

# PRODUCT SPECIFICATION

**Model No.: FYLS-3806BUWC**

Features:
<ul style="list-style-type: none"> <li>■ SMD Type</li> <li>■ Size (mm):3.80*0.60*1.00</li> <li>■ Emitting Color: White.</li> <li>■ Lens Color: Yellow Diffused.</li> <li>■ SMT package</li> <li>■ Suitable for all SMT assembly and soldering method</li> <li>■ Pb-free Reflow soldering application</li> <li>■ RoHS Compliant</li> <li>■ SIDE LED</li> <li>■ MSL:6</li> </ul>

Applications:
<ul style="list-style-type: none"> <li>■ Light Strips</li> <li>■ LCD Backlight</li> <li>■ Decorative lighting</li> <li>■ Indicators</li> <li>■ Interior automotive</li> <li>■ Illuminations</li> <li>■ Mobile Phones</li> </ul>



CUSTOMER APPROVED SIGNATURES	APPROVED BY	CHECKED BY	PREPARED BY

**NINGBO FORYARD OPTOELECTRONICS CO.,LTD.**

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**Zip:**315103

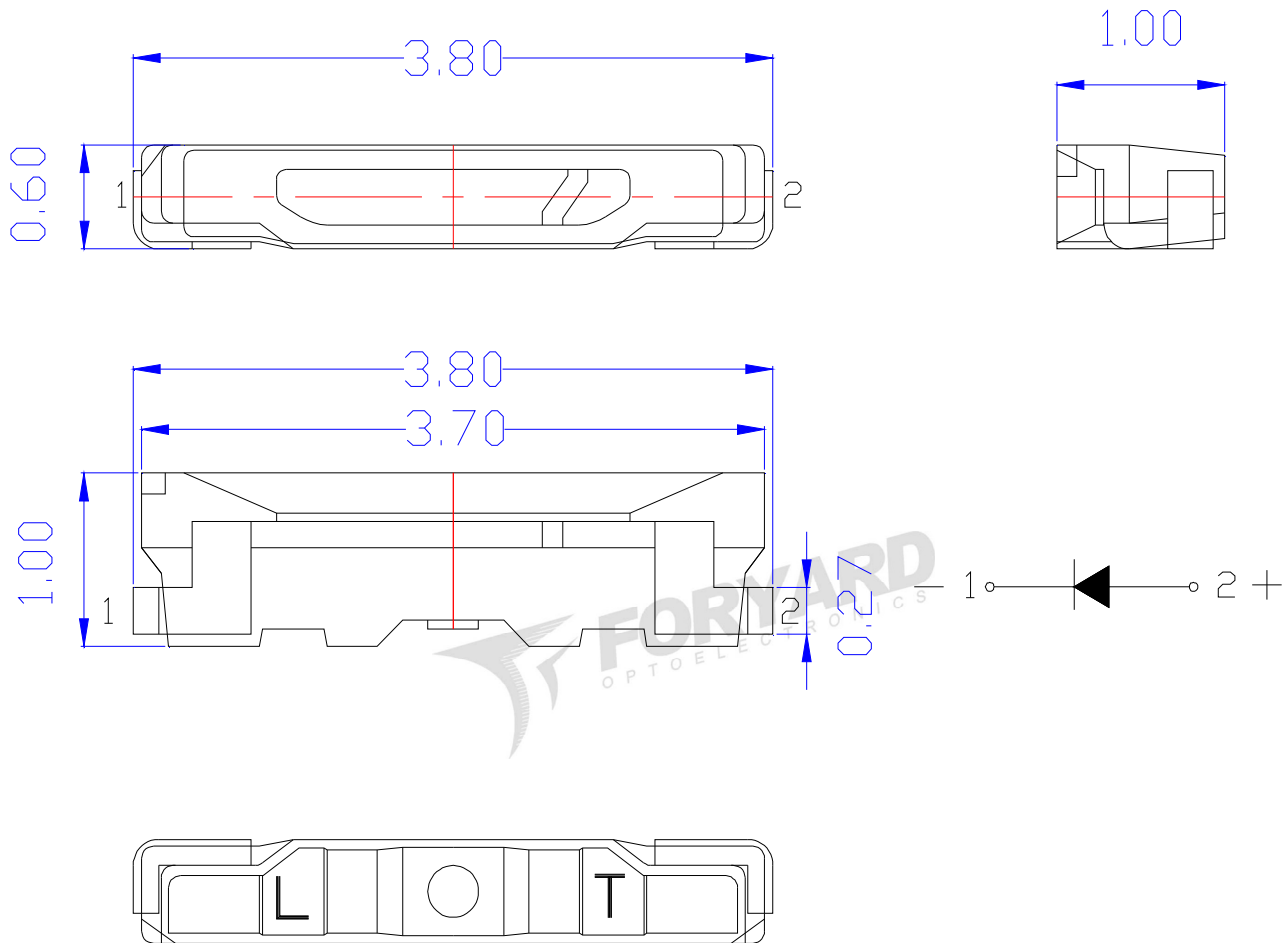
**Tel:** 0086-574-87933652 87927870 87922206

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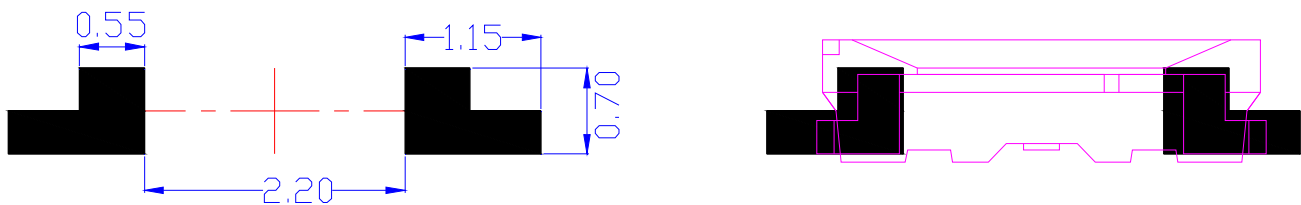
**E-mail:**Sales@foryard.com ( General)

**Model No.: FYLS-3806BUWC**

**■ Mechanical Dimensions**



**■ Recommend Soldering pad design(unit=mm)**



**Notes:**

1. Dimension in millimeter, tolerance is  $\pm 0.10$ .
2. Angle:  $\pm 5^\circ$
3. The specifications, characteristics and technical data described in the datasheet are subject to change without prior notice.
4. The drawing is different from the actual one, please refer to the sample.

**Model No.: FYLS-3806BUWC**

**Absolute Maximum Ratings(Ta=25°C)**

Parameter	Symbol	MAX.	Unit
Power Dissipation	PD	100	mW
Peak Forward Current*	IFP	100	mA
Continuous Forward Current	IF	30	mA
Reverse Voltage	VR	5	V
Operating Temperature Range	Topr	-40~ +85	°C
Storage Temperature Range	Tstg	-40~ +85	°C

\*1/10 Duty Cycle, 0.1ms Pulse Width

**Typical Electrical & Optical Characteristics(Ta=25°C)**

Parameter	Symbol	Test Condition	Min.	Typ.	Max.	Unit
Forward Voltage	V <sub>F</sub>	IF=20mA	2.6	3	3.2	V
Reverse Current	I <sub>R</sub>	VR=5V	---	---	10	μA
Chromaticity coordinates	X	IF=20mA	---	0.28	---	---
	Y	IF=20mA	---	0.25	---	---
Color temperature	CCT	IF=20mA	---	12000	---	K
Luminous Intensity	I <sub>v</sub>	IF=20mA	2800	3700	4600	mcd
Luminous Flux	Φ	IF=20mA	5.5	7.5	10	Lm
Viewing Angle	2θ <sub>1/2</sub>	IF=20mA	---	120	---	Deg

**Material**

Item	Reflector	Wire	Encapsulate	Chip
Material	PPA	Gold	Silicone	InGaN/GaN

Note:

- 1.Luminous Intensity is based on the Foryard standards.
- 2.Pay attention about static for InGaN

**The Luminous Intensity Grade of Products(Unit: mcd) ;Test Condition: If=20mA,Ta=25°C**

Code	28	29	30	31	32	33	34	35	36
Luminous Intensity(mcd)	2800~2900	2900~3000	3000~3100	3100~3200	3200~3300	3300~3400	3400~3500	3500~3600	3600~3700
	37	38	39	40	41	42	43	44	45
	3700~3800	3800~3900	3900~4000	4000~4100	4100~4200	4200~4300	4300~4400	4400~4500	4500~4600

Tolerance of measurement of luminous intensity is ±5%

**The Luminous Intensity Grade of Products(Unit: Lm) ;Test Condition: If=20mA,Ta=25°C**

Code	28	29	30	31	32	33	34	35	36
Luminous Intensity(Lm)	5.50~5.75	5.75~6.00	6.00~6.25	6.25~6.50	6.50~6.75	6.75~7.00	7.00~7.25	7.25~7.50	7.50~7.75
	37	38	39	40	41	42	43	44	45
	7.75~8.00	8.00~8.25	8.25~8.50	8.50~8.75	8.75~9.00	9.00~9.25	9.25~9.50	9.50~9.75	9.75~10.00

Tolerance of measurement of luminous intensity is ±5%

**Forward Voltage Grade of Products (Unit: V); Test Condition: If=20mA,Ta=25°C**

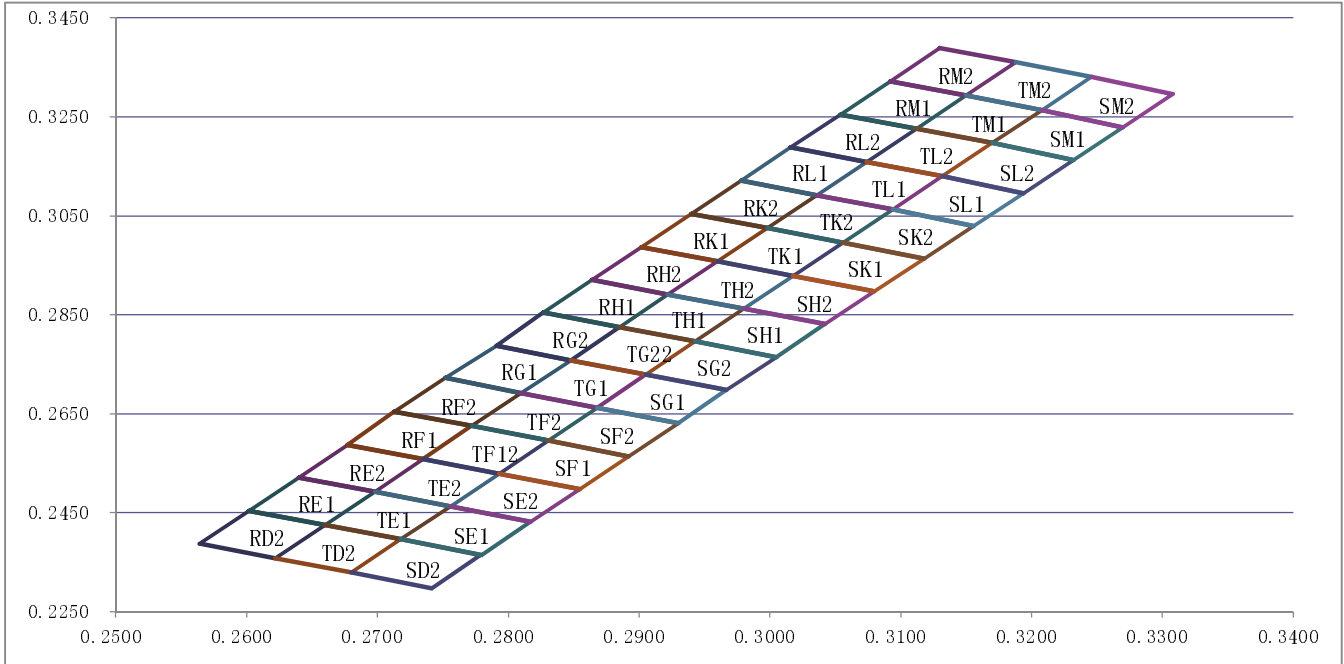
Code	14	15	16	17	18
Forward Voltage(V)	2.7~2.8	2.8~2.9	2.9~3.0	3.0~3.1	3.1~3.2

Tolerance of measurement of forward voltage is ±0.05V

**Model No.: FYLS-3806BUWC**

**■ Chromaticity Coordinate Grade of White Chip-LED Products**

Test Condition:@IF=20mA Ta=25°C



BIN	CIE	Top	Right	Bottom	Left	BIN	CIE	Top	Right	Bottom	Left
RD2	X	0.2602	0.2660	0.2622	0.2564	TD2	X	0.2660	0.2718	0.2680	0.2622
	Y	0.2454	0.2425	0.2358	0.2387		Y	0.2425	0.2396	0.2329	0.2358
RE1	X	0.2640	0.2698	0.2660	0.2602	TE1	X	0.2698	0.2756	0.2718	0.2660
	Y	0.2521	0.2492	0.2425	0.2454		Y	0.2492	0.2463	0.2396	0.2425
RE2	X	0.2677	0.2735	0.2698	0.2640	TE2	X	0.2735	0.2793	0.2756	0.2698
	Y	0.2587	0.2558	0.2492	0.2521		Y	0.2558	0.2529	0.2463	0.2492
RF1	X	0.2713	0.2772	0.2735	0.2677	TF1	X	0.2772	0.2831	0.2793	0.2735
	Y	0.2654	0.2626	0.2558	0.2587		Y	0.2626	0.2596	0.2529	0.2558
RF2	X	0.2752	0.2810	0.2772	0.2713	TF2	X	0.2810	0.2868	0.2831	0.2772
	Y	0.2722	0.2692	0.2626	0.2654		Y	0.2692	0.2662	0.2596	0.2626
RG1	X	0.2791	0.2848	0.2810	0.2752	TG1	X	0.2848	0.2905	0.2868	0.2810
	Y	0.2787	0.2758	0.2692	0.2722		Y	0.2758	0.2729	0.2662	0.2692
RG2	X	0.2827	0.2885	0.2848	0.2791	TG2	X	0.2885	0.2943	0.2905	0.2848
	Y	0.2854	0.2825	0.2758	0.2787		Y	0.2825	0.2796	0.2729	0.2758
RH1	X	0.2864	0.2922	0.2885	0.2827	TH1	X	0.2922	0.2980	0.2943	0.2885
	Y	0.2920	0.2891	0.2825	0.2854		Y	0.2891	0.2862	0.2796	0.2825
RH2	X	0.2902	0.2960	0.2922	0.2864	TH2	X	0.2960	0.3018	0.2980	0.2922
	Y	0.2987	0.2958	0.2891	0.2920		Y	0.2958	0.2929	0.2862	0.2891
RK1	X	0.2940	0.2998	0.2960	0.2902	TK1	X	0.2998	0.3056	0.3018	0.2960
	Y	0.3054	0.3025	0.2958	0.2987		Y	0.3025	0.2996	0.2929	0.2958
RK2	X	0.2978	0.3036	0.2998	0.2940	TK2	X	0.3036	0.3094	0.3056	0.2998
	Y	0.3121	0.3092	0.3025	0.3054		Y	0.3092	0.3063	0.2996	0.3025
RL1	X	0.3016	0.3074	0.3036	0.2978	TL1	X	0.3074	0.3132	0.3094	0.3036
	Y	0.3188	0.3159	0.3092	0.3121		Y	0.3159	0.3130	0.3063	0.3092
RL2	X	0.3054	0.3112	0.3074	0.3016	TL2	X	0.3112	0.3170	0.3132	0.3074
	Y	0.3255	0.3226	0.3159	0.3188		Y	0.3226	0.3197	0.3130	0.3159
RM1	X	0.3092	0.3150	0.3112	0.3054	TM1	X	0.3150	0.3208	0.3170	0.3112
	Y	0.3322	0.3293	0.3226	0.3255		Y	0.3293	0.3264	0.3197	0.3226
RM2	X	0.3130	0.3188	0.3150	0.3092	TM2	X	0.3188	0.3246	0.3208	0.3150
	Y	0.3389	0.3360	0.3293	0.3322		Y	0.3360	0.3331	0.3264	0.3293

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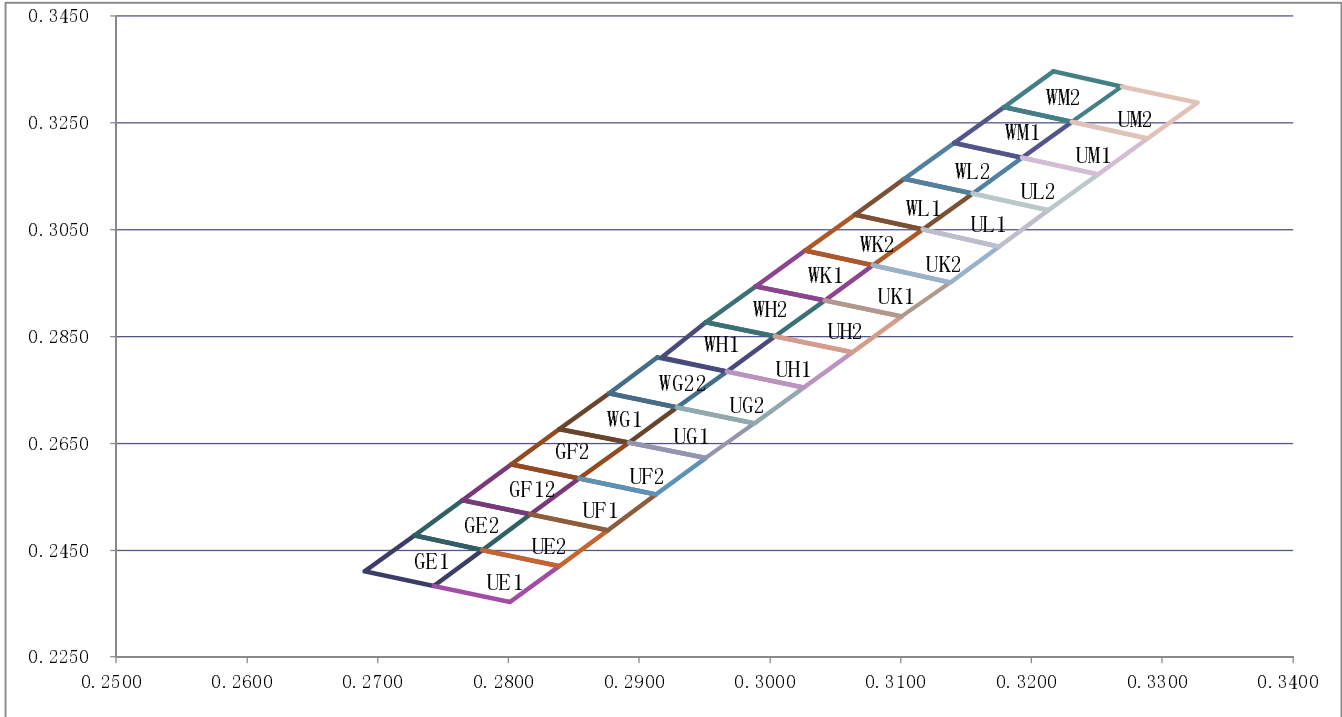
BIN	CIE	Top	Right	Bottom	Left	BIN	CIE	Top	Right	Bottom	Left
SD2	X	0.2718	0.2779	0.2742	0.2680	SH1	X	0.2980	0.3042	0.3005	0.2943
	Y	0.2396	0.2364	0.2297	0.2329		Y	0.2862	0.2831	0.2764	0.2796
SE1	X	0.2756	0.2817	0.2780	0.2718	SH2	X	0.3018	0.3080	0.3042	0.2980
	Y	0.2463	0.2431	0.2364	0.2396		Y	0.2929	0.2897	0.2831	0.2862
SE2	X	0.2793	0.2855	0.2817	0.2756	SK1	X	0.3056	0.3118	0.3080	0.3018
	Y	0.2529	0.2498	0.2431	0.2463		Y	0.2996	0.2963	0.2897	0.2929
SF1	X	0.2831	0.2892	0.2855	0.2793	SK2	X	0.3094	0.3156	0.3118	0.3056
	Y	0.2596	0.2564	0.2498	0.2529		Y	0.3063	0.3029	0.2963	0.2996
SF2	X	0.2868	0.2930	0.2892	0.2831	SL1	X	0.3132	0.3194	0.3156	0.3094
	Y	0.2662	0.2631	0.2564	0.2596		Y	0.3130	0.3095	0.3029	0.3063
SG1	X	0.2905	0.2967	0.2930	0.2868	SL2	X	0.3170	0.3232	0.3194	0.3132
	Y	0.2729	0.2698	0.2631	0.2662		Y	0.3197	0.3162	0.3095	0.3130
SG2	X	0.2943	0.3005	0.2967	0.2905	SM1	X	0.3208	0.3270	0.3232	0.3170
	Y	0.2796	0.2764	0.2698	0.2729		Y	0.3264	0.3229	0.3162	0.3197
						SM2	X	0.3246	0.3308	0.3270	0.3208
							Y	0.3331	0.3296	0.3229	0.3264



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**Chromaticity Coordinate Grade of White Chip-LED Products**

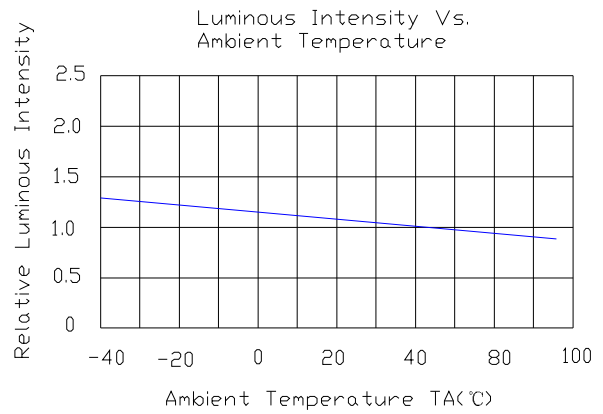
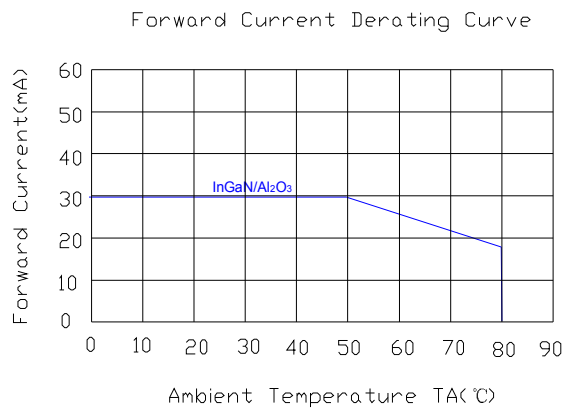
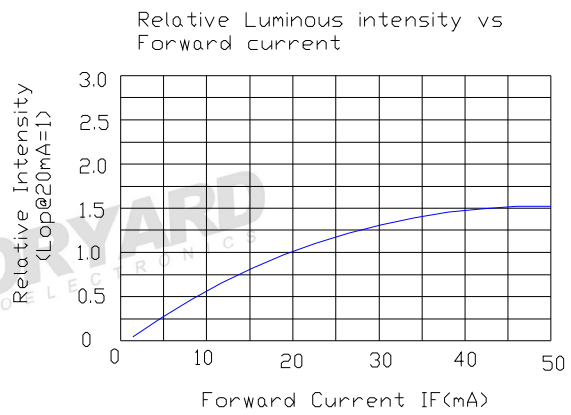
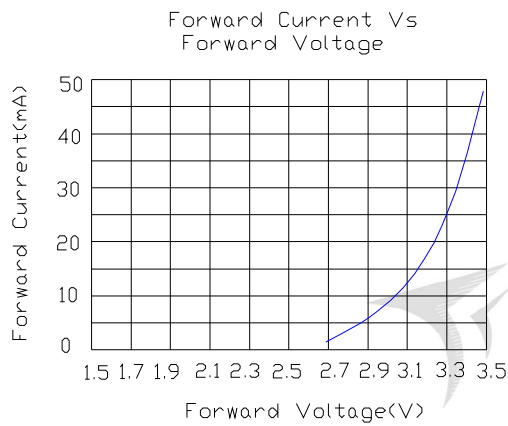
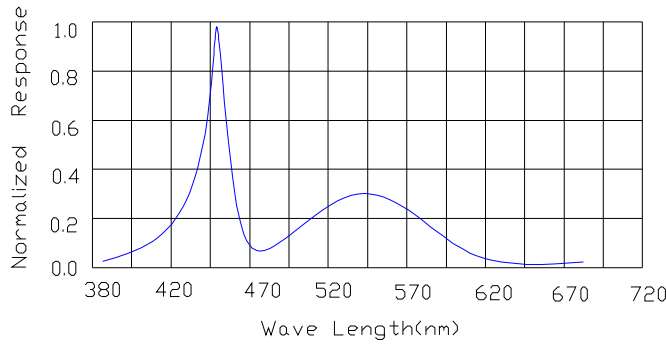
Test Condition:@IF=20mA Ta=25°C



BIN	CIE	Top	Right	Bottom	Left	BIN	CIE	Top	Right	Bottom	Left
WE1	X	0.2728	0.2780	0.2743	0.2690	UE1	X	0.2780	0.2839	0.2801	0.2743
	Y	0.2477	0.2450	0.2383	0.2410		Y	0.2450	0.2420	0.2353	0.2383
WE2	X	0.2765	0.2817	0.2780	0.2728	UE2	X	0.2817	0.2876	0.2839	0.2780
	Y	0.2544	0.2517	0.2450	0.2477		Y	0.2517	0.2487	0.2420	0.2450
WF1	X	0.2802	0.2854	0.2817	0.2765	UF1	X	0.2854	0.2913	0.2876	0.2817
	Y	0.2611	0.2584	0.2517	0.2544		Y	0.2584	0.2554	0.2487	0.2517
WF2	X	0.2839	0.2892	0.2854	0.2802	UF2	X	0.2892	0.2951	0.2913	0.2854
	Y	0.2677	0.2651	0.2584	0.2611		Y	0.2651	0.2622	0.2554	0.2584
WG1	X	0.2877	0.2929	0.2892	0.2839	UG1	X	0.2929	0.2988	0.2951	0.2892
	Y	0.2744	0.2717	0.2651	0.2677		Y	0.2717	0.2687	0.2622	0.2651
WG2	X	0.2914	0.2967	0.2929	0.2877	UG2	X	0.2967	0.3026	0.2988	0.2929
	Y	0.2811	0.2784	0.2717	0.2744		Y	0.2784	0.2754	0.2687	0.2717
WH1	X	0.2951	0.3004	0.2967	0.2917	UH1	X	0.3004	0.3063	0.3026	0.2967
	Y	0.2877	0.2850	0.2784	0.2811		Y	0.2850	0.2820	0.2754	0.2784
WH2	X	0.2989	0.3042	0.3004	0.2951	UH2	X	0.3042	0.3101	0.3063	0.3004
	Y	0.2944	0.2917	0.2850	0.2877		Y	0.2917	0.2887	0.2820	0.2850
WK1	X	0.3027	0.3079	0.3042	0.2989	UK1	X	0.3079	0.3138	0.3101	0.3042
	Y	0.3011	0.2983	0.2917	0.2944		Y	0.2983	0.2951	0.2887	0.2917
WK2	X	0.3065	0.3117	0.3079	0.3027	UK2	X	0.3117	0.3175	0.3138	0.3079
	Y	0.3078	0.3050	0.2983	0.3011		Y	0.3050	0.3018	0.2951	0.2983
WL1	X	0.3103	0.3155	0.3117	0.3065	UL1	X	0.3155	0.3213	0.3175	0.3117
	Y	0.3145	0.3117	0.3050	0.3078		Y	0.3117	0.3086	0.3018	0.3050
WL2	X	0.3141	0.3193	0.3155	0.3103	UL2	X	0.3193	0.3251	0.3213	0.3155
	Y	0.3212	0.3184	0.3117	0.3145		Y	0.3184	0.3153	0.3086	0.3117
WM1	X	0.3179	0.3231	0.3193	0.3141	UM1	X	0.3231	0.3289	0.3251	0.3193
	Y	0.3279	0.3251	0.3184	0.3212		Y	0.3251	0.3220	0.3153	0.3184
WM2	X	0.3217	0.3269	0.3231	0.3179	UM2	X	0.3269	0.3327	0.3289	0.3231
	Y	0.3346	0.3318	0.3251	0.3279		Y	0.3318	0.3287	0.3220	0.3251

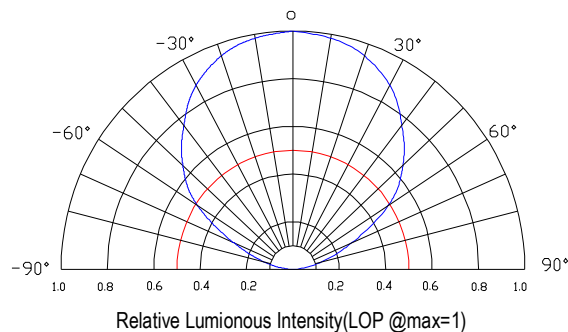
**Model No.: FYLS-3806BUWC**

**Electrical-Optical Characteristics-**



**NOTE: 25°C free air temperature unless otherwise specified**

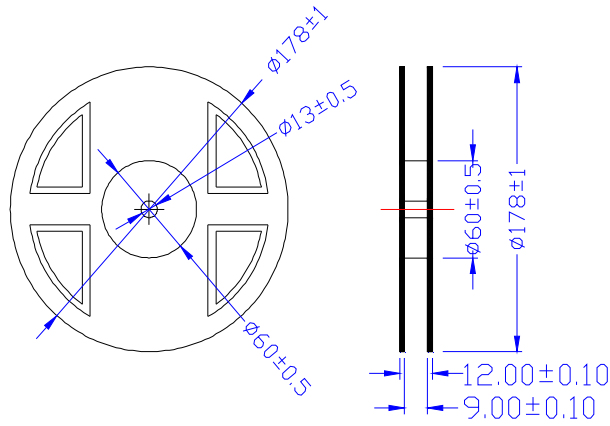
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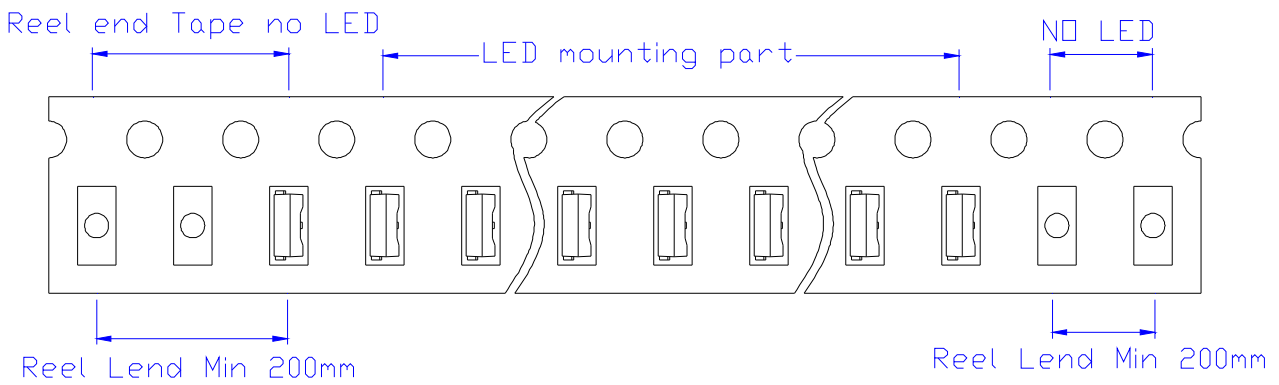
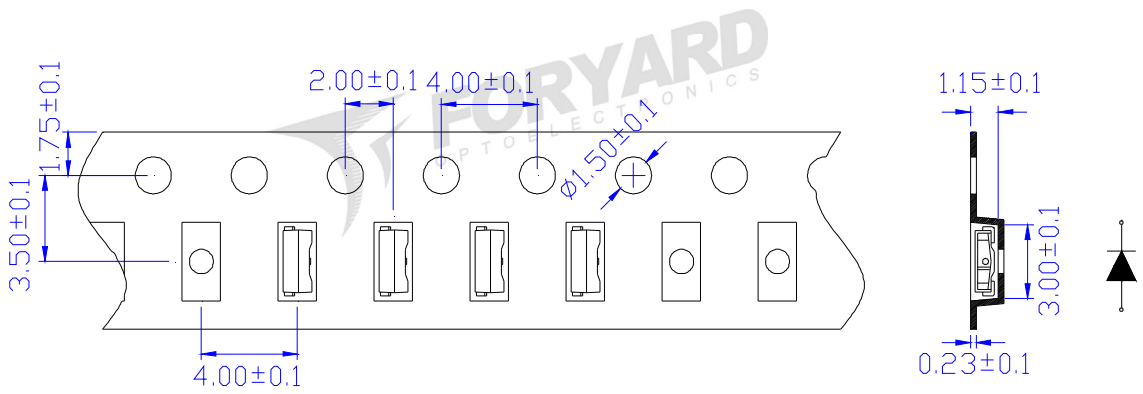
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**Package-**

1. Reel Dimension



2. Tape Dimension



Notice:

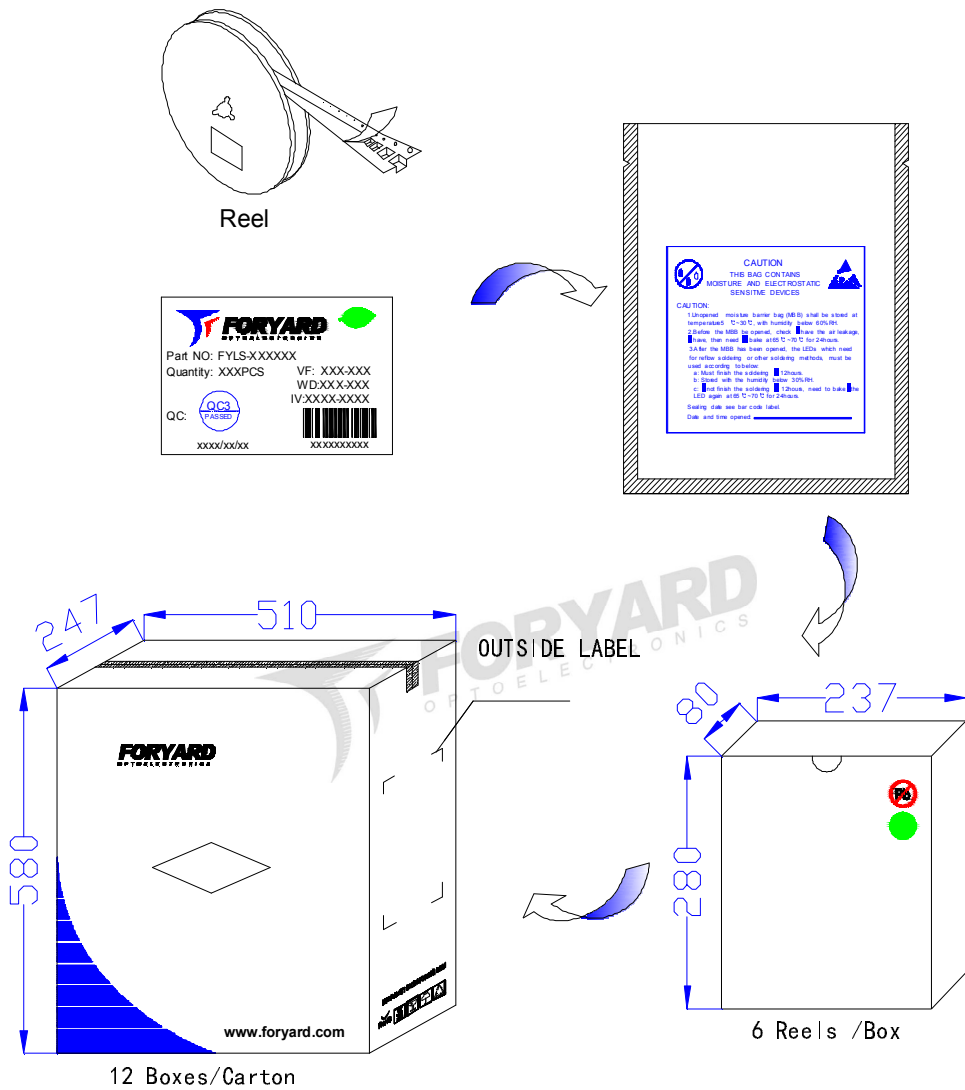
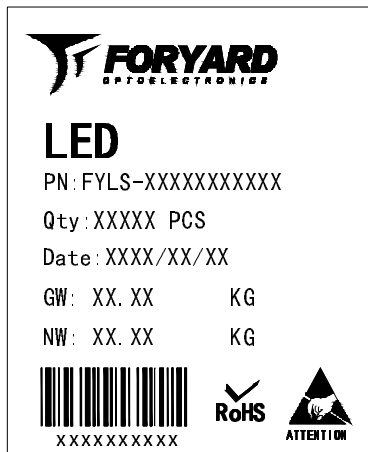
1. Tolerance unless mentioned is  $\pm 0.2\text{mm}$



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Date / Rev.	2022.01.22 / B

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3. Packing Diagram

**FORYARD OPTOELECTRONICS**

**LED**

PN: FYLS-XXXXXXXXXX

Qty: XXXXX PCS

Date: XXXX/XX/XX

GW: XX.XX KG

NW: XX.XX KG

XXXXXXXXXX

RoHS ATTENTION

OUTSIDE LABEL

Notice:

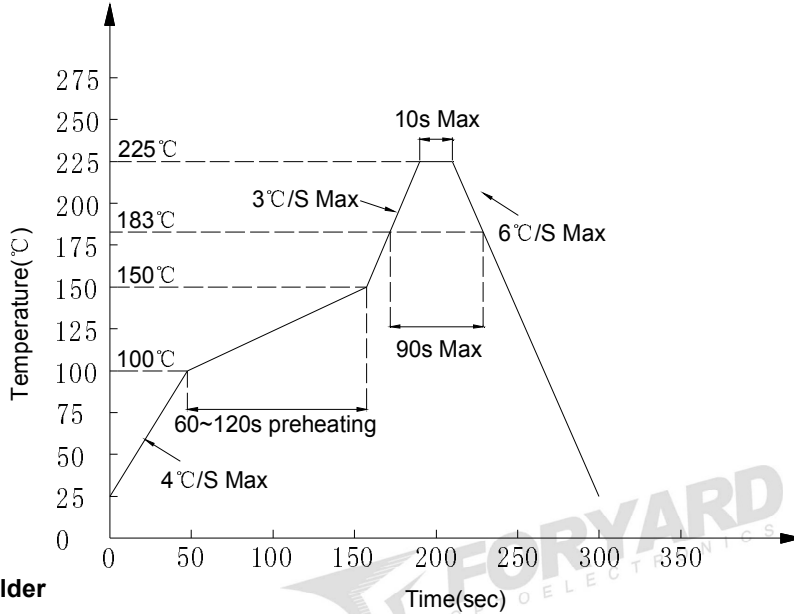
- 1.Quantity:4000 PCS/Reel
- 2.The specifications are subject to change without notice. Please contact us for updated information.

**Model No.: FYLS-3806BUWC**

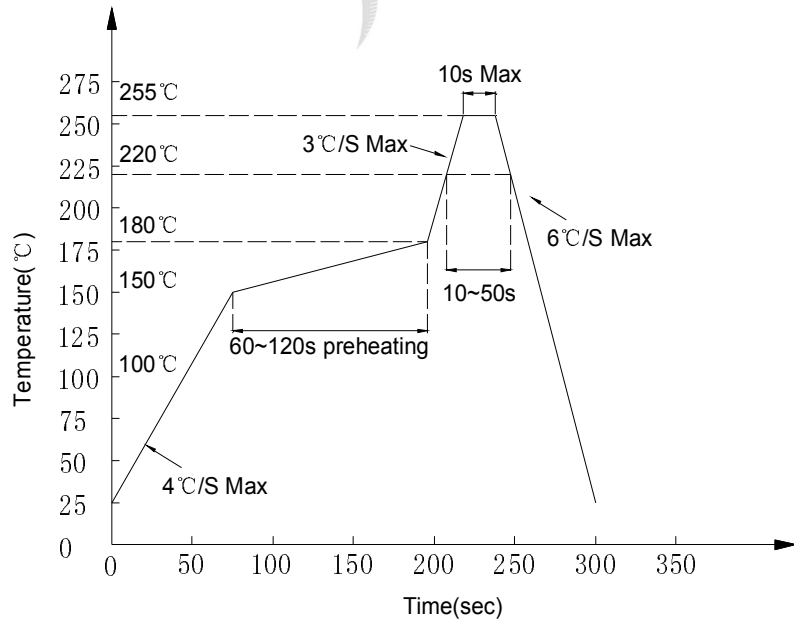
**■ Soldering Characteristics-**

**● Reflow Soldering**

**● Lead Solder**



**● Lead-free Solder**



**Notes:**

1. Although the recommended soldering conditions are specified in above table, reflow or hand soldering at the lowest possible temperature is desired for the LEDs.
2. A rapid-rate process is not recommended for cooling the LEDs down from the peak temperature.
3. All temperatures refer to solder Pad.

**● Hand Soldering**

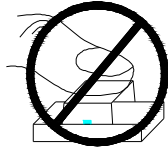
Soldering temperature	300°C Max. (25W Max.)	One time only
Soldering time	5 ±1sec	

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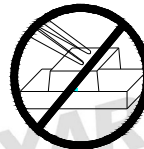
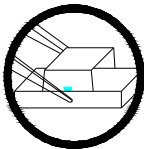
■ **Handling of Silicone Resin LEDs-**

● **Handling Indications**

When handling the product, do not touch it directly with bare hands as it may contaminate the surface and affect on optical characteristics. In the worst cases, excessive force to the product might result in catastrophic failure due to package damage and/or wire breakage.

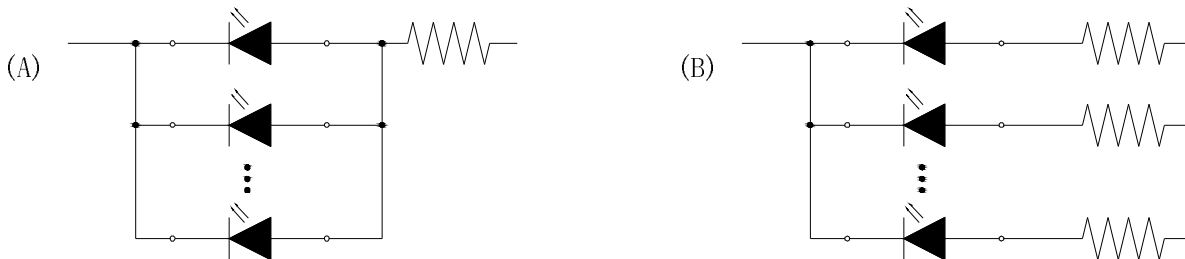


When handling the product with tweezers, LEDs should only be handled from the side and make sure that excessive force is not applied to the resin portion of the product. Failure to comply can cause the resin portion of the product to be cut, chipped, delaminated and/or deformed, and wire to be broken, and thus resulting in catastrophic failure.



■ **Recommended circuit-**

• In designing a circuit, the current through each LED must not exceed the absolute maximum rating specified for each LED. It is recommended to use Circuit B which regulates the current flowing through each LED. In the meanwhile, when driving LED with a constant voltage in Circuit A, the current through the LEDs may vary due to the variation in forward voltage (VF) of the LEDs. In the worst case, some LED may be subjected to stresses in excess of the absolute maximum rating.



• This product should be operated in forward bias. A driving circuit must be designed so that the product is not subjected to either forward or reverse voltage while it is off. In particular, if a reverse voltage is continuously applied to the product; such operation can cause migration resulting in LED damage.

■ **Storage-**

● **Storage Conditions**

1. Unopened moisture barrier bag (MBB) shall be stored at temperature below 5°C~30°C, with humidity below 60%RH.
2. Before the MBB be opened, check if have the air leakage, if have, then need to bake at 70°C±5°C for 24hours.
3. After the MBB has been opened, the LEDs which need for reflow soldering or other soldering methods, must be used according to below:
  - a: Must finish the soldering in 12hours
  - b: Stored with the humidity below 30%RH
  - c: If not finish the soldering in 12hours, need to bake the LED again at 70°C±5°C for 24hours