

**BD6™ Material
Enabling Optical
Athermalization²**



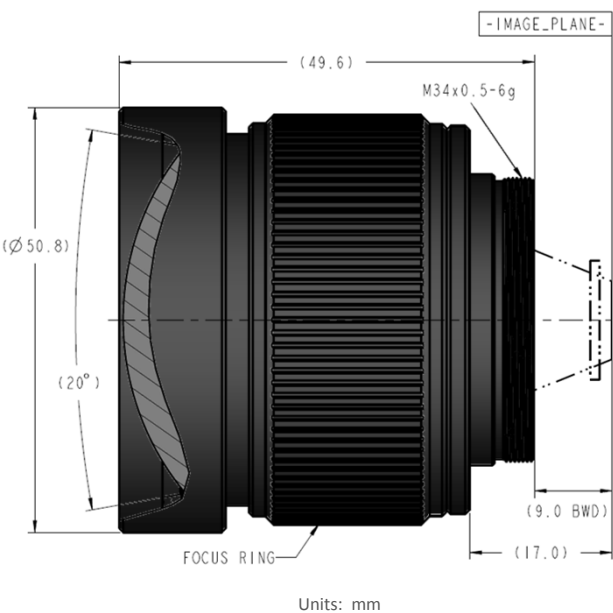
KEY FEATURES

Optical:

- 50mm EFL, f/1.2 Lens
- 12deg HFOV on 640X480/17μm detector¹
- Low-cost dual element design
- Utilizes aspheric and diffractive performance
- High efficiency AR coating for LWIR (8-14μm)
- **Optically Athermalized² 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 standard³



Horizontal FOV for Various Detector Sizes

Resolution → Pixel Size ↓	160x120	320x240	384x288	640x480	1024x768
34μm	6°	12°	15°	N/A	N/A
25μm	5°	9°	11°	18°	N/A
17μm	3°	6°	7°	12° Optimal¹	19°
12μm	2°	4°	5°	9°	14°
10μm	2°	4°	4°	7°	12°

¹Lens optimized for this format. Data for other formats available upon request.

²See optical performance table on page 2 for athermal temperature range

³Outer threads must also be sealed at installation

Optical Performance for 640x480 / 17 μ m Detector ¹

Parameter	Notes	Design Value	Unit
MTF – Min Sag/Tan at Nyquist Frequency	Diffraction Limited MTF (<i>Ref. Only</i>)	55	%
	On-axis	55	%
	VFOV	54	%
	HFOV	53	%
	Corner	48	%
EFL	Magnification-based	50	mm
F/#	Aperture-based	1.2	
Field of View	Vertical	9	Deg
	Horizontal	12	Deg
	Diagonal (corner)	15	Deg
Relative Illumination	At HFOV	94	%
	At Corner Field	88	%
Distortion	At HFOV	< 1	%
	At Corner Field	< 2	%
Fixed Focus Range <i>(Range if used without manual focus, allowing ~10% MTF drop at Nyq/2)</i>	Depth of Field (target range)	40 – Infinity	m
	Athermal Temperature Range ²	-15 to +55	°C
Operational Waveband	LWIR thermal waveband	8 – 14	μ m
Transmission	HEAR coated witness samples (8-12 μ m)	>96	%

Mechanical Parameters

Parameter	Notes	Design Value	Unit
Height	Front to back of lens assembly	50	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	9.0	mm
Max Exposure Temp	Storage / post-processing	140	°C
Internal Seal	Threads must also be sealed at installation	IP67	

¹ Performance data for nominal design on specified detector over 8-12 μ m waveband. Data for other detector formats available upon request.

² Assumes aluminum mount used between lens and detector FPA. Additional passive athermalization available in specialized housing.