



DATA SHEET

20Watt High Power LED Standard Voltage

Serie: M15015

Wavelength **8000= 8000K**

Brightness **1695= 1695lm**

Color: **CW= Cool White**

**20Watt High Power LED
Standard Voltage**

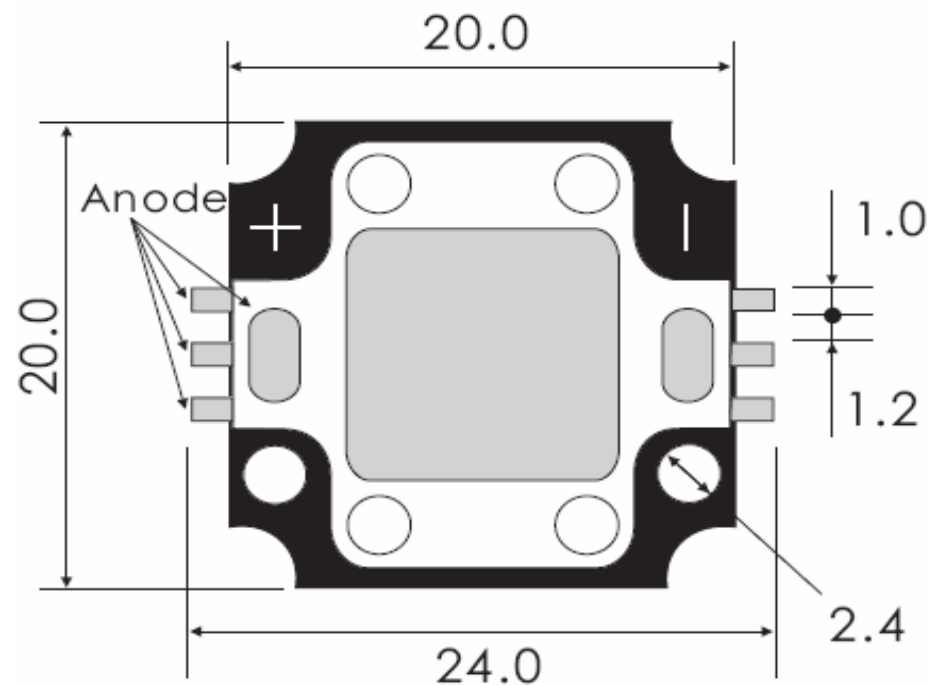
Serie No.: **M15015**

Customer:

| | | | | | | | | | |
|-------|--------|------|--------|--------|--------|-----------|-----------|------|------------|
| DRW: | Jason | CHKD | Wilson | MATL: | Wilson | TOLERANCE | Mason | DATE | 05.01.2011 |
| APPD: | Schumi | | | FINISH | Jamy | | Sheet No. | | 1 from 14 |



Technical Dimensions



1. All Dimensions are in mm.
2. Lead Spacing in measurement where the lead emerge from the package
3. Protruded resin under flange is 1,5mm max.
4. Tolerance are 0,3mm unless otherwise noted.
5. Specifications are subject to change without notice
6. Driving LED without heat sinking device is forbidden
7. Warps the degree 0,5mm
8. Leds are not designed must to be driven in reverse bias.
9. Proper current derating must be observed to maintain junction temperature below the maximum
10. It is strongly recommended that the temperature of lead be not higher than 55°C.

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Features

- Long operating life
- Instant Light
- Superior ESD defense
- Low Voltage DC operated
- Color bright saturated
- More energy efficient than incandescent and most halogen lamps

Discription

EDCON-COMPONENTS High Power LED is make of hi-eff AS/TS GaInN chips with precide package technique which makes excellent heat dissipation to reach the advantages of high lunious efficiency, low decay, and long endurance. Now we have these colors available RED, GREEN, BLU, YELLOW, WHITE.

Typical Applications

- Decoration Lights
- Beacon light
- Bathrooms Light
- Medical applications
- Architectural detail lighting

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Absolute Maximum Ratings

| Parameter | Symbol | Max. Rating | Unit |
|-------------------------------|--------|-------------|------|
| Continuous Forward Current | IF | 1400 | mA |
| Peak Forward Current *1 | IFM | 1500 | mA |
| Electrostatic Discharge (HBM) | ESD | 4000 | V |
| LED Junction Temperature | Tj | 135 | °C |
| Operating Temperature | Topr | -40 ~ +110 | °C |
| Storage Temperature | Tstg | -40 ~ +120 | °C |

Manual Soldering Temperature 260°C for 5seconds max . 2

TA=25°C

*1 Duty Ration = 00,1%, Pulse Width=10us.

*2 Iron soldering high temperature will not cause damage to the dice. But be aware of the high temperature will make the epoxy soften and the gold wire broken and even open. So before returning to the normal temperatures please avoid any serious pressure on the top of epoxy and lead.

*3. We suggest using PWM (Pulse Width Modulation) for driving.

*4 It is recommended to use series as there are several 3pcs. If there are more than 5pcs, please use product with higher power.

Electrical- Optical Characteristics

| Parameter | Symbol | Test Cond. | Min | Typ | Max. | Unit |
|--|----------|------------|-----|-----|------|-------|
| View Angle of Half Power | 2Ø1/2 | IF=1400mA | | 120 | | deg. |
| Forward Voltage | VF | | | 14 | 16 | V |
| Color Rendering Index for 4000°K | CRI | | | 75 | | |
| Color Rendering Index for 3300°K | CRI | | | 70 | | |
| Thermal Resistance Junction to Case | RØ J-C | | | | 2,5 | °C/W |
| Temperature Coefficient of Forward Voltage | Δ Vf/Δ T | | | | -.2 | mV/°C |

TA=25°C

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Electrical Optical Characteristics for Luminous Intensity

Electrical-Optical Characteristics for Wavelength

| Emitting Color | Symbol | Test Cond. | Min | Typ | Unit |
|----------------|--------|------------|-----|------|------|
| Cool White 1 | VF | IF=1400mA | | 1400 | lm |
| Cool White 2 | | | | 1500 | |
| Cool White 3 | | | | 1600 | |
| Cool White 4 | | | | 1695 | |

Endurance Test

| Test Item | Reference Standard | Test Conditions | Result |
|--|---|---|--------|
| Operating Life | MIL-STD-750:1026 MIL-STD-883:1005 JIS-C-7021: B-1 | Connect with a power if=1400mA Ta=Under room temperature Trest Time = 1000hrs | 0/22 |
| High Temperature High Humidity Storage | MIL-STD-202:103B JIS-C-7021: B-11 | Ta= +85°C +/-5°C RH=80% ~ 85% Test Time = 1000hrs | 0/22 |
| High Temperature Storage | MIL-STD-883:1008 JIS-C-7021: B-10 | High Ta= +120°C +/- 5°C Test Time= 1000hrs | 0/22 |
| Low Temperature Storage | JIS-C-7021: B-12 | Low Ta= 40°C +/-5°C Test Time= 1000hrs | 0/22 |

Failure Criteria:

1. VF arise $\geq 10\%$
2. IV decline $\geq 30\%$
3. A failure is an LED that is open or shorted

Tolerance: 15% of EDCON- measuring equipments: EXELTRON
2001.2.S370 made by U.D.T:

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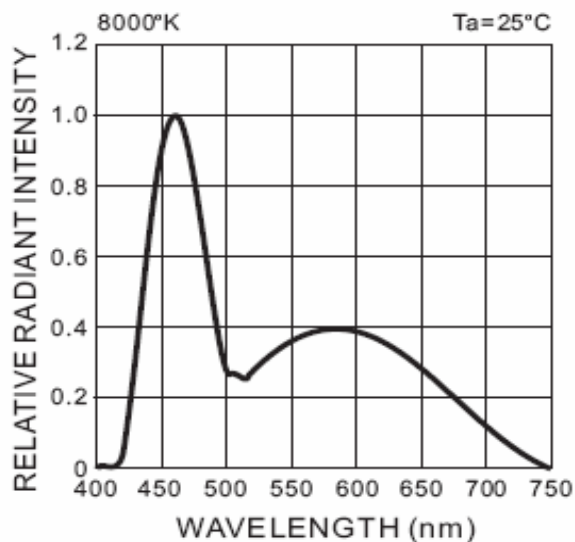
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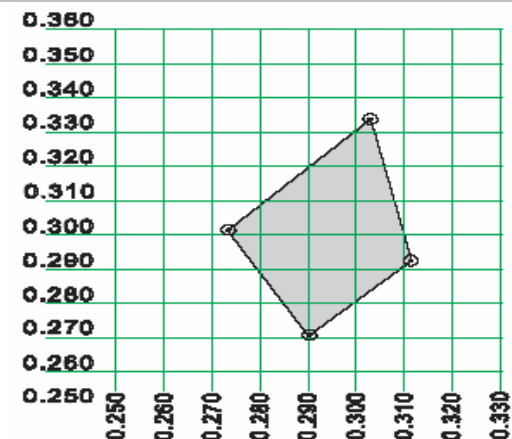
Color Range and Bin Selection

| CCT (K) TYP | Chromaticity Coordinates | | | | |
|----------------|--------------------------|-------|-------|-----------|-------|
| | 8000 | x | 0,274 | 0,303 | 0,311 |
| y | | 0,301 | 0,333 | 0,293 | 0,270 |
| Tolerance | X +/-0,02 | | | Y +/-0,02 | |

| Color Temperature | Lens Color | Dice Source | Color (K) |
|-------------------|-----------------|-------------|-----------|
| Cool White 1 | White Diffusion | GaInN/GaN | 8000 |
| Cool White 2 | | | |
| Cool White 3 | | | |
| Cool White 4 | | | |



Cool White CIE Light Color Chart



Environmental Test

| Test Item | Reference Standard | Test Conditions | Result |
|---------------------|--|---|--------|
| Temperature Cycling | MIL-STD-202:107D MIL-STD-750:1051 MIL-STD-833:1010 JIS-C-7021: A4 | -.40°C ~ +25°C ~ +85°C ~ +25°C 60min 20min 60min 20min Test Time= 200cycles | 0/22 |
| Thermal Shock | MIL-STD-202:107D MIL-STD-750:1051 MIL-STD-833:1010 | -.40°C +/- 5°C ~ +110°C +/-5°C 20min 20min. Test Time= 200cycles | 0/22 |

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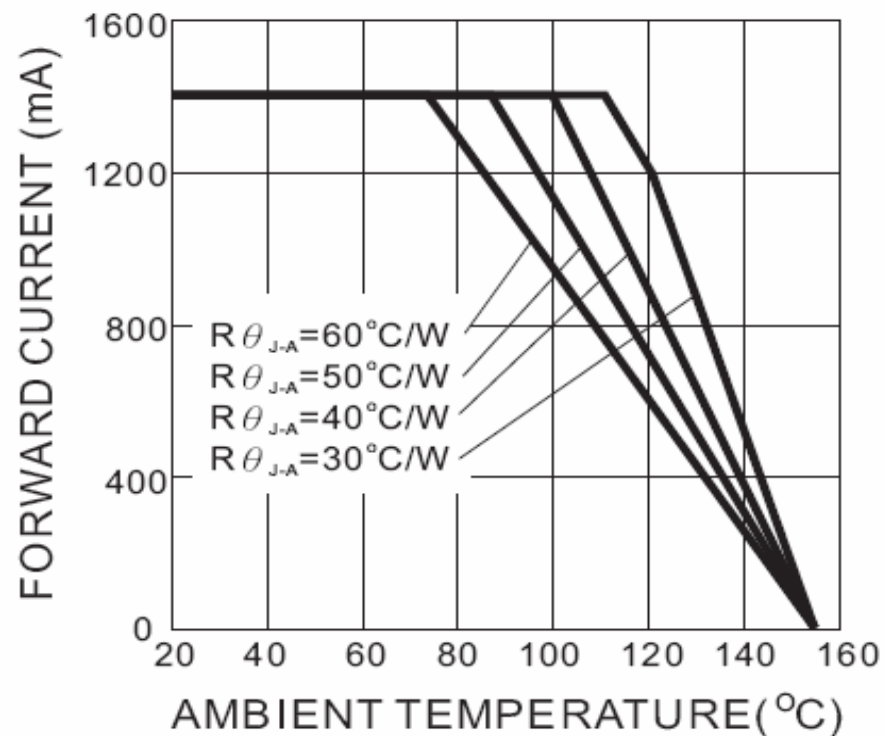
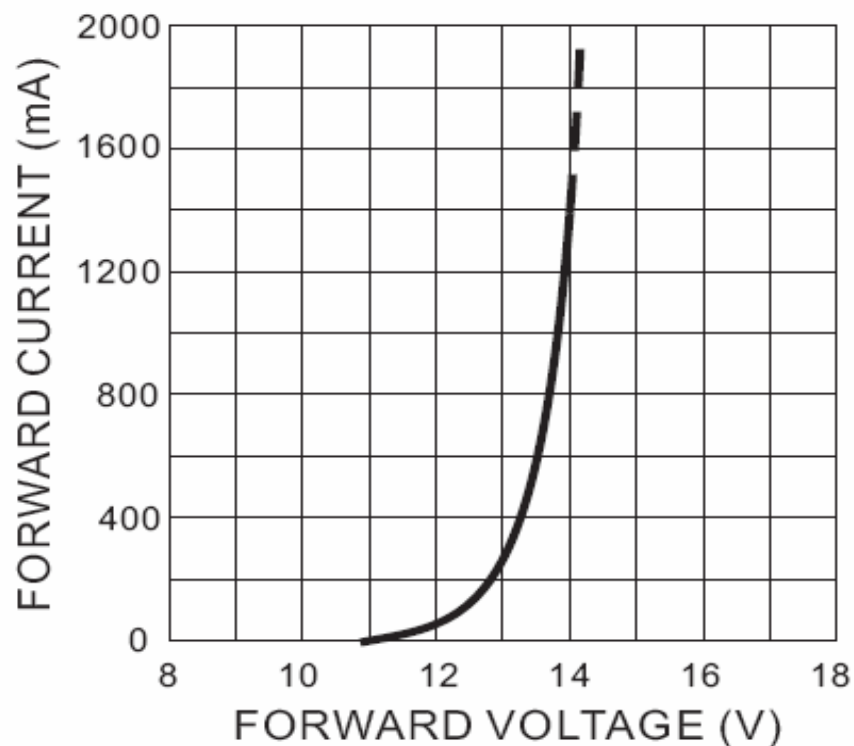
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Typical Electrical Optical Characteristics Curves



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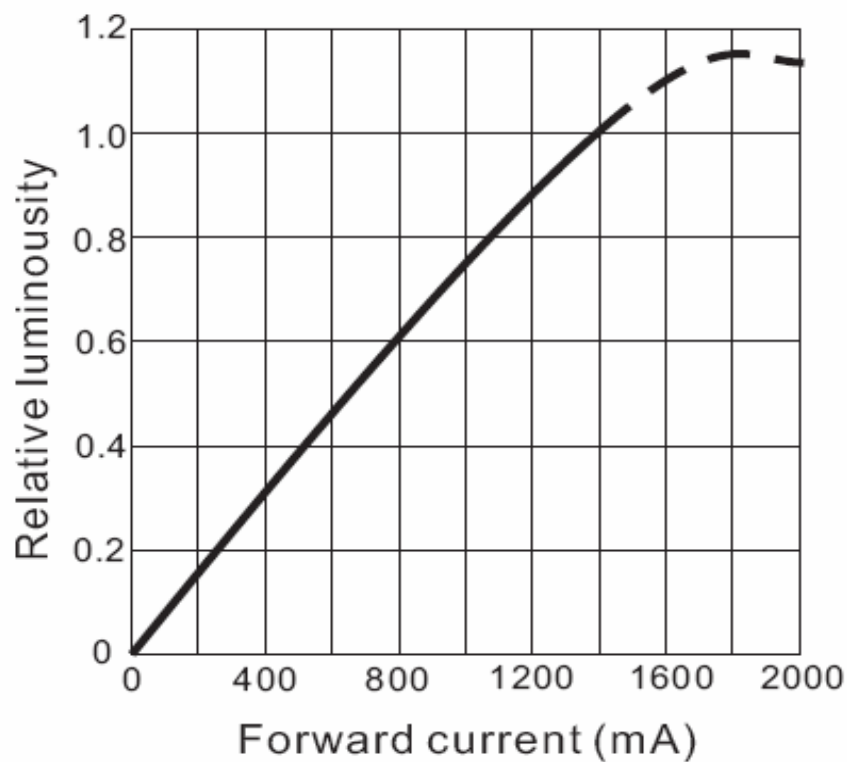
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Typical Electrical Optical Characteristics Curves



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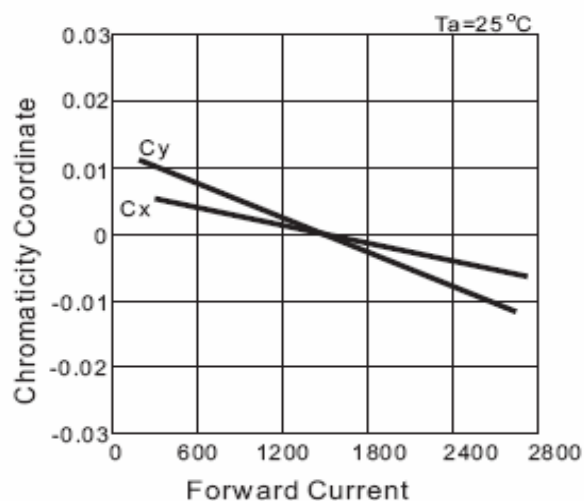
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Typical Electrical Optical Characteristics Curves



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| DRW: | Jason | CHKD | Wilson | MATL: | Wilson | TOLERANCE | Mason | DATE | 05.01.2011 |
| APPD: | Schumi | | | FINISH | Jamy | | Sheet No. | 9 from 14 | Customer: |

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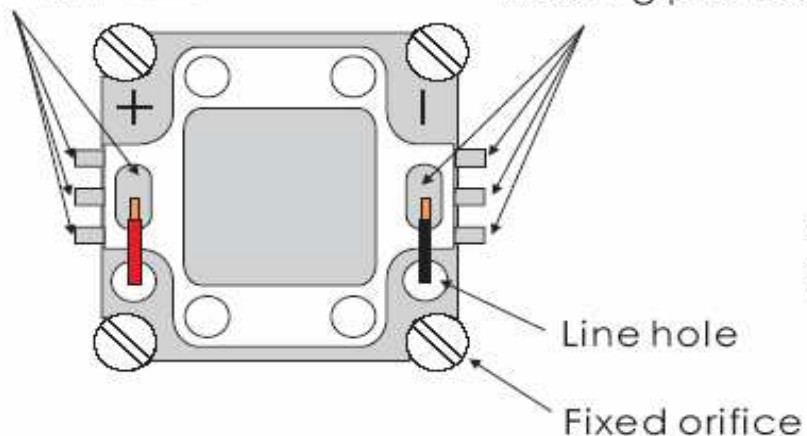
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Mounting Explanation

Welding position

Welding position



EDCON-COMPONENTS provide simple comparison table for High Power LED, you could find your request heat dissipation area from the following table.

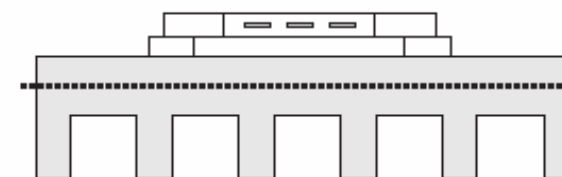
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| 20Watt High Power LED Standard Voltage | |
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Conclusion



| | |
|---------------------------------|--------|
| Free Convection Horizontal | |
| Flat Heat Dissipation Set-up | |
| (Area Require mm ²) | |
| White | 13,500 |

| | |
|---------------------------------|--------|
| Free Convection Vertical | |
| Flat Heat Dissipation Set-up | |
| (Area Require mm ²) | |
| White | 10,000 |

| | |
|---------------------------------|--------|
| Free Convection | |
| Finned Heat dissipation Set-up | |
| (Area Require mm ²) | |
| White | 46,500 |

TAB in this table is according to highest operating temperature 65°C

Different materials of second heat dissipation device, the surface area of heat sink will be different. Thus, this document is for reference only.

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Operating Instructions



It is important to keep away the product from the water, in order to avoid the product electronic characteristics to be harmful



Above 150°C



There is 150°C directly from the front of Power LED emitting diode. It is untouchable to prevent burning.



It should be noticed whether there is convection in design of device. Convection has to exist.



The material in the central top of POWER LED is soft. Therefore, it is un squeezable and untouchable.



Keep Insulation

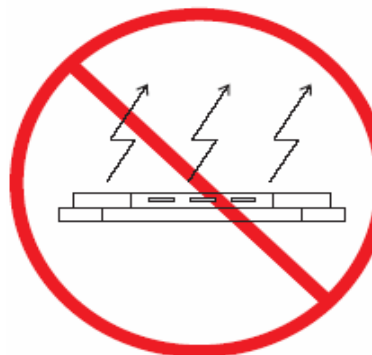


Power Supply

In the bottom of heat sink cannot be touched with neither positive nor negative pole. (Heat sink has to be insulation)



When making use of products, it is necessary to use anti ESD devices to prevent destructive electronic characteristics.



The product should not be light up directly without heat dissipation device

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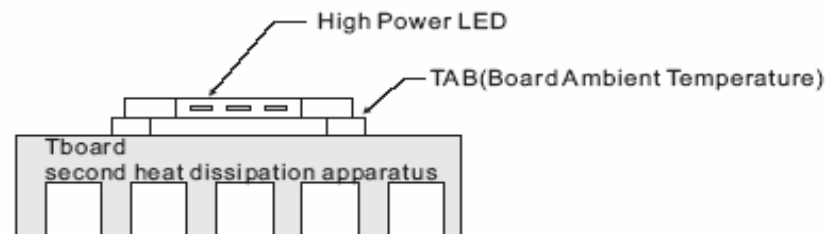
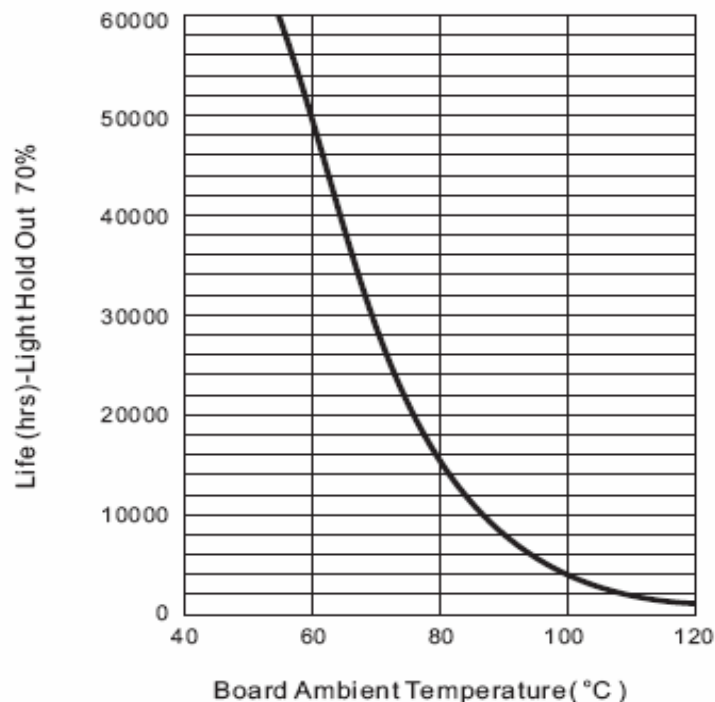
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TAB Temperature LIFE Characteristics Curve



Board Ambient Temperature Tolerance 5°C
 TAB in this table is according to highest operating temperature 65°C
 The TAB is the stable testing value for the product lighted 100% after one hour
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Ordering Informations

| Serie | Emitting Color | (Kelvin) | Brightness | ROHS | Packing Code | | | | | |
|-------|----------------|----------|------------|------|--------------|--|--|--|--|--|
|-------|----------------|----------|------------|------|--------------|--|--|--|--|--|

| | | | | | | | | | | |
|---------------|-----------|-------------|-------------|----------|-----------|--|--|--|--|--|
| M15015 | CW | 8000 | 1695 | R | BU | | | | | |
|---------------|-----------|-------------|-------------|----------|-----------|--|--|--|--|--|

| | | | | | | |
|-----------------------|---------------------|---------------------|----------------------------|-------------------------|--|--|
| CW= Cool White | 8000= 8000°K | 1695= 1695lm | R= ROHS Conform | BU= Bulk Ware | | |
| | | | N= NON ROHS Conform | TY= Tray Packing | | |

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