

**BD6™ Material  
Enabling Optical  
Athermalization<sup>2</sup>**

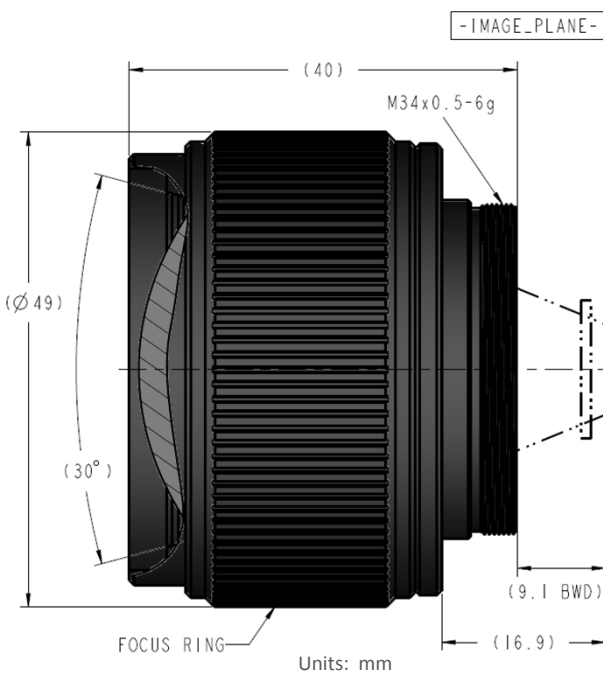
## KEY FEATURES

### Optical:

- 35mm EFL, f/1.0 Lens
- 18deg HFOV on 640X480/17µm detector<sup>1</sup>
- Low-cost dual element design
- Utilizes aspheric and diffractive performance
- High efficiency AR coating for LWIR (8-14µm)
- **Optically Athermalized<sup>2</sup> using BD6™ material**

### Mechanical:

- Small size and weight
- Utilizes precision molded/DT lenses
- Manual focus ring (fixed focus optional)
- Black anodized aluminum housing
- Internally sealed to IP67 standard<sup>3</sup>



### Horizontal FOV for Various Detector Sizes

Resolution → Pixel Size ↓	160x120	320x240	384x288	640x480	1024x768
34µm	9°	18°	21°	34°	N/A
25µm	7°	13°	16°	26°	N/A
17µm	4°	9°	11°	<b>18° Optimal<sup>1</sup></b>	28°
12µm	3°	6°	8°	13°	20°
10µm	3°	5°	6°	10°	17°

<sup>1</sup>Lens optimized for this format. Data for other formats available upon request.

<sup>2</sup>See optical performance table on page 2 for athermal temperature range

<sup>3</sup>Outer threads must also be sealed at installation

## Optical Performance for 640x480 / 17 $\mu$ m Detector <sup>1</sup>

Parameter	Notes	Design Value	Unit
MTF – Min Sag/Tan at Nyquist Frequency	Diffraction Limited MTF ( <i>Ref. Only</i> )	63	%
	On-axis	61	%
	VFOV	55	%
	HFOV	47	%
	Corner	34	%
EFL	Magnification-based	35	mm
F/#	Aperture-based	1.0	
Field of View	Vertical	13	Deg
	Horizontal	18	Deg
	Diagonal (corner)	22	Deg
Relative Illumination	At HFOV	93	%
	At Corner Field	85	%
Distortion	At HFOV	< 1	%
	At Corner Field	< 1	%
Fixed Focus Range <i>(Range if used without manual focus, allowing ~10% MTF drop at Nyq/2)</i>	Depth of Field (target range)	25 – Infinity	m
	Athermal Temperature Range <sup>2</sup>	-20 to +60	°C
Operational Waveband	LWIR thermal waveband	8 – 14	$\mu$ m
Transmission	HEAR coated witness samples (8-12 $\mu$ m)	>96	%

## Mechanical Parameters

Parameter	Notes	Design Value	Unit
Height	Front to back of lens assembly	40	mm
Thread Interface	Lens assembly outer thread (ASME)	M34x0.5-6g	
Working Distance to Image Plane (FPA)	Assumes 0.7mm Si window, nominal focus at infinity	9.1	mm
Max Exposure Temp	Storage / post-processing	140	°C
Internal Seal	Threads must also be sealed at installation	IP67	