

FBL SERIES LENS for the LUXEON™ I and III LAMBERTIAN LED

- **Very High Efficiency**
- **Very Narrow Beam**
- **Patent Pending**

The FBL lens has been especially designed for the Lambertian LUXEON™ LED from Lumileds (1).

The high collection efficiency reaches at least 85% of the total flux emitted from the LED.

This lens can be used with either the Luxeon I or Luxeon III Lambertian Star and Emitter LEDs.

Typical applications are:

- High brightness flash-light, head-lights
- Signs
- Architectural Lighting
- Most applications where a very narrow beam and high intensity is required.



(1) LUXEON™ is a trademark of Lumileds Lighting, LLC. For technical specification on LEDs please refer to the LUXEON™ datasheet or visit www.Luxeon.com or www.lumileds.com

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Material Characteristics

Lens Material	Optical Grade PMMA
Operating Temperature range	-40deg C / + 80 deg C
Storage Temperature range	-40deg C / + 80 deg C

Average transmittance in visible spectrum (400 – 700nm) >90%, as measured using 3mm thick Optical Grade PMMA.

Please note that flow lines and weld lines on the external surfaces of the lenses are acceptable if the optical performance of the lens is within the specification described in the section “OPTICAL CHARACTERISTICS”

Optical Characteristics:

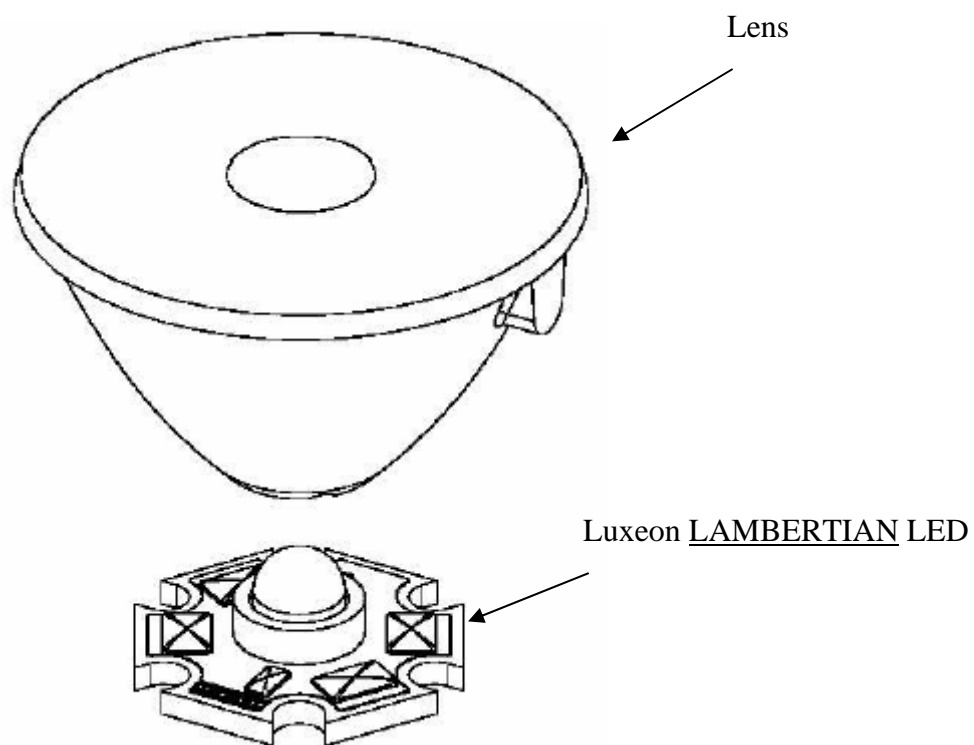
Luxeon Lambertian LEDs	Red Luxeon I ●	Blue Luxeon I ●	White Luxeon I ○	White Luxeon III ○
Typical total beam divergence, FWHM (2) (degrees)	4.5	5	5	4.5
Typical on axis efficiency (cd/lm)	42.4	56.1	67.3	59.7

- (2) Full-Width Half-Maximum (FWHM) - The typical total divergence is the full angle measured where the luminous intensity is half of the peak value. That typical divergence may change with different color LEDs due to different chip size and chip position tolerance.
- (3) To estimate the on-axis intensity, multiply the on-axis efficiency of the lens (cd/lm) by the total flux of the Luxeon LED used. For more detail on flux binning please check the Luxeon LED datasheet at www.Luxeon.com .
- (4) Luminous intensity depends on the flux binning and tolerances of the LEDs. Please refer to the Luxeon datasheet for more details on flux binning and mechanical tolerances.

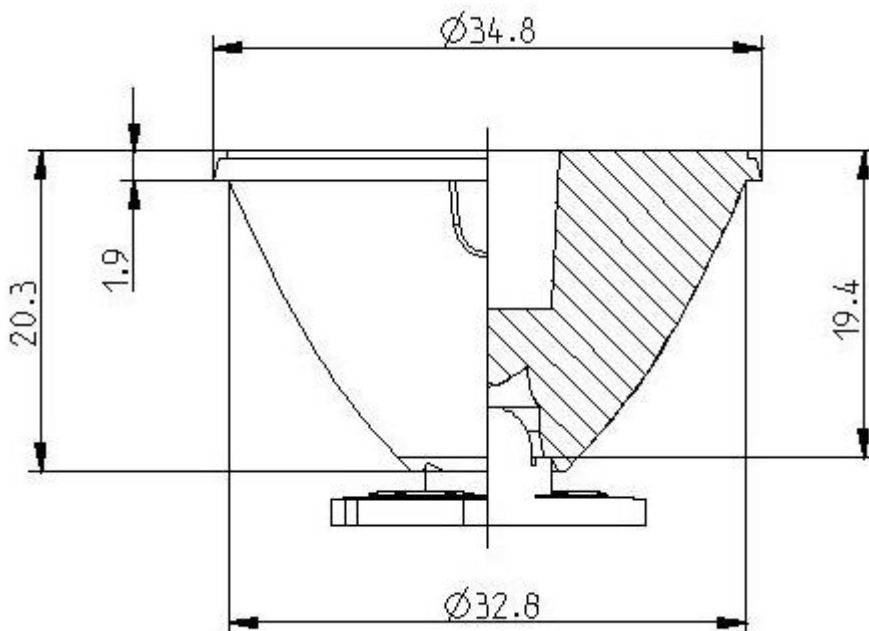
Mechanical Characteristics

To achieve the best optical performance (shown in table above), the lens needs to be placed at the correct position on the Luxeon LED.

Lens and LED assembly - exploded view:



Lens assembly dimensions:



Ordering part numbers

FBL-VN1-LL01-0

LENS TYPE:
VN1: Very Narrow beam lens

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Document Revision Record

Rev	Date	Author	Description
00	24 November 05	D. De Gaetano	Initial Release
01	20 February 06	D. De Gaetano	Revised mechanical dimensions