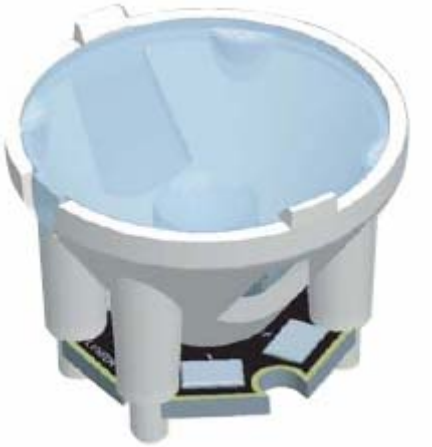
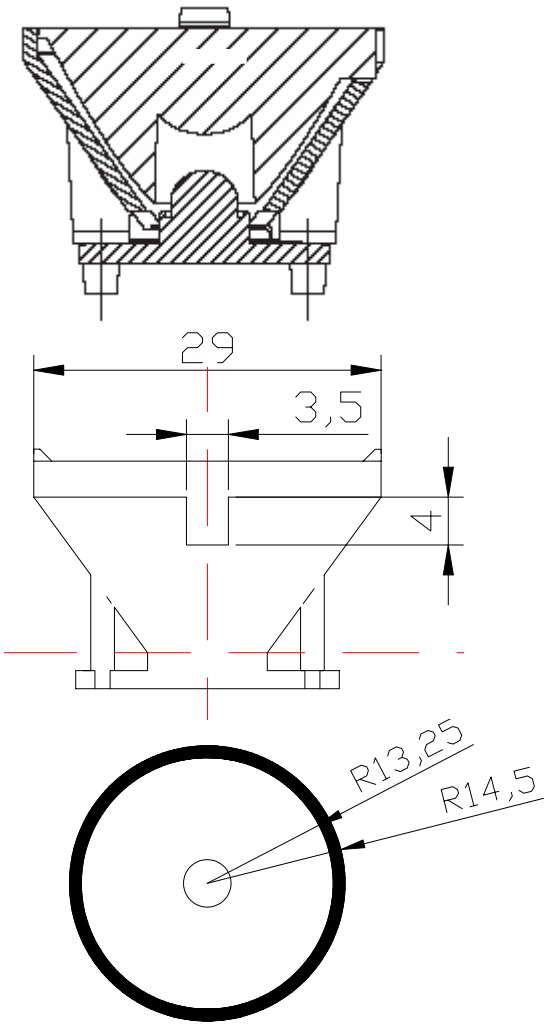
BriLux 3W LED Module

BTM3-89XXCT-XX-X/X



Package Dimension



Tolerance: ± see spec Unit: mm

Features

- Highest Lumen Per Watt
- Long Operational Life
- White Housing
- Superior ESD Protection
- Instant Light (less than 100ns)

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.	
BTM3-89NRCT-XX-X/W	Normal Red	AlInGaP	Water Clear	620	645	2.20V	60 lm	5°±1
BTM3-89AMCT-XX-X/W	Amber			610	620	2.20V	72 lm	
BTM3-89YECT-XX-X/W	Yellow			585	595	2.20V	64 lm	
BTM3-89BLCT-XX-X/W	Blue	AlInGaN		460	490	3.50V	20 lm	
BTM3-89PGCT-XX-X/W	Green			520	550	3.50V	60 lm	
BTM3-89WWCT-XX-X/W	Warm White			2800K	3800K	3.55V	54 lm	
BTM3-89WHCT-XX-X/W	White			4500K	10000K	3.55V	58 lm	

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

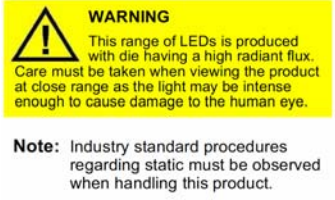
4) V_F is measured with the accuracy of ± 0.15V. Please refer to V_F Selection Guide

Absolute Maximum Ratings at T_J=25ºC

Parameter	Red/Amber/Yellow	White/Blue/Green
Power Dissipation (W)	2.17	2.80
DC Forward Current (mA)[1]	770	700
Peak Pulsed Forward Current (mA) [4]	1100	1000
Average Forward Current (mA)	700	700
Reverse Voltage (V)	5	5
Reverse Current (uA)	50	50
ESD Sensitivity (V,HBM) [2]	16,000	16,000
LED Junction Temperature at 350mA (°C) [3]	120	135
Thermal Resistance Junction to Board (°C/W)	15	15
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 one 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.



BriLux 3W LED Module

BTM3-89XXCT-XX-X/X

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

BTM3-89XXCT-XX-X/X

W: White Housing

B: Black Housing

Wavelength Ranks Selection

Color	Bin	λ_D(nm)	
		Min	Max
Blue	B5	460	465
	B6	465	470
	B7	470	475
	XX	460 – 475	
Green	G6	515	520
	G7	520	525
	G8	525	530
	G9	530	535
	XX	515 – 535	
Red	XX	620 – 630	
Amber	XX	610 – 620	
Yellow	XX	585 – 595	

Flux Ranks Selection

Color	Bin	Flux (lumens)
Blue	K	8~10
	L	10~14
	M	14~18
	X	Default Full Range
Red Amber Yellow Green White	Q	30~39
	R	39~50
	S	50~65
	T	65~85
	U	85~111
	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	V04	2.0	2.2
	V05	2.2	2.4
	V06	2.4	2.6
	V07	2.6	2.8
	VXX(Full)	2.0~2.8	
White Blue Green	V08	2.8	3.0
	V09	3.0	3.2
	V10	3.2	3.4
	V11	3.4	3.6
	V12	3.6	3.8
	VXX(Full)	2.8~3.8	

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

Typical Electro-Optical Characteristics Curves

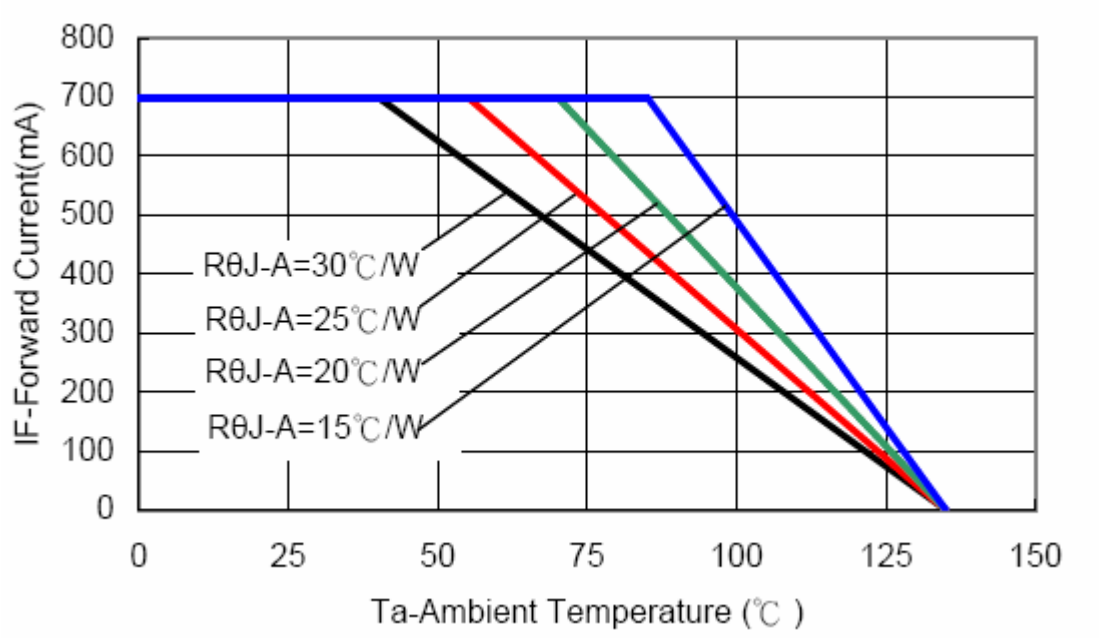


Fig. 1 Forward Current vs Ambient Temperature (Green, Blue and White)

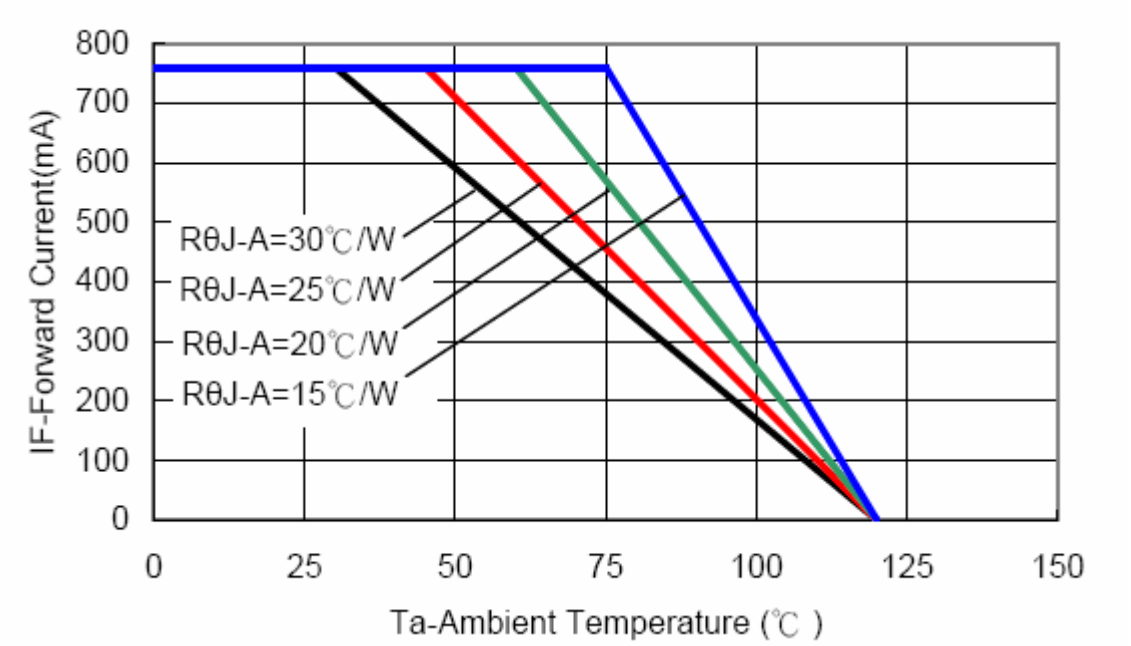


Fig. 2 Forward Current vs Ambient Temperature (Red, Amber and Yellow)

Forward Current Characteristics, Tj=25℃

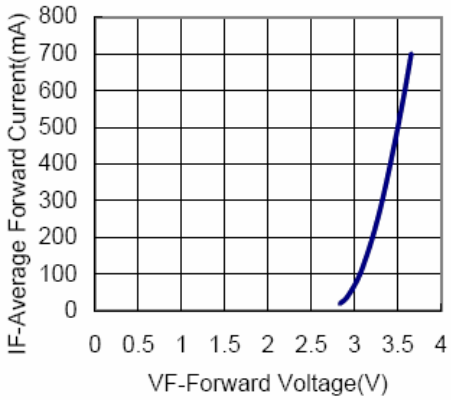


Fig 3a. Forward Current vs. Forward Voltage for White, Warm White, Blue and Green.

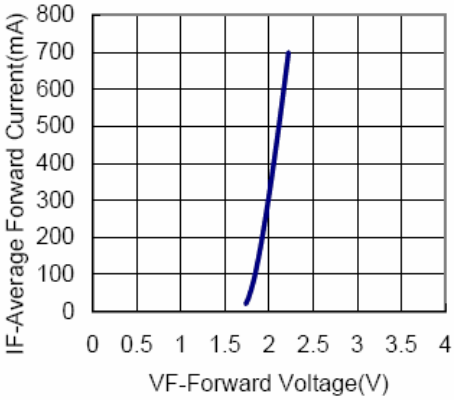


Fig 3b. Forward Current vs. Forward Voltage for Amber, Red-Orange and Red.

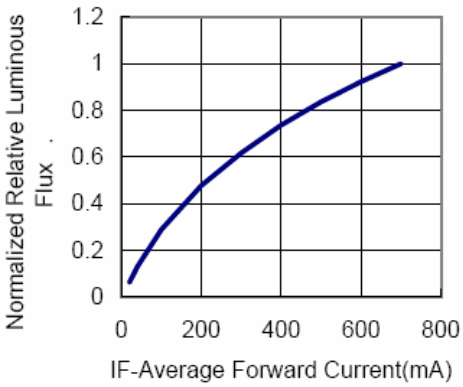


Fig 4a. Relative Luminous Flux vs. Forward Current for White, Warm White, Blue and Green at Tj=25℃ maintained.

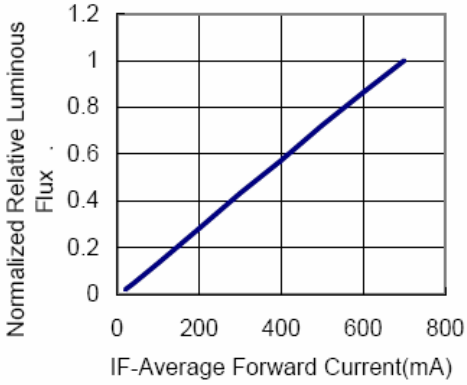


Fig 4b. Relative Luminous Flux vs. Forward Current for Amber, Red-Orange, Red at Tj=25℃ maintained.

Typical Electro-Optical Characteristics Curves

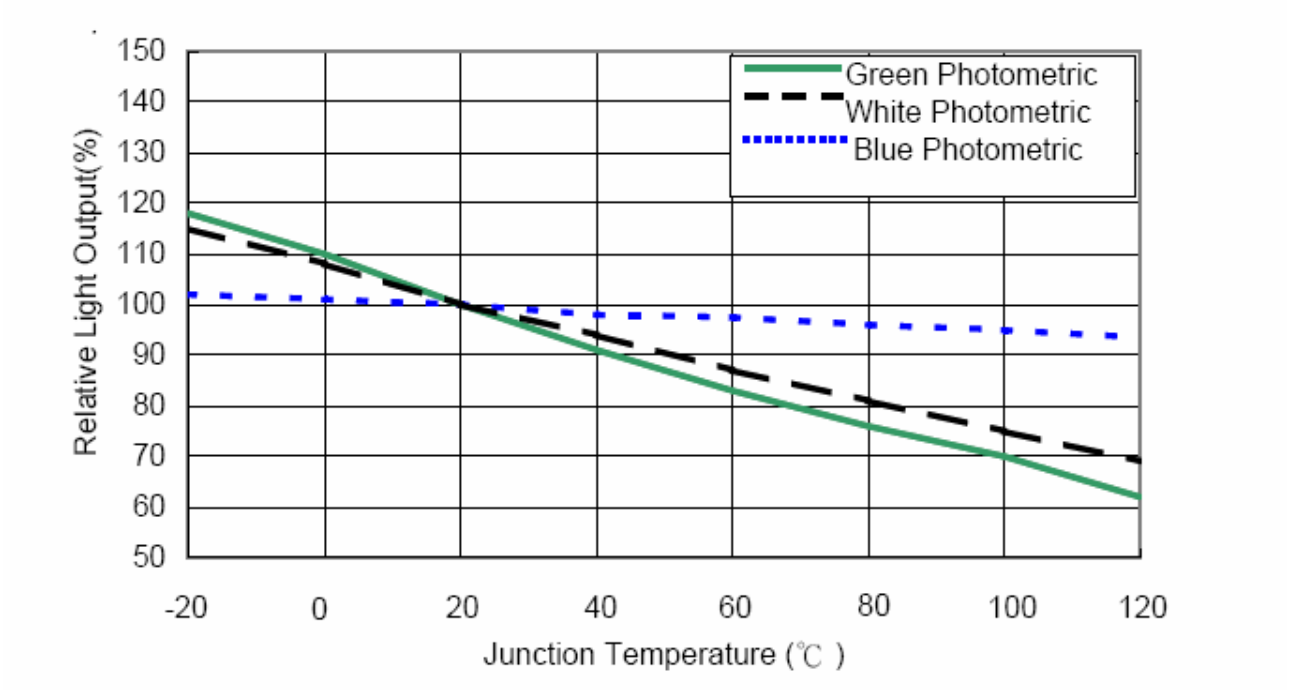


Fig. 5a Relative Light Output vs Junction Temperature

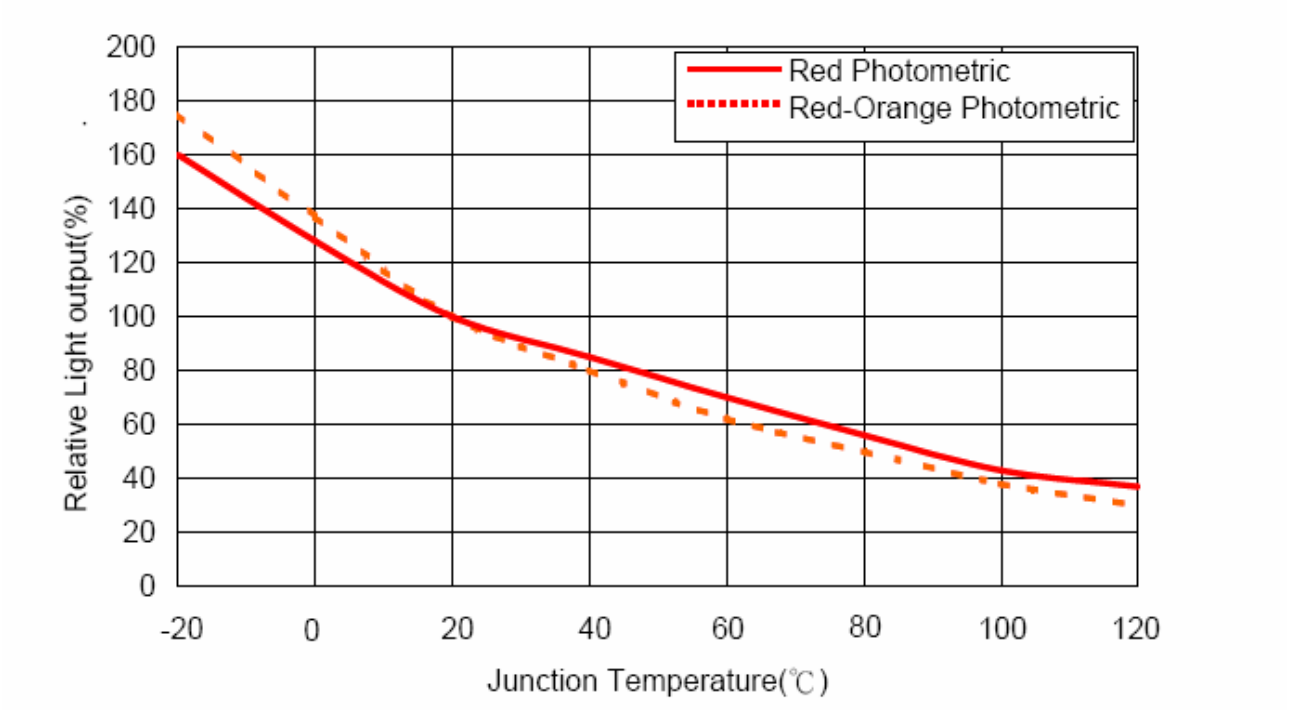


Fig. 5b Relative Light Output vs Junction Temperature

Typical Electro-Optical Characteristics Curves

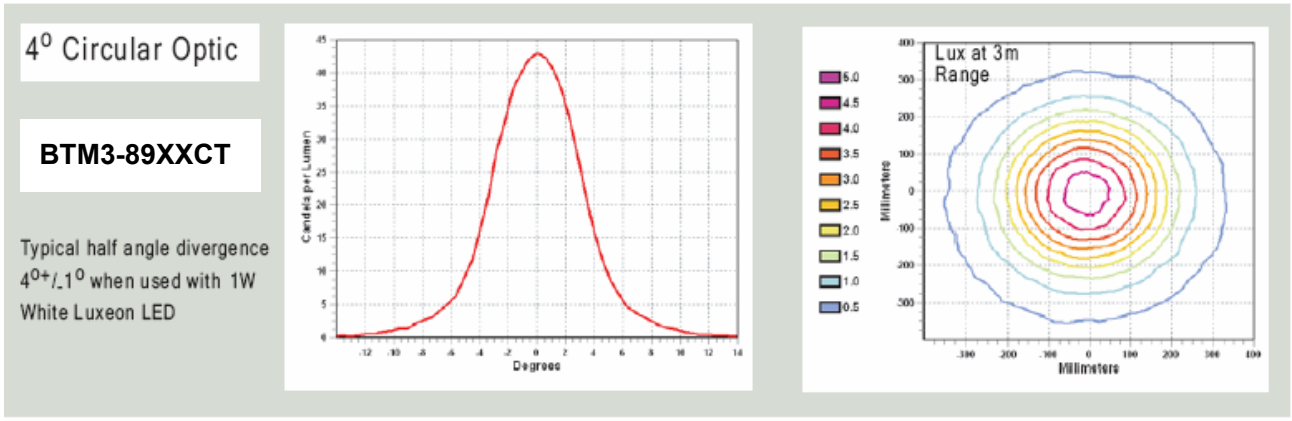


Fig. 6 Typical Radiation Pattern

Product Barcode Label

BIN CODE: R XX V04

- R: Brightness Rank
- XX: Wavelength/CCT Rank
- V04: V_F Rank

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 230ºC for less than 10seconds. This profile ensures a junction temperature below the maximum of 120ºC, 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:

- **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.**
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- **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.**

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