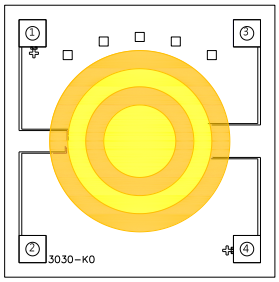
DATASHEET

Preliminary

CHI3030

27V/19W/EU 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:30 mm x 30 mm
- Main Parameters: Luminous Flux, Forward Voltage , Chromaticity and Color Rendering Index
- ESD Protection
- RoHS compliant
- Energy Star / ANSI Compliant Binning Structure

Applications

- Replacement Bulb
- Indoor General Lighting
- Recessed Can Lighting

Table of Contents

Product Nomenclature

The product name is designated as below:

CHI3030-CDEFGHJ-KLMNP-QRST

Family name
CHI3030

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	3710~4745K	
KM	Warm White	2580~3710K	>80
	Neutral-White	3710~4745K	
KH	Warm White	2580~5700K	>80
KI	Neutral-White	2580~6500K	

2. Table of forward voltage bin

Symbol	Description
27	27V Input Voltage

3. Power consumption:

Symbol	Description
19	19W

4. Dam Diameter:

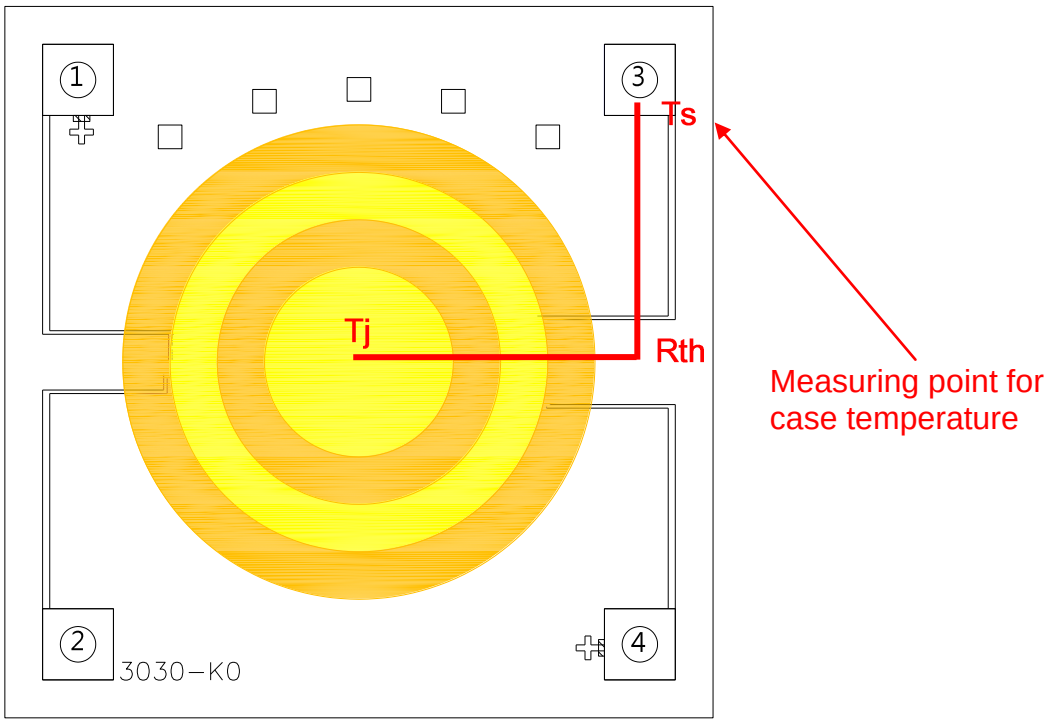
Symbol	Description
K	20.0-20.9

5. Table of packaging types:

Symbol	Description
T	Tray

Absolute Maximum Ratings

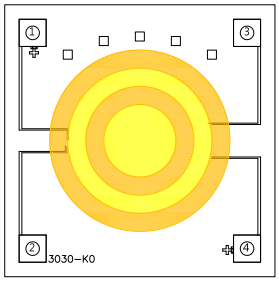
Parameter	Symbol	Ratings	Unit
Max. DC Forward Current (mA)	I_F	700	mA
Max. Pulse Forward Current (mA)	I_P	1200	mA
Power Dissipation	Pd	20.8	W
Thermal Resistance	R_{th}	-	°C/W
Max. Junction Temperature	T_J	120	°C
Operating Temperature[4],[5]	T_{Opr}	-40 ~ +85	°C
Storage Temperature	T_{Stg}	-40 ~ +85	°C



Notes:

1. For optimal performance, Everlight recommends 700mA operation.
2. tp ≦100ms, Duty cycle = 25%
3. The CHI3030 27V/19W 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 JU3030 : White LEDs



Order Code of CHI3030	Color	Minimum Luminous Flux (lm)	Typical Luminous Flux (lm)	CCT (K)	Forward Voltage (V)	Forward Current (mA) (1+2)/(3+4)	CRI (min.)
CHI3030- KHAH4P7-27E19-3K0T/EU	Warm White 2700	1650	1890	2700K	26.0~31.0	700/0	80
	Neutral White 4000	1800	2155	4000K	26.0~31.0	350/350	80
	Cool White 5700	1800	2095	5700K	26.0~31.0	0/700	80

Notes:

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

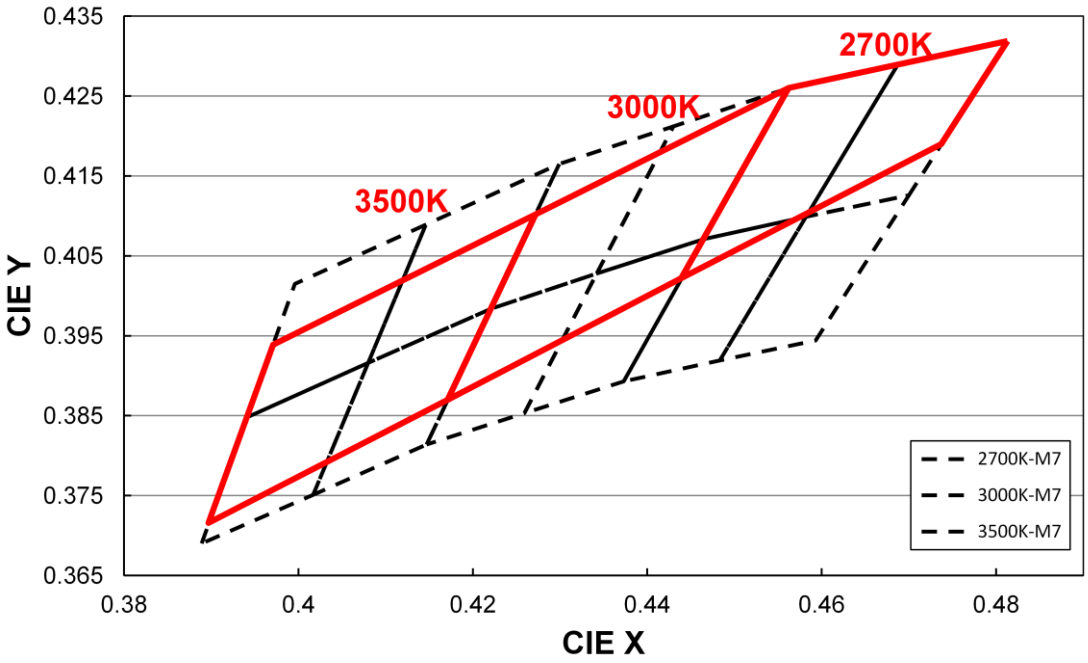
Product Binning

Luminous Flux Bins

Group	Bin	Minimum Photometric Flux (lm)	Maximum Photometric Flux (lm)
E	1	4	5
	2	5	6
	3	6	8
	4	8	10
	5	10	13
	6	13	17
	7	17	20
	8	20	23
	9	23	27
F	1	27	33
	2	33	39
	3	39	45
	4	45	52
	5	52	60
	6	60	70
	7	70	80
	8	80	90
	9	90	100
J	1	100	110
	2	110	120
	3	120	130
	4	130	140
	5	140	150
	6	150	160
	7	160	180
	8	180	200
	9	200	225

Group	Bin	Minimum Photometric Flux (lm)	Maximum Photometric Flux (lm)
K	1	225	250
	2	250	275
	3	275	300
	4	300	325
	5	325	350
	6	350	375
	7	375	400
	8	400	425
	9	425	450
N	1	450	475
	2	475	500
	3	500	550
	4	550	600
	5	600	650
	6	650	700
	7	700	750
	8	750	800
	9	800	900
P	1	900	1000
	2	1000	1100
	3	1100	1200
	4	1200	1350
	5	1350	1500
	6	1500	1650
	7	1650	1800
	8	1800	2000
	9	2000	2200

Warm-White Bin Structure



Warm-White Bin Coordinates

2700K

Bin	CIE X	CIE Y
2700K	0.4813	0.4319
	0.4562	0.4260
	0.4439	0.4022
	0.4737	0.4190
Reference Range: 2580~2869K		

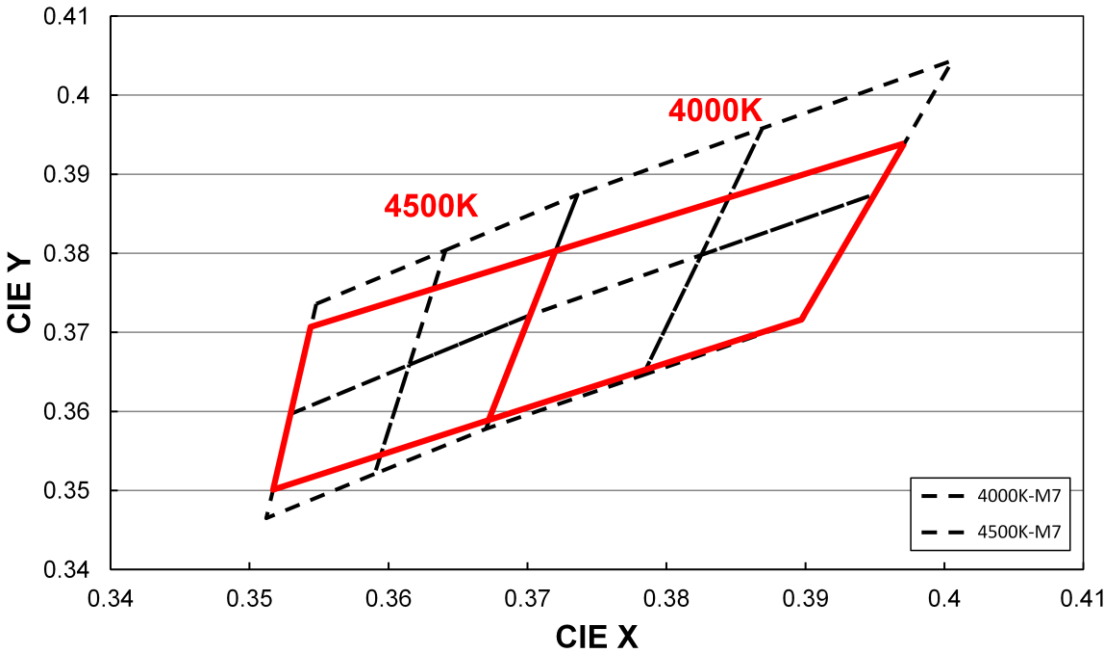
3000K

Bin	CIE X	CIE Y
3000K	0.4562	0.4260
	0.4272	0.4102
	0.4171	0.3870
	0.4439	0.4022
Reference Range: 2868~3208K		

3500K

Bin	CIE X	CIE Y
3500K	0.4272	0.4102
	0.3971	0.3939
	0.3897	0.3716
	0.4171	0.3870
Reference Range: 3208~3712K		

Neutral-White Bin Structure



Neutral-White Bin Coordinates

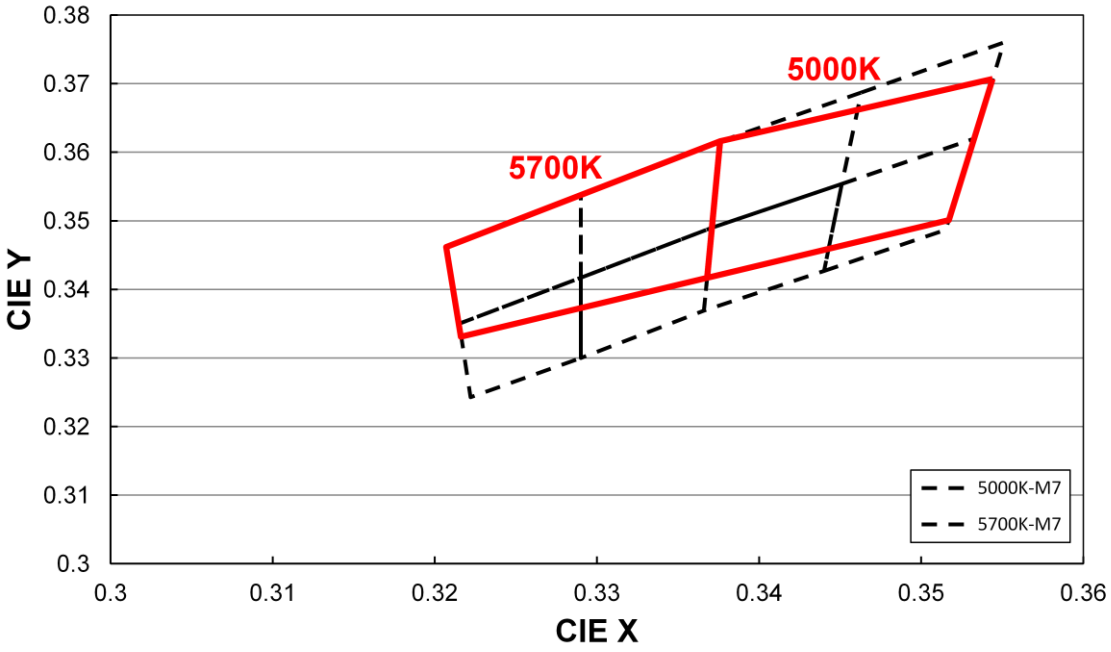
4000K

Bin	CIE X	CIE Y
4000K	0.3971	0.3939
	0.3720	0.3803
	0.3672	0.3589
	0.3897	0.3716
Reference Range: 3710~4261K		

4500K

Bin	CIE X	CIE Y
4500K	0.3720	0.3803
	0.3544	0.3707
	0.3517	0.3501
	0.3672	0.3589
Reference Range: 4259~4743K		

Cool-White Bin Structure



Cool-White Bin Coordinates

5000K

Bin	CIE X	CIE Y
5000K	0.3544	0.3707
	0.3376	0.3616
	0.3368	0.3417
	0.3517	0.3501
Reference Range: 4744~5309K		

5700K

Bin	CIE X	CIE Y
5700K	0.3376	0.3616
	0.3207	0.3462
	0.3216	0.3331
	0.3368	0.3417
Reference Range: 5308~6018K		

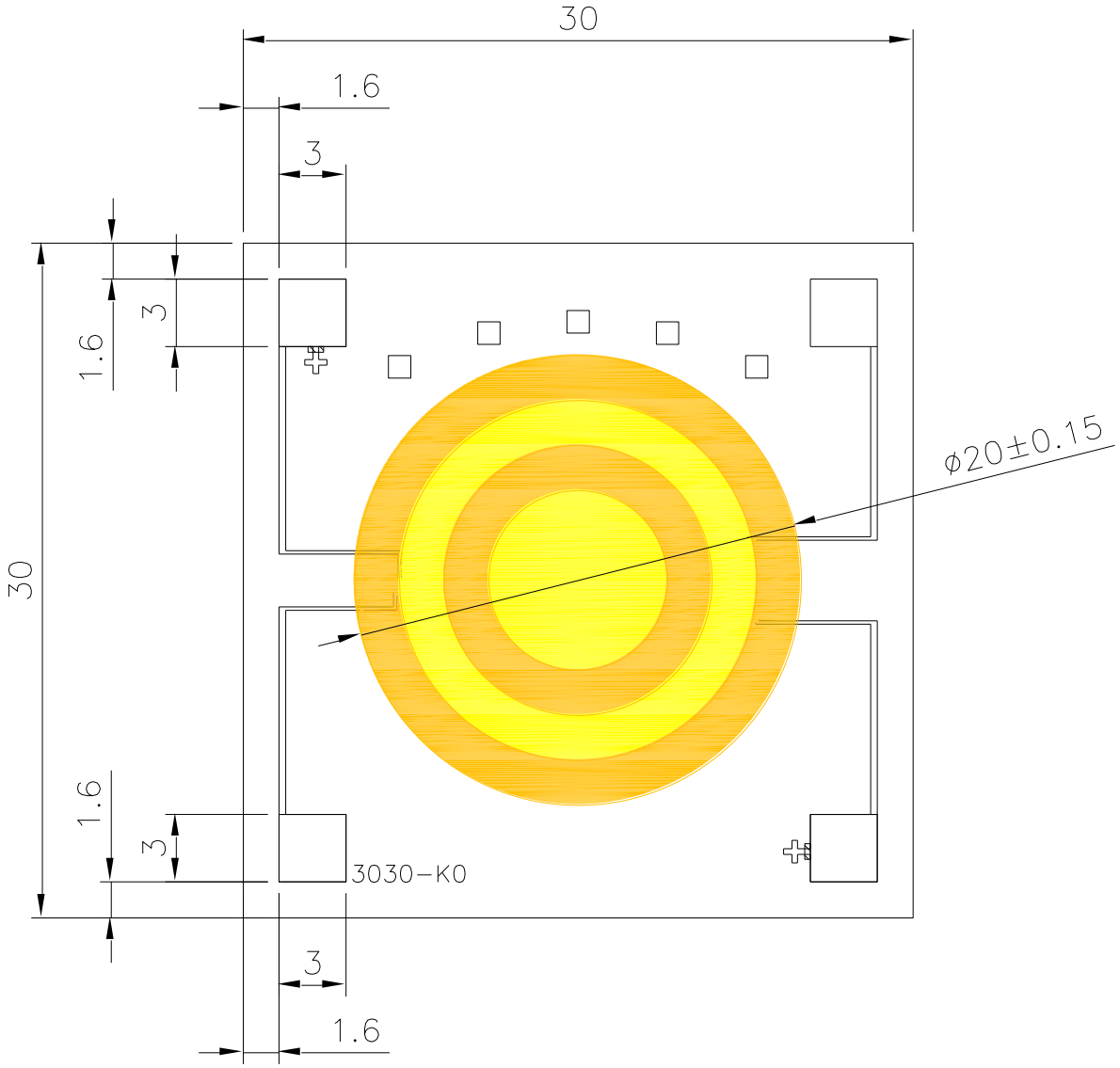
Forward Voltage Bins

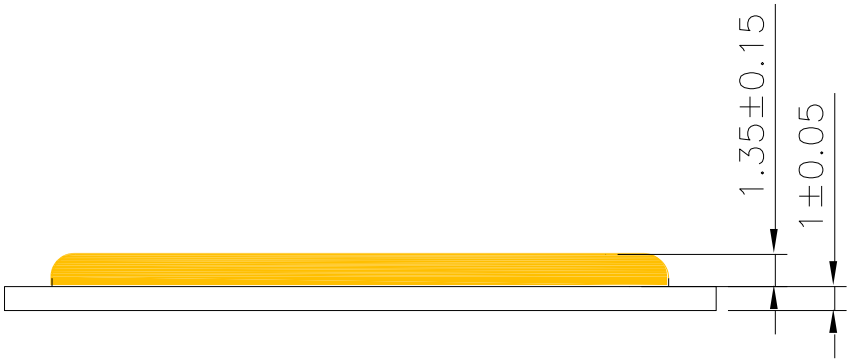
Bin	Minimum Forward Voltage (V)	Maximum Forward Voltage (V)
T9	26.0	27.0
W1	27.0	29.0
W2	29.0	31.0

Notes:

1. Forward voltage measurement tolerance: ±2%.
2. Forward voltage bins are defined at I_F=700mA operation.
3. Other Forward Voltage bins for White LEDs available upon request. Please contact your local Everlight sales office.

Mechanical Dimension



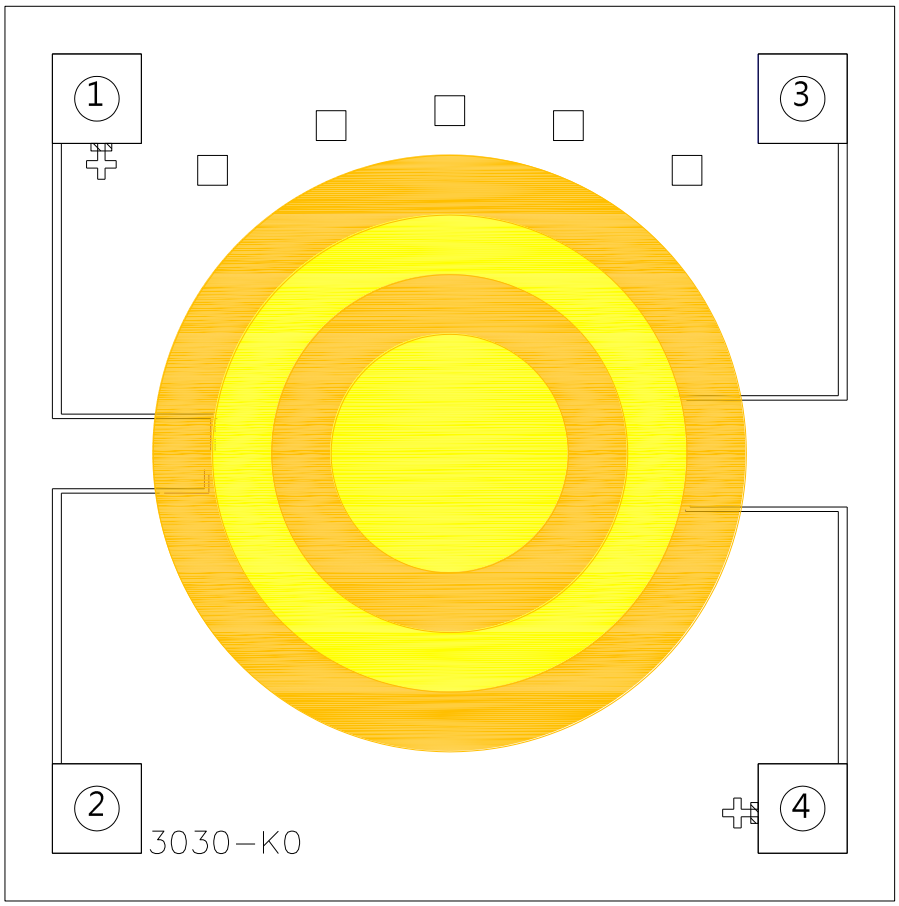


9series x 14parallel

Note:

1. Dimensions are in millimeters.
2. Tolerances unless mentioned are ±0.15mm.

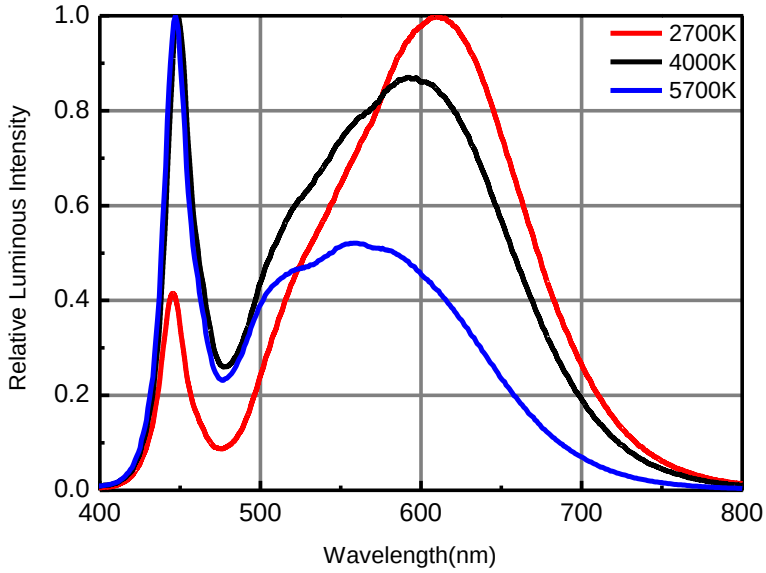
Pad Configuration



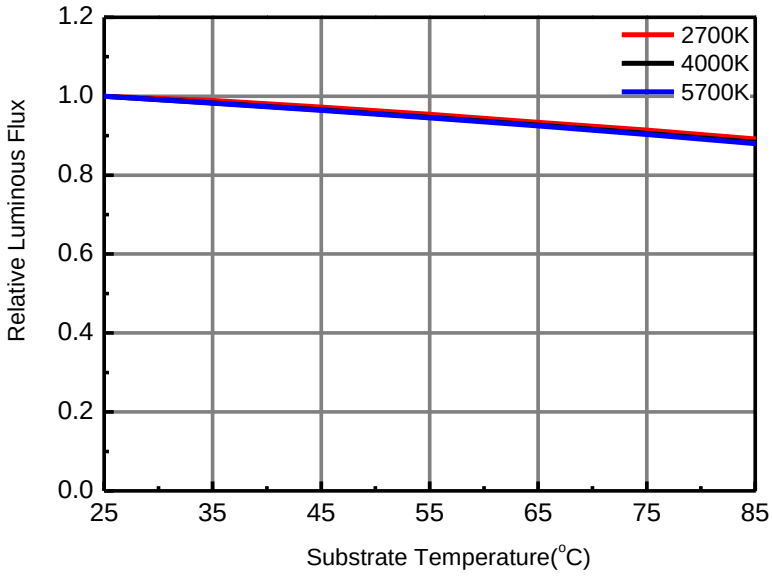
PAD	FUNCTION	CCT
1	ANODE	2700K
2	CATHODE	
3	CATHODE	5700K
4	ANODE	

Typical Electro-Optical Characteristic Curve

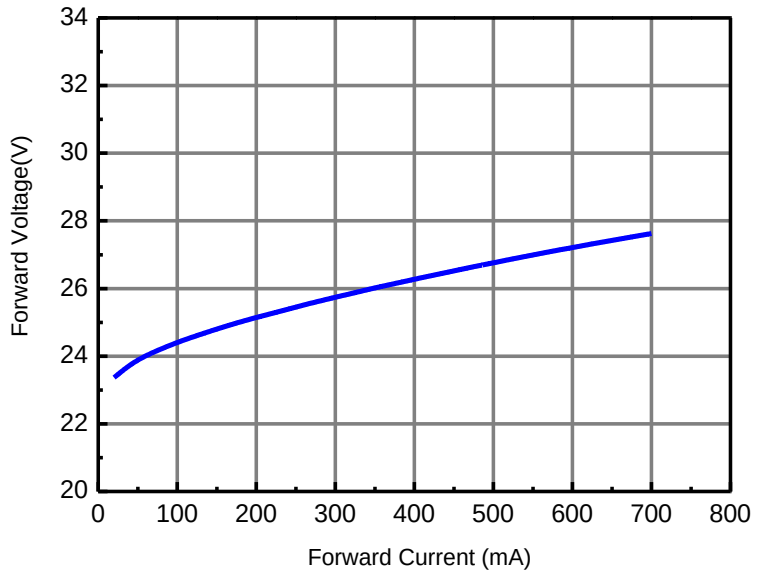
Relative Spectral Distribution
@ Substrate Temperature = 25℃



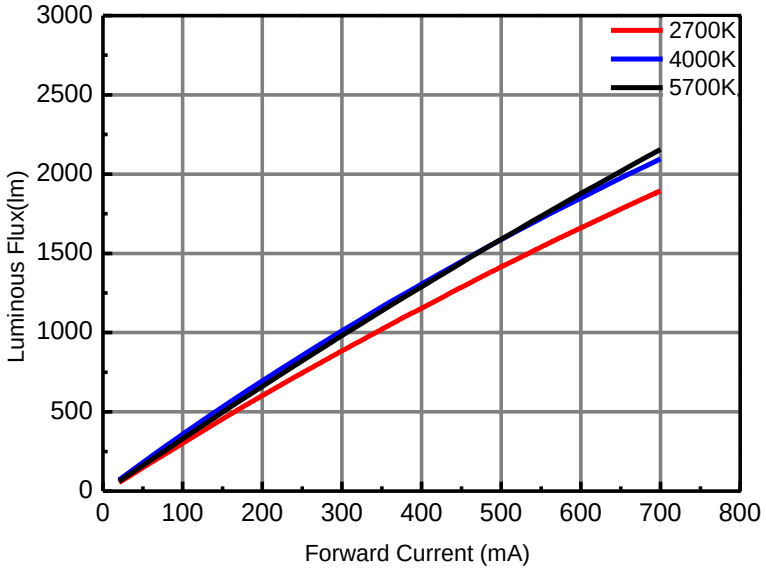
Relative Luminous Flux vs. Substrate Temperature
@Forward Current = 700mA



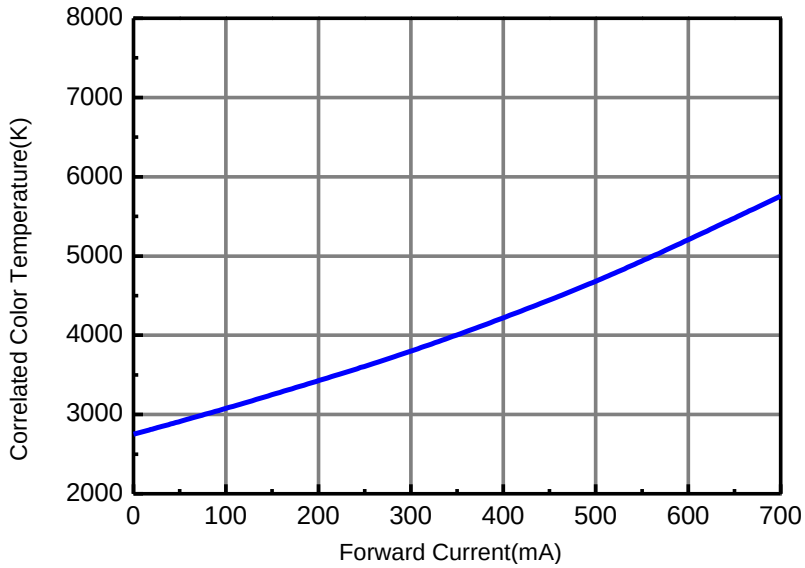
Forward Voltage vs. Forward Current
@ Substrate Temperature = 25℃



Luminous Flux vs. Forward Current
@ Substrate Temperature = 25℃

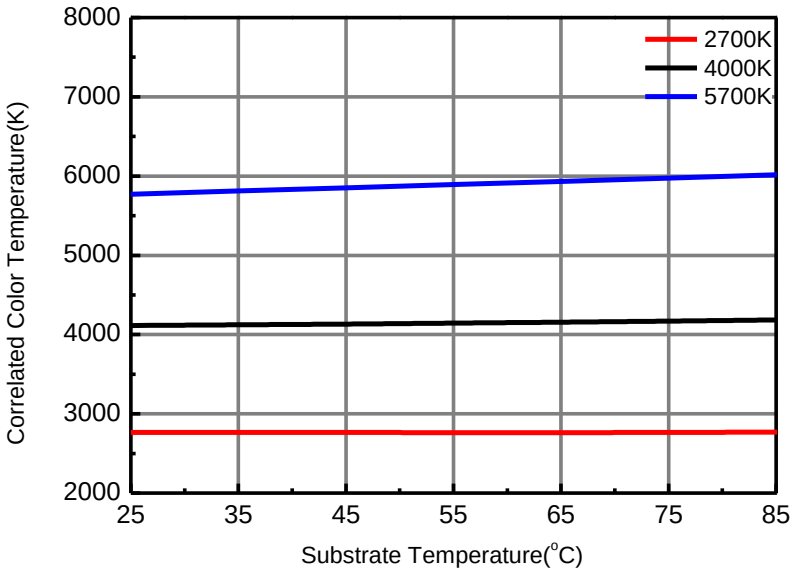


Correlated Color Temperature vs. Forward Current
@ Substrate Temperature = 25℃

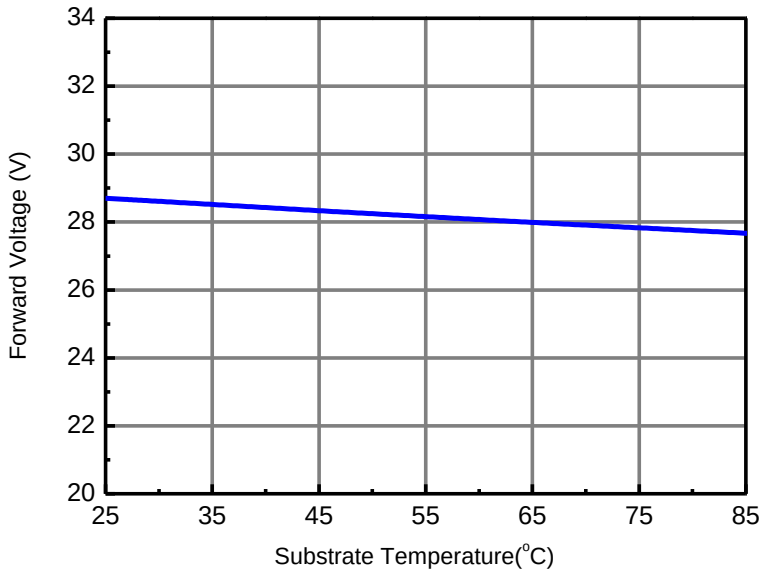


*In case total input 700mA(If(1+2)+If(3+4))

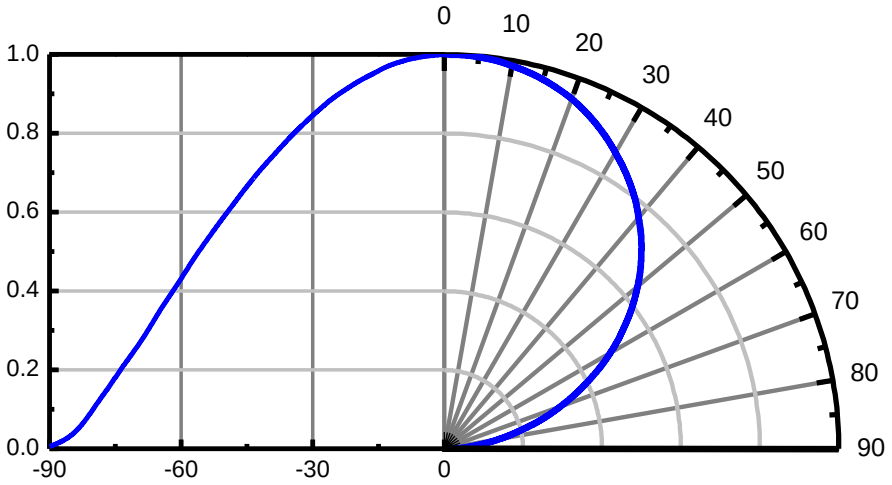
Correlated Color Temperature vs. Substrate Temperature
@ Forward Current = 700mA



Forward Voltage vs. Substrate Temperature
@ Forward Current = 700mA



Typical Diagram Characteristics of Radiation Patterns



Notes:

1. 2θ1/2 is the off axis angle from lamp centerline where the luminous intensity is 1/2 of the peak value.
2. Viewing angle tolerance is ± 5◦

Product Labeling

Label Explanation

CPN: Customer Specification (when required)

P/N : Everlight Production Number

QTY: Packing Quantity

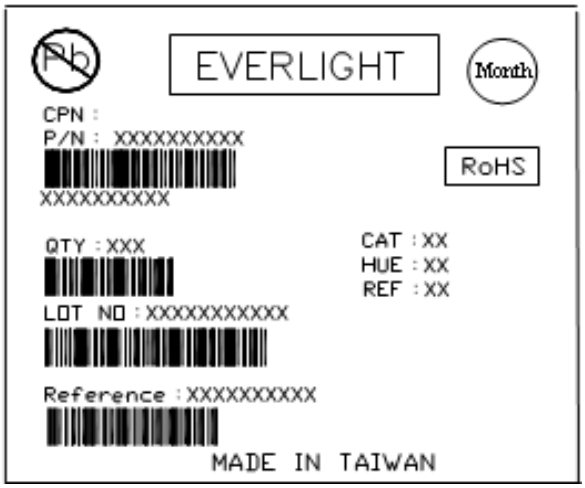
CAT: Luminous Flux (Brightness) Bin

HUE: Color Bin

REF: Forward Voltage Bin

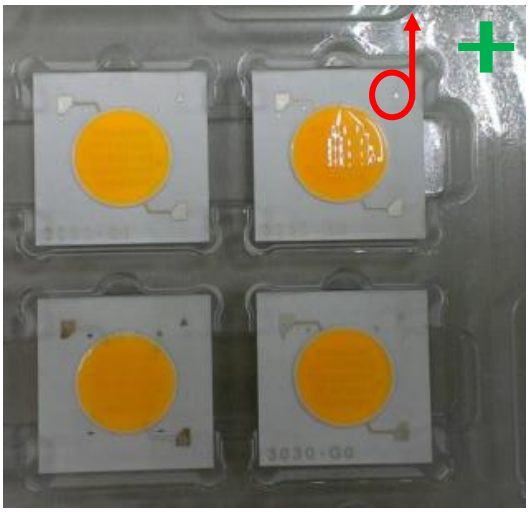
LOT No: Lot Number

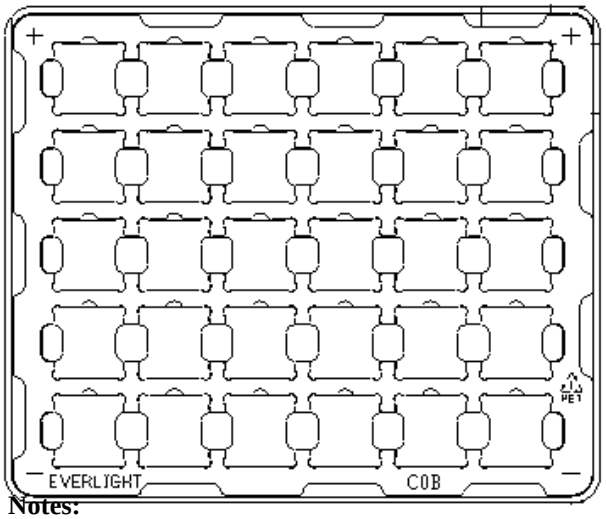
MADE IN TAIWAN: Production Place



Carrier Tray Specification

Loaded Quantity:30 PCS Per Tray





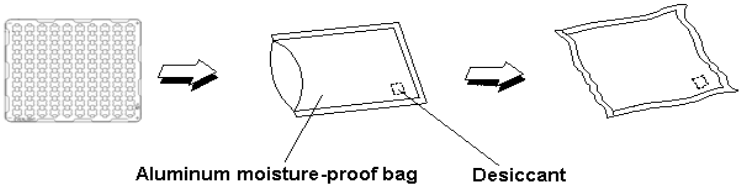
Notes:

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

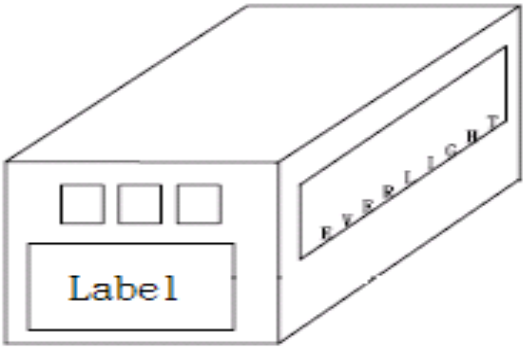
LED Direction

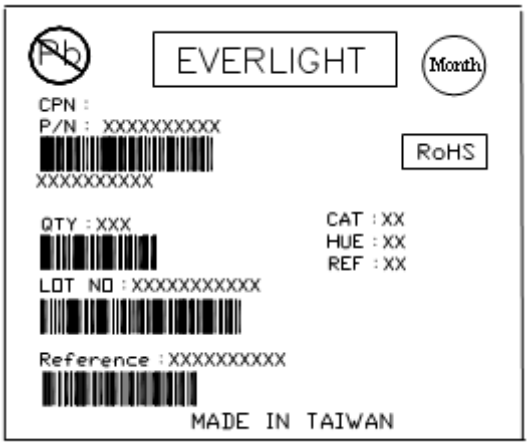
- The **Recycle mark** on the LEDs will be toward the **Anode mark** on the carrier tray.

Moisture Resistant Packaging



Outside Carton





Packaging Quantity

- 30 PCS Per Tray
- 20 Trays Per Outside Carton

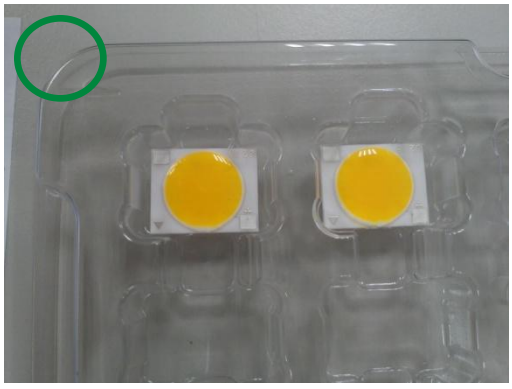
Precautions of Use

Over-Current-Proof

- Though the CHI3030 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 700mA.Otherwise, the junction temperature of die may exceed the limit at high current driving conditions and the LEDs' lifetime may be decrease dramatically.

Revision History

Current version: **2013/10/09**

Previous version: **N/A**

Device No.

Rev. Ver. 1

Page	Subjects (major change in previous version)	Date of change