Silicon Infrared Polarizers
SIR series, 3 µm - 15 µm

Mounted SIR ProFlux polarizers

Applications

- Thermal imaging
- NVG (Night Vision Goggles)
- Forensics
- Medical
- Microscopy
- Spectroscopy
- Security
- Faradayisolators

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 antireflective 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° half angle without performance loss
	Wavelength and AOI independent
	Broadband
Inorganic	High reliability
	High heat resistance

Substrate specifications	
Type	Silicon
Thickness	0.675 mm ± 0.095 mm
Index of refraction	3.421 @ 10.33 µm
	3.427 @ 4.13 µm
Thermal expansion	2.6 x 10^{-6}/°C

Standard product options	
Product name	**Description**
SIR 3-5	Broadband (3-5 µm)
SIR 8-12	Broadband (8-12 µm)

Square (S-mount)	
OD length x width	**ID length x width**
12.5 mm	6 mm
25 mm	18 mm
50 mm	42 mm

Circular (Octagon in circular D-mount)	
OD length x width	**ID length x width**
12.5 mm	8 mm
25 mm	19 mm
50 mm	42 mm

General specifications		
	SIR 3-5	**SIR 8-12**
Wavelength range	3 µm - 5 µm	8 µm - 12 µm
AR coating	Custom engineered for mid-wave or long-wave IR	
Dimensional tolerance	±0.4 mm	
Edge exclusion	2 mm	
Transmission axis (TA)	Referenced to long side of part	
TA tolerance	±2°	
Angle of incidence	0° ± 20°	
Maximum temperature	200 °C > 5000 hours	
RoHS	Compliant	

Quantum Design

Quantum Design
1 avenue de l'Atlantique
Bâtiment Fuji-Yama
91940 Les Ulis - France

Tél. : +33 1 69 19 49 49
france@qd-europe.com
www.qd-europe.com

MOXTEK

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Laser damage threshold (LDT)

	LDT results (kW/cm²)		LDT test parameters		
Product	Block-ing	Passing	Wave-length (µm)	Diameter of beam (µm)	Exposure duration
SIR3-5*	0.64	>14	3.3	150	20 min
SIR7-15†	100	10	10.6	360	30 s

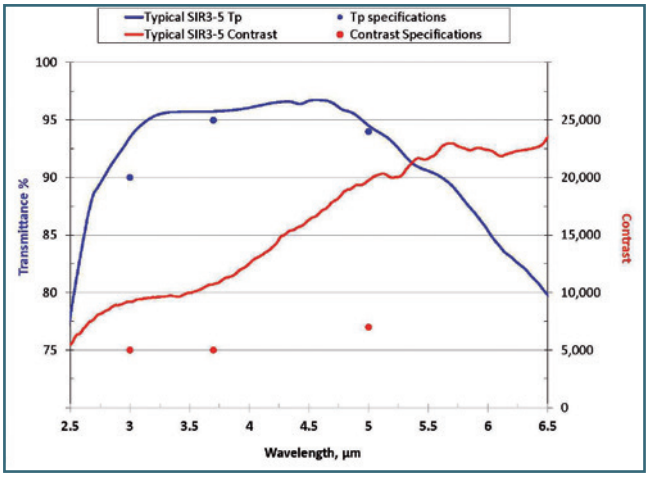
Disclaimer: SIR products are not designed for high power laser applications. The least fluence failure laser damage threshold (LDT) performance results listed above are not specifications and should only be used as a design guideline. These results do not represent a guarantee of performance in any given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

* 7 ns, 25 kHz pulsed optical parametric oscillator (OPO) source

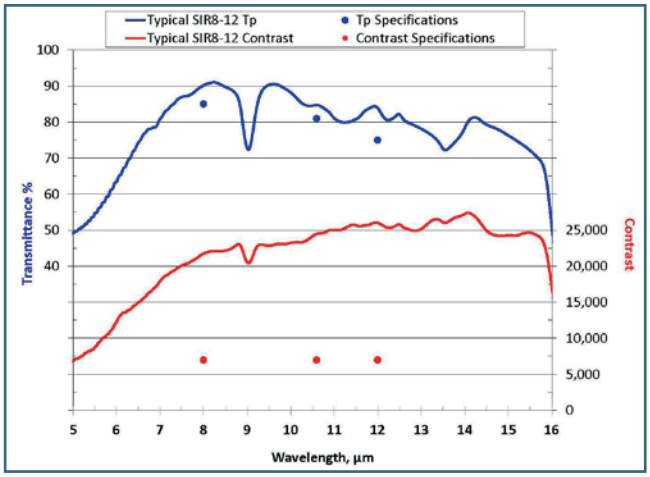
† Nanowires facing laser source

Performance specifications at normal incidence

Product	Wavelength (µm)	Tp (min)	Contrast (min)
SIR3-5	3.0	90%	5000 (37 dB)
	3.7	95%	5000 (39 dB)
	5.0	94%	7000 (38,5 dB)
SIR7-15	8.0	85%	7000 (38,5 dB)
	10.6	81%	7000 (38,5 dB)
	12.0	75%	7000 (38,5 dB)



SIR3-5 transmission performance is typically above 90% with contrast typically above 8000:1 in the passing state.



SIR8-12 transmission performance is typically above 68% with contrast typically above 20000:1 in the passing state.

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