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
- Astronomy
- Forensics
- Medical
- Microscopy
- NVG (Night Vision Goggles), low light imaging
- Spectroscopy
- Security

### Features & Benefits

<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></td>
<td>&gt;20° half angle without performance loss</td>
</tr>
<tr>
<td></td>
<td>Wavelength and AOI independent</td>
</tr>
<tr>
<td></td>
<td>Broadband</td>
</tr>
<tr>
<td>Inorganic</td>
<td>High reliability</td>
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<tr>
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<td>High heat resistant</td>
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</tbody>
</table>

### Substrate Specifications

- **Type:** Display Grade Glass
- **Thickness:** 0.7mm ± 0.07
- **Index of Refraction:**
  - 435.8nm: 1.5198
  - 643.8nm: 1.5078
- **Thermal Expansion:** 31.7 x 10^-7/°C (0-300°C)

### General Specifications

- **Wavelength Range:** 700nm - 2,500nm
- **AR Coating:** None
- **Dimensional Tolerance:** ± 0.2mm
- **Edge Exclusion:** 2mm
- **Transmission Axis (TA):** Referenced to long side
- **TA Tolerance:** ± 1°
- **Angle of Incidence:** 0°± 20°
- **Maximum Temperature:** 200°C> 5,000 hours
- **RoHS:** Compliant
**Performance Graphs**

**BIR04A Performance Graph**

BIR04A is designed for high contrast with typical contrast values ranging from 2,000:1 at 1,000 nm and as high as 9,000:1 at 2,400nm with typical “p” polarization transmission of 83% or greater.

**BIR05A Performance Graph**

BIR05A is designed for the highest transmission efficiency possible. Typical “p” polarization transmission ranges from 88% at 850nm to 92% at 2,200nm with typical contrast of 500:1 and higher.

**Performance Specifications at Normal Incidence**

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.

<table>
<thead>
<tr>
<th>Optical Performance</th>
<th>900nm</th>
<th>1400nm</th>
<th>1900nm</th>
<th>2400nm</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Tp</td>
<td>Ts</td>
<td>Tp</td>
<td>Ts</td>
</tr>
<tr>
<td>BIR04A Min/Max</td>
<td>81.5%</td>
<td>0.071%</td>
<td>87.7%</td>
<td>0.029%</td>
</tr>
<tr>
<td>BIR05A Min/Max</td>
<td>88.1%</td>
<td>0.529%</td>
<td>91.0%</td>
<td>0.172%</td>
</tr>
</tbody>
</table>

Tp- Transmitted “p” polarization, Ts- Transmitted “s” polarization, Tp/Ts

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