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IR Achromatic Doublets (Page 1 of 2)

- Diffraction-Limited On-Axis Performance
- Housing Diameter: Ø1" (Ø25.4 mm)
- Diameter Tolerance: +0.00/-0.10
- Focal Length Tolerance: $\pm 1.0\%$
- Surface Quality: 60-40 Scratch-Dig
- Centration: < 3 arcmin
- Clear Aperture: $> 80\%$ of Diameter
- RMS WFE: $< \lambda/10$ @ $4 \mu\text{m}$
- Mounted in Engraved SM1-Compatible Housings

NEW
products

AC254-100-F



AC254-200-E

These AR-coated, air-spaced achromatic doublet lenses provide excellent transmission in the 3 - 5 μm or 8 - 12 μm range (surface reflectance for each coating can be seen in the graph below left). Each achromatic doublet on this page has three design wavelengths: 3 μm , 4 μm , and 5 μm or 8 μm , 10 μm , and 12 μm . By optimizing the design for these three wavelengths, the focal shift across the specified range will be minimized, providing excellent on-axis performance.

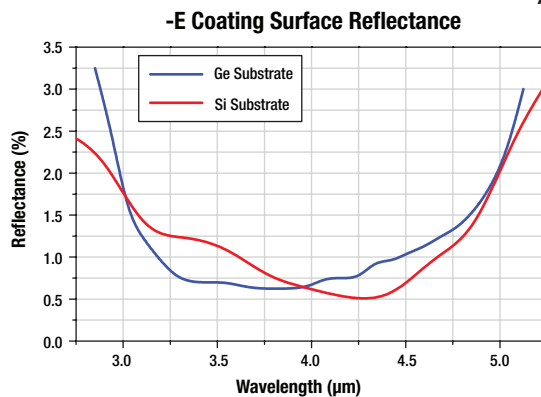
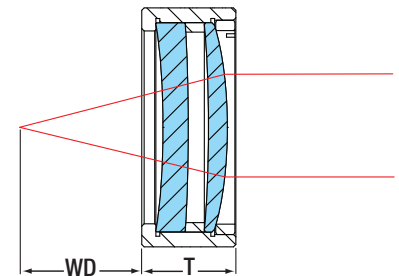
Thorlabs' IR achromatic doublets are pre-mounted in engraved SM1-compatible mounts, making it easy to incorporate these optics into your setup. Each engraving includes the part number, AR coating range, focal length, an arrow indicating the direction of light propagation to collimate a point source, and an infinity symbol denoting that this lens has an infinite conjugate ratio (i.e., if a diverging light source is placed one focal length away from the flat side of the lens, the light rays emerging from the curved side will be collimated).

MWIR Achromatic Doublets Optimized for 3 - 5 μm

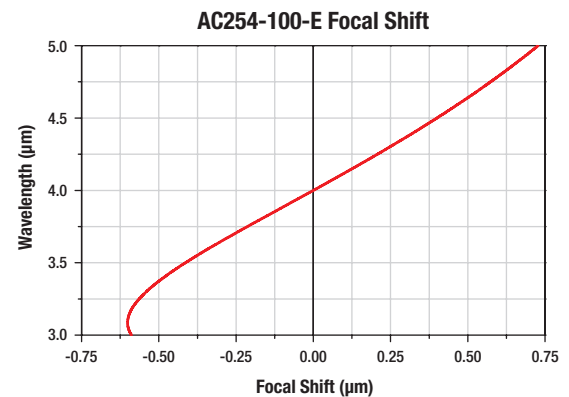
- AR Coated for the 3 - 5 μm Range ($R_{\text{avg}} < 1.5\%$)
- Design Wavelengths: 3, 4, and 5 μm
- Substrate: Germanium/Silicon



AC254-050-E



Please contact your local Thorlabs office for custom optical scans.

Focal Shift Plots for all Lenses Available at www.thorlabs.com

ITEM #	EFL ^a	WD ^b	T ^c	\$	£	€	RMB
AC254-050-E	50 mm	40.4 mm	10.0 mm	\$ 800.00	£ 576.00	€ 696.00	¥ 6,376.00
AC254-075-E	75 mm	64.2 mm	12.5 mm	\$ 800.00	£ 576.00	€ 696.00	¥ 6,376.00
AC254-100-E	100 mm	89.4 mm	12.5 mm	\$ 800.00	£ 576.00	€ 696.00	¥ 6,376.00
AC254-200-E	200 mm	192.6 mm	15.5 mm	\$ 800.00	£ 576.00	€ 696.00	¥ 6,376.00

^aEffective Focal Length @ 4 μm ^bWorking Distance @ 4 μm ^cThickness

IR Achromatic Doublets (Page 2 of 2)

LWIR Achromatic Doublets Optimized for 8 - 12 μm

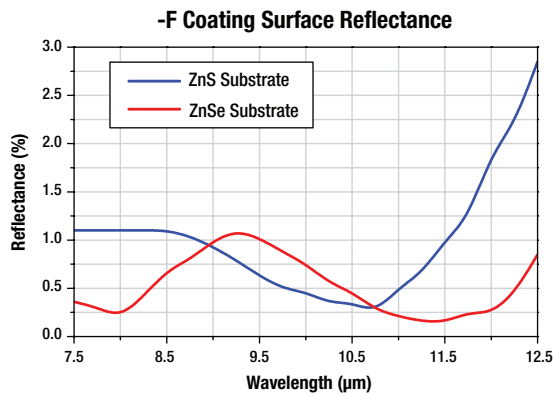
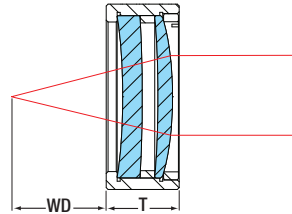
- AR Coated for the 8 - 12 μm Range ($R_{\text{avg}} < 1.5\%$)
- Design Wavelengths: 8, 10, and 12 μm
- Substrate: Zinc Selenide/Zinc Sulfide

Note: The optical coating on these lenses contains thorium tetrafluoride (ThF_4) due to its superior performance in the IR. This is a radioactive material, and thus, these lenses should be handled with care.

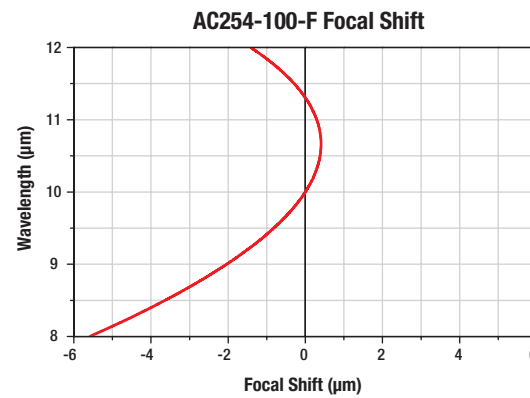
NEW
products



AC254-075-F



Please contact your local Thorlabs office for custom optical scans.



Focal Shift Plots for all Lenses Available at www.thorlabs.com

ITEM #	EFL ^a	WD ^b	T ^c	\$	£	€	RMB
AC254-050-F	50 mm	37.2 mm	15.0 mm	\$ 800.00	£ 576.00	€ 696.00	¥ 6,376.00
AC254-075-F	75 mm	65.1 mm	12.1 mm	\$ 800.00	£ 576.00	€ 696.00	¥ 6,376.00
AC254-100-F	100 mm	90.5 mm	11.5 mm	\$ 800.00	£ 576.00	€ 696.00	¥ 6,376.00
AC254-200-F	200 mm	194.3 mm	10.0 mm	\$ 800.00	£ 576.00	€ 696.00	¥ 6,376.00

^aEffective Focal Length @ 10 μm

^bWorking Distance @ 10 μm

^cThickness

Have you seen our...

Off-Axis Parabolic Mirrors

- Provides Achromatic Collimation or Focusing
- Protected Gold Coating Provides $>95\%$ Average Reflectance Over 800 nm - 20 μm Range
- Focal Lengths From 1" (25.4 mm) to 6" (152.4 mm) Available

Thorlabs' off-axis parabolic mirrors are diamond-tuned, front surface mirrors that have been cut out of a parent parabolic mirror. These mirrors are available in $\text{Ø}1/2"$, $\text{Ø}1"$, or $\text{Ø}2"$ sizes and focus or collimate at 90° relative to the incident beam, as shown right.

See page 786

MPD254254-90-M01
 $\text{Ø}1"$ Parabolic Mirror

