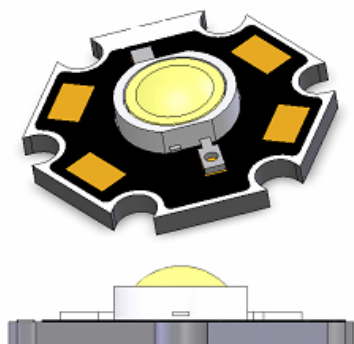
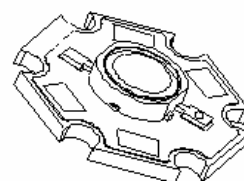
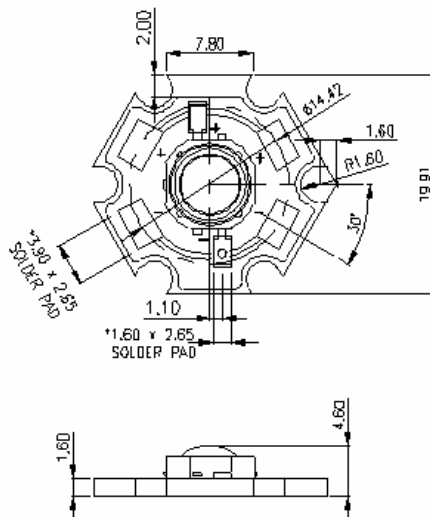


# ProLite 5W SMD Star

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



### Package Dimension



### 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

Note: Lens is low dome profile

### Applications

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

Tolerance: ± see spec

Unit: mm

### Optical Characteristics at $T_J=25^{\circ}\text{C}$ , $I_F=700\text{mA}$

PART NUMBER	Emitting Color	LED Chip Material	Lens Color	Wavelength (nm)		Drive Voltage @ 700mA	Luminous Flux (lm) @700mA	VIEW ANGLE $2\theta_{1/2}$ (deg)
				Min	Max			
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  $\pm 15\%$ . Please refer to Flux Selection Guide
- 3) CCT is measured with the accuracy of  $\pm 400\text{K}$ . Please refer to CCT Selection Guide
- 4)  $V_F$  is measured with the accuracy of  $\pm 0.15\text{V}$ . Please refer to  $V_F$  Selection Guide

**Absolute Maximum Ratings at  $T_J=25^{\circ}\text{C}$** 

Parameter	Red/Amber/Yellow	White/Blue/Green
Power Dissipation (W)	4.35	5.59
DC Forward Current (mA) <sup>[1]</sup>	700	700
Peak Pulsed Forward Current (mA) <sup>[4]</sup>	1000	1000
Average Forward Current (mA)	700	700
Reverse Voltage (V)	5	5
Reverse Current (uA)	50	50
ESD Sensitivity (V) <sup>[2]</sup>	16,000	16,000
LED Junction Temperature at 350mA ( $^{\circ}\text{C}$ ) <sup>[3]</sup>	120	135
Thermal Resistance Junction to Board ( $^{\circ}\text{C}/\text{W}$ )	13	13
Temperature Coefficient of $V_F$ (mV/ $^{\circ}\text{C}$ )	-2	-2
Storage Temperature ( $^{\circ}\text{C}$ )	-40 to +105	-40 to +105
Operating Temperature ( $^{\circ}\text{C}$ )	-40 to +105	-40 to +105
Lead Soldering Temperature ( $^{\circ}\text{C}$ ) <sup>[4]</sup>	260 $^{\circ}\text{C}$ for 5 seconds max	260 $^{\circ}\text{C}$ 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:  $t_p \leq 10\mu\text{s}$ , 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.

CCT, Flux and  $V_F$  Selection Guide (@ $T_J=25^{\circ}\text{C}$ ,  $I_F=700\text{mA}$ )

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

White Housing

### Wavelength Ranks Selection

Color	Bin	$\lambda_D(\text{nm})$	
		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	

### 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

### CCT Ranks Selection

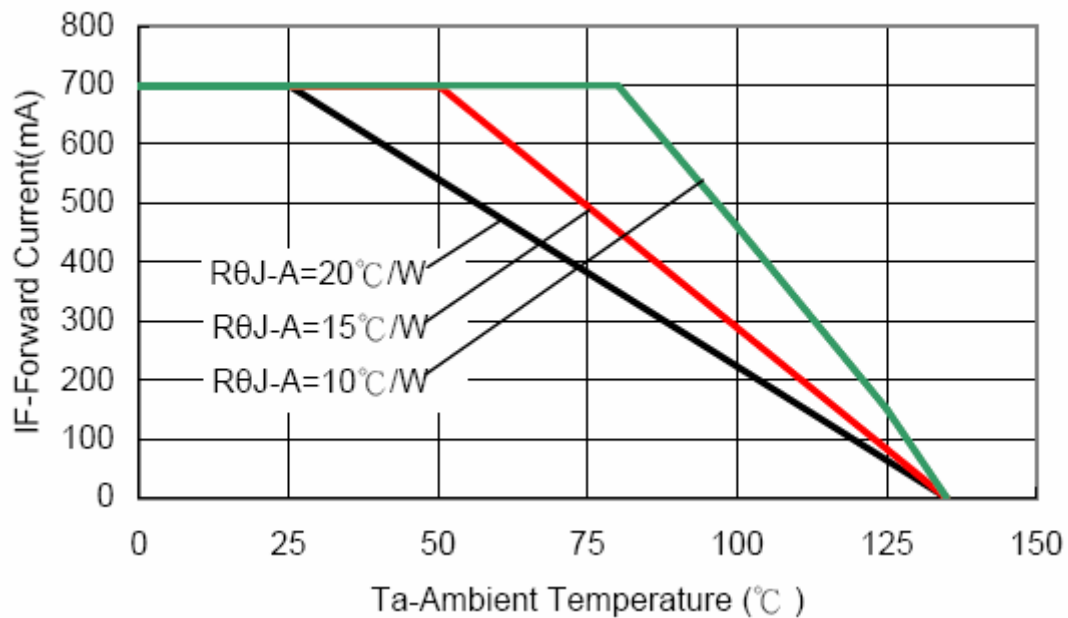
Color Temp	Bin	CCT(K)	
		Min	Max
Warm White	00	2800	3300
	01	3300	3800
	XX	2800K – 3800K	
White	02	5000	6000
	03	6000	7000
	04	7000	8000
	XX	5000K – 8000K	

### $V_F$ Ranks Selection

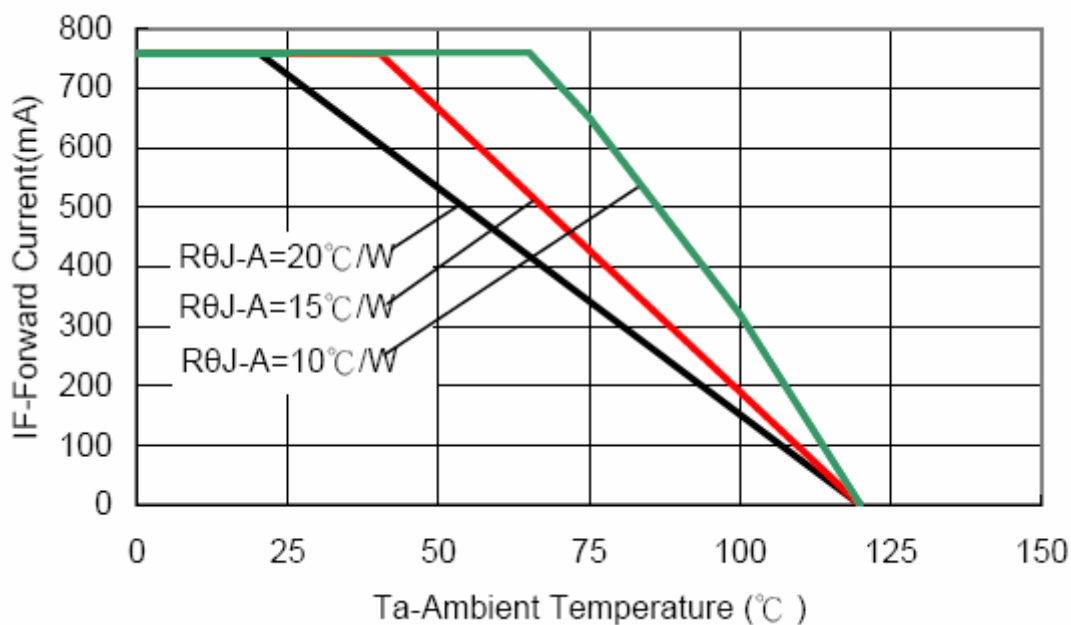
Color	Bin	$V_F$ (V)	
		Min	Max
Red Amber Yellow	V12	3.6	3.8
	V13	3.8	4.0
	V14	4.0	4.2
	V15	4.2	4.4
	V16	4.4	4.6
	V17	4.6	4.8
	VXX(Full)	3.6~4.8	
Warm White White Blue Green	V27	6.8	7.0
	V29	7.0	7.2
	V30	7.2	7.4
	V31	7.4	7.6
	V32	7.6	7.8
	V33	7.8	8.0
	VXX(Full)	6.8~8.0	

(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, $T_j=25^{\circ}\text{C}$

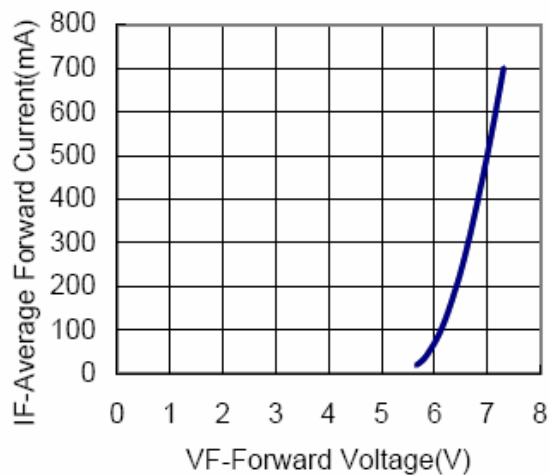


Fig 3a. Forward Current vs. Forward Voltage for White, Warm White, Blue and Green.

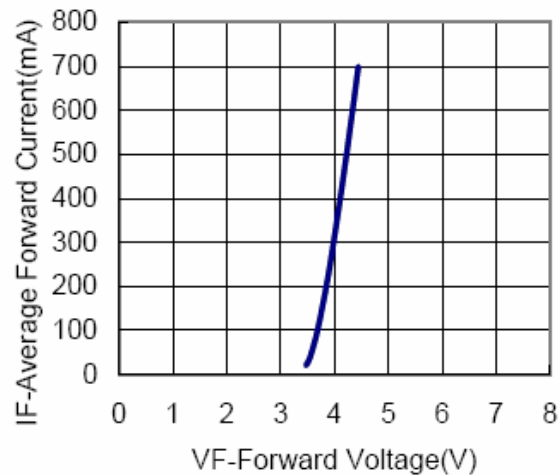


Fig 3b. Forward Current vs. Forward Voltage for Amber, Red-Orange and Red.

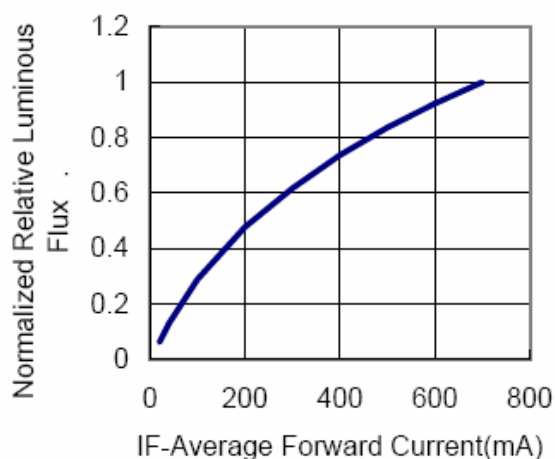


Fig 4a. Relative Luminous Flux vs. Forward Current for White, Warm White, Blue and Green at  $T_j=25^{\circ}\text{C}$  maintained.

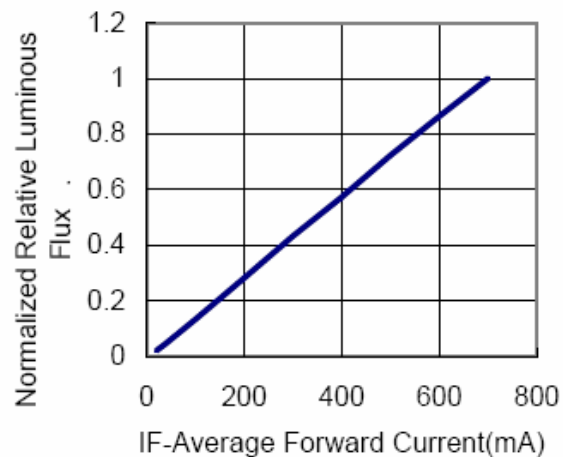
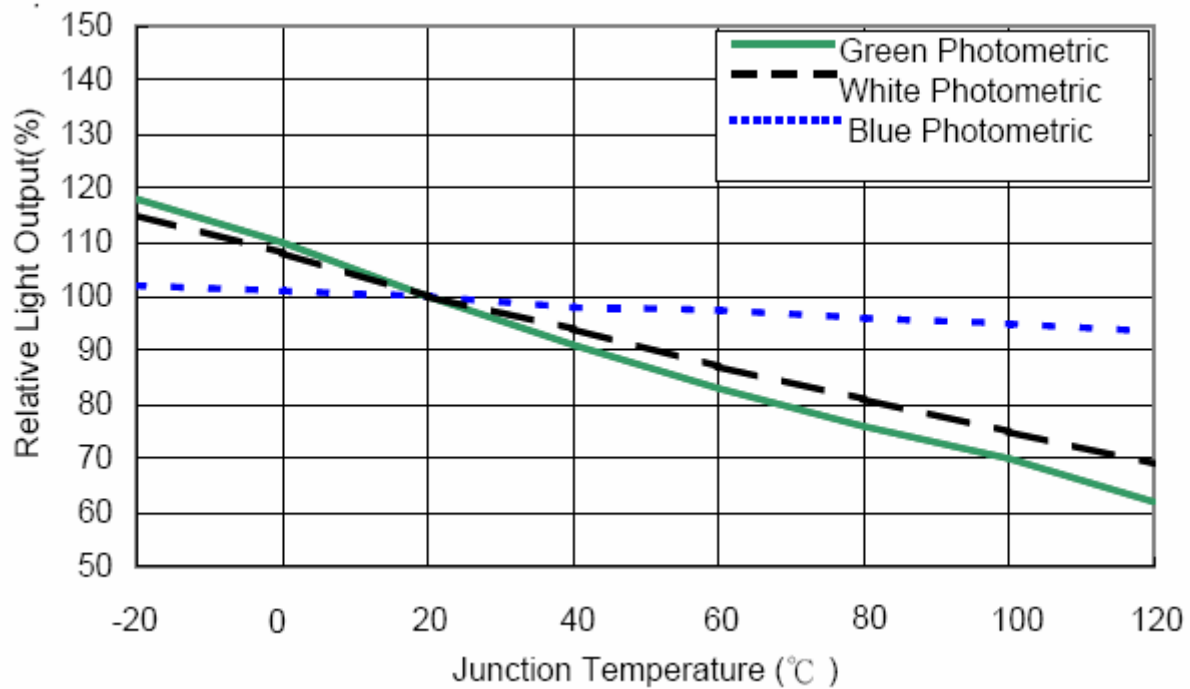
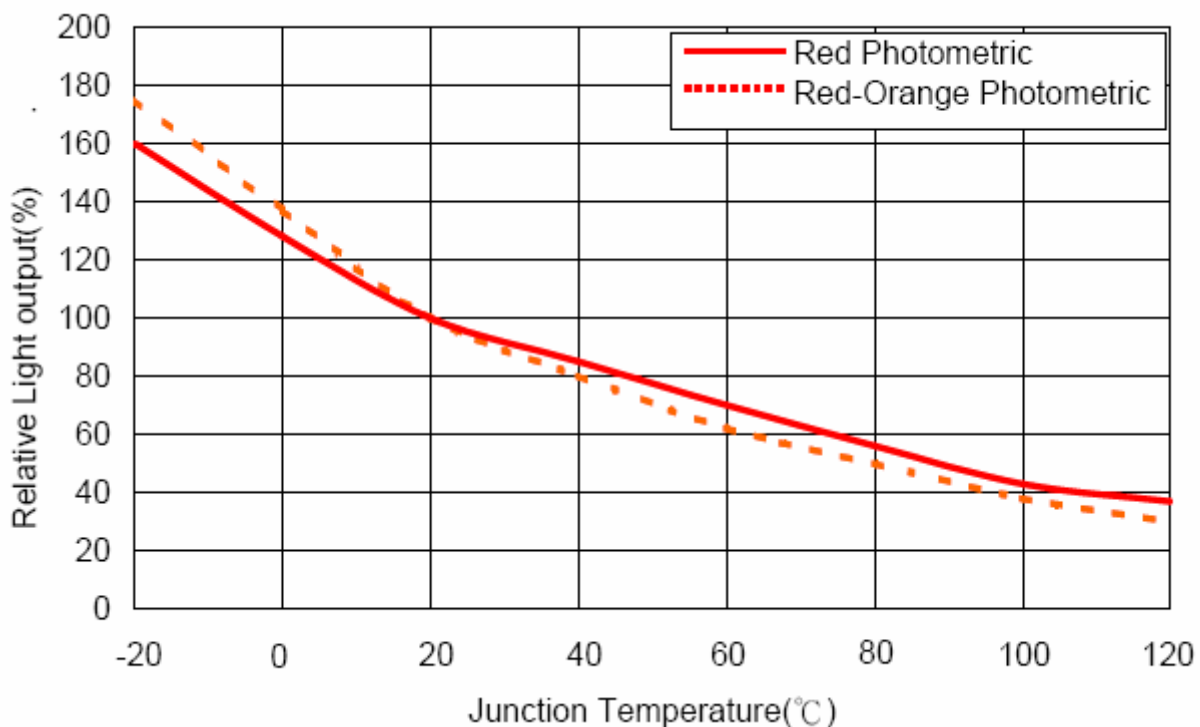


Fig 4b. Relative Luminous Flux vs. Forward Current for Amber, Red-Orange, Red at  $T_j=25^{\circ}\text{C}$  maintained.

Typical Electro-Optical Characteristics Curves

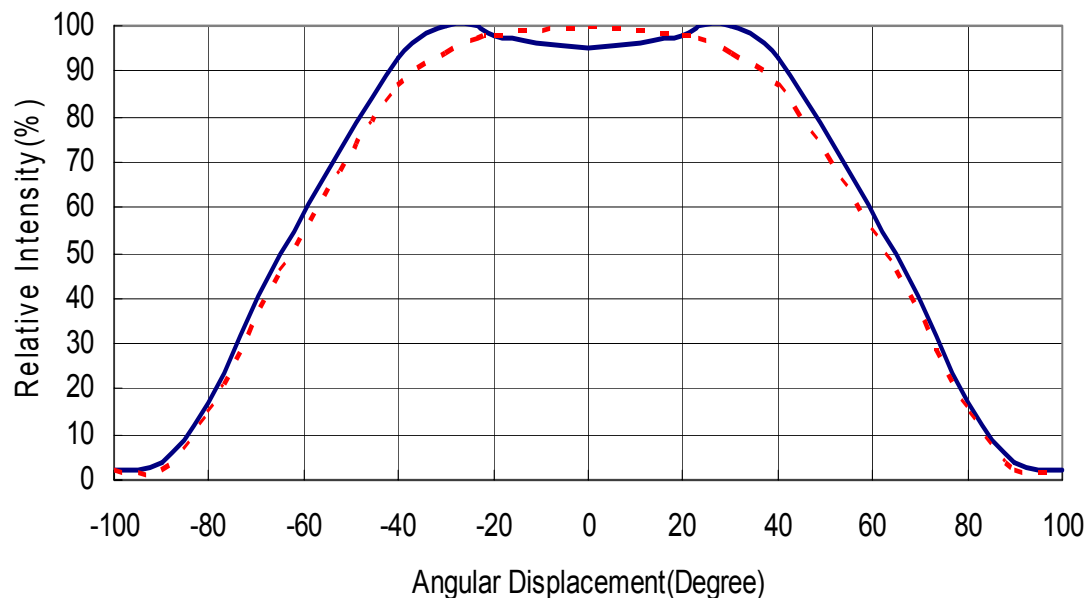


**Fig. 5a Relative Light Output vs Junction Temperature**



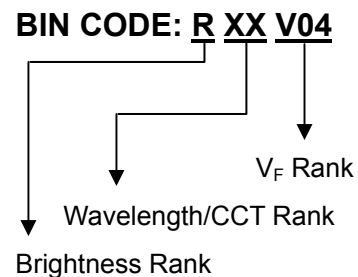
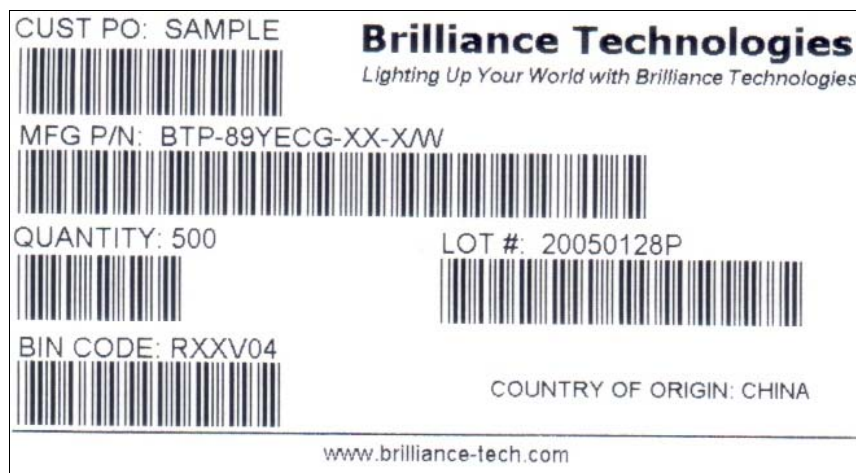
**Fig. 5b Relative Light Output vs Junction Temperature**

### Typical Electro-Optical Characteristics Curves



**Fig. 6 Typical Radiation Pattern**

### Product Barcode Label





## Manual Hand Soldering Notes

- For prototype builds or small production runs, it is possible to place and solder the emitters.
- It is recommended to hand solder the leads and slug with a solder tip temperature of 230°C for less than 10seconds. This profile ensures a junction temperature below the maximum of 120°C, avoiding damage to the emitter or to the MCPCB dielectric layer. Damage dielectric layer can cause a short circuit in the array.

## Other Important Notes

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