

[See all 36 Products in Family](#)

**TECHSPEC® 50mm Dia x 50mm FL Uncoated, Ge Aspheric Lens**



Stock #87-994 CLEARANCE **4 In Stock**

⊖ 1 ⊕ A\$4,176<sup>00</sup>

**ADD TO CART**

Volume Pricing	
Qty 1+	A\$4,176.00 each
Need More?	<a href="#">Request Quote</a>

Product Downloads

**General**

Aspheric Lens **Type:**

**Physical & Mechanical Properties**

50.00 +0.0/-0.1 **Diameter (mm):**

≤5 **Centering (arcmin):**

45 **Clear Aperture CA (mm):**

**Edge Thickness ET (mm):**

2.52

Center Thickness CT (mm):

5.10 ±0.10

Bevel:

Protective as needed

Edges:

Diamond Turned

Shape of Back Surface:

Concave

## Optical Properties

Effective Focal Length EFL (mm):

50.00 @4000nm

Numerical Aperture NA:

0.50

Back Focal Length BFL (mm):

45.92

Substrate:

Germanium (Ge)

Aspheric Design Wavelength (nm):

4000

Asphere Figure Error, RMS @ 632.8nm:

λ/6

Coating:

Uncoated

Surface Quality:

60-40

f/#:

1.00

Index of Refraction (n<sub>d</sub>):

4.002 @ 11μm

Radius R<sub>2</sub> (mm):

62.38

Wavelength Range (nm):

2000 - 14000

Conjugate Distance:

Infinite

Focal Length Specification Wavelength (nm):

4000

## Material Properties

Coefficient of Thermal Expansion CTE (10<sup>-6</sup>/°C):

6.1

## Regulatory Compliance

RoHS 2015:

[Compliant](#)

Reach 219:

[Compliant](#)

Certificate of Conformance:

[View](#)

## Product Details

- Diffraction Limited Performance
- Variety of Coating Options
- Full Prescription Data Available
- Due to material supply chain disruptions with germanium, there may be increased lead times and price changes on our germanium products. For more information, please contact our [customer service team](#).
- Edmund Optics has limited remaining inventory of this part number and no raw material available to supply more once this is depleted. Please contact our Product Support Engineers to help with an alternate solution for your needs. Customer Service can provide you the latest price and availability.

TECHSPEC® Germanium Infrared (IR) Aspheric Lenses provide diffraction-limited focusing performance over a broad spectral range in the Mid and Long Wave infrared regions. Ideal for monochromatic light sources, such as quantum cascade lasers, these lenses offer a high-performance alternative to standard plano-convex lenses.

The lenses are available in a 12.5, 25, or 50mm diameter. TECHSPEC® Germanium Infrared (IR) Aspheric Lenses are available uncoated, or with BBAR coating options.

Uncoated germanium has transmission of <50%, so custom anti-reflection (AR) coatings should be considered if specifying an uncoated lens. Each BBAR coated lens offers >95% transmission, making it ideal for integration into a variety of OEM applications. For custom design or coating options, please contact our [Sales Department](#).

## Technical Information



AR COATED GERMANIUM	
<p><b>Ge with 3-5µm AR Coating</b> <b>Typical Transmission</b></p> <p>The graph shows transmission T (%) on the y-axis (0 to 100) and wavelength λ (µm) on the x-axis (2 to 16). A red curve shows transmission rising from ~20% at 2µm to ~95% at 3µm, then gradually decreasing to ~40% at 16µm. A blue shaded region highlights the design range from 3µm to 5µm.</p>	<p>Typical transmission of a 3mm thick Ge window with BBAR (3000-5000nm) coating at 0° AOI.</p> <p>The blue shaded region indicates the coating design wavelength range, with the following specification:</p> <p><math>R_{avg} &lt; 3\%</math> @ 3000 - 5000nm</p> <p>Data outside this range is not guaranteed and is for reference only.</p> <p><a href="#">Click Here to Download Data</a></p>
<p><b>Ge with 3-12µm AR Coating</b> <b>Typical Transmission</b></p> <p>The graph shows transmission T (%) on the y-axis (0 to 100) and wavelength λ (µm) on the x-axis (2 to 16). A red curve shows transmission rising from ~20% at 2µm to ~95% at 3µm, remaining high until ~11µm, then decreasing to ~55% at 16µm. A blue shaded region highlights the design range from 3µm to 12µm.</p>	<p>Typical transmission of a 3mm thick Ge window with BBAR (3000-12000nm) coating at 0° AOI.</p> <p>The blue shaded region indicates the coating design wavelength range, with the following specification:</p> <p><math>R_{avg} &lt; 5.0\%</math> @ 3 - 12µm</p> <p>Data outside this range is not guaranteed and is for reference only.</p> <p><a href="#">Click Here to Download Data</a></p>
<p><b>8-12µm AR Coated Germanium</b> <b>Typical Transmission</b></p> <p>The graph shows transmission T (%) on the y-axis (0 to 100) and wavelength λ (µm) on the x-axis (2 to 16). A red curve shows transmission with peaks at ~2µm and ~4µm, then rising to ~95% at 8µm, remaining high until ~12µm, then decreasing to ~65% at 16µm. A blue shaded region highlights the design range from 8µm to 12µm.</p>	<p>Typical transmission of a 3mm thick Ge window with BBAR (8000-12000nm) coating at 0° AOI.</p> <p>The blue shaded region indicates the coating design wavelength range, with the following specification:</p> <p><math>R_{avg} &lt; 3.0\%</math> @ 8 - 12µm</p> <p>Data outside this range is not guaranteed and is for reference only.</p> <p><a href="#">Click Here to Download Data</a></p>

## Special Handling

### Germanium Optics Handling and Cleaning Guidelines

Germanium optics require special handling and cleaning procedures. Always wear gloves during handling to prevent contamination, and wash hands afterward. Avoid contact between Germanium dust and the eyes, skin, or clothing. When not in use, store optics sealed and covered at temperatures between 20°C and 25°C. Do not expose them to temperatures exceeding 100°C when in use.

#### Handling Guidelines

- Always wear **gloves** to prevent damage from skin oils.
- If Germanium dust is present, take the following precautions:
  - Wear safety glasses to protect eyes.
  - Use a dust mask or face mask to avoid inhalation.
  - Wear **gloves** to prevent skin contact.
- Maintain storage temperature between 20°C and 25°C with humidity below 30%.
- Wrap Germanium optics in a **lens cloth** or **pouch** and seal in a **container** when not in use.

- Germanium is brittle and heavy—always place it on soft surfaces and avoid dropping it.

### Approved Cleaning Solvents

- Ethanol
- Isopropyl Alcohol
- Methanol
- Reagent-Grade Acetone
- Liquid CO<sub>2</sub>
- [Shop Now](#)

## Compatible Mounts

---