DATASHEET

SMD ▪ MID POWER LED

67-22ST/KK6C-3MXXXXXXXX2530U6/2T/EU



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Features

- PLCC-2 Package
- Top view white LED
- High luminous flux output
- High current capability
- High Efficiency
- Wide viewing angle
- Pb-free
- RoHS compliant
- ANSI Binning

Description

The Everlight 67-22ST package has high efficacy, high CRI, low power consumption, wide viewing angle and a compact form factor. These features make this package an ideal LED for all lighting application.

Applications

- Decorative and Entertainment Lighting
- Light pipe application
- Indicator and backlight in office and family equipment
- General use

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Product Number Explanation

67-22ST / KK 6 D –3 M XX XX XX XX XXXXU6/ 2T

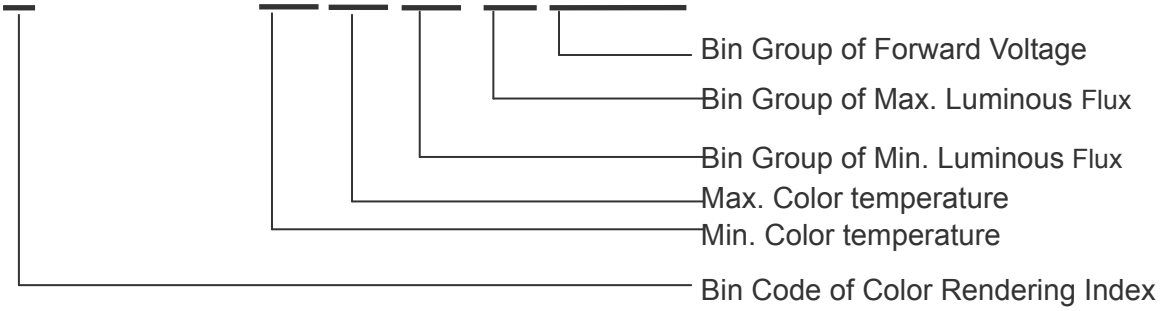


Table of Color Rendering Index

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

Note:
Tolerance of Color Rendering Index: ±2

Example:

67-22ST/KK6C-3M2727X0Y02530U6/2T/EU

CRI	80(Min.)
CCT	2700K
Flux	30~40lm
V_F	2.5~3.0V
I_F	65mA

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Mass Production List for CRI>80

Product	CRI Min.(1)	CCT(K)	Φ(lm) Min. (2)	Φ(lm) Max. (2)
67-22ST/KK6C-3M2727X0Y02530U6/2T/EU	80	2700K	30	40
67-22ST/KK6C-3M3030X1Y12530U6/2T/EU	80	3000K	31	41
67-22ST/KK6C-3M3535X1Y12530U6/2T/EU	80	3500K	31	41
67-22ST/KK6C-3M4040X2Y22530U6/2T/EU	80	4000K	32	42
67-22ST/KK6C-3M5050X3Y32530U6/2T/EU	80	5000K	33	43
67-22ST/KK6C-3M5757X3Y32530U6/2T/EU	80	5700K	33	43
67-22ST/KK6C-3M6565X2Y22530U6/2T/EU	80	6500K	32	42

Note:

1. Tolerance of Color Rendering Index: ±2
2. Tolerance of Luminous flux: ±11%.

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Device Selection Guide

Chip Materials	Emitted Color	Resin Color
InGaN	Cool White Neutral White Warm White	Water Clear

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

Parameter	Symbol	Rating	Unit
Forward Current	I_F	180	mA
Peak Forward Current (Duty 1/10 @10ms)	I_{FP}	300	mA
Power Dissipation	P_d	540	mW
Operating Temperature	T_{opr}	-40 ~ +85	℃
Storage Temperature	T_{stg}	-40 ~ +100	℃
Thermal Resistance (Junction / Soldering point)	$R_{th\ J\text{-}S}$	21	℃/W
Junction Temperature	T_j	115	℃
Soldering Temperature	T_{sol}	Reflow Soldering : 260 ℃ for 10 sec. Hand Soldering : 350 ℃ for 3 sec.	

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

Parameter	Symbol	Min.	Typ.	Max.	Unit	Condition
Luminous Flux(1)	Φ	30	-----	43	lm	I_F=65mA
Forward Voltage(2)	V_F	2.5	-----	3.0	V	I_F=65mA
Color Rendering Index(3)	Ra	80	-----	-----	-----	I_F=65mA
Viewing Angle	$2\theta_{1/2}$	-----	120	-----	deg	I_F=65mA

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

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Bin Range of Luminous Flux

2700K----67-22ST/KK6C-3M2727X0Y02530U6/2T/EU

Bin Code	Min.	Max.	Unit	Condition
T1	30	32	lm	I_F=65mA
T2	32	34		
T3	34	36		
T4	36	38		
T5	38	40		

3000K----67-22ST/KK6C-3M3030X1Y12530U6/2T/EU

Bin Code	Min.	Max.	Unit	Condition
T1	31	33	lm	I_F=65mA
T2	33	35		
T3	35	37		
T4	37	39		
T5	39	41		

3500K----67-22ST/KK6C-3M3535X1Y12530U6/2T/EU

Bin Code	Min.	Max.	Unit	Condition
T1	31	33	lm	I_F=65mA
T2	33	35		
T3	35	37		
T4	37	39		
T5	39	41		

4000K----67-22ST/KK6C-3M4040X2Y22530U6/2T/EU

Bin Code	Min.	Max.	Unit	Condition
T1	32	34	lm	I_F=65mA
T2	34	36		
T3	36	38		
T4	38	40		
T5	40	42		

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5000K----67-22ST/KK6C-3M5050X3Y32530U6/2T/EU

Bin Code	Min.	Max.	Unit	Condition
T1	33	35	lm	I_F=65mA
T2	35	37		
T3	37	39		
T4	39	41		
T5	41	43		

5700K----67-22ST/KK6C-M5757X3Y32530U6/2T/EU

Bin Code	Min.	Max.	Unit	Condition
T1	33	35	lm	I_F=65mA
T2	35	37		
T3	37	39		
T4	39	41		
T5	41	43		

6500K----67-22ST/KK6C-M6565X2Y22530U6/2T/EU

Bin Code	Min.	Max.	Unit	Condition
T1	32	34	lm	I_F=65mA
T2	34	36		
T3	36	38		
T4	38	40		
T5	40	42		

Notes:
Tolerance of Luminous flux: ±11%

Bin Range of Forward Voltage

Group	Bin Code	Min.	Max.	Unit	Condition
2530	32	2.5	2.6	V	I_F=65mA
	33	2.6	2.7		
	34	2.7	2.8		
	35	2.8	2.9		
	36	2.9	3.0		

Notes:
Tolerance of Forward Voltage : ±0.1V.

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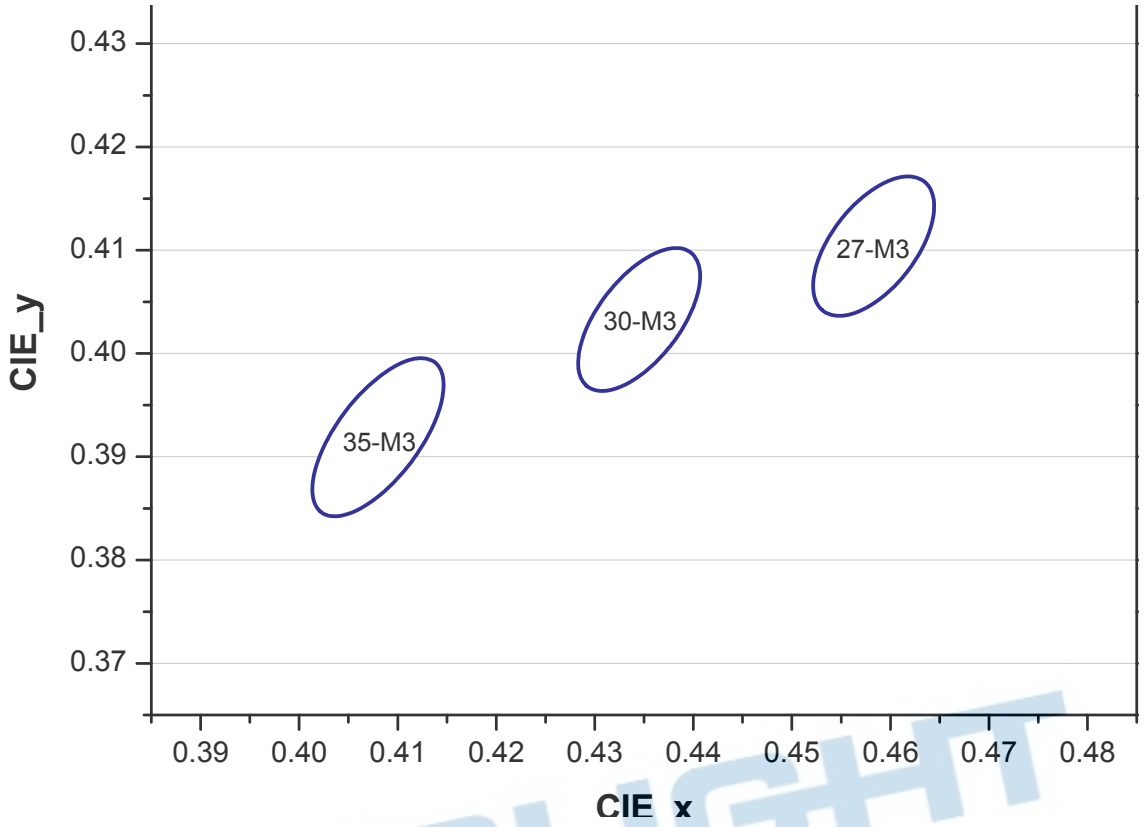
Bin Code of Macadam 3 step

Step	CCT	Cx	Cy	a	b	theta
3	2700	0.4583	0.4104	0.00810	0.00420	49.70
	3000	0.4345	0.4033	0.00834	0.00408	50.22
	3500	0.4080	0.3919	0.00927	0.00414	51.00
	4000	0.3827	0.3803	0.00939	0.00402	54.80
	5000	0.3451	0.3559	0.00822	0.00354	64.12
	5700	0.3293	0.3423	0.00747	0.00321	66.51
	6500	0.3131	0.3290	0.00669	0.00285	64.57

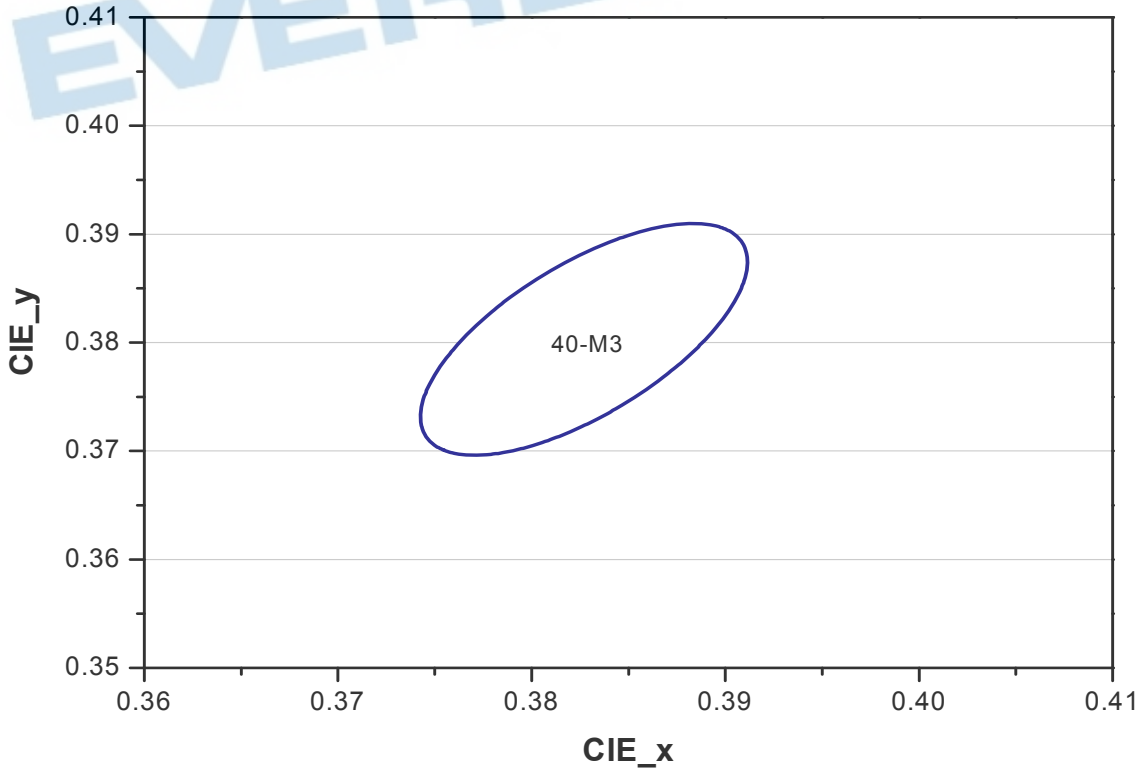
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The C.I.E. 1931 Chromaticity Diagram

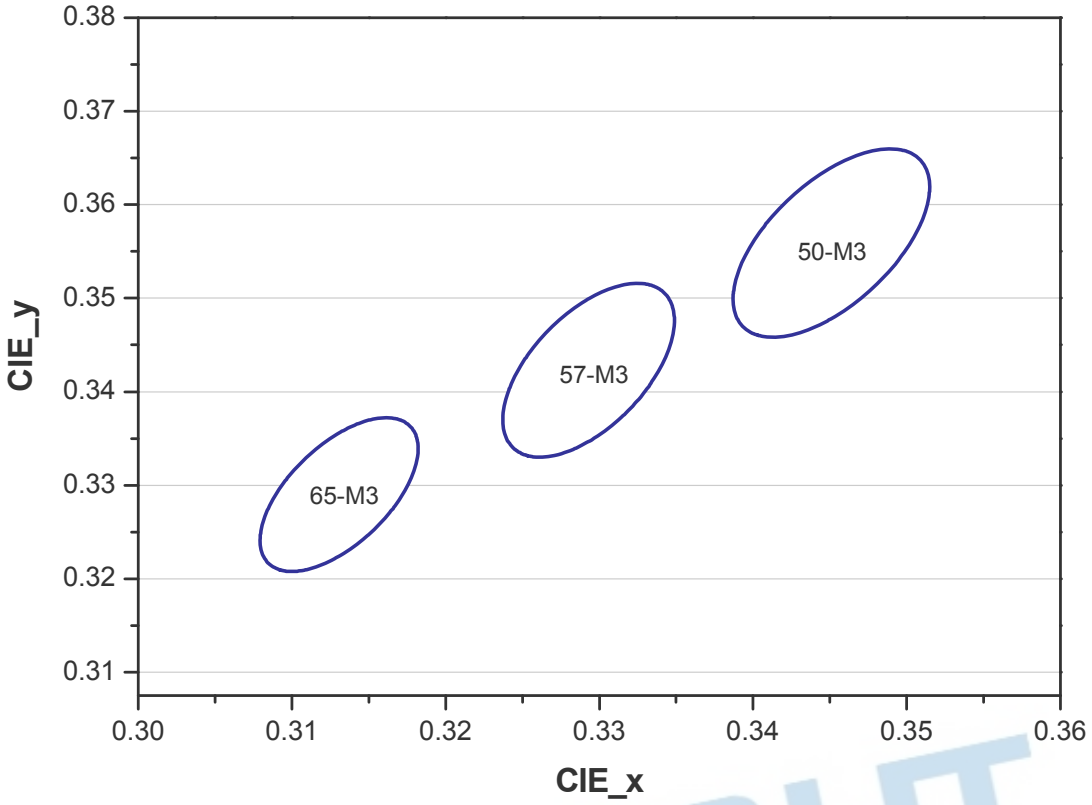


The C.I.E. 1931 Chromaticity Diagram



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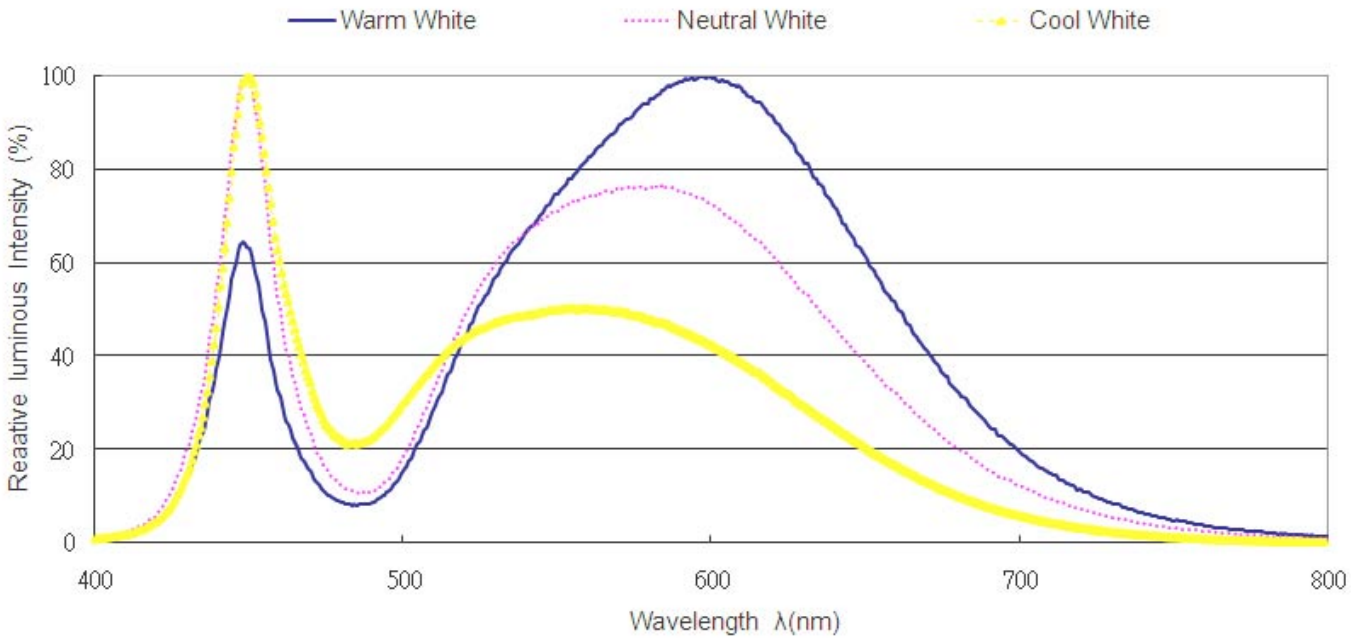
The C.I.E. 1931 Chromaticity Diagram



Note:
1. The value is based on driving current by 65mA.
2. Tolerance of Chromaticity Coordinates: ±0.01.

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Spectrum Distribution



Typical Electro-Optical Characteristics Curves

Fig.1 – Forward Voltage Shift vs. Junction Temperature

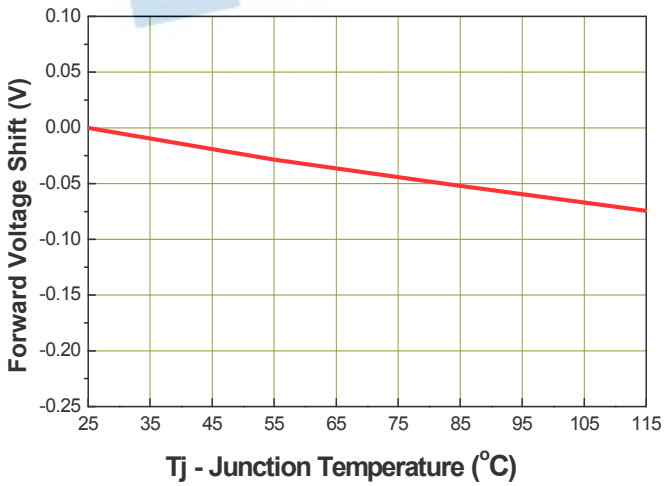
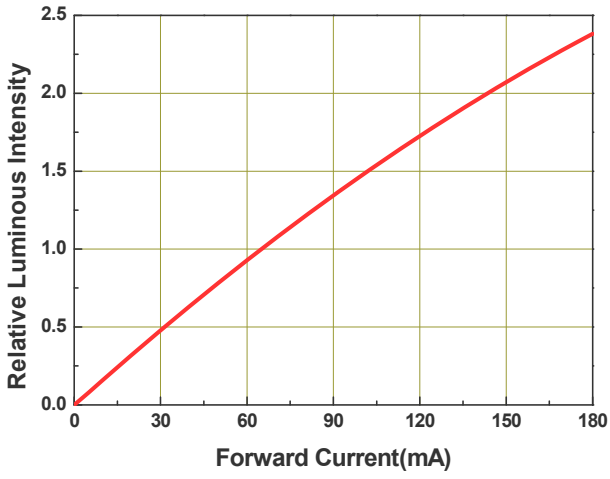


Fig.2 - Relative Luminous Intensity vs. Forward Current



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Typical Electro-Optical Characteristics Curves

Fig.3 - Relative Luminous Intensity vs. Junction Temperature

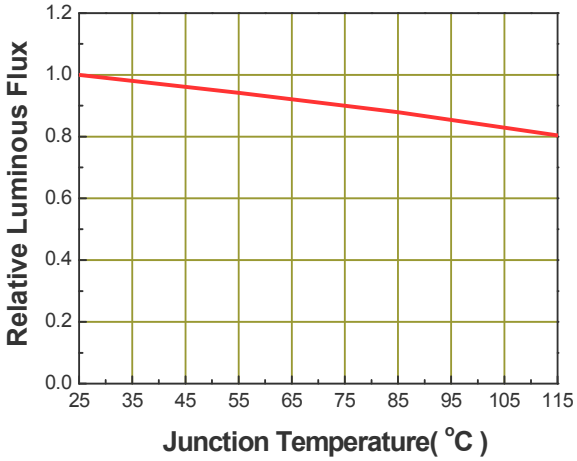


Fig.4 - Forward Current vs. Forward Voltage

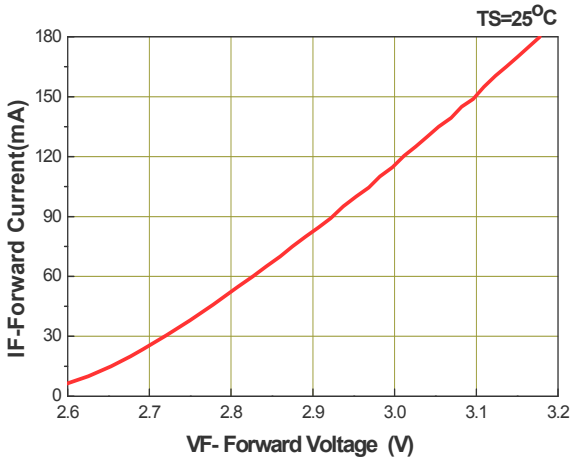


Fig.5 – Max. Driving Forward Current vs. Soldering Temperature

Rth j-s=21 °C/W

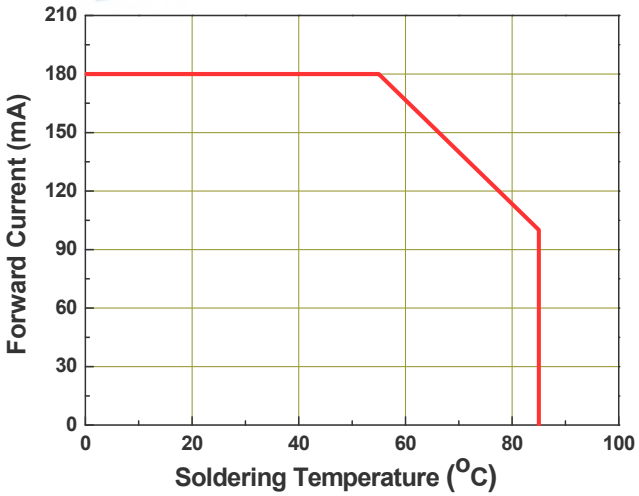
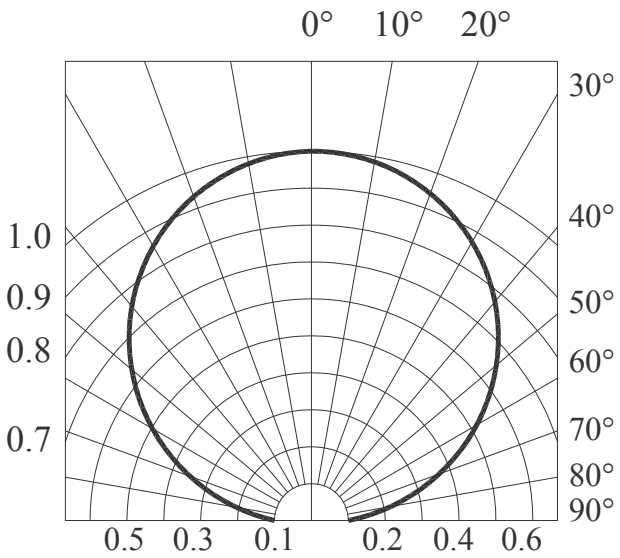
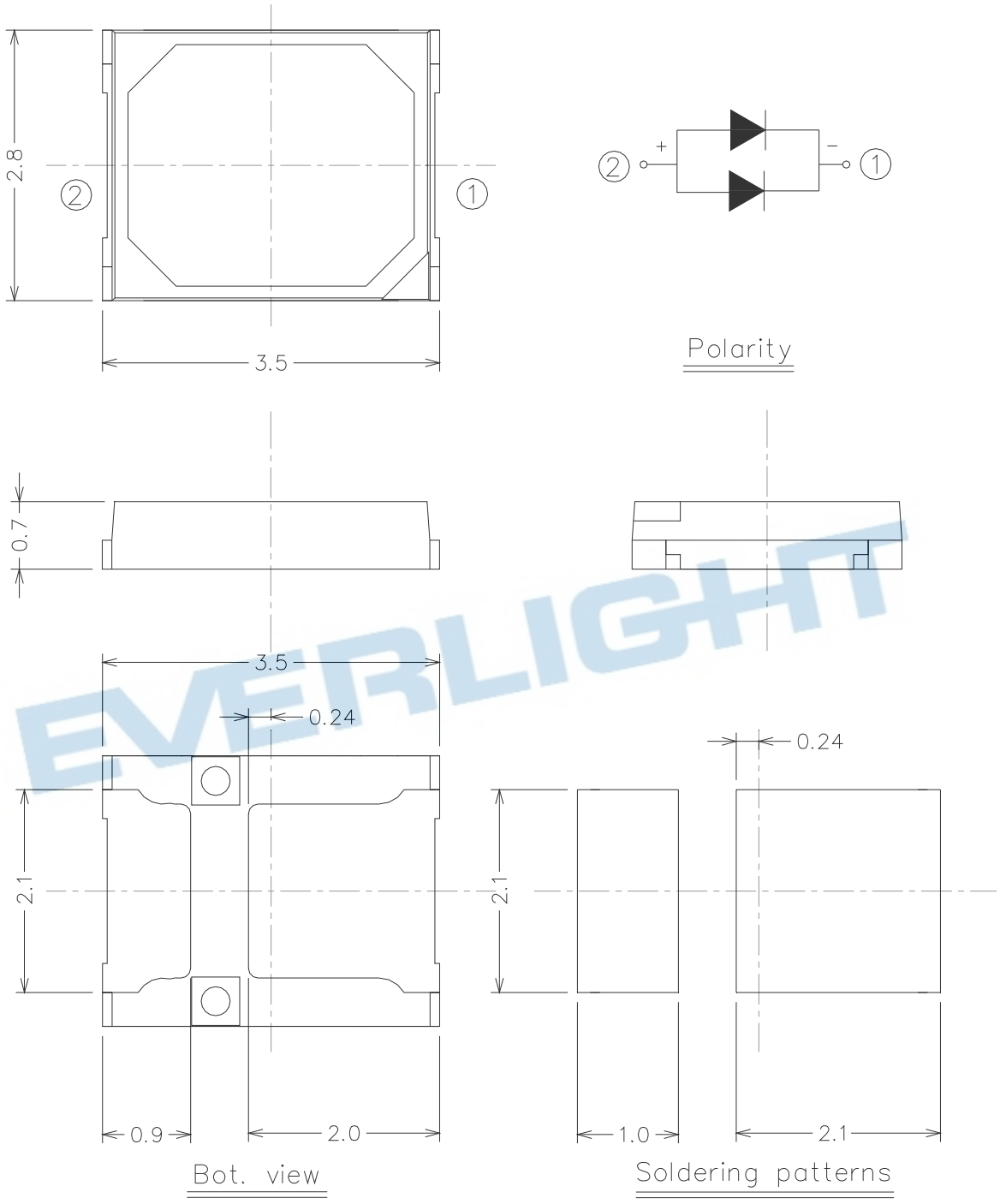


Fig.6 – Radiation Diagram



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Package Dimension



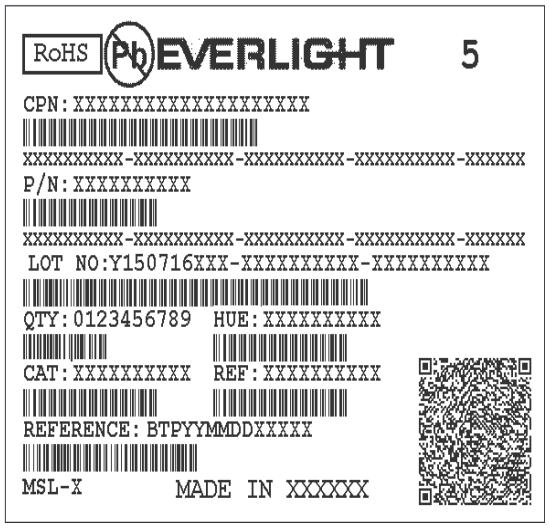
Note:

Tolerance unless mentioned is ±0.1mm; Unit = mm

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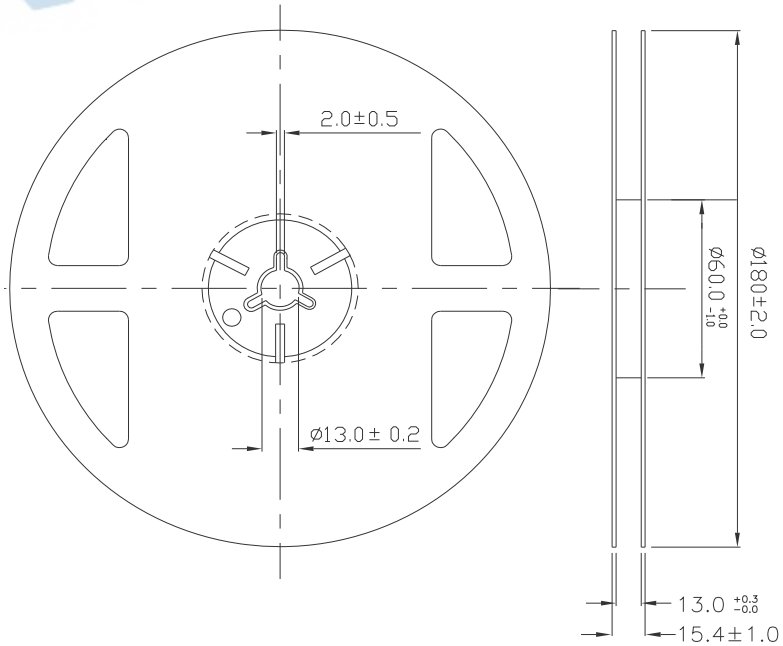
Moisture Resistant Packing Materials

Label Explanation



- CPN: Customer's Product Number
- P/N: Product Number
- QTY: Packing Quantity
- CAT: Luminous Intensity Rank
- HUE: Dom. Wavelength Rank
- REF: Forward Voltage Rank
- LOT No: Lot Number

Reel Dimensions

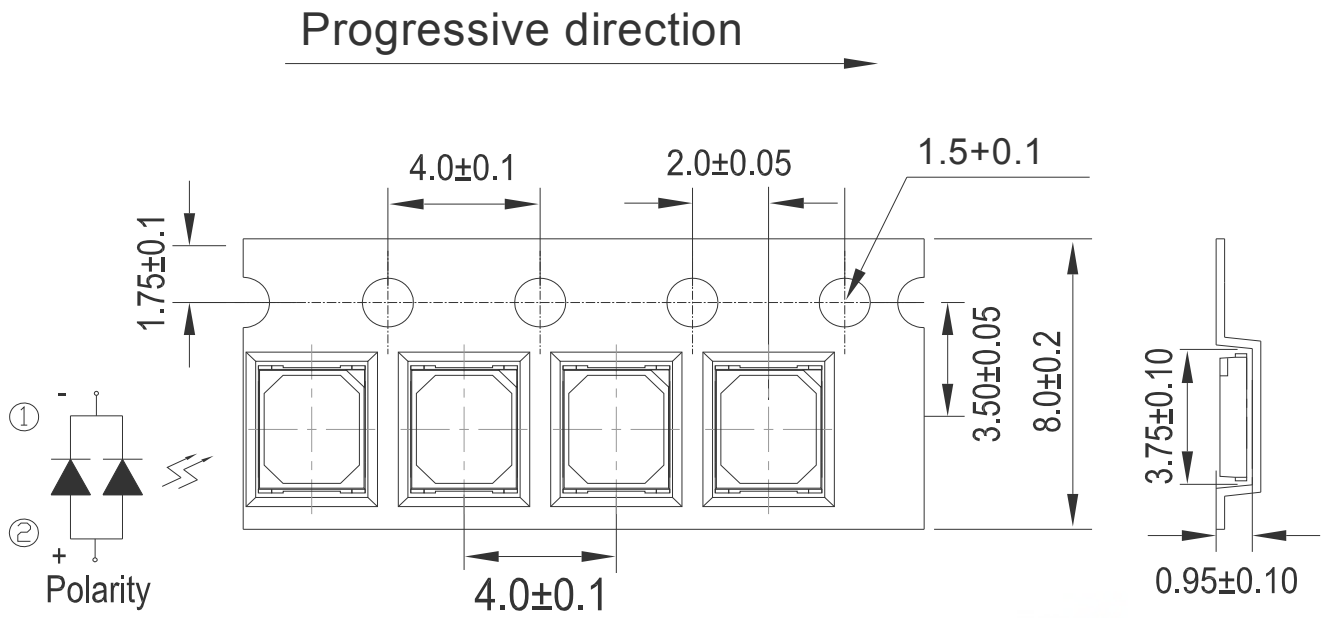


Note:
Tolerances unless mentioned ±0.1mm. Unit = mm

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Carrier Tape Dimensions: Loaded Quantity 4000 pcs. Per Reel

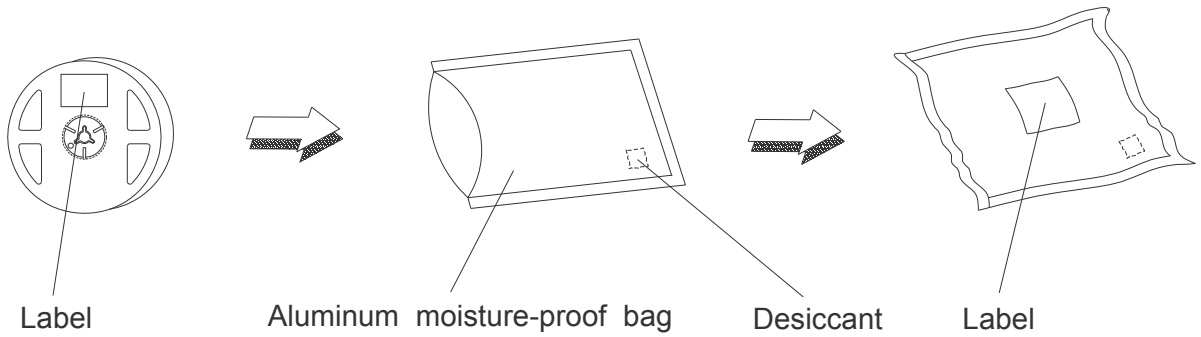


Note:

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Moisture Resistant Packing Process



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Reliability Test Items and Conditions

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

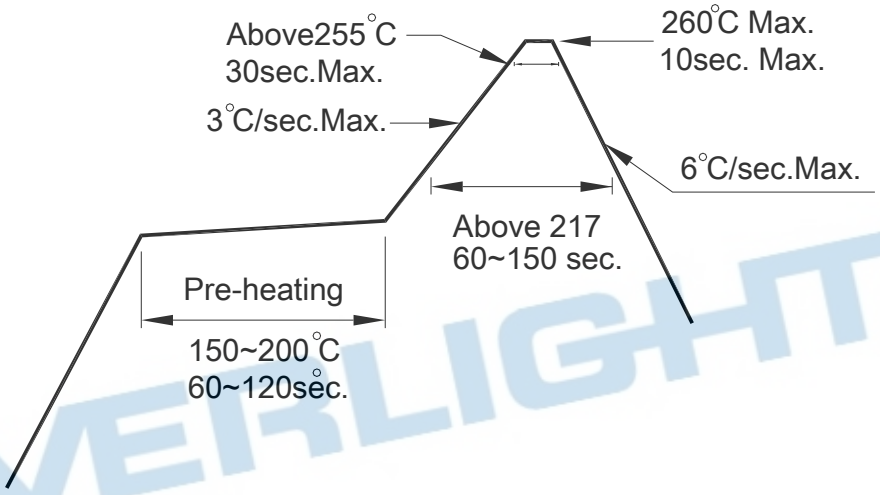
No.	Items	Test Condition	Test Hours/Cycles	Sample Size	Ac/Re
1	Reflow Soldering	Temp. : 260℃/10sec.	6 Min.	22 PCS.	0/1
2	Thermal Shock	H : +100℃ 20min ∫ 10 sec L : -10℃ 20min	200 Cycles	22 PCS.	0/1
3	Temperature Cycle	H : +100℃ 30min ∫ 5 min L : -40℃ 30min	200 Cycles	22 PCS.	0/1
4	High Temperature/Humidity Storage	Ta=85℃,85%RH	1000 Hrs.	22 PCS.	0/1
5	High Temperature/Humidity Operation	Ta=85℃,85%RH, I_F = 100 mA	1000 Hrs.	22 PCS.	0/1
6	Low Temperature Storage	Ta=-40℃	1000 Hrs.	22 PCS.	0/1
7	High Temperature Storage	Ta=85℃	1000 Hrs.	22 PCS.	0/1
8	Low Temperature Operation Life	Ta=-40℃, I_F = 150 mA	1000 Hrs.	22 PCS.	0/1
9	High Temperature Operation/ Life#1	Ta=25℃, I_F = 150 mA	1000 Hrs.	22 PCS.	0/1
10	High Temperature Operation/ Life#2	Ta=55℃, I_F =150 mA	1000 Hrs.	22 PCS.	0/1
11	High Temperature Operation/ Life#3	Ta=85℃, I_F = 100 mA	1000 Hrs.	22 PCS.	0/1

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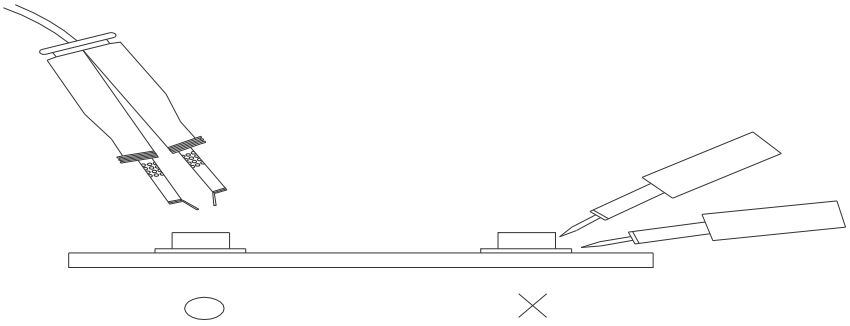
Precautions for Use

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.



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Unikeyic Electronics

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