

# Ultra Brightness White LED Lamp



T-1 (3mm) Through-Hole Package

## BL-LBUW3D series

### FEATURES:

- Extremely uniform white LED.
- Super luminosity white LED (GaN).
- Wide viewing angles.
- Water clear or diffused package.
- T-1 (3mm) all resin mold.
- Flangeless (rimless) lens.
- Class 1 ESD rating

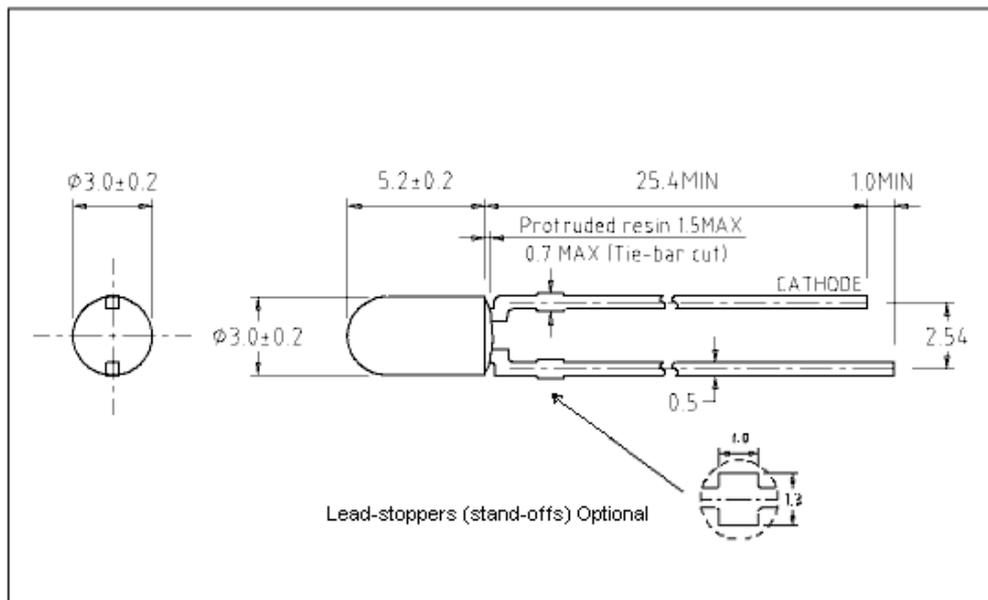
### APPLICATIONS:

- Flash Lights.
- Traffic signals.
- Desk Lamps.
- Lanterns.
- Garden Lights.
- Backlighting.
- Solar Lighting.

### VIEWING ANGLE OPTIONS:

Product Code	Viewing Angle (2θ <sup>1/2</sup> ) (Degrees)
BL-LBUW3D25C	25°±3°
BL-LBUW3D60C	60°±5°
BL-LBUW3D70M	70°±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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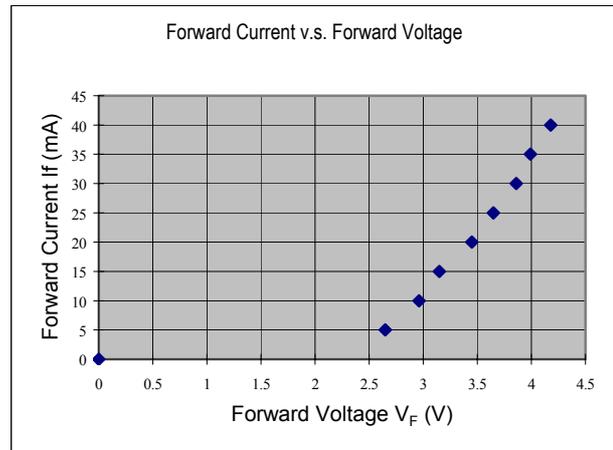
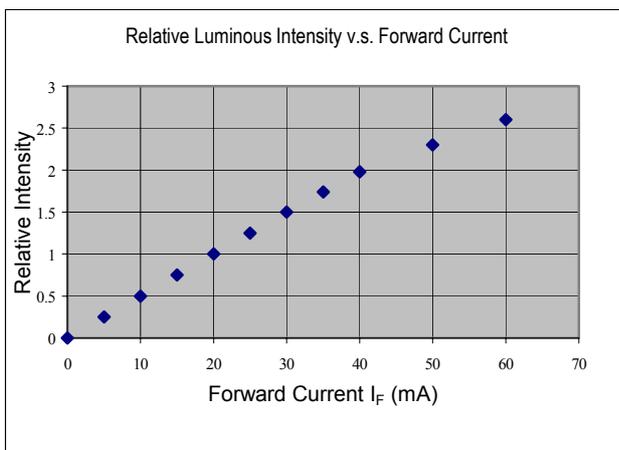
## ABSOLUTE MAXIMUM RATING (at $T_A = 25^\circ\text{C}$ )

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 / $^\circ\text{C}$
Reverse Voltage	$V_R$	5.0	V
Operating Temperature	$T_{opr}$	-25 to +85	$^\circ\text{C}$
Storage Temperature	$T_{stg}$	-35 to +100	$^\circ\text{C}$
Lead Soldering Temperature (1.6mm (0.063") from body)	260 $^\circ\text{C}$ 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.

## TYPICAL ELECTRICAL CHARACTERISTICS CURVES

(at 20 mA DC /  $T_A = 25^\circ\text{C}$ )



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### LUMINOUS INTENSITY (at 20 mA DC / T<sub>A</sub> = 25°C)

Product Code	Luminous Intensity (mcd)						
	Rank R		Rank S			Rank T	
	Min.	Typ.	Max/Min	Typ.	Max/Min	Typ.	Max.
BL-LBUW3D25C	2760	3200	3900	4600	5520	6400	7800
BL-LBUW3D60C	1240	1460	1750	2070	2530	2990	3560
BL-LBUW3D70M	640	780	920	1100	1260	1560	1840

Note: Typical forward voltage (V<sub>F</sub>) at forward current (I<sub>F</sub>) 20 mA is 3.2 ± 0.1 V

### COLOR BIN LIMITS (at 20 mA DC / T<sub>A</sub> = 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

#### GENERAL NOTES:

- Luminous Intensity (I<sub>v</sub>) 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).
- Luminous Intensity measurement uncertainty is +/- 15% due to test procedures and equipment variations.
- θ<sub>1/2</sub> is the off-axis angle at which the luminous intensity is half the axial luminous intensity. Tolerance +/- 3°.
- The Chromaticity Coordinates (x,y), are derived from the 1931 CIE 2° Observer Chromaticity Diagram.
- Chromaticity Coordinate measurement uncertainty is +/- 0.05 due to variations.
- Color Temperature derived from black body curve on 1964 u-v CIE chromaticity diagram..
- **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.
- Do not apply excess mechanical stress to the leads, especially when heated or while soldering.

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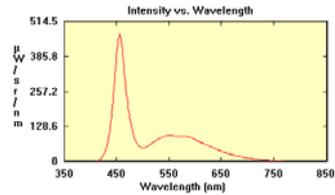


### CIE CHROMATICITY COORDINATES

#### COLOR RANKS

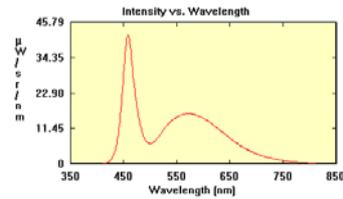
##### A-Rank (Approximate Color Temperature: 9,500-15,000K)

	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)

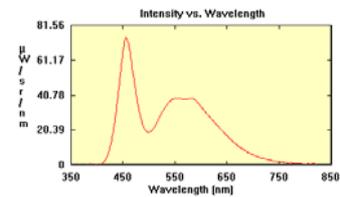
	Rank B1			
X	0.287	0.283	0.330	0.330
Y	0.295	0.305	0.360	0.339



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

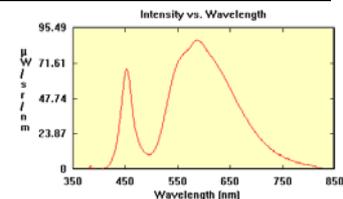
##### C-Rank (Approximate Color Temperature: 4,500-5,500K)

	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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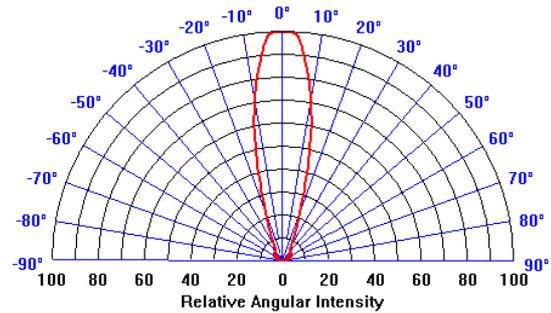
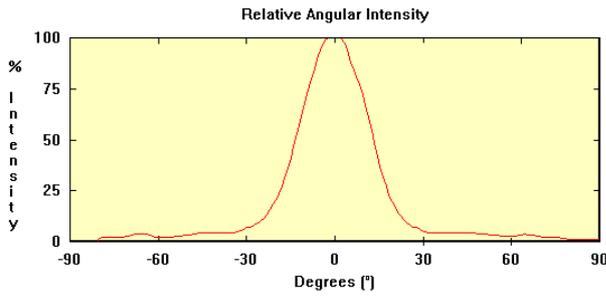
T-1 (3mm) Through-Hole Package

## BL-LBUW3D series

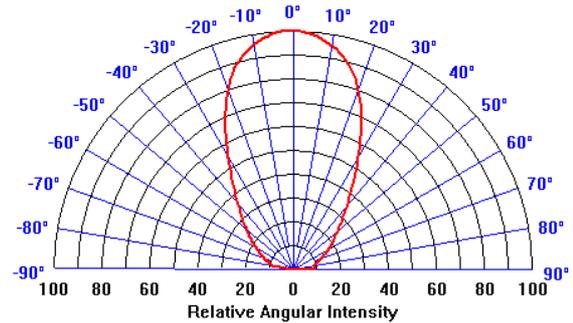
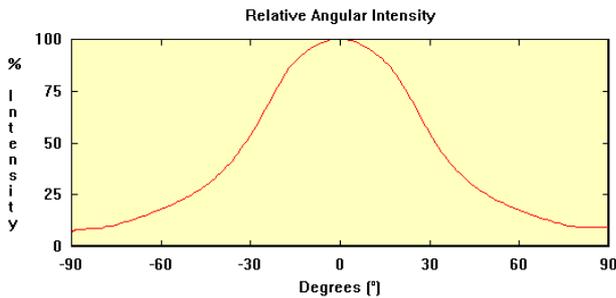


### BEAM RADIATION PATTERNS

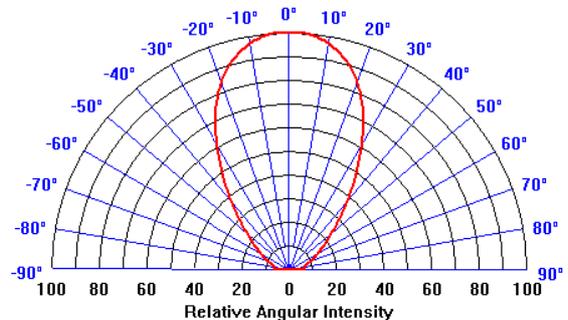
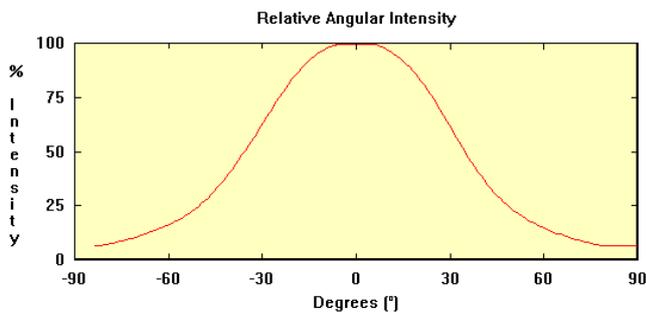
#### 3D25C Series



#### 3D60C Series



#### 3D70M Series



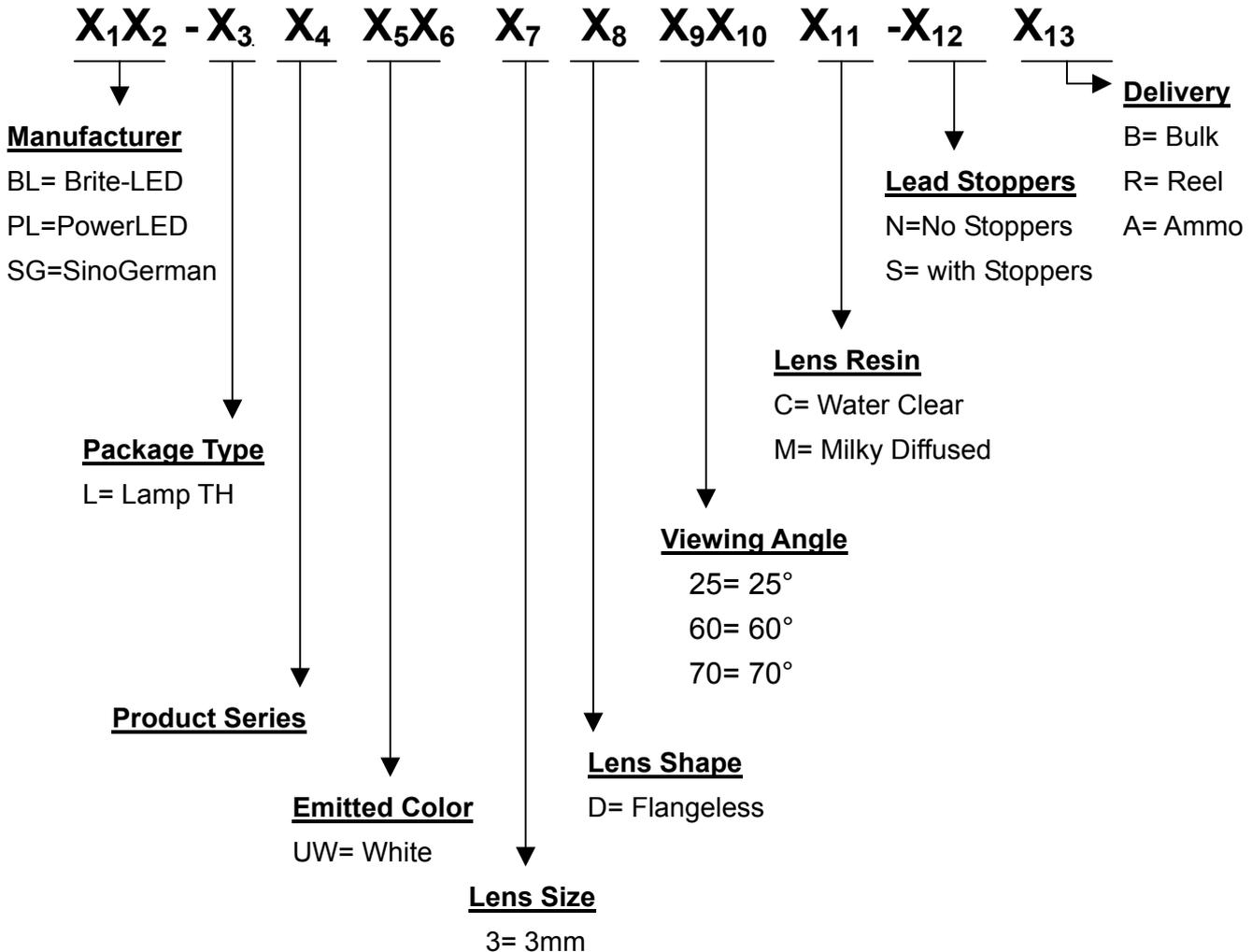
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**BL-LBUW3D series**



## PRODUCT CODE BREAKDOWN



**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.