

DATA SHEET

DEVICE NUMBER : BL-H3ZB32L-W

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2010.12.07	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0		Original Released

佰鴻工業股份有限公司
BRIGHT LED ELECTRONICS CORP.
台北縣板橋市和平路 19 號 3 樓
3F., No. 19, Ho Ping Road, Pan Chiao City,
Taipei, Taiwan, R. O. C.
Tel: 886-2-29591090
Fax: 886-2-29547006/29558809
www.brtled.com

APPROVED	DRAWER
 彭 修 政 2010.12.07	 龔 麗 娟 2010.12.07

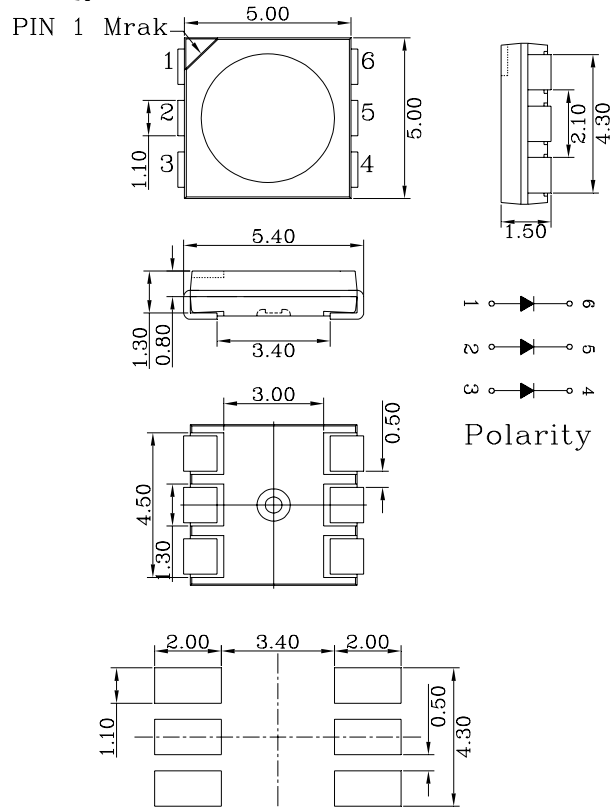
● Features:

1. Emitted Color: Warm White
CCT: 2600-3700K
2. Lens Appearance: Yellow diffuse.
3. 5.4x5.0x1.5mm 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 lighting.
2. Backlighting: LCDs, Key pads advertising.
3. Status indicators: Consumer & industrial electronics.
4. General use.

● 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.

● Absolute Maximum Ratings(Ta=25°C)

Parameter	Symbol	Rating	Unit
Power Dissipation ^{*1}	P _D	360	mW
Forward Current ^{*2}	I _F	90	mA
Peak Forward Current ^{*3}	I _{FP}	100	mA
Reverse Voltage	V _R	5	V
Operating Temperature	T _{opr}	-40°C~100°C	-
Storage Temperature	T _{stg}	-40°C~100°C	-
Soldering Temperature	T _{sol}	See Page 7	-

^{*1} The values are based on 3-circuit performance

^{*2} The values are based on 3-circuit performance

^{*3} Condition for I_{FP} is pulse of 1/10 duty and 3 msec width

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

Parameter	Symbol	Condition	Min.	Typ.	Max.	Unit
Forward Voltage* ¹	V _f	I _F =20mA	-	3.2	3.5	V
Luminous Intensity* ²	I _v	I _F =60mA	5800	6800	-	mcd
Chromaticity Coordinates	x	I _F =60mA	-	0.43	-	-
	y		-	0.40	-	
Reverse Current	I _R	V _R =5V	-	-	10	μA
Viewing Angle	2θ _{1/2}	I _F =60mA	-	120	-	deg

*¹ The values are based on 1-circuit performance

*² The values are based on 3-circuit performance

● Typical Electro-Optical Characteristics Curves.

Fig.1 RELATIVE INTENSITY VS. WAVELENGTH

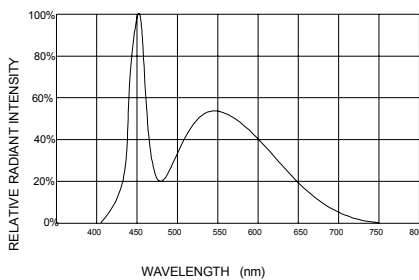


Fig.2 FORWARD CURRENT VS. AMBIENT TEMPERATURE

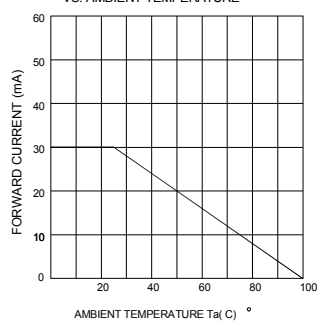


Fig.3 FORWARD CURRENT VS. FORWARD VOLTAGE

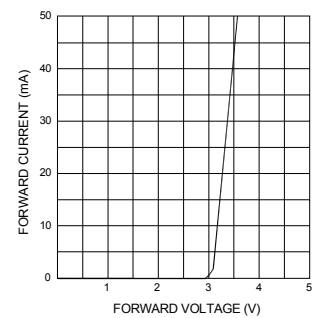


Fig.4 RELATIVE LUMINOUS INTENSITY VS. AMBIENT TEMPERATURE

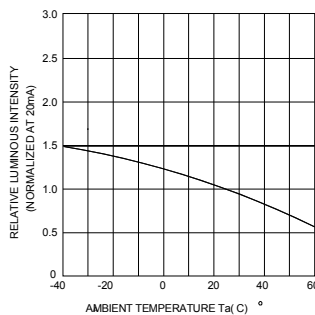


Fig.5 RELATIVE LUMINOUS INTENSITY VS. FORWARD CURRENT

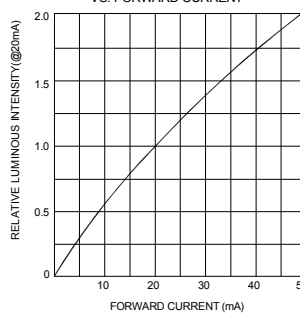


Fig.6 RADIATION DIAGRAM

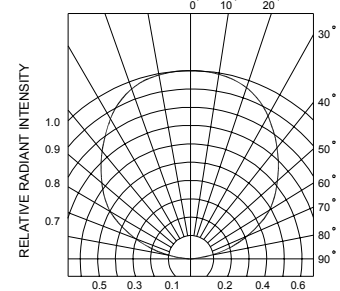


Fig.7 FORWARD CURRENT VS. CHROMATICITY COORDINATE

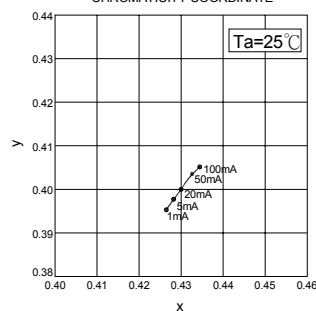
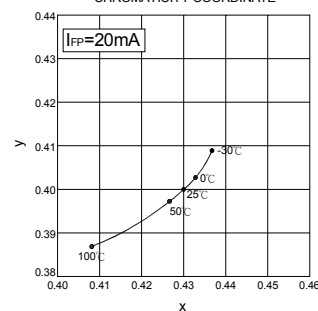
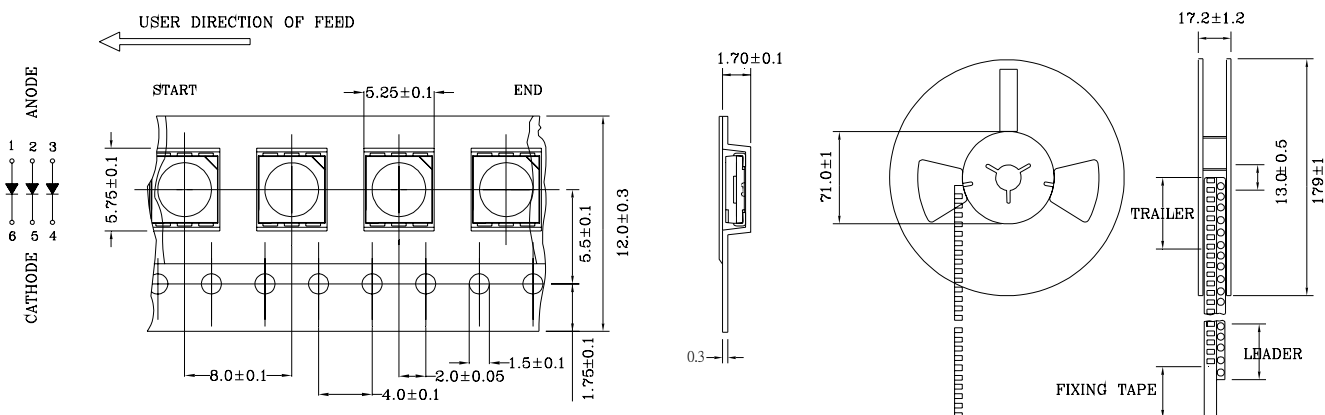


Fig.8 AMBIENT TEMPERATURE VS. CHROMATICITY COORDINATE

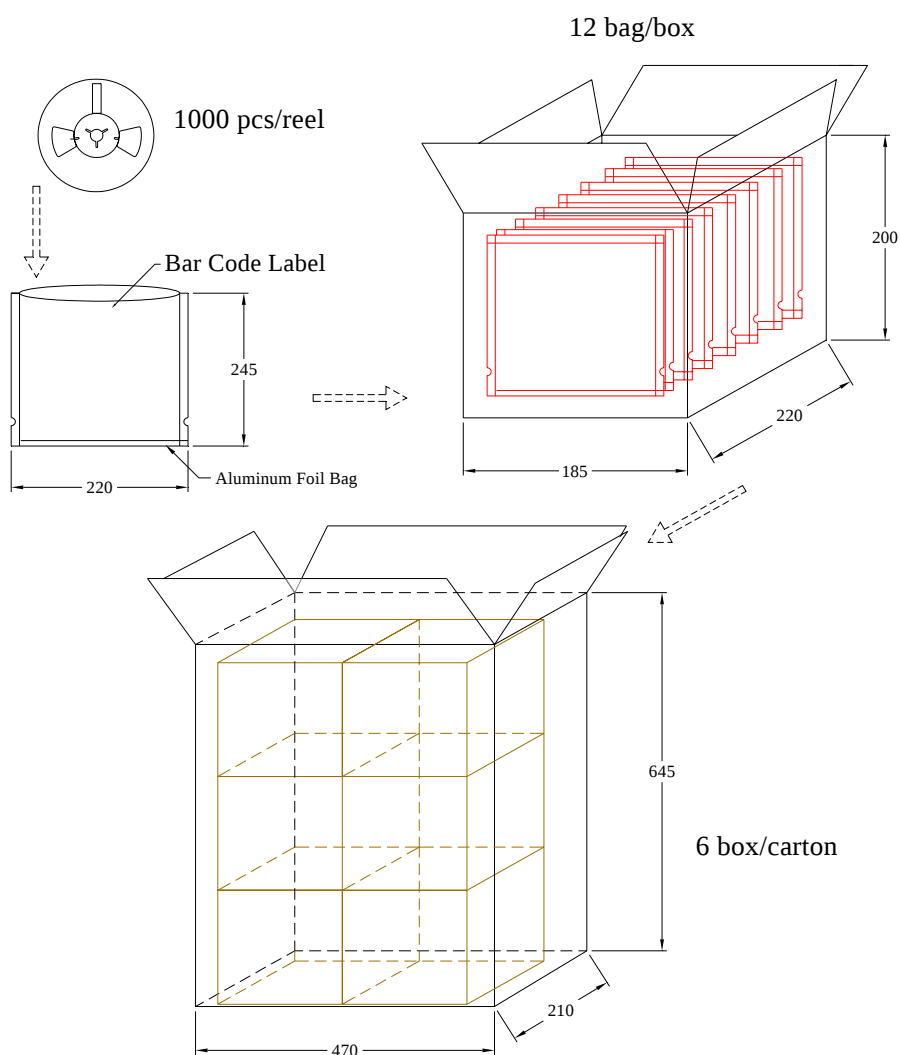


● Tapping and packaging specifications(Units: mm)



NOTE:1000 PCS PER REEL

● Package Method:(unit:mm)



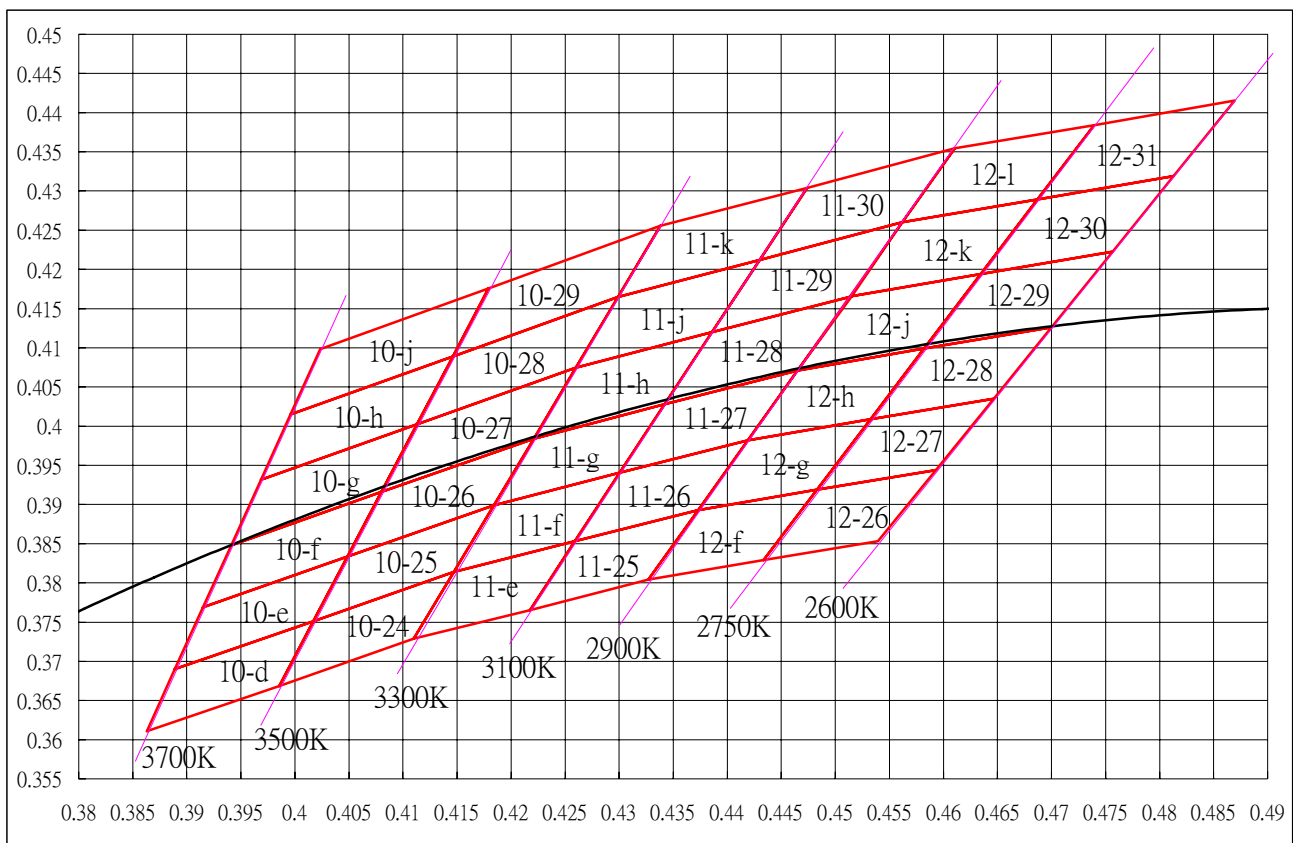
● **Bin Limits** (At 60mA ,The values are based on 3-circuit performance)

BIN CODE	Min. (mcd)	Max. (mcd)
ZA4	5800	6050
ZA5	6050	6300
ZA6	6300	6550
ZA7	6550	6800
ZA8	6800	7050
ZB1	7050	7350
ZB2	7350	7650
ZB3	7650	7950

Forward Voltage Bin Limits (At 60 mA, The values are based on 3-circuit performance)

BIN CODE	Min. (v)	Max. (v)
H1	3.0	3.1
H2	3.1	3.2
J1	3.2	3.3
J2	3.3	3.4
K1	3.4	3.5

Color Bin Limits (At 60 mA)

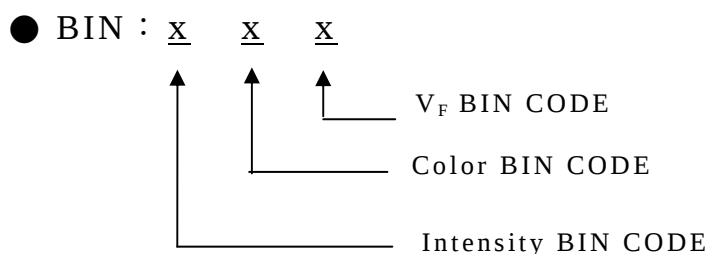


Color Bin Limits (At 60mA)

CCT	BIN	Chromaticity Coordinates				
3500-3700K	10-d	x	0.3863	0.39855	0.4017	0.3889
		y	0.3611	0.36685	0.3751	0.369
	10-e	x	0.3889	0.4017	0.40485	0.3915
		y	0.369	0.3751	0.38335	0.3769
	10-f	x	0.3915	0.40485	0.408	0.3941
		y	0.3769	0.38335	0.3916	0.3848
	10-g	x	0.3941	0.408	0.4113	0.39685
		y	0.3848	0.3916	0.40025	0.39315
	10-h	x	0.39685	0.4113	0.4146	0.3996
		y	0.39315	0.40025	0.4089	0.4015
	10-j	x	0.40235	0.4179	0.4146	0.3996
		y	0.40985	0.41755	0.4089	0.4015
3300-3500K	10-24	x	0.39855	0.411	0.4147	0.4017
		y	0.36685	0.3729	0.3814	0.3751
	10-25	x	0.4017	0.4147	0.4184	0.40485
		y	0.3751	0.3814	0.3899	0.38335
	10-26	x	0.40485	0.4184	0.4221	0.408
		y	0.38335	0.3899	0.3984	0.3916
	10-27	x	0.408	0.4221	0.426	0.4113
		y	0.3916	0.3984	0.40745	0.40025
	10-28	x	0.4113	0.426	0.4299	0.4146
		y	0.40025	0.40745	0.4165	0.4089
	10-29	x	0.4179	0.4338	0.4299	0.4146
		y	0.41755	0.42555	0.4165	0.4089
3100-3300K	11-e	x	0.411	0.42175	0.4259	0.4147
		y	0.3729	0.37655	0.3853	0.3814
	11-f	x	0.4147	0.4259	0.43005	0.4184
		y	0.3814	0.3853	0.39405	0.3899
	11-g	x	0.4184	0.43005	0.4342	0.4221
		y	0.3899	0.39405	0.4028	0.3984
	11-h	x	0.4221	0.4342	0.4386	0.426
		y	0.3984	0.4028	0.412	0.40745
	11-j	x	0.426	0.4386	0.443	0.4299
		y	0.40745	0.412	0.4212	0.4165
	11-k	x	0.4338	0.4474	0.443	0.4299
		y	0.42555	0.4304	0.4212	0.4165
2900-3100K	11-25	x	0.42175	0.4327	0.4373	0.4259
		y	0.37655	0.3804	0.3893	0.3853
	11-26	x	0.4259	0.4373	0.4419	0.43005
		y	0.3853	0.3893	0.3982	0.39405
	11-27	x	0.43005	0.4419	0.4465	0.4342
		y	0.39405	0.3982	0.4071	0.4028

	11-28	x	0.4342	0.4465	0.4515	0.4386
		y	0.4028	0.4071	0.41655	0.412
	11-29	x	0.4386	0.4515	0.4562	0.443
		y	0.412	0.41655	0.426	0.4212
	11-30	x	0.4474	0.46105	0.4562	0.443
		y	0.4304	0.43545	0.426	0.4212
2750-2900K	12-f	x	0.4327	0.44335	0.4483	0.4373
		y	0.3804	0.3829	0.3919	0.3893
	12-g	x	0.4373	0.4483	0.45325	0.4419
		y	0.3893	0.3919	0.4009	0.3982
	12-h	x	0.4419	0.45325	0.4582	0.4465
		y	0.3982	0.4009	0.4099	0.4071
	12-j	x	0.4465	0.4582	0.46345	0.45135
		y	0.4071	0.4099	0.4194	0.41655
	12-k	x	0.45135	0.46345	0.4687	0.4562
		y	0.41655	0.4194	0.4289	0.426
	12-l	x	0.46105	0.47395	0.4687	0.4562
		y	0.43545	0.4384	0.4289	0.426
2600-2750K	12-26	x	0.44335	0.45395	0.4593	0.4483
		y	0.3829	0.3853	0.3944	0.3919
	12-27	x	0.4483	0.4593	0.46465	0.45325
		y	0.3919	0.3944	0.4035	0.4009
	12-28	x	0.45325	0.46465	0.47	0.4582
		y	0.4009	0.4035	0.4126	0.4099
	12-29	x	0.4582	0.47	0.47565	0.46345
		y	0.4099	0.4126	0.42225	0.4194
	12-30	x	0.46345	0.47565	0.4813	0.4687
		y	0.4194	0.42225	0.4319	0.4289
	12-31	x	0.47395	0.48695	0.4813	0.4687
		y	0.4384	0.44155	0.4319	0.4289

CCT : Tolerance for each Bin limit is $\pm 100K$



Notes:

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

● Reliability Test

Classification	Test Item	Reference Standard	Test Conditions	Result
Endurance Test	Operation Life	MIL-STD-750:1026 MIL-STD-883:1005 JIS-C-7021 :B-1	I _F =20mA Ta=Under room temperature Test time=1,000hrs	0/20
	High Temperature High Humidity Storage	MIL-STD-202:103B JIS-C-7021 :B-11	Ta=+65°C±5°C RH=90%-95% Test time=240hrs	0/20
	High Temperature Storage	MIL-STD-883:1008 JIS-C-7021 :B-10	High Ta=+85°C±5°C Test time=1,000hrs	0/20
	Low Temperature Storage	JIS-C-7021 :B-12	Low Ta=-35°C±5°C Test time=1,000hrs	0/20
Environmental Test	Temperature Cycling	MIL-STD-202:107D MIL-STD-750:1051 MIL-STD-883:1010 JIS-C-7021 :A-4	-35°C ~ +25°C ~ +85°C ~ +25°C 60min 20min 60min 20min Test Time=5cycle	0/20
	Thermal Shock	MIL-STD-202:107D MIL-STD-750:1051 MIL-STD-883:1011	-35°C±5°C ~ +85°C±5°C 20min 20min Test Time=10cycle	0/20
	Solder Resistance	MIL-STD-202:201A MIL-STD-750:2031 JIS-C-7021 :A-1	Preheating : 140°C-160°C, within 2 minutes. Operation heating : 260°C (Max.), within 10seconds. (Max.)	0/20

● Judgment criteria of failure for the reliability

Measuring items	Symbol	Measuring conditions	Judgment criteria for failure
Forward voltage	V _F (V)	I _F =20mA	Over U ¹ x1.2
Reverse current	I _R (uA)	V _R =5V	Over U ¹ x2
Luminous intensity	I _v (mcd)	I _F =20mA	Below S ¹ X0.5

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

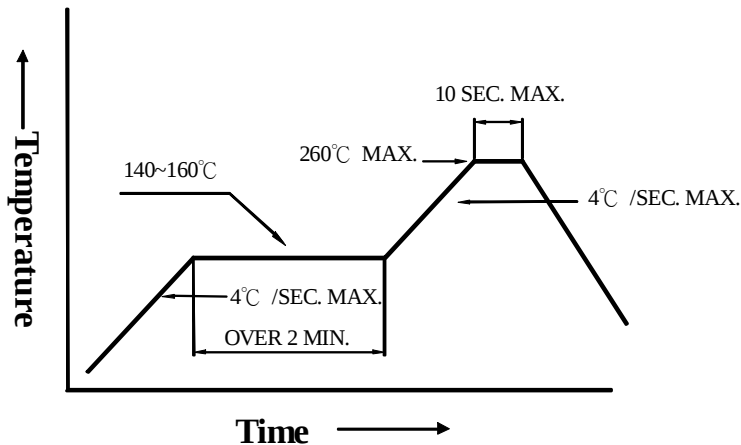
The temperature of the iron tip should not be higher than 350°C and Soldering time to be within 3 seconds per solder-pad.

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).

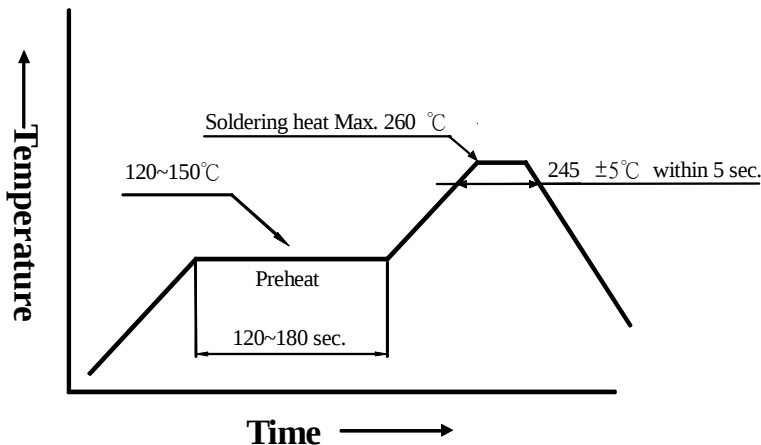


3. DIP soldering (Wave Soldering) :

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 1000 pcs (one taping reel) and a label is attached to each bag.
- (2) Label:

