

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 |
|--|----------------------------|
| SIR3-5 | Broadband (3 - 5 μ m) |
| SIR8-12 | Broadband (8 - 12 μ m) |
| 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 μ m 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 |
| Inorganic | Broadband |
| | High heat resistance |

General Specifications

Wavelength Range: 3 - 5 μ m and 8 - 12 μ m

Substrate Type: Silicon

Thickness: 0.675 \pm 0.095mm

Index of Refraction: 3.421 (10.33 μ m)

3.427 (4.13 μ m)

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: $\pm 2^\circ$

Angle of Incidence: 0° \pm 20°

Maximum Temperature: 200°C, >5,000 hours

Part Shape: Square, rectangle or octagon

RoHS: Compliant

Do not touch or clean the wire-grid polarizer surface otherwise the polarizer will be damaged.

Performance Specification at Normal Incidence

| Product | 3.0 μm | | 3.7 μm | | 5.0 μm | | 8.0 μm | | 10.6 μm | | 12.0 μm | |
|---------|-------------------|-----------------|-------------------|-----------------|-------------------|-----------------|-------------------|-----------------|--------------------|-----------------|--------------------|-----------------|
| | 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)

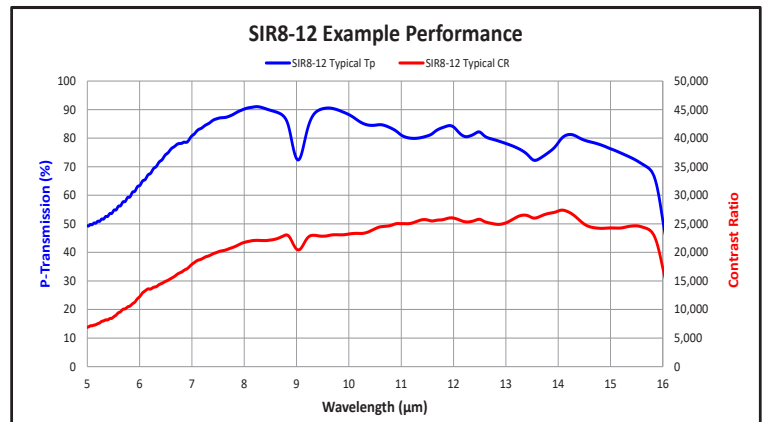
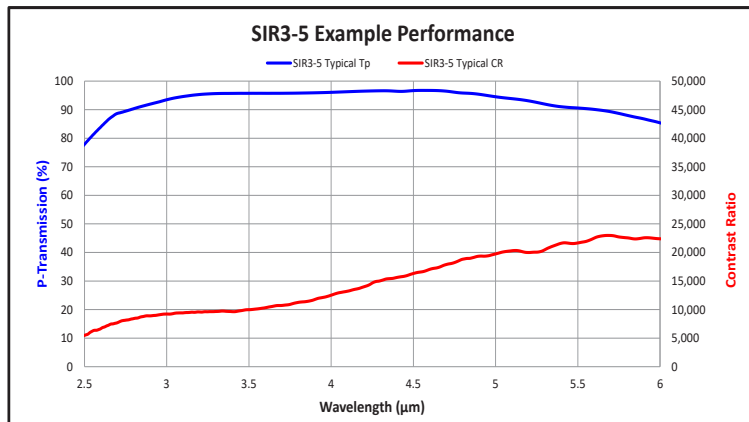
| Product | LDT Results (kW/cm ²) | | LDT Test Parameters | | |
|----------------------|-----------------------------------|---------|------------------------------|------------------------------------|-------------------|
| | Blocking | Passing | Wavelength (μm) | Diameter of Beam (μm) | Exposure Duration |
| 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

Example Optical Performance (Tested at 0°)



Performance data was taken from sample evaluations. Some part-to-part variation is expected.

For more detail, please use our Polarizer Comparison Tool at www.moxtek.com

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



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