

PRODUCT DATA SHEET

25W COB LED Array(Ver. 1.0)

MODEL NAME : 25W 2024 COB LED MLT-CL-B2024G01-12S08P025DXX



MOONLIGHT TECHNOLOGY LIMITED

1. Features

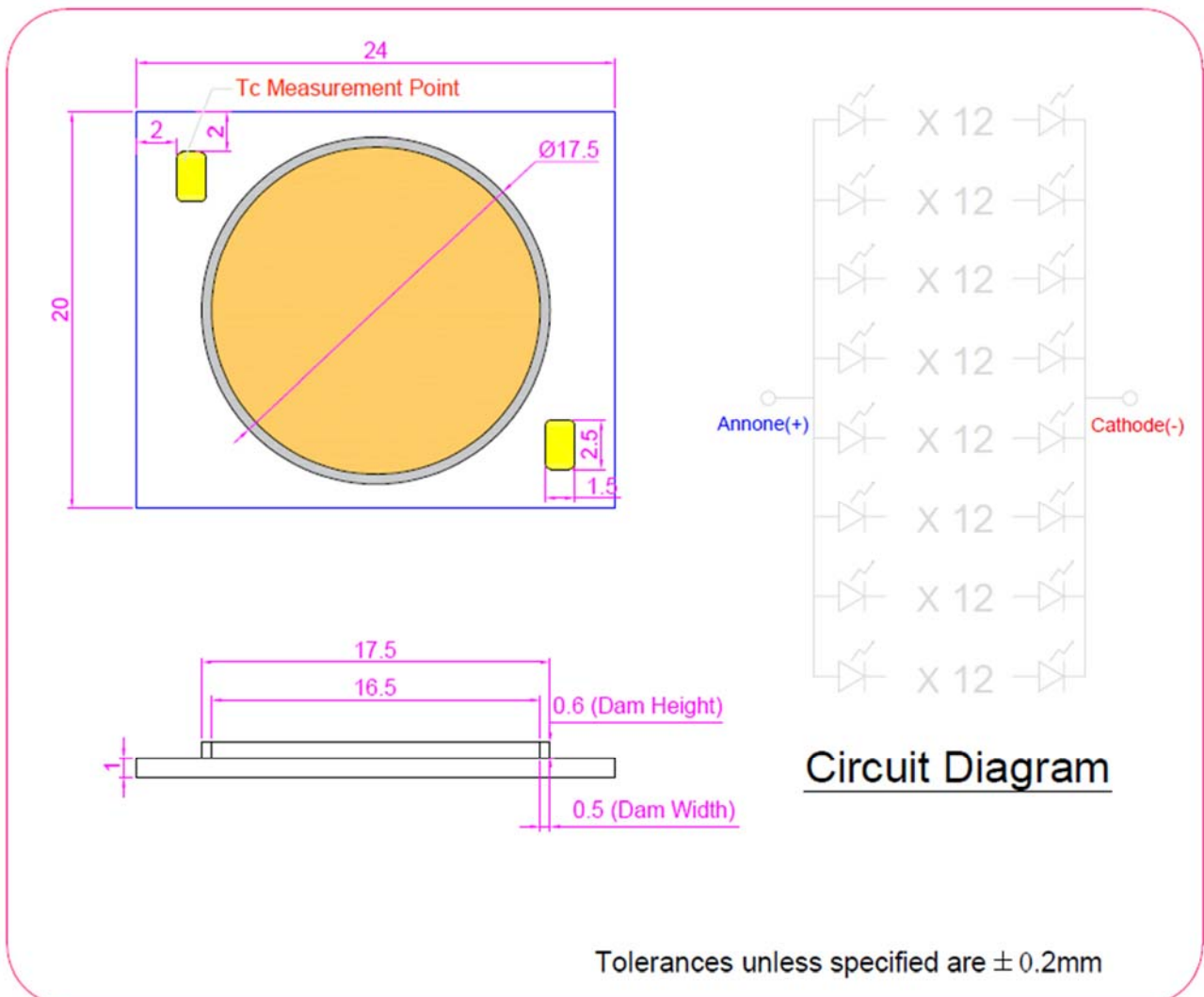
- External Dimensions : 20.0×24.0×1.6mm
- Internal Structure : Ceramics Base Chip on Board
- Compact High Flux Density Light Source
- Uniform High Quality Illumination
- Energy Star / ANSI Compliant Color Binning Structure with 3,5SDCM Options
- RoHS Compliant

2. Applications

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

3. Outline Drawings

(unit : mm)



MOONLIGHT TECHNOLOGY LIMITED

4. Absolute Maximum Ratings

Tc = 25°C

| Item | Symbol | Rating | Unit |
|--------------------------|--------|------------|------|
| Forward Current | If | 700 | mA |
| Power Consumption | Pd | 25 | 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 = 700mA)

| Item | Symbol | CCT | Min. | Typ. | Max. | Unit |
|-----------------------|----------------|----------|------|------|------|------|
| Luminous Flux | Φ_v | 5000 (G) | 3700 | 3850 | - | lm |
| | | 4000 (J) | 3700 | 3850 | - | |
| | | 3000 (M) | 3600 | 3750 | - | |
| Luminous Efficacy | lm/W | 5000 (G) | 155 | 160 | - | lm/W |
| | | 4000 (J) | 155 | 160 | - | |
| | | 3000 (M) | 150 | 155 | - | |
| Color Rendering Index | Ra | 5000 (G) | 80 | 81 | - | - |
| | | 4000 (J) | 80 | 81 | - | |
| | | 3000 (M) | 80 | 81 | - | |
| Forward Voltage | Vf | All | 33 | 34 | 35 | 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.

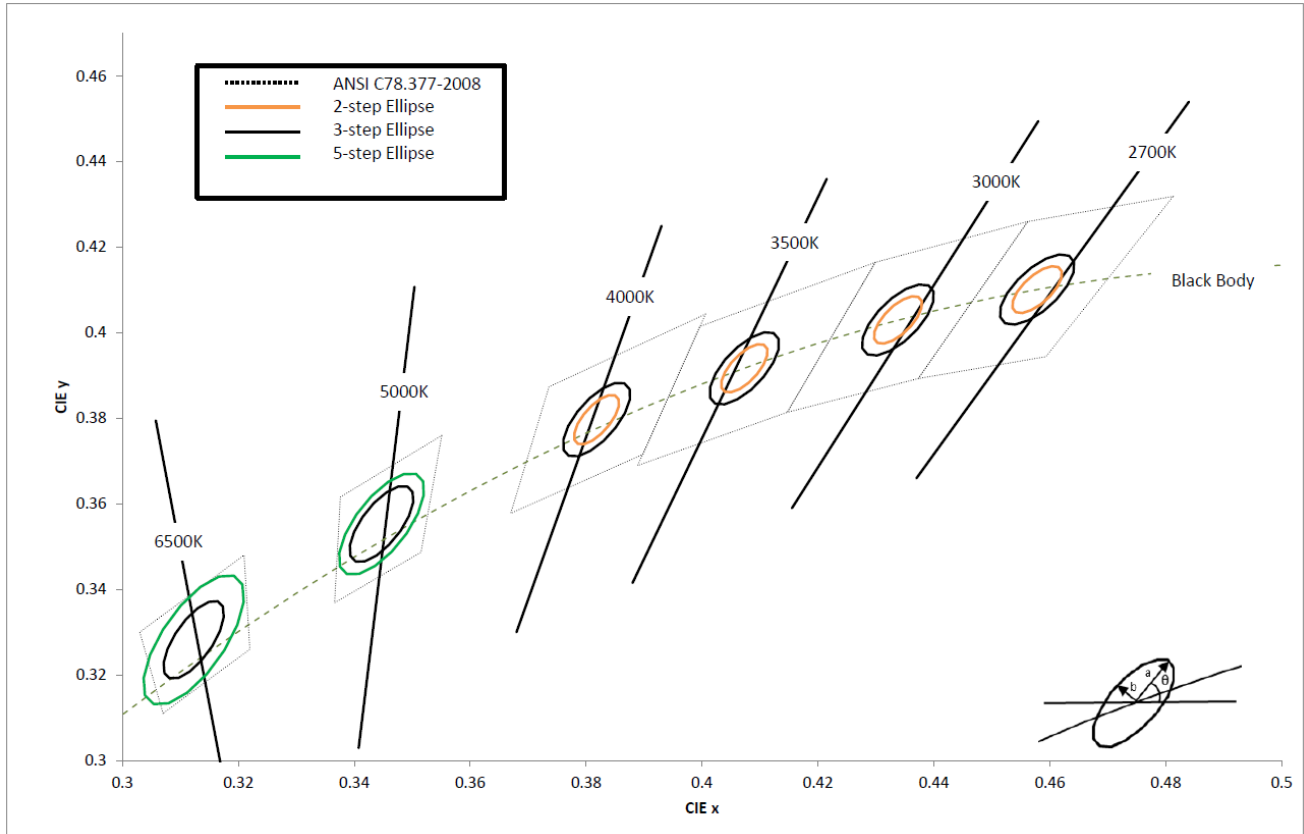
Luminous Flux (Φ_v) : $\pm 10\%$, Forward Voltage (Vf) : $\pm 3\%$, Chromaticity Coordinate Value : ± 0.005 ,

MOONLIGHT TECHNOLOGY LIMITED

CRI Value : ± 2

6. Chromaticity Bins

Chromaticity Bins: 1931 CIE Curve



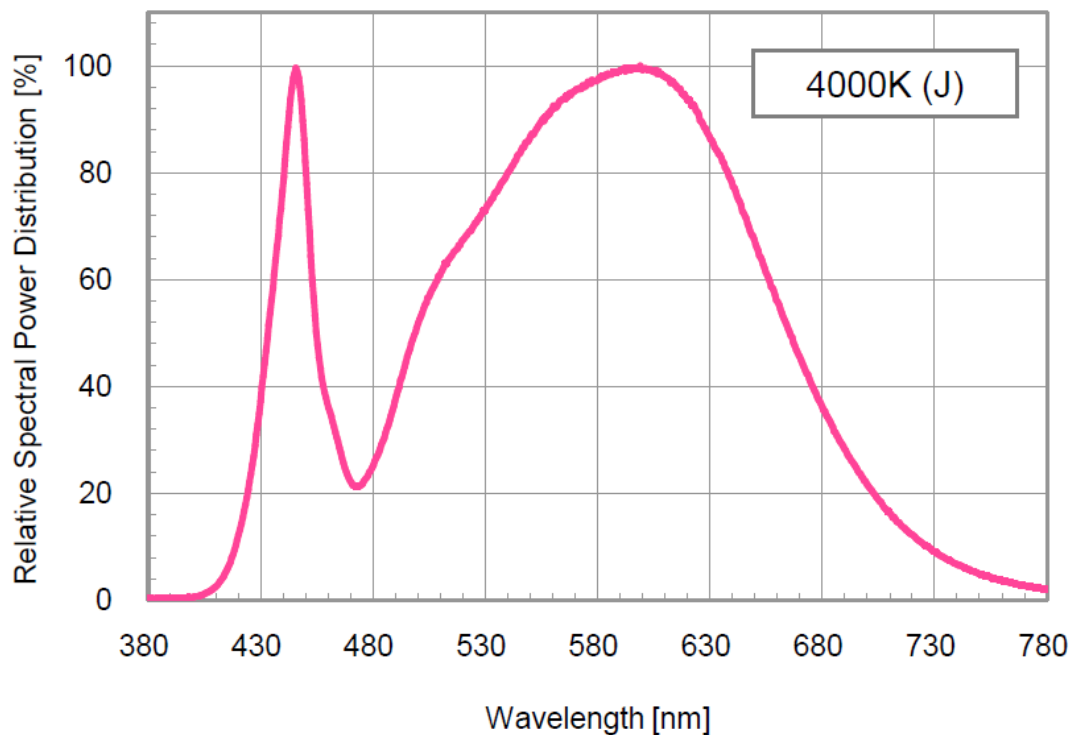
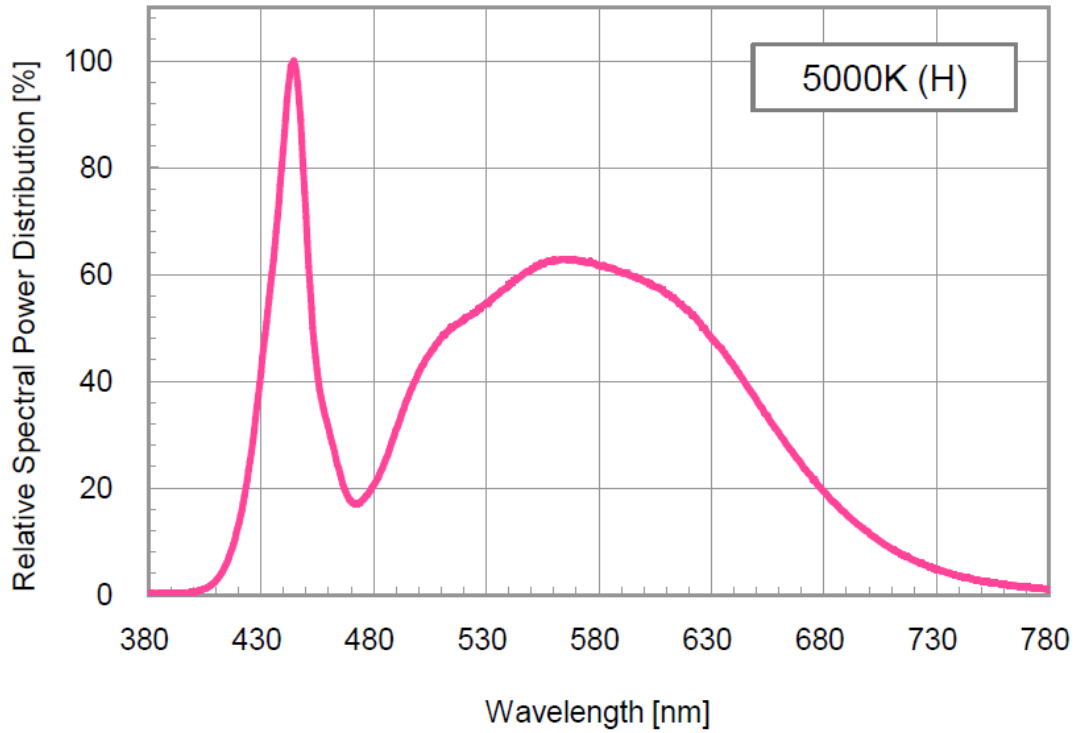
The following tables describe the ANSI bin centerpoints, the orientation angle for the MacAdam ellipse (θ°), and the maximum radii for the ellipses. The ANSI Bin is provided for reference.

| 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 (CIEx and CIEy) measurements.

7. Typical Characteristic Curves

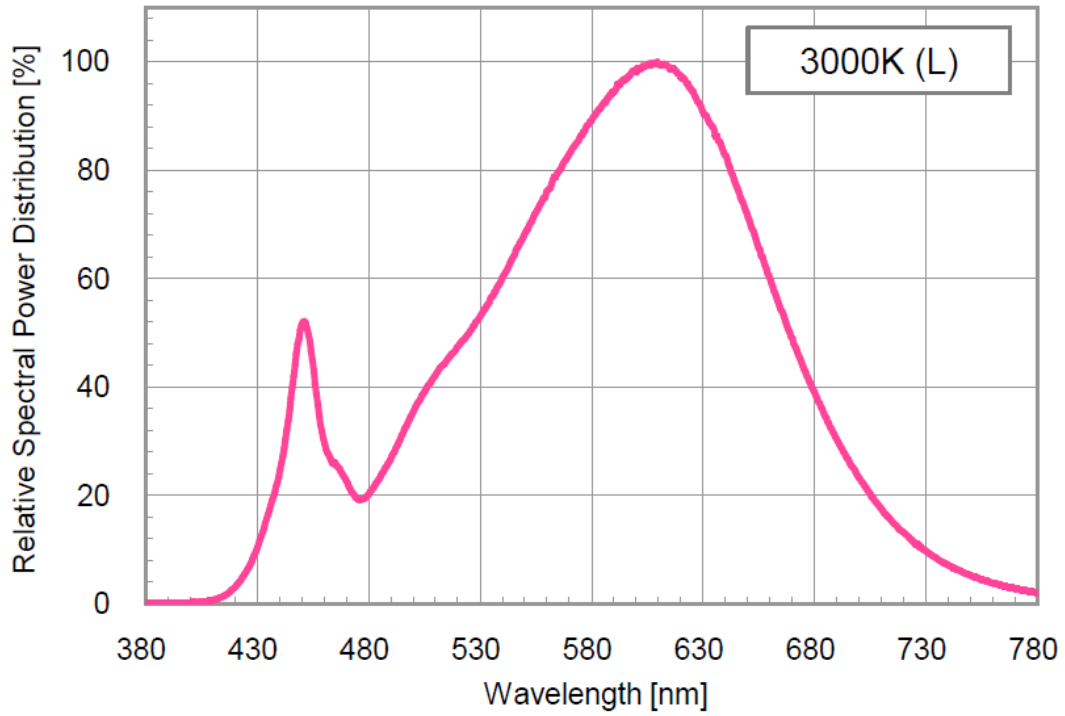
- Spectrum



MOONLIGHT TECHNOLOGY LIMITED

7. Typical Characteristic Curves

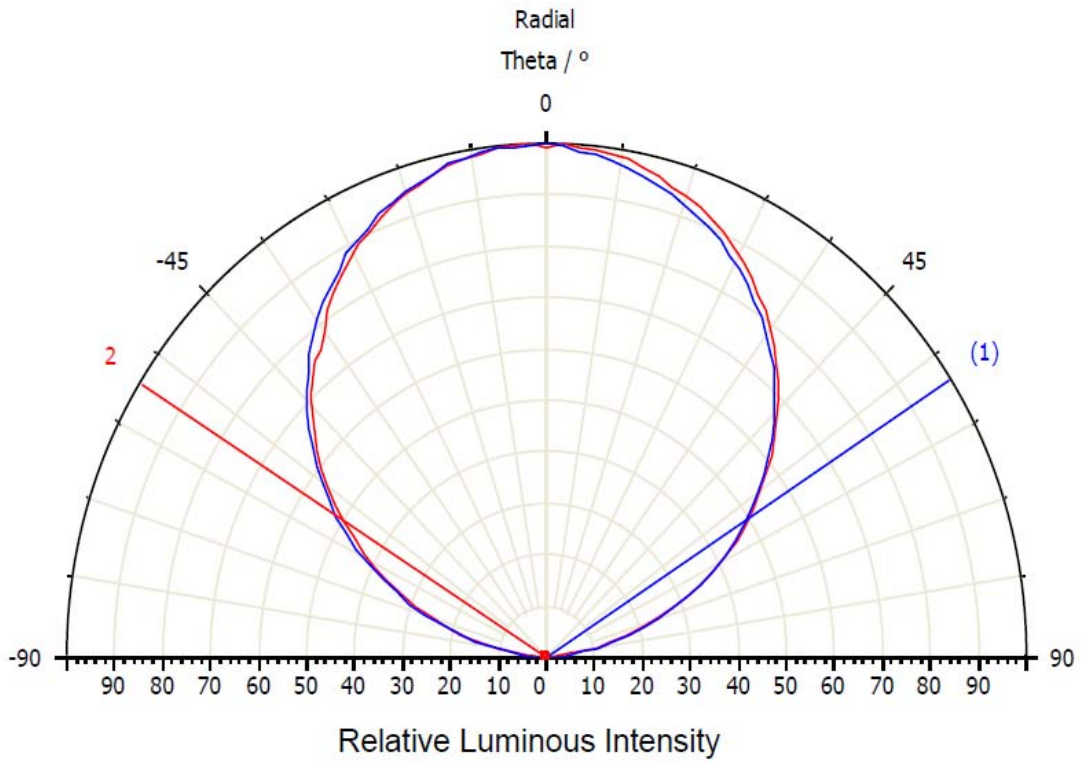
- Spectrum



7. Typical Characteristic Curves

- Radiation Characteristics

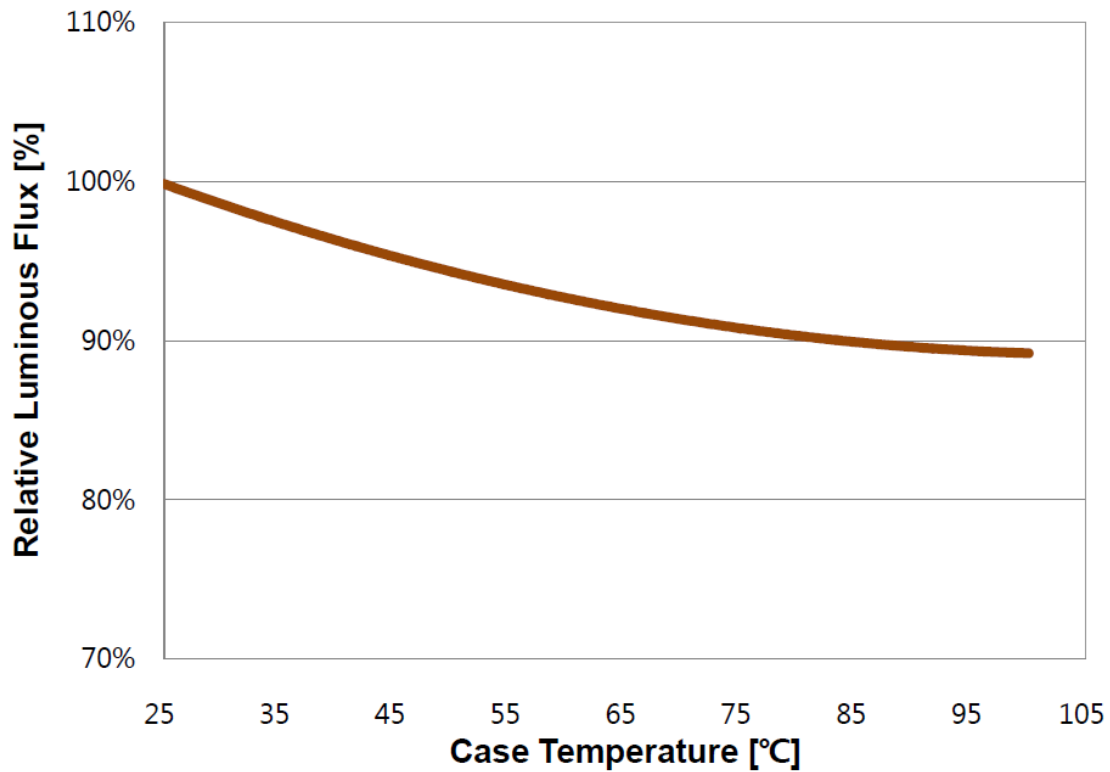
If = 700mA, Ta=25°C



- Luminous Flux vs. Temperature

If = 700mA

MOONLIGHT TECHNOLOGY LIMITED



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=700mA] | 1000 hrs | 22 pcs | 1 / 0 |
| 2 | High Temperature / Humidity Steady State Operation | Ta=85°C, 85% RH, IF=700mA] | 1000 hrs | 22 pcs | 1 / 0 |
| 3 | High Temperature Steady State Operation | Ta=85°C, IF=700mA] | 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 |

MOONLIGHT TECHNOLOGY LIMITED

9. Cautions on Use

During Storage

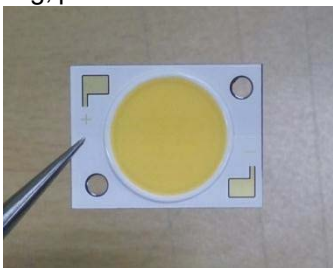
- Proper temperatures and RH conditions for storage are 5 °C ~ 35 °C and RH 60%.
- Do not open the moisture-proof bag until the products are ready to be used.
- Store the products in a moisture-proof bag with desiccant (Silica gel) after opening.
- The products should be used within 168 hours after opening 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

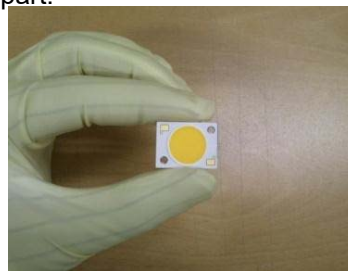
- Do not directly look at the light when the COBs are on.
- Proceed with caution to avoid the risk of damage to the eyes when examining the COBs with optical instruments.

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