

## High Efficiency Lenses for LZ9 Emitter Family

# LLxx-3T06-H



### Key Features

- Total Internal Reflection (TIR) optics provides a well-controlled beam
- Designed specifically for LED Engin LZ9 emitter family
- Provides the highest quality and quantity of light in a beam
- Maximum lux on target and lumens in beam
- Smooth light gradient eliminates hot spots and rings and minimizes glare for superior illumination
- UL-rated optical grade PMMA lens material allows use of high current and temperature conditions
- Lenses are available standard with holder that mount easily to LuxiGen LZ9 MCPCBs
- Simple fastening of holder to MCPCB with appropriate adhesive, e.g. epoxy or polyurethane based

### Typical Applications

- Down lighting
- Accent lighting
- Track lighting
- Architectural lighting
- Entertainment

### Description

This lens family couples with the compact, high-flux density LZ9 LuxiGen emitter family providing a range of beam options and opening up new applications in stage and studio, architectural and down lighting. The TIR lens collimates the LED light into efficient, well-controlled light beams that maximize the usable lumens in the target area. Not only does this lighting solution provide the throw or distance required for these lighting applications, it does so with a smooth, high quality beam of superior intensity uniformity, color over angle mixing, and with an absence of discomfort glare or shadows.

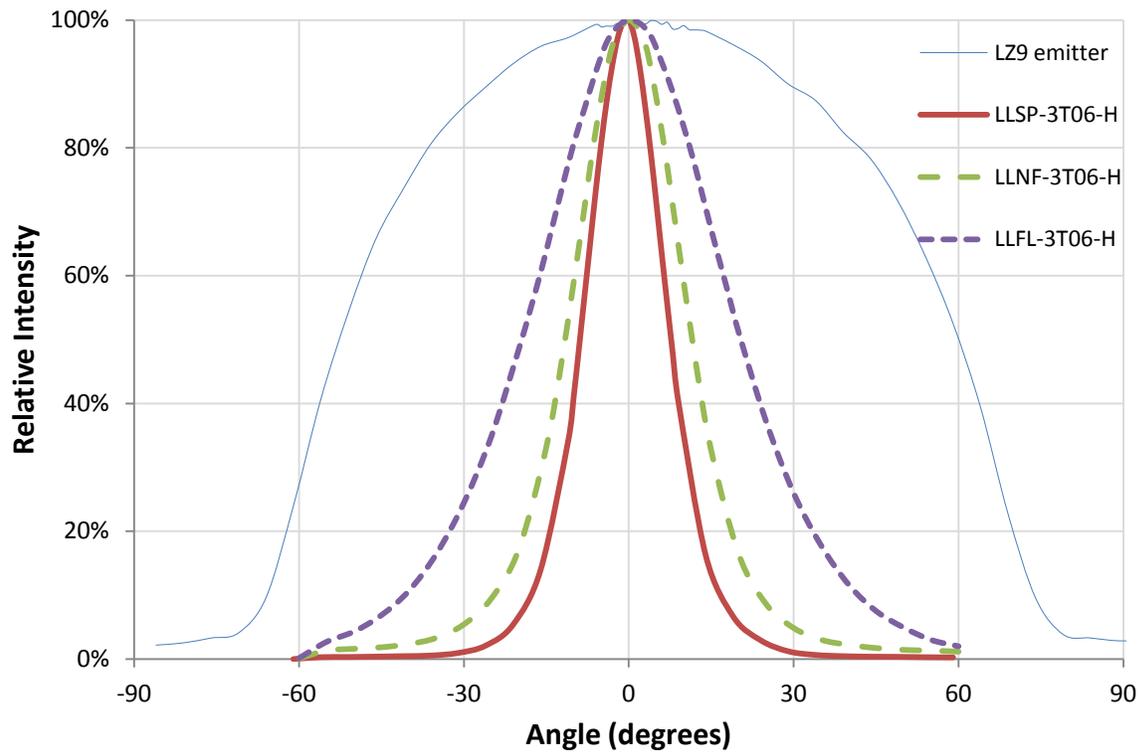
### Optical Specification

Part number <sup>1</sup>	Beam angle <sup>2</sup>	Field angle <sup>3</sup>	Optical efficiency <sup>4</sup>	On-axis intensity <sup>5</sup>
	degrees	degrees	%	cd/lm
LLSP-3T06-H	17	36	90	5.4
LLNF-3T06-H	26	49	90	2.2
LLFL-3T06-H	39	83	90	1.2

Notes:

1. Lenses can also be ordered without the holder. Replace -H with -O for this option.
2. Beam angle is defined as the full width at 50% of the max intensity (FWHM).
3. Field angle is defined as the full width at 10% of the max intensity.
4. Optical efficiency is defined as the ratio between the incoming flux and the outgoing flux.
5. On-axis intensity is defined as the ratio between the total input lumen and the intensity in the optical center of the lens.

## Typical Relative Intensity over Angle



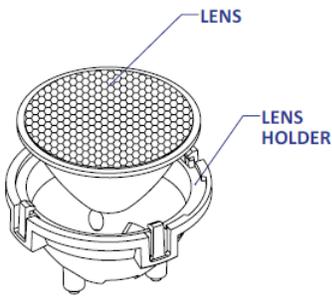
## General Characteristics

	Symbol	Value	Rating	Unit
<b>Mechanical</b>				
Height from Seating Plane		19.20	Typical	mm
Width		38.90	Typical	mm
<b>Material</b>				
Lens		PMMA		
Holder		Polycarbonate		
<b>Optical</b>				
Transmission <sup>1</sup> (>90%)	$\lambda$	410-1100	Min-Max.	nm
<b>Environmental</b>				
Storage Temperature	T <sub>stg</sub>	-40 ~ +110	Min-Max.	°C
Operating Temperature	T <sub>sol</sub>	-40 ~ +110	Min-Max.	°C

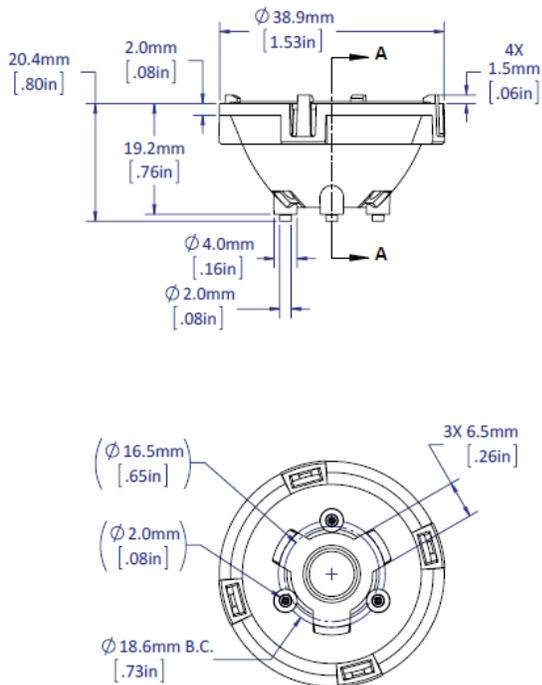
Notes:

1. It is not recommended to use a UV emitter with this lens due to lower transmission at wavelengths < 410nm.

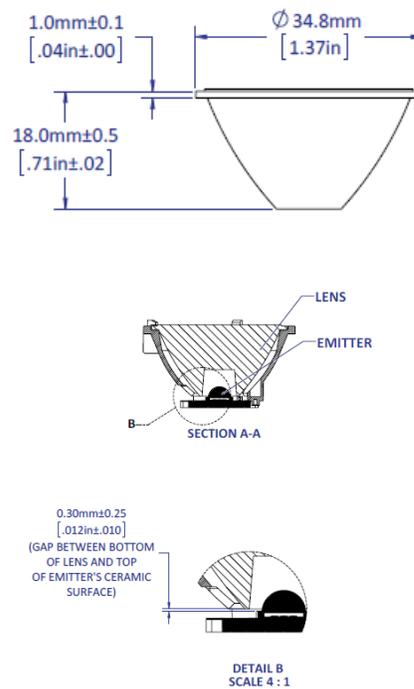
## Mechanical Dimensions (mm)



### Lens with Holder



### Lens



## Assembly Instruction

Lens holders can be assembled to the PCB using an epoxy or polyurethane-based adhesive (example: Dow Corning 3145 RTV).

Cyanoacrylate (superglue) adhesive should not be used to avoid contamination of the lens (blooming of the epoxy).

When integrating the lens into a fixture without the lens holder, special attention is needed to maintain the distance between the lens bottom and the emitter top. Variation in this distance will result in variation of the beam profile. See mechanical detail B. on previous page.

## Lens Cleaning

Use a lint-free soft cloth to dust off the lens. For deeper cleaning a solution of neutral detergent (example: dishwashing soap) can be used. Do not use any solvents or abrasive liquid/fabric.

## Company Information

LED Engin, Inc., based in California's Silicon Valley, specializes in ultra-bright, ultra compact solid state lighting solutions allowing lighting designers & engineers the freedom to create uncompromised yet energy efficient lighting experiences. The LuxiGen™ Platform — an emitter and lens combination or integrated module solution, delivers superior flexibility in light output, ranging from 3w to 90w, a wide spectrum of available colors, including whites, multi-color and UV, and the ability to deliver upwards of 5,000 high quality lumens to a target. The small size combined with powerful output allows for a previously unobtainable freedom of design wherever high-flux density, directional light is required. LED Engin's packaging technologies lead the industry with products that feature lowest thermal resistance, highest flux density and consummate reliability, enabling compact and efficient solid state lighting solutions.

LED Engin is committed to providing products that conserve natural resources and reduce greenhouse emissions.

LED Engin reserves the right to make changes to improve performance without notice.

Please contact [sales@ledengin.com](mailto:sales@ledengin.com) or (408) 922-7200 for more information.