



Mid-Long Wave Wire-Grid IR Polarizers

IR Series Datasheet



SIR Polarizer
(mounting optional)

Applications

- Thermal Imaging
- NVG (Night Vision Goggles)
- Forensics
- Medical
- Microscopy
- Spectroscopy
- Security
- Faraday Isolators

Standard Product Options

| Product Name | Description |
|--|---------------------------------|
| SIR 3-5 | Broadband (3-5 μm) |
| SIR 8-12 | Broadband (8-12 μm) |
| See OPT-DATA-1011 for mounting options | |

Square (S-Mount)

| OD Length x Width | ID Length x Width |
|-------------------|-------------------|
| 12.5mm | 6mm |
| 25mm | 18mm |
| 50mm | 42mm |

Circular (Octagon in Circular D-Mount)

| OD Diameter | ID Diameter |
|-------------|-------------|
| 12.5mm | 8mm |
| 25mm | 19mm |
| 50mm | 42mm |

Parts are mounted to an aluminum frame. Other sizes are available upon request. Please contact a sales representative for options and ordering details.

See OPT-DATA-1011 for size and mounting options

ProFlux® SIR Series Infrared polarizers provide excellent broadband infrared performance for applications in the 3-12 μm wavelengths. These IR polarizers utilize Moxtek's unique Nanowire® Technology, specially engineered anti-reflective coatings, and high quality thin silicon substrates to achieve high transmission and contrast. Moxtek's high volume production capacity ensures availability of parts sized to fit your application.

| Features | Benefits |
|----------------------|---|
| Nanowire® Technology | Brightness and contrast uniformity |
| | $\pm 20^\circ$ AOI without depolarization |
| | Wavelength and AOI independent |
| | Broadband |
| Inorganic | High heat resistance |

General Specifications

- Wavelength Range:* 3-5 μm and 8-12 μm
- Substrate Type:* Silicon
- Thickness:* 0.675 \pm 0.095mm
- Index of Refraction:* 10.33 μm : 3.421
4.13 μm : 3.427
- Thermal Expansion:* 2.6 x 10⁻⁷ / °C
- AR Coating:* Custom engineered for mid-wave or long-wave IR
- Dimensional Tolerance:* \pm 0.4mm
- Edge Exclusion:* 2mm
- Transmission Axis (TA):* Referenced to long side of part
- TA Tolerance:* \pm 2°
- Angle of Incidence:* 0° \pm 20°
- Maximum Temperature:* 200°C > 5,000 hours
- Part Shape:* Square or rectangle
- RoHS:* Compliant



Performance Specification at Normal Incidence

| Product | 3.0μm | | 3.7μm | | 5.0μm | | 8.0μm | | 10.6μm | | 12.0μm | |
|---------|-----------|-----------------|-----------|-----------------|-----------|-----------------|-----------|-----------------|-----------|-----------------|-----------|-----------------|
| | Tp% (min) | CR (min) | Tp% (min) | CR (min) | Tp% (min) | CR (min) | Tp% (min) | CR (min) | Tp% (min) | CR (min) | Tp% (min) | CR (min) |
| SIR3-5 | 90 | 5,000 (37.0 dB) | 95 | 5,000 (37.0 dB) | 94 | 7,000 (38.5 dB) | - | - | - | - | - | - |
| SIR8-12 | - | - | - | - | - | - | 85 | 7,000 (38.5 dB) | 81 | 7,000 (38.5 dB) | 75 | 7,000 (38.5 dB) |

Laser Damage Threshold (LDT) Table

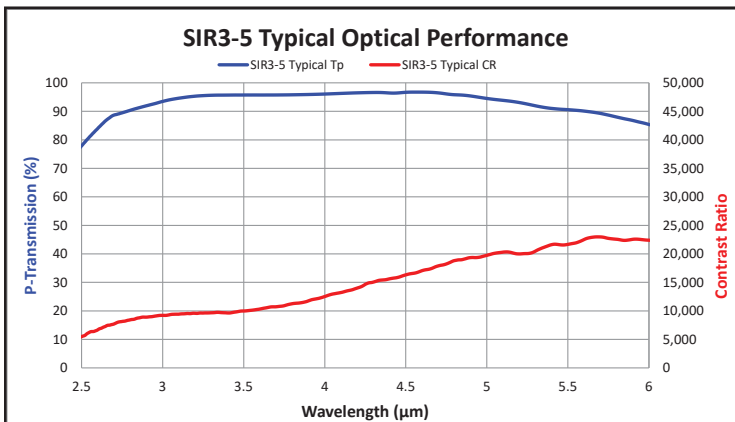
| Product | LDT Results (kW/cm ²) | | LDT Test Parameters | | |
|----------|-----------------------------------|---------|---------------------|-----------------------|-------------------|
| | Blocking | Passing | Wavelength (μm) | Diameter of Beam (μm) | Exposure Duration |
| SIR3-5* | 0.64 | >14 | 3.3 | 150 | 20 minutes |
| SIR8-12† | 100 | 10 | 10.6 | 360 | 30 seconds |

Disclaimer: SIR products are not designed for high power laser applications. The least fluence failure Laser Damage Threshold (LDT) performance results listed above are not specifications and should only be used as a design guideline. These results do not represent a guarantee of performance in any given application. LDT performance subject to change without notice.

* 7 ns, 25 kHz pulsed Optical Parametric Oscillator (OPO) source

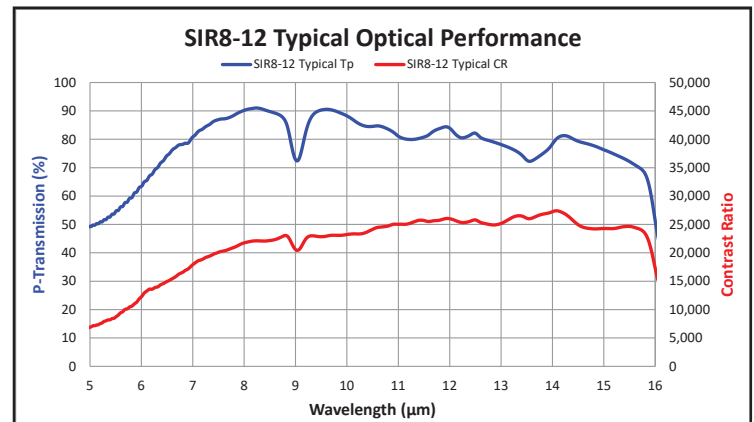
† Nanowires facing laser source

Typical Optical Performance (Tested at 0°)



SIR3-5 Typical Performance Curves and Specifications

SIR3-5 transmission performance is typically above 90% with contrast typically above 8,000:1 in the passing state.



SIR8-12 Typical Performance Curves and Specifications

SIR8-12 transmission performance is typically above 68% with contrast typically above 20,000:1 in the passing state.

For warranty and ordering information, please visit www.moxtek.com.



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