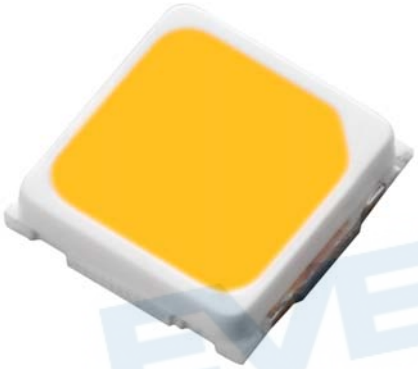
DATASHEET

SMD ▪ MID Power LED
XI3030P-1W-6V Series



Features

- Top view white LED
- High luminous intensity output
- Typical Viewing Angle:120°
- Pb-free
- ANSI Binning
- The product itself will remain within RoHS compliant version.
- Compliance with EU REACH.
- Compliance Halogen Free .(Br<900ppm,Cl<900ppm,Br+Cl<1500ppm)

Description

The Everlight XI3030P package has high efficacy, mid power consumption, wide viewing angle and a compact form factor. These features make this package an ideal LED for all lighting applications.

Applications

- General lighting
- Decorative and Entertainment Lighting
- Indicators
- Illumination
- Indoor and outdoor lighting

Product Number Explanation

XI3030P/ X KXC – H XX XX XX Z15 / 2 N

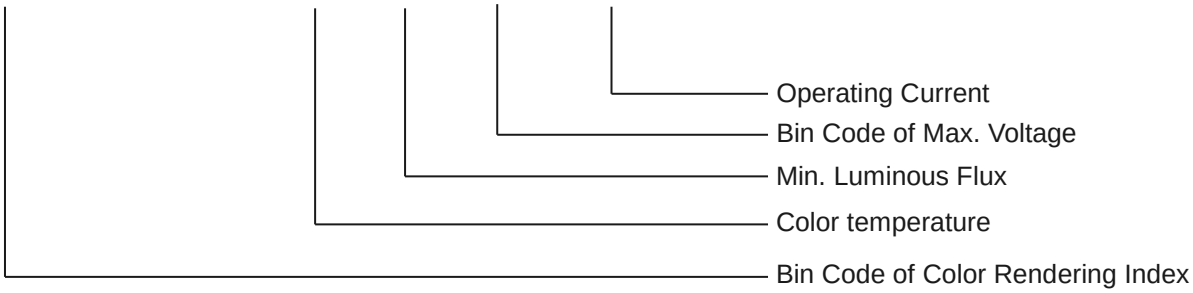


Table of Color Rendering Index

Symbol	Description
M	CRI(Min.) : 60
N	CRI(Min.) : 65
L	CRI(Min.) : 70
Q	CRI(Min.) : 75
K	CRI(Min.) : 80
P	CRI(Min.) : 85
H	CRI(Min.) : 90

Notes:
1. Tolerance of Color Rendering Index: ±2

Table of Forward Current Index

Symbol	Description
Z15	I_F:150mA

Table of Forward Voltage Index

Symbol	Description
66	6.6V max

Example:
XI3030P/LK4C-H2711866Z15/2N

CRI	70(Min.)
CCT	2700K
Flux	118lm min
V_F	6.6V max
I_F	150mA

Mass Production List : CRI>70

Order Code of XI3030P	CRI Min.(1)	CCT(K)	Φ(lm) Min. (2)	VF Max. (3)
XI3030P/LK4C-H2711866Z15/2N	70	2700K	118	6.6
XI3030P/LK4C-H3012366Z15/2N	70	3000K	123	6.6
XI3030P/LK4C-H4012866Z15/2N	70	4000K	128	6.6
XI3030P/LK4C-H5012866Z15/2N	70	5000K	128	6.6
XI3030P/LK4C-H5712866Z15/2N	70	5700K	128	6.6
XI3030P/LK4C-H6512866Z15/2N	70	6500K	128	6.6

Order Code of XI3030P	CRI Min.(1)	CCT(K)	Φ(lm) Min. (2)	VF Max. (3)
XI3030P/LK5C-H2712366Z15/2N	70	2700K	123	6.6
XI3030P/LK5C-H3012866Z15/2N	70	3000K	128	6.6
XI3030P/LK5C-H4013366Z15/2N	70	4000K	133	6.6
XI3030P/LK5C-H5013366Z15/2N	70	5000K	133	6.6
XI3030P/LK5C-H5713366Z15/2N	70	5700K	133	6.6
XI3030P/LK5C-H6513366Z15/2N	70	6500K	133	6.6

Order Code of XI3030P	CRI Min.(1)	CCT(K)	Φ(lm) Min. (2)	VF Max. (3)
XI3030P/LK6C-H2712866Z15/2N	70	2700K	128	6.6
XI3030P/LK6C-H3013366Z15/2N	70	3000K	133	6.6
XI3030P/LK6C-H4013866Z15/2N	70	4000K	138	6.6
XI3030P/LK6C-H5013866Z15/2N	70	5000K	138	6.6
XI3030P/LK6C-H5713866Z15/2N	70	5700K	138	6.6
XI3030P/LK6C-H6513866Z15/2N	70	6500K	138	6.6

Order Code of XI3030P	CRI Min.(1)	CCT(K)	Φ(lm) Min. (2)	VF Max. (3)
XI3030P/LK7C-H2713366Z15/2N	70	2700K	133	6.6
XI3030P/LK7C-H3013866Z15/2N	70	3000K	138	6.6
XI3030P/LK7C-H4014366Z15/2N	70	4000K	143	6.6
XI3030P/LK7C-H5014366Z15/2N	70	5000K	143	6.6
XI3030P/LK7C-H5714366Z15/2N	70	5700K	143	6.6
XI3030P/LK7C-H6514366Z15/2N	70	6500K	143	6.6

Notes:
1. Tolerance of Color Rendering Index: ±2
2. Tolerance of Luminous flux: ±11%.
3. Tolerance of Forward Voltage: ±0.1V

Mass Production List : CRI>80

Order Code of XI3030P	CRI Min.(1)	CCT(K)	Φ(lm) Min. (2)	VF Max. (3)
XI3030P/KK4C-H2711866Z15/2N	80	2700K	118	6.6
XI3030P/KK4C-H3012366Z15/2N	80	3000K	123	6.6
XI3030P/KK4C-H4012866Z15/2N	80	4000K	128	6.6
XI3030P/KK4C-H5012866Z15/2N	80	5000K	128	6.6
XI3030P/KK4C-H5712866Z15/2N	80	5700K	128	6.6
XI3030P/KK4C-H6512866Z15/2N	80	6500K	128	6.6

Order Code of XI3030P	CRI Min.(1)	CCT(K)	Φ(lm) Min. (2)	VF Max. (3)
XI3030P/KK5C-H2712366Z15/2N	80	2700K	123	6.6
XI3030P/KK5C-H3012866Z15/2N	80	3000K	128	6.6
XI3030P/KK5C-H4013366Z15/2N	80	4000K	133	6.6
XI3030P/KK5C-H5013366Z15/2N	80	5000K	133	6.6
XI3030P/KK5C-H5713366Z15/2N	80	5700K	133	6.6
XI3030P/KK5C-H6513366Z15/2N	80	6500K	133	6.6

Order Code of XI3030P	CRI Min.(1)	CCT(K)	Φ(lm) Min. (2)	VF Max. (3)
XI3030P/KK6C-H2712866Z15/2N	80	2700K	128	6.6
XI3030P/KK6C-H3013366Z15/2N	80	3000K	133	6.6
XI3030P/KK6C-H4013866Z15/2N	80	4000K	138	6.6
XI3030P/KK6C-H5013866Z15/2N	80	5000K	138	6.6
XI3030P/KK6C-H5713866Z15/2N	80	5700K	138	6.6
XI3030P/KK6C-H6513866Z15/2N	80	6500K	138	6.6

Order Code of XI3030P	CRI Min.(1)	CCT(K)	Φ(lm) Min. (2)	VF Max. (3)
XI3030P/KK7C-H2713366Z15/2N	80	2700K	133	6.6
XI3030P/KK7C-H3013866Z15/2N	80	3000K	138	6.6
XI3030P/KK7C-H4014366Z15/2N	80	4000K	143	6.6
XI3030P/KK7C-H5014366Z15/2N	80	5000K	143	6.6
XI3030P/KK7C-H5714366Z15/2N	80	5700K	143	6.6
XI3030P/KK7C-H6514366Z15/2N	80	6500K	143	6.6

Notes:
4. Tolerance of Color Rendering Index: ±2
5. Tolerance of Luminous flux: ±11%.
6. Tolerance of Forward Voltage: ±0.1V

Device Selection Guide

Chip Materials	Emitted Color	Resin Color
InGaN	Neutral White	Water Clear

Absolute Maximum Ratings ($T_{Soldering}$=25℃)

Parameter	Symbol	Rating	Unit
Forward Current	I_F	200	mA
Peak Forward Current (Duty 1/10 @10ms)	I_{FP}	600	mA
Power Dissipation	P_d	1320	mW
Operating Temperature	T_{opr}	-40 ~ +85	℃
Storage Temperature	T_{stg}	-40 ~ +100	℃
Thermal Resistance (Junction / Soldering point)	$R_{th\ J-S}$	21	℃/W
Junction Temperature	T_j	125	℃
Soldering Temperature	T_{sol}	Reflow Soldering : 260 ℃ for 10 sec. Hand Soldering : 350 ℃ for 3 sec.	

Note:
The products are sensitive to static electricity and must be carefully taken when handling products

Electro-Optical Characteristics ($T_{Soldering}$=25℃)

Parameter	Symbol	Min.	Typ.	Max.	Unit	Condition
Luminous Flux(1)	Φ	118	-----	-----	lm	I_F=150mA
Forward Voltage(2)	V_F	5.8	-----	6.6	V	I_F=150mA
Color Rendering Index(3)	Ra	70 / 80	-----	-----		I_F=150mA
Viewing Angle	$2\theta_{1/2}$	-----	120	-----	deg	I_F=150mA
Reverse Current	IR	-----	-----	50	μA	V_R =5V

1. Tolerance of Luminous flux: ±11%.
2. Tolerance of Forward Voltage: ±0.1V
3. Tolerance of Color Rendering Index: ±2

Product Binning

Luminous Flux Bins

Bin Range of Luminous Flux

Bin Code	Min.	Max.	Unit	Condition
S31	118	123	lm	I_F=150mA
S32	123	128		
S41	128	133		
S42	133	138		
S51	138	143		
S52	143	148		
S61	148	153		
S62	153	158		
S71	158	163		

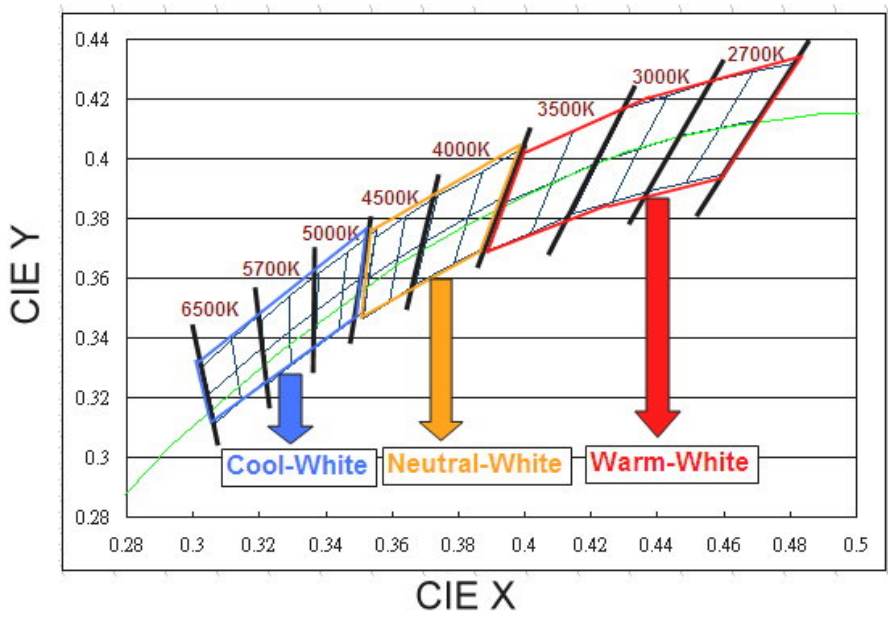
Note:
Tolerance of Luminous flux: ±11%.

Bin Range of Forward Voltage

Group	Bin Code	Min.	Max.	Unit	Condition
5866	5860	5.8	6.0	V	I_F=150mA
	6062	6.0	6.2		
	6264	6.2	6.4		
	6466	6.4	6.6		

Note:
Tolerance of Forward Voltage: ±0.1V.

White Bin Structure

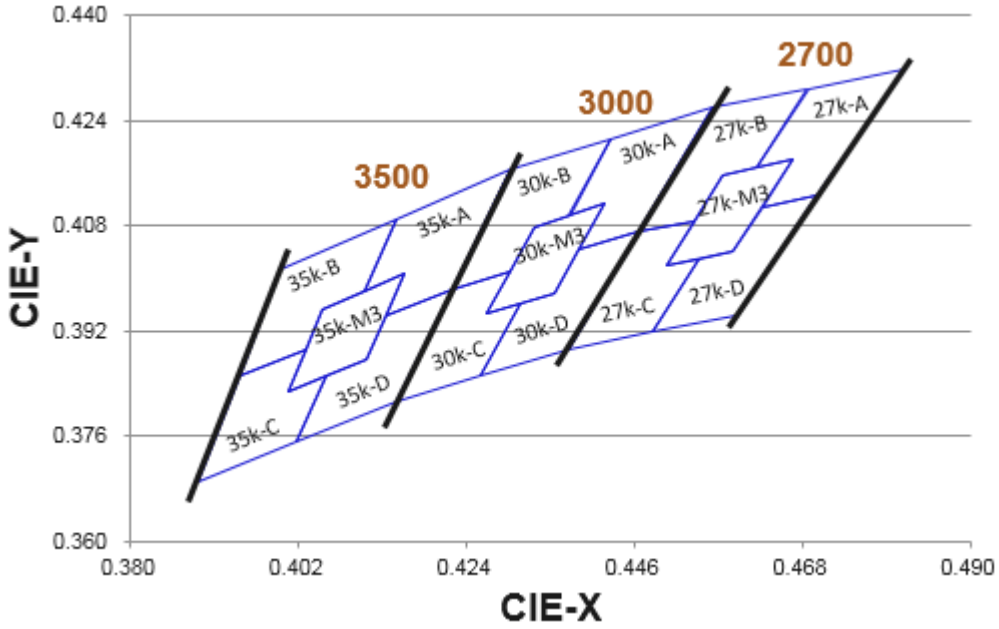


Chromaticity specification defined by ANSI

Notes:

1. The CCT range of Cool-White varies from 4745K to 7050K.
2. The CCT range of Neutral-White varies from 3710K to 4745K.
3. The CCT range of Warm-White varies from 2580K to 3710K
4. Color coordinates measurement allowance : ±0.01
5. Color bins are defined at I_F=150mA operation

Warm-White Bin Structure



Warm-White Bin Coordinates

2700K

Bin	CIE X	CIE Y
27K-A	0.4813	0.4319
	0.4687	0.4289
	0.4621	0.4169
	0.4667	0.4180
	0.4627	0.4109
	0.4700	0.4126
Reference Range: 2580~2700K		

Bin	CIE X	CIE Y
27K-B	0.4687	0.4289
	0.4562	0.4260
	0.4465	0.4071
	0.4539	0.4088
	0.4576	0.4158
	0.4621	0.4169
Reference Range: 2700~2870K		

Bin	CIE X	CIE Y
27K-C	0.4465	0.4071
	0.4373	0.3893
	0.4483	0.3919
	0.4544	0.4030
	0.4502	0.4020
	0.4539	0.4088
Reference Range: 2700~2870K		

Bin	CIE X	CIE Y
27K-D	0.4700	0.4126
	0.4627	0.4109
	0.4588	0.4041
	0.4544	0.4030
	0.4483	0.3919
	0.4593	0.3944
Reference Range: 2580~2700K		

Bin	CIE X	CIE Y
27K-M3	0.4667	0.4180
	0.4576	0.4158
	0.4502	0.4020
	0.4588	0.4041
Reference Range: 2680~2790K		

3000K

Bin	CIE X	CIE Y
30K-A	0.4562	0.4260
	0.4430	0.4212
	0.4375	0.4096
	0.4422	0.4113
	0.4388	0.4043
	0.4465	0.4071
Reference Range: 2870~3000K		

Bin	CIE X	CIE Y
30K-B	0.4430	0.4212
	0.4299	0.4165
	0.4221	0.3984
	0.4297	0.4011
	0.4328	0.4079
	0.4375	0.4096
Reference Range: 3000~3220K		

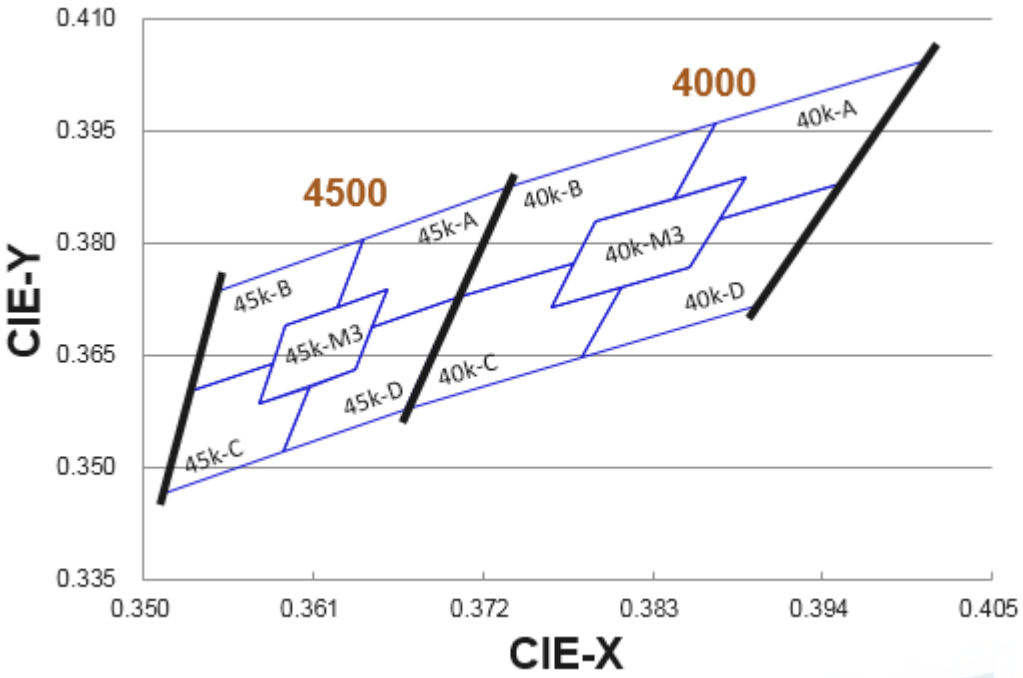
Bin	CIE X	CIE Y
30K-C	0.4221	0.3984
	0.4147	0.3814
	0.4259	0.3853
	0.4311	0.3962
	0.4267	0.3946
	0.4297	0.4011
Reference Range: 3000~3220K		

Bin	CIE X	CIE Y
30K-D	0.4465	0.4071
	0.4388	0.4043
	0.4355	0.3977
	0.4311	0.3962
	0.4259	0.3853
	0.4373	0.3893
Reference Range: 2870~3000K		

Bin	CIE X	CIE Y
30K-M3	0.4422	0.4113
	0.4328	0.4079
	0.4267	0.3946
	0.4355	0.3977
Reference Range: 2960~3150K		

Note: Color coordinates measurement allowance : ±0.01.

Neutral-White Bin Structure



Neutral-White Bin Coordinates

4000K

Bin	CIE X	CIE Y
40K-A	0.4006	0.4044
	0.3871	0.3959
	0.3843	0.3858
	0.3890	0.3887
	0.3873	0.3831
	0.3952	0.3880
Reference Range: 3710~4000K		

Bin	CIE X	CIE Y
40K-B	0.3871	0.3959
	0.3736	0.3874
	0.3703	0.3726
	0.3779	0.3773
	0.3793	0.3828
	0.3843	0.3858
Reference Range: 4000~4260K		

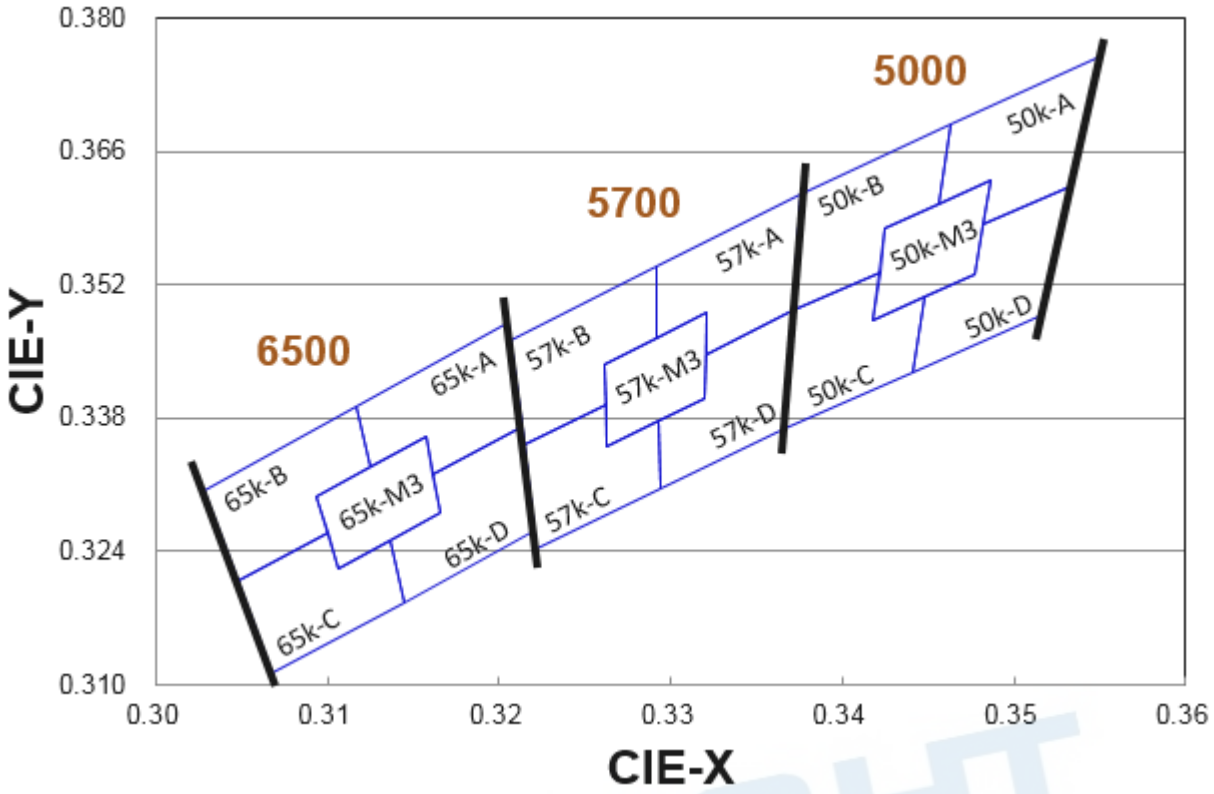
Bin	CIE X	CIE Y
40K-C	0.3703	0.3726
	0.3670	0.3578
	0.3784	0.3647
	0.3810	0.3741
	0.3764	0.3713
	0.3779	0.3773
Reference Range: 4000~4260K		

Bin	CIE X	CIE Y
40K-D	0.3952	0.3880
	0.3873	0.3831
	0.3854	0.3768
	0.3810	0.3741
	0.3784	0.3647
	0.3898	0.3716
Reference Range: 3710~4000K		

Bin	CIE X	CIE Y
40K-M3	0.3890	0.3887
	0.3793	0.3828
	0.3764	0.3713
	0.3854	0.3768
Reference Range: 3870~4080K		

Note: Color coordinates measurement allowance : ±0.01.

Cool-White Bin Structure



Cool-White Bin Coordinates

5000K

Bin	CIE X	CIE Y
50K-A	0.3551	0.3760
	0.3464	0.3688
	0.3456	0.3604
	0.3487	0.3629
	0.3482	0.3583
	0.3533	0.3624
Reference Range: 4745~5000K		

Bin	CIE X	CIE Y
50K-B	0.3464	0.3688
	0.3376	0.3616
	0.3371	0.3493
	0.3422	0.3533
	0.3425	0.3579
	0.3456	0.3604
Reference Range: 5000~5310K		

Bin	CIE X	CIE Y
50K-C	0.3371	0.3493
	0.3366	0.3369
	0.3441	0.3428
	0.3448	0.3507
	0.3418	0.3483
	0.3422	0.3533
Reference Range: 5000~5310K		

Bin	CIE X	CIE Y
50K-D	0.3533	0.3624
	0.3482	0.3583
	0.3477	0.3530
	0.3448	0.3507
	0.3441	0.3428
	0.3515	0.3487
Reference Range: 4745~5000K		

Bin	CIE X	CIE Y
50K-M3	0.3487	0.3629
	0.3425	0.3579
	0.3418	0.3483
	0.3477	0.3530
Reference Range: 4900~5120K		

5700K

Bin	CIE X	CIE Y
57K-A	0.3376	0.3616
	0.3292	0.3539
	0.3292	0.3464
	0.3321	0.3490
	0.3321	0.3447
	0.3371	0.3493
Reference Range: 5310~5700K		

Bin	CIE X	CIE Y
57K-B	0.3292	0.3539
	0.3207	0.3462
	0.3215	0.3353
	0.3262	0.3395
	0.3261	0.3436
	0.3292	0.3464
Reference Range: 5700~6020K		

Bin	CIE X	CIE Y
57K-C	0.3215	0.3353
	0.3222	0.3243
	0.3294	0.3306
	0.3293	0.3377
	0.3263	0.3350
	0.3262	0.3395
Reference Range: 5700~6020K		

Bin	CIE X	CIE Y
57K-D	0.3371	0.3493
	0.3321	0.3447
	0.3320	0.3401
	0.3293	0.3377
	0.3294	0.3306
	0.3366	0.3369
Reference Range: 5310~5700K		

Bin	CIE X	CIE Y
57K-M3	0.3321	0.3490
	0.3261	0.3436
	0.3263	0.3350
	0.3320	0.3401
Reference Range: 5510~5780K		

6500K

Bin	CIE X	CIE Y
65K-A	0.3205	0.3481
	0.3117	0.3393
	0.3125	0.3328
	0.3157	0.3360
	0.3161	0.3320
	0.3213	0.3371
Reference Range: 6020~6500K		

Bin	CIE X	CIE Y
65K-B	0.3117	0.3393
	0.3028	0.3304
	0.3048	0.3209
	0.3100	0.3259
	0.3093	0.3297
	0.3125	0.3328
Reference Range: 6500~7050K		

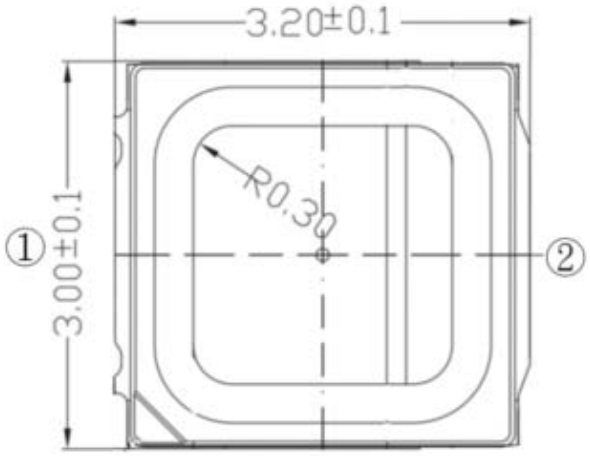
Bin	CIE X	CIE Y
65K-C	0.3048	0.3209
	0.3068	0.3113
	0.3145	0.3187
	0.3136	0.3251
	0.3106	0.3222
	0.3100	0.3259
Reference Range: 6500~7050K		

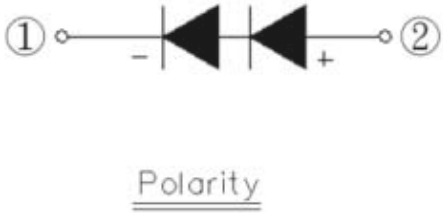
Bin	CIE X	CIE Y
65K-D	0.3213	0.3371
	0.3161	0.3320
	0.3166	0.3281
	0.3136	0.3251
	0.3145	0.3187
	0.3221	0.3261
Reference Range: 6020~6500K		

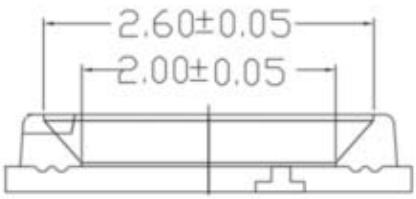
Bin	CIE X	CIE Y
65K-M3	0.3157	0.3360
	0.3093	0.3297
	0.3106	0.3222
	0.3166	0.3281
Reference Range: 6300~6690K		

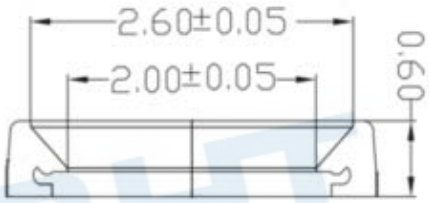
Note: Color coordinates measurement allowance : ±0.01.

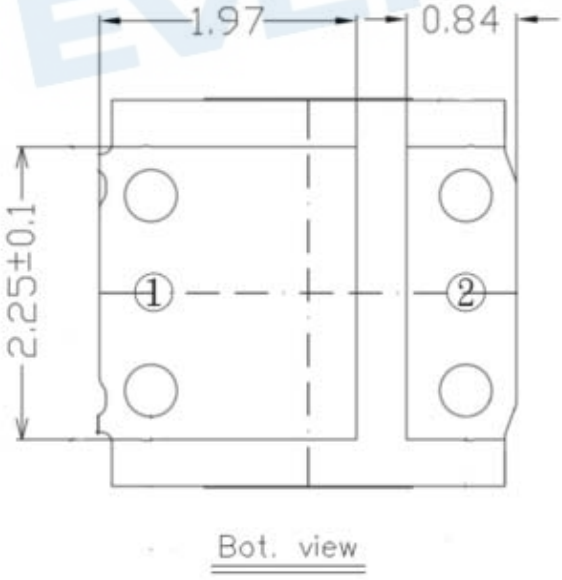
Mechanical Dimension

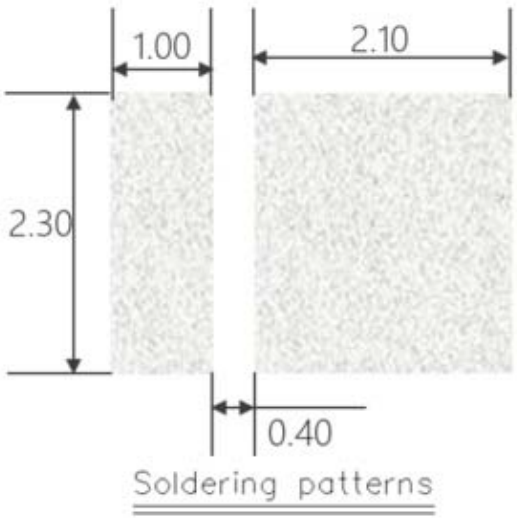








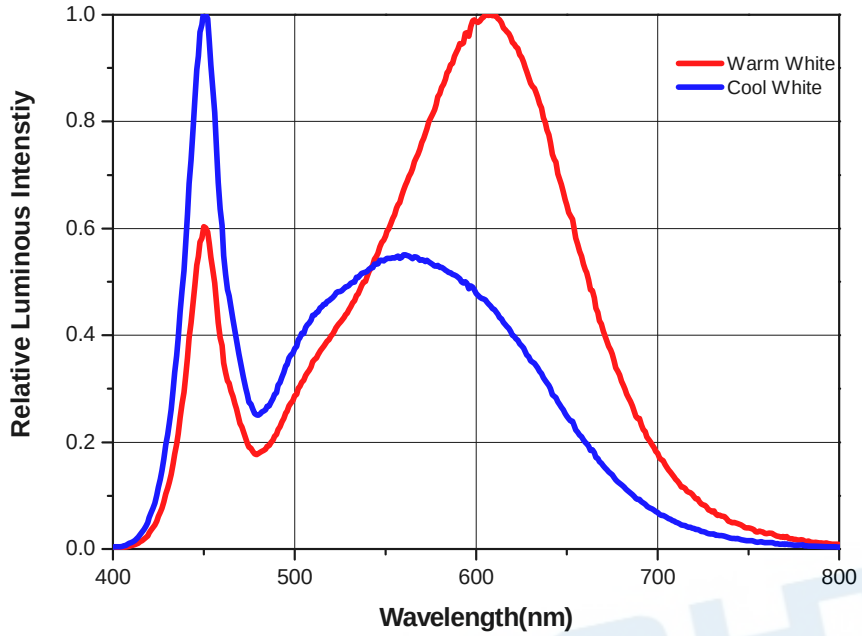




Notes:
1. Dimensions are in millimeters.
2. Tolerances unless mentioned are ± 0.2mm.
3. The thermal pad is electrically unity from the Anode and contact pads.
4. Do not handle the device by the lens. Incorrect force applied to the lens may lead to the failure of devices.

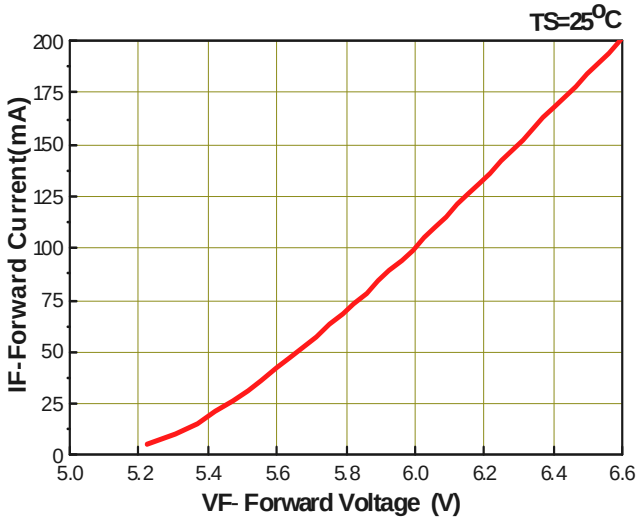
Wavelength Characteristics

Relative Spectral Distribution
@ Solder Pad Temperature = 25℃

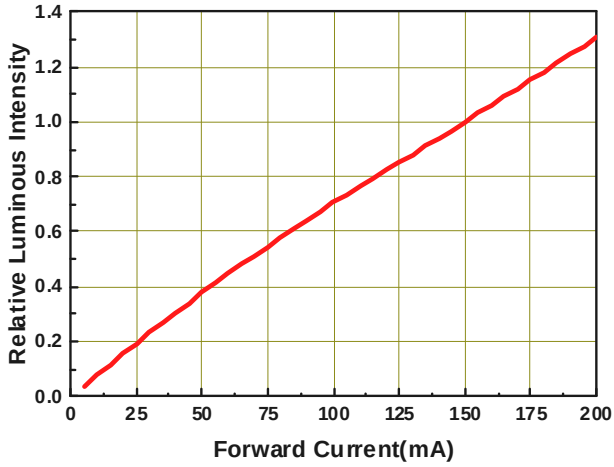


Typical Electrical Characteristics

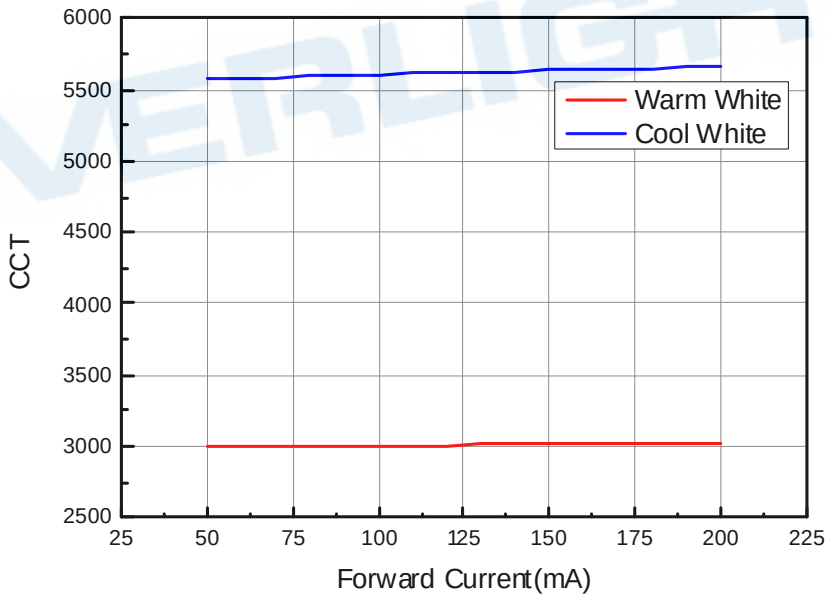
@ Solder Pad Temperature = 25℃



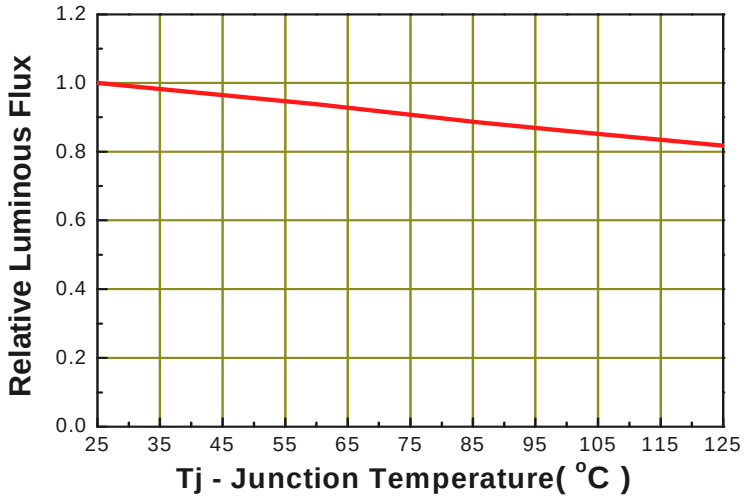
Typical Relative Luminous Flux vs. Forward Current
@ Solder Pad Temperature = 25℃



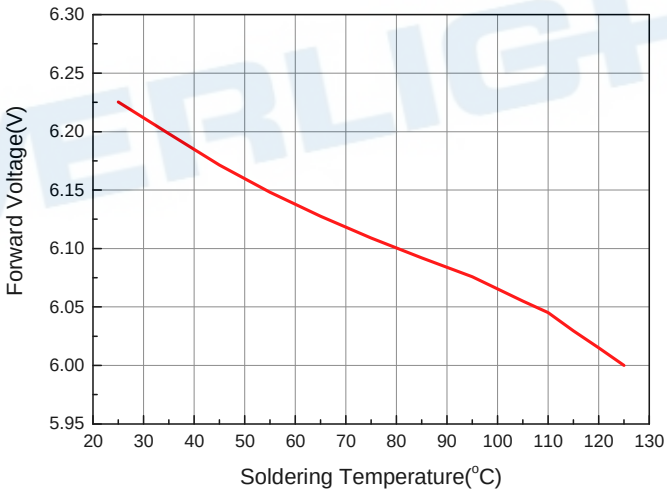
Typical Wavelength & Color Shift Characteristics vs. Forward Current
@ Solder Pad Temperature = 25℃



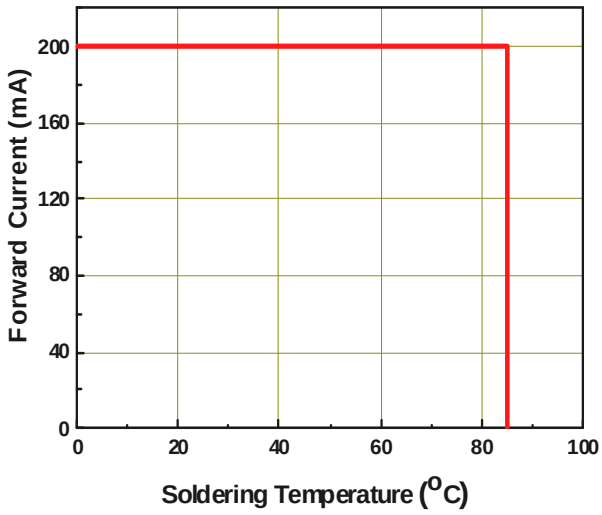
Relative Luminous Flux vs. Junction Temperature
@Forward Current = 150mA



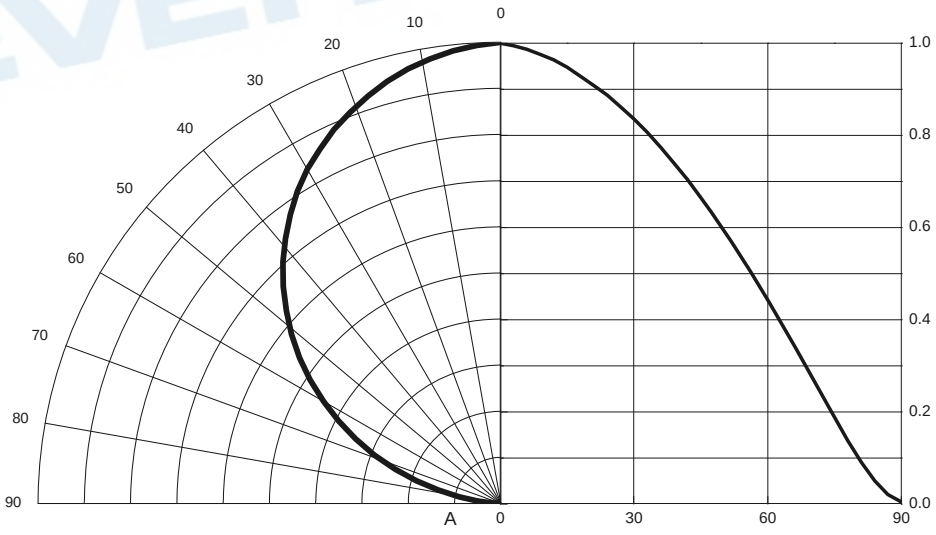
Forward Voltage vs. Soldering Temperature
@ Forward Current = 150mA



Forward Current Derating Curve
@ Soldering Temperature <120℃



Typical Radiation Patterns
XI3030P series: Typical Diagram Characteristics of Radiation



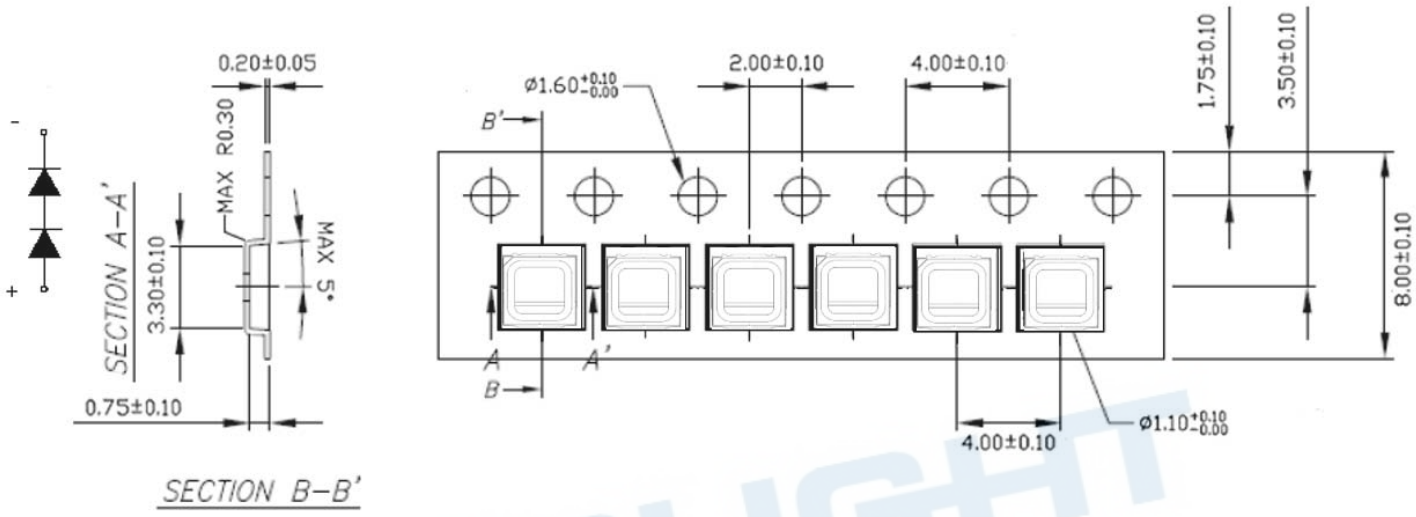
Notes:

1. $2\theta_{1/2}$ is the off XIs angle from lamp centerline where the luminous intensity is 1/2 of the peak value.

   View angle tolerance is ± 5° .

Emitter Tape Packaging

Carrier Tape Dimensions:
Loaded Quantity 4000/3500/3000/2500/2000/1500/1000/500 pcs Per Reel
(EX:3945、2456、867…零散數亦可成捲)

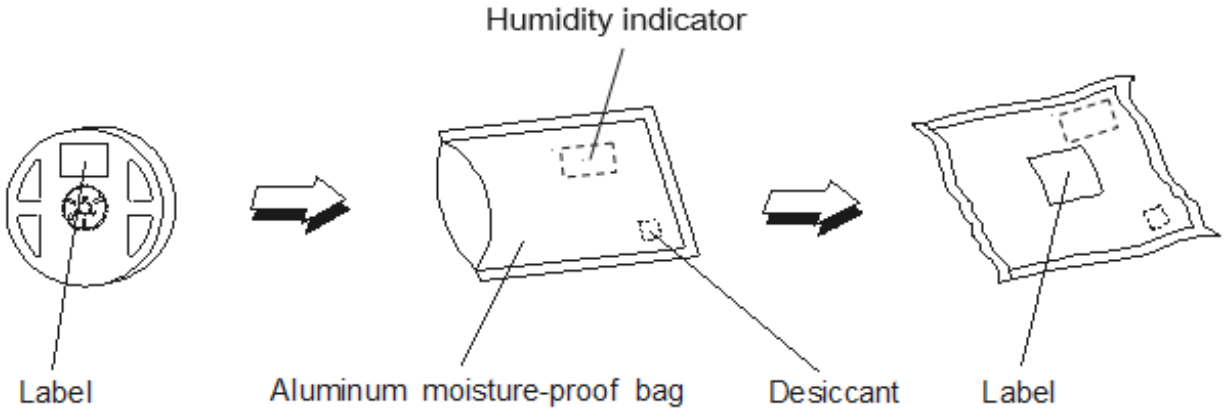


Notes:

1.Tolerance unless mentioned is ±0.1mm; Unit = mm

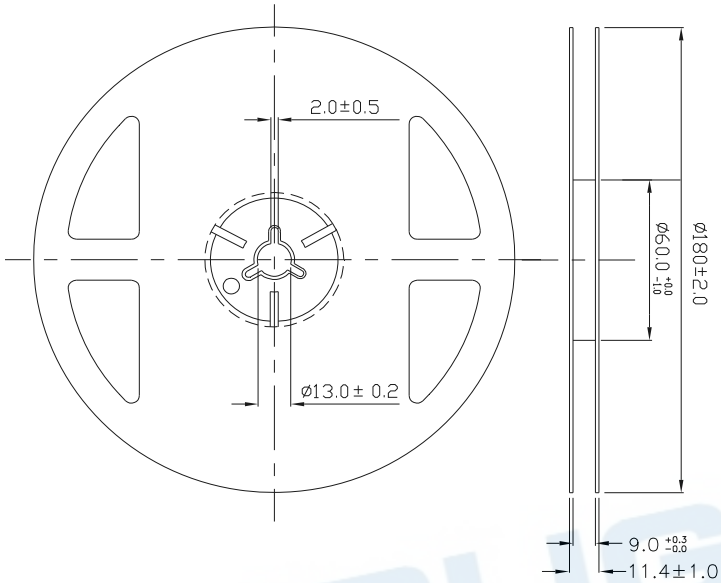
2.The remaining fragmented can also be rolled, for example: 3945 pcs, 2456 pcs or 867 pcs; Per reel can not less than 500 pcs and more than 4000 pcs.

Moisture Resistant Packaging



Emitter Reel Packaging

Reel Dimensions

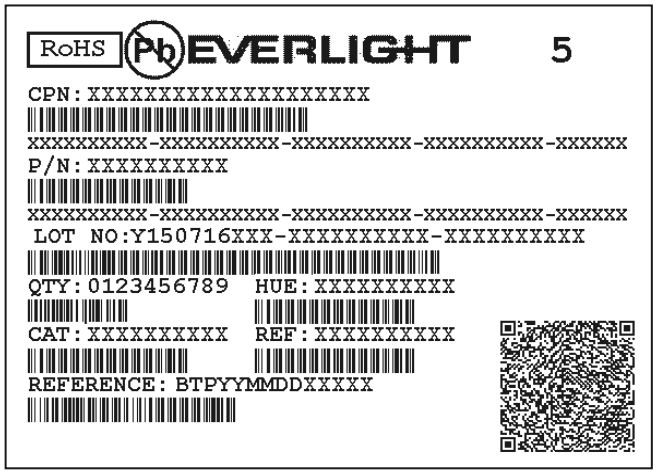


Notes:

1. Dimensions are in millimeters.
2. Tolerances unless mentioned are ±0.1mm.

Product Labeling

Label Explanation



CPN: Customer Specification (when required)

P/N : Everlight Production Number

QTY: Packing Quantity

CAT: Luminous Flux (Brightness) Bin

HUE: Color Bin

REF: Forward Voltage Bin

LOT No: Lot Number

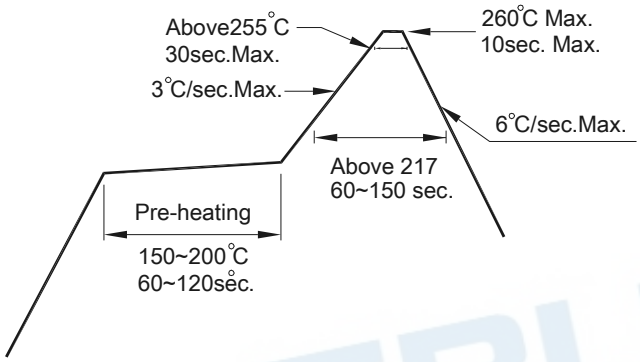
Reliability Test Items and Conditions

The reliability of products shall be satisfied with items listed below.
Confidence level：90%
LTPD：10%

No.	Items	Test Condition	Test Hours/Cycles	Sample Size	Ac/Re
1	Resistance to Solder Heat	Temp. : 260℃ /10sec.	3 Times.	8 PCS.	0/1
2	Temperature Cycle	-40°C~100°C / Dwell time 30min	200 Cycles	8 PCS.	0/1
3	High Temperature/Humidity Life	Ta=85℃,85%RH, I_F =200mA	1000 Hrs.	8 PCS.	0/1
4	Low Temperature Life	Ta=-40℃, I_F = 200 mA	1000 Hrs.	8 PCS.	0/1
5	High Temperature Life	Ta=60℃, I_F =200mA	3000 Hrs.	8 PCS.	0/1
6	High Temperature Life	Ta=85℃, I_F =200mA	3000 Hrs.	8 PCS.	0/1
7	Pulse	ON 30ms / OFF 2500ms	30000 CYCLES	8 PCS.	0/1
8	Thermal Shock	H : +100℃ 20min ∫ 10 sec L : -10℃ 20min	200 Cycles	8 PCS.	0/1
9	Power Temperature Cycle	H : +100℃ 30min ∫ 5 min L : -40℃ 30min I_F = 134 mA	200 Cycles	8 PCS.	0/1

Precautions for Use

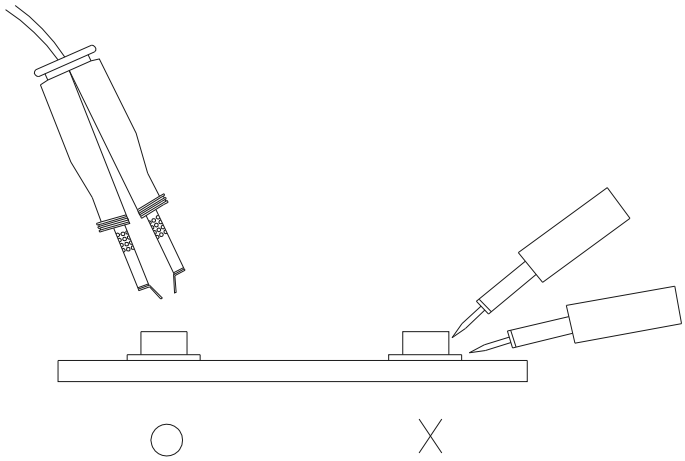
1. Over-current-proof
   Customer must apply resistors for protection; otherwise slight voltage shift will cause big current change (Burn out will happen).
2. Storage
   2.1 Do not open moisture proof bag before the products are ready to use.
   2.2 Before opening the package: The LEDs should be kept at 30℃ or less and 90%RH or less.
   2.3 After opening the package: The LED's floor life is 168 Hrs under 30℃ or less and 60% RH or less. If unused LEDs remain, it should be stored in moisture proof packages.
   2.4 If the moisture absorbent material (silica gel) has faded away or the LEDs have exceeded the storage time, baking treatment should be performed using the following conditions.
   Baking treatment: 60±5℃ for 24 hours.
3. Soldering Condition
   3.1 Pb-free solder temperature profile



   3.2 Reflow soldering should not be done more than two times.
   3.3 When soldering, do not put stress on the LEDs during heating.
   3.4 After soldering, do not warp the circuit board.

4. Soldering Iron
   Each terminal is to go to the tip of soldering iron temperature less than 350℃ for 3 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.



Storage Conditions

- Before the package is opened. The LEDs should be stored at 30°C or less and 90%RH or less after being shipped from EVERLIGHT and the storage life limits are 12 months.
- If the moisture absorbent material (silica gel) has faded away or the LEDs have exceeded the storage time, baking treatment should be performed using the following conditions. Baking treatment: 60±5℃ for 24 hours.

DISCLAIMER

- EVERLIGHT reserves the right(s) on the adjustment of product material mix for the specification.
- The product meets EVERLIGHT published specification for a period of twelve (12) months from date of shipment.
- The graphs shown in this datasheet are representing typical data only and do not show guaranteed values.
- When using this product, please observe the absolute maximum ratings and the instructions for using outlined in these specification sheets. EVERLIGHT assumes no responsibility for any damage resulting from the use of the product which does not comply with the absolute maximum ratings and the instructions included in these specification sheets.
- These specification sheets include materials protected under copyright of EVERLIGHT. Reproduction in any form is prohibited without obtaining EVERLIGHT's prior consent.
- This product is not intended to be used for military, aircraft, automotive, medical, life sustaining or life saving applications or any other application which can result in human injury or death. Please contact authorized EVERLIGHT sales agent for special application request.