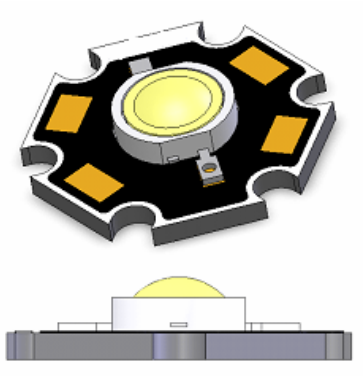
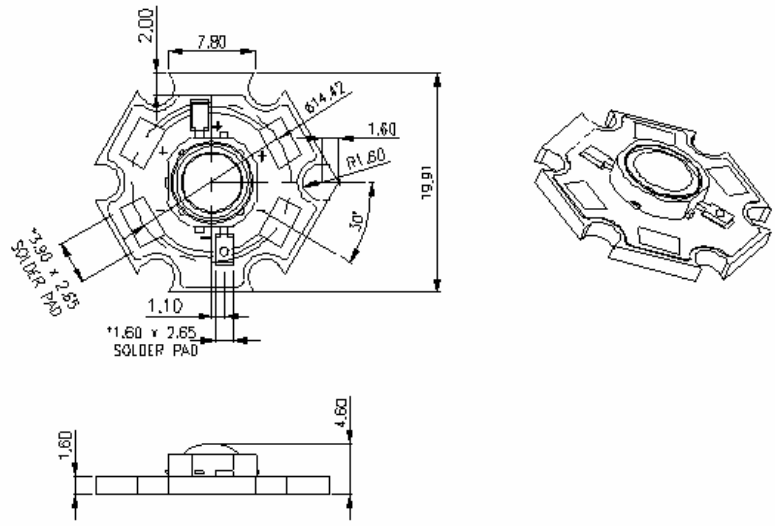
# ProLite 5W SMD Star

# BTP5-99XXCT-XX-X/W



## Package Dimension




Note: Lens is low dome profile

Tolerance: ± see spec Unit: mm

## Features

- Highest Lumen Per Watt
- Long Operational Life
- White Housing
- Superior ESD Protection
- Instant Light (less than 100ns)
- Compatible to Luxeon's "Lambertian"
- True SMD Emitter
- IR Reflow Soldering Process

## Applications

- Accent Light/Down Light/Spot Light
- Automotive Exterior/Interior Light
- Large Area LCD Backlights
- Marine/Miner's Lighting
- Portable Flashlight/ General Lighting

## Optical Characteristics at $T_J$=25ºC, $I_F$=700mA

| PART NUMBER | Emitting Color | LED Chip Material | Lens Color | Wavelength (nm) CCT (K) Range | | Drive Voltage @ 700mA | Luminous Flux (lm) @700mA | VIEW ANGLE $2\theta_{1/2}$ (deg) |
|---|---|---|---|---|---|---|---|---|
| | | | | Min | Max | Typ. | Typ. | |
| BTP5-99NRCT-XX-X/W | Normal Red | AlInGaP | Water Clear | 620 | 645 | 4.40V | 120 | 140 |
| BTP5-99AMCT-XX-X/W | Amber | | Water Clear | 610 | 620 | 4.40V | 144 | |
| BTP5-99YECT-XX-X/W | Yellow | | Water Clear | 585 | 600 | 4.40V | 112 | |
| BTP5-99BLCT-XX-X/W | Blue | AlInGaN | Water Clear | 460 | 490 | 7.10V | 40 | |
| BTP5-99PGCT-XX-X/W | Green | | Water Clear | 520 | 545 | 7.10V | 120 | |
| BTP5-99WWCT-XX-X/W | Warm White | | Water Clear | 2800K | 3800K | 7.10V | 96 | |
| BTP5-99WHCT-XX-X/W | White | | Water Clear | 5000K | 8000K | 7.10V | 100 | |

**Notes:**

1) Picture for illustration purpose only. Please refer to outline dimension for actual package size.

2) Flux is measured with the accuracy of ±15%. Please refer to Flux Selection Guide

3) CCT is measured with the accuracy of ± 400K. Please refer to CCT Selection Guide

4) $V_F$ is measured with the accuracy of ± 0.15V. Please refer to $V_F$ Selection Guide

# ProLite 5W SMD Star

# BTP5-99XXCT-XX-X/W

## Absolute Maximum Ratings at $T_J$=25ºC

| Parameter | Red/Amber/Yellow | White/Blue/Green |
|---|---|---|
| Power Dissipation (W) | 4.35 | 5.59 |
| DC Forward Current (mA)[1] | 700 | 700 |
| Peak Pulsed Forward Current (mA) [4] | 1000 | 1000 |
| Average Forward Current (mA) | 700 | 700 |
| Reverse Voltage (V) | 5 | 5 |
| Reverse Current (uA) | 50 | 50 |
| ESD Sensitivity (V) [2] | 16,000 | 16,000 |
| LED Junction Temperature at 350mA (°C) [3] | 120 | 135 |
| Thermal Resistance Junction to Board (°C/W) | 13 | 13 |
| Temperature Coefficient of $V_F$ (mV/°C) | -2 | -2 |
| Storage Temperature (°C) | -40 to +105 | -40 to +105 |
| Operating Temperature (°C) | -40 to +105 | -40 to +105 |
| Lead Soldering Temperature (°C)[4] | 260°C for 5 seconds max | 260°C for 5 seconds max |

**Application Notes:**

1. Proper forward current must be observed to maintain the junction temperature below maximum rating
2. Although all products listed are class two ESD protection (+/- 16KV by HBM mode), care must be fully taken when handling products
3. Specification is subjected to change for improvements without notice.
4. Test conditions: tp≤10us, duty cycle = 0.005
5. CAUTION: When lighting up, the emitter will become very hot if it is not attached to a heat sink. Please provide proper heat management to prevent damage to the emitter.

**WARNING**

This range of LEDs is produced with die having a high radiant flux. Care must be taken when viewing the product at close range as the light may be intense enough to cause damage to the human eye.

**Note:** Industry standard procedures regarding static must be observed when handling this product.

DB LECTRO
COMPOSANTS ÉLECTRONIQUES
ELECTRONIC COMPONENTS

Brilliance Technologies Co.,Ltd.

# ProLite 5W SMD Star

# BTP5-99XXCT-XX-X/W

CCT, Flux and $V_F$ Selection Guide (@$T_J$=25ºC, $I_F$=700mA)

## BTP5-99XXCT-XX-X/W

White Housing

### Wavelength Ranks Selection

| Color | Bin | $\lambda_D$(nm) | |
|---|---|---|---|
| | | Min | Max |
| Blue | B5 | 460 | 465 |
| | B6 | 465 | 470 |
| | B7 | 470 | 475 |
| | B8 | 475 | 480 |
| | B9 | 480 | 485 |
| | B10 | 485 | 490 |
| | XX | 460 – 490 | |
| Green | G7 | 520 | 525 |
| | G8 | 525 | 530 |
| | G9 | 530 | 535 |
| | G10 | 535 | 540 |
| | G11 | 540 | 545 |
| | XX | 520 – 545 | |
| Red | XX | 620 – 630 | |
| Amber | XX | 610 – 620 | |
| Yellow | XX | 585 – 600 | |

### CCT Ranks Selection

| Color Temp | Bin | CCT(K) | |
|---|---|---|---|
| | | Min | Max |
| Warm White | 00 | 2800 | 3300 |
| | 01 | 3300 | 3800 |
| | XX | 2800K – 3800K | |
| White | 02 | 5000 | 6000 |
| | 03 | 6000 | 7000 |
| | 04 | 7000 | 8000 |
| | XX | 5000K – 8000K | |

### Flux Ranks Selection

| Color | Bin | Flux (lumens) |
|---|---|---|
| Blue | P | 23~30 |
| | Q | 30~39 |
| | R | 39~50 |
| | X | Default Full Range |
| Red Amber Yellow Green White | T | 65~85 |
| | U | 85~111 |
| | V | 111~144 |
| | W | 144~187 |
| | X | Default Full Range |

### $V_F$ Ranks Selection

| Color | Bin | $V_F$ (V) | |
|---|---|---|---|
| | | Min | Max |
| Red Amber Yellow | V12 | 3.6 | 3.8 |
| | V13 | 3.8 | 4.0 |
| | V14 | 4.0 | 4.2 |
| | V15 | 4.2 | 4.4 |
| | V16 | 4.4 | 4.6 |
| | V17 | 4.6 | 4.8 |
| | VXX(Full) | 3.6~4.8 | |
| Warm White White Blue Green | V27 | 6.8 | 7.0 |
| | V29 | 7.0 | 7.2 |
| | V30 | 7.2 | 7.4 |
| | V31 | 7.4 | 7.6 |
| | V32 | 7.6 | 7.8 |
| | V33 | 7.8 | 8.0 |
| | VXX(Full) | 6.8~8.0 | |

**(Please specify on order, otherwise, default full range of $V_F$)**

## Typical Electro-Optical Characteristics Curves

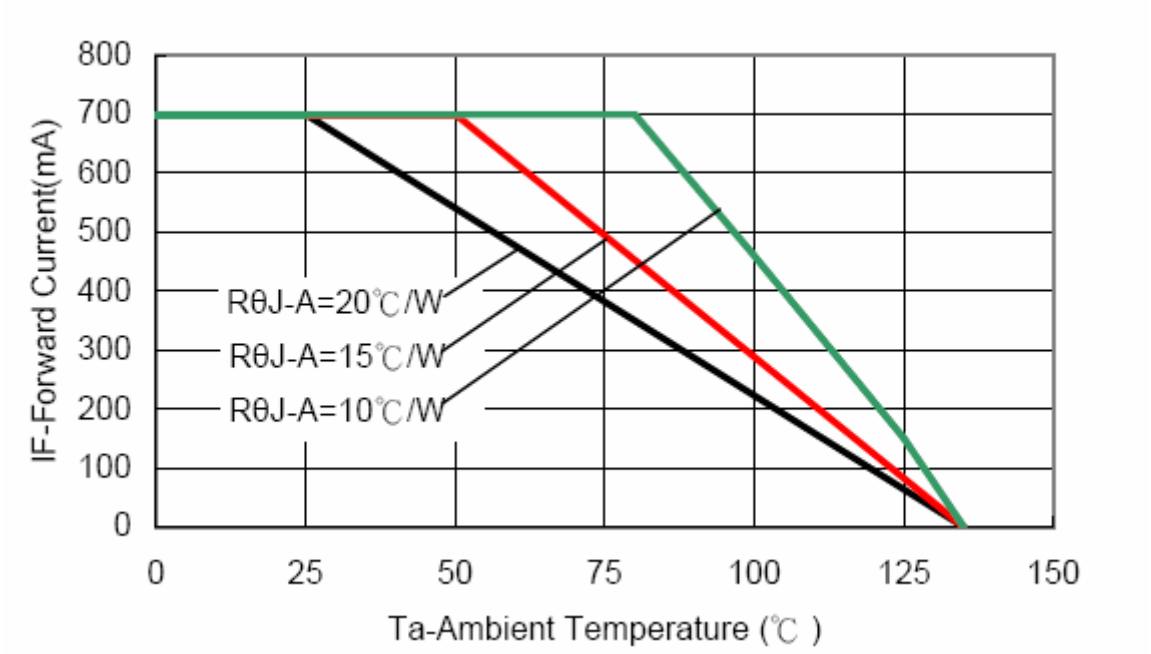



**Fig. 1 Forward Current vs Ambient Temperature (Green, Blue and White)**

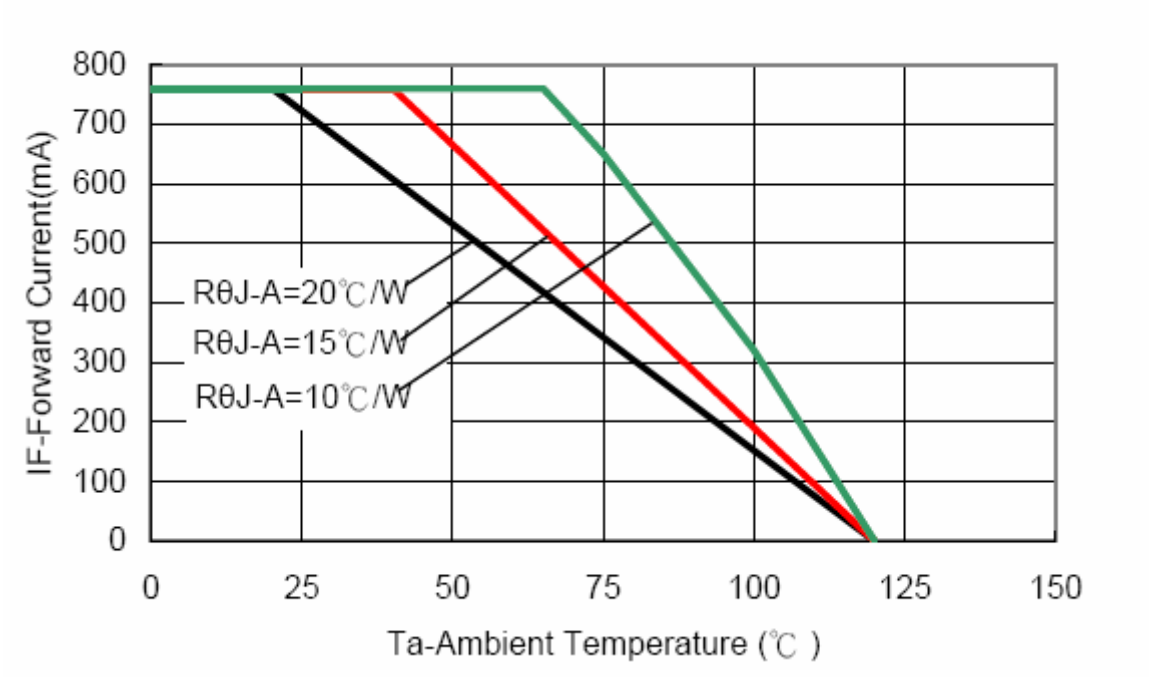



**Fig. 2 Forward Current vs Ambient Temperature (Red, Amber and Yellow)**

## Forward Current Characteristics, Tj=25℃

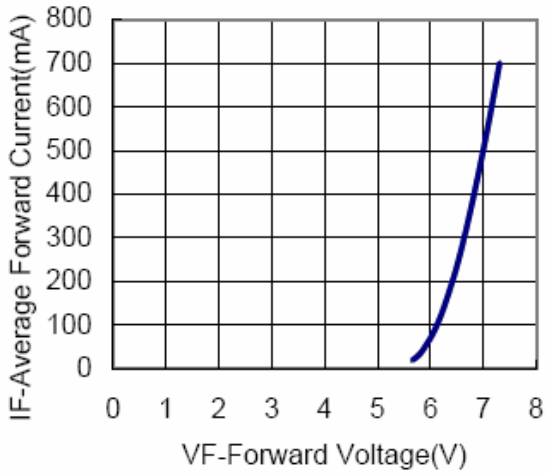



Fig 3a. Forward Current vs. Forward Voltage for White, Warm White, Blue and Green.

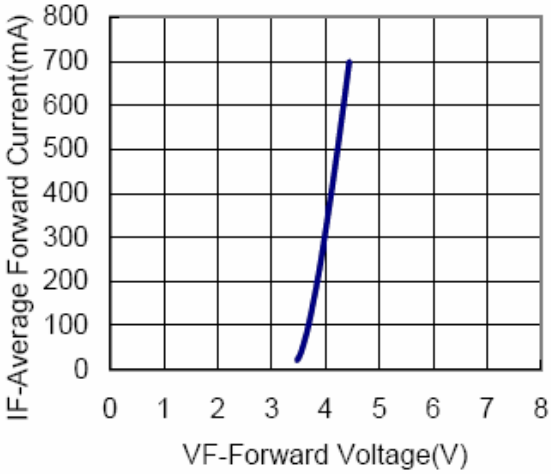



Fig 3b. Forward Current vs. Forward Voltage for Amber, Red-Orange and Red.

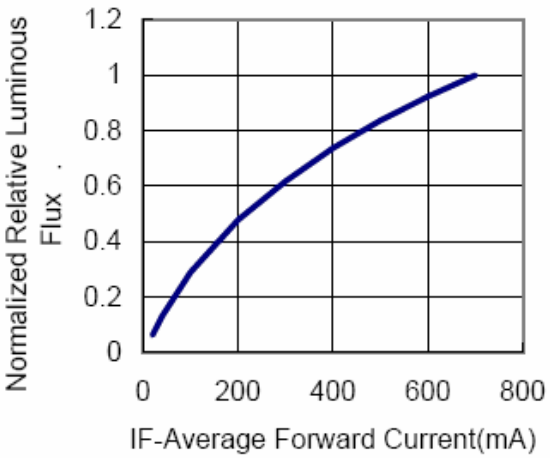



Fig 4a. Relative Luminous Flux vs. Forward Current for White, Warm White, Blue and Green at Tj=25℃ maintained.

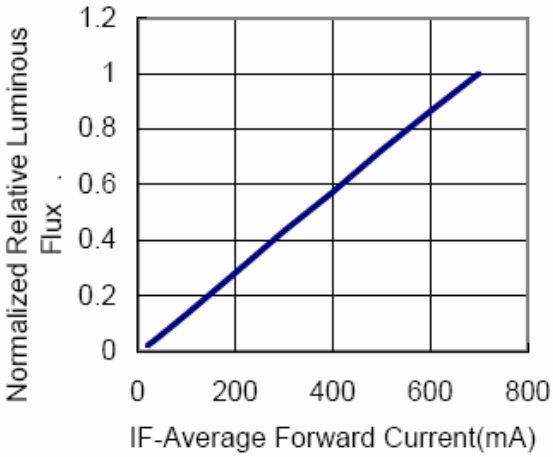



Fig 4b. Relative Luminous Flux vs. Forward Current for Amber, Red-Orange, Red at Tj=25℃ maintained.

## Typical Electro-Optical Characteristics Curves

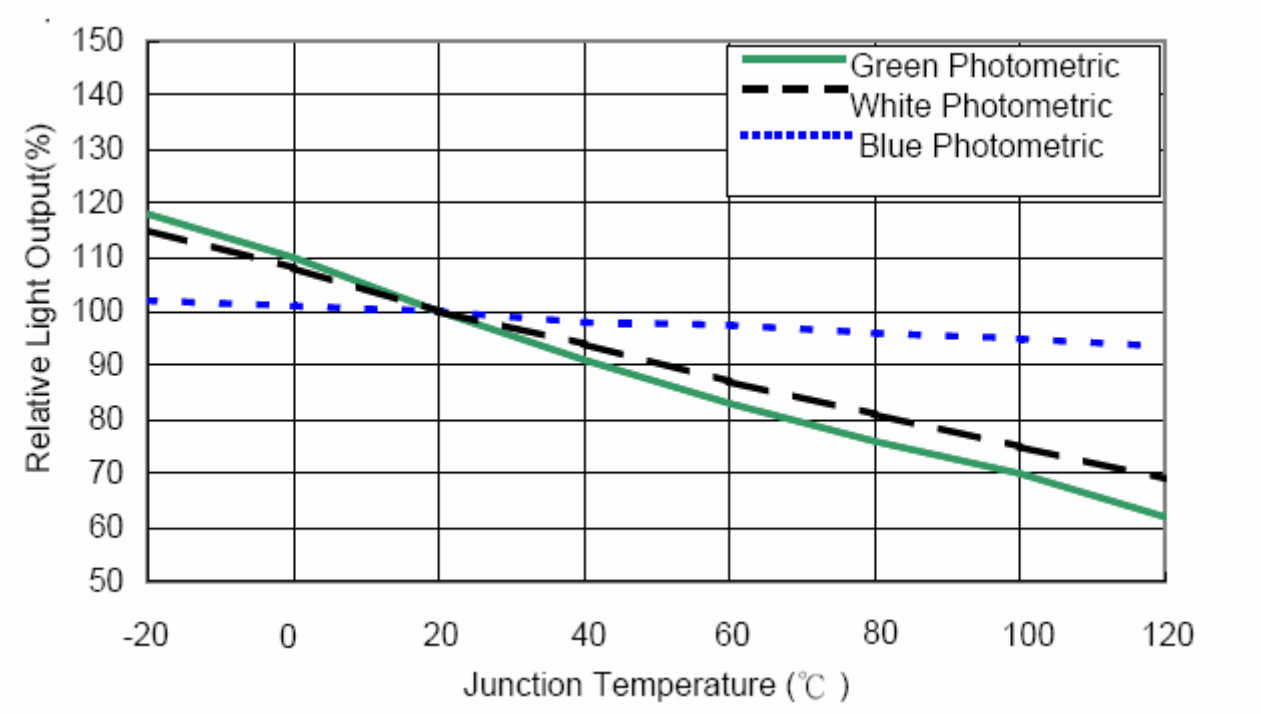



**Fig. 5a Relative Light Output vs Junction Temperature**

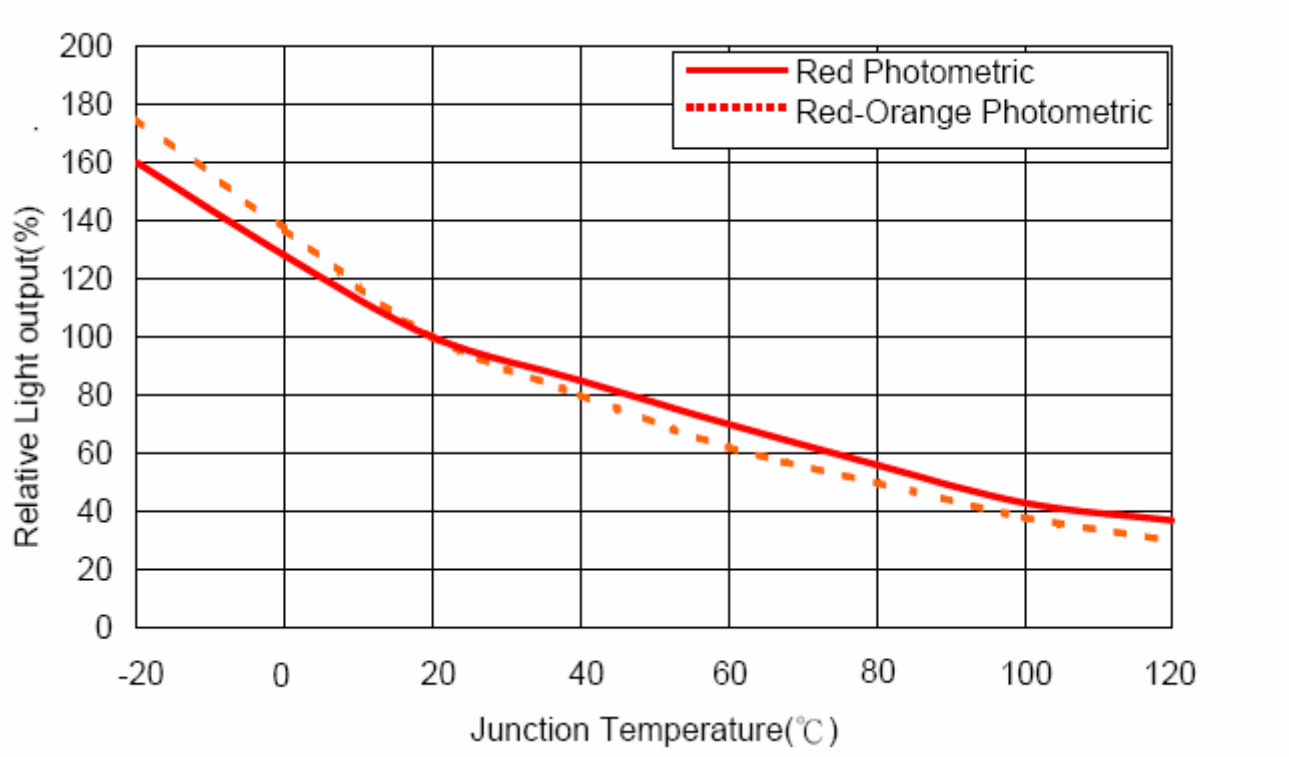



**Fig. 5b Relative Light Output vs Junction Temperature**

# ProLite 5W SMD Star

# BTP5-99XXCT-XX-X/W

## Typical Electro-Optical Characteristics Curves

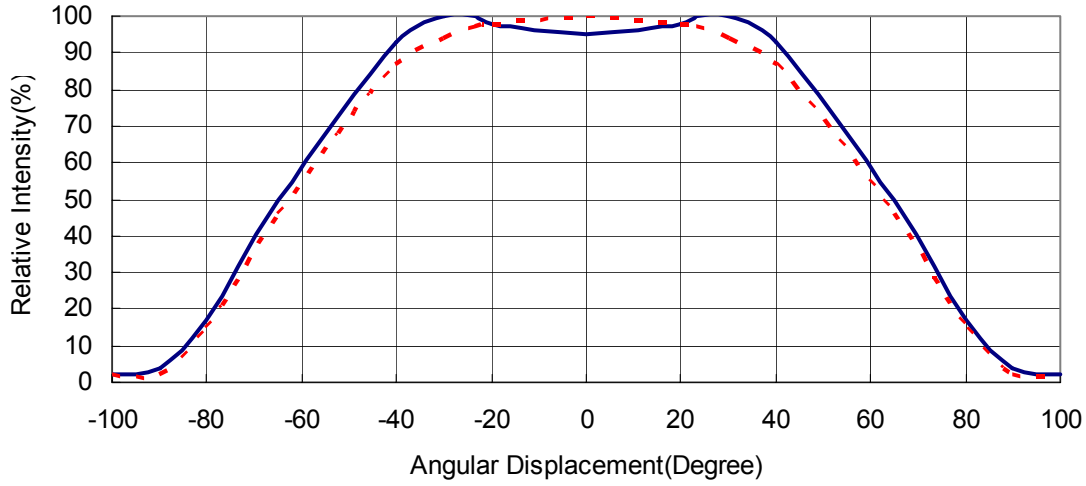



**Fig. 6 Typical Radiation Pattern**

## Other Important Notes

- **The information contained herein is presented only as a Guide for the application of our products. Brilliance Technologies assumes no responsibility for any infringement of intellectual property or other rights of the third parties which may result from its use.**
- **Brilliance Technologies continually improves the quality of our products. Nevertheless, semiconductor devices in general can malfunction or fail due to their inherent electrical sensitivity and vulnerability to physical stress. It is the responsible of the customer, when using Brilliance Technologies products, to comply with the standard of safety in making a safe design for the entire system, and to avoid situations in which a malfunction or failure of such Brilliance Technologies products cause loss of human life, bodily injury or damage to property.**
- **Brilliance Technologies products listed in this data sheet are intended for usage in general electronics and/or non-commercial or industrial lighting products. These products are neither intended nor warranted for usage in equipment that requires extraordinarily high quality and/or reliability or a malfunction or failure of which may cause loss of human life or bodily injury.**
- **In developing your design, please ensure that Brilliance Technologies products are used within specified operating ranges as set forth in the most recent Brilliance Technologies data sheets.**

BT-Rev. 1.0B20050120
Specifications are subject to change for improvement without notice.