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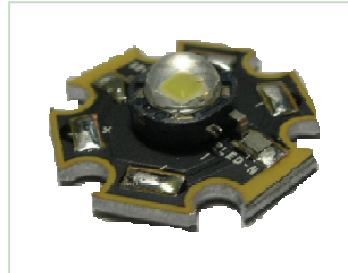
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# X42182

Z-Power series is designed for high current operation and high flux output applications.



Z-Power LED's thermal management perform exceeds other power LED solutions.

It incorporates state of the art SMD design and Thermal emission material.

Z Power LED is ideal light sources for general illumination applications, custom designed solutions, automotive large LCD backlights

# X42182

## Features

- Super high flux output and high luminance
- Designed for high current operation
- Low thermal resistance
- SMT solderability
- Lead free product
- RoHS compliant

## Applications

- Mobile phone flash
- Automotive interior / Exterior lighting
- Automotive signal lighting
- Automotive forward lighting
- Torch
- Architectural lighting
- LCD TV / Monitor backlight
- Projector light source
- Traffic signals
- Task lighting
- Decorative / Pathway lighting
- Remote / Solar powered lighting
- Household appliances

\*The appearance and specifications of the product may be changed for improvement without notice.

Rev. 02

FEBRUARY. 2013

[www.ZLED.com](http://www.ZLED.com)



**Full Code of Z-Power LED Series**

Full code form : X<sub>1</sub> X<sub>2</sub> X<sub>3</sub> X<sub>4</sub> X<sub>5</sub> X<sub>6</sub> - X<sub>7</sub> X<sub>8</sub> - X<sub>9</sub> X<sub>10</sub> X<sub>11</sub> X<sub>12</sub>X<sub>13</sub>

**1. Part Number**

- X<sub>1</sub> : Color
- X<sub>2</sub> : Z-Power LED series number
- X<sub>3</sub> : LENS type
- X<sub>4</sub> : Chip quantity (or Power Dissipation)
- X<sub>5</sub> : Package outline size
- X<sub>6</sub> : Type of PCB





**2. Internal Number**


- X<sub>7</sub>
- X<sub>8</sub>

**3. Code Labeling**

- X<sub>9</sub> : Luminous flux (or Radiant flux for royal blue)
- X<sub>10</sub> X<sub>11</sub> X<sub>12</sub> : Dominant wavelength (or x,y coordinates rank code)
- X<sub>13</sub> : Forward voltage

**4. Sticker Diagram on Reel & Aluminum Vinyl Bag**

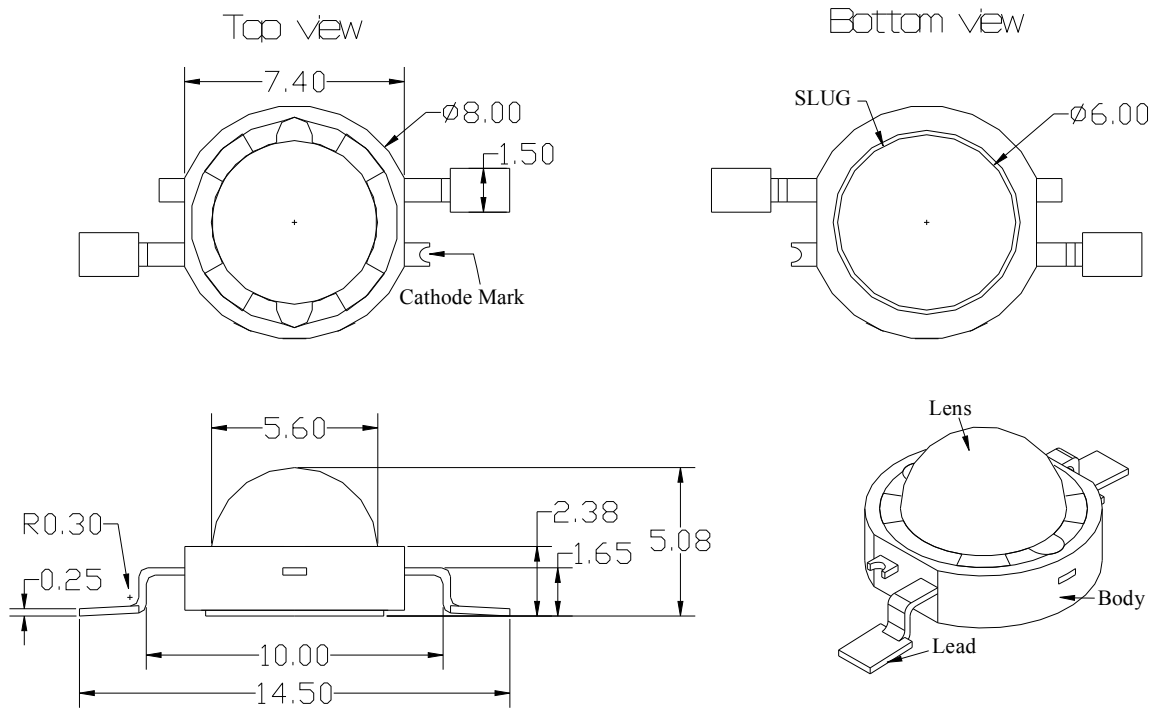
PART NO. : X<sub>1</sub>X<sub>2</sub>X<sub>3</sub>X<sub>4</sub>X<sub>5</sub>X<sub>6</sub> - X<sub>7</sub>X<sub>8</sub>  
  
 QUANTITY : ###  
  
 LOT NUMBER : #####  
  
 BIN CODE : X<sub>10</sub>X<sub>11</sub>X<sub>12</sub>X<sub>13</sub>X<sub>14</sub>  




For more information about binning and labeling, refer to the Application Note -1

## Outline Dimension

### 1. Dome Type



**Notes :**

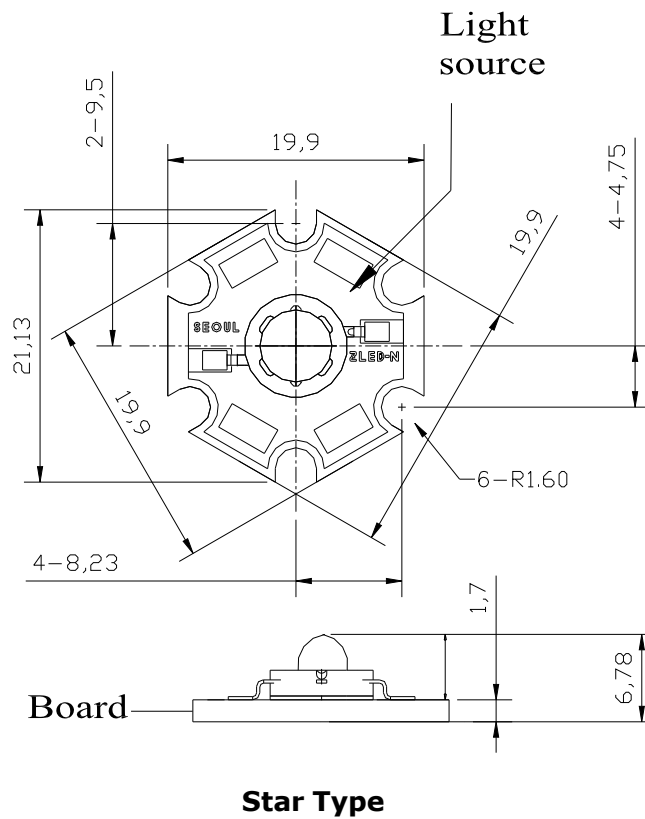
1. All dimensions are in millimeters. (tolerance :  $\pm 0.2$  )
2. Scale : none
3. Slug of package is connected to anode.

\*The appearance and specifications of the product may be changed for improvement without notice.



## Outline Dimension

### 2. PCB Type



Notes :

1. All dimensions are in millimeters. (tolerance :  $\pm 0.2$  )
2. Scale : none

\*The appearance and specifications of the product may be changed for improvement without notice.

## Characteristics for Z-Power LED

### 1. Pure White (W42182)

1-1 Electro-Optical characteristics at  $I_F=350\text{mA}$ ,  $T_A=25^\circ\text{C}$

| Parameter                        | Symbol          | Value        |      |     | Unit                      |    |
|----------------------------------|-----------------|--------------|------|-----|---------------------------|----|
|                                  |                 | Min          | Typ  | Max |                           |    |
| Luminous Flux [1]                | T rank          | $\Phi_V$ [2] | 70   | 80  | 91                        | lm |
|                                  | U rank          | $\Phi_V$ [2] | 91   | 100 | -                         | lm |
| Correlated Color Temperature [3] | CCT             | -            | 6300 | -   | K                         |    |
| CRI                              | $R_a$           | -            | 70   | -   | -                         |    |
| Forward Voltage [4]              | $V_F$           | 2.9          | 3.25 | 4   | V                         |    |
| View Angle                       | $2\theta$ 1/2   | 120          |      |     | deg.                      |    |
| Thermal resistance [5]           | $R\theta_{J-B}$ | 8.5          |      |     | $^\circ\text{C}/\text{W}$ |    |
| Thermal resistance [6]           | $R\theta_{J-C}$ | 6.9          |      |     | $^\circ\text{C}/\text{W}$ |    |

### 1-2 Absolute Maximum Ratings

| Parameter             | Symbol    | Value                                  | Unit             |
|-----------------------|-----------|--|------------------|
| Forward Current       | $I_F$     | 1000 (@ $T_j = 90^\circ\text{C}$ ) [7] | mA               |
|                       |           | 1800 (@ 1KHz, 1/10 duty)               |                  |
| Power Dissipation     | $P_d$     | 4                                      | W                |
| Junction Temperature  | $T_j$     | 145(@ $I_F \leq 700\text{mA}$ )        | $^\circ\text{C}$ |
| Operating Temperature | $T_{opr}$ | -40 ~ +85                              | $^\circ\text{C}$ |
| Storage Temperature   | $T_{stg}$ | -40 ~ +100                             | $^\circ\text{C}$ |
| ESD Sensitivity [8]   | -         | $\pm 10,000\text{V HBM}$               | -                |

\*Notes :

[1] SSC maintains a tolerance of  $\pm 10\%$  on flux and power measurements.

[2]  $\Phi_V$  is the total luminous flux output as measured with an integrated sphere.

[3] Correlated Color Temperature is derived from the CIE 1931 Chromaticity diagram. CCT  $\pm 5\%$  tester tolerance.

[4] A tolerance of  $\pm 0.06\text{V}$  on forward voltage measurements

[5], [6]  $R\theta_{J-B}$  is measured with a SSC metal core pcb. ( $25^\circ\text{C} \leq T_j \leq 110^\circ\text{C}$ )

$R\theta_{J-C}$  is measured with only emitter. ( $25^\circ\text{C} \leq T_j \leq 110^\circ\text{C}$ )

Break voltage of Metal PCB is 6.5kVAC.

[7]  $I_F$  Max is guaranteed under the  $T_j \leq 90^\circ\text{C}$ .

[8] It is included the zener chip to protect the product from ESD.

-----Caution-----

**1. Please do not drive at rated current more than 5 sec. without proper heat sink.**

## Characteristics for Z-Power LED

### 2. Warm White (N42182)

2-1 Electro-Optical characteristics at  $I_F=350\text{mA}$ ,  $T_A=25^\circ\text{C}$

| Parameter                                   | Symbol                  | Value |      |     | Unit                      |
|---|-------------------------|-------|------|-----|---------------------------|
|   |                         | Min   | Typ  | Max |                           |
| Luminous Flux <sup>[1]</sup>                | $\Phi_V$ <sup>[2]</sup> | -     | 53   | -   | lm                        |
| Correlated Color Temperature <sup>[3]</sup> | CCT                     | -     | 3000 | -   | K                         |
| CRI   | $R_a$                   | -     | 93   | -   | -                         |
| Forward Voltage <sup>[4]</sup>              | $V_F$                   | 2.9   | 3.25 | 4   | V                         |
| View Angle                                  | $2\theta$ 1/2           | 124   |      |     | deg.                      |
| Thermal resistance <sup>[5]</sup>           | $R\theta_{J-B}$         | 8.5   |      |     | $^\circ\text{C}/\text{W}$ |
| Thermal resistance <sup>[6]</sup>           | $R\theta_{J-C}$         | 6.9   |      |     | $^\circ\text{C}/\text{W}$ |

2-2 Absolute Maximum Ratings

| Parameter                      | Symbol    | Value                    | Unit             |
|--------------------------------|-----------|--------------------------|------------------|
| Forward Current                | $I_F$     | 800                      | mA               |
| Power Dissipation              | $P_d$     | 3.2                      | W                |
| Junction Temperature           | $T_j$     | 145                      | $^\circ\text{C}$ |
| Operating Temperature          | $T_{opr}$ | -40 ~ +85                | $^\circ\text{C}$ |
| Storage Temperature            | $T_{stg}$ | -40 ~ +100               | $^\circ\text{C}$ |
| ESD Sensitivity <sup>[7]</sup> | -         | $\pm 10,000\text{V HBM}$ | -                |

\*Notes :

- [1] SSC maintains a tolerance of  $\pm 10\%$  on flux and power measurements.
- [2]  $\Phi_V$  is the total luminous flux output as measured with an integrated sphere.
- [3] Correlated Color Temperature is derived from the CIE 1931 Chromaticity diagram.  
CCT  $\pm 5\%$  tester tolerance
- [4] A tolerance of  $\pm 0.06\text{V}$  on forward voltage measurements
- [5], [6]  $R\theta_{J-B}$  is measured with a SSC metal core pcb. ( $25^\circ\text{C} \leq T_j \leq 110^\circ\text{C}$ )  
 $R\theta_{J-C}$  is measured with only emitter. ( $25^\circ\text{C} \leq T_j \leq 110^\circ\text{C}$ )  
Break voltage of Metal PCB is 6.5kVAC
- [7] It is included the zener chip to protect the product from ESD.

-----Caution-----  
**1. Please do not drive at rated current more than 5 sec. without proper heat sink**

## Characteristics for Z-Power LED

### 3. Natural White (S42182)

3-1 Electro-Optical characteristics at  $I_F=350\text{mA}$ ,  $T_A=25^\circ\text{C}$

| Parameter                        | Symbol          | Value |      |     | Unit                      |
|----------------------------------|-----------------|-------|------|-----|---------------------------|
|                                  |                 | Min   | Typ  | Max |                           |
| Luminous Flux [1]                | $\Phi_V$ [2]    | -     | 61   | -   | lm                        |
| Correlated Color Temperature [3] | CCT             | -     | 4000 | -   | K                         |
| CRI                              | $R_a$           | -     | 93   | -   | -                         |
| Forward Voltage [4]              | $V_F$           | 2.9   | 3.25 | 4   | V                         |
| View Angle                       | $2\theta$ 1/2   | 124   |      |     | deg.                      |
| Thermal resistance [5]           | $R\theta_{J-B}$ | 8.5   |      |     | $^\circ\text{C}/\text{W}$ |
| Thermal resistance [6]           | $R\theta_{J-C}$ | 6.9   |      |     | $^\circ\text{C}/\text{W}$ |

3-2 Absolute Maximum Ratings

| Parameter             | Symbol    | Value                    | Unit             |
|-----------------------|-----------|--------------------------|------------------|
| Forward Current       | $I_F$     | 800                      | mA               |
| Power Dissipation     | $P_d$     | 3.2                      | W                |
| Junction Temperature  | $T_j$     | 145                      | $^\circ\text{C}$ |
| Operating Temperature | $T_{opr}$ | -40 ~ +85                | $^\circ\text{C}$ |
| Storage Temperature   | $T_{stg}$ | -40 ~ +100               | $^\circ\text{C}$ |
| ESD Sensitivity [8]   | -         | $\pm 10,000\text{V HBM}$ | -                |

\*Notes :

- [1] SSC maintains a tolerance of  $\pm 10\%$  on flux and power measurements.
- [2]  $\Phi_V$  is the total luminous flux output as measured with an integrated sphere.
- [3] Correlated Color Temperature is derived from the CIE 1931 Chromaticity diagram. CCT  $\pm 5\%$  tester tolerance.
- [4] A tolerance of  $\pm 0.06\text{V}$  on forward voltage measurements
- [5], [6]  $R\theta_{J-B}$  is measured with a SSC metal core pcb. ( $25^\circ\text{C} \leq T_j \leq 110^\circ\text{C}$ )  
 $R\theta_{J-C}$  is measured with only emitter. ( $25^\circ\text{C} \leq T_j \leq 110^\circ\text{C}$ )  
 Break voltage of Metal PCB is 6.5kVAC.
- [7] It is included the zener chip to protect the product from ESD.

-----Caution-----  
**1. Please do not drive at rated current more than 5 sec. without proper heat sink**



### Characteristics for Z-Power LED

#### 4. Blue (B42182)

4-1 Electro-Optical characteristics at  $I_F=350\text{mA}$ ,  $T_A=25^\circ\text{C}$

| Parameter              | Symbol          | Value |      |     | Unit                      |
|------------------------|-----------------|-------|------|-----|---------------------------|
|                        |                 | Min   | Typ  | Max |                           |
| Luminous Flux [1]      | $\Phi_V$ [2]    | -     | 22   | -   | lm                        |
| Dominant Wavelength[3] | $\lambda_D$     | 455   | 465  | 475 | nm                        |
| Forward Voltage [4]    | $V_F$           | 2.9   | 3.25 | 4   | V                         |
| View Angle             | $2\theta$ 1/2   | 130   |      |     | deg.                      |
| Thermal resistance [5] | $R\theta_{J-B}$ | 8.5   |      |     | $^\circ\text{C}/\text{W}$ |
| Thermal resistance [6] | $R\theta_{J-C}$ | 6.9   |      |     | $^\circ\text{C}/\text{W}$ |

#### 4-2 Absolute Maximum Ratings

| Parameter             | Symbol    | Value                    | Unit             |
|-----------------------|-----------|--------------------------|------------------|
| Forward Current       | $I_F$     | 1000                     | mA               |
| Power Dissipation     | $P_d$     | 4                        | W                |
| Junction Temperature  | $T_j$     | 145                      | $^\circ\text{C}$ |
| Operating Temperature | $T_{opr}$ | -40 ~ +85                | $^\circ\text{C}$ |
| Storage Temperature   | $T_{stg}$ | -40 ~ +100               | $^\circ\text{C}$ |
| ESD Sensitivity [7]   | -         | $\pm 10,000\text{V HBM}$ | -                |

\*Notes :

- [1] SSC maintains a tolerance of  $\pm 10\%$  on flux and power measurements.
- [2]  $\Phi_V$  is the total luminous flux output as measured with an integrated sphere.
- [3] Dominant wavelength is derived from the CIE 1931 Chromaticity diagram.  
A tolerance of  $\pm 0.5\text{nm}$  for dominant wavelength
- [4] A tolerance of  $\pm 0.06\text{V}$  on forward voltage measurements
- [5], [6]  $R\theta_{J-B}$  is measured with a SSC metal core pcb. ( $25^\circ\text{C} \leq T_j \leq 110^\circ\text{C}$ )  
 $R\theta_{J-C}$  is measured with only emitter. ( $25^\circ\text{C} \leq T_j \leq 110^\circ\text{C}$ )  
Break voltage of Metal PCB is 6.5kVAC
- [7] It is included the zener chip to protect the product from ESD.

-----Caution-----

1. Please do not drive at rated current more than 5 sec. without proper heat sink
2. Blue power light sources represented here are IEC825 Class 2 for eye safety



## Characteristics for Z-Power LED

### 5. Royal Blue (D42182)

5-1 Electro-Optical characteristics at  $I_F=350\text{mA}$ ,  $T_A=25^\circ\text{C}$

| Parameter               | Symbol          | Value |      |     | Unit                      |
|-------------------------|-----------------|-------|------|-----|---------------------------|
|                         |                 | Min   | Typ  | Max |                           |
| Radiant Power [1]       | $\Phi_V$ [2]    | -     | 468  | -   | mW                        |
| Dominant Wavelength [3] | $\lambda_D$     | 455   | 457  | 460 | nm                        |
| Forward Voltage [4]     | $V_F$           | 2.9   | 3.25 | 3.8 | V                         |
| View Angle              | $2\theta$ 1/2   | 130   |      |     | deg.                      |
| Thermal resistance [5]  | $R\theta_{J-B}$ | 8.5   |      |     | $^\circ\text{C}/\text{W}$ |
| Thermal resistance [6]  | $R\theta_{J-C}$ | 6.9   |      |     | $^\circ\text{C}/\text{W}$ |

5-2 Absolute Maximum Ratings

| Parameter             | Symbol    | Value                    | Unit             |
|-----------------------|-----------|--------------------------|------------------|
| Forward Current       | $I_F$     | 1000                     | mA               |
| Power Dissipation     | $P_d$     | 4                        | W                |
| Junction Temperature  | $T_j$     | 145                      | $^\circ\text{C}$ |
| Operating Temperature | $T_{opr}$ | -40 ~ +85                | $^\circ\text{C}$ |
| Storage Temperature   | $T_{stg}$ | -40 ~ +100               | $^\circ\text{C}$ |
| ESD Sensitivity [7]   | -         | $\pm 10,000\text{V}$ HBM | -                |

\*Notes :

- [1] SSC maintains a tolerance of  $\pm 10\%$  on flux and power measurements.
- [2]  $\Phi_V$  is the total luminous flux output as measured with an integrated sphere.
- [3] Correlated Color Temperature is derived from the CIE 1931 Chromaticity diagram.  
CCT  $\pm 5\%$  tester tolerance
- [4] A tolerance of  $\pm 0.06\text{V}$  on forward voltage measurements
- [5], [6]  $R\theta_{J-B}$  is measured with a SSC metal core pcb. ( $25^\circ\text{C} \leq T_j \leq 110^\circ\text{C}$ )  
 $R\theta_{J-C}$  is measured with only emitter. ( $25^\circ\text{C} \leq T_j \leq 110^\circ\text{C}$ )  
Break voltage of Metal PCB is 6.5kVAC
- [7] It is included the zener chip to protect the product from ESD.

-----Caution-----

1. Please do not drive at rated current more than 5 sec. without proper heat sink
2. Blue power light sources represented here are IEC825 Class 2 for eye safety

## Characteristics for Z-Power LED

### 6. Green (G42182)

6-1 Electro-Optical characteristics at  $I_F=350\text{mA}$ ,  $T_A=25^\circ\text{C}$

| Parameter               | Symbol          | Value |      |     | Unit                      |
|-------------------------|-----------------|-------|------|-----|---------------------------|
|                         |                 | Min   | Typ  | Max |                           |
| Luminous Flux [1]       | $\Phi_V$ [2]    | -     | 70   | -   | lm                        |
| Dominant Wavelength [3] | $\lambda_D$     | 520   | 525  | 535 | nm                        |
| Forward Voltage [4]     | $V_F$           | 2.9   | 3.25 | 4   | V                         |
| View Angle              | $2\theta$ 1/2   | 130   |      |     | deg.                      |
| Thermal resistance [5]  | $R\theta_{J-B}$ | 9.5   |      |     | $^\circ\text{C}/\text{W}$ |
| Thermal resistance [6]  | $R\theta_{J-C}$ | 8.0   |      |     | $^\circ\text{C}/\text{W}$ |

6-2 Absolute Maximum Ratings

| Parameter             | Symbol    | Value                    | Unit             |
|-----------------------|-----------|--------------------------|------------------|
| Forward Current       | $I_F$     | 1000                     | mA               |
| Power Dissipation     | $P_d$     | 4                        | W                |
| Junction Temperature  | $T_j$     | 145                      | $^\circ\text{C}$ |
| Operating Temperature | $T_{opr}$ | -40 ~ +85                | $^\circ\text{C}$ |
| Storage Temperature   | $T_{stg}$ | -40 ~ +100               | $^\circ\text{C}$ |
| ESD Sensitivity [7]   | -         | $\pm 10,000\text{V HBM}$ | -                |

\*Notes :

[1] SSC maintains a tolerance of  $\pm 10\%$  on flux and power measurements.

[2]  $\Phi_V$  is the total luminous flux output as measured with an integrated sphere.

[3] Dominant wavelength is derived from the CIE 1931 Chromaticity diagram.

A tolerance of  $\pm 0.5\text{nm}$  for dominant wavelength

[4] A tolerance of  $\pm 0.06\text{V}$  on forward voltage measurements

[5], [6]  $R\theta_{J-B}$  is measured with a SSC metal core pcb. ( $25^\circ\text{C} \leq T_j \leq 110^\circ\text{C}$ )

$R\theta_{J-C}$  is measured with only emitter. ( $25^\circ\text{C} \leq T_j \leq 110^\circ\text{C}$ )

Break voltage of Metal PCB is 6.5kVAC

[7] It is included the zener chip to protect the product from ESD.

-----Caution-----

**1. Please do not drive at rated current more than 5 sec. without proper heat sin**



## Characteristics for Z-Power LED

### 7. Red (R42182)

7-1 Electro-Optical characteristics at  $I_F=350\text{mA}$ ,  $T_A=25^\circ\text{C}$

| Parameter               | Symbol          | Value |     |     | Unit                      |
|-------------------------|-----------------|-------|-----|-----|---------------------------|
|                         |                 | Min   | Typ | Max |                           |
| Luminous Flux [1]       | $\Phi_V$ [2]    | -     | 48  | -   | lm                        |
| Dominant Wavelength [3] | $\lambda_D$     | 618   | 625 | 630 | nm                        |
| Forward Voltage [4]     | $V_F$           | 2.0   | 2.3 | 3.0 | V                         |
| View Angle              | $2\theta$ 1/2   | 130   |     |     | deg.                      |
| Thermal resistance [5]  | $R\theta_{J-B}$ | 9     |     |     | $^\circ\text{C}/\text{W}$ |
| Thermal resistance [6]  | $R\theta_{J-C}$ | 7.8   |     |     | $^\circ\text{C}/\text{W}$ |

7-2 Absolute Maximum Ratings

| Parameter             | Symbol    | Value                    | Unit             |
|-----------------------|-----------|--------------------------|------------------|
| Forward Current       | $I_F$     | 800                      | mA               |
| Power Dissipation     | $P_d$     | 2.4                      | W                |
| Junction Temperature  | $T_j$     | 145                      | $^\circ\text{C}$ |
| Operating Temperature | $T_{opr}$ | -40 ~ +85                | $^\circ\text{C}$ |
| Storage Temperature   | $T_{stg}$ | -40 ~ +100               | $^\circ\text{C}$ |
| ESD Sensitivity [7]   | -         | $\pm 10,000\text{V}$ HBM | -                |

\*Notes :

- [1] SSC maintains a tolerance of  $\pm 10\%$  on flux and power measurements.
- [2]  $\Phi_V$  is the total luminous flux output as measured with an integrated sphere.
- [3] Dominant wavelength is derived from the CIE 1931 Chromaticity diagram.  
A tolerance of  $\pm 0.5\text{nm}$  for dominant wavelength
- [4] A tolerance of  $\pm 0.06\text{V}$  on forward voltage measurements
- [5], [6]  $R\theta_{J-B}$  is measured with a SSC metal core pcb. ( $25^\circ\text{C} \leq T_j \leq 110^\circ\text{C}$ )  
 $R\theta_{J-C}$  is measured with only emitter. ( $25^\circ\text{C} \leq T_j \leq 110^\circ\text{C}$ )  
Break voltage of Metal PCB is 6.5kVAC
- [7] It is included the zener chip to protect the product from ESD.

-----Caution-----  
**1. Please do not drive at rated current more than 5 sec. without proper heat sink**

## Characteristics for Z-Power LED

### 8. Amber (A42182)

8-1 Electro-Optical characteristics at  $I_F=350\text{mA}$ ,  $T_A=25^\circ\text{C}$

| Parameter               | Symbol          | Value |     |     | Unit                      |
|-------------------------|-----------------|-------|-----|-----|---------------------------|
|                         |                 | Min   | Typ | Max |                           |
| Luminous Flux [1]       | $\Phi_V$ [2]    | -     | 48  | -   | lm                        |
| Dominant Wavelength [3] | $\lambda_D$     | 585   | 590 | 595 | nm                        |
| Forward Voltage [4]     | $V_F$           | 2.0   | 2.3 | 3.0 | V                         |
| View Angle              | $2\theta$ 1/2   | 130   |     |     | deg.                      |
| Thermal resistance [5]  | $R\theta_{J-B}$ | 9     |     |     | $^\circ\text{C}/\text{W}$ |
| Thermal resistance [6]  | $R\theta_{J-C}$ | 7.8   |     |     | $^\circ\text{C}/\text{W}$ |

8-2 Absolute Maximum Ratings

| Parameter             | Symbol    | Value                    | Unit             |
|-----------------------|-----------|--------------------------|------------------|
| Forward Current       | $I_F$     | 800                      | mA               |
| Power Dissipation     | $P_d$     | 2.4                      | W                |
| Junction Temperature  | $T_j$     | 145                      | $^\circ\text{C}$ |
| Operating Temperature | $T_{opr}$ | -40 ~ +85                | $^\circ\text{C}$ |
| Storage Temperature   | $T_{stg}$ | -40 ~ +100               | $^\circ\text{C}$ |
| ESD Sensitivity [7]   | -         | $\pm 10,000\text{V HBM}$ | -                |

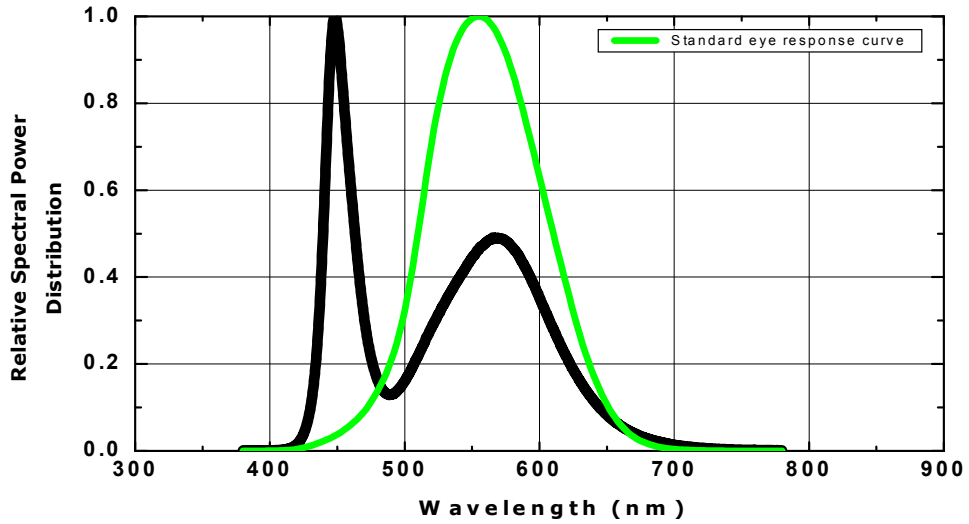
\*Notes :

- [1] SSC maintains a tolerance of  $\pm 10\%$  on flux and power measurements.
- [2]  $\Phi_V$  is the total luminous flux output as measured with an integrated sphere.
- [3] Dominant wavelength is derived from the CIE 1931 Chromaticity diagram.  
A tolerance of  $\pm 0.5\text{nm}$  for dominant wavelength
- [4] A tolerance of  $\pm 0.06\text{V}$  on forward voltage measurements
- [5], [6]  $R\theta_{J-B}$  is measured with a SSC metal core pcb. ( $25^\circ\text{C} \leq T_j \leq 110^\circ\text{C}$ )  
 $R\theta_{J-C}$  is measured with only emitter. ( $25^\circ\text{C} \leq T_j \leq 110^\circ\text{C}$ )  
Break voltage of Metal PCB is 6.5kVAC
- [7] It is included the zener chip to protect the product from ESD.

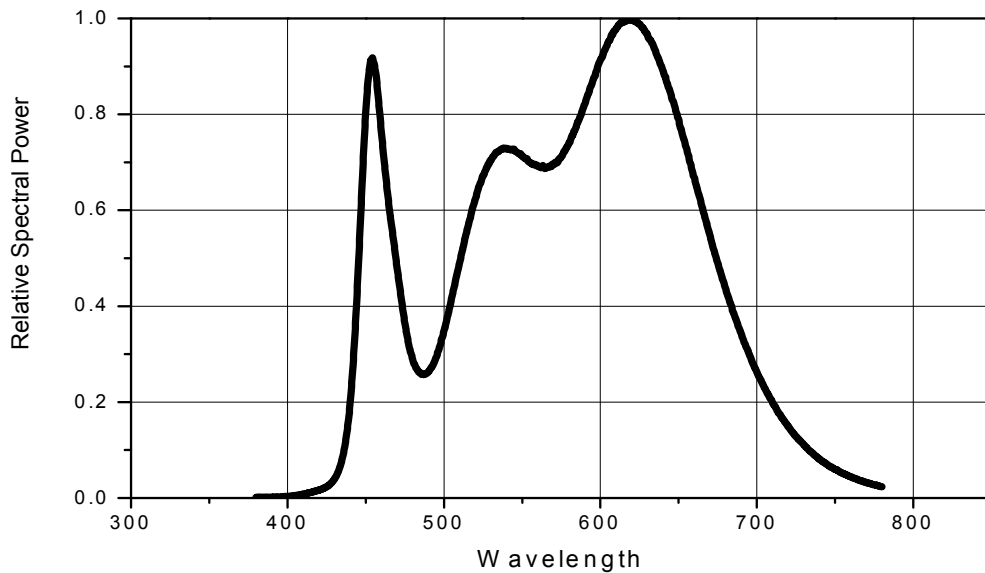
-----Caution-----  
**1. Please do not drive at rated current more than 5 sec. without proper heat sink**

Color Spectrum,  $T_A=25^\circ\text{C}$

1. Pure White



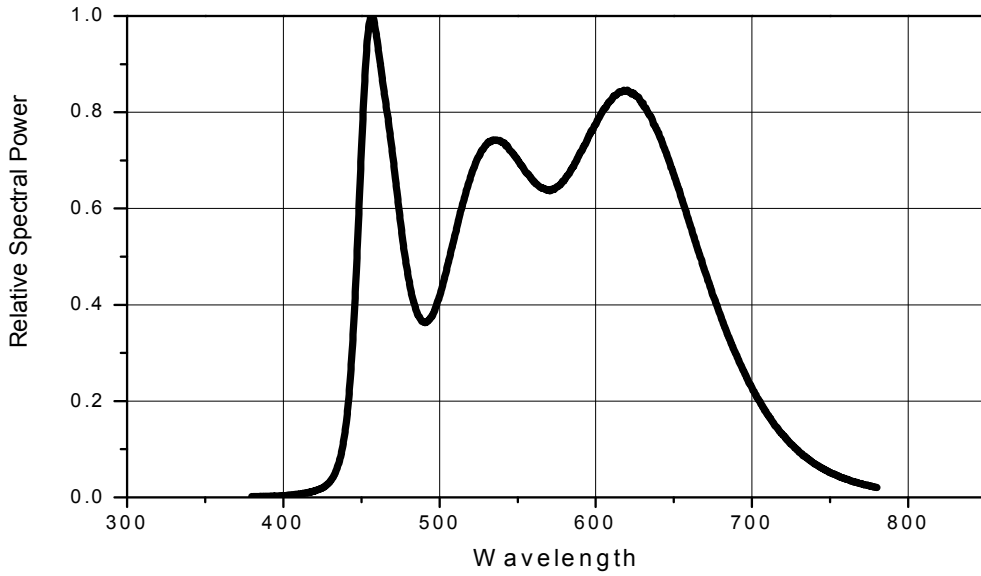
2. Warm White



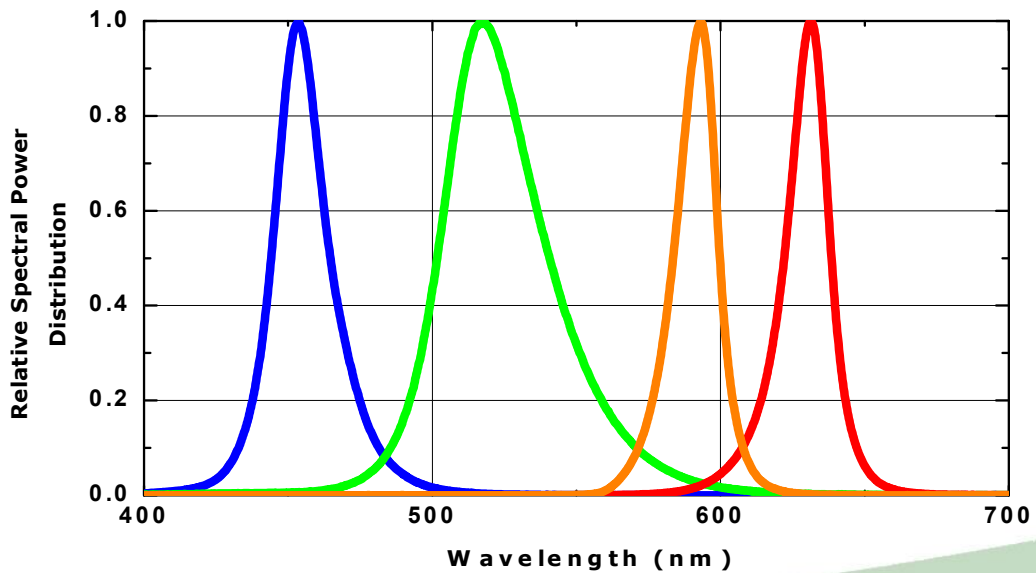


**Color Spectrum,  $T_A=25^\circ\text{C}$**

**3. Natural White**

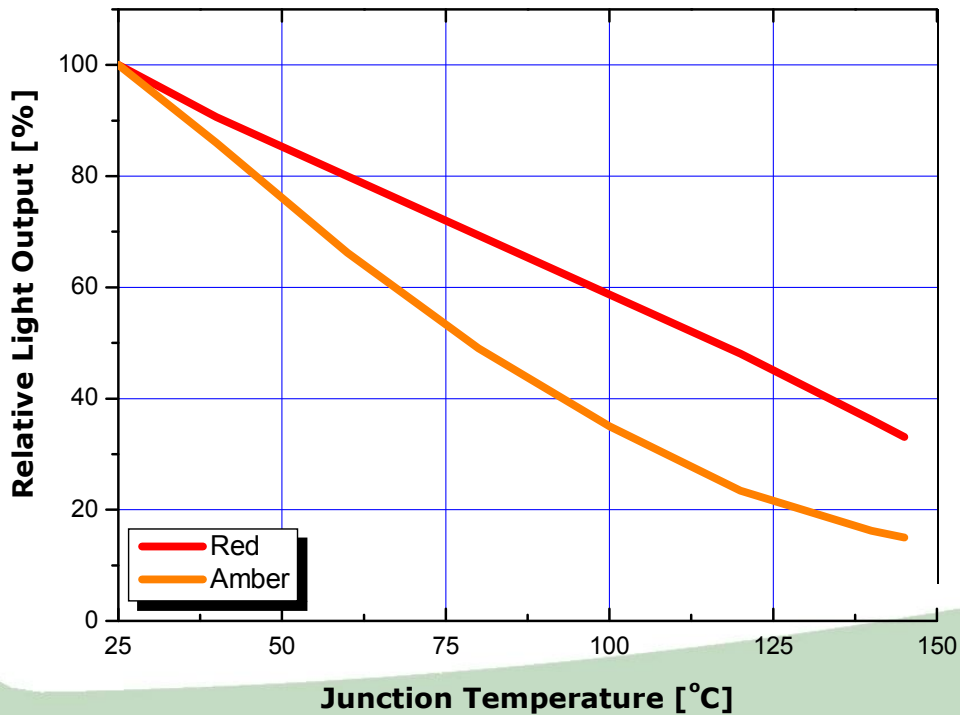
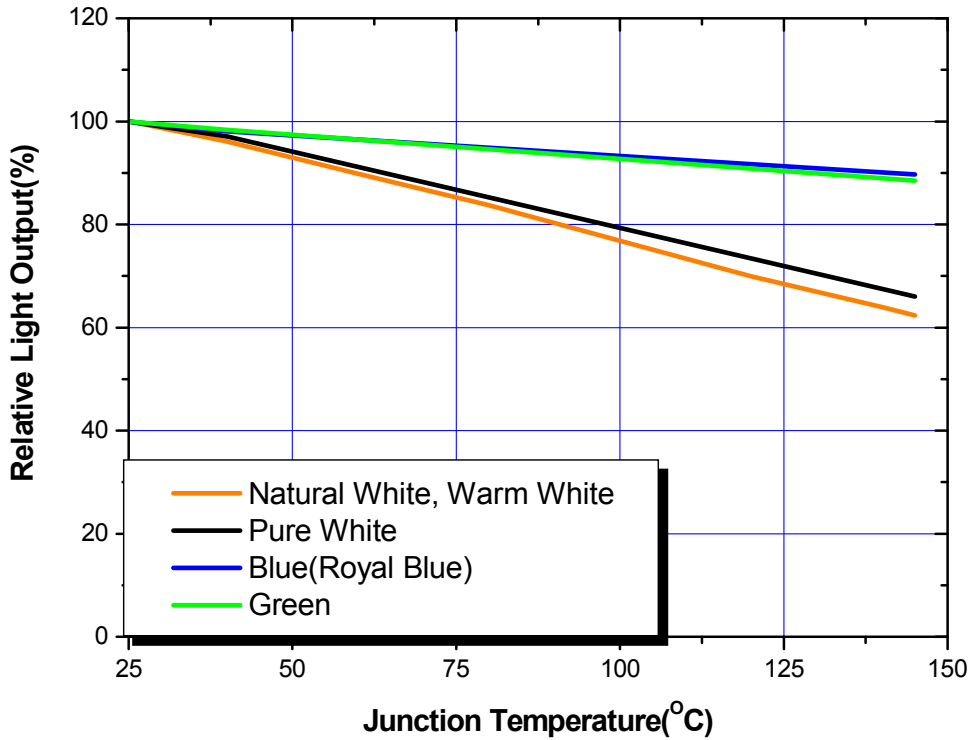


**4. Red, Amber, Green, Blue(Royal Blue)**



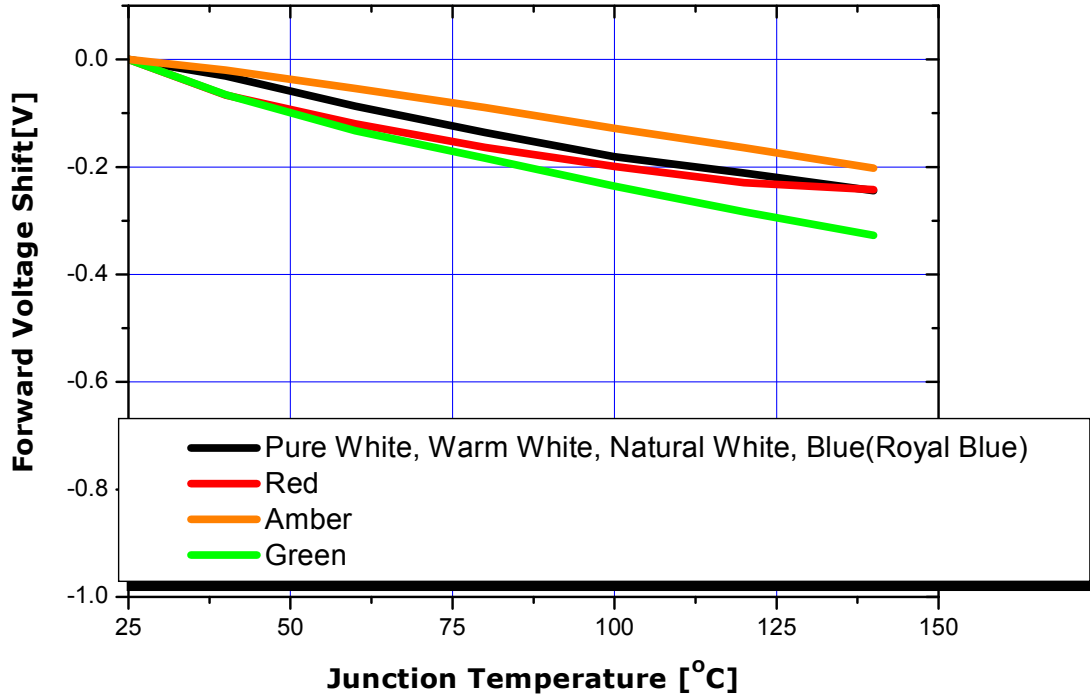
## Junction Temperature Characteristics

### 1. Relative Light Output vs. Junction Temperature at $I_F=350\text{mA}$

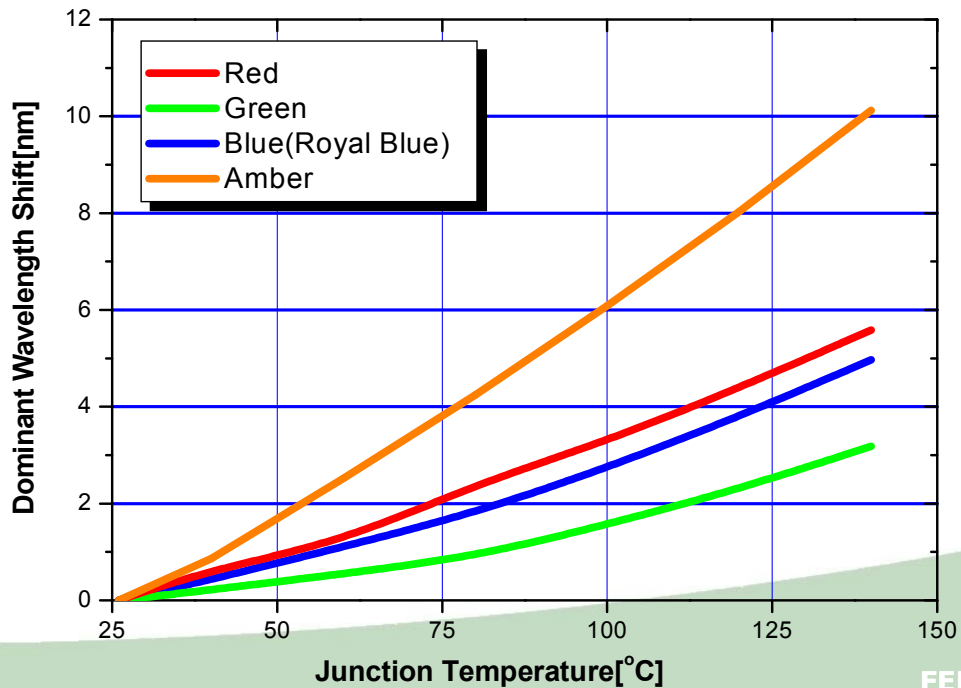


## Junction Temperature Characteristics

### 2. Forward Voltage Shift vs. Junction Temperature at $I_F=350\text{mA}$

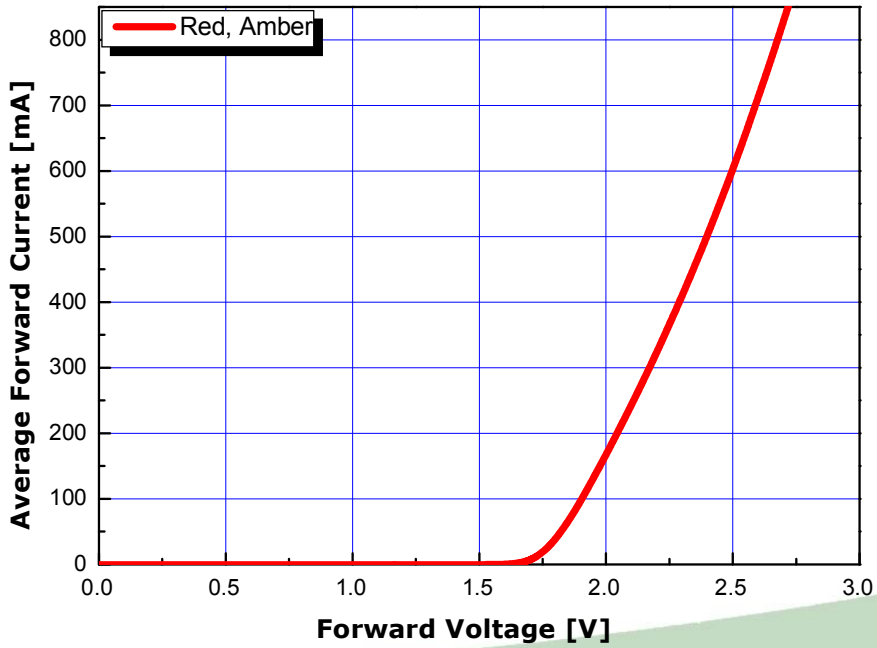
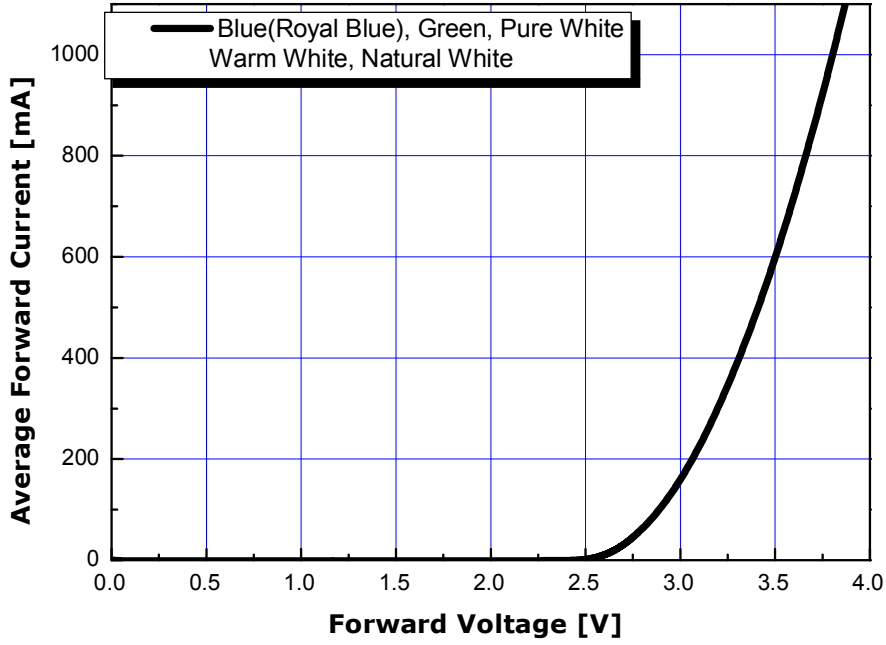


### 3. Wavelength Shift vs. Junction Temperature at $I_F=350\text{mA}$



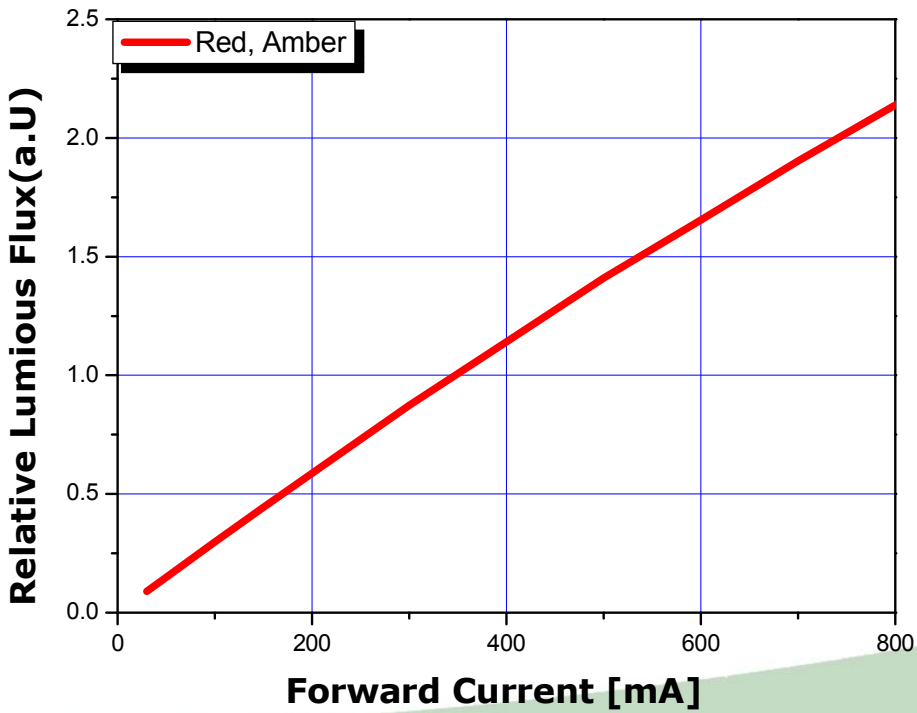
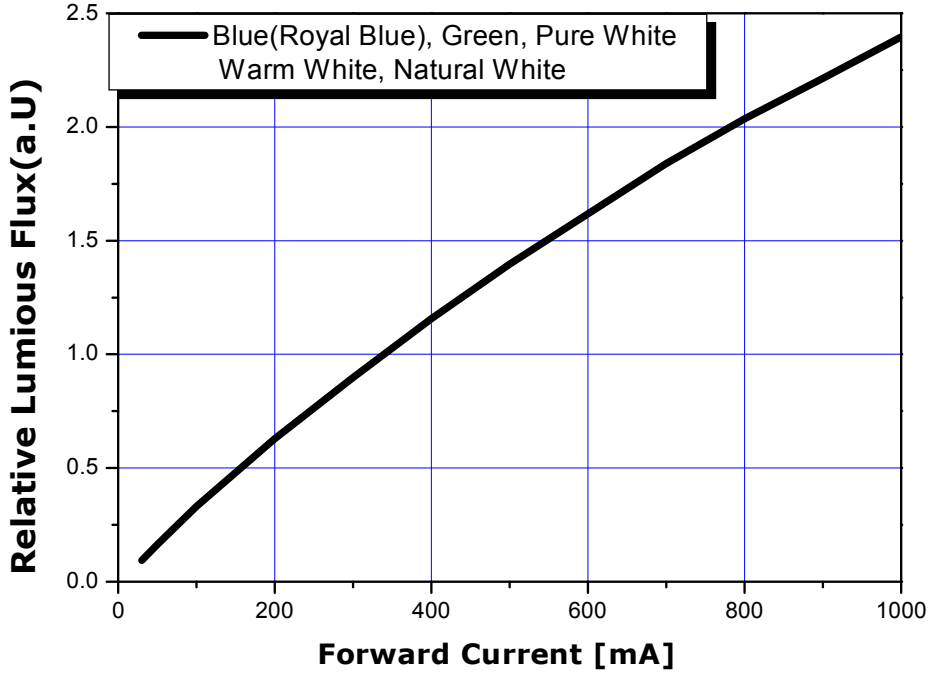
### Forward Current Characteristics

#### 1. Forward Voltage vs. Forward Current , $T_A=25\text{ }^\circ\text{C}$



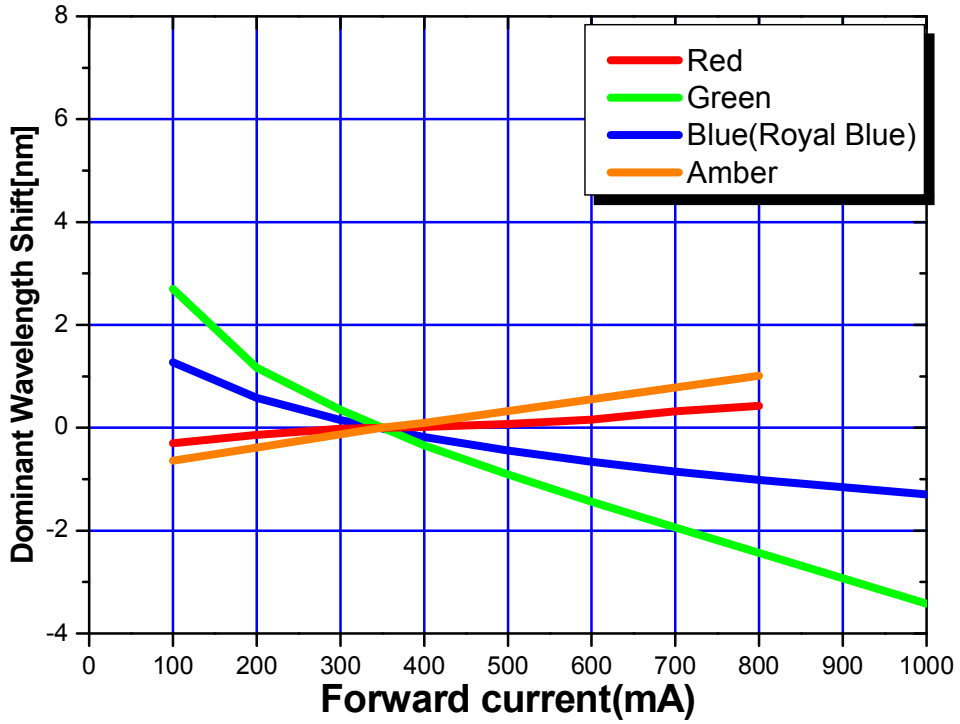
**Forward Current Characteristics**

**2. Forward Current vs. Normalized Relative Luminous Flux,  $T_A=25\text{ }^\circ\text{C}$**



### Forward Current Characteristics

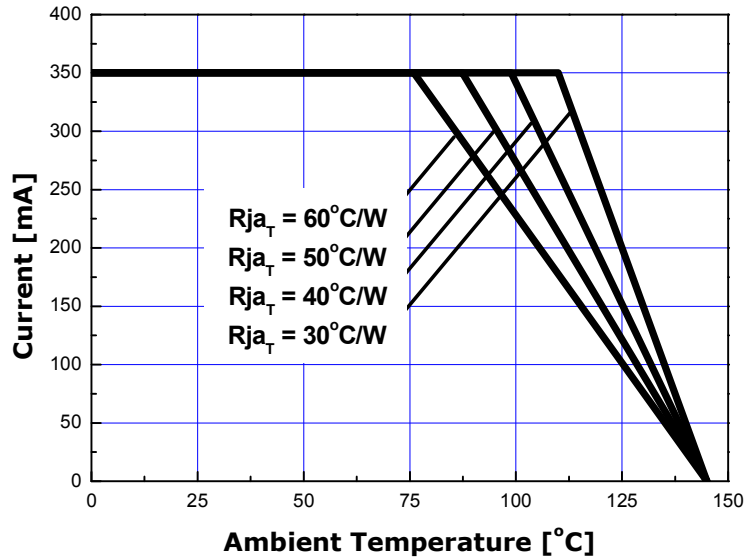
#### 3. Forward Current vs Wavelength Shift, $T_A=25\text{ }^\circ\text{C}$



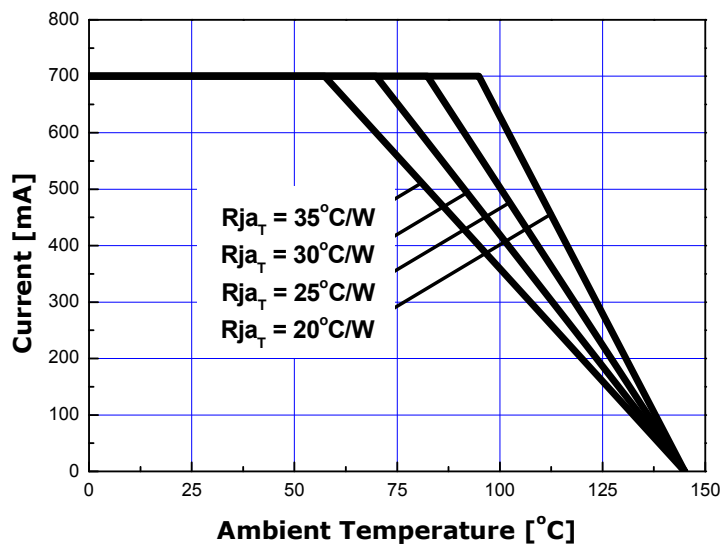


### Ambient Temperature vs Allowable Forward Current

**1-1. Pure White, Warm White, Natural White, Green, Blue(Royal Blue)**  
 ( $T_{JMAX} = 145\text{ }^{\circ}\text{C}$ , @350mA)

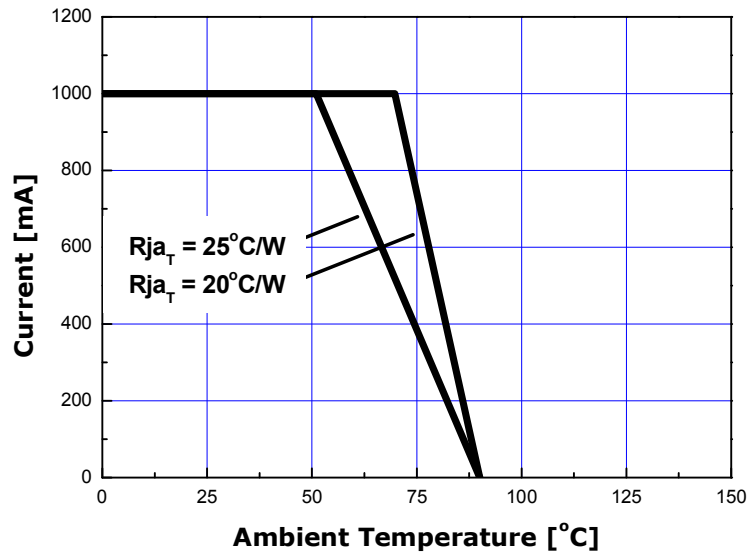


**1-2. Pure White, Warm White, Natural White, Green, Blue(Royal Blue)**  
 ( $T_{JMAX} = 145\text{ }^{\circ}\text{C}$ , @700mA)



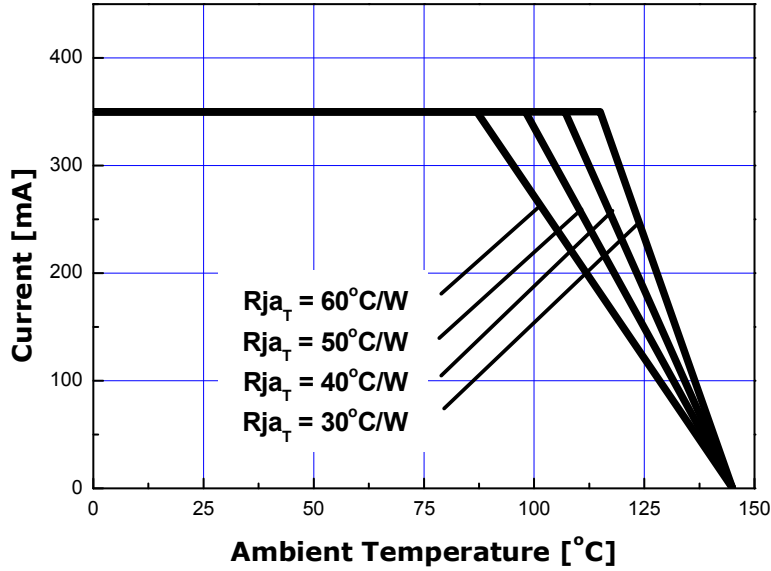
### Ambient Temperature vs Allowable Forward Current

1-3. Pure White, Green, Blue(Royal Blue)  
 ( $T_{JMAX} = 90\text{ }^{\circ}\text{C}$ , at 1000mA)

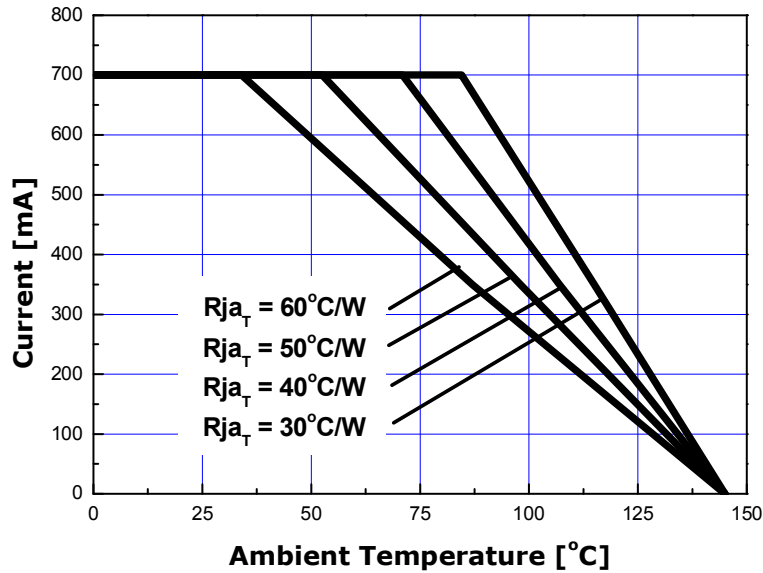


**Ambient Temperature vs Allowable Forward Current**

**1-4. Red, Amber ( $T_{JMAX} = 145\text{ }^{\circ}\text{C}$ , at 350mA)**

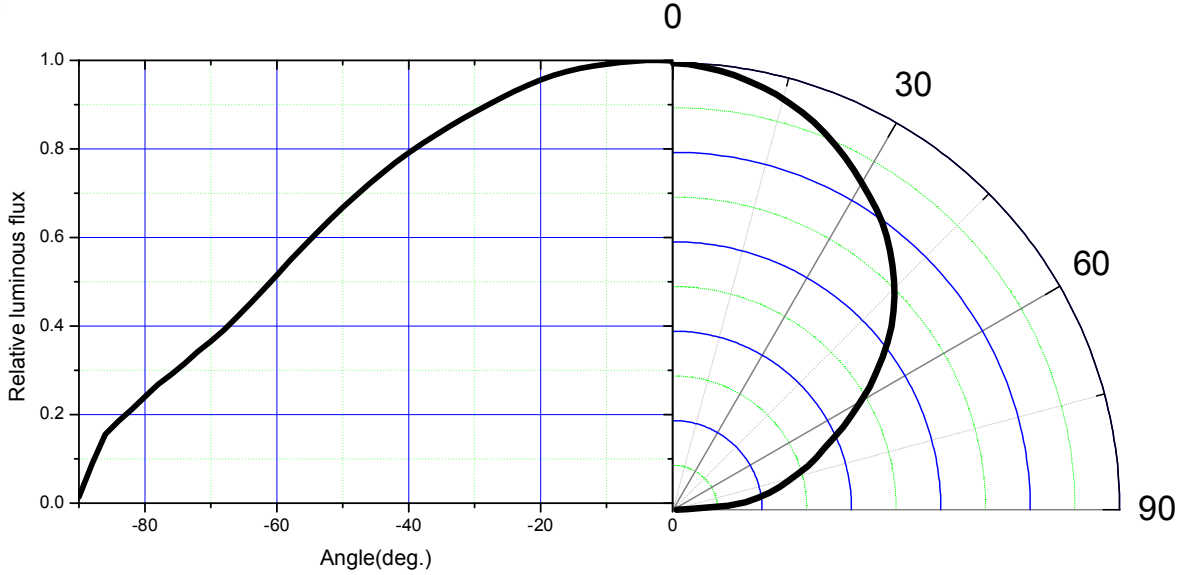


**1-5. Red, Amber ( $T_{JMAX} = 145\text{ }^{\circ}\text{C}$ , @700mA)**

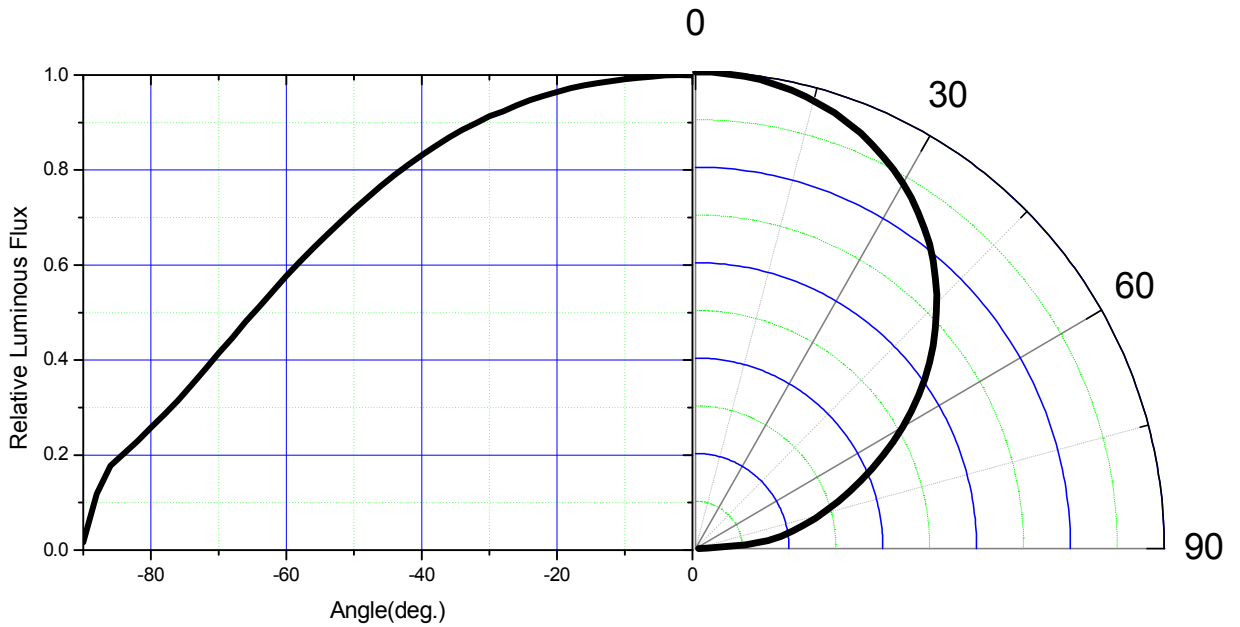


**Typical Dome Type Radiation pattern**

**1. Pure White**

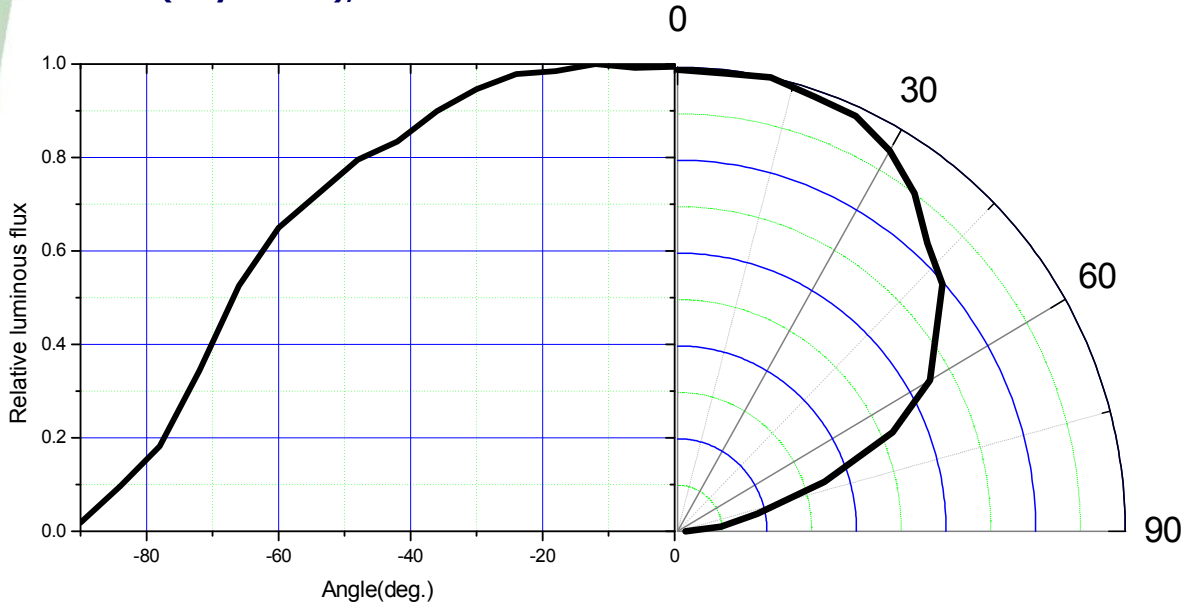


**2. Warm White, Natural White**

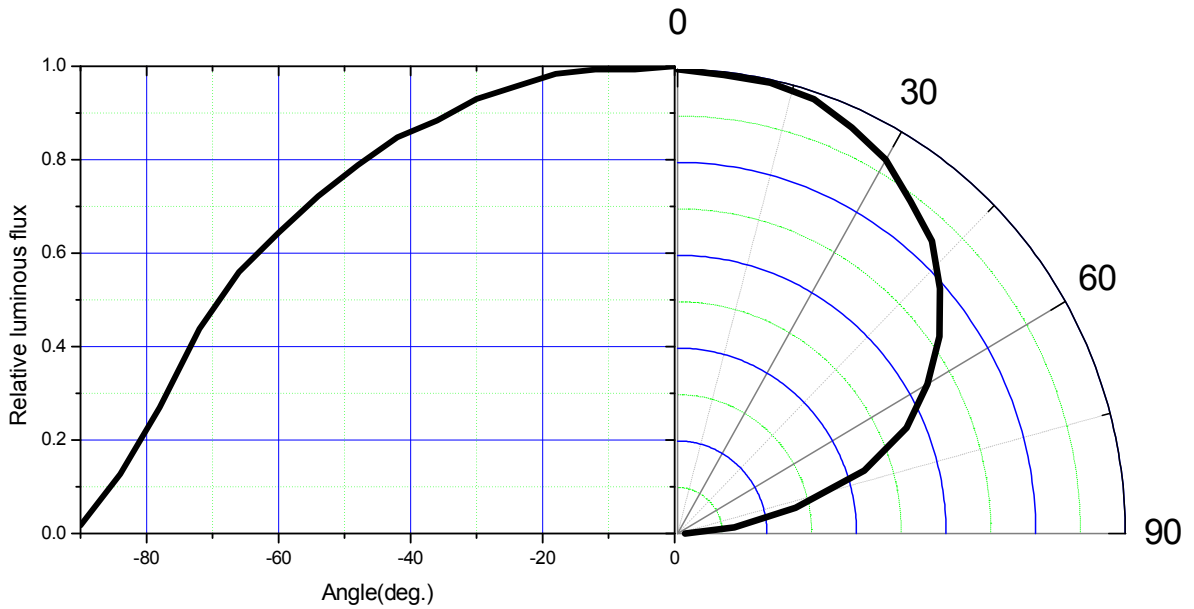


**Typical Dome Type Radiation pattern**

**3. Blue(Royal Blue), Green**

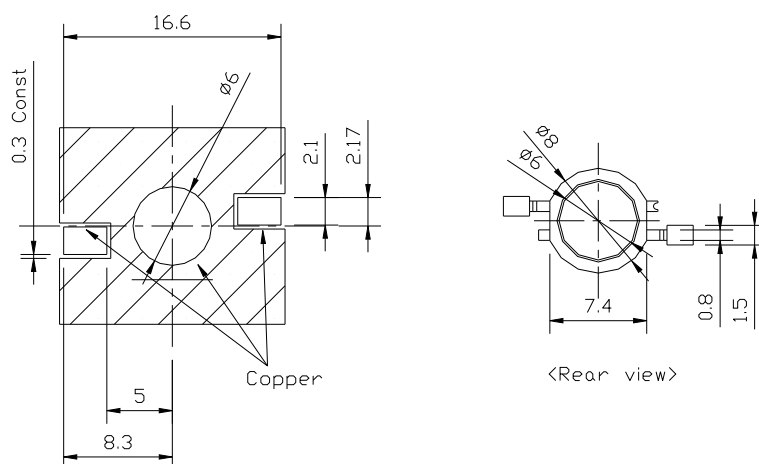
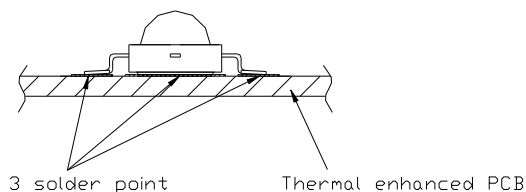


**4. Red, Amber**

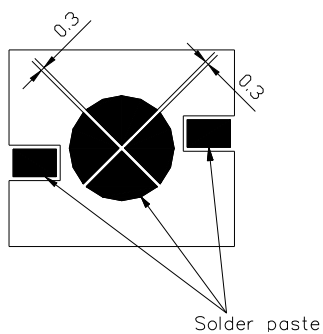


## Recommended Solder pad

### 1. Solder pad



### 2. Solder paste pattern



Note :

1. All dimensions are in millimeters (tolerance :  $\pm 0.2$  )
2. Scale none

\*The appearance and specifications of the product may be changed for improvement without notice.