

# 9.0mm EFL, f/1.3

Part #7100320

# Thermal Imaging Lens Assembly

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



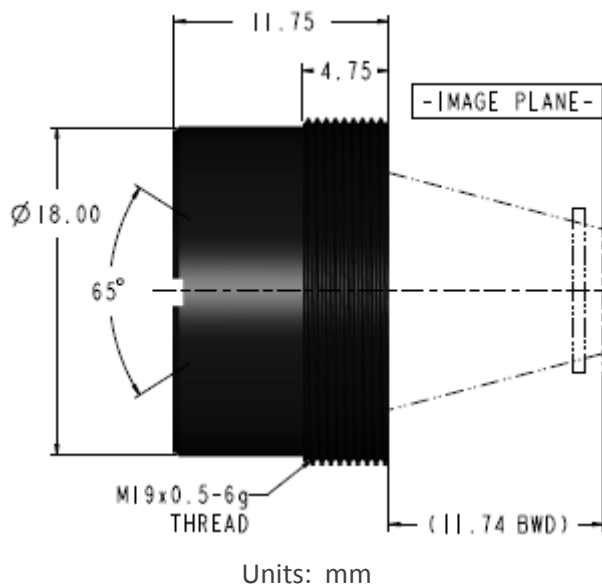
## KEY FEATURES

### Optical:

- 9.0mm EFL, f/1.3 Lens
- 35deg HFOV on 320X240/17μm detector<sup>1</sup>
- Low-cost singlet design
- Utilizes aspheric and diffractive technologies
- High efficiency AR coating for LWIR (8-14μm)
- **Optically Athermalized<sup>2</sup> using BD6™ material**

### Mechanical:

- Small size and weight
- Precision molded chalcogenide lens
- Matte black anodized aluminum housing
- Threaded interface enables adjustable focus
- Internally sealed to IP67 standard<sup>3</sup>



### Horizontal FOV for Various Detector Sizes

Resolution → Pixel Size ↓	80x80	160x120	320x240	384x288	640x480
34μm	17°	35°	72°	N/A	N/A
25μm	13°	26°	52°	63°	N/A
17μm	9°	17°	<b>35° Optimal<sup>1</sup></b>	42°	72°
12μm	6°	12°	25°	30°	50°
10μm	5°	10°	21°	25°	41°

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

<sup>2</sup>See performance table on page 2 for MTF change over temperature

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

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## Optical Performance for 320x240 / 17 $\mu$ m Detector <sup>1</sup>

Parameter	Notes	Design Value	Unit
MTF – Min Sag/Tan at Nyquist (29.4cyc/mm)	Diffraction Limited MTF ( <i>Ref. Only</i> )	52	%
	On-axis	52	%
	VFOV	46	%
	HFOV	36	%
	Corner	24	%
EFL	Magnification-based	9	mm
F/#	Aperture-based	1.3	
Field of View	Vertical	26	Deg
	Horizontal	35	Deg
	Diagonal (corner)	44	Deg
Relative Illumination	At HFOV	95	%
	At Corner Field	93	%
Distortion	At HFOV	4	%
	At Corner Field	6	%
Fixed-Focus Object Range	Range for 10% MTF drop w/o refocus	1.9 – <i>Infinity</i>	m
Athermal Temp Range <sup>2</sup>	Range for 10% MTF drop w/o refocus	-40 to +65	°C
Operating 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	11.75	mm
Thread Interface	Lens assembly outer thread (ASME)	M19x0.5-6g	
Working Distance to Image Plane (FPA)	Assumes 0.7mm Si window, nominal focus at infinity	11.74	mm
Max Exposure Temp	Storage / post-processing	140	°C
Internal Seal	Threads must also be sealed at installation	IP67	