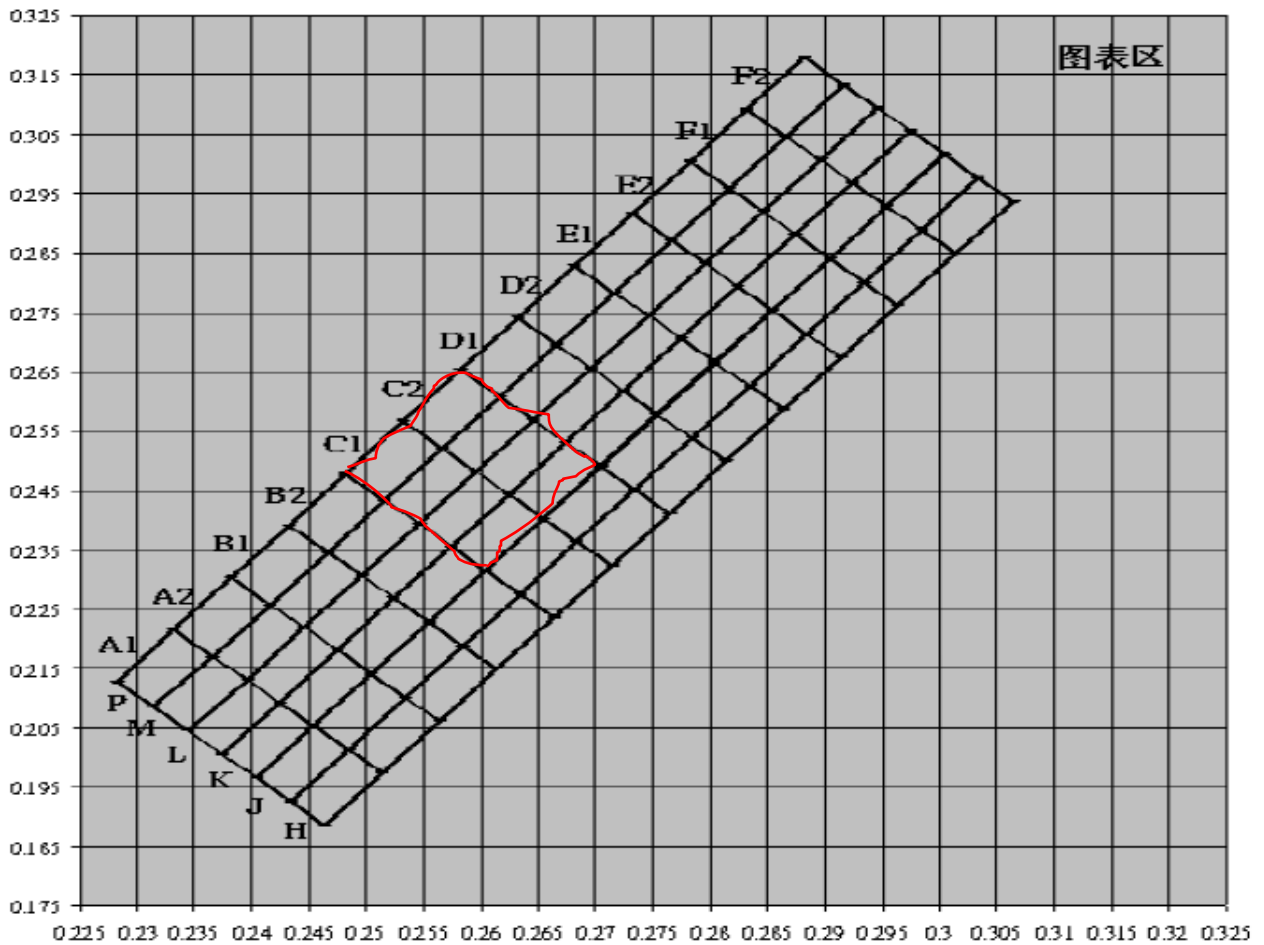
● Electrical and optical characteristics(Ta=25°C)

Parameter	Symbol	Value			Unit	Test condition
		Min.	Typ.	Max.		
Forward Voltage	Vf	2.9	3.25	3.6	V	If=20mA
Reverse Current	Ir	-	-	10	μA	Vr=5V
Viewing angle	2θ 1/2	-	105	-	Deg	If=20mA
Chromaticity coordinate	X	-	0.28	-	-	If=20mA
	Y	-	0.27	-	-	
Color Temperature	CCT	-	-	-	K	If=20mA
Luminous Flux	Φv	-	2000	-	mcd	If=20mA

● Range of bins

Bin	Bin A	Bin B	Bin C	Bin D	Bin E	Bin F	Bin G
VF(v)	2.8 以下	2.8-2.9	2.9-3.0	3.0-3.1	3.1-3.2	3.2-3.3	3.3-3.4
Bin	Bin H	Bin I	Bin J	Bin K	Bin L	Bin M	
VF(v)	3.4-3.5	3.5-3.6	3.6-3.7	3.7-3.8	3.8-3.9	3.9 以上	
Bin	Bin1	Bin2	Bin3	Bin4	Bin5	Bin6	Bin7
LM(mcd)	1000-1100	1100-1200	1200-1300	1300-1400	1400-1500	1500-1600	1600-1700
Bin	Bin8	Bin9	Bin10	Bin11	Bin12	Bin13	Bin14
LM(mcd)	1700-1800	1800-1900	1900-2000	2000-2100	2100-2200	2200-2300	2300-2400
Bin	Bin15	Bin16	Bin17	Bin18	Bin19	Bin20	
LM(mcd)	2400-2500	2500-2600	2600-2700	2700-2800	2800-2900	2900-3000	
WL(x,y)							

● Color Bin Limits(@20mA)



● Color Bin Limits (At 20mA)

HA1	0.2464	0.1886	JA1	0.2434	0.1926	KA1	0.2404	0.1966
	0.2434	0.1926		0.2404	0.1966		0.2374	0.2006
	0.2484	0.20135		0.2454	0.20535		0.2424	0.20935
	0.2514	0.1974		0.2484	0.20135		0.2454	0.20535
	0.2464	0.1886		0.2434	0.1926		0.2404	0.1966
HA2	0.2514	0.1974	JA2	0.2484	0.20135	KA2	0.2454	0.20535
	0.2484	0.20135		0.2454	0.20535		0.2424	0.20935
	0.2534	0.2101		0.2504	0.2141		0.2474	0.2181
	0.2564	0.20615		0.2534	0.2101		0.2504	0.2141
	0.2514	0.1974		0.2484	0.20135		0.2454	0.20535
HB1	0.2564	0.20615	JB1	0.2534	0.2101	KB1	0.2504	0.2141
	0.2534	0.2101		0.2504	0.2141		0.2474	0.2181
	0.2584	0.21885		0.2554	0.22285		0.2524	0.22685
	0.2614	0.2149		0.2584	0.21885		0.2554	0.22285
	0.2564	0.20615		0.2534	0.2101		0.2504	0.2141
HB2	0.2614	0.2149	JB2	0.2584	0.21885	KB2	0.2554	0.22285
	0.2584	0.21885		0.2554	0.22285		0.2524	0.22685
	0.2634	0.2276		0.2604	0.2316		0.2574	0.2356
	0.2664	0.22365		0.2634	0.2276		0.2604	0.2316
	0.2614	0.2149		0.2584	0.21885		0.2554	0.22285
HC1	0.2664	0.22365	JC1	0.2634	0.2276	KC1	0.2604	0.2316
	0.2634	0.2276		0.2604	0.2316		0.2574	0.2356
	0.2684	0.23635		0.2654	0.24035		0.2624	0.24435
	0.2714	0.2324		0.2684	0.23635		0.2654	0.24035
	0.2664	0.22365		0.2634	0.2276		0.2604	0.2316
HC2	0.2714	0.2324	JC2	0.2684	0.23635	KC2	0.2654	0.24035
	0.2684	0.23635		0.2654	0.24035		0.2624	0.24435
	0.2734	0.2451		0.2704	0.249		0.2674	0.2531
	0.2764	0.24115		0.2734	0.2451		0.2704	0.2491
	0.2714	0.2324		0.2684	0.23635		0.2654	0.24035
HD1	0.2764	0.24115	JD1	0.2734	0.2451	KD1	0.2704	0.2491
	0.2734	0.2451		0.2704	0.249		0.2674	0.2531
	0.2784	0.25385		0.2754	0.25775		0.2724	0.26185
	0.2814	0.2499		0.2784	0.25385		0.2754	0.25785
	0.2764	0.24115		0.2734	0.2451		0.2704	0.2491
HD2	0.2814	0.2499	JD2	0.2784	0.25385	KD2	0.2754	0.25785
	0.2784	0.25385		0.2754	0.25775		0.2724	0.26185
	0.2834	0.2626		0.2804	0.2665		0.2774	0.2706
	0.2864	0.25865		0.2834	0.2626		0.2804	0.2666
	0.2814	0.2499		0.2784	0.25385		0.2754	0.25785

HE1	0.2864	0.25865	JE1	0.2834	0.2626	KE1	0.2804	0.2666
	0.2834	0.2626		0.2804	0.2665		0.2774	0.2706
	0.2884	0.27135		0.2854	0.27525		0.2824	0.27935
	0.2914	0.2674		0.2884	0.27135		0.2854	0.27535
	0.2864	0.25865		0.2834	0.2626		0.2804	0.2666
HE2	0.2914	0.2674	JE2	0.2884	0.27135	KE2	0.2854	0.27535
	0.2884	0.27135		0.2854	0.27525		0.2824	0.27935
	0.2934	0.2801		0.2904	0.284		0.2874	0.2881
	0.2964	0.27615		0.2934	0.2801		0.2904	0.2841
	0.2914	0.2674		0.2884	0.27135		0.2854	0.27535
HF1	0.2964	0.27615	JF1	0.2934	0.2801	KF1	0.2904	0.2841
	0.2934	0.2801		0.2904	0.284		0.2874	0.2881
	0.2984	0.28885		0.2954	0.29275		0.2924	0.29685
	0.3014	0.2849		0.2984	0.28885		0.2954	0.29285
	0.2964	0.27615		0.2934	0.2801		0.2904	0.2841
HF2	0.3014	0.2849	JF2	0.2984	0.28885	KF2	0.2954	0.29285
	0.2984	0.28885		0.2954	0.29275		0.2924	0.29685
	0.3034	0.2976		0.3004	0.3015		0.2974	0.3056
	0.3064	0.29365		0.3034	0.2976		0.3004	0.3016
	0.3014	0.2849		0.2984	0.28885		0.2954	0.29285

LA1	0.2374	0.2006	MA1	0.2344	0.2046	PA1	0.2314	0.2086
	0.2344	0.2046		0.2314	0.2086		0.2282	0.2128
	0.2396	0.2132		0.2366	0.217		0.2332	0.2216
	0.2424	0.20935		0.2396	0.2132		0.2366	0.217
	0.2374	0.2006		0.2344	0.2046		0.2314	0.2086
LA2	0.2424	0.20935	MA2	0.2396	0.2132	PA2	0.2366	0.217
	0.2396	0.2132		0.2366	0.217		0.2332	0.2216
	0.2446	0.22195		0.2416	0.22575		0.2382	0.23035
	0.2474	0.2181		0.2446	0.22195		0.2416	0.22575
	0.2424	0.20935		0.2396	0.2132		0.2366	0.217
LB1	0.2474	0.2181	MB1	0.2446	0.22195	PB1	0.2416	0.22575
	0.2446	0.22195		0.2416	0.22575		0.2382	0.23035
	0.2496	0.2307		0.2466	0.2345		0.2432	0.2391
	0.2524	0.22685		0.2496	0.2307		0.2466	0.2345
	0.2474	0.2181		0.2446	0.22195		0.2416	0.22575
LB2	0.2524	0.22685	MB2	0.2496	0.2307	PB2	0.2466	0.2345
	0.2496	0.2307		0.2466	0.2345		0.2432	0.2391
	0.2546	0.23945		0.2516	0.24325		0.2482	0.24785
	0.2574	0.2356		0.2546	0.23945		0.2516	0.24325
	0.2524	0.22685		0.2496	0.2307		0.2466	0.2345

LC1	0.2574	0.2356	MC1	0.2546	0.23945	PC1	0.2516	0.24325
	0.2546	0.23945		0.2516	0.24325		0.2482	0.24785
	0.2596	0.2482		0.2566	0.252		0.2532	0.2566
	0.2624	0.24435		0.2596	0.2482		0.2566	0.252
	0.2574	0.2356		0.2546	0.23945		0.2516	0.24325
LC2	0.2624	0.24435	MC2	0.2596	0.2482	PC2	0.2566	0.252
	0.2596	0.2482		0.2566	0.252		0.2532	0.2566
	0.2646	0.25695		0.2616	0.26075		0.2582	0.26535
	0.2674	0.2531		0.2646	0.25695		0.2616	0.26075
	0.2624	0.24435		0.2596	0.2482		0.2566	0.252
LD1	0.2674	0.2531	MD1	0.2646	0.25695	PD1	0.2616	0.26075
	0.2646	0.25695		0.2616	0.26075		0.2582	0.26535
	0.2696	0.2657		0.2666	0.2695		0.2632	0.2741
	0.2724	0.26185		0.2696	0.2657		0.2666	0.2695
	0.2674	0.2531		0.2646	0.25695		0.2616	0.26075
LD2	0.2724	0.26185	MD2	0.2696	0.2657	PD2	0.2666	0.2695
	0.2696	0.2657		0.2666	0.2695		0.2632	0.2741
	0.2746	0.27445		0.2716	0.27825		0.2682	0.28285
	0.2774	0.2706		0.2746	0.27445		0.2716	0.27825
	0.2724	0.26185		0.2696	0.2657		0.2666	0.2695

LE1	0.2774	0.2706	ME1	0.2746	0.27445	PE1	0.2716	0.27825
	0.2746	0.27445		0.2716	0.27825		0.2682	0.28285
	0.2796	0.2832		0.2766	0.287		0.2732	0.2916
	0.2824	0.27935		0.2796	0.2832		0.2766	0.287
	0.2774	0.2706		0.2746	0.27445		0.2716	0.27825
LE2	0.2824	0.27935	ME2	0.2796	0.2832	PE2	0.2766	0.287
	0.2796	0.2832		0.2766	0.287		0.2732	0.2916
	0.2846	0.29195		0.2816	0.29575		0.2782	0.30035
	0.2874	0.2881		0.2846	0.29195		0.2816	0.29575
	0.2824	0.27935		0.2796	0.2832		0.2766	0.287
LF1	0.2874	0.2881	MF1	0.2846	0.29195	PF1	0.2816	0.29575
	0.2846	0.29195		0.2816	0.29575		0.2782	0.30035
	0.2896	0.3007		0.2866	0.3045		0.2832	0.3091
	0.2924	0.29685		0.2896	0.3007		0.2866	0.3045
	0.2874	0.2881		0.2846	0.29195		0.2816	0.29575
LF2	0.2924	0.29685	MF2	0.2896	0.3007	PF2	0.2866	0.3045
	0.2896	0.3007		0.2866	0.3045		0.2832	0.3091
	0.2946	0.30945		0.2916	0.31325		0.2882	0.31785
	0.2974	0.3056		0.2946	0.30945		0.2916	0.31325
	0.2924	0.29685		0.2896	0.3007		0.2866	0.3045

● Typical Electro-Optical Characteristics Curves.

Fig.1 RELATIVE INTENSITY VS. WAVELENGTH

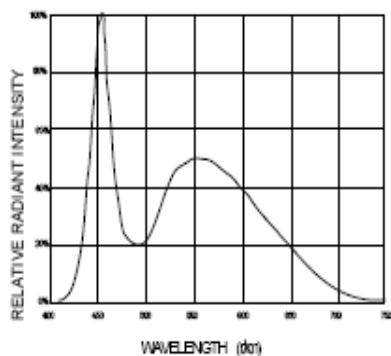


Fig.2 FORWARD CURRENT VS. AMBIENT TEMPERATURE

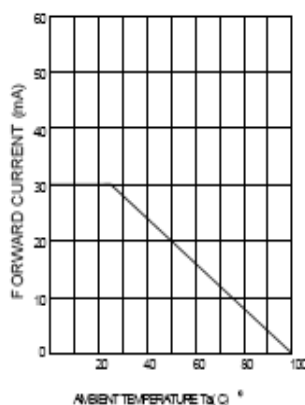


Fig.3 FORWARD CURRENT VS. FORWARD VOLTAGE

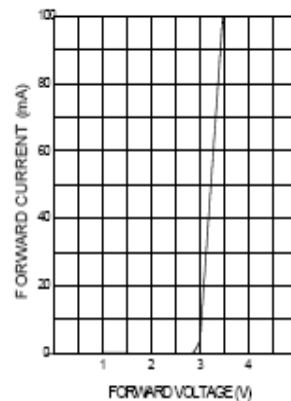


Fig.4 RELATIVE LUMINOUS INTENSITY VS. AMBIENT TEMPERATURE

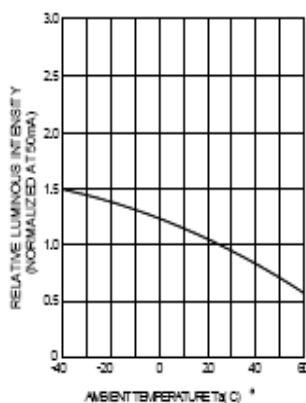


Fig.5 RELATIVE LUMINOUS INTENSITY VS. FORWARD CURRENT

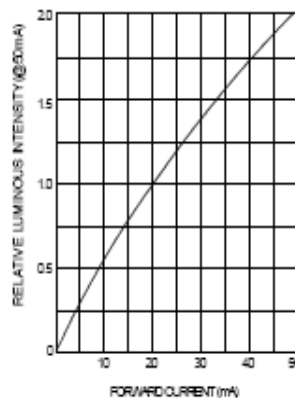


Fig.6 RADIATION DIAGRAM

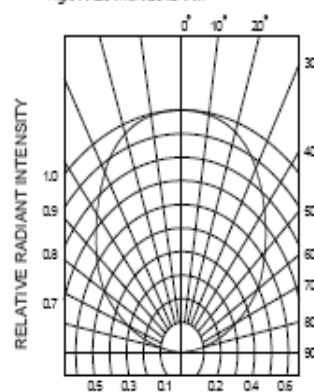


Fig.7 FORWARD CURRENT VS. CHROMATICITY COORDINATE

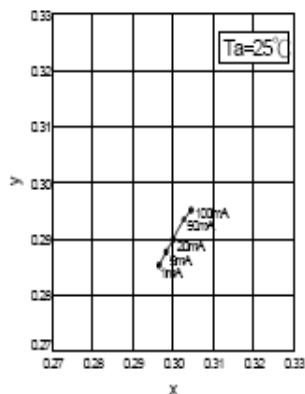
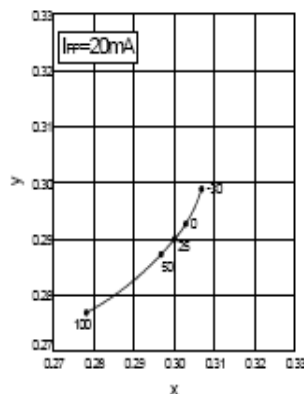
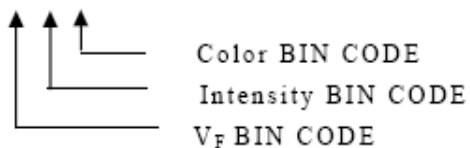


Fig.8 AMBIENT TEMPERATURE VS. CHROMATICITY COORDINATE



● BIN : x x x



Notes:

1. V_F : Tolerance for each Bin limit is ± 0.05
2. I_v : Tolerance for each Bin limit is $\pm 10\%$
3. Color : Tolerance for each Bin limit is ± 0.005 .
4. Bin categories are established for classification of products.
Products may not be available in all bin categories.

● Test items and results of reliability

Type	Test Item	Test Conditions	Note	Number of Damaged
Operation Sequence	Life Test	$T_a=25^\circ\text{C}$ $I_F=20\text{mA}$	1000 hrs	0/22
	High Humidity Heat Life Test	85°C RH=85% $I_F=10\text{mA}$	500 hrs	0/22
	Low Temperature Life Test	$T_a=-20^\circ\text{C}$ $I_F=20\text{mA}$	1000 hrs	0/22
Environmental Sequence	Temperature Cycle	-45°C 30min $\uparrow \downarrow$ 20 min 105°C 30min	100 cycle	0/22
	Thermal Shock	-10°C 15min $\uparrow \downarrow$ 5sec 100°C 15min	100 cycle	0/22
	High Humidity Heat Cycle	$30^\circ\text{C} \Leftrightarrow 65^\circ\text{C}$ 90%RH 24hrs/1cycle	10 cycle	0/22
	High Temperature Storage	$T_a=100^\circ\text{C}$	1000 hrs	0/22
	Humidity Heat Storage	$T_a=85^\circ\text{C}$ RH=85%	1000 hrs	0/22
Low Temperature Storage	$T_a=-40^\circ\text{C}$	1000 hrs	0/22	

● Judgment criteria of failure for the reliability

Measuring items	Symbol	Measuring conditions	Judgment criteria for failure
Forward voltage	$V_F(V)$	$I_F=20\text{mA}$	Over $U^1 \times 1.2$
Reverse current	$I_R(\mu\text{A})$	$V_R=5\text{V}$	Over $U^1 \times 2$
Luminous intensity	$I_v(\text{mcd})$	$I_F=20\text{mA}$	Below $S^1 \times 0.5$

Note: 1. U means the upper limit of specified characteristics. S means initial value.

2. After each test, remove test pieces, wait for 2 hours and test pieces have returned to ambient temperature, then take next measurement.

● **Soldering :**

1. Manual Soldering

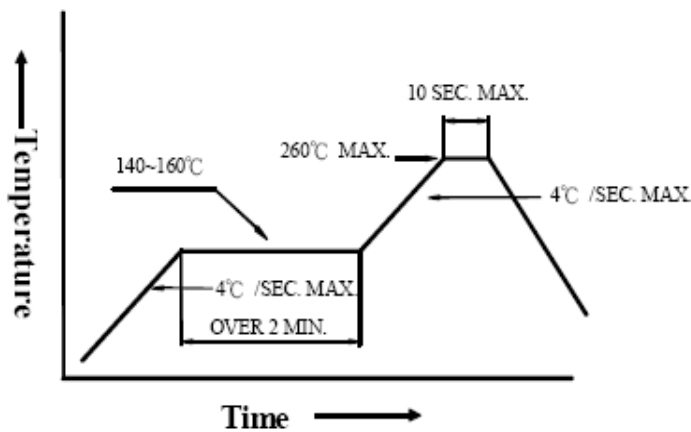
The temperature of the iron tip should not be higher than 350°C and Soldering time to be within 3 seconds per solder-pad.

2. Reflow Soldering

Preheating : 140°C~160°C ±5°C, within 2 minutes.

Operation heating : 260°C (Max) within 10 seconds. (Max)

Gradual Cooling (Avoid quenching) .

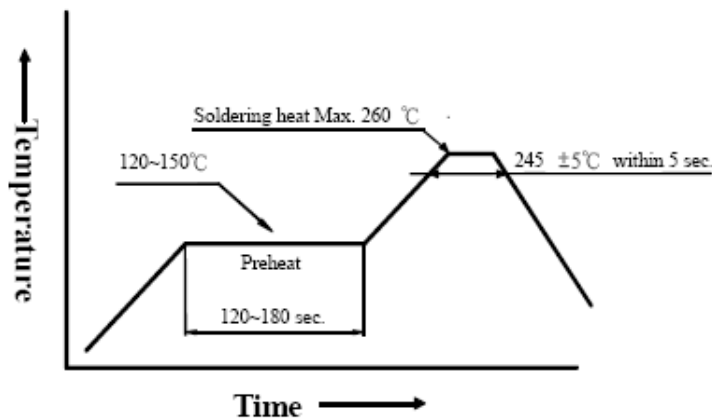


3. DIP soldering (Wave Soldering) :

Preheating : 120°C~150°C, within 120~180 sec.

Operation heating : 245°C ±5°C within 5 sec. 260°C (Max)

Gradual Cooling (Avoid quenching).



● **Handling :**

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

● **Notes for designing:**

Current limiting resistor 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:**

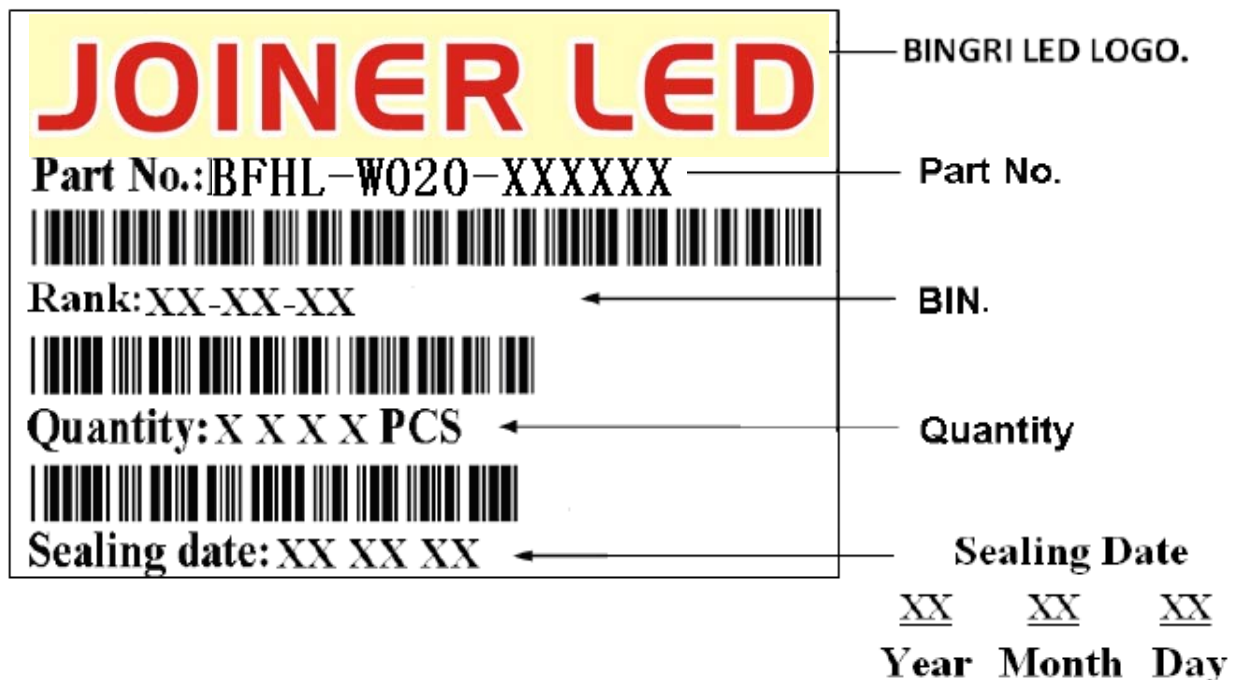
In order to avoid the absorption of moisture, it is recommended to solder BRIGHT LEDs as soon as possible after unpacking the sealed envelope.

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

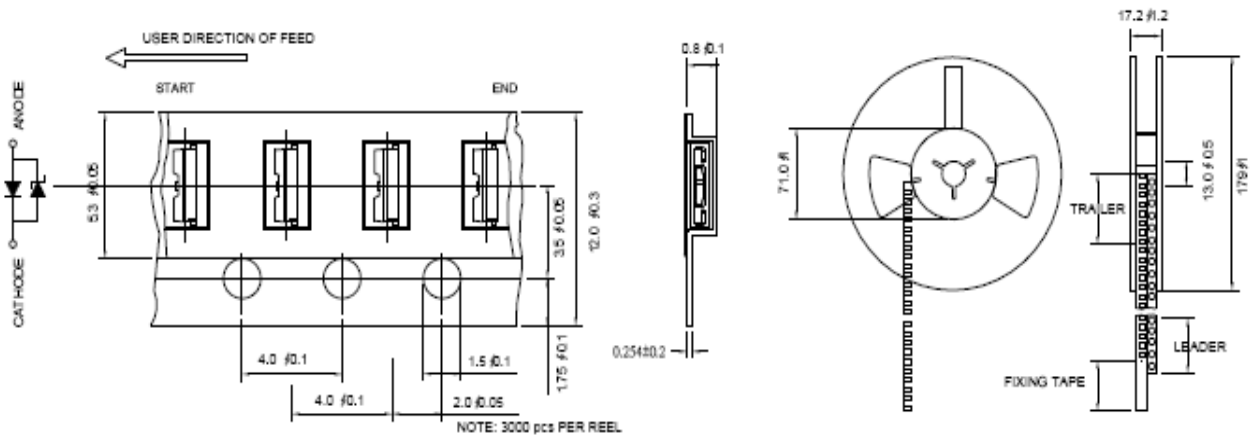
- (1) Temperature : 5°C-30°C (41°F) Humidity : RH 60% Max.
- (2) After this bag is opened, devices that will be applied to infrared reflow, vapor-phase reflow, or equivalent soldering process must be:
 - a. Completed within 168 hours.
 - b. Stored at less than 30% RH.
- (3) Devices require baking before 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 3000 pcs (one taping reel) and a label is attached to each bag
- (2) Label



● Tapping and packaging specifications (Units: mm)



● Package Method:(unit:mm)

