



# Wire-Grid Mid-Long Wave IR Polarizers

UV 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 $\mu\text{m}$ )
SIR 8-12	Broadband (8-12 $\mu\text{m}$ )
See OPT-DATA-1005 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.

ProFlux® SIR Series Infrared polarizers provide excellent broadband infrared performance for applications in the 3-12 $\mu\text{m}$  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
	Broadband
Inorganic	High heat resistance

## General Specifications

*Wavelength Range:* 3-5 $\mu\text{m}$  and 8-12 $\mu\text{m}$

*Substrate Type:* Silicon

*Thickness:* 0.675mm  $\pm$  0.095mm

*Index of Refraction:* 10.33 $\mu\text{m}$  : 3.421

4.13 $\mu\text{m}$  : 3.427

*Thermal Expansion:*  $2.6 \times 10^{-7} / ^\circ\text{C}$

*AR Coating:* Custom engineered for mid-wave or long-wave IR

*Dimensional Tolerance:*  $\pm 0.4\text{mm}$

*Edge Exclusion:* 2mm

*Transmission Axis (TA):* Referenced to long side of part

*TA Tolerance:*  $\pm 2^\circ$

*Angle of Incidence:*  $0^\circ \pm 20^\circ$

*Maximum Temperature:* 200 $^\circ\text{C}$  > 5,000 hours

*Part Shape:* Square or rectangle

*RoHS:* Compliant



## Laser Damage Threshold (LDT) Table

Product	LDT Results (kW/cm <sup>2</sup> )		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

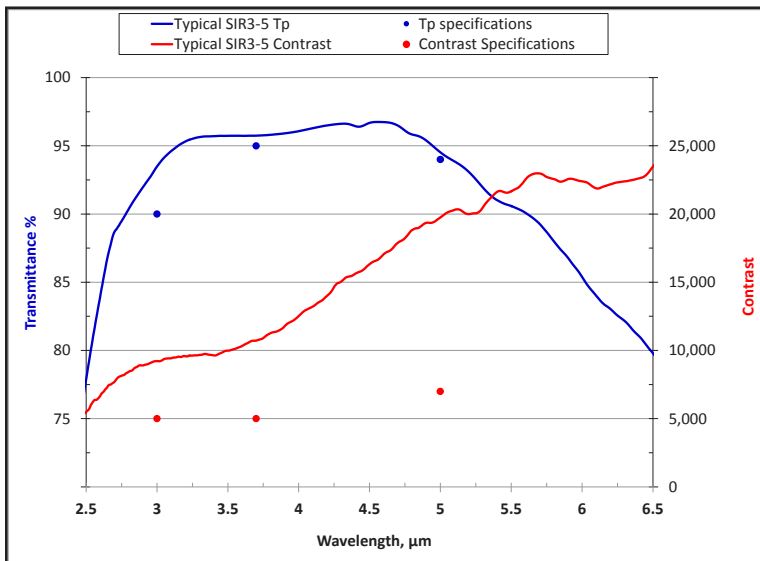
† Nanowires facing laser source

## SIR Series Performance Specification Table at Normal Incidence

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

## Performance Graphs

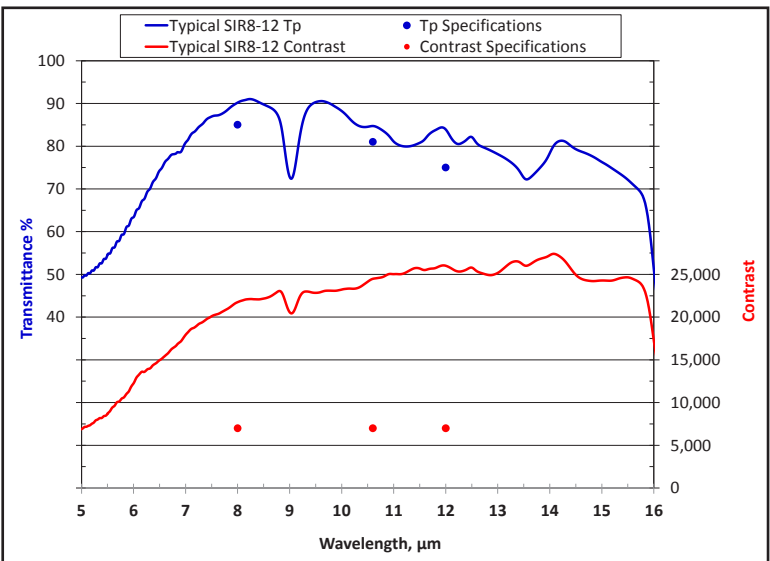
### SIR3-5 Performance Graph



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 Performance Graph



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](http://www.moxtek.com).



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