



High Power LED

# Edixeon™ Star

1W Edixeon™ Star

| Approved By Customer | Designer | Checker | Approval |
|----------------------|----------|---------|----------|
|                      |          |         |          |

Date : 2006/08/14

Version : 2.3

Device No. : 3-RD-01-E0007  
**EDISON OPTO CORPORATION**  
 4F, No. 800, Chung-Cheng Rd,  
 Chung-Ho, Taipei 235, Taiwan  
 Tel: 886-2-8227-6996  
 Fax: 886-2-8227-6997  
<http://www.edison-opto.com.tw>



---

# 1W Edixeon™ Star



Edixeon star is an Edixeon emitter on an Alumina PCB the highest flux LEDs in the world by Edison Opto. Edixeon emitters are designed to satisfy more and more Solid-State lighting High Power LED applications for brilliant world such as flash light, indoor and outdoor decoration light. Edixeon emitters are designed by particular package for High Power LED. Edixeon white has more than 55 lumens @350mA and over 20 times brighter than standard LEDs. Unlike most fluorescent sources, Edixeon contains no mercury and has more energy efficient than other incandescent light source.

## Features

- Various colors
- More energy efficient than incandescent and most halogen lamps
- Low voltage operated
- Instant light
- Long operating life

## Typical Applications

- Reading lights
- Portable flashlight
- Up-lighters and Down-lighters
- General lighting
- Contour lights
- Ceiling lights
- Garden lighting
- Decoration lights
- Architectural lighting
- Beacon lights

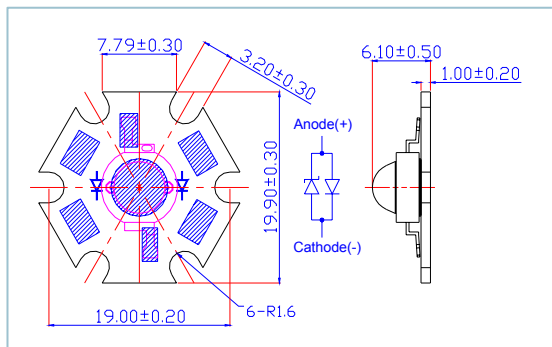
## Edixeon Technology

- $T_{jmax} = 125^{\circ}C$
- High Lumen performance
- Low thermal resistance  $15-18^{\circ}C/W$
- Industrial best lumen maintenance — 50,000hrs life at  $I_{Fmax}$  with 70% lumen if  $T_j$  is lower than  $70^{\circ}C$

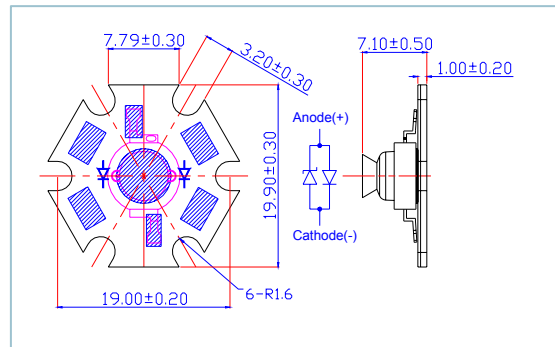


## Package Outlines

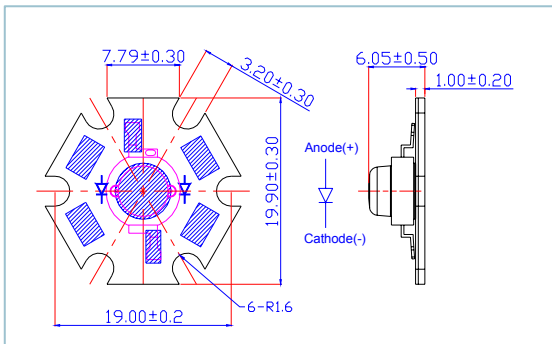
### Lambertian(EDSx-1Lax)



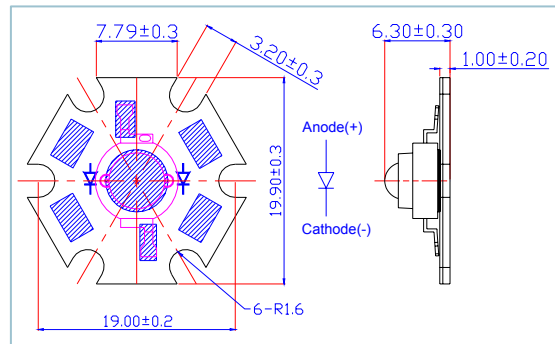
### Side Emitting(EDSx-1SAx)



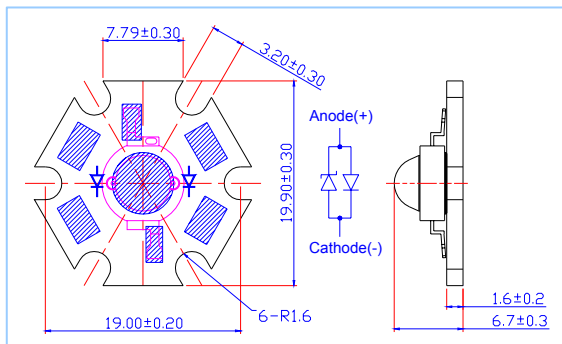
### Batwing(EDSx-1BAx)



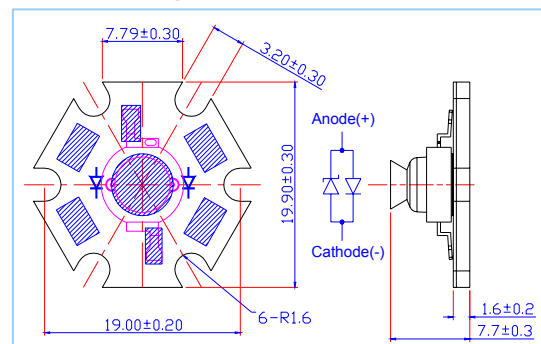
### Focusing(EDSx-1FAx)



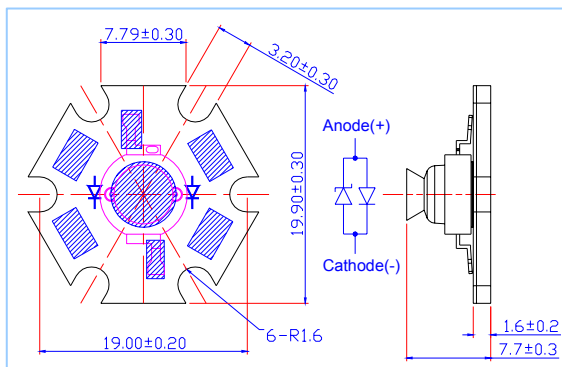
### Lambertian(EDAx-1Lax)



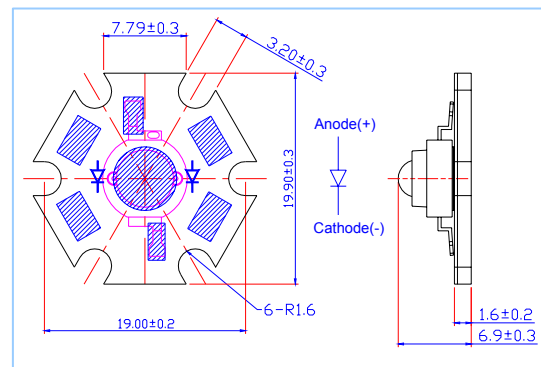
### Side Emitting(EDAx-1SAx)



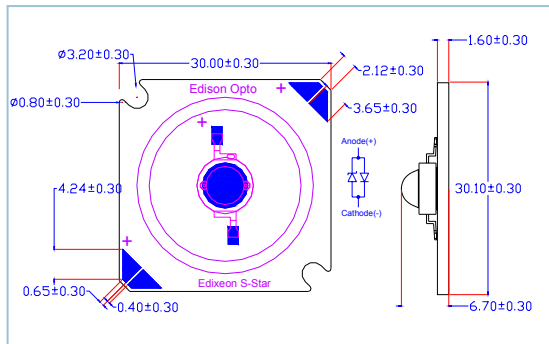
### Batwing(EDAx-1BAx)



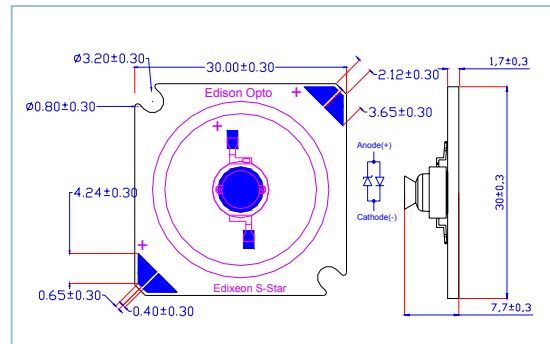
### Focusing(EDAx-1FAx)



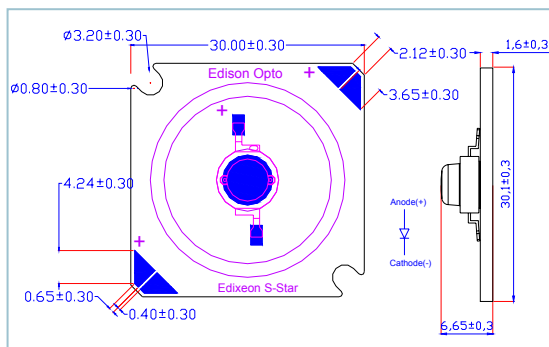
### Lambertian(EDBx-1BAx)



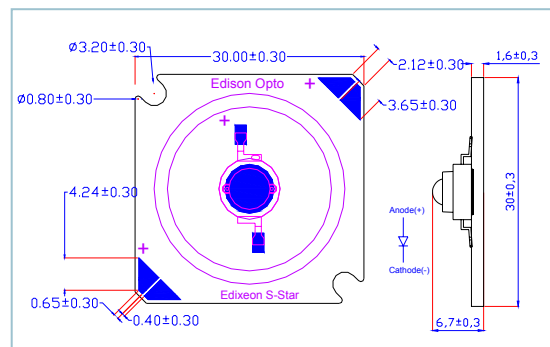
### Side Emitting(EDBx-1BAx)



### Batwing(EDBx-1BAx)



### Focusing(EDBx-1BAx)



### Notes:

1. All dimensions are in mm.
2. Drawings are not to scale.
3. It is strongly recommended that the temperature of lead be not higher than 55°C.
4. Lambertian and side emitting series slug has polarity as anode.
5. It is important that the slug can't contact aluminum surface, It is strongly recommended that there should coat a uniform electrically isolated heat dissipation film on the aluminum surface.

---

## Absolute Maximum Ratings

| Parameter  | Symbol      | Rating     | Units   |
|--|-------------|------------|---------|
| DC Forward Current                               | $I_F$       | 350        | mA      |
| Peak pulse current;(tp ≤ 100μs, Duty cycle=0.25) | $I_{pulse}$ | 500        | mA      |
| Reverse Voltage                                  | $V_R$       | 5          | V       |
| Forward Contact Voltage                          | $V_{FC}$    | 16         | V       |
| LED junction Temperature                         | $T_j$       | 125        | °C      |
| Operating Temperature                            | $T_{opr}$   | -30 ~ +110 | °C      |
| Storage Temperature                              | $T_{stg}$   | -40 ~ +120 | °C      |
| ESD Sensitivity (Lambertian and Side emitting)   | $V_B$       | 4,000      | V       |
| ESD Sensitivity (Batwing and Focusing)           | $V_B$       | 500        | V       |
| Manual Soldering Time at 260°C (Max.)            | $T_{sol}$   | 5          | seconds |

### Notes:

1. Proper current derating must be observed to maintain junction temperature below the maximum.
2. LEDs are not designed to be driven in reserve bias.

**Luminous Flux & Radiometric Power<sup>[1]</sup> Characteristics at  $I_F=350\text{mA}(T_J=25^\circ\text{C})$ :**

| Lens Item                           | Part Name        | Color                     | Flux         |             |      | Units     |
|-------------------------------------|------------------|---------------------------|--------------|-------------|------|-----------|
|                                     |                  |                           | Min.         | Typ.        | Max. |           |
| <b>Lambertian<br/>Side Emitting</b> | <b>EDSW-1xAx</b> | White                     | <b>30.3</b>  | <b>55.0</b> | --   | <i>lm</i> |
|                                     | <b>EDSX-1xAx</b> | Warm White                | <b>17.9</b>  | <b>35.0</b> | --   | <i>lm</i> |
|                                     | <b>EDSR-1xAx</b> | Red                       | <b>23.3</b>  | <b>40.0</b> | --   | <i>lm</i> |
|                                     | <b>EDSO-1xAx</b> | Red Orange                | <b>23.3</b>  | <b>45.0</b> | --   | <i>lm</i> |
|                                     | <b>EDSA-1xAx</b> | Amber                     | <b>23.3</b>  | <b>40.0</b> | --   | <i>lm</i> |
|                                     | <b>EDST-1xAx</b> | True Green                | <b>30.3</b>  | <b>55.0</b> | --   | <i>lm</i> |
|                                     | <b>EDSB-1xAx</b> | Blue                      | <b>8.2</b>   | <b>20.0</b> | --   | <i>lm</i> |
|                                     | <b>EDSC-1xAx</b> | Royal Blue <sup>[1]</sup> | <b>113.9</b> | <b>220</b>  | --   | <i>mW</i> |

| Lens Item                   | Part Name        | Color                     | Flux         |             |      | Units     |
|-----------------------------|------------------|---------------------------|--------------|-------------|------|-----------|
|                             |                  |                           | Min.         | Typ.        | Max. |           |
| <b>Batwing<br/>Focusing</b> | <b>EDSW-1xAx</b> | White                     | <b>30.3</b>  | <b>50.0</b> | --   | <i>lm</i> |
|                             | <b>EDSX-1xAx</b> | Warm White                | <b>17.9</b>  | <b>32.0</b> | --   | <i>lm</i> |
|                             | <b>EDSR-1xAx</b> | Red                       | <b>23.3</b>  | <b>38.0</b> | --   | <i>lm</i> |
|                             | <b>EDSO-1xAx</b> | Red Orange                | <b>23.3</b>  | <b>42.0</b> | --   | <i>lm</i> |
|                             | <b>EDSA-1xAx</b> | Amber                     | <b>23.3</b>  | <b>38.0</b> | --   | <i>lm</i> |
|                             | <b>EDST-1xAx</b> | True Green                | <b>30.3</b>  | <b>50.0</b> | --   | <i>lm</i> |
|                             | <b>EDSB-1xAx</b> | Blue                      | <b>8.2</b>   | <b>17.0</b> | --   | <i>lm</i> |
|                             | <b>EDSC-1xAx</b> | Royal Blue <sup>[1]</sup> | <b>113.9</b> | <b>200</b>  | --   | <i>mW</i> |

**Forward Voltage Characteristics at  $I_F=350\text{mA}(T_J=25^\circ\text{C})$ :**

| Lens Item  | Part Name        | Color      | $V_F$      |      |            | Units    |
|--|------------------|------------|------------|------|------------|----------|
|  |                  |            | Min.       | Typ. | Max.       |          |
| <b>Lambertian<br/>Side Emitting<br/>Batwing<br/>Focusing</b> | <b>EDSW-1xAx</b> | White      | <b>3.1</b> | --   | <b>4.3</b> | <i>V</i> |
|  | <b>EDSX-1xAx</b> | Warm White | <b>3.1</b> | --   | <b>4.3</b> | <i>V</i> |
|  | <b>EDSR-1xAx</b> | Red        | <b>2.0</b> | --   | <b>3.0</b> | <i>V</i> |
|  | <b>EDSO-1xAx</b> | Red Orange | <b>2.0</b> | --   | <b>3.0</b> | <i>V</i> |
|  | <b>EDSA-1xAx</b> | Amber      | <b>2.0</b> | --   | <b>3.0</b> | <i>V</i> |
|  | <b>EDST-1xAx</b> | True Green | <b>2.8</b> | --   | <b>4.0</b> | <i>V</i> |
|  | <b>EDSB-1xAx</b> | Blue       | <b>3.1</b> | --   | <b>4.3</b> | <i>V</i> |
|  | <b>EDSC-1xAx</b> | Royal Blue | <b>3.1</b> | --   | <b>4.3</b> | <i>V</i> |

**Dominant Wavelength or Peak wavelength<sup>[1]</sup> or Color Temperature**  
**Characteristics at I<sub>F</sub>=350mA(T<sub>J</sub>=25°C):**

| Lens Item  | Part Name | Color                     | $\lambda_d/\lambda_p^{[1]}/CCT$ |      |      | Units |
|--|-----------|---------------------------|---------------------------------|------|------|-------|
|  |           |                           | Min.                            | Typ. | Max. |       |
| Lambertian<br>Side Emitting<br>Batwing<br>Focusing | EDSW-1xAx | White                     | 5000                            | --   | 8000 | K     |
|  | EDSX-1xAx | Warm White                | 2800                            | --   | 3800 | K     |
|  | EDSR-1xAx | Red                       | 620                             | --   | 630  | nm    |
|  | EDSO-1xAx | Red Orange                | 610                             | --   | 620  | nm    |
|  | EDSA-1xAx | Amber                     | 585                             | --   | 595  | nm    |
|  | EDST-1xAx | True Green                | 515                             | --   | 535  | nm    |
|  | EDSB-1xAx | Blue                      | 460                             | --   | 475  | nm    |
|  | EDSC-1xAx | Royal Blue <sup>[1]</sup> | 440                             | --   | 460  | nm    |

**Temperature Coefficient of Forward Voltage & Thermal Resistance Junction to Case**  
**Characteristics at I<sub>F</sub>=350mA(T<sub>J</sub>=25°C):**

| Lens Item  | Part Name | Color      | $\Delta V_F/\Delta T$ |       | R <sub>θJ-B</sub> |       |
|--|-----------|------------|-----------------------|-------|-------------------|-------|
|  |           |            | Typ.                  | Units | Typ.              | Units |
| Lambertian<br>Side Emitting<br>Batwing<br>Focusing | EDSW-1xAx | White      | -2                    | mV/°C | 15                | °C/W  |
|  | EDSX-1xAx | Warm White | -2                    | mV/°C | 15                | °C/W  |
|  | EDSR-1xAx | Red        | -2                    | mV/°C | 18                | °C/W  |
|  | EDSO-1xAx | Red Orange | -2                    | mV/°C | 18                | °C/W  |
|  | EDSA-1xAx | Amber      | -2                    | mV/°C | 18                | °C/W  |
|  | EDST-1xAx | True Green | -2                    | mV/°C | 15                | °C/W  |
|  | EDSB-1xAx | Blue       | -2                    | mV/°C | 15                | °C/W  |
|  | EDSC-1xAx | Royal Blue | -2                    | mV/°C | 15                | °C/W  |

**Emission Angle Characteristics at  $I_F=350\text{mA}(T_J=25^\circ\text{C})$ :**

| Part Name        | Color      | $2\theta^{1/2}(\text{Typ.})$ |            |           | Units   |
|------------------|------------|------------------------------|------------|-----------|---------|
|                  |            | Lambertian                   | Batwing    | Focusing  |         |
| <b>EDSW-1xAx</b> | White      | <b>130</b>                   | <b>110</b> | <b>80</b> | Degrees |
| <b>EDSX-1xAx</b> | Warm White | <b>130</b>                   | <b>110</b> | <b>80</b> | Degrees |
| <b>EDSR-1xAx</b> | Red        | <b>120</b>                   | <b>100</b> | <b>35</b> | Degrees |
| <b>EDSO-1xAx</b> | Red Orange | <b>120</b>                   | <b>100</b> | <b>35</b> | Degrees |
| <b>EDSA-1xAx</b> | Amber      | <b>120</b>                   | <b>100</b> | <b>35</b> | Degrees |
| <b>EDST-1xAx</b> | True Green | <b>150</b>                   | <b>110</b> | <b>40</b> | Degrees |
| <b>EDSB-1xAx</b> | Blue       | <b>150</b>                   | <b>110</b> | <b>40</b> | Degrees |
| <b>EDSC-1xAx</b> | Royal Blue | <b>150</b>                   | <b>110</b> | <b>40</b> | Degrees |

| Part Name        | Color      | $\theta_{\text{PEAK}}(\text{Typ.})$ |                            | Units   |
|------------------|------------|-------------------------------------|----------------------------|---------|
|                  |            | Batwing                             | Side emitting              |         |
| <b>EDSW-1xAx</b> | White      | <b><math>\pm 40</math></b>          | <b><math>\pm 80</math></b> | Degrees |
| <b>EDSX-1xAx</b> | Warm White | <b><math>\pm 40</math></b>          | <b><math>\pm 80</math></b> | Degrees |
| <b>EDSR-1xAx</b> | Red        | <b><math>\pm 35</math></b>          | <b><math>\pm 80</math></b> | Degrees |
| <b>EDSO-1xAx</b> | Red Orange | <b><math>\pm 35</math></b>          | <b><math>\pm 80</math></b> | Degrees |
| <b>EDSA-1xAx</b> | Amber      | <b><math>\pm 35</math></b>          | <b><math>\pm 80</math></b> | Degrees |
| <b>EDST-1xAx</b> | True Green | <b><math>\pm 40</math></b>          | <b><math>\pm 80</math></b> | Degrees |
| <b>EDSB-1xAx</b> | Blue       | <b><math>\pm 40</math></b>          | <b><math>\pm 80</math></b> | Degrees |
| <b>EDSC-1xAx</b> | Royal Blue | <b><math>\pm 40</math></b>          | <b><math>\pm 80</math></b> | Degrees |

**Note**

1. Flux is measured with an accuracy of  $\pm 10\%$ .
2. CCT selection acc. to CCT groups and an accuracy of  $\pm 200\text{K}$
3. Forward Voltage is measured with an accuracy of  $\pm 0.1\text{V}$
4. Wavelength is measured with an accuracy of  $\pm 0.5\text{nm}$
5. All white, warm white, True green and blue emitters are built with InGaN
6. All red, red-orange and amber emitters are built with AlGaInP



**JEDEC Moisture Sensitivity:**

| Level    | Floor Life     |                           | Soak Requirements        |                      |   |                      |
|----------|----------------|---------------------------|--------------------------|----------------------|---|----------------------|
|          | Time           | Conditions                | Standard<br>Time (hours) | Conditions           | Accelerated Environment<br>Time (hours) | Conditions           |
| <b>4</b> | <b>72hours</b> | <b>≤30°C /<br/>60% RH</b> | <b>96 +2/-0</b>          | <b>30°C / 60% RH</b> | <b>20 +0.5/-0</b>                       | <b>60°C / 60% RH</b> |

| LEVEL | FLOOR LIFE             |              | SOAK REQUIREMENTS         |             |                                     |             |
|-------|------------------------|--------------|---------------------------|-------------|-------------------------------------|-------------|
|       |                        |              | STANDARD                  |             | ACCELERATED EQUIVALENT <sup>1</sup> |             |
|       | TIME                   | CONDITIONS   | TIME (hours)              | CONDITIONS  | TIME (hours)                        | CONDITIONS  |
| 1     | Unlimited              | ≤30°C/85% RH | 168<br>+5/-0              | 85°C/85% RH |                                     |             |
| 2     | 1 year                 | ≤30°C/80% RH | 168<br>+5/-0              | 85°C/80% RH |                                     |             |
| 2a    | 4 weeks                | ≤30°C/80% RH | 600 <sup>2</sup><br>+5/-0 | 30°C/80% RH | 120<br>+1/-0                        | 60°C/80% RH |
| 3     | 168 hours              | ≤30°C/80% RH | 192 <sup>2</sup><br>+5/-0 | 30°C/80% RH | 40<br>+1/-0                         | 60°C/80% RH |
| 4     | 72 hours               | ≤30°C/80% RH | 96 <sup>2</sup><br>+2/-0  | 30°C/80% RH | 20<br>+0.5/-0                       | 60°C/80% RH |
| 5     | 48 hours               | ≤30°C/80% RH | 72 <sup>2</sup><br>+2/-0  | 30°C/80% RH | 15<br>+0.5/-0                       | 60°C/80% RH |
| 5a    | 24 hours               | ≤30°C/80% RH | 48 <sup>2</sup><br>+2/-0  | 30°C/80% RH | 10<br>+0.5/-0                       | 60°C/80% RH |
| 6     | Time on Label<br>(TOL) | ≤30°C/80% RH | TOL                       | 30°C/80% RH |                                     |             |

**Note**

1. The standard soak time includes a default value of 24 hours for semiconductor manufacturer's exposure time (MET) between bake and bag and includes the maximum time allowed out of the bag at the distributor's facility.

**Operating life, mechanical, and environmental tests performed on Edixeon package:**

| Stress Test                                   | Stress Conditions  | Stress Duration | Failure Criteria        |
|---|--|-----------------|-------------------------|
| Room Temperature Operating Life               | 25°C, I <sub>F</sub> = max DC (Note 1)                                     | 1000 hours      | Note 2                  |
| High Temperature High Humidity Operating Life | 85°C / 85%RH, I <sub>F</sub> = max DC                                      | 1000 hours      | Note 2                  |
| Temperature Cycle                             | -40°C/100°C ,30 min dwell / <5min transfer                                 | 200 cycles      | Note 2                  |
| High Temperature Storage Life                 | 110°C  | 1000 hours      | Note 2                  |
| Low Temperature Storage Life                  | -55°C  | 1000 hours      | Note 2                  |
| Thermal Shock                                 | -40 / 120°C, 20 min dwell / <20 sec transfer                               | 200 cycles      | No catastrophics        |
| Mechanical Shock                              | 1500 G, 0.5 msec pulse, 5 shocks each 6 axis                               |                 | No catastrophics        |
| Natural Drop                                  | On concrete from 1.2 m, 3X   |                 | No catastrophics        |
| Variable Vibration Frequency                  | 10-2000-10 Hz, log or linear sweep rate, 20 G about 1 min, 1.5 mm, 3X/axis |                 | No catastrophics        |
| Solder Heat Resistance (SHR)                  | 260°C ± 5°C, 10 sec  |                 | No catastrophics        |
| Solderability                                 | Steam age for 16 hr, then solder dip at 260°C for 5 sec                    |                 | Solder coverage on lead |

**Note**

1. Depending on the maximum derating curve.

2. Failure Criteria:

**Electrical failures**

V<sub>F</sub> shift >=10%

I<sub>R</sub><50uA @V<sub>r</sub>=5V

**Light Output Degradation**

% I<sub>v</sub> shift >= 30% @1,000hrs or 200cycle

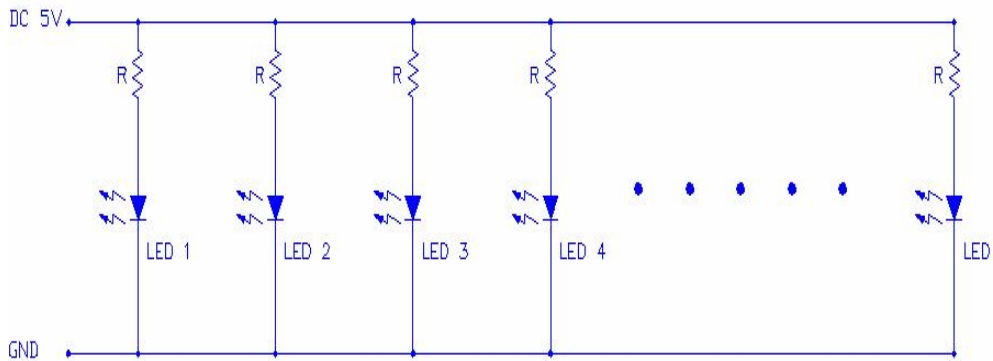
**Visual failures**

Broken or damaged package or lead

Solderability < 95% wetting

Dimension out of tolerance

## Burn-in Condition Edixeon Reliability



When we talk about MTBF of Edixeon, we can provide a formula for customers.

$$\log(\text{Life}) = \frac{1,600}{T_j(^{\circ}\text{C}) + 273}$$

Life means the time light output becomes 70%

| T <sub>j</sub> (°C) | Life (hours) | T <sub>j</sub> (°C) | Life (hours) |
|---------------------|--------------|---------------------|--------------|
| 25                  | 234,000      | 85                  | 29,500       |
| 30                  | 191,000      | 90                  | 25,700       |
| 35                  | 157,000      | 95                  | 22,300       |
| 40                  | 129,000      | 100                 | 19,500       |
| 45                  | 107,000      | 105                 | 17,100       |
| 50                  | 90,000       | 110                 | 15,100       |
| 55                  | 75,000       | 115                 | 13,300       |
| 60                  | 64,000       | 120                 | 11,700       |
| 65                  | 54,000       | 125                 | 10,500       |
| 70                  | 46,000       | 130                 | 9,300        |
| 75                  | 39,600       | 140                 | 7,500        |
| 80                  | 34,000       | 150                 | 6,000        |

When we talk about MTTF of Edixeon, we can provide a formula for customers\_  
 MTTF is assumed to be 100,000,000

The failure rates at different hours and different systems(LED quantity) are as below:

if there is 1 failure of 1 emitter in a system

Tj=75°C is giving 0.01%(100ppm) at 10,000hrs

if there is 1 failure of 10 emitters in a system

Tj=75°C is giving 0.1%(1,000ppm) at 10,000hrs

if there is 1 failure of 1 emitter in a system

Tj=75°C is giving 0.05%(500ppm) at 50,000hrs

if there is 1 failure of 10 emitters in a system

Tj=75°C is giving 0.5%(5,000ppm) at 50,000hrs if there are 10 emitters

### How to Know Tj in Your Application?

If it is white Edixeon, Rth(junction to case)=15°C/W

The thermal grease is 200um.

K(Aluminum PCB)=2.6 W/mk

$$\text{Then Rth(case to board)} = \frac{200}{2.6 \times (6.4/2)^2 \pi} = 2.4 \text{ } ^\circ\text{C/W}$$

The Rth between board and air is mainly dependent on the total surface air.

$$\text{Rth(board-air)} \doteq \frac{500}{\text{Area}(\text{cm}^2)}$$

If Area is 30cm<sup>2</sup> Rth=16.7 ΔT(junction-air)=(15+2.4+16.7)x1=34.1 °C

If Area is 60cm<sup>2</sup> Rth=8.3 ΔT(junction-air)=(15+2.4+8.3)x1=25.7 °C

If Area is 90cm<sup>2</sup> Rth=5.5 ΔT(junction-air)=(15+2.4+5.5)x1=22.9 °C

### ASSIST FORM about High Power LED Reliability(White Edixeon)

|                        | <u>Ts=45°C</u> | <u>Ts=65°C</u> | <u>Ts=85°C</u> |
|------------------------|----------------|----------------|----------------|
| <b>Voltage</b>         | 3.5V           | 3.5V           | 3.5V           |
| <b>Current</b>         | 350mA          | 350mA          | 350mA          |
| <b>Wattage</b>         | 1.2W           | 1.2W           | 1.2W           |
| <b>Heat</b>            | 1.0W           | 1.0W           | 1.0W           |
| <b>Rth</b>             | 15 °C/W        | 15 °C/W        | 15 °C/W        |
| <b>Tj</b>              | 60 °C          | 80 °C          | 100 °C         |
| <b>L<sub>70%</sub></b> | 64,000hrs      | 34,000hrs      | 19,500hrs      |

**ESD Sensitivity test:**

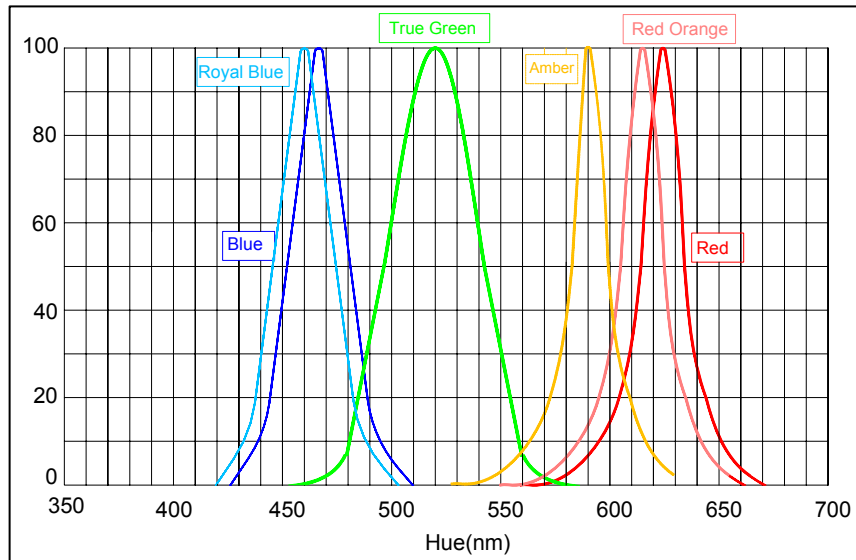
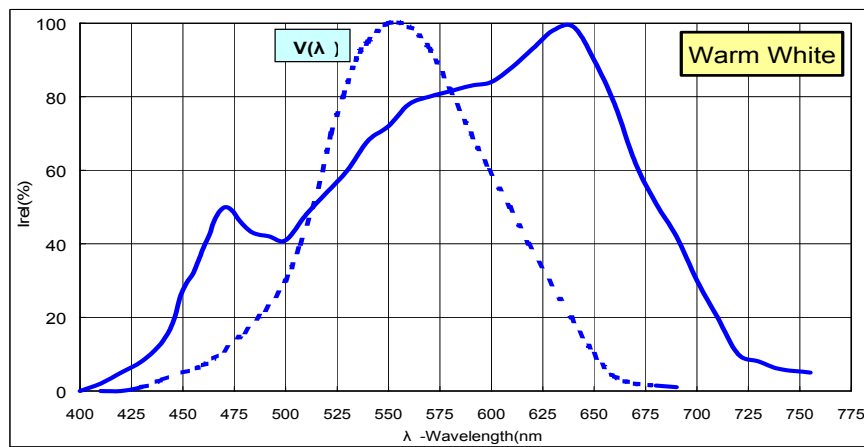
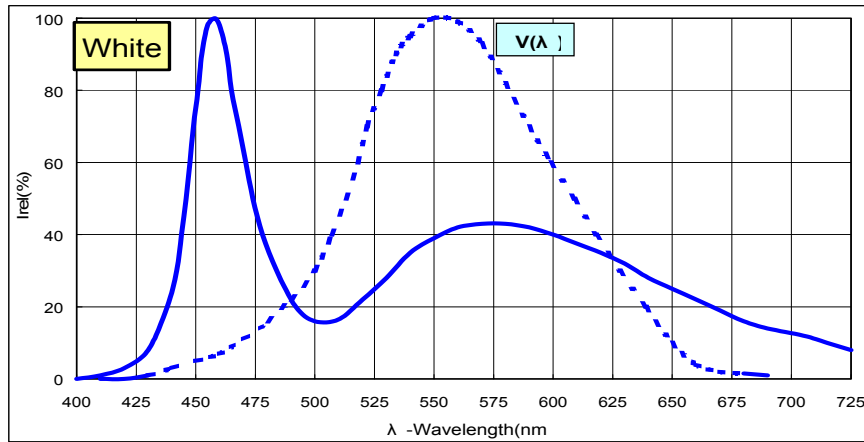
|                    |  |
|--------------------|--|
| Part No.           | <a href="#">EDEX-1xAx</a>  |
| Test Quantity      | <i>Each 10 pcs</i>   |
| Test Item          | <i>ESD-HBM</i>   |
| Test Method        | <i>MIL-STD-883E Method 3015.7</i>                                |
| Class I            | <i>0V ~ 1,999V</i>   |
| Class II           | <i>2,000V ~ 3,999V</i>   |
| Class III          | <i>4,000V ~ to above</i>   |
| Failure Criteria   | <i>IR&gt;5 μA @VR=5V</i>   |
| Test Voltage       | <i>-100 ~ -500V ,Step: -100V<br/>-500 ~ -8,000V ,Step: -500V</i> |
| Test Date          | <i>18-Mar-05</i>   |
| Test Equipment     | <i>Keytek Zapmaster</i>  |
| Test Environmental | <i>25°C±5°C,55%±10%RH</i>  |

| Sample        | Voltage(V)  |                | MIL-STD          |
|---------------|-------------|----------------|------------------|
|               | Forward     | Reverse        |                  |
| Lambertian    | <i>Pass</i> | <i>Pass</i>    | <b>Class III</b> |
| Side emitting | <i>Pass</i> | <i>Pass</i>    | <b>Class III</b> |
| Batwing       | <i>Pass</i> | <i>&gt;500</i> | --               |
| Focusing      | <i>Pass</i> | <i>&gt;500</i> | --               |

**Thrust for Edixeon Lens**

| Lens Type          | Typical Thrust |
|--------------------|----------------|
| Lambertian Lens    | 5 kgf          |
| Batwing Lens       | 2 kgf          |
| Side Emitting Lens | 2 kgf          |
| Focusing Lens      | 2 kgf          |

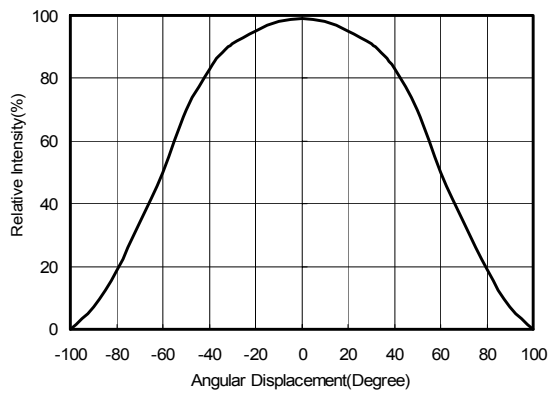
## Electrical & Optical Curves-Spectrum



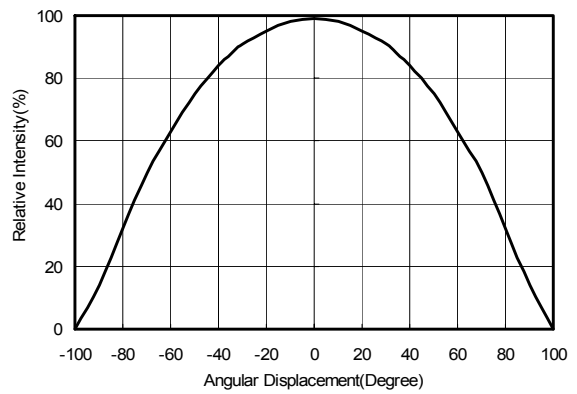
---

## Typical Radiation Pattern for

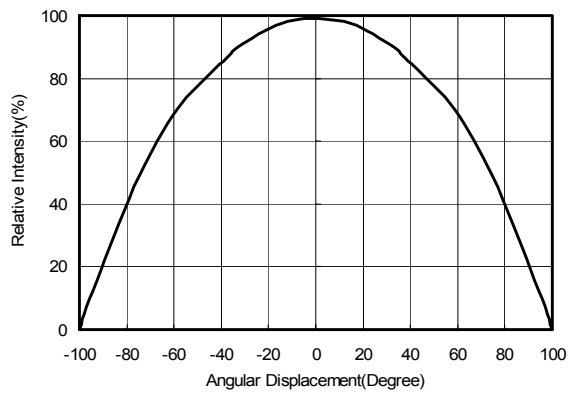
### Lambertian



for Red · Amber · Red Orange

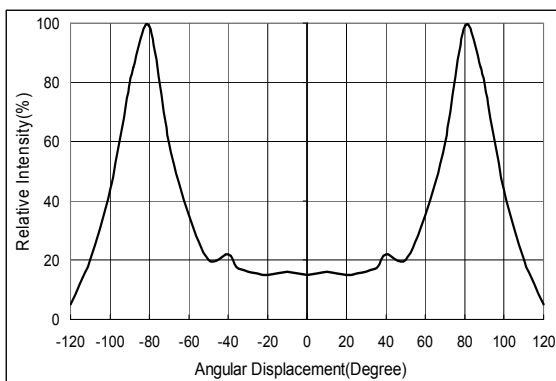


for White · Warm white



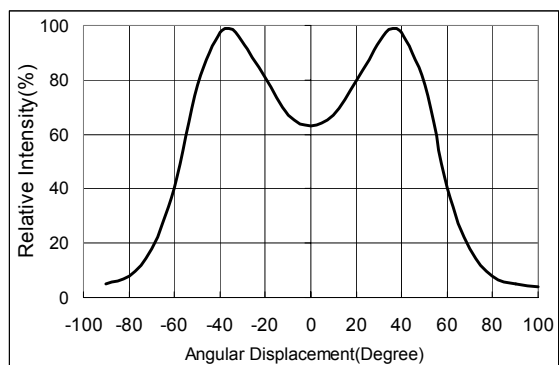
for Blue · Royal Blue · True Green

### Side Emitting (for all colors)

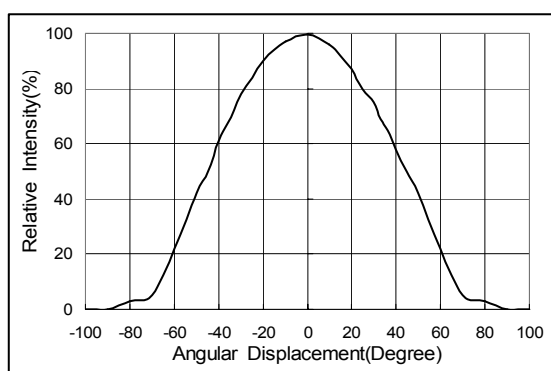


---

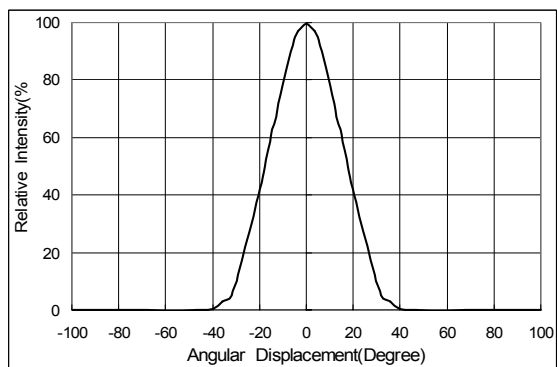
### Batwing (for all colors)



### Focusing



for White 、 Warm White



for Blue 、 Royal Blue 、 True Green  
Red 、 Red Orange 、 Amber



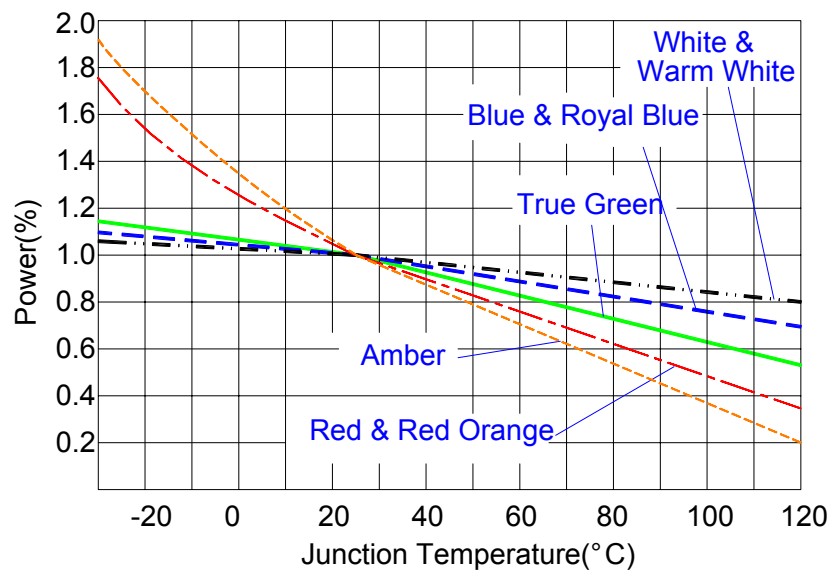
### Available Ray Data List

| 1W Edixeon    | Provide Ray source file type | Red | Blue | True Green | White |
|---------------|------------------------------|-----|------|------------|-------|
| Lambertian    | From ASAP (*.DIS)            | ☉   | △    | △          | △     |
|               | From Trace Pro (*.DAT)       | ☉   | △    | △          | △     |
|               | From Radiant Image (*.RSM)   | ☉   | △    | △          | △     |
| Batwing       | From ASAP (*.DIS)            | ☉   | ☉    | △          | △     |
|               | From Trace Pro (*.DIS)       | ☉   | ☉    | △          | △     |
|               | From Radiant Image (*.DIS)   | △   | △    | △          | △     |
| Side emitting | From ASAP (*.DIS)            | △   | △    | △          | △     |
|               | From Trace Pro (*.DIS)       | △   | △    | △          | △     |
|               | From Radiant Image (*.DIS)   | △   | △    | △          | △     |
| Focusing      | From ASAP (*.DIS)            | △   | △    | △          | △     |
|               | From Trace Pro (*.DIS)       | △   | △    | △          | △     |
|               | From Radiant Image (*.DIS)   | △   | △    | △          | △     |

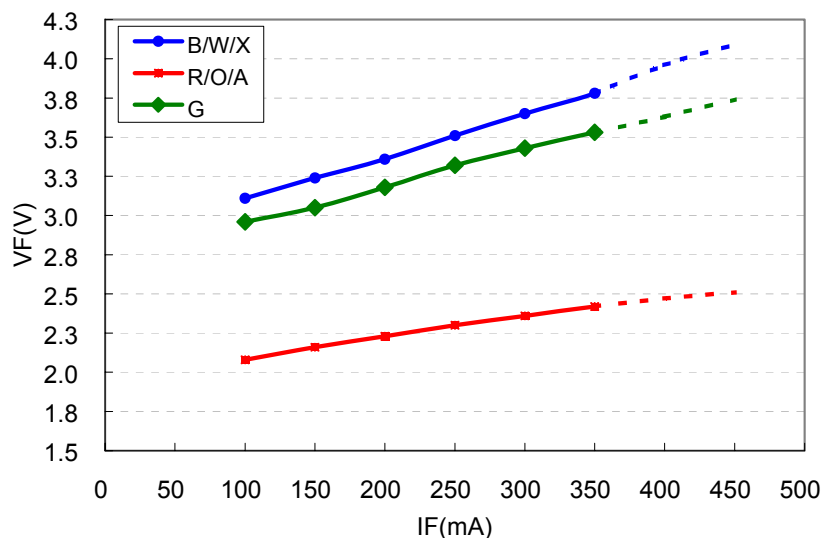
Note:

1. “☉” → Ready
2. “△” → Not ready

**Typical Optical and Electrical Curves**

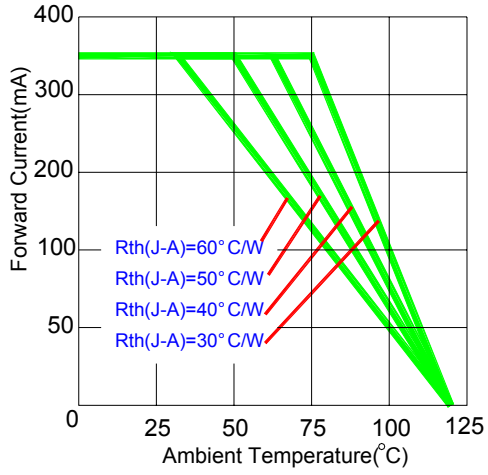


Junction Temperature & Forward Voltage

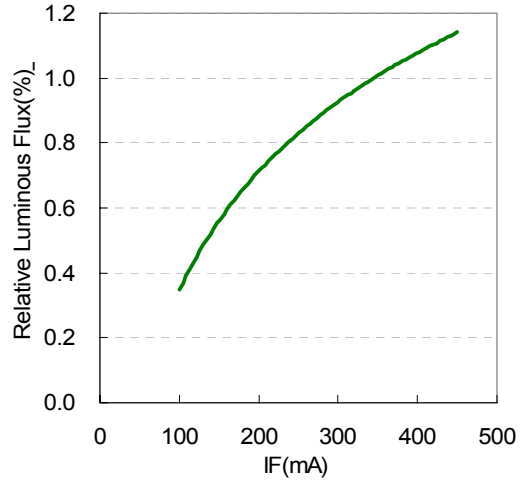


Operating Current & Forward Voltage

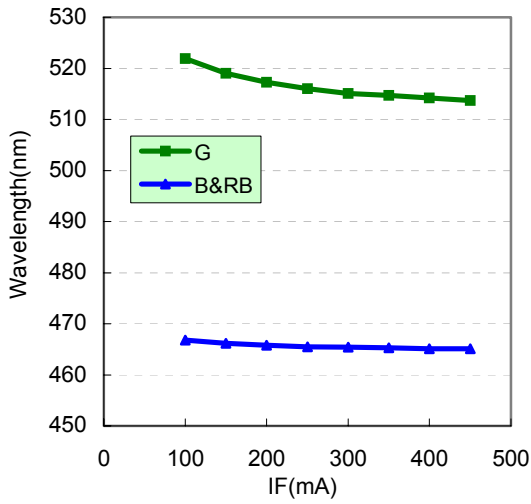
**Typical Optical and Electrical Curves**



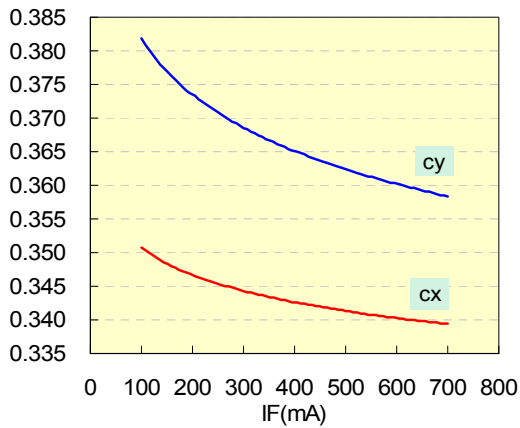
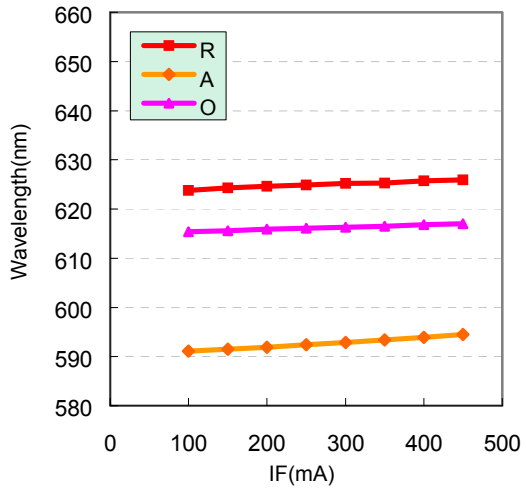
Operating Current & Ambient Temperature



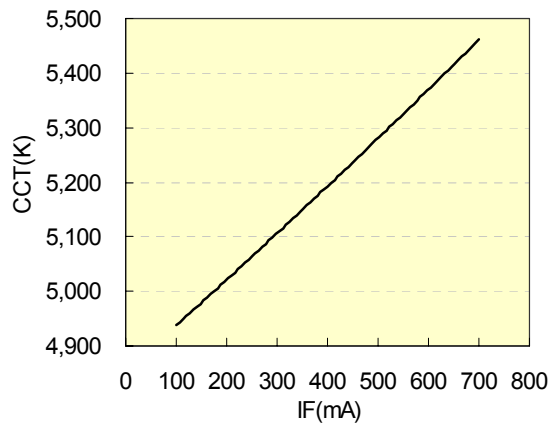
Forward Current & Luminous Flux



Forward Current & Wavelength



Forward Current & chromaticity coordinate



Forward Current & CCT

## Package Specifications

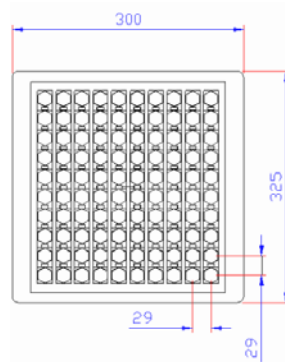
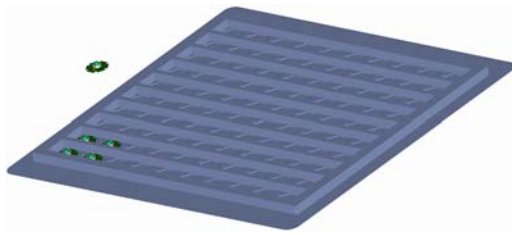


Figure 1: Tray

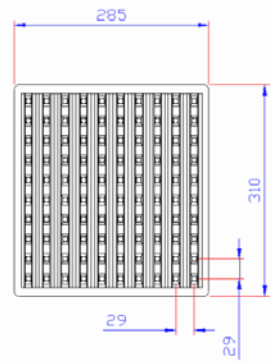


Figure 2: Cover

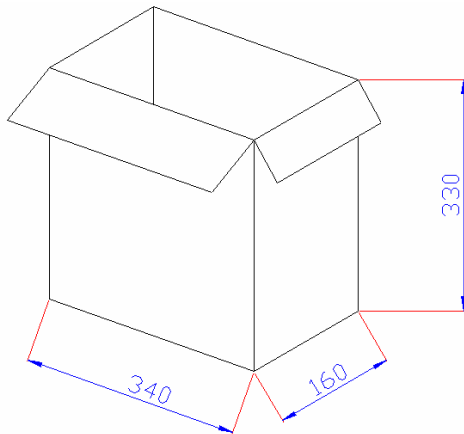


Figure 3: Inner box

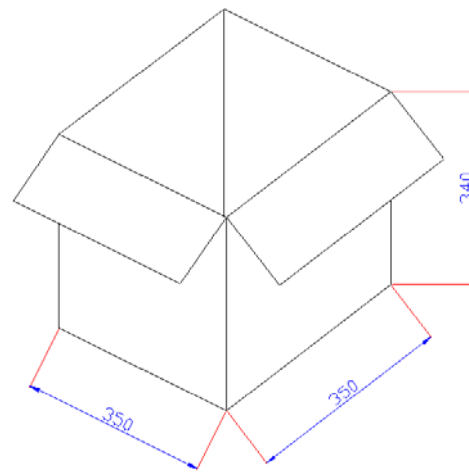


Figure 4: Outer box

### Notes

1. Inner antistatic bag standard.
2. 50pcs emitters per tray (Carrier + Cover)
3. 10 trays per bag and an inner box, 1K pcs per inner box.
4. 2 inner boxes per outer box, 2 K pcs per outer box.

| Packing Step | Type      | Dimension(mm) | Star Q'ty(Max.) |
|--------------|-----------|---------------|-----------------|
| 1            | Tray      | 325*300       | 100             |
| 2            | Inner Box | 340*160*330   | 1,000           |
| 3            | Outer Box | 350*350*340   | 2,000           |