

“The Mid-IR Fibers and Devices Company”



www.irflex.com

IRF-Se Series Chalcogenide LWIR Fibers (1.5 to 10 μ m)

Chalcogenide glass is made from a mixture of the chalcogenide elements: sulfur, selenium and tellurium. It offers promising properties such as transmission in mid and far infrared regions of spectra, lower values of phonon energies, high refractive index and very large nonlinearities as compared to silica. Chalcogenide glass fibers are the ideal candidates for mid-infrared applications that require high power laser delivery, chemical sensing, thermal imaging and temperature monitoring.

IRflex's **IRF-Se Series** longwave mid-infrared fiber, made from extra high purity chalcogenide glass As_2Se_3 , is specially designed, and manufactured to generate and/or guide mid-infrared wavelengths from 1.5 to 10 μ m with high transmission efficiency and nonlinearities about 1000 times that of silica glass fiber.

Applications

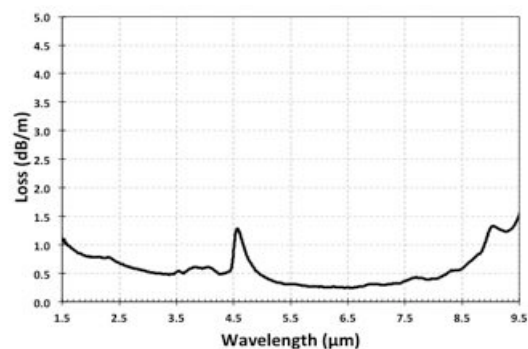
- Mid-IR laser beam delivery
- IR spectroscopy
- Chemical sensing
- Scientific and medical diagnostics IR-imaging system
- Nonlinear supercontinuum generation



Benefits

- Low loss
- Broad transmission range from 1.5 to 10 μ m
- High power handling strength
- High mechanical flexibility

Attenuation Spectrum for IRF-Se Series



IRflex Corporation is the only U.S. company totally dedicated to the development and manufacture of mid-infrared fibers and devices for wavelength from 1.5 to 11 micron.

IRflex has several patents on specialty optical fibers and expertise in specialty optical fiber design and development. A suite of patents relating to chalcogenide glass based fiber optics has been licensed to IRflex from the U.S. Naval Research Laboratory (NRL). These strong patent portfolio and intellectual know-how, coupled with advanced manufacturing processes are the core competencies, which enable IRflex to sustain its leadership in the mid-infrared industry and provide cutting-edge products for mid-infrared applications.

Technical Specifications

Transmission Range (μm)	1.5 – 10
Typical Optical Loss (dB/m)	<0.2 @ 6.7 μm
Glass Composition	As ₂ Se ₃
Refractive Index	2.7
Numerical Aperture (NA)	0.27 – 0.33
Core Non-Circularity (%)	<1
Core/Clad Concentricity Error (μm)	<3
Tensile Proof Test (kpsi)	>15

IRF-S Series Fiber Models	Core Diameter (μm)	Cladding Diameter (μm)	Operating Wavelength (μm)
IRF-Se-100 (R&D)	100	170	1.5 - 10
IRF-Se-100	100	170	1.5 – 8
IRF-Se-150	150	250	1.5 – 8.5
IRF-Se-300	300	370	1.5 – 9.7
IRF-Se-12	12	170	1.5 – 9.7
IRF-SeG-12*	12	170	1.5 – 9.7

* This fiber's clad structure is GeAs₂Se₅, which gives higher NA of 0.76, it is specially designed for supercontinuum generation.

All the fibers are commercially available and can be sold as bare fiber or terminated with connectors.

The standard fiber cables are terminated with stainless steel ferrules, FC/UPC, FC/APC or SMA905 connectors. IRflex's FC/B® connector - the FC connector at Brewster Angle enables perfect coupling without reflection with polarized laser beam, is also available upon request.

The protective jacket can be stainless steel, stainless steel with PVC sheathing, PVDF or PVC.

Other different cable assembling configurations are offered upon request.

All statements and technical information related to the products herein are based upon information believed to be reliable or accurate. However, IRflex assumes no responsibility for any inaccuracies. The users assume all risks and liability whatsoever in connection with the use of a product or its application. IRflex reserves the right to change at any time without notice the design or specifications of its products described herein. (Version: 201712)

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