



The ProFlux® SIR Series Infrared polarizers, designed using Moxtek® Nanowire® Technology, provide excellent broadband infrared performance. Moxtek's high volume production capacity ensures availability of parts cut to the size and orientation needed for your application.

The SIR3-5 Infrared Polarizer is optimized for applications in the 3-5µm wavelength range providing high transmission and contrast. Similarly, the SIR8-12 Infrared Polarizer is designed for high transmission and contrast in the 8-12µm range.

These polarizers utilize the unique qualities of thin silicon substrates with specially engineered anti-reflective coatings to achieve high performance.

Applications

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

Features

Benefits

Nanowire Technology	Brightness and contrast uniformity
	>20° half angle without performance loss
	Wavelength and AOI independent
	Broadband
Inorganic	High reliability
	High heat resistance

Substrate Specifications

Type: Silicon

Thickness: 0.675mm ± 0.095mm

Index of Refraction: 3.421 at 10.33µm

3.427 at 4.132µm

Thermal Expansion: 2.6 x 10⁻⁶/°C

General Specifications

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

Dimensional Tolerance: ± 0.4mm

Edge Exclusion: 2mm

Transmission Axis (TA): ± 2°

Angle of Incidence: 0° ± 20°

Maximum Temperature: 200° C

Part Shape: Square or rectangle



SIR Series Performance Specifications Table

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)

Laser Damage Threshold (LDT) Table

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

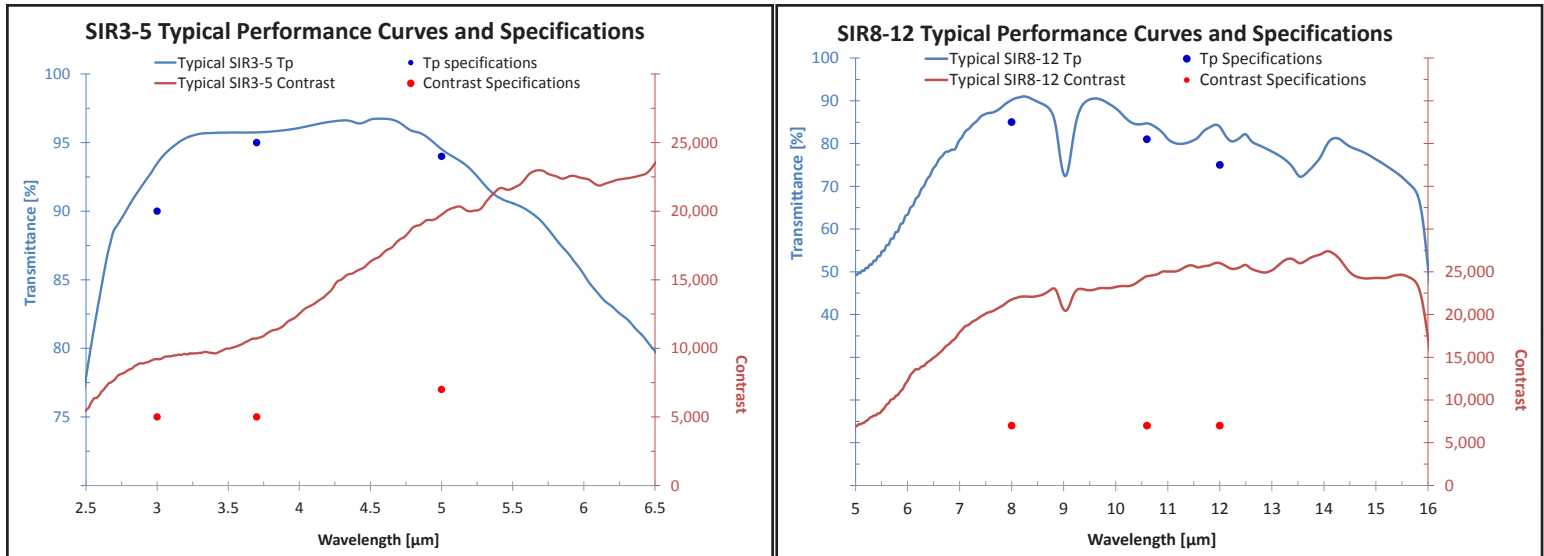
Disclaimer: SIR products are not designed for high power laser applications. The least fluence failure Laser Damage Threshold (LDT) performance results listed above are not specifications and should only be used as a design guideline. These results do not represent a guarantee of performance in any given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

* 7 ns, 25 kHz pulsed OPO source † Nanowires facing laser source

Typical Performance and Specifications at Normal Incidence

The SIR3-5 performance graph is shown below. Transmission in the passing state is typically above 90% (<0.46 dB insertion loss) with contrast greater than 5,000:1 (>37dB) in the 3-5 μm design region.

The SIR8-12 performance graph is shown below. Transmission in the passing state is typically above 68% (<1.68dB insertion loss) with contrast greater than 7,000:1 (>38.5B) in the 8-12 μm design region.



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