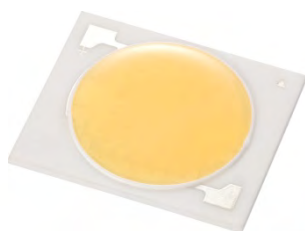


JU2024

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48V/50W Series



Introduction

Everlight's COB Series is a ceramic substrate based LED achieving high efficiency while maintaining high CRI at Energy Star / ANSI color temperature ranges.

Features

- ◆ High Power COB & High CRI LED
- ◆ Multi-Chip Solution
- ◆ Dimension: 20 mm x 24 mm x 1.6 mm
- ◆ Main Parameters: Luminous Flux, Forward Voltage, Chromaticity and Color Rendering Index
- ◆ RoHS compliant
- ◆ Energy Star / ANSI Compliant Binning Structure
- ◆ Typical Viewing Angle: 115°

Applications

- ◆ Replacement Bulb
- ◆ Indoor General Lighting
- ◆ Recessed Can Lighting

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Product Nomenclature

The product name is designated as below:

JU2024-CDEFGHJ-KLMNP-QRST

Family name

JU2024

Designation:

CD = lighting color and wavelength^[1]

EF = color bin or CCT bin

G = internal code

HJ = min. luminous flux (lm) or radiation power (mW) performance

KL = forward voltage bin^[2]

M = internal code

NP = power consumption^[3]

Q= internal code

R= Dam Diameter^[4]

S= internal code

T=Type of Package^[5]

Notes

1. Table of lighting color and wavelength

Symbol	Color	CCT range	Color Rendering Index
GT	Cool-White	4745~7050K	>65
KT	Cool-White	4745~7050K	>80
LM	Warm-White	2580~3710K	>70
	Neutral-White	3710K-4745K	
KM	Warm White	2580~3710K	>80
	Neutral-White	3710K-4745K	

2. Table of forward voltage bin

Symbol	Description
48	48V Input Voltage

3. Power consumption:

Symbol	Description
50	50W

4. Dam Diameter:

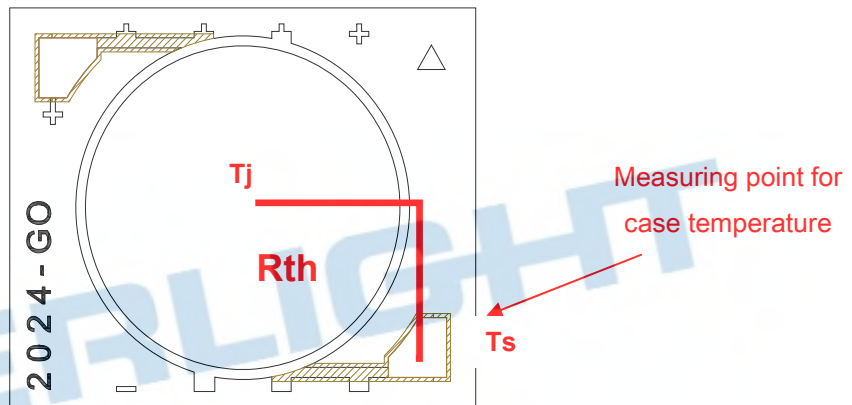
Symbol	Description
G	16.0-16.9mm

5. Table of packaging types:

Symbol	Description
T	Tray

Absolute Maximum Ratings

Parameter	Symbol	Ratings	Unit
Max. DC Forward Current (mA)	I_F	1500	mA
Max. Pulse Forward Current (mA)	I_P	1800	mA
Power Dissipation	P_d	78	W
Thermal Resistance	R_{th}	0.9	°C/W
Max. Junction Temperature	T_J	120	°C
Operating Temperature _{[4],[5]}	T_{Opr}	-40 ~ +85	°C
Storage Temperature	T_{Stg}	-40 ~ +85	°C



Notes:

1. For optimal performance, Everlight recommends 950mA operation.
2. $t_p \leq 100ms$, Duty cycle = 25%
3. The JU2024 48V/50W series LEDs are not designed for reverse bias use.
4. Power dissipation and forward current are the value when the module temperature is set lower than the rating by using an adequate heat sink.

PN of the JU2024 Series : White LEDs



Order Code of JU2024	Minimum Luminous Flux (lm)	Typical Luminous Flux (lm)	CCT (K)	Forward Voltage (V)	Forward Current (mA)	CRI (min.)
JU2024-KM277M4-48A50-3G0T	4600	5165	27K-1~27K-4	45.0~53.0	950	80
JU2024-KM307M5-48A50-3G0T	4800	5400	30K-1~30K-4	45.0~53.0	950	80
JU2024-KM407M6-48A50-3G0T	5000	5725	40K-1~40K-4	45.0~53.0	950	80
JU2024-KT507M7-48A50-3G0T	5200	5885	50K-1~50K-4	45.0~53.0	950	80
JU2024-KT577M7-48A50-3G0T	5200	5950	57K-1~57K-4	45.0~53.0	950	80
JU2024-KT657M7-48A50-3G0T	5200	5950	65K-1~65K-4	45.0~53.0	950	80

Notes:

1. CRI measurement tolerance: ± 2 .
2. Luminous flux measurement tolerance: $\pm 10\%$.
3. The data of luminous flux measured at thermal pad=25°C
4. Typical luminous flux or light output performance is operated within the condition guided by this datasheet.

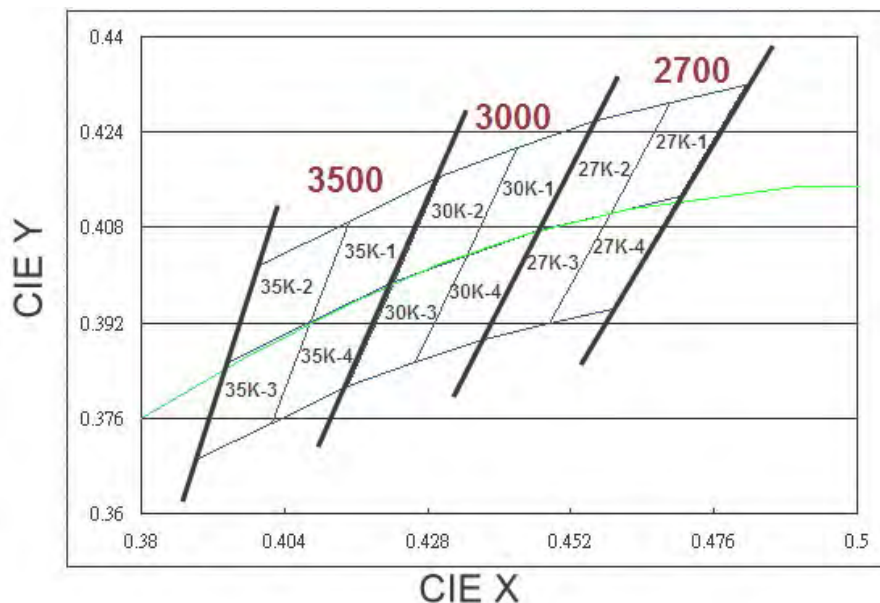
Product Binning

Luminous Flux Bins

Group	Bin	Minimum Photometric Flux (lm)	Maximum Photometric Flux (lm)
M	4	4600	5700
	5	4800	6000
	6	5000	6200
	7	5200	6500

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Warm-White Bin Structure



Warm-White Bin Coordinates

2700K

Bin	CIE X	CIE Y
27K-1	0.4582	0.4099
	0.4687	0.4289
	0.4813	0.4319
	0.4700	0.4126
Reference Range: 2580~2718K		

Bin	CIE X	CIE Y
27K-2	0.4465	0.4071
	0.4562	0.4260
	0.4687	0.4289
	0.4582	0.4099
Reference Range: 2718~2869K		

Bin	CIE X	CIE Y
27K-4	0.4483	0.3919
	0.4582	0.4099
	0.4700	0.4126
	0.4593	0.3944
Reference Range: 2580~2718K		

Bin	CIE X	CIE Y
27K-3	0.4373	0.3893
	0.4465	0.4071
	0.4582	0.4099
	0.4483	0.3919
Reference Range: 2718~2869K		

3000K

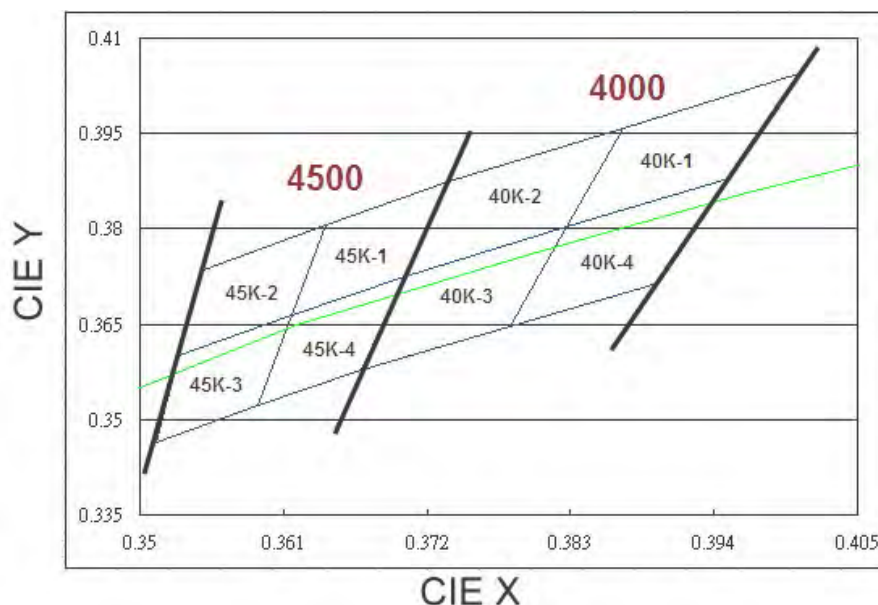
Bin	CIE X	CIE Y
30K-1	0.4342	0.4028
	0.4430	0.4212
	0.4562	0.4260
	0.4465	0.4071
Reference Range: 2870~3000K		

Bin	CIE X	CIE Y
30K-2	0.4221	0.3984
	0.4299	0.4165
	0.4430	0.4212
	0.4342	0.4028
Reference Range: 3000~3220K		

Bin	CIE X	CIE Y
30K-4	0.4259	0.3853
	0.4342	0.4028
	0.4465	0.4071
	0.4373	0.3893
Reference Range: 2870~3000K		

Bin	CIE X	CIE Y
30K-3	0.4147	0.3814
	0.4221	0.3984
	0.4342	0.4028
	0.4259	0.3853
Reference Range: 3000~3220K		

Neutral-White Bin Structure



Neutral-White Bin Coordinates

4000K

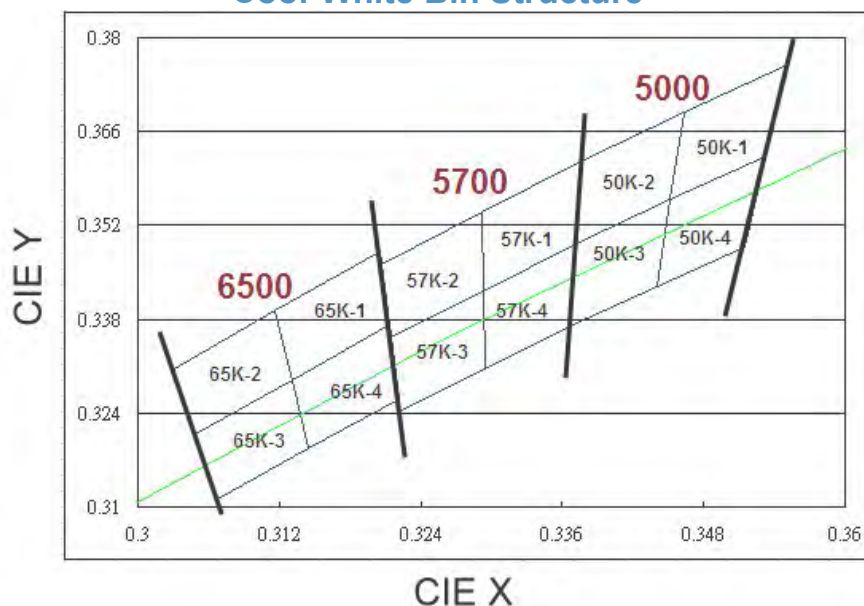
Bin	CIE X	CIE Y
40K-1	0.3825	0.3798
	0.3869	0.3958
	0.4006	0.4044
	0.3950	0.3875
Reference Range: 3710~3967K		

Bin	CIE X	CIE Y
40K-2	0.3702	0.3722
	0.3736	0.3874
	0.3869	0.3958
	0.3825	0.3798
Reference Range: 3967~4259K		

Bin	CIE X	CIE Y
40K-4	0.3783	0.3646
	0.3825	0.3798
	0.3950	0.3875
	0.3898	0.3716
Reference Range: 3710~3967K		

Bin	CIE X	CIE Y
40K-3	0.3670	0.3578
	0.3702	0.3722
	0.3825	0.3798
	0.3783	0.3646
Reference Range: 3967~4259K		

Cool-White Bin Structure



Cool-White Bin Coordinates

5000K

Bin	CIE X	CIE Y
50K-1	0.3463	0.3687
	0.3551	0.3760
	0.3533	0.3620
	0.3451	0.3554
Reference Range: 4743~5011K		

Bin	CIE X	CIE Y
50K-2	0.3376	0.3616
	0.3463	0.3687
	0.3451	0.3554
	0.3371	0.3490
Reference Range: 5013~5308K		

Bin	CIE X	CIE Y
50K-4	0.3451	0.3554
	0.3533	0.3620
	0.3515	0.3487
	0.3440	0.3427
Reference Range: 4743~5011K		

Bin	CIE X	CIE Y
50K-3	0.3371	0.3490
	0.3451	0.3554
	0.3440	0.3427
	0.3366	0.3369
Reference Range: 5013~5308K		

5700K

Bin	CIE X	CIE Y
57K-1	0.3290	0.3538
	0.3376	0.3616
	0.3371	0.3490
	0.3290	0.3417
Reference Range: 5308~5643K		

Bin	CIE X	CIE Y
57K-2	0.3207	0.3462
	0.3290	0.3538
	0.3290	0.3417
	0.3215	0.3350
Reference Range: 5643~6017K		

Bin	CIE X	CIE Y
57K-4	0.3290	0.3417
	0.3371	0.3490
	0.3366	0.3369
	0.3290	0.3300
Reference Range: 5308~5643K		

Bin	CIE X	CIE Y
57K-3	0.3215	0.3350
	0.3290	0.3417
	0.3290	0.3300
	0.3222	0.3243
Reference Range: 5643~6017K		

6500K

Bin	CIE X	CIE Y
65K-1	0.3115	0.3391
	0.3205	0.3481
	0.3213	0.3373
	0.3130	0.3290
Reference Range: 6018~6493K		

Bin	CIE X	CIE Y
65K-2	0.3028	0.3304
	0.3115	0.3391
	0.3130	0.3290
	0.3048	0.3207
Reference Range: 6487~7042K		

Bin	CIE X	CIE Y
65K-4	0.3130	0.3290
	0.3213	0.3373
	0.3221	0.3261
	0.3144	0.3186
Reference Range: 6018~6493K		

Bin	CIE X	CIE Y
65K-3	0.3048	0.3207
	0.3130	0.3290
	0.3144	0.3186
	0.3068	0.3113
Reference Range: 6487~7042K		

Notes:

1. Color coordinates measurement allowance : ±0.01.

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Forward Voltage Bins

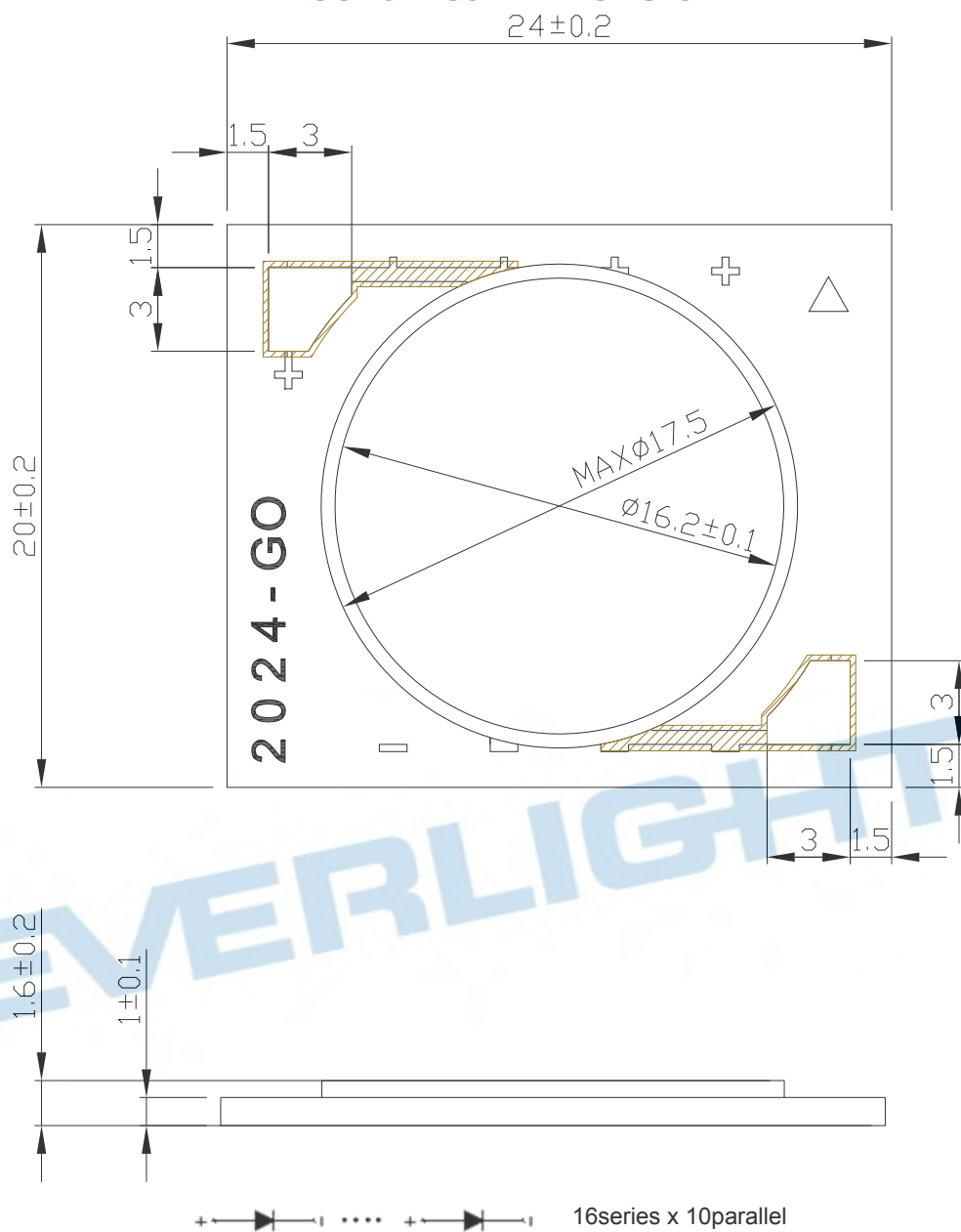
Bin	Minimum Forward Voltage (V)	Maximum Forward Voltage (V)
X1	45.0	53.0

Notes:

1. Forward voltage measurement tolerance: $\pm 2\%$.
2. Forward voltage bins are defined at $I_F=1000\text{mA}$ operation.
3. Other Forward Voltage bins for White LEDs available upon request. Please contact your local Everlight sales office.

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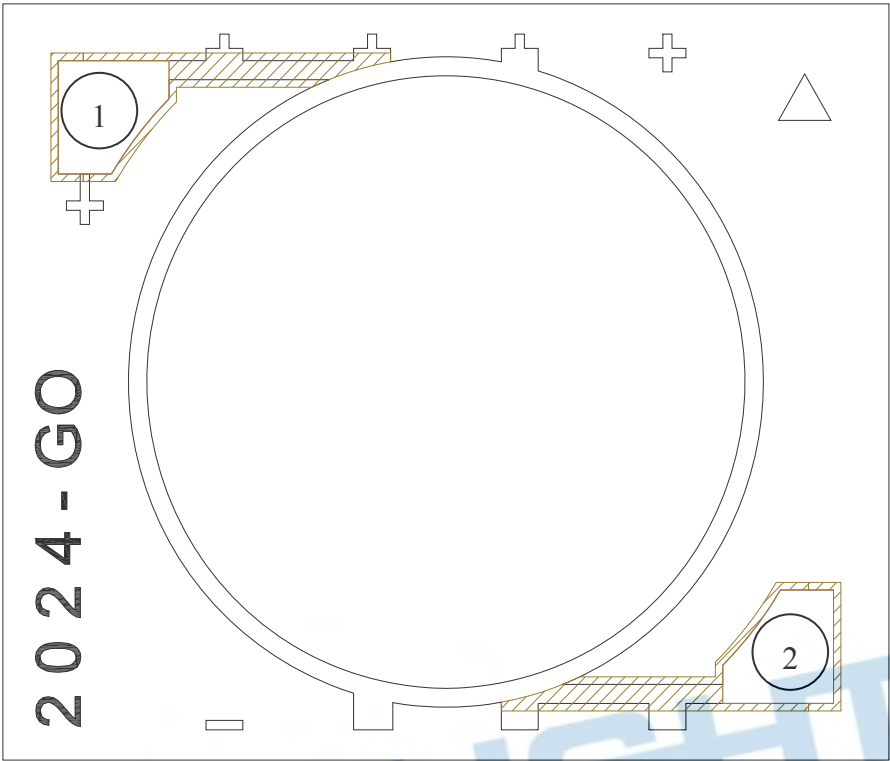
Mechanical Dimension



Note:

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

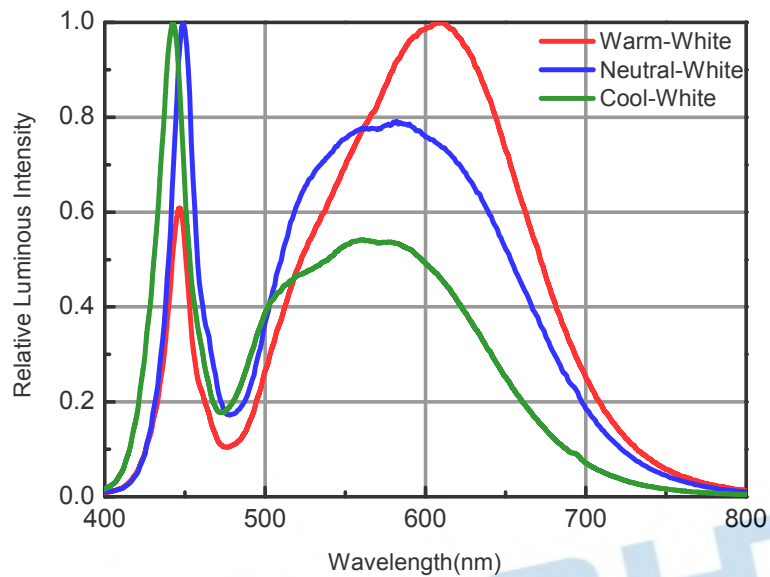
Pad Configuration



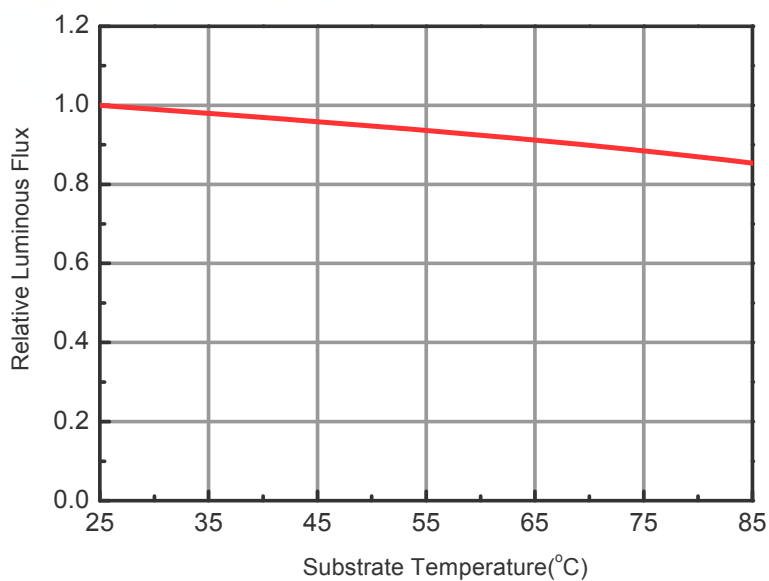
PAD	FUNCTION
1	ANODE
2	CATHODE

Typical Electro-Optical Characteristic Curve

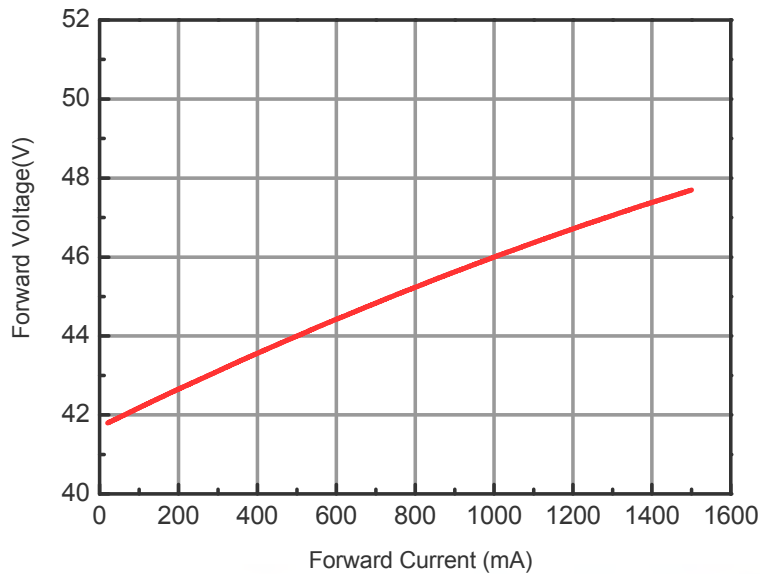
Relative Spectral Distribution
@ Substrate Temperature = 25°C



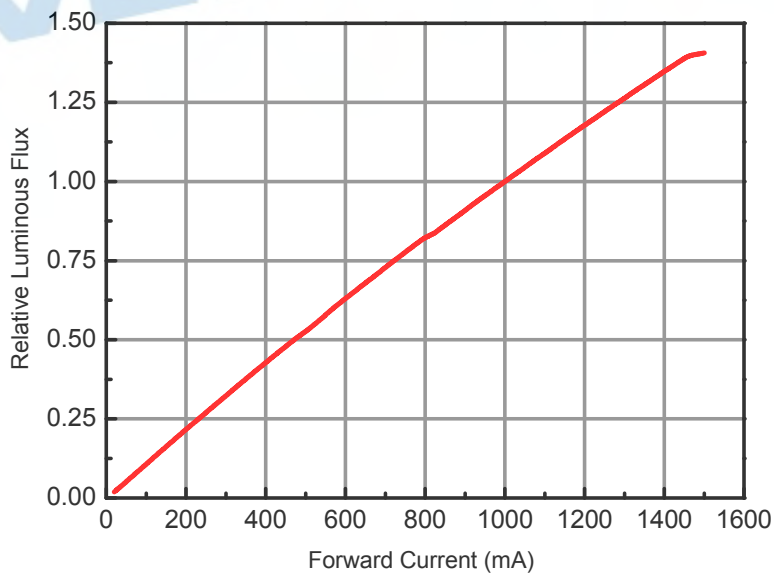
Relative Luminous Flux vs. Substrate Temperature
@Forward Current = 950mA



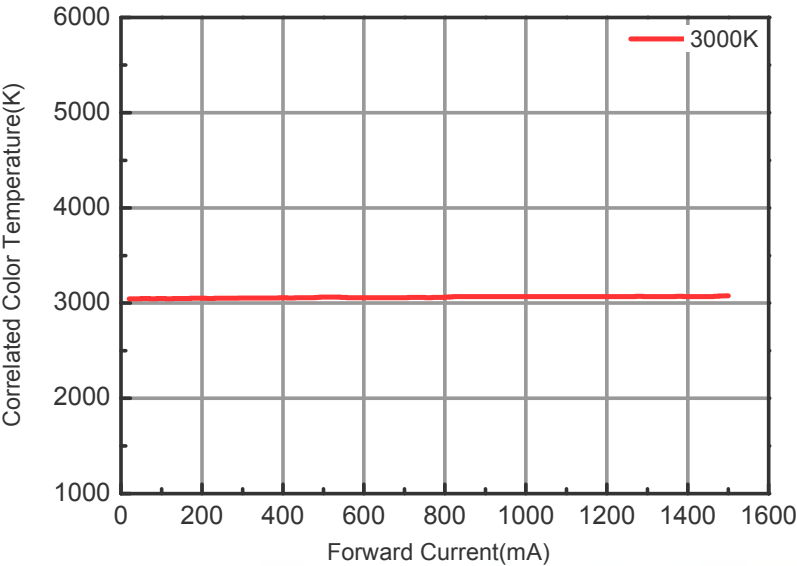
Forward Voltage vs. Forward Current
@ Substrate Temperature = 25°C



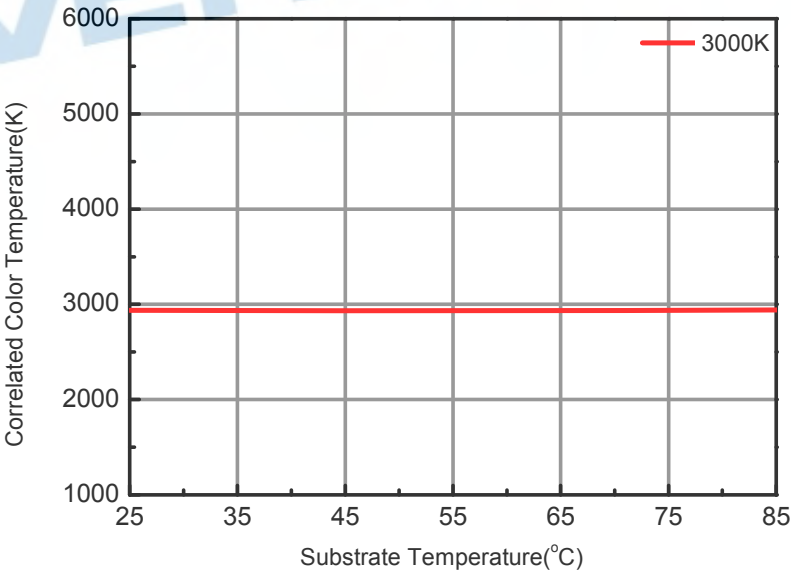
Relative Luminous Flux vs. Forward Current
@ Substrate Temperature = 25°C



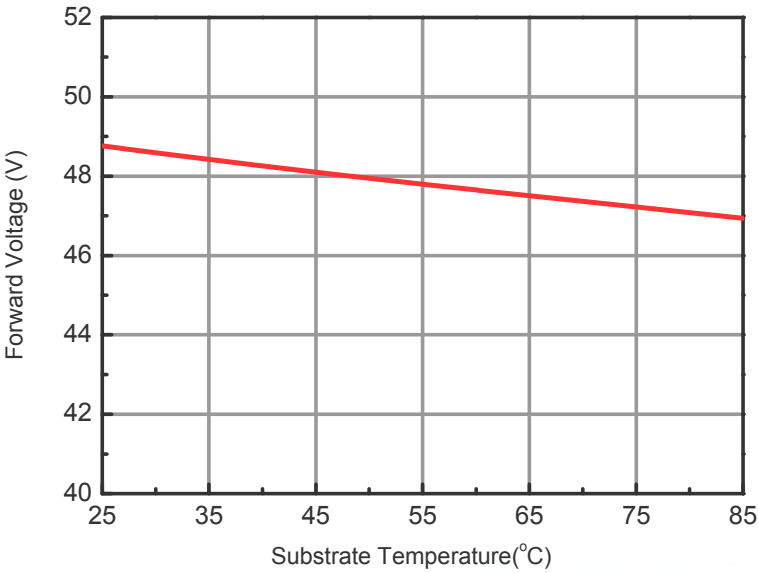
Correlated Color Temperature vs. Forward Current
@ Substrate Temperature = 25°C



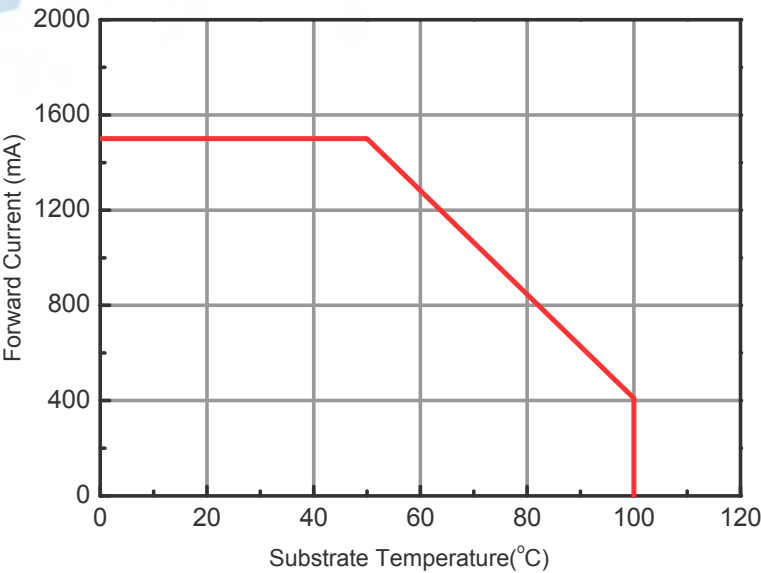
Correlated Color Temperature vs. Substrate Temperature
@ Forward Current = 950mA



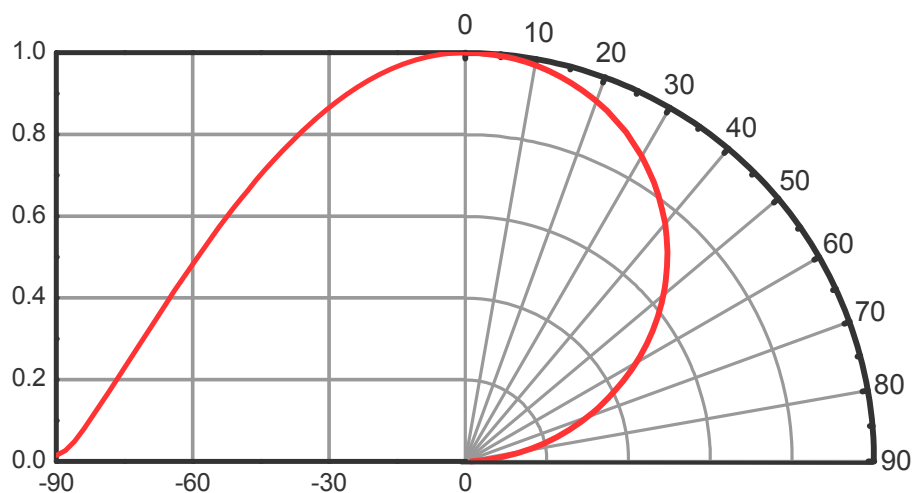
Forward Voltage vs. Substrate Temperature
@ Forward Current = 950mA



Forward Current Derating Curve
@ Junction Temperature <120°C



Typical Diagram Characteristics of Radiation Patterns



1. $2\theta_{1/2}$ is the off axis angle from lamp centerline where the luminous intensity is 1/2 of the peak value.
2. Viewing angle tolerance is $\pm 5^\circ$.

Product Labeling

Label Explanation

CPN: Customer Specification (when required)

P/N : Everlight Production Number

QTY: Packing Quantity

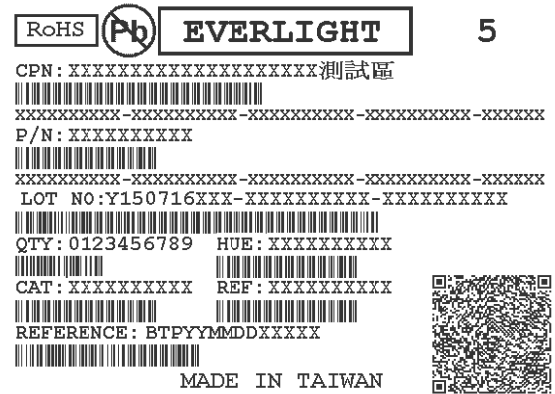
CAT: Luminous Flux (Brightness) Bin

HUE: Color Bin

REF: Forward Voltage Bin

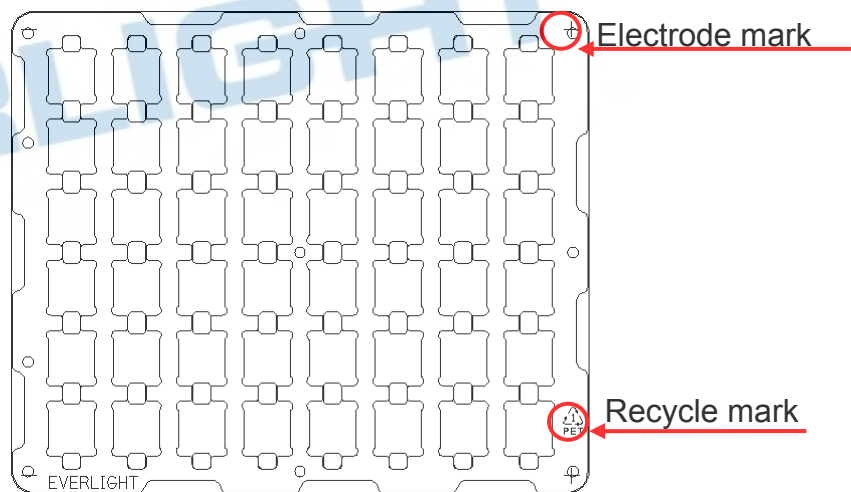
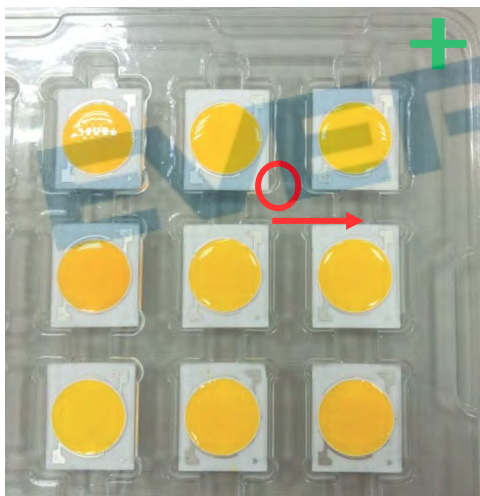
LOT No: Lot Number

MADE IN TAIWAN: Production Place



Carrier Tray Specification

Loaded Quantity: 48 PCS Per Tray



Notes:

1. Dimensions are in millimeters
2. Tolerances unless mentioned are $\pm 0.1\text{mm}$

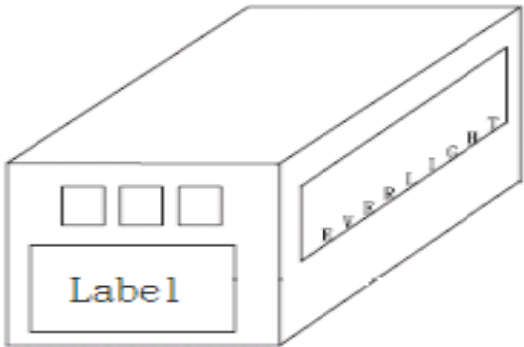
LED Direction

- The **Recycle mark** on the LEDs will be toward the **Anode mark** on the carrier tray.

Moisture Resistant Packaging



Outside Carton



RoHS

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5

CPN: XXXXXXXXXXXXXXXXXXXXXXXX測試區

XXXXXXXXXX-XXXXXXXXXX-XXXXXXXXXX-XXXXXXXXXX-XXXXXX

P/N: XXXXXXXXXXXX

XXXXXXXXXX-XXXXXXXXXX-XXXXXXXXXX-XXXXXXXXXX-XXXXXX

LOT NO:Y150716XXX-XXXXXXXXXX-XXXXXXXXXX

QTY: 0123456789 HUE: XXXXXXXXXXXX

CAT: XXXXXXXXXXXX REF: XXXXXXXXXXXX

REFERENCE: BTPYMMDDXXXXX

MADE IN TAIWAN

Packaging Quantity

- 48 PCS Per Tray
- 20 Trays Per Outside Carton

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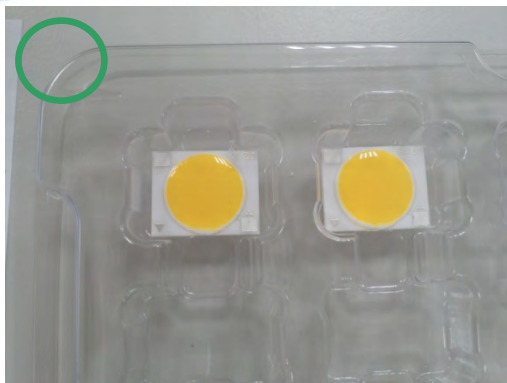
Precautions of Use

Over-Current-Proof

- Though the JU2024 has a conducted ESD protection mechanism, customers must not use the device in reverse and should apply resistors for extra protection. Otherwise slight voltage shift may cause significant current changes and burn out failure may happen.

Storage Conditions

- Before the package is opened: The LEDs should be stored at 30°C or less and 50%RH or less after being shipped from Everlight and the storage life limit is 6 months. If the LEDs are stored for 6 months or more, they should be stored in a sealed container with a nitrogen atmosphere and moisture absorbent material.
- After opening the package: The LED should be stored under 30°C or less and 30%RH or less. The LED should be used within 168hrs (7days) after opening the package. If unused LEDs remain, it should be stored in moisture proof packages.
- Do not stack assemblies.

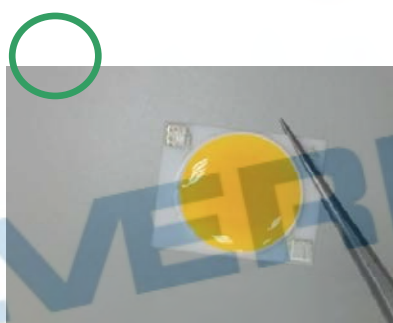


Handling

- Do not put mechanical stress on the LED.
- Never touch the optical surface with finger or sharp object. The LED surface could be soiled or damaged, which could affect the optical performance of the LED.
- In low-humidity work environment, please keep handling the LEDs with appropriate ESD grounding.
- It is recommended to handle the LED with powder-less latex gloves.

Manual Handling

- When handling the product, do not apply direct pressure on the optical surface.
- Do not touch the resin with tweezers to avoid scratching or other damage.



Thermal Management

- Sufficient thermal management must be implemented. Substrate of the positive in temperature must be kept under 85°C at the driving current of 950mA. Otherwise, the junction temperature of die may exceed the limit at high current driving conditions and the LEDs' lifetime may be decrease dramatically.

DISCLAIMER

1. EVERLIGHT reserves the right(s) on the adjustment of product material mix for the specification.
2. The product meets EVERLIGHT published specification for a period of twelve (12) months from date of shipment.
3. The graphs shown in this datasheet are representing typical data only and do not show guaranteed values.
4. 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.
5. These specification sheets include materials protected under copyright of EVERLIGHT. Reproduction in any form is prohibited without obtaining EVERLIGHT's prior consent.
6. 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.

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Revision History

Current version: **2013/12/02**

Previous version: **N/A**

Device No. DHE-0002284

Rev. Ver. 4

Page	Subjects (major change in previous version)	Date of change
9	Create Cool-White	07.15.2014
19	Modify Label (Added QR code)	08.24.2015
23	Add a DISCLAIMER	12.01.2016

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