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
SIR3-5C	Broadband (3 - 5µm)
SIR8-12C	Broadband (8 - 12µm)
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 - 12µm 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
	±20˚ AOI without depolarization
	Wavelength and AOI independent
	Broadband
Inorganic	High heat resistance

General Specifications

Wavelength Range: 3 - 5µm and 8 - 12µm
Substrate Type: Silicon
Thickness: 0.675 ±0.095mm
Index of Refraction: 3.421 (10.33µm)
3.427 (4.13µm)
Thermal Expansion: 2.6×10^{-7} / ˚C
AR Coating: Custom engineered for mid-wave or long-wave IR
Dimensional Tolerance: ±0.4mm
Edge Exclusion: 2mm
Transmission Axis (TA): Referenced to long side of part
TA Tolerance: ±2˚
Angle of Incidence: 0˚ ±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.

MOXTEK®

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)

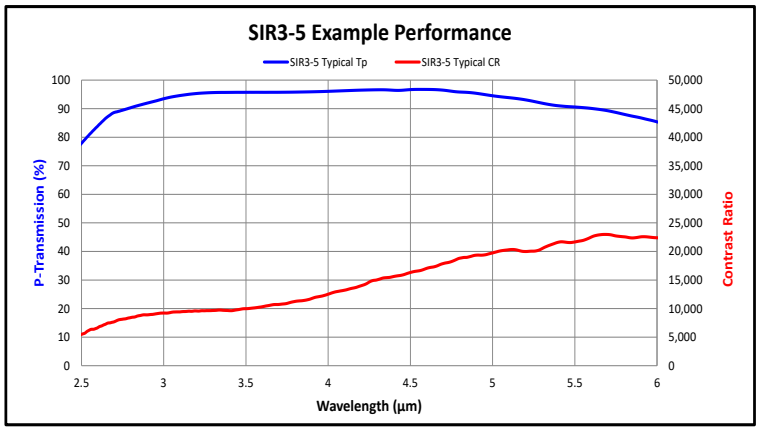
Product	LDT Results (kW/cm²)		LDT Test Parameters		
	Blocking	Passing	Wavelength (µm)	Diameter of Beam (µm)	Exposure Duration
SIR3-5*†	0.64	>14	3.3	150	20 minutes
SIR8-12†	100	10	10.6	360	30 seconds

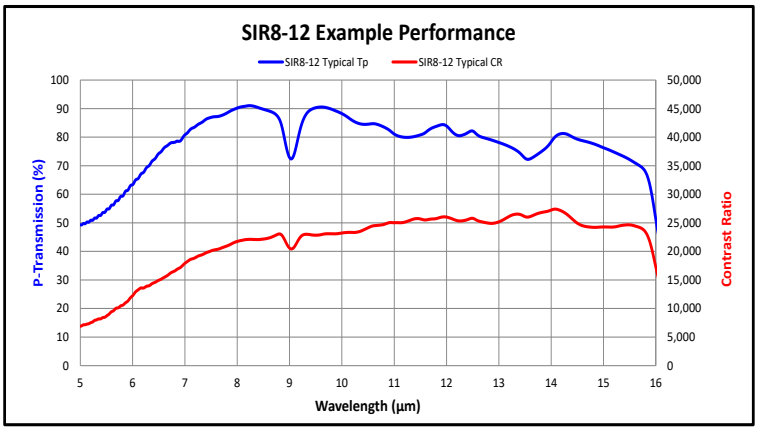
Disclaimer: SIR products are not designed for high power laser applications. The least fluence failure Laser Damage Threshold (LDT) performance results listed above are not specifications and should only be used as a design guideline. These results do not represent a guarantee of performance in any given 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.

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