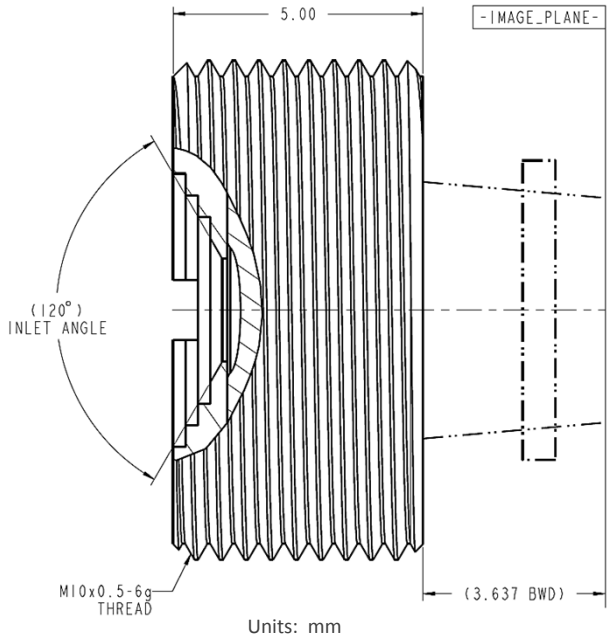
2.7mm EFL, f/1.3

Part #7100380

Thermal Imaging Lens Assembly

BD6™ Material Enabling Optical Athermalization[2]



Units: mm

LightPath® TECHNOLOGIES

KEY FEATURES

Optical:

- 2.7mm EFL, f/1.3 Lens
- 60deg HFOV on 80x80/34µm detector[1]
- Low-cost singlet design
- Utilizes aspheric performance
- High efficiency AR coating for LWIR (8-12µm)
- **Optically Athermalized[2] using BD6™ material**

Mechanical:

- Small size and weight
- Precision molded chalcogenide lens material
- 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	**60°** ***Optimal*** [1]	142°	N/A	N/A	N/A
25µm	44°	92°	N/A	N/A	N/A
17µm	29°	60°	142°	N/A	N/A
12µm	21°	42°	88°	111°	N/A
10µm	17°	35°	72°	88°	N/A

[1]Lens optimized for this format. Data for other formats available upon request.
[2]See optical performance table on page 2 for athermal temperature range
[3]Outer threads must also be sealed at installation

2.7mm EFL, f/1.3

Part #7100380

Thermal Imaging Lens Assembly

Optical Performance for 80x80 / 34µm Detector [1]

Parameter	Notes	Design Value	Unit
MTF – Min Sag/Tan at Nyquist (15cyc/mm)	Diffraction Limited MTF *(Ref. Only)*	73	%
	On-axis	73	%
	VFOV / HFOV	68	%
	Corner	58	%
EFL	Magnification-based	2.7	mm
F/#	Aperture-based	1.3	
Field of View	Vertical / Horizontal	90	Deg
	Diagonal (corner)	149	Deg
Relative Illumination	At HFOV	94	%
	At Corner Field	89	%
Distortion	At HFOV	-12	%
	At Corner Field	-26	%
Fixed Focus Range *(Range if used <u>without</u> manual focus, allowing ~10% MTF drop at Nyquist)*	Depth of Field	0.2 – *Infinity*	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	5.0	mm
Thread Interface	Lens assembly outer thread (ASME)	M10 x 0.5-6g	
Working Distance to Image Plane (FPA)	Assumes 0.65mm Si window, nominal focus at infinity	3.64	mm
Max Exposure Temp	Storage / post-processing	140	°C
Internal Seal	Threads must also be sealed at installation	IP67	

LightPath® TECHNOLOGIES

[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.*