

Single Mode Mode Field Adapter



Description

A Mode Field Adapter (MFA) is a passive fiber-optic component designed to connect two fibers with different mode field diameters (MFDs) and optical characteristics, such as numerical aperture (NA), core diameter, or refractive-index profile. It is widely used in fiber amplifiers and fiber laser systems. An MFA typically employs an adiabatic tapered transition to gradually match the optical mode fields of the two fibers, thereby minimizing splice loss, suppressing higher-order mode excitation, and enabling efficient fundamental-mode coupling and transmission. We offer MFAs for various operating wavelengths, fiber types, power levels, and package configurations to meet diverse application requirements. For directional identification, we define transmission from the fiber with the smaller MFD to the fiber with the larger MFD as the forward direction, and transmission from the larger-MFD fiber to the smaller-MFD fiber as the backward direction.

Features

- Low Insertion Loss
- High Stability and Reliability
- Efficient Fundamental-Mode Coupling

Applications

- Fiber Laser
- Fiber Amplifier
- Scientific Research

Specifications

1.0μm Performance Parameters @Forward Transmission

Operating Wavelength (nm)	Signal Input Fiber	Signal Output Fiber	Signal Insertion Loss (dB)	Max Optical Power (CW)
1020-1080	Hi1060 or 6/125μm, NA0.18/0.46	10/125μm,NA0.08/0.46	≤0.3	30W
1020-1080		15/130μm,NA0.08/0.46	≤0.3	30W
1020-1080		20/125μm,NA0.08/0.46	≤0.3	30W
1020-1080		25/250μm,NA0.065/0.46	≤0.5	30W
1020-1080		30/250μm,NA0.062/0.46	≤0.5	30W
1020-1080		20/400μm,NA0.065/0.46	≤0.5	100W
1020-1080	10/125μm, NA0.08/0.46 or SC	15/130μm,NA0.08/0.46	≤0.5	30W
1020-1080		20/125μm,NA0.08/0.46	≤0.5	30W
1020-1080		25/250μm,NA0.065/0.46	≤0.5	50W
1020-1080		30/250μm,NA0.062/0.46	≤0.5	100W
1020-1080		20/400μm,NA0.065/0.46	≤0.5	100W

1.5μm Performance Parameters @Forward Transmission

Operating Wavelength (nm)	Signal Input Fiber	Signal Output Fiber	Signal Insertion Loss (dB)	Max Optical Power (CW)
1530-1570	SMF-28e	SM-GDF-1550	≤0.5	30W
1530-1570	SM-GDF-1550	12/130μm,NA0.20/0.46	≤0.5	30W
1530-1570	12/130μm,NA0.20/0.46	25/300μm,NA0.09/0.46	≤0.5	30W

2.0μm Performance Parameters @Forward Transmission

Operating Wavelength (nm)	Signal Input Fiber	Signal Output Fiber	Signal Insertion Loss (dB)	Max Optical Power (CW)
1950-2050	SM1950	10/130μm,NA0.15/0.46	≤0.5	30W
1950-2050	10/130μm,NA0.15/0.46	25/250μm,NA0.09/0.46	≤0.5	30W

Notes: Tested at 25 °C. Data exclude connectors. MFAs for other fiber combinations are available upon request. Please contact us for customized requirements.

1.0μm Performance Parameters @Backward Transmission

Operating Wavelength (nm)	Signal Input Fiber	Signal Output Fiber	Signal Insertion Loss (dB)	Max Optical Power (CW)
1020-1080	10/125μm,NA0.08/0.46	Hi1060 or 6/125μm, NA0.18/0.46	≤0.5	30W
1020-1080	15/130μm,NA0.08/0.46		≤0.5	30W
1020-1080	20/125μm,NA0.08/0.46		≤0.5	30W
1020-1080	25/250μm,NA0.065/0.46		≤0.7	30W
1020-1080	30/250μm,NA0.062/0.46		≤0.7	30W
1020-1080	20/400μm,NA0.065/0.46		≤0.7	50W
1020-1080	15/130μm,NA0.08/0.46	10/125μm, NA0.08/0.46 or SC	≤0.5	30W
1020-1080	20/125μm,NA0.08/0.46		≤0.5	30W
1020-1080	25/250μm,NA0.065/0.46		≤0.7	50W
1020-1080	30/250μm,NA0.062/0.46		≤0.7	50W
1020-1080	20/400μm,NA0.065/0.46		≤0.7	50W

1.5μm Performance Parameters @Backward Transmission

Operating Wavelength (nm)	Signal Input Fiber	Signal Output Fiber	Signal Insertion Loss (dB)	Max Optical Power (CW)
1530-1570	SM-GDF-1550	SMF-28e	≤0.5	20W
1530-1570	12/130μm,NA0.20/0.46	SM-GDF-1550	≤0.5	20W
1530-1570	25/300μm,NA0.09/0.46	12/130μm,NA0.20/0.46	≤0.5	20W

2.0μm Performance Parameters @Backward Transmission

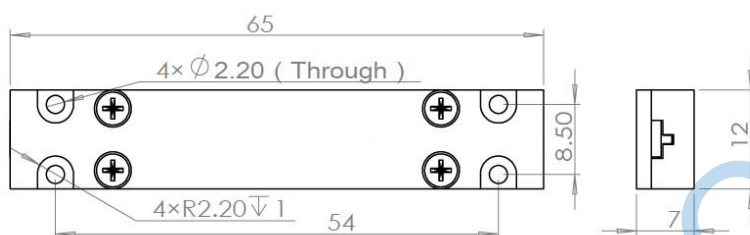
Operating Wavelength (nm)	Signal Input Fiber	Signal Output Fiber	Signal Insertion Loss (dB)	Max Optical Power (CW)
1950-2050	10/130μm,NA0.15/0.46	SM1950	≤0.5	20W
1950-2050	25/250μm,NA0.09/0.46	10/130μm,NA0.15/0.46	≤0.7	50W

Notes: Tested at 25 °C. Data exclude connectors. MFAs for other fiber combinations are available upon request. Please contact us for customized requirements.

Product Dimensions

Package Type	P1	P2	P3
Dimensions (mm)	50 x 5 x 5	65 x 12 x 7	80 x 12 x 8

Notes: The specific package dimensions are determined based on the power rating.



Ordering Information

 nm		 W			 m
Operating Wavelength	Transmission Direction	Max Optical Power (CW)	Signal Input Fiber	Signal Output Fiber	Pigtail Length
1030nm	Forward Transmission	20W	Hi1060	Hi1060	0.8m
1064nm	Backward Transmission	30W	SMF-28e	SMF-28e	1.0m
1550nm		50W	SM1950	SM1950	2.0m
2000nm		100W	SM-GDF-1550	SM-GDF-1550	
Custom			10/130μm,NA0.15/0.46	10/130μm,NA0.15/0.46	
			10/125μm,NA0.08/0.46	10/125μm,NA0.08/0.46	
			20/125μm,NA0.08/0.46	20/125μm,NA0.08/0.46	
			30/250μm,NA0.062/0.46	30/250μm,NA0.062/0.46	
			Custom	Custom	