Ultra Brightness White LED Lamp

T-1 ¾ (5mm) Through-Hole Package

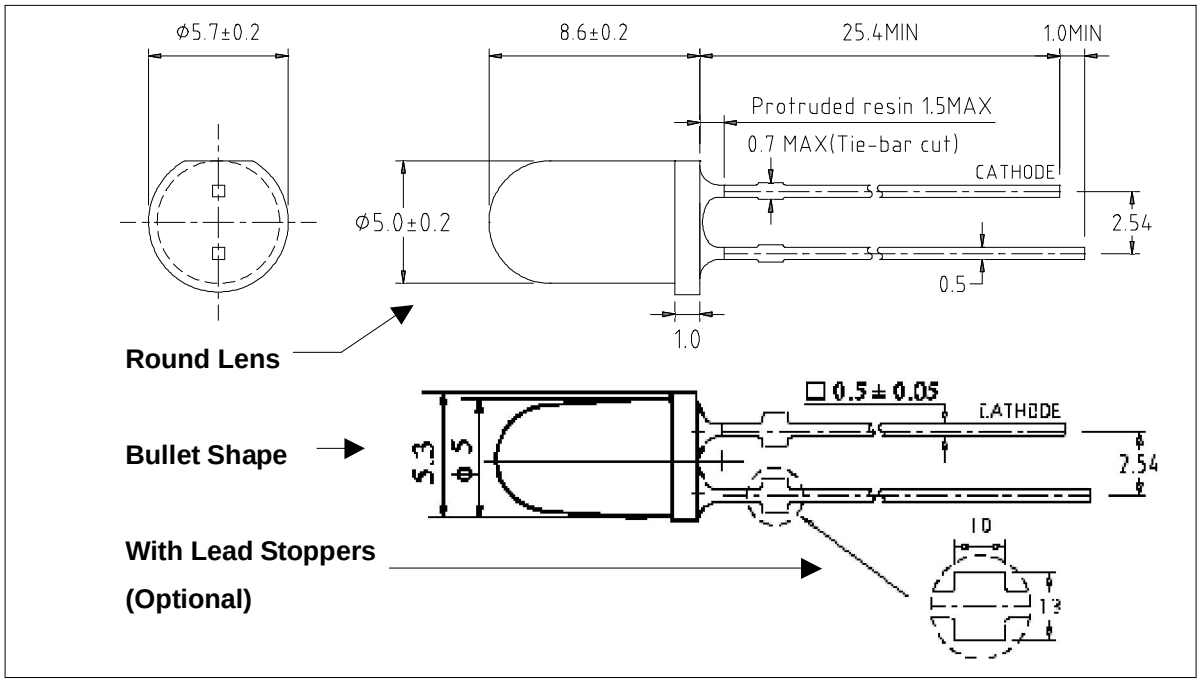
BL–LBUW5 series

FEATURES	APPLICATIONS
• Extremely uniform white LED. • Super luminosity white LED (GaN die). • Narrow and wide viewing angles. • Water clear package or diffused. • T-1¾ (5mm) all resin mold. • Class 1 ESD rating	• Flash Lights. • Traffic signals. • Desk Lamps. • Lanterns. • Garden Lights. • Backlighting. • Solar Lighting.

VIEWING ANGLE OPTIONS:

Product Code	Viewing Angle (2θ½) (Degrees)
BL-LBUW5B20C	20°±3°
BL-LBUW5N40C	40°±3°
BL-LBUW5N60M	60°±5°

PACKAGE OUTLINE DIMENSIONS:



NOTES:

1. All dimensions are in millimeters (inches).
2. Tolerance is ±0.25 (0.01") mm unless otherwise noted.
3. Lead spacing is measured where the leads emerge from the package.
4. Specifications are subject to change without notice.

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ABSOLUTE MAXIMUN RATING (at T_A = 25°C)

Parameter	Symbol	Value	Unit
Continuous Forward Current	I_F	30 *	mA
Peak Forward Current (1/16 Duty Cycle, 0.1msec Pulse width)	I_{Fp}	150	mA
Power Dissipation	P_d	120	mW
Forward Voltage	V_f	3.6	V
Derating Factor	D_F	0.4	mA / °C
Reverse Voltage	V_R	5.0	V
Operating Temperature	T_{opr}	-25 to +85	°C
Storage Temperature	T_{stg}	-35 to +100	°C
Lead Soldering Temperature (1.6mm (0.063") from body)	260°C for 5 seconds		

* If LEDs will be continuously ON (24/7), it is highly recommended to drive them at 20 mA or below to reduce lumen/brightness decay rate.

LUMINOUS INTENSITY (at 20 mA DC / T_A = 25°C)

Product Code	Luminous Intensity (mcd)						
	Rank R			Rank S		Rank T	
	Min.	Typ.	Max/Min	Typ.	Max/Min	Typ.	Max.
BL-LBUW5B20C	7500	9200	11500	12500	16500	18000	22500
BL-LBUW5N40C	1500	1800	2100	2600	3000	3600	4300
BL-LBUW5N60M	1500	1800	2060	2200	2600	2900	3200

Note: Typical forward voltage (V_F) at forward current (I_F) 20 mA is 3.2 ± 0.1 V

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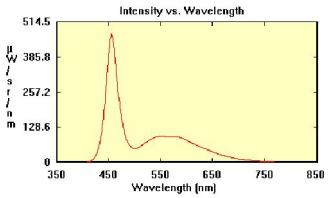
COLOR RANK LIMITS (at 20 mA DC / T_A = 25°C)

BIN	Color Rendering Index	Approximate Color Temperature (K)
A	50 - 65	9,500 -15,000
B	70 - 90	5,500 - 9,500
C	75 - 95	4,500 - 5,500
D	70 - 85	2,800 - 3,200

COLOR RANKS CIE CHROMATICITY COORDINATES

A-Rank (Approximate Color Temperature: 9,500-15,000K)

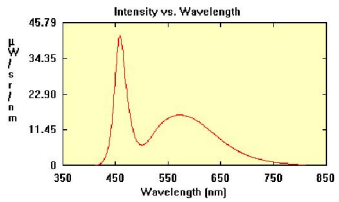
	Rank A			
X	0.280	0.264	0.283	0.296
Y	0.248	0.267	0.305	0.276



B-Rank (Approximate Color Temperature: 5,500-9,500K)

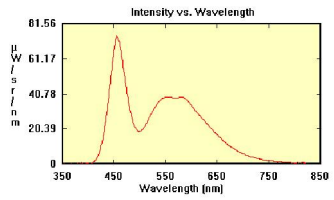
	Rank B1			
X	0.287	0.283	0.330	0.330
Y	0.295	0.305	0.360	0.339

	Rank B2			
X	0.296	0.287	0.330	0.330
Y	0.276	0.295	0.339	0.318



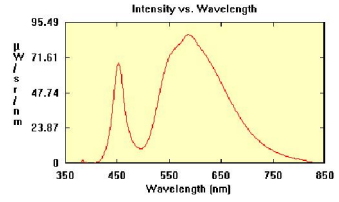
C-Rank (Approximate Color Temperature: 4,500-5,500K)

	Rank C			
X	0.330	0.330	0.361	0.356
Y	0.318	0.360	0.385	0.351



D-Rank (Approximate Color Temperature: 2,800-3,200K)

	Rank D			
X	0.440	0.440	0.500	0.500
Y	0.400	0.500	0.500	0.400



Note: Rank D yields an 8% to 12% reduction in photometric intensity (mcd)

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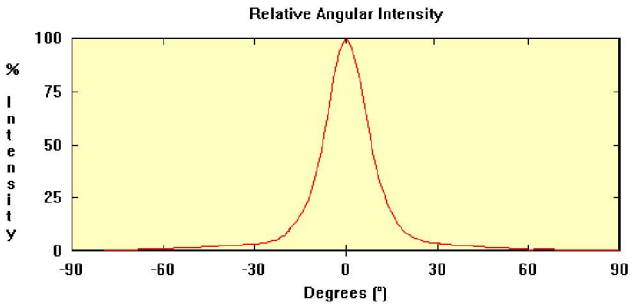
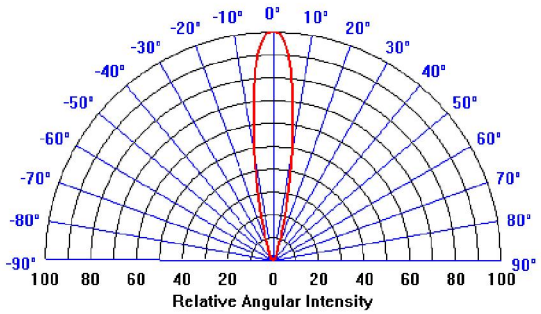
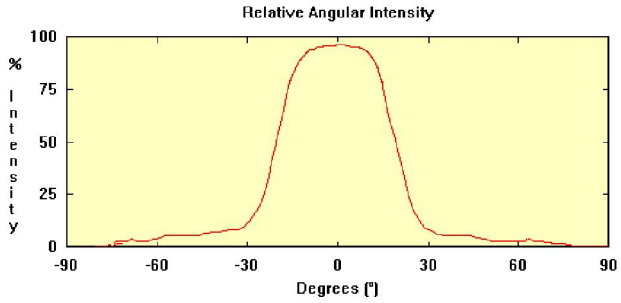
BEAM RADIATION PATTERNS

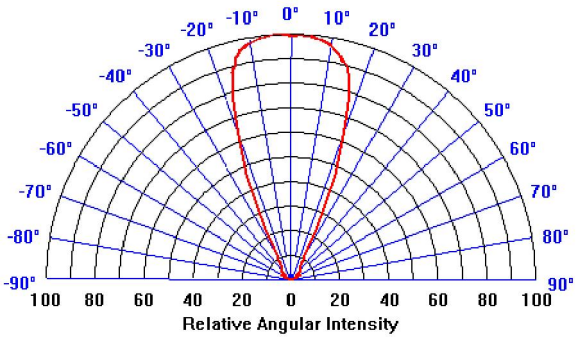
5B20C Series



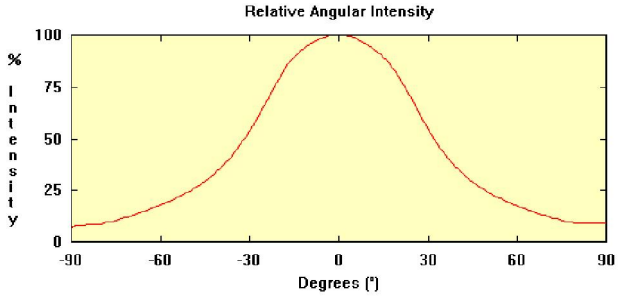


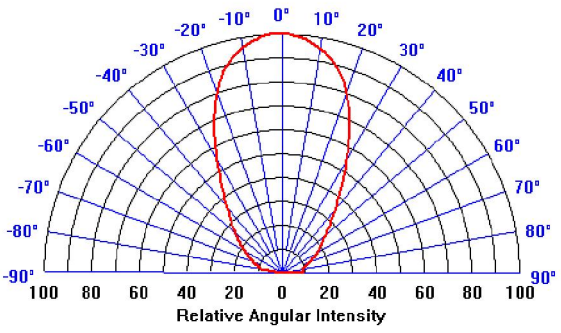
5N40C Series





5N60M Series





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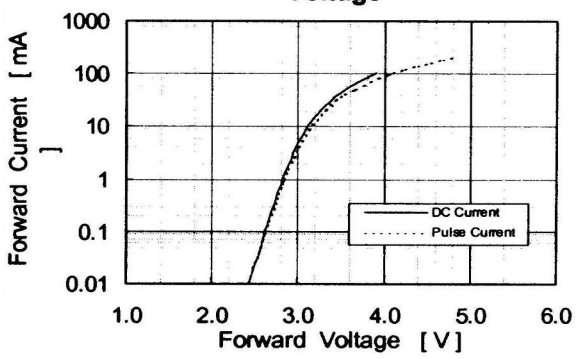
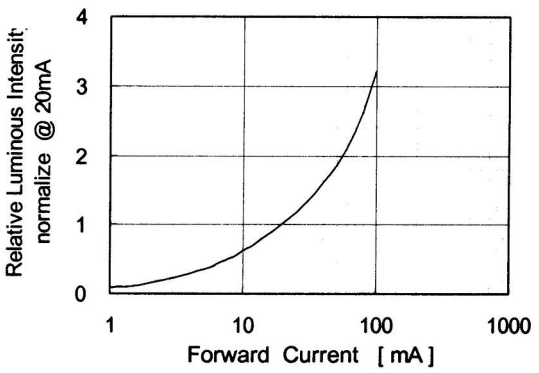
TYPICAL ELECTRICAL CHARACTERISTICS CURVES

(at 20 mA DC / T_A = 25°C)

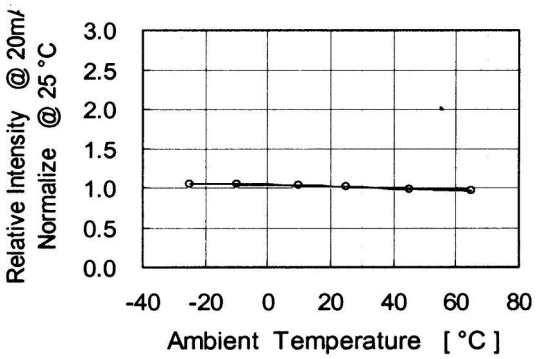
Forward Current vs. Forward Voltage



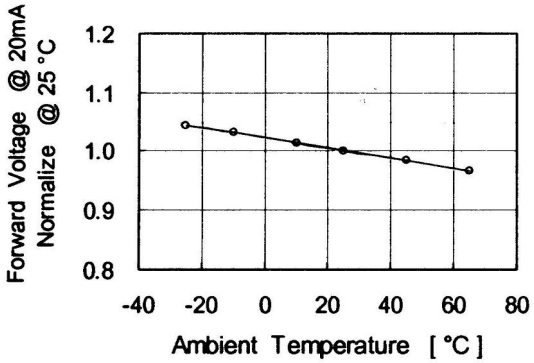
Luminous Intensity vs. Forward Current



Relative Intensity vs. Temperature



Forward Voltage vs. Temperature



GENERAL NOTES:

1. Luminous Intensity (Iv) is measured with a light sensor and filter combination (goniospectroradiometer) and is the Luminous Flux per unit solid angle (steradian) emitted by the LED lamp in the direction of the mechanical axis of the lamp and then weighed by the eye response curve (1931 CIE 2° Observer Chromaticity Diagram).
2. Luminous Intensity measurement uncertainty is +/- 15% due to test procedures and equipment variations.
3. $\theta_{1/2}$ is the off-axis angle at which the luminous intensity is half the axial luminous intensity. Tolerance +/- 3°.
4. The Chromaticity Coordinates (x,y), are derived from the 1931 CIE 2° Observer Chromaticity Diagram.
5. Chromaticity Coordinate measurement uncertainty is +/- 0.05 due to variations.
6. Color Temperature derived from black body curve on 1964 u-v CIE chromaticity diagram.
7. **Caution for ESD**: Static Electricity and surges can damage the LED. It is recommended using a wristband or anti-electrostatic glove when handling the LED. All devices, equipment and machinery must be properly grounded.
8. Do not apply excess mechanical stress to the leads, especially when heated or while soldering.

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PRODUCT CODE BREAKDOWN

X_1X_2 - X_3 X_4 X_5X_6 X_7 X_8 X_9X_{10} X_{11} -X_{12} X_{13}

Manufacturer
BL= Brite-LED
PL=PowerLED
SG=SinoGerman

Package Type
L= Lamp TH

Product Series

Emitted Color
UW= White

Lens Size
5= 5mm

Lens Shape
N= Normal Round
B= Bullet Shape

Viewing Angle
20= 20° ± 3°
40= 40° ± 3°
60= 60° ± 5°

Lens Resin
C= Water Clear
M= Milky Diffused

Lead Stoppers
N=No Stoppers
S= with Stoppers

Delivery
B= Bulk
R= Reel
A= Ammo

WARNING: White LEDs are made using a blue (GaN) die. GaN die is highly susceptible to Electro Static Discharge (ESD) damage, therefore proper storage, handling and manufacturing procedures need to be followed at all times. ESD damage can vary in its degree; from very subtle to catastrophic, and invariably will affect the LED's performance and life.