

5.3mm EFL, f/1.3

Part #7100331

Thermal Imaging Lens Assembly

NEW! BD6™ Material
Enabling Optical
Athermalization²



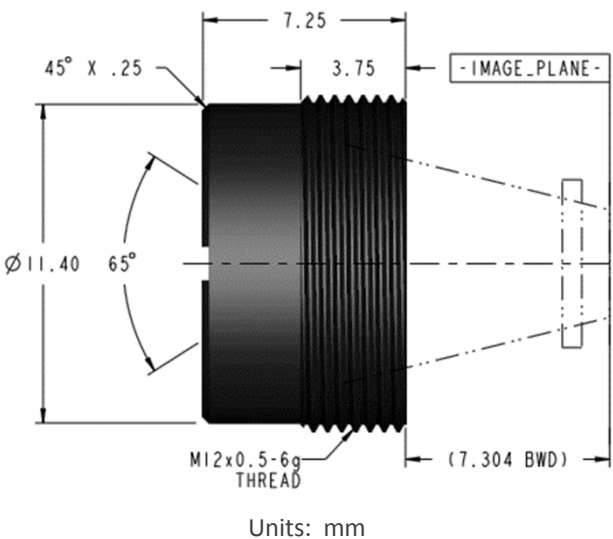
KEY FEATURES

Optical:

- 5.3mm EFL, f/1.3 Lens
- 42deg HFOV on 320x240/12μm detector¹
- Low-cost singlet design
- Utilizes aspheric and diffractive performance
- High efficiency AR coating for LWIR (8-14μm)
- **Optically Athermalized² using BD6™ material**

Mechanical:

- Small size and weight
- Precision molded chalcogenide lens material
- Matte black anodized aluminum housing
- Threaded interface for adjustable focus
- Internally sealed to IP67 standard³



Horizontal FOV for Various Detector Sizes

Resolution → Pixel Size ↓	80x80	160x120	320x240	384x288	640x480
34μm	30°	61°	N/A	N/A	N/A
25μm	22°	44°	93°	118°	N/A
17μm	15°	30°	61°	74°	N/A
12μm	10°	21°	42° Optimal¹	51°	89°
10μm	9°	17°	35°	42°	72°

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

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Optical Performance for 320x240 / 12μm Detector ¹

Parameter	Notes	Design Value	Unit
MTF – Min Sag/Tan at Nyquist (41.7cyc/mm)	Diffraction Limited MTF (<i>Ref. Only</i>)	34	%
	On-axis	34	%
	VFOV	31	%
	HFOV	27	%
	Corner	24	%
EFL	Magnification-based	5.3	mm
F/#	Aperture-based	1.3	
Field of View	Vertical	31	Deg
	Horizontal	42	Deg
	Diagonal (corner)	53	Deg
Relative Illumination	At HFOV	94	%
	At Corner Field	92	%
Distortion	At HFOV	-6	%
	At Corner Field	-9	%
Fixed Focus Range <i>(Range if used <u>without</u> manual focus, allowing ~10% MTF drop at Nyquist)</i>	Depth of Field (prefocused at 1.3m)	0.5 – <i>Infinity</i>	m
	Athermal Temperature Range ²	-40 to +85	°C
Operational Waveband	LWIR thermal waveband	8 – 14	μm
Transmission	HEAR coated witness samples (8-12μm)	>95	%

Mechanical Parameters

Parameter	Notes	Design Value	Unit
Height	Front to back of lens assembly	7.25	mm
Thread Interface	Lens assembly outer thread (ASME)	M12x0.5-6g	
Working Distance to Image Plane (FPA)	Assumes 0.7mm Si window, nominal focus at infinity	7.3	mm
Max Exposure Temp	Storage / post-processing	140	°C
Internal Seal	Threads must also be sealed at installation	IP67	

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

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