

PLCC-2 Package Top View  
0.2W White Chip LED  
Technical Data Sheet

Series No.: R2835W-WXM-QXX

## Features:

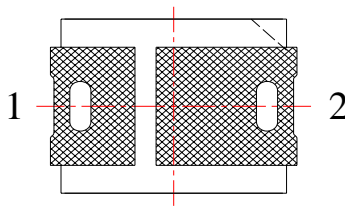
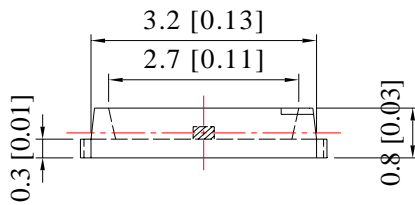
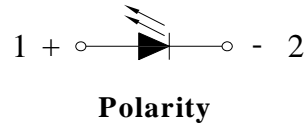
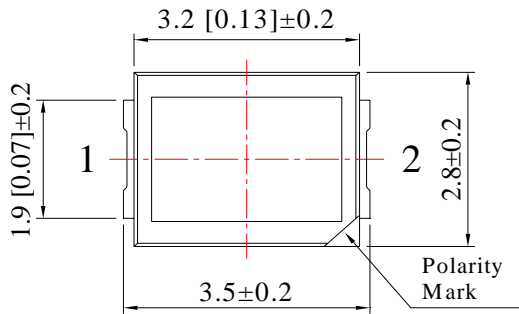
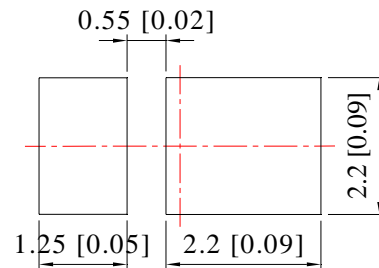
- ◇ PLCC-2 package.
- ◇ High power LED type.
- ◇ White package.
- ◇ Optical indicator.
- ◇ Yellow diffused window.
- ◇ Ideal for backlight and light pipe application.
- ◇ Inter reflector.
- ◇ Wide viewing angle.
- ◇ Very long operating life.
- ◇ Designed for high current operation.
- ◇ Suitable for automatic placement equipment.
- ◇ Suitable for vapor-phase reflow, Infrared reflow and wave solder processes.
- ◇ Available on tape and reel (8mm Tape).
- ◇ The product itself will remain within RoHS compliant Version.

## Descriptions:

- ◇ The R2835 series is available in soft red, orange, yellow, green, blue and white. Due to the package design, the LED has wide viewing angle and optimized light coupling by inter reflector. This feature makes the SMT TOP LED ideal for light pipe application. The low current requirement makes this device ideal for portable equipment or any other application where power is at a premium.

## Applications:

- ◇ Reading lights (car, bus, aircraft).
- ◇ Mini\_ accent/Up lighters/Down lighters/Orientation.
- ◇ Bollards/Security/Garden.
- ◇ Cove/Under shelf/Task.
- ◇ Automotive rear combination lamps.
- ◇ Indoor/Outdoor Commercial and Residential Architectural.
- ◇ Edge\_ lit signs (Exit, point of sale).
- ◇ LCD Backlights/Light Guides.

**Package Dimension:**

**Recommended Soldering Pad Dimensions**


Unit: mm  
Tolerance: ±0.10mm

Series No.	Chip Material		Lens Color	Emitting Color
R2835W-WXM-QXX	W2M-Q20	InGaN	Yellow Diffused	Cool White
	W5M-Q20	InGaN	Yellow Diffused	Neutral White
	W6M-Q20	InGaN	Yellow Diffused	Warm White

**Notes:**

1. All dimensions are in millimeters (inches).
2. Tolerance is ± 0.10mm (.004") unless otherwise specified.
3. Specifications are subject to change without notice.

**Absolute Maximum Ratings at Ta=25°C**

Parameters	Symbol	Max.	Unit
Power Dissipation	PD	216	mW
Peak Forward Current (1/10 Duty Cycle, 0.1ms Pulse Width)	IFP	150	mA
Continuous Forward Current	IF	80	mA
Reverse Voltage	VR	5	V
LED Junction Temperature	Tj	125	°C
Operating Temperature Range	Topr	-40°C to +80°C	
Storage Temperature Range	Tstg	-40°C to +85°C	
Soldering Temperature	Tsld	260°C for 5 Seconds	

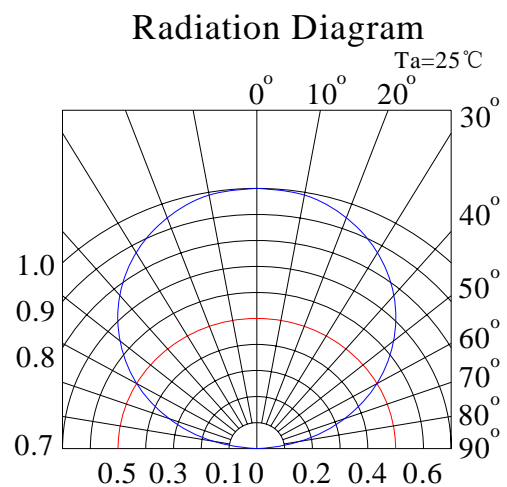
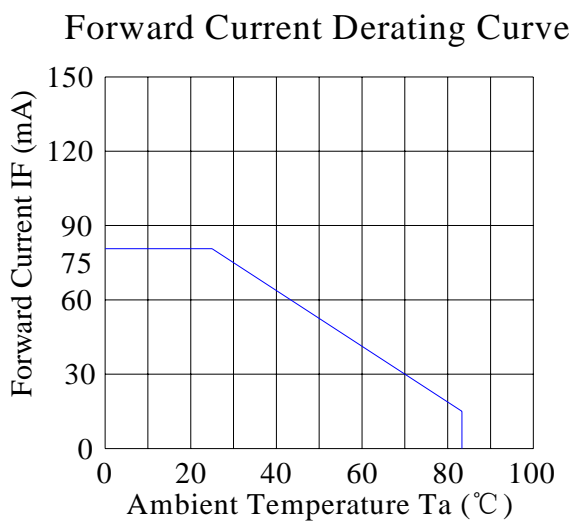
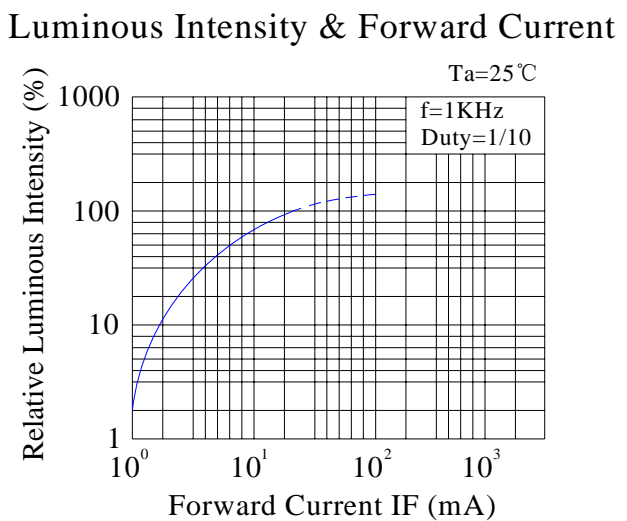
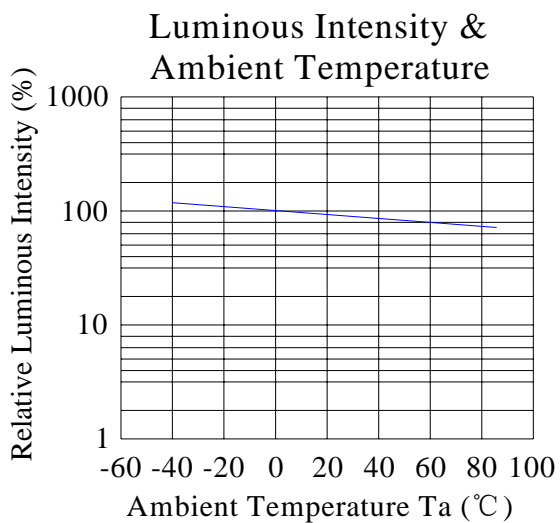
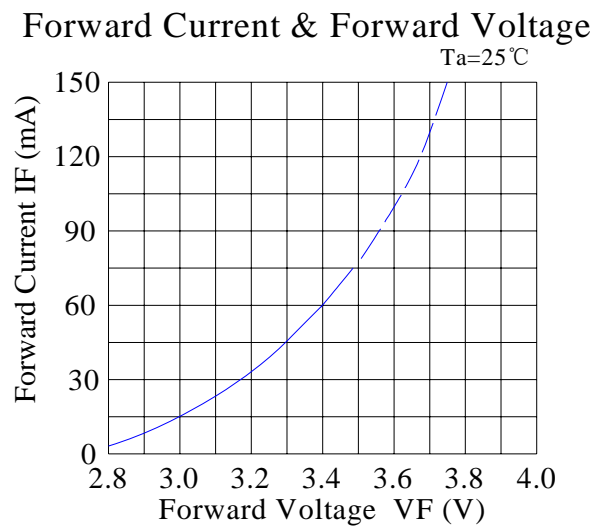
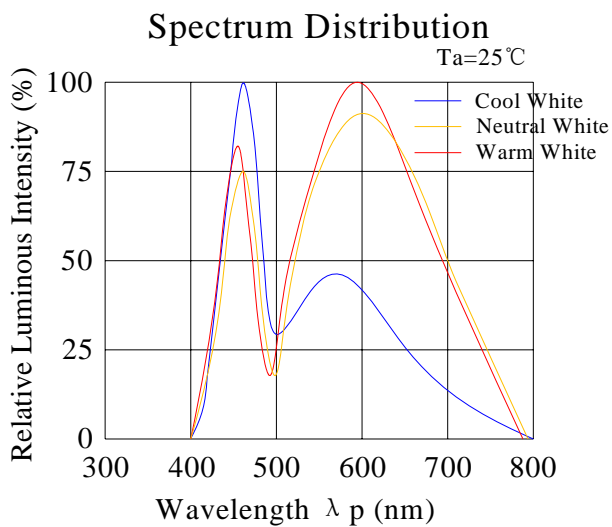
**Electrical Optical Characteristics at Ta=25°C**

Parameters	Symbol	Emitting Color	Min.	Typ.	Max.	Unit	Test Condition
Luminous Intensity *	IV	W2M-Q20	6000	---	8200	mcd	IF=60mA
		W5M-Q20	6000	---	8200		
		W6M-Q20	6000	---	8200		
Luminous Flux *	Φv	W2M-Q20	20	---	27	lm	IF=60mA
		W5M-Q20	20	---	27		
		W6M-Q20	20	---	27		
Viewing Angle *	2θ1/2		---	120	---	Deg	IF=60mA
Chromaticity Coordinates	X	W2M-Q20	---	0.31	---		IF=60mA
		W5M-Q20	---	0.35	---		
		W6M-Q20	---	0.43	---		
	Y	W2M-Q20	---	0.32	---		
		W5M-Q20	---	0.36	---		
		W6M-Q20	---	0.40	---		
Color Temperature	CCT	W2M-Q20	5000	6500	---	K	IF=60mA
		W5M-Q20	3800	4500	5000		
		W6M-Q20	2600	3000	3800		
Color Rendering Index	CRI	W2M-Q20	---	73	---	Ra	IF=60mA
		W5M-Q20	---	73	---		
		W6M-Q20	---	73	---		
Forward Voltage	VF	W2M-Q20	2.80	3.40	3.80	V	IF=60mA
		W5M-Q20	2.80	3.40	3.80		
		W6M-Q20	2.80	3.40	3.80		
Reverse Current	IR	W2M-Q20	---	---	10	μA	VR=5V
		W5M-Q20	---	---	10		
		W6M-Q20	---	---	10		

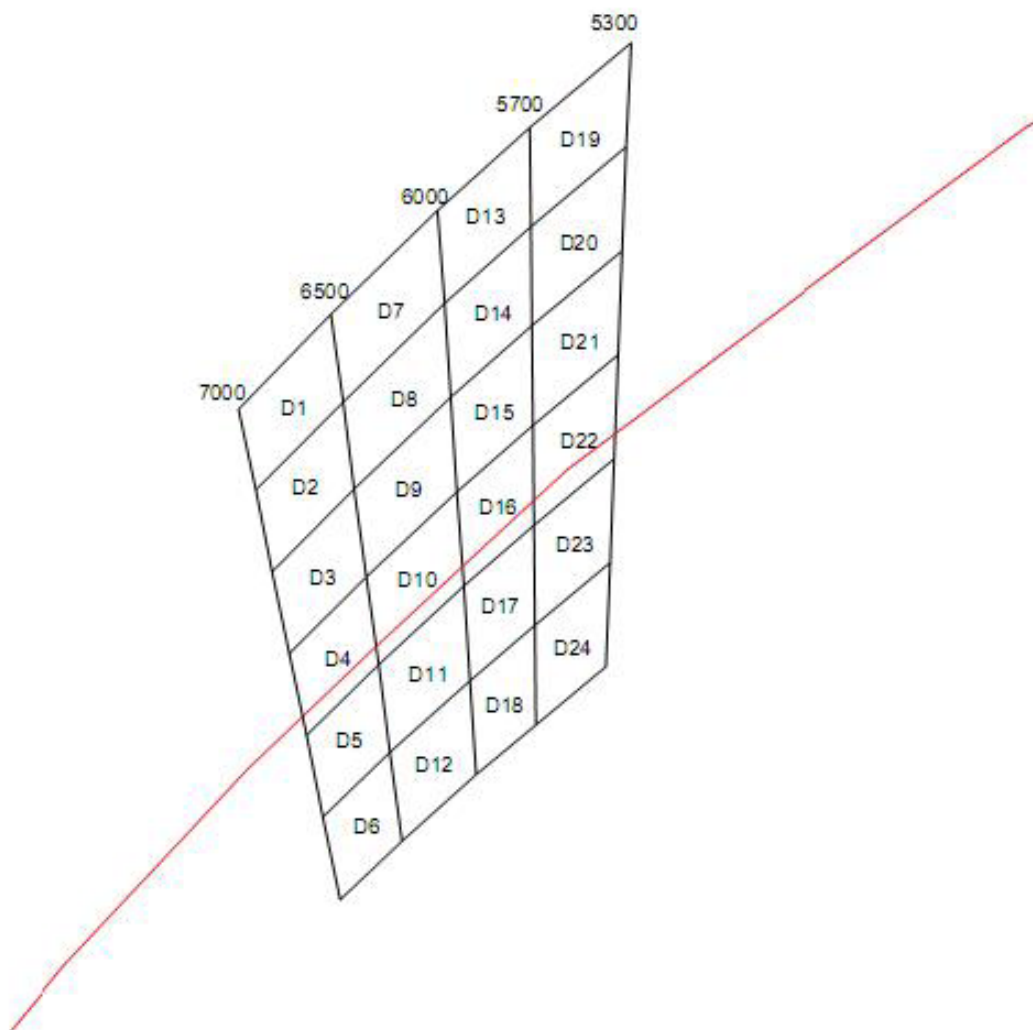
**Notes:**

- Luminous Intensity (Flux) Measurement allowance is ± 10%.
- θ1/2 is the off-axis angle at which the luminous intensity is half the axial luminous intensity.
- It use many parameters that correspond to the CIE 1931 2°. X, Y, and Z are CIE 1931 2° values of Red, Green and Blue content of the measurement.

### Typical Electrical / Optical Characteristics Curves (25°C Ambient Temperature Unless Otherwise Noted)



CIE Chromaticity Diagram:  
Cool White:

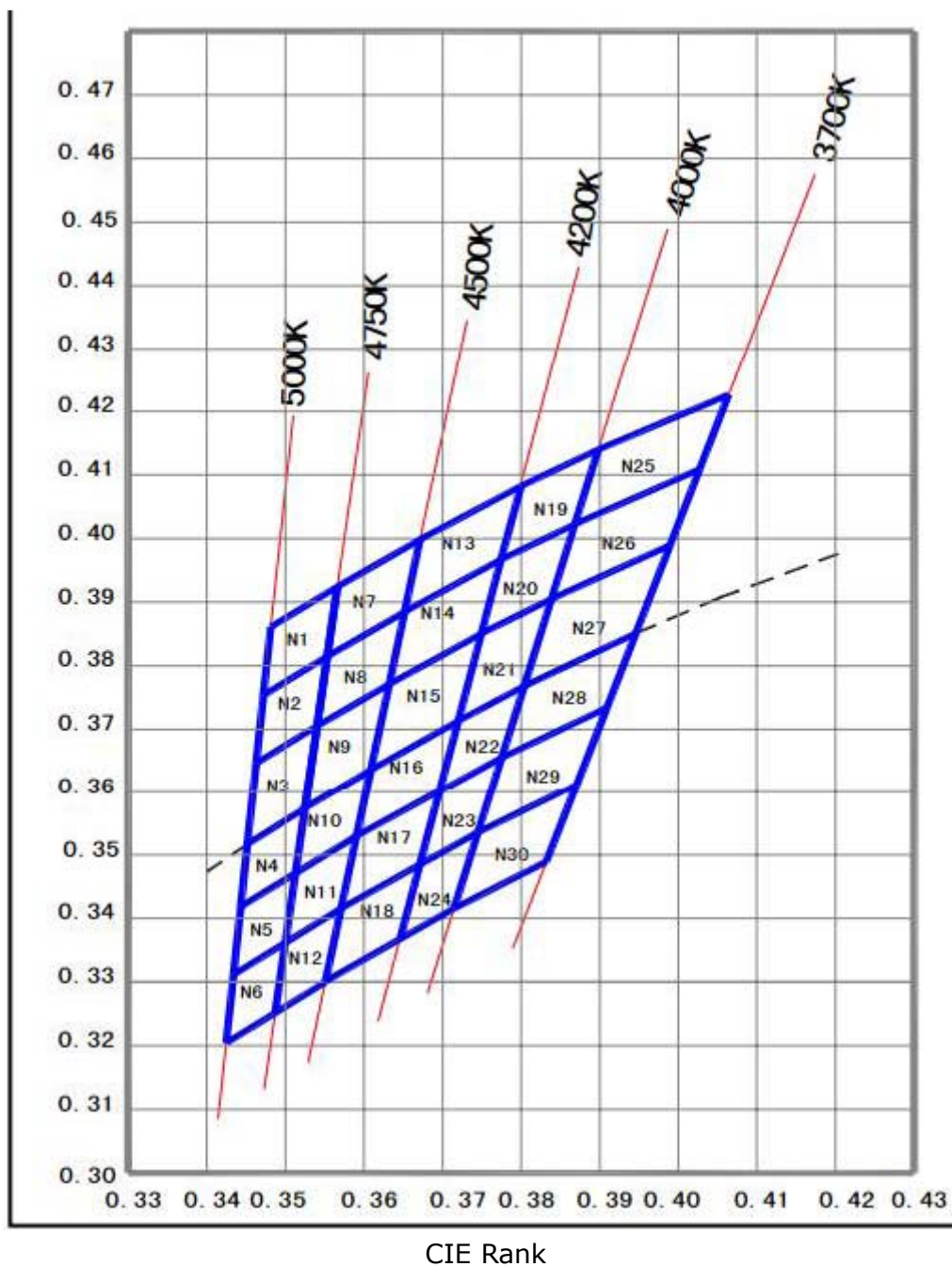


CIE Rank

Code	CCT (K)	X	Y	Code	CCT (K)	X	Y
D1	6500-7000	0.3000	0.3469	D7	6000-6500	0.3091	0.3563
		0.3091	0.3563			0.3196	0.3666
		0.3103	0.3476			0.3203	0.3574
		0.3017	0.3389			0.3103	0.3476
D2	6500-7000	0.3017	0.3389	D8	6000-6500	0.3103	0.3476
		0.3103	0.3476			0.3203	0.3574
		0.3114	0.3390			0.3209	0.3481
		0.3033	0.3308			0.3114	0.3390
D3	6500-7000	0.3033	0.3308	D9	6000-6500	0.3114	0.3390
		0.3114	0.3390			0.3209	0.3481
		0.3126	0.3303			0.3215	0.3387
		0.3050	0.3227			0.3126	0.3303
D4	6500-7000	0.3050	0.3227	D10	6000-6500	0.3126	0.3303
		0.3126	0.3303			0.3215	0.3387
		0.3138	0.3216			0.3222	0.3294
		0.3067	0.3146			0.3138	0.3216
D5	6500-7000	0.3067	0.3146	D11	6000-6500	0.3138	0.3216
		0.3138	0.3216			0.3222	0.3294
		0.3149	0.3129			0.3228	0.3200
		0.3083	0.3065			0.3149	0.3129
D6	6500-7000	0.3083	0.3065	D12	6000-6500	0.3149	0.3129
		0.3149	0.3129			0.3228	0.3200
		0.3161	0.3041			0.3234	0.3107
		0.3100	0.2983			0.3161	0.3041
D13	5700-6000	0.3196	0.3666	D19	5300-5700	0.3287	0.3748
		0.3287	0.3748			0.3387	0.3832
		0.3288	0.3650			0.3382	0.3729
		0.3203	0.3574			0.3288	0.3650
D14	5700-6000	0.3203	0.3574	D20	5300-5700	0.3288	0.3650
		0.3288	0.3650			0.3382	0.3729
		0.3289	0.3552			0.3378	0.3626
		0.3209	0.3481			0.3289	0.3552
D15	5700-6000	0.3209	0.3481	D21	5300-5700	0.3289	0.3552
		0.3289	0.3552			0.3378	0.3626
		0.3290	0.3453			0.3374	0.3523
		0.3215	0.3387			0.3290	0.3453
D16	5700-6000	0.3215	0.3387	D22	5300-5700	0.3290	0.3453
		0.3290	0.3453			0.3374	0.3523
		0.3291	0.3554			0.3370	0.3420
		0.3222	0.3294			0.3291	0.3554
D17	5700-6000	0.3222	0.3294	D23	5300-5700	0.3291	0.3554
		0.3291	0.3554			0.3370	0.3420
		0.3292	0.3255			0.3366	0.3317
		0.3228	0.3200			0.3292	0.3255
D18	5700-6000	0.3228	0.3200	D24	5300-5700	0.3292	0.3255
		0.3292	0.3255			0.3366	0.3317
		0.3293	0.3156			0.3362	0.3214
		0.3234	0.3107			0.3293	0.3156



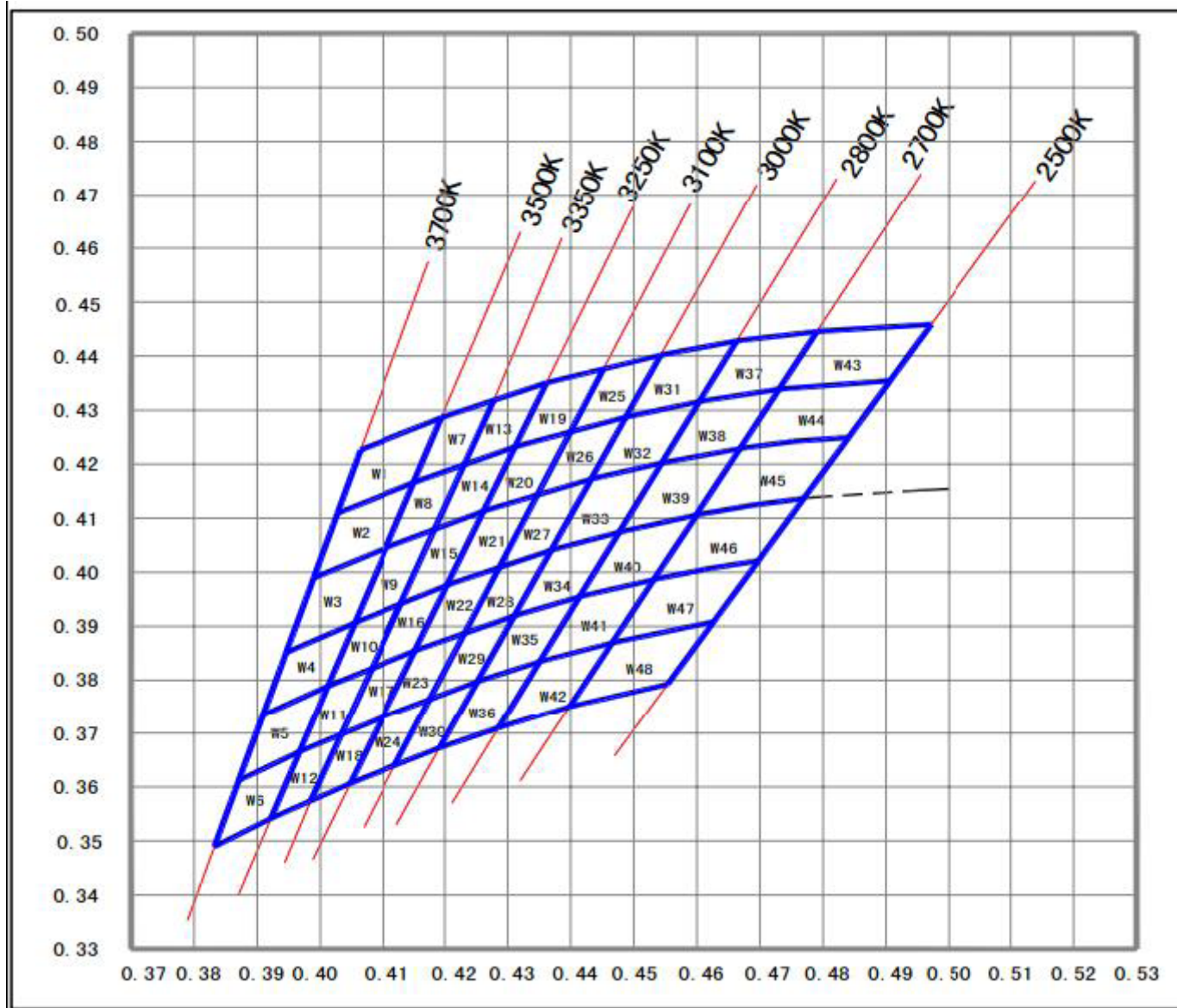
Neutral White:



Code	CCT (K)	X	Y	Code	CCT (K)	X	Y
N01	4750-5000	0.3566	0.3924	N02	4750-5000	0.3553	0.3815
		0.3481	0.3861			0.3472	0.3754
		0.3553	0.3815			0.3540	0.3705
		0.3472	0.3754			0.3463	0.3646
N03	4750-5000	0.3540	0.3705	N04	4750-5000	0.3525	0.3574
		0.3463	0.3646			0.3452	0.3517
		0.3525	0.3574			0.3513	0.3471
		0.3452	0.3517			0.3443	0.3419
N05	4750-5000	0.3513	0.3471	N06	4750-5000	0.3500	0.3362
		0.3443	0.3419			0.3434	0.3312
		0.3500	0.3362			0.3487	0.3252
		0.3434	0.3312			0.3425	0.3204
N07	4500-4750	0.3671	0.3998	N08	4500-4750	0.3652	0.3885
		0.3566	0.3924			0.3553	0.3815
		0.3652	0.3885			0.3632	0.3771
		0.3553	0.3815			0.3540	0.3705
N09	4500-4750	0.3632	0.3771	N10	4500-4750	0.3609	0.3636
		0.3540	0.3705			0.3525	0.3574
		0.3609	0.3636			0.3590	0.3530
		0.3525	0.3574			0.3513	0.3471
N11	4500-4750	0.3525	0.3574	N12	4500-4750	0.3571	0.3415
		0.3513	0.3471			0.3500	0.3362
		0.3571	0.3415			0.3551	0.3300
		0.3500	0.3362			0.3487	0.3252
N13	4200-4500	0.3799	0.4082	N14	4200-4500	0.3774	0.3967
		0.3671	0.3998			0.3652	0.3885
		0.3774	0.3967			0.3749	0.3851
		0.3652	0.3885			0.3632	0.3771
N15	4200-4500	0.3749	0.3851	N16	4200-4500	0.3720	0.3713
		0.3632	0.3771			0.3609	0.3636
		0.3720	0.3713			0.3696	0.3601
		0.3609	0.3636			0.3590	0.3530
N17	4200-4500	0.3696	0.3601	N18	4200-4500	0.3671	0.3485
		0.3590	0.3530			0.3571	0.3415
		0.3671	0.3485			0.3646	0.3368
		0.3571	0.3415			0.3551	0.3300

Code	CCT (K)	X	Y	Code	CCT (K)	X	Y
N19	4000-4200	0.3898	0.4140	N20	4000-4200	0.3868	0.4022
		0.3799	0.4082			0.3774	0.3967
		0.3868	0.4022			0.3868	0.4022
		0.3774	0.3967			0.3749	0.3751
N21	4000-4200	0.3839	0.3905	N22	4000-4200	0.3804	0.3768
		0.3749	0.3851			0.3720	0.3713
		0.3804	0.3768			0.3775	0.3655
		0.3720	0.3713			0.3696	0.3601
N23	4000-4200	0.3775	0.3665	N24	4000-4200	0.3745	0.3536
		0.3696	0.3600			0.3671	0.3485
		0.3745	0.3536			0.3715	0.3416
		0.3671	0.3485			0.3646	0.3368
N25	3700-4000	0.4064	0.4226	N26	3700-4000	0.4027	0.4109
		0.3898	0.4140			0.3868	0.4022
		0.4027	0.4109			0.3990	0.3989
		0.3868	0.4022			0.3839	0.3905
N27	3700-4000	0.3990	0.3989	N28	3700-4000	0.3946	0.3851
		0.3839	0.3905			0.3804	0.3768
		0.3946	0.3851			0.3909	0.3734
		0.3804	0.3768			0.3775	0.3665
N29	3700-4000	0.3909	0.3734	N30	3700-4000	0.3871	0.3612
		0.3775	0.3665			0.3745	0.3536
		0.3871	0.3612			0.3832	0.3489
		0.3745	0.3536			0.3715	0.3416

Warm White:



CIE Rank

Code	CCT (K)	X	Y	Code	CCT (K)	X	Y
W19	3100-3250	0.4452	0.4376	W27	3000-3100	0.4432	0.4172
		0.4361	0.4350			0.4347	0.4143
		0.4399	0.4260			0.4369	0.4041
		0.4312	0.4232			0.4286	0.4009
W20	3100-3250	0.4399	0.4260	W28	3000-3100	0.4369	0.4041
		0.4312	0.4232			0.4286	0.4009
		0.4347	0.4143			0.4311	0.3919
		0.4261	0.4113			0.4231	0.3887
W21	3100-3250	0.4347	0.4143	W29	3000-3100	0.4311	0.3919
		0.4261	0.4113			0.4231	0.3887
		0.4286	0.4009			0.4192	0.3673
		0.4204	0.3976			0.4120	0.3673
W22	3100-3250	0.4286	0.4009	W30	3000-3100	0.4252	0.3797
		0.4204	0.3976			0.4176	0.3764
		0.4231	0.3887			0.4192	0.3673
		0.4152	0.3854			0.4120	0.3673
W23	3100-3250	0.4231	0.3887	W31	2800-3000	0.4663	0.4428
		0.4152	0.3854			0.4542	0.4402
		0.4176	0.3764			0.4604	0.4316
		0.4100	0.3730			0.4487	0.4287
W24	3100-3250	0.4231	0.3887	W32	2800-3000	0.4604	0.4316
		0.4152	0.3854			0.4487	0.4287
		0.4176	0.3764			0.4544	0.4202
		0.4100	0.3730			0.4432	0.4172
W25	3100-3250	0.4176	0.3764	W33	2800-3000	0.4544	0.4202
		0.4100	0.3730			0.4432	0.4172
		0.4120	0.3673			0.4477	0.4074
		0.4048	0.3607			0.4369	0.4041
W26	3000-3100	0.4542	0.4402	W34	2800-3000	0.4477	0.4074
		0.4452	0.4376			0.4369	0.4041
		0.4487	0.4287			0.4414	0.3955
		0.4399	0.4260			0.4311	0.3919
W35	2800-3000	0.4414	0.3955	W36	2800-3000	0.4351	0.3835
		0.4311	0.3919			0.4252	0.3797
		0.4351	0.3835			0.4285	0.3710
		0.4252	0.3797			0.4192	0.3673

**Notes:**

1. Color coordinates measurement allowance is  $\pm 0.01$ .
2. One delivery will include up to two consecutive color ranks and three luminous intensity ranks of the products the quantity-ratio of the ranks is decided by **Lucky Light**.

## Reliability Test Items And Conditions:

The reliability of products shall be satisfied with items listed below:

Confidence level: 90%.

LTPD: 10%.

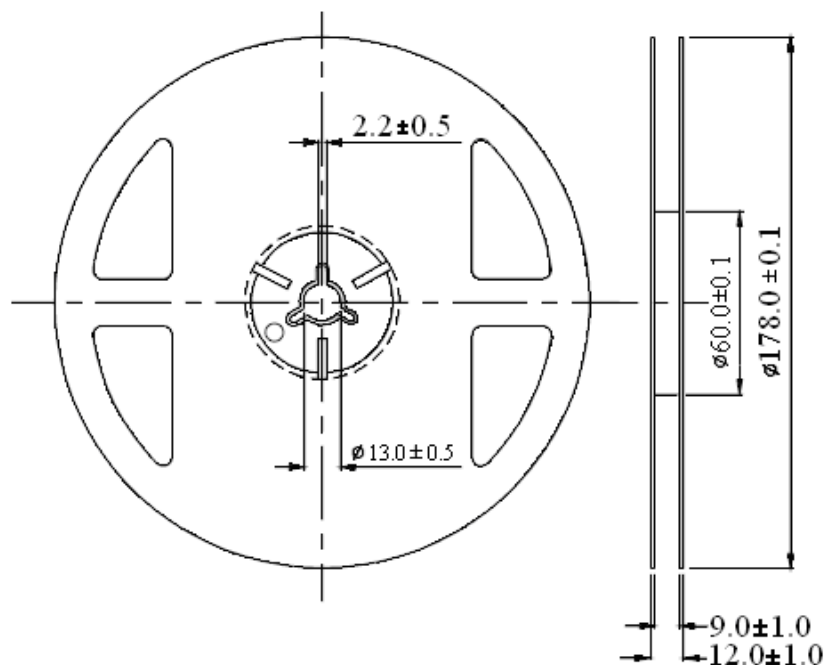
### 1) Test Items and Results:

No.	Test Item	Test Hours/Cycles	Test Conditions	Sample Size	Ac/Re
1	Resistance to Soldering Heat	6 Min	Tsld=260±5℃, Min. 5sec	25pcs	0/1
2	Thermal Shock	300 Cycles	H: +100℃ 5min ∫ 10 sec L: -10℃ 5min	25pcs	0/1
3	Temperature Cycle	300 Cycles	H: +100℃ 15min ∫ 5min L: -40℃ 15min	25pcs	0/1
4	High Temperature Storage	1000Hrs.	Temp: 100℃	25pcs	0/1
5	DC Operating Life	1000Hrs.	IF=60mA	25pcs	0/1
6	Low Temperature Storage	1000Hrs.	Temp: -40℃	25pcs	0/1
7	High Temperature/ High Humidity	1000Hrs.	85℃/85%RH	25pcs	0/1

### 2) Criteria for Judging the Damage:

Item	Symbol	Test Conditions	Criteria for Judgment	
			Min	Max
Forward Voltage	VF	IF=60mA	---	F.V.*)×1.1
Reverse Current	IR	VR=5V	---	F.V.*)×2.0
Luminous Intensity	IV	IF=60mA	F.V.*)×0.7	---

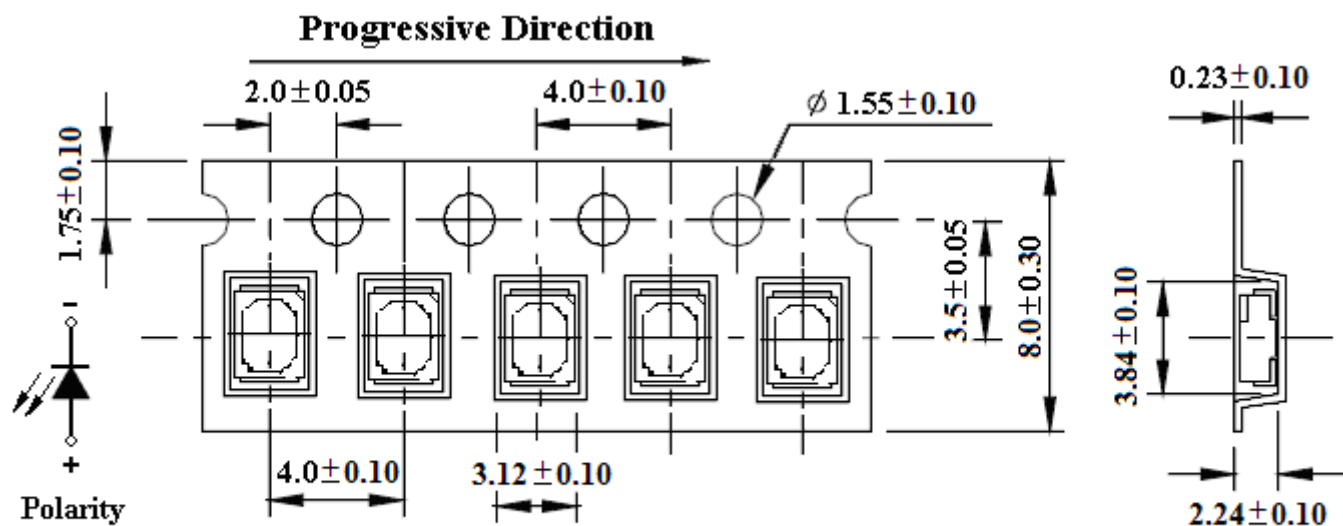
\*) F.V.: First Value.

**Reel Dimensions:**


Unit: mm  
Tolerance:  $\pm 0.25$ mm

**Carrier Tape Dimensions:**

Loaded quantity 3000PCS per reel.



Unit: mm  
Tolerance:  $\pm 0.10$  mm

Please read the following notes before using the product:

1. Over-current-proof

Customer must apply resistors for protection, otherwise slight voltage shift will cause big current change (Burn out will happen).

2. Storage

- 2.1 Do not open moisture proof bag before the products are ready to use.
- 2.2 Before opening the package, the LEDs should be kept at 30°C or less and 80%RH or less.
- 2.3 The LEDs should be used within a year.
- 2.4 After opening the package, the LEDs should be kept at 30°C or less and 60%RH or less.
- 2.5 The LEDs should be used within 168 hours (7 days) after opening the package.
- 2.6 If the moisture adsorbent material has fabled away or the LEDs have exceeded the storage time, baking treatment should be performed using the following conditions. Baking treatment: 60±5°C for 24 hours.

3. Soldering Condition

When soldering, for Lamp without stopper type and must be leave a minimum of 3mm clearance from the base of the lens to the soldering point.

To avoided the Epoxy climb up on lead frame and was impact to non-soldering problem, dipping the lens into the solder must be avoided.

Do not apply any external stress to the lead frame during soldering while the LED is at high temperature.

Recommended soldering conditions:

Soldering Iron		Wave Soldering	
Temperature	300°C Max.	Pre-heat	100°C Max.
Soldering Time	3 sec. Max. (one time only)	Pre-heat Time	60 sec. Max.
		Solder Wave	260°C Max.
		Soldering Time	5 sec. Max.

Note: Excessive soldering temperature and / or time might result in deformation of the LED lens or catastrophic failure of the LED.

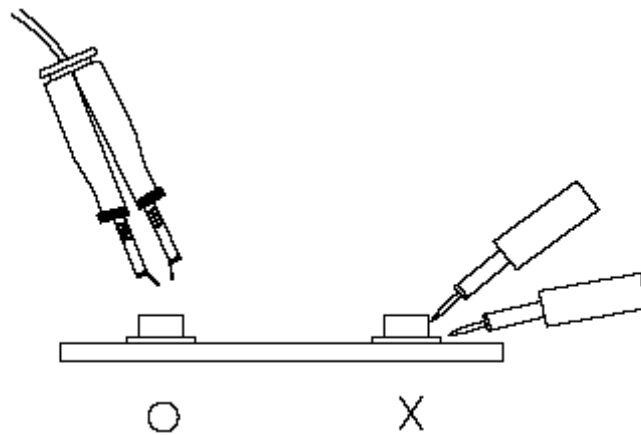
4. Soldering Iron

Each terminal is to go to the tip of soldering iron temperature less than 260°C for 5 seconds within once in less than the soldering iron capacity 25W. Leave two seconds and more intervals, and do soldering of each terminal. Be careful because the damage of the product is often started at the time of the hand solder.

5. Repairing

Repair should not be done after the LEDs have been soldered. When repairing is unavoidable, a double-head soldering iron should be used (as below figure). It should be confirmed beforehand whether the characteristics of the LEDs will or will not be damaged by repairing.





## 6. Caution in ESD

Static Electricity and surge damages the LED. It is recommended to use a wrist band or anti-electrostatic glove when handling the LED. All devices, equipment and machinery must be properly grounded.