The ProFlux® BIR Series Infrared polarizer, designed using Moxtek® Nanowire® Technology, provides unparalleled broadband infrared performance. Moxtek’s high volume production capacity ensures availability and supports high volume applications.

BIR polarizers are designed and manufactured to support broadband applications to easily match your applications design goals. BIR04A High Contrast Infrared Polarizer is optimized for ultimate contrast while BIR05A High Transmission Infrared Polarizer is designed for optical efficiency.

BIR04A and BIR05A Infrared Polarizers can also be customized to deliver contrast and performance levels to meet your specific application and design parameter needs. Please contact Moxtek sales representatives for more information.

### Applications
- Thermal Imaging
- Forensics
- Medical
- Microscopy
- Night Vision Goggles (NVG), low light imaging
- Spectroscopy
- Security

### Features

<table>
<thead>
<tr>
<th>Features</th>
<th>Benefits</th>
</tr>
</thead>
<tbody>
<tr>
<td>Nanowire® Technology</td>
<td>Brightness and contrast uniformity</td>
</tr>
<tr>
<td>±20° AOI without depolarization</td>
<td></td>
</tr>
<tr>
<td>Wavelength and AOI independent</td>
<td></td>
</tr>
<tr>
<td>Broadband</td>
<td></td>
</tr>
<tr>
<td>Inorganic</td>
<td>High heat resistance</td>
</tr>
</tbody>
</table>

### General Specifications

- **Wavelength Range:** 700 - 2,500nm (see back page)
- **Substrate Type:** Display Grade Glass
- **Substrate Thickness:** 0.7 ± 0.07mm
- **Index of Refraction:**
  - 435.8nm: 1.5198
  - 643.8nm: 1.5078
- **Thermal Expansion:** $31.7 \times 10^{-7} / ^\circ C$ (0-300°C)
- **AOI (Angle of Incidence):** $0^\circ \pm 20^\circ$
- **AR Coating:** None
- **Maximum Temperature:** 200°C > 5,000 hours
- **Transmission Axis (TA):** Referenced to long side of part
- **TA Tolerance:** ± 1°
- **Dimensional Tolerance:** ± 0.2mm
- **Edge Exclusion:** 2mm
- **RoHS:** Compliant

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See OPT-DATA-1011 for size and mounting options.
### Performance Specifications at Normal Incidence

<table>
<thead>
<tr>
<th>Product</th>
<th>900nm</th>
<th>1400nm</th>
<th>1900nm</th>
<th>2400nm</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>$T_p$% (min)</td>
<td>$T_s$% (max)</td>
<td>$T_p$% (min)</td>
<td>$T_s$% (max)</td>
</tr>
<tr>
<td>BIR04A</td>
<td>81.5</td>
<td>0.071</td>
<td>87.7</td>
<td>0.029</td>
</tr>
<tr>
<td>BIR05A</td>
<td>88.1</td>
<td>0.529</td>
<td>91.0</td>
<td>0.172</td>
</tr>
</tbody>
</table>

$T_p$ - Transmitted “p” polarization, $T_s$ - Transmitted “s” polarization

Note: Performance specifications are for polarizers manufactured on high grade display glass. Polarization for wavelengths greater than 2,700nm is available by using fused silica and other substrates. Please contact us to discuss your application requirements.

### Typical Optical Performance (Tested at 0°)

**BIR04 Typical Optical Performance (High Contrast Product)**

- **$T_p$ (%)** vs. Wavelength (nm)
- **Contrast Ratio** vs. Wavelength (nm)

**BIR05 Typical Optical Performance (High Transmission Product)**

- **$T_p$ (%)** vs. Wavelength (nm)
- **Contrast Ratio** vs. Wavelength (nm)

Image courtesy of NASA/JPL-Caltech. Image of Stellar Snake enabled by IR polarizer technology.

Broadband IR polarization, such as provided by Moxtek BIR04A and BIR05A, is essential in enhancing night vision and deep space imaging applications that generate stunning images.

For warranty and ordering information, please visit [www.moxtek.com](http://www.moxtek.com).