

LightPath®

TECHNOLOGIES

Featuring



A LightPath® COMPANY

GLOBAL LEADER IN OPTICAL TECHNOLOGY



*Thermal Imaging Lens
Assemblies for applications
such as:*

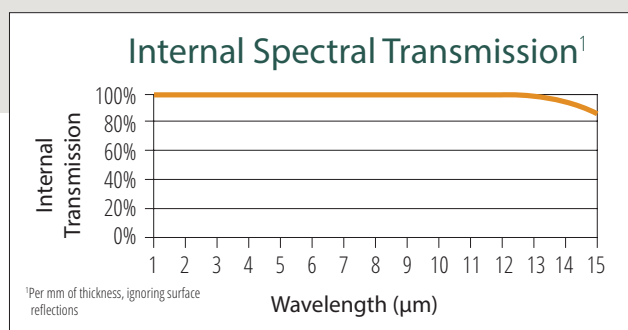
- High-volume, cost effective manufacturing
- Full design support for custom optics and mechanics from our experienced engineering team
- Thermal imaging and thermography
- Gas sensing and spectroscopy
- Security and surveillance
- Automotive vision enhancement
- Manufacturing process control and inspection
- Target tracking and identification
- Weapon Sights
- Thermal Monocular and Binocular

If you don't see the lens you need in our catalog, our engineering team will customize a solution for your specific application.

Advantages of LightPath's BD6 Chalcogenide Glass

- High Transmission
- Low Cost and Weight
- Optical Athermalization
- Can be molded, polished or diamond-turned
- No Germanium Content

BD6 chalcogenide glass is ideal for use in MWIR and LWIR thermal imaging systems. Our team of experienced engineers will work with you to design lenses for your application.



Optical Properties

Refractive Indices and Absorption Coefficient		
Wavelength λ (μm)	Refractive Index	Absorption Coefficient (cm ⁻¹)
2	2.8230	0.003
4	2.7978	0.002
6	2.7914	0.002
8	2.7867	0.002
10	2.7816	0.003
12	2.7755	0.004
14	2.7683	0.068

Internal Transmission Formula

$$T_i = e^{-a \cdot d}$$

Where *a* is the absorption coefficient, and *d* is the sample thickness

Coatings

HEAR and DLC coatings available

Other Properties

Composition	
Component	Percentage
Arsenic	40%
Selenium	60%
Equivalent Glasses	
Schott - IRG26	
Vitron - IG6	

Mechanical Properties	
Density	4.63 g/cm ³
Hardness (Vickers)	142 HV
Young's Modulus	19.8 GPa

Thermal Properties	
Max Exposure Temp	140°C
CTE (25-100°C)	22.5 × 10 ⁻⁶ /°C
dn/dT @ 10 μm (0-40°C)	30.5 × 10 ⁻⁶ /°C



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LightPath Thermal Imaging Lens Assemblies

Assembly Part Number	Lens Type	Effective Focal Length	F/#	Recommended Detector Format (H x V Resolution / Pixel Size)	Horizontal FOV (on Specific Detector)
7100333	Molded BD6™ Singlet	1.5 mm	1.3	80 x 80 / 34 μm	120°
7100327	Molded BD6™ Singlet	1.9 mm	1.3	80 x 80 / 34 μm	90°
7100380	Molded BD6™ Singlet	2.7 mm	1.3	80 x 80 / 34 μm	60°
7100410	Molded BD6™ Singlet	4.0 mm	1.2	320 x 240 / 12 μm	56°
7100331	Molded BD6™ Singlet	5.3 mm	1.3	320 x 240 / 12 μm	42°
7100306	Molded BD6™ Singlet	6.3 mm	1.3	320 x 240 / 17 μm	50°
7100305	Molded BD6™ Singlet	7.7 mm	1.3	320 x 240 / 17 μm	41°
7100320	Molded BD6™ Singlet	9 mm	1.3	320 x 240 / 17 μm	35°
7100340	Molded BD6™ Doublet	15 mm	1.2	640 x 512 / 10 μm	25°
7100350	Molded BD6™ Doublet	15 mm	1.0	384 x 288 / 17 μm	25°
7100338	Molded BD6™ Doublet	19 mm	1.1	640 x 480 / 17 μm	32°
7100341	Molded BD6™ Doublet	20 mm	1.2	640 x 512 / 10 μm	18°
7100346	Molded BD6™ Doublet	24 mm	1.2	640 x 480 / 17 μm	26°
7100412	DT / Molded BD6™ Hybrid	25 mm	1.0	640 x 480 / 17 μm	25°
7100383	DT / Molded BD6™ Hybrid	35 mm	1.0	640 x 480 / 17 μm	18°
7100353	DT / Molded BD6™ Hybrid	50 mm	1.2	640 x 480 / 17 μm	12°
7100406	Germanium	75 mm	1.0	640 x 480 / 17 μm	8°

— Custom Options Available —

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