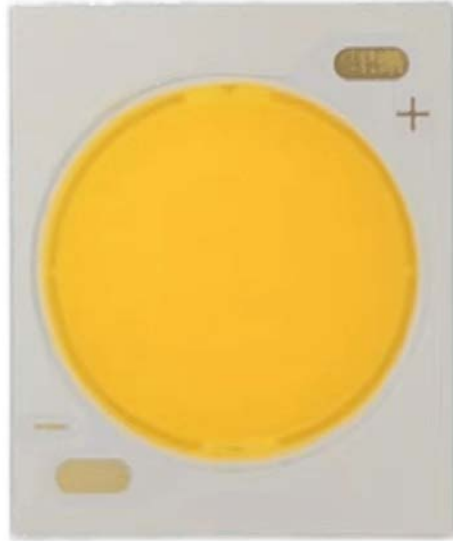




PRODUCT DATA SHEET



12W COB LED (Ver. 1.0)

MODEL NO.: MLT-CL-B2024G01-08S06P012DXX





1. Features

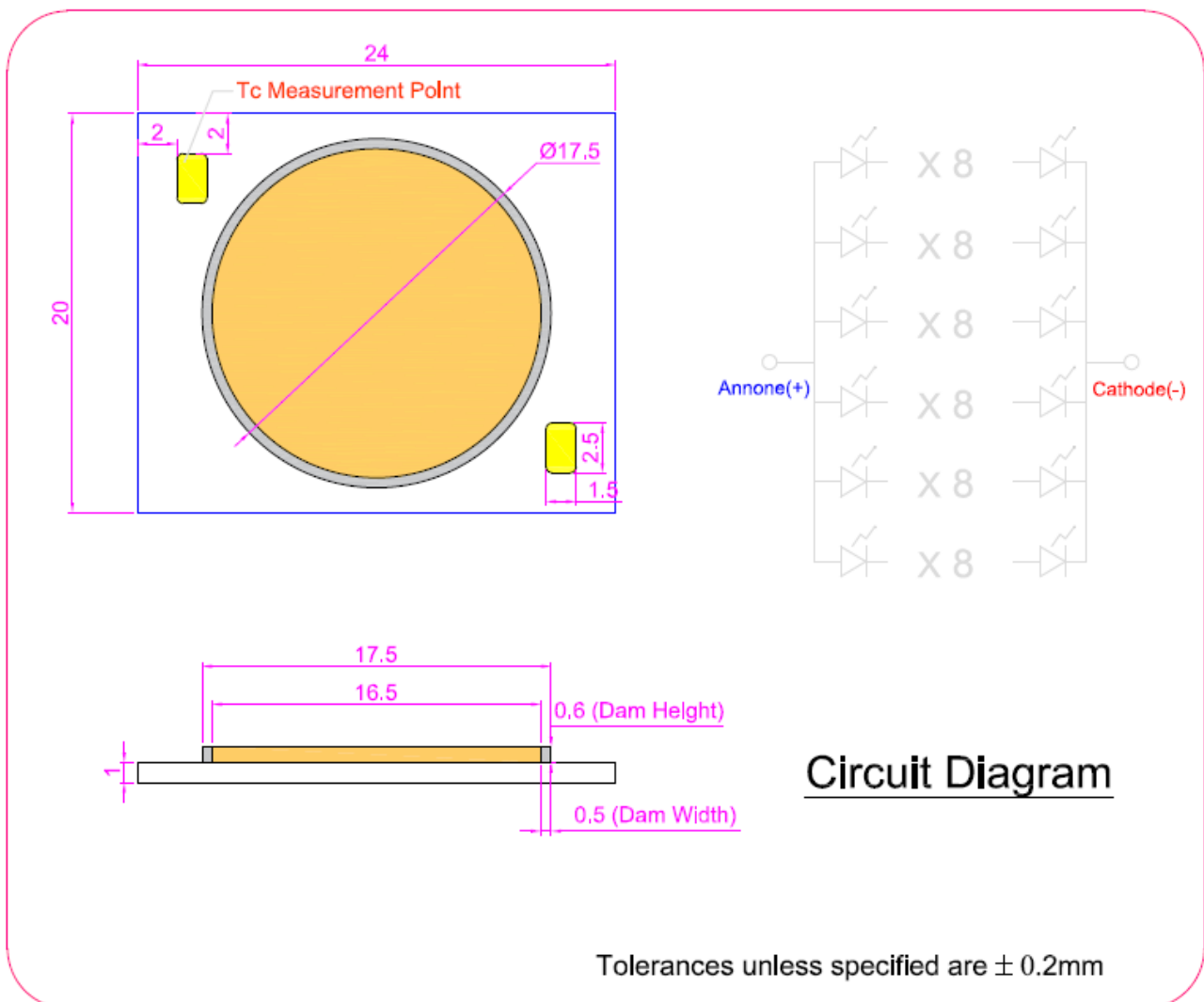
- External Dimensions : 20.0x24.0x1.6mm
- Internal Structure : Ceramics Base Chip on Board
- Compact High Flux Density Light Source
- Uniform High Quality Illumination
- Energy Star / ANSI Compliant Color Binning Structure with 3,5SDCM Options
- RoHS Compliant

2. Applications

- Bulb, Downlight, Spotlight, High Bay Light, Flood Light, Outdoor Light

3. Outline Drawings

(unit : mm)





4. Absolute Maximum Ratings

Tc = 25°C

Item	Symbol	Rating	Unit
Forward Current	If	1000	mA
Power Consumption	Pd	24	W
Operating Temperature	Topr	-30 ~ +65	°C
Storage Temperature	Tstg	-40 ~ +100	°C
Case Temperature *1)	Tc	95	°C
Junction Temperature *2)	Tj	120	°C

*1) Refer to '2. Outline Drawings' for Tc measurement point

*2) $T_j = T_c + R_{th\ j-c} \times P_d$

* Operating the COB at or beyond the listed maximum ratings may affect device reliability and cause permanent damage.

* The COBs are not designed to be driven in reverse bias.

5. Electro - Optical Characteristics

(Tc = 25°C, If = 500mA)

Item	Symbol	CCT	Min.	Typ.	Max.	Unit
Luminous Flux	Φ_v	5000 (G)	1700	1950	-	lm
		4000 (J)	1700	1950	-	
		3000 (M)	1600	1800	-	
Luminous Efficacy	lm/W	5000 (G)	155	160	-	lm/W
		4000 (J)	155	160	-	
		3000 (M)	150	150	-	
Color Rendering Index	Ra	5000 (G)	80	81	-	-
		4000 (J)	80	81		
		3000 (M)	80	81		
Forward Voltage	Vf	All	23	24	25	V
Viewing Angle	2 Θ 1/2	All	-	120	-	deg
Thermal Resistance	Rth j-c	All	-	1.3	-	°C/W

※ These values are measured by the EVERFINE optical spectrum analyzer within the following tolerances.

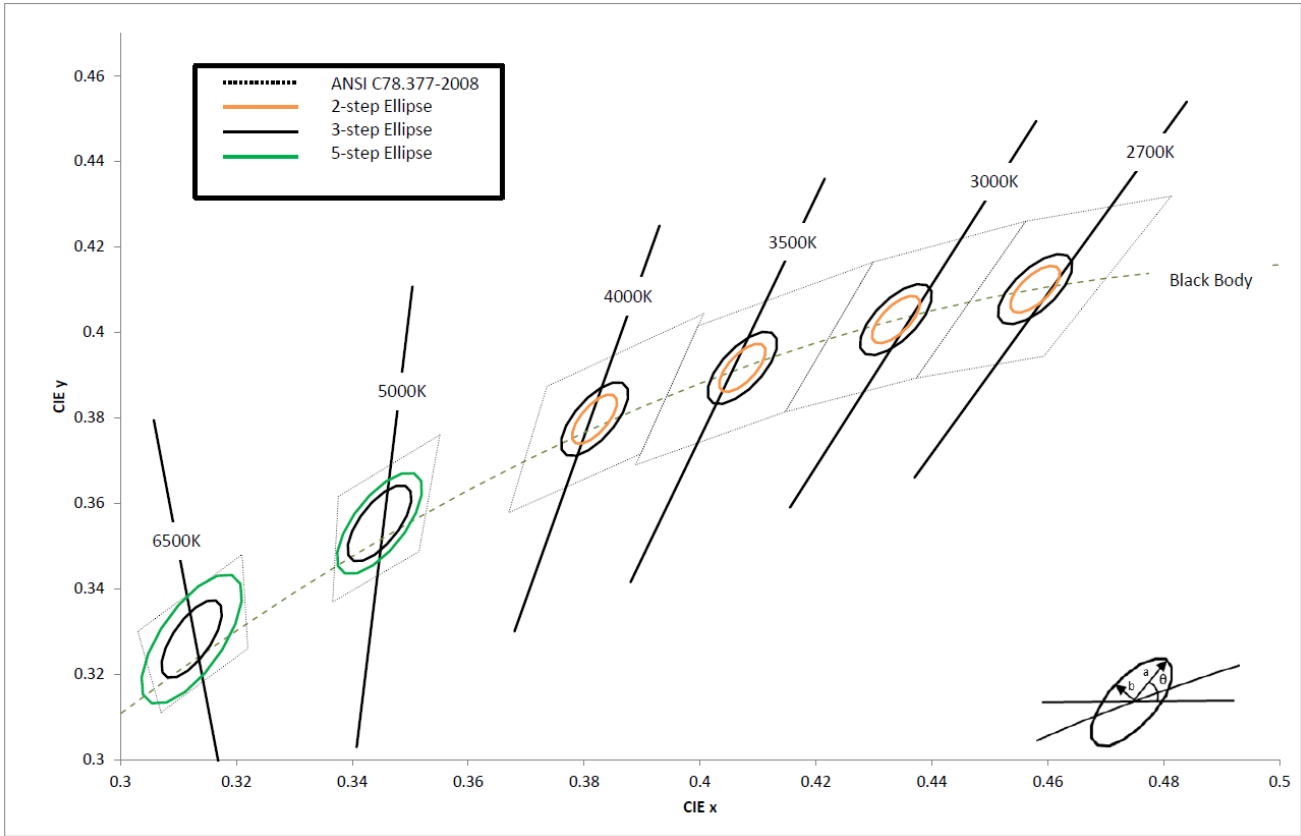
Luminous Flux (Φ_v) : $\pm 10\%$, Forward Voltage (Vf) : $\pm 3\%$, Chromaticity Coordinate Value : ± 0.005 ,

CRI Value : ± 2



6. Chromaticity Bins

Chromaticity Bins: 1931 CIE Curve



The following tables describe the ANSI bin centerpoints, the orientation angle for the MacAdam ellipse (θ°), and the maximum radii for the ellipses. The ANSI Bin is provided for reference.

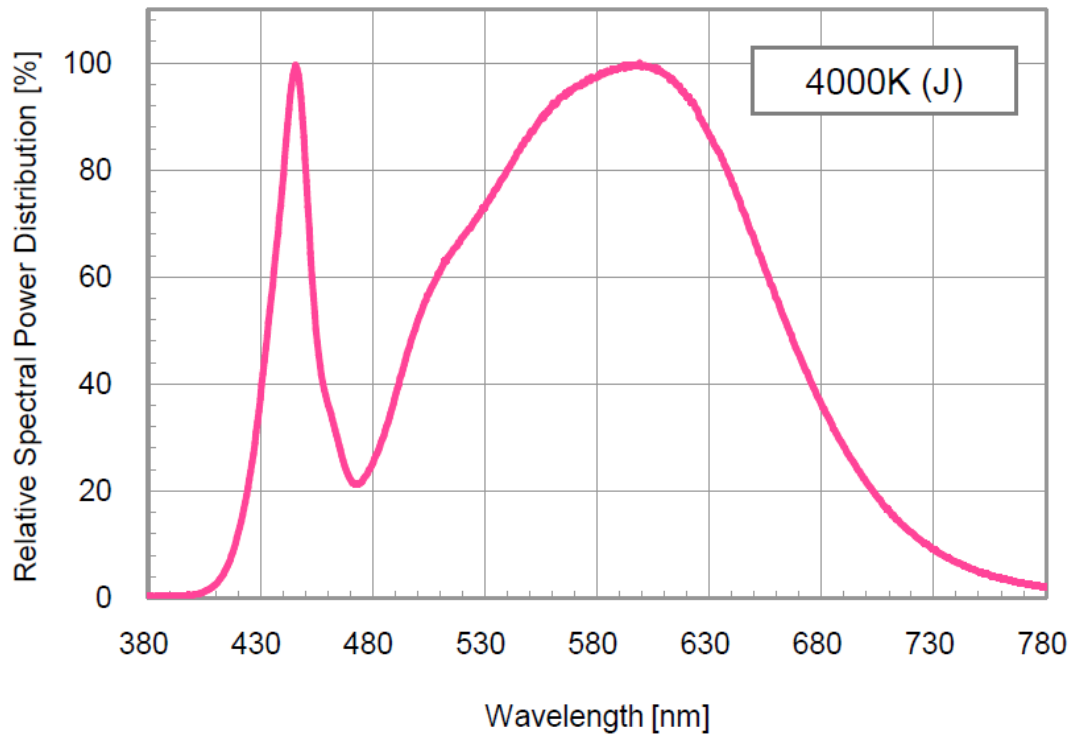
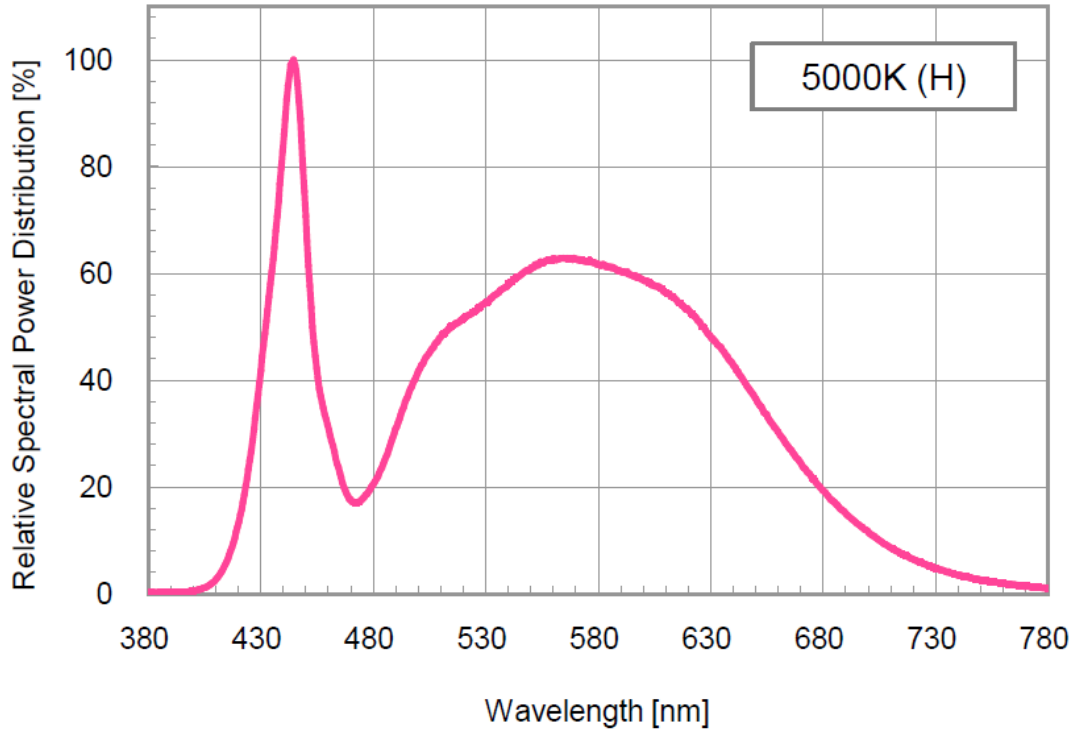
CCT	Center Point		Angle θ°	3- step Bin		2- step Bin		5- step Bin	
	CIE _x	CIE _y		a	b	a	b	a	b
2700K	0.4578	0.4101	53.7	0.0054	0.0028	0.0081	0.0042	0.0135	0.007
3000K	0.4338	0.403	53.2	0.00556	0.00272	0.00834	0.00408	0.0139	0.0068
3500K	0.4073	0.3917	54	0.00618	0.00276	0.00927	0.00414	0.01545	0.0069
4000K	0.3818	0.3797	53.7	0.00626	0.00268	0.00939	0.00402	0.01565	0.0067
5000K	0.3447	0.3553	59.6	0.00548	0.00236	0.00822	0.00354	0.0137	0.0059
6500K	0.3123	0.3282	58.57	0.00446	0.00317	0.00669	0.00285	0.01115	0.00475

*Note : Luminus maintains a +/- 0.005 tolerance on chromaticity (CIE_x and CIE_y) measurements.



7. Typical Characteristic Curves

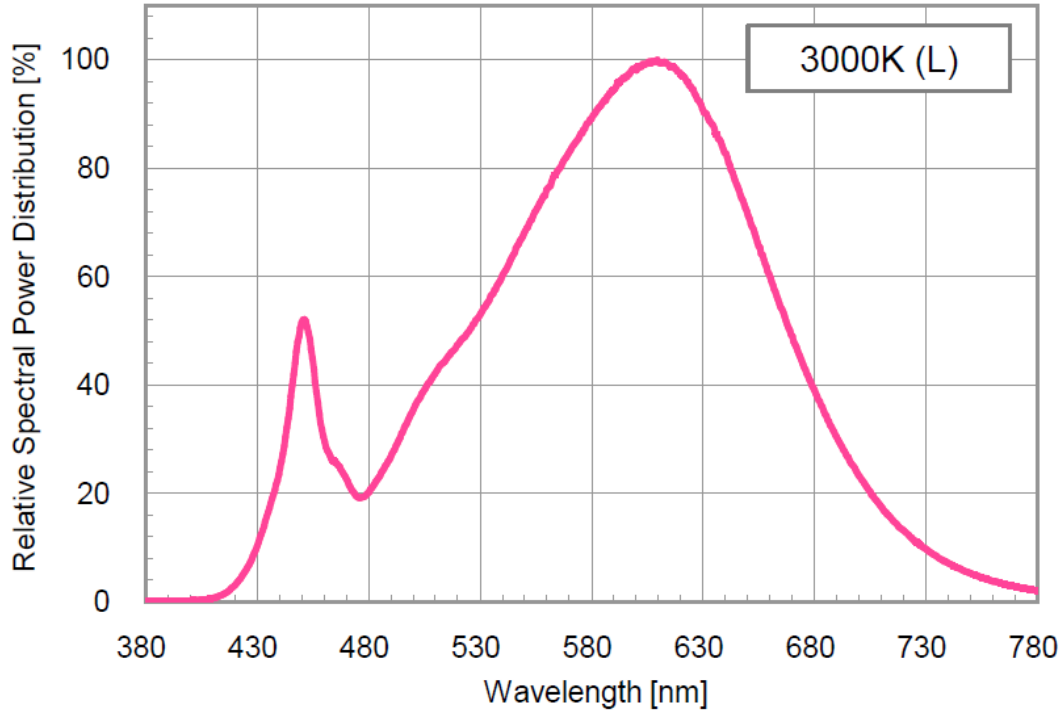
- Spectrum





7. Typical Characteristic Curves

- Spectrum

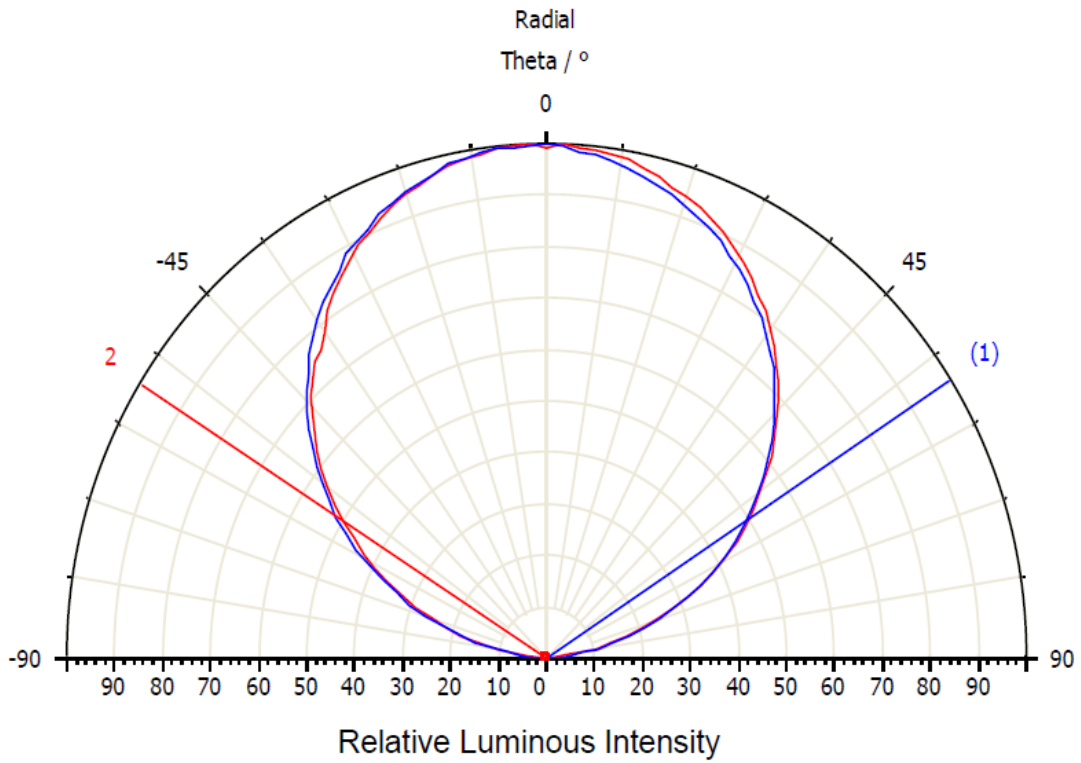




7. Typical Characteristic Curves

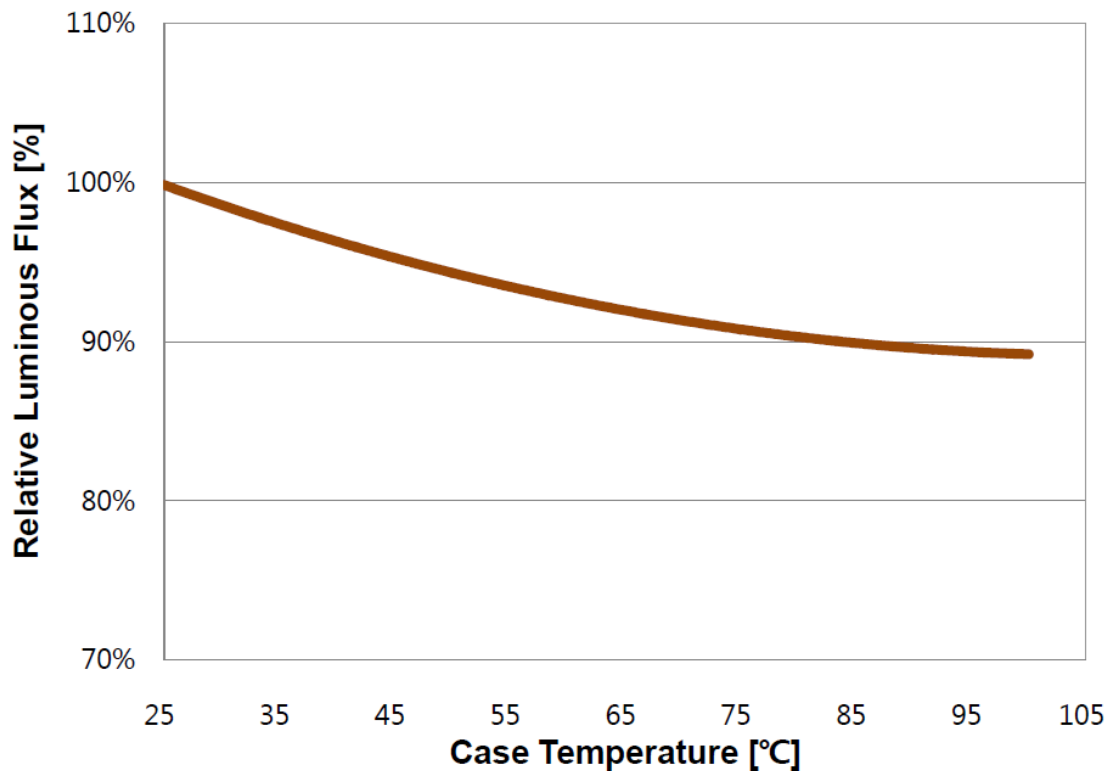
▪ Radiation Characteristics

If = 500mA, Ta=25°C



▪ □ Luminous Flux vs. Temperature

If = 500mA





8. Reliability Test Items and Conditions

Reliability Test

	Item	Test Condition	Test Hours/ Cycles	SPL No	Ac/ Re
1	Steady State Operation	Ta=25°C, IF=500mA]	1000 hrs	22 pcs	1 / 0
2	High Temperature / Humidity Steady State Operation	Ta=85°C, 85% RH, IF=500mA]	1000 hrs	22 pcs	1 / 0
3	High Temperature Steady State Operation	Ta=85°C, IF=500mA]	1000 hrs	22 pcs	1 / 0
4	High Temperature Storage	100°C	1000 hrs	22 pcs	1 / 0
5	Low Temperature Storage	-40°C	1000 hrs	22 pcs	1 / 0
6	Thermal Shock	100°C(30min) ~ -40°C(30min)	100 cycles	22 pcs	1 / 0
7	Vibration	200m/s ² , 100~2000Hz (sweep 4min) 48min, 3 directions	4 times	22 pcs	1 / 0



9. Cautions on Use

During Storage

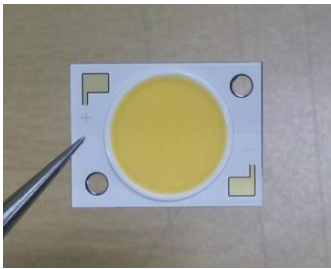
- Proper temperatures and RH conditions for storage are 5 °C ~ 35 °C and RH 60%.
- Do not open the moisture-proof bag until the products are ready to be used.
- Store the products in a moisture-proof bag with desiccant (Silica gel) after opening.
- The products should be used within 168 hours after opening the bag under the recommended storage conditions.
- The products must be baked to remove moisture before usage if the silica gel loses its color. Conditions for baking are $60 \pm 5^{\circ}\text{C}$, 20% (RH) for a maximum duration of 24 hours

Safety Guideline for Human Eyes

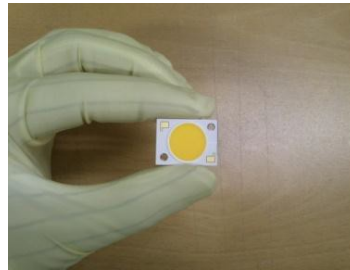
- Do not directly look at the light when the COBs are on.
- Proceed with caution to avoid the risk of damage to the eyes when examining the COBs with optical instruments.

Manual Handling

- It is recommended to wear anti-static plastic gloves to prevent damage from static electricity and dirt or other contaminants.
- When using tweezers, please handle the ceramics substrate part and avoid touching the resin part.
- For mounting, please handle the side of the aluminum part.



Proper Handling of the COB
Using Tweezers



Proper Handling of the COB
Using Anti-Static Gloves