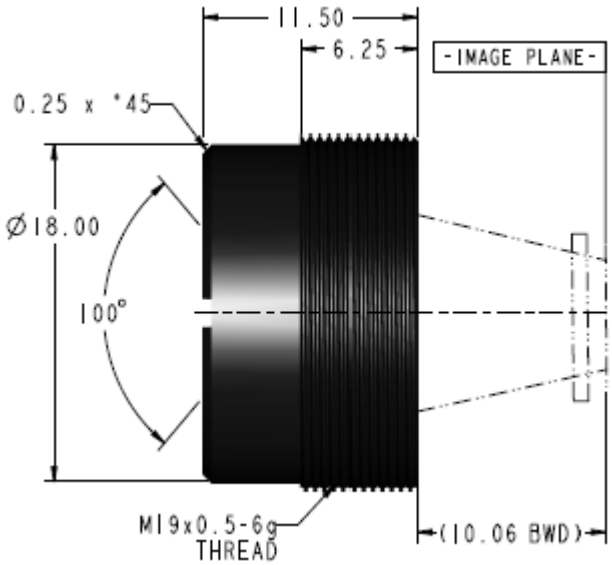
7.7mm EFL, f/1.3

Part #7100305

Thermal Imaging Lens Assembly

NEW! BD6™ Material Enabling Optical Athermalization[2]



Units: mm

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KEY FEATURES

Optical:

- 7.7mm EFL, f/1.3 Lens
- 41deg HFOV on 320x240/17µm detector[1]
- Low-cost singlet design
- Utilizes aspheric and diffractive technologies
- High efficiency AR coating for LWIR (8-14µm)
- **Optically Athermalized[2] 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 standard[3]

Horizontal FOV for Various Detector Sizes

Resolution → / Pixel Size ↓	80x80	160x120	320x240	384x288	640x480
34µm	20°	41°	86°	N/A	N/A
25µm	15°	30°	62°	75°	N/A
17µm	10°	20°	**41°** ***Optimal*** [1]	50°	86°
12µm	7°	14°	29°	35°	59°
10µm	6°	12°	24°	29°	49°

[1]Lens optimized for this format. Data for other formats available upon request.
[2]See performance table on page 2 for MTF change over temperature
[3]Outer threads should also be sealed at installation

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Optical Performance for 320x240 / 17µm Detector [1]

Parameter	Notes	Design Value	Unit
MTF – Min Sag/Tan at Nyquist (29.4cyc/mm)	Diffraction Limited MTF *(Ref. Only)*	51	%
	On-axis	50	%
	VFOV	41	%
	HFOV	32	%
	Corner	20	%
EFL	Magnification-based	7.7	mm
F/#	Aperture-based	1.3	
Field of View	Vertical	31	Deg
	Horizontal	41	Deg
	Diagonal (corner)	52	Deg
Relative Illumination	At HFOV	95	%
	At Corner Field	93	%
Distortion	At HFOV	6	%
	At Corner Field	9	%
Fixed-Focus Object Range	Range for 10% MTF drop w/o refocus	2.1 – *Infinity*	m
Athermal Temp Range[2]	Range for 10% MTF drop w/o refocus	-62 to +82	°C
Operating Waveband	LWIR thermal waveband[1]	8 – 14	µm
Transmission[3]	HEAR coated witness samples (8-12µm)	>96	%

Mechanical Parameters

Parameter	Notes	Design Value	Unit
Height	Front to back of lens assembly	11.50	mm
Thread Interface	Lens assembly outer thread (ASME)	M19x0.5-6g	
Working Distance to Image Plane (FPA)	Assumes 0.76mm Si window, nominal focus at infinity	10.06	mm
Max Exposure Temp	Storage / post-processing	140	°C
Internal Seal	Threads must also be sealed at installation	IP67	

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[1] *Performance data for nominal design on specified detector over 8-12µm 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.*